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Comunitats and *consorzi*: A comparative study of Late Medieval and Early Modern communitarian Water institutions in Veneto and Valencia: (15th – 16th centuries)

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In memory of my grandfather Kay.
To my father and to Giulia, in gratitude.

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Riassunto della tesi (Italiano)

Questa tesi analizza il ruolo delle istituzioni comunitarie nella gestione delle acque nelle pianure irrigue del Mediterraneo occidentale tra la fine del XV e il XVI secolo, con particolare attenzione all'amministrazione dei canali di irrigazione e di drenaggio e all'arbitrato delle controversie tra utenti. In una prospettiva comparativa, vengono presi in esame due casi di studio: le *comunitats* delle regioni centrali del Regno di Valencia, tra i fiumi Palància e Xúquer, e i *consorzi* della Terraferma veneziana, tra i fiumi Piave e Po.

Basandosi principalmente su fonti archivistiche relative a conflitti idrici, la ricerca esplora le pratiche tecniche e sociali attraverso le quali si esercitava l'autorità nella gestione quotidiana dei canali. Particolare attenzione è dedicata alle tecniche di misurazione, alle operazioni di manutenzione e sorveglianza, ai sistemi di sanzione e punizione e all'elezione dei rappresentanti, che nel loro insieme definivano il funzionamento ordinario delle *comunitats* e dei *consorzi*. Queste pratiche vengono collocate nel più ampio contesto politico della formazione degli stati moderni, quando sia la Monarchia spagnola sia la Repubblica di Venezia svilupparono nuove magistrature e organi giudiziari per estendere il loro controllo sull'agricoltura e sull'acqua.

Attraverso l'analisi dell'interazione tra istituzioni locali e autorità centrali, la tesi mostra che la gestione delle acque non fu mai un ambito puramente tecnico, ma piuttosto un terreno politico in cui i conflitti rivelavano più ampie tensioni sociali e pressioni esterne. L'acqua emerge così non solo come risorsa vitale, ma anche come mezzo attraverso il quale le comunità esprimevano rivendicazioni, difendevano interessi e negoziavano il proprio posto all'interno delle strutture in evoluzione del governo della prima età moderna.

Thesis summary (English)

This dissertation examines the role of communitarian institutions in the governance of water in the irrigated plains of the western Mediterranean during the late-15th and 16th century, focusing on the management of irrigation and drainage canals and the arbitration of disputes among users. Comparative in scope, it analyses two case studies: the irrigation communities (*comunitats*) of the central regions of the kingdom of Valencia, between the Palància and Xúquer rivers, and the drainage institutions (*consorzi*) of the Venetian Terraferma, between the Piave and Po rivers.

Drawing primarily on archival sources relating to water conflicts, the study explores the technical and social practices through which authority was exercised in the daily management of canals. Particular attention is given to measurement techniques, maintenance and surveillance routines, systems of sanction and punishment, and the election of representatives, which together defined the ordinary functioning of the *comunitats* and *consorzi*. These practices are situated within the broader political context of early modern state-building, when both the Spanish Monarchy and the Republic of Venice developed new magistracies and judicial bodies to extend their control over agriculture and water.

By examining the interplay between local institutions and central authorities, the thesis shows that water management was never a purely technical matter but a political arena in which conflicts revealed wider social tensions and external pressures. Water emerges here not only as a vital resource, but also as a medium through which communities articulated grievances, defended interests, and negotiated their place within the evolving structures of early modern governance.

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Firstly, I dedicate this thesis to the memory of Professor Raffaello Vergani, whose pioneering work on water management in Veneto proved indispensable to my own research. I am also profoundly grateful to Prof Renate Thiermann for her generosity in responding to the message I addressed to her late husband, Professor Uwe Israel, to whose memory this work is likewise dedicated.

A doctoral thesis is never the product of a single person. I am aware that many individuals have contributed to this project, and I apologise in advance for any involuntary omissions.

My heartfelt thanks go first to my supervisors, Professors David Gentilcore and Dario Canzian. I also wish to acknowledge the support of the European Research Council and the staff at the DSU in Ca' Foscari, especially Franca Pullia and Antonio Ferigo, as well as Matteo Mignolli and Federica Napolitano of the DiSSGeA department at the University of Padua. For similar reasons, I thank Prof. Luis González, from the École des Hautes Études Hispaniques et Ibériques – Casa de Velázquez. I would like to express my sincere thanks to the evaluation committee for this work, composed of Professors Manuel Vaquero Piñeiro and Michele Campopiano.

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Abbreviations

Archival collections

ACP – Archivio Consorzio di Bonifica Piave, Montebelluna

AE – Archivio del Consorzio di Bonifica Adige Euganeo, Este

AMA – Arxiu Municipal d'Alzira – Municipal Archives of Alzira

AMCE – Archivio della Magnifica Comunità d'Este

AMCES – Archivio del Museo Civico Etnografico di Staghella Camillo Corrain

ARJ – Archivo de la Real Acequia del Júcar – Arxiu de la Séquia Reial del Xùquer

ARV – Arxiu del Regne de València – Archivo del Reino de Valencia

ASCA – Archivio Storico Comunale di Adria – Historical Municipal Archives of Adria

ASM – Archivio Storico di Montagnana – Historical Archives of Montagnana

ASPd – Archivio di Stato di Padova – State Archives of Padua

ASTv – Archivio di Stato di Treviso – State Archives of Treviso

ASVe – Archivio di Stato di Venezia – State Archives of Venice

Glossary abbreviations

AR. – Arabic term

CAST. – Castilian Spanish term or Castilianised form

IT. – Italian term or Italianised form

LAT. – Latin term

VAL. – Valencian term

VEN. – Venetian term

Other abbreviations

b. – Busta

c. – Capitulum

d. – Document

ed. – Editor

edn – Edition

eds. – Editors

et al. – Et alii

f. – Folio (manuscript)

fasc. – Fascicule

fo. – Folio (printed source)

Ib. – Ibidem, same author, same work, and same document

MV – More Veneto

p. – Page

r – Recto

Rub. – Rubrica

t. – Tomo

trans. – translated by

v – Verso

vol. – Volume

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Note on placenames and orthographical choices

In this work, a series of spelling choices made by the author are worth noting. First is the use of *comunitat* as a term to designate the group of organised and institutionalised irrigators of a shared irrigation canal. Although the term used in Late Medieval and Early Modern historical sources is *comuna*, *comú*, or *séquia comuna*, *comunitat* is a term that has been used more frequently to refer to these institutions since the liberal agrarian reforms of the 19th century. In order to avoid confusion with the Late Medieval and Modern Italian meanings of the term *comuna*, the later terminology *comunitat* has been chosen. Similarly, this term has been chosen over *séquia comuna* to avoid confusion with its homonym referring to the physical infrastructure of the irrigation canal being managed. For the same reason, 'Revolt of the Brotherhoods' is preferred instead of 'Revolt of the *Germanies* or *Germanías'*, to avoid confusion with the Germanic peoples or the current nation state of Germany.

Throughout the work, vernacular terms with a more specific historical and geographical meaning than their English translations are also used. For example, the term *consorzio*, *-i* is used instead of the English *consortium*, *-a*. The same applies to Valencian vernacular place names, which have changed under the influence of later antiquarianism and neoclassicism. For this reason, the term 'Guadalaviar' will be favoured to refer to the river that would eventually be called 'Tùria'. The same applies to the city of 'Morvedre', which, from the 19th century, would eventually be called 'Sagunto'. Concerning the Palància River, historical sources sometimes contain the name 'Riu de Sogorb' for its higher course, and at other times 'Riu de Morvedre', for its lower course. Given that the case studies presented in this work come from the lower reaches of the river, the historical place name 'Riu de Morvedre' will be used. As for Venetian place names, the terminology found in the sources has also been chosen over its later modern Italianisation. Thus, we will refer to the Gorzon canal instead of the current 'fiume Gorzone', 'Ceneda' and 'Serravalle' instead of 'Vittorio Veneto', or 'Anguillara' instead of 'Anguillara Veneta', among others.

For terms that appear written in very varied forms in the sources, the current versions will be used in the text (except in the transcriptions of primary sources). For example, the Montcada irrigation canal and the town of the same name through which the canal passes

also appear as ‘Moncada’ in the footnote transcriptions, while the former, ‘Montcada’ will be used in the main text. The same applies to the Bacchiglione River, which appears in the transcriptions of primary sources as ‘Bachion’, ‘Bacheion’, and other variants, while the current Italian place name will be used in the text.

Surnames of individuals will be retained in the form in which they appear in transcribed primary sources, unless they are sovereigns or other individuals who appear extensively in historiography. For example, while we will refer to ‘Philip II’ in English, we will retain the Venetian spelling of ‘Zuane’ and the Valencian spelling of ‘Joan’ rather than their Anglicised forms ‘John’.

The Italian-Venetian, Catalan-Valencian, Castilian, Arabic, and Latin terms, written in italics in the dissertation, are defined in an initial glossary.

Glossary

All italicised terms appearing in the dissertation are defined in the following glossary. The definitions draw on existing glossaries and dictionaries[1], as well as on the relevant historiography consulted throughout the thesis and the author's interpretation of the sources employed.

Acconciare: *VEN*. To reinforce and refurbish a wall or embankment.

Acque morte: *VEN.* Stagnant waters.

Adaguar: *VEN.* To make land suitable for agricultural activities, either by drainage or irrigation.

Agermanat, -s: *VAL.* Participant or supporter of the Valencian revolt of the Brotherhoods.

Aigua arbitrària: *VAL.* Freely distributed unspecified quantity of irrigation water.

Aigua de gràcia: *VAL*. (1) Charitable, free and voluntary donation of an additional portion of the water from an irrigation canal agreed upon the members of its irrigation community to a section of the territory they considered in particular need due to drought, avoiding crop failure. (2) Occasional donation of irrigation water managed by an irrigation community to users who are not members of it or do not pay the yearly contribution (see: *Séquiatge* in this glossary).

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[1] Tomàs Peris Albentosa, *Rasgos Institucionales de Las Entidades de Riego Valencianas (Siglos XIII-XIX)* (Valencia: Conselleria de Política Territorial, Obres Públiques i Mobilitat: Cátedra Demetrio Ribes, 2022); Giuseppe Boerio, *Dizionario del dialetto veneziano* (Venezia, G. Cecchini, 1867); *Il Vocabolario Treccani. Dizionario Dell'italiano Treccani. Parole Da Leggere* (Rome: Istituto dell'Enciclopedia Italiana, 2022); Peris Albentosa, *Enciclopèdia del Regadiu Històric Valencià: infraestructures hidràuliques i distribució de l'aigua* (Valencia: Generalitat Valenciana, Conselleria de Política Territorial, Obres Públiques i Mobilitat, 2019); Antoni María Alcover, Manuel Sanchis Guarner, and Anna Moll Marquès, *Diccionari Català-Valencià-Balear* (Barcelona: Gràfiques Instar, 1968), online version: <https://dcvb.iec.cat/>.

Aigua perduda: *VAL.* Amount of water entering the weir at the beginning of an irrigation canal which resulted the same when arriving at the end of the canal, without having been used for irrigation at any point along its itinerary. When observing that no one used this quantity at the end of an irrigation shift, the authorities of the irrigation community could donate it free of charge to rainfed users and non-members of the *comunitat* in the capillary peripheries of the irrigated lands under the community's jurisdiction.

Alcayt: *VAL.* Chief or political representative of a given community. Often, they represented villages and hamlets within a manorial estate without a formal legal status.

Alguazir, -s: (Also seen *Alguacil*, *Algutzir*): *VAL.* Watchman, guard or prosecutor in service of either municipal or Royal authorities. Also known as 'procurator fiscal' (*procurador fiscal*).

Alqueria, -es: *VAL.* Village or hamlet founded in the Muslim-Andalusian period by enlarged families or clans and often located on the rural outskirts of cities. After the Christian conquest, they tended to fall under seigneurial jurisdiction and functioned as small self-sufficient communities of serfs.

Alto Trevigiano: *VEN.* Toponym used to designate the eastern and northern section of the Mark of Treviso, a territory under the jurisdiction of the homonymous city.

Almossera, -es: (AR.: *alma'ṣára* and CAST.: *Almazara*) *VAL*. Olive pressing mill.

Arbelló, -ons (also seen *albelló*): *VAL*. (1) A hole in the dykes of an irrigation ditch. (2) Amount of water withdrawn through the given orifice.

Arrendament, -s: *VAL.* Literally translating as 'lease', in the context of the election of representatives in some Valencian irrigation communities this term referred to the process by which the candidates proposed the price of the common expenses for the construction, maintenance and annual cleaning of the irrigation canals, and the one who proposed the lowest price was elected. The person who acceded to the office then paid the agreed amount in advance and out of his own pocket, and the amount was later recovered during

the year through the annual contributions made by the members of the irrigation community.

Arengo, -ghi: *IT.* Medieval communal or city state council of the popular, artisan and mercantile population of some centre-north Italian city-states.

Arzer(e), -i (*IT.*: *argine, -i*): *VEN.* (1) Fluvial sediment mound that naturally retained water. (2) embankment, dyke.

Arzerazion, arzerazione: *VEN*. Embankment reinforcement and repair job.

Assut, azut or azud (*CAST.: azud*): *VAL.* Fixed diversion dam or weir that divided a part of the flow of a river, thus being considered the beginning of an irrigation canal.

Avogador, -i *(IT: avvocato, -i)*: *VEN.* (1) Legal representative, attorney. (2) Expert arbitrator in extra-judiciary negotiations.

Berberisco, -s: *CAST.* From the North African region historically known as Barbary or the Barbary Coast.

Beverar: *VEN.* (1) To drink. (2) In a figurative sense, when farmland that was in great need of irrigation finally received water.

Biave: *VEN.* Grain.

Boccarolo, -i: *VEN.* (1) Orifice in a embankment. (2) In the region of Treviso, an illicit embankment puncture through which water was stolen.

Bonifica: *IT.* Agricultural improvement and land reclamation carried out through various procedures, including drainage and irrigation.

Bossoli et ballote: *VEN.* Venetian practice of secret ballotage by which paper ballots (*ballote*) were introduced in a box that was divided into several compartments (*bossoli*) representing the different candidates or proposals. The box’s structure allowed the voter's

hand to be hidden so that the rest of the electorate could not see into which compartment the ballot was being placed in.

Braçal, braçals: *VAL.* Secondary irrigation canal that split off of a common main canal.

Cafissada, -es: (*CAST: cahizada, -s*) *VAL*. Measure of surface area used in Valencia and in other former territories of Al-Andalus, that was equivalent to approximately 5000 m^2. It initially related to cereal cultivation, as it used to correspond to the minimum amount of land area where a *cafis* of grain (0.600m^3) could be sown (*CAST*: *cafiz* or *cahíz*, from *AR*. *qafīz*).

Caixer, caixers: *VAL.* Canal embankment.

Campedego, -i (*IT: campatico, -i*): *VEN.* Tax paid to the Republic of Venice to cover the large drainage and irrigation campaigns of previously marshy areas. It was proportional to the amount of new land reclaimed acquired by single investors, joint stakeholders or village communities.

Campo, -i: *VEN.* Measure of surface area that varied according to the territories of the Venetian Terraferma. For example, 1 *campo* in the territory of Padua was equivalent to 3862,5726 m^2.

Capitano, -i: *VEN*. Governor of the cities and their surrounding territories in the Venetian Terraferma in charge of order and defence.

Capítol, -s: *VAL.* In the singular, each of the headings and rules that were compiled in the internal regulations and customs of an irrigation community. In the plural form, similarly to Venetian *capitoli*, it could translate as the customary compilation of an irrigation community or guild.

Caratador, -i: *VEN.* Shareholder that invested in a maritime, mecantile or agrarian endeavour.

Cartes de censals: *VAL*. Document attesting to a lord's right to collect tithes from a concrete household.

Cassier, -i: *VEN.* Accountant, tax collector and office in charge of personally handing in salaries.

Cavalcante, -i: *VEN.* Also known as *equites*. Horseback watchman in service of Treviso's Ufficio Alle Acque.

Cavalcata, -e: *VEN.* Expert expedition aiming to observe a water body and mediate among the opposed local interests.

Cavarzerano, -i: *VEN*. (1) Canal digging master. (2) Embankment inspector. (3) Canal wacthman.

Chiavega, -ghe: (*IT: chiavica, -che*) *VEN.* Removable dam.

Comarca, -ques: *VAL.* A territorial division which, during the Ancien Régime, did not enjoy formal political representation or administrative autonomy, but which in present-day governance structures may hold limited institutional status.

Comissari, -is: *VAL.* Agent or guard accompanying expert and prosecutors during court proceedings.

Comprensorio: *IT.* Term used in the context of present-day *consorzi di bonifica* to designate the territorial area corresponding broadly to a specific portion of the hydrographic basin managed by a *consorzio* and its corresponding irrigated surface.

Comù, el: *VAL.* (1) The Commons. (2) *El comú dels hereters regants*: Expression used to designate all the land-owning irrigators of a given community.

Comuna, la: *VAL*. Expression used to designate the institution in charge of a given irrigation community along a single shared canal.

Communanza, -e: *VEN*. Village communities.

Concejo, -s: *CAST.* Municipal, guild, rural or mercantile council.

Concòrdia: *VAL.* Legal document attesting an extrajudicial agreement settled between two or more parties.

Consiglio dei Dieci: *VEN.* Also known as *Consiglio dei Dieci*, or abbreviated in Roman numerals as *Consiglio dei X*, it was a central governing body of the Republic of Venice, composed of ten patricians elected by the *Maggior Consiglio* (Great Council). Initially created as an emergency committee to address political conspiracies, it evolved into a permanent institution endowed with exceptional powers to monitor, investigate, and judge threats to state security, operating independently of and above the ordinary judicial system.

Consiglio dei Pregadi: *VEN*. Also known *as Consiglio dei Rogati* or *Rogadi*, it was the Senate of the Republic of Venice, a smaller body than the *Maggior Consiglio* (Great Council), responsible for deliberating urgent matters in the presence of the Doge.

Consorte, -i: *VEN.* Member of a *consorzio*.

Consorzio, -i: *VEN.* (1) Community of joint land owners. (2) Agrarian or water board in charge of water management. (3) *Consorzio di bonifica*: Term generally used from the 19th century onwards for institutions responsible for land reclamation and agricultural improvement through irrigation and drainage.

Corvée, -s: See the second meaning of *piovego*.

Degora: *VEN.* (1) Small drainage ditch, also known in more recent times as *scolo*. (2) In southern Lombardy, it designated the right of to an irrigation turn.

Denontia, -ie: *VEN.* Denunciation or report produced by canal watchmen of Treviso's Ufficio alle Acque.

Diputat, -s: *VAL*. A word reminiscent of the English *deputee*, meaning the highest legal representatives of a community of irrigators in the first centuries after the Christian conquest of Valencia. Nobles or inhabitants of the urban elite, they were the ones who controlled the *sequier* and witnessed and validated all the activities of the irrigation community. They lost influence in detriment of the *sequier*, *síndics* and *veedors* in the 15th century.

Doctor, -s (en cascun dret): *VAL.* It would be literally translated as "doctor of both laws", and corresponded to any judge or expert with education in both canon and civil law that had a voice in court sessions.

Dosso, -i: *VEN.* Fluvial knoll. Accumulations of natural sediments.

Ducati: *VEN.* Venetian ducat. It was equivalent to 768 *denari*.

Eques, equites: *VEN.* Latin term employed in Treviso's Ufficio alle Acque for horseback canal watchmen. Synonymous of *cavalcante*.

Escurar: *VAL.* To clean and cleanse the canal bed from weeds and sediments.

Expert, -s: *VAL.* Consultant expert.

Ferretto: *VEN.* A thin layer of reddish surface soil resulting from iron oxides in dolomitic debris and contact with precipitation. It is characteristic of the high plains north of Treviso, especially in the area between Castelfranco, Bassano and Cornuda. Although of limited natural fertility, this type of soil has historically supported dry farming practices and shaped local irrigation strategies.

Fila, -es: *VAL.* (1) A small canal derived from an irrigation canal. (2) Each of the equal parts into which an irrigation ditch was divided. (3) A unit of water flow measurement that measured the amount of water flowing out through an orifice of a specific size on one of the embankments on one side of an irrigation canal. The diameter of this hole was regionally and chronologically very variable, and sometimes coincided with the diameter of the eye of a specific type of local millstone.

Forat, -s: *VAL*. Hole, embankment puncture.

Fossato, -i: *LAT./VEN./IT.* Small ditch.

Frontaler, -s: *VAL.* Each owner of irrigated plots with at least one boundary adjoining an irrigation canal.

Fur, -s: *VAL.*: Corpus of customary laws of the kingdom of Valencia originating in 1238 and abolished in 1707.

Generalitat: *VAL.* (*CAST.: Generalidad*) Institution established by the monarch of Aragon, originally in charge of managing the collection of taxes in the kingdom of Valencia, but which by the mid 15th century quickly overed to many other areas of government, and in which the different 'arms' of the kingdom (ecclesiastical, noble and citizen) were supposed to be represented. It was permanently active from 1418 until its abolition in 1707 by the Bourbon dynasty.

Giara, -e: *VEN*. Sedimentary gravel that accumulated in canal beds and embankments that was cyclically removed by *consorzi* members or diggers hired by the latter. Synonym of *tarquim (VAL.).*

Giudice, -i d'argine: *IT.* (*VEN.*: *Judice d'arzer, -i*) Form used in the southern regions of the Veneto, mostly in Polesine, near Rovigo. See meanings 2 and 3 of 'cavarzerano, -i'.

Gobernación: *VAL.* (1) Each of the two military jurisdictional subdivisions of the kingdom of Valencia (*Gobernación de Valencia* and *Gobernación de Orihuela*), under the authority of a General Governor. (2) One of the main Courts of justice in the kingdom of Valencia for criminal law and public order, under the authority of the General Governor.

Gronda: *VEN.*: Area of salt marshes and mudflats historically extending for several kilometres between the western edge of the Venetian Lagoon and the cultivable mainland.

Guàrdia d'horta: *VAL.* Rural guard.

Herbejar: *VAL.* To remove weeds by mowing or pulling them up from canal beds and embankments in order to maintain clear water flow in irrigation canals.

Hereter, -s: *VAL.* (*CAST.:* Heredero) Land owner, yeoman who possessed land along an irrigation canal, and thus became an active member of an irrigation community. The land possessed by an *hereter* was called *heretat* (*heredad*, in Castilian Spanish).

Horta: *VAL.* Irrigated alluvial plain.

Interessato, -i: *VEN.* Stakeholder; *interessato, -i in loco*: Stakeholders that had travelled to the site of interest to observe the state of their landed possessions or properties, as well as of the state of the waterways, usually in the context of an extra-judiciary arbitration of a dispute.

Intestadura, -e: *VEN*. Gated basin-shaped structure located at the mouth of a canal or river, which allowed the partial interruption of water flow and navigation.

Intramuros: *VAL.* As in many walled cities, this was the name given to the central portion of Valencia that was enclosed within the walls, which were built in the 14th century and demolished in 1865.

Insaculación: *CAST*. A process by which candidates for administrative or political office were drawn by lot by removing pieces of paper with their name written on them from a small sack.

Inzegner, -i: *VEN.* Technical expert.

Irrigà, -di: *VEN*. Term used for irrigated plots of land.

Jurat, -s: *VAL.* Members of a town council with knowledge in Roman Law.

Justícia, -es: *VAL.* Local municipal judges

Libra, -e: *VEN.* A numismatic term whose value varied significantly across regions and periods in Europe. In the Republic of Venice 15th century fines imposed by *consorzi* and municipal authorities typically referred to the silver *libra*–also known as *lira grossa*– equivalent to 20 silver *soldi*, roughly the daily wage of a skilled craftsman in early 15th century Venice.

Livellador, -s: *VAL*. (1) Person in charge of the *llivellació*, process by which the necessary difference in the altitude between the beginning and the end of the irrigation canal bed was maintained so that the water was correctly distributed to all the irrigated plots in both high and low areas under the force of gravity. In flat *huerta* regions, with little relief, these men's actions were essential, as without a slight difference between the start and end of the irrigation channel, stagnation would occur. (2) In a broader sense, person who was in charge of inspecting the state of an irrigation canal.

Lliura, -es: *VAL.* Coin currency in the kingdom of Valencia, equivalent to 20 *sous* and 240 *diners*.

Lloc, -s: *VAL.* (1) Place, location. (2) Hamlet or urbanised nucleus without its own legal and jurisdictional representation.

Lochtinent, -s: *VAL.* Related to the French and English word *lieutenant*, it was the alternative term for the General Governor or Viceroy of the kingdom of Valencia, with military and judicial power, in charge of the public order of the kingdom and highest royal representative.

Maggior Consilio: *VEN*. Highest political assembly in the Republic of Venice. Frequently translated as 'the Great Council'.

Magnifica Comunità: *VEN*. Title used by several hamlets within a rural district to designate their own collective municipal entity.

Marezzana, -e: *VEN.* Sector or land in rivers between the actual bank and the flood contention embankment. It went under water in times of high water level.

Marjal, -s: (*CAST*: *almarjal*) *VAL*. a wetland area, typically situated near the coast, formed either when a river is obstructed by sediment or sandbanks and its waters spread out without reaching the sea, or when rainwater accumulates in low-lying areas. It was formerly a marginal zone of irrigated alluvial plains, where numerous irrigation channels discharged.

Moço: (Also seen *mosso*): *VAL*. (*CAST*.: mozo). Lad, young man, labourer.

Molí arroser: *VAL.* Rice hulling mill.

Molí fariner: *VAL.* Wheat flour mill.

More Veneto: *VEN*. Abbreviated 'MV', Venetian calendar in which the year began on March 1st. For instance, February 1550 in our current calendar would be February 1549 in MV.

Morisco: *VAL. / CAST.* Formerly Muslim converts, or descendants of formerly Muslim converts. Their status was generally that of serfs of the Crown or of feudal lords. They were expelled from the kingdom between 1609 and 1613.

Mostassaf: (*CAST.: almotacén*) *VAL*. Medieval municipal official in the city of Valencia, responsible for maintaining public order, collecting taxes, and overseeing hygiene within the city walls.

Mudéjar: *CAST.* Muslim inhabitant of the Iberian Peninsula in a predominantly Christian state.

Notari, -is: *VAL.* General legal expert and representative of one of the parts of a court case.

Obturazion, -e: *VEN.* Large weir or diversion dam, homonymous to the Valencian term *azut*.

Offitial, -es: *LAT*. an agent, official, or representative acting on behalf of a given institution.

Onza, -e: (*IT.*: *oncia, -e*) *VEN.* A local unit of measurement for water flow used by the authorities of Treviso to regulate small-scale local irrigation concessions. Its exact modern equivalent remains unknown.

Operarius, -i: *LAT.* Labourer.

Palude, -i: *VEN.* Wetlands, marshes or swamps.

Partidor, -s: *VAL.* and *VEN.* Wedge-shape dam that deviated part of an irrigation canal, originating a branch of it. Nowadays, they are fixed solid structures frequently built from solid rock or concrete, yet in the Middle Ages and Early Modern period they were usually wooden and removable, allowing more flexibility in the distribution of water, yet requiring more maintenance and vigilance.

Partito della laguna: *VEN*. A retrospective and broadly generalising term used to refer to those who argued that the preservation of the Venetian Lagoon, and by extension of the city itself, depended on diverting rivers and other freshwater inflows away from the lagoon. It is typically contrasted with the so-called *partito della terra*, associated with proposals to improve river connections with the mainland, redirect rivers to the Adriatic, and drain parts of the lagoon to increase arable land.

Partito dell terra: VEN. See *partito della laguna*.

Pascolo, -i: *VEN*. Term used for plots of land used as pastures.

Pennelli: *VEN.* Wooden palisade that reinforced a canal embankment.

Perito, -i: *VEN*. Consultant expert. Similar to Valencian Catalan *perit, -s*.

Pertega, perteghe (*IT.: Pertica, pertiche*): *VEN.* (1) A unit of length measurement that varied from one territory to another in the Venetian Terraferma. For example, a pertega in

the territory of Padua was equal to 2,142 m. (2) An instrument for measuring length consisting of a rod that had the same length of the aforementioned unit of measurement.

Pertegador, -i: *VEN.* Surveyor in charge of measuring the dimensions of an agricultural lot. They were also employed for measuring and calculating dimensions during the construction of canals.

Pertegar (*IT.*: *perticare*): *VEN*. To measure distances and land areas, usually utilising a *pertega*.

Piantà, -di: *VEN.* Term used for plots of land that were sown with wheat or other cereals. Its contrary was *non piantà* or non *piantadi*, which designated fallow land instead.

Piede, -i da terra: *VEN.* (1) Foot. (2) A unit of length that varied from one part of the Venetian Terraferma to another. In the territory of Padua, it corresponded to 0.357 metres, equivalent to one sixth of a *pertega*.

Piovego: (*LAT.*: *Publicum*) *VEN.* (1) Adjective indicating collective or state authority and ownership, particularly over infrastructure or land. (2) Unpaid labour, nominally voluntary but often imposed on communities, justified by their projected benefit from the resulting infrastructure, known as *corvée* in other European Ancien Régime contexts. (3) Also known as *iudices publicorum*, medieval and early modern Venetian magistrate charged with tax inspection, regulation of usury, and oversight of other financial offences.

Podestà: *VEN.* Political and administrative ruler of a city in the Venetian Terraferma and Central and Northern Italian late medieval city states.

Podesteria, -e: *VEN*. Territorial jurisdiction or district under the authority of a *podestà*.

Pontecanal: *VEN.* (1) Aqueduct that allowed crossing two canals without colliding their waters, passing one over the other. (2) General name for a bridge over a canal.

Popolo: *VEN*. and *IT*. Expression with a broad meaning used to designate all inhabitants of Venice and the territories subject to the Most Serene Republic of Venice that were not members of the ruling patrician minority.

Portantveus: *VAL*. First secretary to the viceroy or governor of the kingdom, in charge of internal justice.

Portell, -s: *VAL.* Small sluice gate built on a main irrigation canal's embankment that allowed running or interrupting waterflow onto a contiguous field or capillary ditch.

Presidente, -i: *VEN.*: One of the elected or appointed heads of a *consorzio*, with a variable term duration depending on each *consorzio*.

Provveditori sopra i beni inculti: *VEN.* Institution created in 1551 by the Venetian Senate led by three magistrates in charge land reclamation, the control of water management structures and agricultural production in the Venetian Terraferma, namely the administration of drainage and irrigation.

Proto, -i: *VEN*. See *inzegner*, *-i*.

Real Audiencia: *VAL. / CAST.* One of the main courts of the kingdom of Valencia, under the authority of the General Governor or Viceroy. It was composed of a college of judges or *doctors* specialised in civil and canon law.

Rech (also seen *Reg*): *VAL.* The totality of the irrigated land served by a common irrigation canal (see *séquia mare*), governed by a common set of rules.

Repartiment: VAL.

Rettore, -i: *VEN.* Administrative representant of the Republic of Venice that advised the *podestà* in cities and towns of the Terraferma, parallel to informing the Venetian organs of justice and administration on local matters.

Retratto, -i: *VEN.* (1) Land reclamation made suitable by an initial retracting of stagnant waters, drainage and subsequent irrigation. (2) Name given to the portion of land surface reclaimed by this procedure.

Riparto delle acque: *VEN*. Expression used in Treviso's *Ufficio alle Acque* to designate the periodical action of proportional distribution of water in a shared canal between the users of the populations of the high plain and those of the low plain.

Roll: *VAL.* Small opening or hole on the dyke or embankment of an irrigation canal through which a stream of water flows out.

Rotta: *VEN.* (1) A breach or fissure in a dyke or embankment where water flows out. (2) Watercourse initiated in a breach or fissure in a dyke or embankment. (3) Structure positioned in an opening of a dyke or embankment equipped with lock or sluice gates, allowing excess water to be drained when the gates were opened and water to be retained when the gates were closed.

Sa Magestat: *VAL.* "Your Magesty".

Šarq al-Andalus: *AR*. Term transcribed from Arabic with a primarily geographical meaning, thus devoid of political or institutional significance, used to describe the eastern territories of the Iberian Peninsula before the Christian conquest, roughly corresponding to what later became southern Catalonia, southern Aragon, the kingdom of Valencia, and the kingdom of Murcia.

Savi (ed Esecutori) alle Acque: *VEN.* Venetian magistrates established in 1501 with an advisory role, whose authority was expanded in 1505 and 1531 to include increasing administrative and corrective powers, specialising in hydrology and the maintenance and regulation of rivers, navigation channels, lagoons, and coastal sedimentation.

Scolare: *VEN*. To drain.

Scolo, -i: *VEN*. Drainage canal.

Scoladizza, -e: *VEN*. Small drainage canal.

Scolador, -i: *VEN.* Drainage conduit.

Séquia: *VAL.* (*AR.*: *al-sāqiyah*; *CAST.*: *acequia*) Irrigation canal.

Secà: *VAL.* (*CAST.*: *secano*) Dry rainfed land that was not connected to an irrigation network.

Séquia Major: *VAL*. A common toponym in the central regions of the kingdom of Valencia used to designate the main irrigation canal that served a town, normally located on its lower course. These canals were frequently managed by these town's local municipal authorities.

Séquia mare: *VAL*. Section of the main irrigation canal that all the users of an irrigation community had in common, and from which the different minor irrigation ditches branched off (see *braçal, braçals*). It translates literally as 'mother canal'.

Sequiatge: *VAL.* A regular, usually annual, fee paid by each of the members of an irrigation community to cover the use of water for irrigation, maintenance, cleaning and surveillance. It was proportional to the amount of irrigated area, regardless of the type of crops.

Sequier: *VAL*. Position of authority within an irrigation community that was elected by auction, lot, nomination or acclamation and was in charge of the cleaning and maintenance of an irrigation canal, as well as of surveying, judging and sanctioning uses of water.

Seriolla: *VEN*. Secondary irrigation canal.

Sestier, -i: *VEN*. Each of the six districts into which Venice was divided (what today would correspond to the historic centre). As its etymology indicates, there are six, clockwise from the north: Cannaregio, Castello, San Marco, Dorsoduro, Santa Croce and San Polo.

Síndic: *VAL*. (1) Official legal authority and spokesperson for an institution or community. (2) In irrigation communities structured around a rather long irrigation canal divided into sections, each of the section's authority.

Sindicato de riegos: *CAST.* 19th-century term for irrigation boards created mainly after a period of liberal agrarian reforms introduced at the beginning of the century. They functioned as a kind of irrigation farmers' union.

Sobrecequier: *VAL*. In irrigation communities structured around a rather long irrigation canal divided into sections, highest authority with functions similar to those of the *sequier*.

Società: *IT.* Board of joint investors.

Sou: *VAL*. (*LAT.*: *Solidus*; *IT.*: *soldo*) Common currency that corresponded to 12 *diners*. 20 *sous* made 1 Valencian *lliura* or pound.

Sor: *VAL*. and *CAST*. Similar to French *sœur,* title given to nuns.

Tanda, -es: *VAL.* Portion of land proportional to the duration of an irrigation shift. Its size varied according to soil quality, terrain slope, and crops.

Tarquim: *VAL.* See *giara*.

Terminazion, -e: *VEN*. Senate decree or deliberation.

Turn, -s: (*CAST*. *turno*) *VAL*. Irrigation shift.

Trombetta, -e: *VEN*. Trumpet or horn-bearing town crier.

Ufficio alle Acque (Treviso): *VEN*. A body elected by the municipal council members and the *podestà* of Treviso, gradually consolidated from the commencement of construction on the Brentella canal in 1436, and formally recognised by the Venetian

Senate in 1443 as the supreme governing authority in water distribution of irrigation and drinking canals primarily sourced from the Piave.

Universitat, -s: *VAL*. Jurisdictional title granted by the king to a city, communal, or municipal council possessing its own legal representation under Roman law.

Vega: *VAL*. Irrigated alluvial plain.

Velma, -e: *VEN.* Lagoon floor sedimentary mud that is exposed to the air on low tides.

Videgà, videgadi: *VEN.* Term used for plots of land covered with vineyards.

Ville / Luoghi superiori: *VEN*. (1) Upstream regions and populated centres located upstream of a canal. (2) Term used by the authorities of the Ufficio alle Acque of Treviso to designate the towns located upstream of the Brentella canal, generally within the territorial subdivision known as the Campagna di Sopra of the *podesteria* of Treviso, as well as the *podesterie* of Asolo and Castelfranco. The opposite of this expression was: *Ville / Luoghi inferiori*.

Visura: *VAL*. Expert inspection, visual itinerary to a concerned area.

Preface

‘Jo vinc d'un silenci
Antic i molt llarg
De gent que va alçant-se
Des del fons dels segles
(…)
Jo vinc d'un silenci que no és resignat
D'on comença l'horta i acaba el secà’

– Ramón Pelegero Sanchis “Raimon”, *Jo vinc d'un silenci*, 1975[1]

The Valencian singer-songwriter Ramón Pelegero Sanchis, better known by his stage name ‘Raimon’, proudly affirmed his belonging to the labouring classes in the 1970s, imagining them as having remained silent for centuries, a silence he sought to break with his own voice. With a geographical and agricultural metaphor, he underscored the idea of margins: the muted majority of working people, he suggested, came from that borderland so often repeated across the Mediterranean Anthropocene, the line between fields that relied solely on rainfall (*secà*) and those sustained by the wider networks of irrigation (*horta*). As Fernand Braudel once wrote, the fertile spaces of Mediterranean societies were carved out in coastal and alluvial plains, where drainage and irrigation distinguished the richest soils, from the poorer peripheries that were either left unirrigated or permanently stagnant. The presence of flowing water, and the draining away of what lay stagnant, drew the line between lands conceived as barren and those celebrated as fertile[2]. Plains and lowlands were thus ‘terres à conquérir’, with water as the decisive element that marked the very existence of space. To be linked to an irrigation network was to be bound into society itself, while the lands excluded from this patchwork lay outside the

[1] Translation: ‘I come from a very long and ancient silence, / from people who have risen from the depths of the centuries, / (…) I come from a silence that is not resigned, / from where the irrigated fields begin and the drylands end.’ As in the glossary, all translations are the author’s own unless stated otherwise.

[2] Fernand Braudel, *La Méditerranée et Le Monde Méditerranéen à l’époque de Philippe II*, 9th edn (Paris: Armand Colin, 1990), 70–76.

imagined community[3]. Thus, the edge of the irrigated plains, the *horta*, was also the margins of society. In the age of Philip II, to follow Braudel's chronology, the inhabitants of these irrigated, cultivated, and carefully tended plains saw water not only as the element that defined which lands could be farmed, but also as that which shaped the lives of those who worked, governed, and profited from them. Irrigation and drainage together traced the decisive frontier through which early modern societies distinguished lands of scarcity from lands of fertility. This vision, of course, rested on a reality imagined by contemporary societies and governments, which regarded the wealthiest regions of their territories as the drained and irrigated lowlands. Yet the drylands (*secà*), reliant on rainfall, also sustained agriculture and livestock, providing both subsistence and produce for the market. Still, there was a widespread cultural perception that irrigated plains were the most prized agricultural resource, a perception reinforced by their proximity to major centres of population.

To return to the metaphor of the bare *secà* giving way to the fertile *horta*: in a system that began with large irrigation canals branching from rivers, or drainage canals running back into rivers or the sea, the supposed social peripheries were located either upstream, in the final capillary offshoots of the network, or downstream, in the stagnant marshes by the coast. This study, however, is not about the margins but about centrality. Not centrality conceived in strictly modern statist terms, with a hierarchical apparatus acting as the sole distributor of water, but rather the central role played by local inhabitants and actors in this dual water and social function. These figures were far from belonging to the tacit margins of society, yet also far from the formal courts and other 'central' institutions that emerged in the 16th century. What follows, then, is an attempt to trace the social centrality of water governance in the drained and irrigated plains of the Mediterranean.

The decision to focus on two comparable areas governed by different political structures, namely the central *hortas* and *vegas* of the kingdom of Valencia between the Palància and the Xúquer, and the plains of the Venetian Terraferma between the Piave and the Po, rests on three main considerations. The first is that both landscapes share strikingly similar features: the ubiquity of water, minimal variation in relief, and a high degree of

[3] Ib., *La Méditerranée. Précédé d'un Entretien Avec François Hartog* (Paris: Flammarion, Champs Histoire, 2017), 31–33.

anthropisation. One need only look at these plains from above — from the modern Teruel motorway towards Morvedre at Gilet, or from the A27 Alemagna motorway at the Ruio viaduct in Serravalle— to grasp a common impression: an agricultural plain whose horizon is not closed by the sky, but by the blue strip of the Mediterranean Sea. From higher vantage points, the plains merge visually with coastal lagoons, whether the Venetian lagoon seen from the Bellunese Pre-Alps at Cimon del Cavallo, or the Albufera of Valencia visible from the summit of Cavall Bernat in the Sierra de Corbera. Yet this confusion between solid land and liquid expanses was not merely a matter of distant perspective. At close range too, in daily practice, separating water from land was a tangible and never-ending task for the inhabitants of these regions. In short, the very conditions of these landscapes required continual technical intervention through the construction and maintenance of conduits and canals to render the land cultivable.

The second consideration for the comparative focus of this dissertation concerns the political frameworks. In both states, the Crown of Aragon, which was being integrated into the Spanish monarchy, and the Stato da Terra of the Republic of Venice, which looked both towards the Adriatic and towards its inland plains and mountains, political narratives were closely tied to water management, and specifically to drainage and irrigation. At first sight these narratives appear to stand in opposition: in Valencia, emphasis was placed on the immemorial autonomy of the social actors responsible for water management, whereas in Venice the early modern period saw the beginnings of a kind of proto-nationalisation of water by the Republic[4].

Thirdly, the choice of both territories and historical experiences rests on the availability of archival sources that describe water management activities connected to drainage and irrigation. These sources attest, on the one hand, to the participation of local institutions and, on the other, to a marked increase in documentation from the middle decades of the

[4] Enric Guinot Rodríguez, '"Com En Temps de Sarraïns": La Herencia Andalusí En La Huerta Medieval de Valencia', María Isabel Del Val Valdivieso and Olatz Villanueva Zubizarreta (eds.), *Musulmanes y Cristianos Frente al Agua En Las Ciudades Medievales* (Santander, Cuenca: PUbliCan – Ediciones de la Universidad de Cantabria, Ediciones de la Universidad de Castilla-La Mancha, 2008), 187; Rachele Scuro, 'Water-Power in Pre-Industrial Veneto. Management and Transformation of Hydraulic Energy through the Archives of the Venetian Magistrate of the "Provveditori Sopra i Beni Inculti"', *Journal of Energy History. Revue d'histoire de l'énergie*, 13 (2024): 2.

16th century onwards, reflecting the growing interest in hydro-agricultural issues among the expanding bodies of courts and senates in the respective states. In both cases, there is a striking concentration of authority, both at the local and communitarian level and within centralised magistracies, offering a valuable opportunity for comparative study of the actors, institutions, and governments engaged in the crucial agricultural question of water management in the Mediterranean plains.

This is therefore not the story of two isolated spaces, but a comparative analysis of two experiences which, although expressed in distinct political languages, jurisdictional frameworks, and institutional arrangements, share three essential features: water as a fundamental element of a landscape to be governed; water as the origin of political-administrative narratives; and water as the object of negotiation between communities and government at the beginning of the early modern period.

Adopting a comparative perspective between two spaces, two states, and two experiences that are not bound by any obvious connection in political institutional history or in the circulation of ideas offers a powerful vantage point. It enables us to discern striking parallels in the ways communities forged models of technical and political water management, free from the distortions of external influences and from the tendency to frame debates in terms of the supposed origins of infrastructure within a particular material culture. This approach instead allows us to study societies and their circumstances in common. Crucially, the fact that these cases, despite belonging to different institutional frameworks and apparently divergent epistemic traditions, nonetheless display analogous patterns of pragmatic and circumstantial solutions allows us to sharpen our focus on the waterscape itself: on the challenges it posed and the responses community institutions devised to arbitrate between competing users. Such comparisons not only highlight the ingenuity of local actors but also illuminate broader dynamics in historical problem solving. Indeed, water as a nexus of compared case-studies of technical, managerial, and arbitrative practices has long proved fertile ground for comparative inquiry, from Salvatore Ciriacono's classic study of the Venetian Lagoon and the Netherlands in the 16th to 18th centuries to Michele Campopiano's more recent

work on water conflicts along the Po and the Rhine in the 14th to 16th centuries[5]. These studies demonstrate the analytical value of juxtaposing distinct yet structurally comparable contexts, a value that my own research seeks to extend and reframe.

It is thus not a narrowly Valencian or Venetian history, but a history of societies in the irrigated plains of Mediterranean Europe. By drawing on two case studies particularly rich in late medieval and early modern documentation, this work seeks to clarify and lay the foundations for a political history of water in other comparable territories, where agricultural communities, governmental and judicial bodies, and water itself combine to produce new perspectives capable of enriching social and political history.

The initial problem on which this thesis rests is threefold. First, how and why did early modern magistrates and courts of justice intervene in the management of drainage and irrigation? Was this the result of an immediate imposition from above, or did it emerge through more gradual processes of negotiation and dialogue?

Second, if water management functioned both as a local communitarian practice and as a *raison d'état* with marked social and political centrality, should it also be understood as a political phenomenon, in the sense that it was debated and enacted collectively? If so, what specific features of irrigation and drainage for agricultural production conferred a political character on these practices? Put differently, did the politicisation of water stem primarily from state programmes promoting policies, or from the practices of everyday management that shaped local collective identities?

Third, was the governance of agricultural water in these Mediterranean floodplains confined to policies of canal sharing and regulation, or did collective practices of water management, and their interaction with courts and government institutions, serve wider

[5] Salvatore Ciriacono, *Building on Water: Venice, Holland, and the Construction of the European Landscape in Early Modern Times* (New York: Berghahn Books, 2006); Michele Campopiano, 'Städtische Regierungen, Wasserwirtschaft Und Wasserkonflikte. Po- Und Rheingebiet Im Vergleich (14.–16. Jh.)', in Ib. and Gerrit Jasper Schenk (eds.), *Conflicts over Water Management and Water Rights from the End of Antiquity to Industrialisation* (Stuttgart: Franz Steiner Verlag, 2024), 135–157.

purposes, making water an opportunity and a legitimate arena for addressing broader questions of social conflict and urgency?

These questions seek to open new perspectives on historical water management in irrigated Mediterranean plains, a field that has attracted attention from archaeology, with its reconstructions of hydro-agricultural infrastructure and technical responses to hydrogeological challenges; from historical and cultural anthropology, focused on the traditional communities responsible for water governance; and from economic history, which has examined the forces driving governments to promote ambitious agricultural policies and fiscal campaigns in the modern age. The surge of documentation in the 16th century relating to local water management, and especially to the proceedings and petitions of community water boards, the Valencian *comunitats* and the Venetian *consorzi*, makes it possible to approach irrigation and drainage in these landscapes from a distinctly political perspective. Yet to describe this as a political history is not to reduce it to the study of state consolidation or institutional genesis. Rather, it is an attempt to recover the processes by which individuals and institutions came to exercise authority and concentrate *responsibility* in the distribution of water, in the coordination of construction and maintenance, in monitoring and sanctioning, in arbitration among users, and in representing collective interests[6].

Since all these activities unfolded in the context of daily life, this study examines the ordinary practices and recurring patterns of local irrigation management that generated roles of authority[7]. Ordinary, however, did not mean either uncontentious or immutable. Nor does attention to local practices, sensitive to micro-regional variation, amount to a history 'from below', understood as the study of peripheral or marginal actors. On the contrary, this is a history of political practices and pragmatism at the local level, always in dialogue with the institutions that produced the sources: the magistrates of the Republic

[6] An article links the concept of responsibility to local authority networks in community irrigation systems in New Mexico: Elise T Jaramillo, 'Fluid Kinship: Race, Power, and the Hydrosocial Order of Water Flow along New Mexico's Acequias', *Environment and Planning D: Society and Space* 38/ 4 (2020): 719.

[7] The following article provides a conceptual and methodological framework that explains the exercise of politics outside of its 'professional' spaces: Claire Judde de Larivière and Julien Weisbein, 'Dire et faire le commun. Les formes de la politisation ordinaire du Moyen Âge à nos jours', *Politix* 119/3 (2017): 7–30.

of Venice and the viceregal courts of the kingdom of Valencia. In other words, the work that follows is a history of how the coordination of irrigation and drainage, organised both through government programmes and local community institutions, became a breeding ground for spokespersons, de facto arbiters, and political representatives.

The choice of this approach is made possible by the nature of the sources that have come down to us. While regulations and statutes on water management, produced both by local institutions and by judicial and jurisdictional authorities, provide a formal framework, it is judicial records and petitions that reveal most about the exercise of authority in water governance across the drained and irrigated plains of the Venetian mainland and the central regions of the kingdom of Valencia. Yet, this is not a case of a systematic disregard for normative sources, as if they were merely ideal projections. On the contrary, it has been widely demonstrated that the communal and municipal statutes of central and northern Italy were inspired by the concrete and material management practices of late medieval societies, generally urban, though not exclusively so. It should be noted that these local codifications of the *ius commune* have proved essential for understanding major cross-cutting phenomena across broad geographical areas. The study of urban and communal statutes has thus produced detailed analyses of fluvial transport in the Veneto by Ermanno Orlando and, more recently, of water management regulations throughout central and northern Italy, the Alpine region, and the Po Valley plains by Francesco Salvestrini[8]. The aim of this work, however, is not to examine once again the management practices described in these rich normative sources, though they will naturally be taken into account as documentary foundations, but rather to focus attention more directly on those sources, such as judicial records and petitions concerned with the application and resolution of specific communal water conflicts and issues involving local institutions, in which representatives of the modern authorities, dispatched from centres of power, also played a part.

[8] Ermanno Orlando, 'Governo delle acque e navigazione interna. Il Veneto nel basso medioevo' *Reti Medievali Rivista* 12/2 (2011): 251–93; Ermanno Orlando, *Strade, traffici, viabilità in area veneta: viaggio degli statuti comunali*. Quaderni del corpus statutario delle Venezie 5 (Roma: Viella, 2010); Francesco Salvestrini, *Water and the Law. Water Managemeent in the Statutory Legislation of Later Communal Italy* (Oxford: Archaeopress, 2024).

Whether produced by local actors or addressed to central magistracies and courts, these sources portray ordinary management practices as pragmatic responses to specific circumstances, rather than abstract principles contained in law codes. They disclose a more intricate reality in which conflicts, asymmetries, and divergent understandings of water, its uses, and the justice of its distribution come into view. What makes these sources even more valuable is that, as Martine Charageat has observed in the case of legal proceedings concerning water in the kingdom of Aragon, such ordinary conflicts should not be seen as exceptional breaches of the norm, but rather as indicative of a recurring pattern, a constant feature of societies entrusted with irrigation[9].

Thus, in order to address these questions about the political conditions of irrigation and drainage in the Mediterranean coastal plains during the early modern period, this dissertation is organised into six chapters, divided into two main parts. The first part explores the meanings of community and communitarian institutions, while also outlining the broader forms of state-building in Valencia and Venice in relation to water. Chapter One, introductory in nature, surveys the historiography on the intersections of water, community and political identification, both in general terms and in the specific cases of the Republic of Venice and the kingdom of Valencia. Chapter Two examines the late medieval and early modern Venetian institutional framework, focusing on the creation of specialised magistracies for water and agriculture and their initial interventions in the Terraferma plains. Chapter Three shifts the attention to Valencia, analysing the forms in which water justice emerged in ordinary courts. In doing so, it challenges idealised narratives of Valencian irrigation and questions quantitative approaches that treat geography and hydrology as the primary explanatory factors. Instead, it emphasises how the social and jurisdictional affiliations of the 16th-century kingdom of Valencia shaped divergent models of water management and the identities projected by the *comunitats*, intertwined with seigneurial, municipal and royal power.

The second part turns to the practices and routines recorded in sources of everyday water conflict, where water boards—whether *consorzi* or *comunitats*—played a central role.

[9] Martine Charageat, 'La résolution des conflits de l'eau en Aragon : entre procès et sentences arbitrales (xive-xvie siècle)', in Patrick Fournier and Sandrine Lavaud (eds.), *Eaux et conflits : Dans l'Europe médiévale et moderne* (Toulouse: Flaran. Presses universitaires du Midi, 2012), 223.

Chapter Four begins with the acts of measuring, observing and describing canal flows in the context of arbitration and local water justice, showing how these collective practices generated hybrid figures at once technical experts, arbiters and political authorities, at the same time as heterodox forms of grasping running water with diverse units of measurement. Chapter Five examines the link between the maintenance and cyclical cleaning of infrastructure and the monitoring of uses and users, demonstrating that elected or appointed representatives of these water boards simultaneously fulfilled roles of supervision, routine maintenance and enforcement, thereby embedding political authority in everyday governance. Finally, Chapter Six extends the analysis beyond surveillance and punishment in cases of illicit water use. It situates frequent violent incidents involving water boards both within and beyond the irrigation network that sparked from illicit water uses or collective conceptions of water injustice, and frames them against the backdrop of broader institutional transformations as well as the collective memory of social, political and military conflicts that marked the early decades of the 16th century in both regions. In this way, water disputes are anchored within a wider horizon of change and communitarian unrest.

Thus, the petitions and reports submitted by members of the *consorzi* concerning the state of the canals on their lands, abuses and other perceived injustices, together with the meticulous interrogations conducted by agents of the main courts of the kingdom of Valencia, such as the *Real Audiencia* and the *Gobernación*, with members of the various irrigation communities, might lead us to think that water was indeed a medium through which these societies broke the silence they were imagined to have maintained, in Raimon's words, since "the depths of the centuries" in the drylands.

This thesis offers a new interpretation of communitarian water management in Early Modern Europe and the Mediterranean, treating water not only as an indispensable economic resource but also as a channel of political communication and negotiation. The water that circulated through drainage and irrigation canals became an imagined political artefact, mutable and in flux, unlike more solid expressions of authority such as parliamentary chambers, episcopal staves, or jurisdictional maps. Its mobility and resistance to containment required constant management, re-examination, and infrastructural reconstruction, together with the continual reassessment of the ever-changing stakes and stakeholders involved. These routines fostered shifting frameworks

of understanding that stimulated political innovation and gave rise to evolving institutions. In this way, water boards transcended the narrow problem of distribution, becoming platforms of communication and legitimate arenas of governance.

Note on the archival sources consulted

Having presented the objectives and main themes of this study, it is worth outlining the methodology adopted during the consultation and analysis of a wide range of judicial and administrative archival sources relating to the implementation of water policies at the communitarian level along the watercourses that enabled the transformation of lowland landscapes through drainage and irrigation. Moving beyond the regulatory framework of ordinances, statutes, laws, and customary compilations involves identifying circumstantial evidence, that is, descriptions of specific solutions shaped by particular temporal, regional, and socio-political contexts. The main purpose in examining these sources has been to gain more direct access to information on local responses to general problems of water management within the irrigated plains of the Early Modern Period, and to understand how these mechanisms were addressed and recorded by the broader governing bodies that began to emerge and consolidate during the 16th century. The aim here is not to provide a detailed list of every document consulted. These can be found in the sources and bibliography section at the end of this work, as well as in the relevant footnotes. The purpose is rather to offer a concise account of the different documentary practices and administrative traditions in which the testimonies of local water issues in the societies under study are embedded.

The quotidian or circumstantial nature of water management in the beginning of the Early Modern period appears in slightly different types of sources from one state to another. In the Republic of Venice, the first technical bodies produced detailed accounts of water management through agents dispatched from Venice. Their expertise, although not yet clearly defined as it would later be within established corps of engineers, lay between several areas. The first concerned the observation, description, and recording of land and water through practices such as cartography, hydrology, and surveying. The second related to economic knowledge, including the calculation and projection of agricultural output, motivated by the Venetian patriciate's interest in maximising cereal production. The third involved a more human and social expertise, focused on negotiation, mediation, and arbitration with local actors and *consorzi* in the management of water. In the central regions of the kingdom of Valencia, by contrast, the manuscript sources describing specific communitarian water issues in the early decades of the Early Modern period were

produced within the typically juridical framework of the Crown of Aragon. Here, legal experts and prominent jurists from the royal courts, which functioned as auxiliary bodies of the viceroy's administration and thus of the early Habsburg monarchy, responded to complaints presented by the various social entities under royal jurisdiction, particularly the irrigation communities or *comunitats*, in cases of irregularities and disputes over water distribution. These representatives either travelled in succession to provide testimony at hearings, or were visited in situ by groups of arbitrators and experts who examined the canals concerned, questioned the inhabitants about the state of the watercourses, and called upon local irrigation and drainage specialists, together with community representatives, to present their views before the viceregal authorities.

Thus, in the Venetian Terraferma, descriptions of water management practices are reflected in archival records resembling reports and descriptions produced by the government officials. These were often written in response to petitions and requests from members of a *consorzio*, or as the outcome of a policy implemented from Venice. In contrast, in the kingdom of Valencia, description of irrigation and drainage management appears mainly in interrogations and legal sentences that responded to complaints raised by individual users of the water network. In short, while in the Venetian case the prevailing sources are descriptive reports in which envoys from Venice invited local users to collaborate in reviewing the condition and uses of the watercourses, producing what are essentially administrative documents, in Valencia the dominant sources are legal, where water management is reconstructed through a sequence of questions and answers posed to water users and local communitarian representatives.

This apparent difference in format is also reflected in cartographic production. In the Venetian context, petitioners often attached small sketches to their requests, and the technical reports and descriptions of hydrology encouraged an extraordinary volume of cartographic and proto-cadastral output that has been very useful for spatially situating specific cases in this study. Among these, a monumental map depicting much of the southern part of the present province of Padua stands out and will be discussed in Chapter Two. This contrasts sharply with the almost total absence of cartographic material in the Valencian case. Yet in the records of Valencian court hearings, the testimonies contained in the interrogations often form a kind of narrative "map" of the watercourses. They include abundant toponymic and geographical detail, and descriptions of waterflow that

also allow each case to be situated with reasonable accuracy in later and current cartography. Furthermore, maps of irrigation canals did exist in Early Modern Valencian cartography, as shown by several examples preserved in the 'Mapas y Planos' collection of the Archives of the kingdom of Valencia[10]. However, whether due to conservation issues or limited production, hydrographic representation was not a central concern of 16th century Valencian mapmaking. Unlike in the Veneto, local conflicts and questions of irrigation and drainage did not appear to stimulate the production of maps or simpler sketches.

Yet, the differences in format of the conserved circumstantial sources consulted also reflect the limits of the available material, its cataloguing and accessibility, and the time available for consultation. These factors led to the prioritisation of certain archival collections over others. In the context of private notarial production or the deliberations of various urban councils, it is indeed possible to find references to specific collective problems of drainage and irrigation, since such records are rich in almost every aspect of late medieval and early modern urban, corporate, guild, and communitarian institutional life. Access to these notarial protocols and to the minutes of communal or municipal councils, however, is not always straightforward, as they are often preserved in collections arranged by broad chronological rather than thematic criteria.

In this respect, the Archives of the Kingdom of Valencia offer cross-referenced search systems that greatly facilitate research among judicial proceedings. Each case is organised under the name of the parties involved in the litigation, one of which is usually that of an irrigation community associated with a particular canal. These entries, accessible through the online catalogue SAVEX (Sistema Arxivístic Valencià en Xarxa), are linked to their archival reference numbers[11]. Archivists in the consultation service then distribute individual files identified by date, opposing parties, and court. Without such organisation,

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[10] One example of 16th century cartographic representation of irrigation canals is a schematic drawing showing several branches of a canal that supplied water to fields and rice paddies between the towns of Benaguasil, Vilamarxant, Riba-roja de Túria, La Pobla de Vallbona, and Llíria, northwest of Valencia, in 1584, but it has not been possible to link it to any specific circumstances involving members of an irrigation community: ARV, Mapas y Planos, 9.

[11] 'Catálogo SAVEX - Archivo del Reino de Valencia - Generalitat Valenciana', accessed 17 November 2025, <https://arv.gva.es/es/cataleg-savex>.

these records would be much more difficult to locate. It cannot, of course, be excluded that the municipal authorities of the city of Valencia, as well as of other inland burghs in Veneto, also played a part in the arbitration of water conflicts. In this sense, many of the main irrigation and drainage canals of the Valencian hinterland crossed the city walls, serving as urban ditches for domestic and animal consumption and as a source of energy for the city, as will be seen in a case discussed in Chapter Five with a specific case involving the Rovella canal. Even those canals that did not enter the walls maintained close connections with landowners residing in the city and with those responsible for the supply of grain and oil, since these canals allowed for milling and other processing activities. Furthermore, the relationship between the municipal authorities and the management of irrigation canals was formalised at the General Courts of Monzón in 1510, when King Ferdinand granted the *jurats* of Valencia full powers to administer water justice. Yet, as we shall later see, the practical reality was far more complex.

For reasons of accessibility and research efficiency, the royal judicial sources of the Archive of the Kingdom of Valencia were therefore prioritised over those of the Municipal Historical Archive of Valencia, which undoubtedly merit future attention. Within the catalogues of the collections of the Real Audiencia and Gobernación, court cases could be located by the name of each irrigation community. These records include a large number of unpublished proceedings, interrogations, and hearings belonging to the period that immediately succeeded the chronology examined by Thomas F. Glick[12]. They offered an excellent opportunity to study the quotidian, and circumstantial development of irrigation and drainage issues at the communitarian level during the consolidation of the Hispanic monarchy.

In the case of the State Archives of Venice, judicial materials from the same period could not be located thematically with comparable efficiency. For this reason, attention was directed instead to the collections of the magistracy specialising in irrigation and drainage, the *Provveditori sopra i beni inculti*, and to the correspondence and petitions they exchanged with *consorzi* inland. It is true that in the State Archives of Padua, and specifically in its 'Acque' subsection, the thematic catalogues are more detailed, allowing for more effective consultation of the correspondence that *consorzi* had with both

[12] Thomas F. Glick, *Irrigation and Society in Medieval Valencia* (Cambridge, Mass.: Harvard, 1970).

Venetian, and in a much smaller proportion, municipal authorities of Padua. A similar situation can be observed in the Municipal Archives of Adria, Este, and Montagnana, as well as in the archives of present-day *consorzi di bonifica*. In these collections, the presence of the municipal authorities of the respective localities is evident, although not as the producing entity of the documents. Most of the material thus predominantly consists of administrative correspondence handled by the *Provveditori sopra i beni inculti*.

Unlike the Valencian royal court material, where municipal authorities are largely absent, the Venetian documentation demonstrates sustained interaction between the central magistracies and urban officials such as the *podestà*. While these officials were not the producers of the surviving records, they feature repeatedly within them as actors cooperating in the implementation of state policy. Thus, this study also draws on sources produced by what might be described as urban or municipal bodies that were later approved by the Venetian authorities. These include certain documents from Montagnana and Este, as well as materials relating to the city of Treviso and its Ufficio alle Acque. Although this institution gradually came under the supervision of the Venetian *Provveditori sopra i beni inculti* in the second half of the 16th century, it was created in the 15th century as an extension of the city's communal council. Its officials were responsible not only for coordinating the construction of the diversions from the Piave River that irrigated Treviso's northern hinterland, but also for monitoring local water use and replenishing the city's coffers with fines imposed on offenders. Their sources, although administrative in nature like those of the *Provveditori sopra i beni inculti*, also contain complaints and reports submitted by users. Sources relating to this municipal institution in Treviso can be found not only in the State Archives of Treviso, but also in the archives of the former Brentella *consorzio*, now known as the 'Consorzio Piave', in Montebelluna, north of Treviso, an institution considered to be the successor to Treviso's *Ufficio Alle Acque* and the *consorzio* founded in the 15th century to manage the Brentella canal, the main irrigation canal derived from the Piave at that time.

Similarly, municipal authorities from downstream cities in irrigated plains, such as Morvedre and Alzira, constantly exerted their influence in the Valencian kingdom, positioning themselves as the ultimate managing authorities of irrigation canals, the *Séquies Majors*. The importance of municipal councils, their *jurats* and *justícies* in the

management, maintenance and distribution of water is undeniable, sometimes, as we shall see, far beyond their 'land' jurisdiction. This is the reason that led to the consultation of the Municipal Archive of Alzira, where the proceedings of the royal courts are preserved, in which the municipal authorities of Alzira are also established as the main authorities of the largest irrigation canal derived from the Xùquer river. Furthermore, municipal notaries kept records of the problems canal authorities encountered with different inland, mainly seigneurial jurisdictions, conserving thus today a large archival section under the name of 'Acequia Real del Júcar', and a subsection containing these conflicts (*pleitos*, in Castilian Spanish). For this very reason, documents relating to this watercourse located in a third archive, that of the Royal Irrigation Canal of Júcar (Acequia Real del Júcar), in the city of Valencia, were included.

Thus, we can conclude that the archival format that contain the testimonies provided by local authorities and members of the communitarian institutions for irrigation and drainage differs markedly between the two regions. The Venetian context is primarily administrative, while the Valencian one is essentially legal. Despite these differences, the sources grant access to comparable insights into the ordinary functioning of irrigation and drainage institutions and water justice. They reveal the hydro-geographical setting, the perception of the floodplain landscape, socio-economic concerns, and the hierarchies that emerged within communitarian water management. They also shed light on the bodies of knowledge concerning water and infrastructure, and on the types and underlying factors of the conflicts that developed within them. These aspects are explored in the sections that follow.

Chapter 1 – Meanings of Water, Government and Communities. An Introduction and Historiographic Positioning

Early Modern western Mediterranean states' attempt to manage water implied close consultation, negotiation and appropriation of knowledge from communitarian institutions on the local scale. Among many examples of water management communities in Western Europe that exerted important political roles in daily life water distribution with mainly agricultural and social consumption objectives, we can cite *consorzi* in Veneto and Emilia (north-eastern Italy), *arti degli ortolani* in the coastal plains of Sassari (Sardinia), *consortia* in the middle and upper Po Valley in Lombardy and Piedmont, the *consortia* in charge of managing and building mountain side irrigation canals (*bisses*) in Ticino and Valais, and the numerous examples of irrigation communities in the Iberian kingdoms of Valencia, Aragon and Murcia. Nowadays, in many regions of the Mediterranean coasts of Europe there are institutions that claim to be heirs of the latter, often employing the same name as their historical ancestors, and realising collective political practices, such as deliberations, voting of representatives and common budget amassment. Evidently, in spite of this current effort to highlight and emphasise the ancestral and historical nature of these communitarian institutions, the fact is that they have never been exempt from the major transformations within the historical processes of the societies that had created them. Thus, for example, in the late Middle Ages, these institutions were shaped and behaved within a specific political framework that was similar to that of trade and craft guilds. Similarly, in the current era and after the major reforms in property in the late 18th and 19th centuries, these institutions were seen as voluntary associations of non-state local experts in water management. In the Early modern period, communitarian water management institutions were all crucial for the development of modern magistracies, ministries and other stately institutions in charge of the quantification and regulation of hydraulic resources in Early Modern western Europe. It is therefore important to bear in mind that our insight on these communitarian institutions in charge of local water management in a given territory is dependent on the broader conceptions of the historical context in which these institutions developedand in

which the historical sources that describe their functioning were produced. It is therefore inevitable to initially conceive these institutions as something local, vicinal, separate from the higher spheres of politics and the modern state, as most of them pre-exist the Modern states and nations they would later belong to. This two-headed view, between the low and the local forms of 'stateless government1, contrasting with the high and the central, is what stimulated the creation of the first scholarly works of theoretical analysis, which, although not strictly historiographical, brought historical perspective into narratives on the genesis of contemporary local water management communities in charge of water distribution for agricultural and human/animal consumption purposes. The idea of the modern state in the first scholarly works on water management also included an underlaying utilitarian interest, as if contemporary governments could concretely benefit from and learn from the popular mechanisms that developed within the assemblies of irrigators, farmers and small landowners in the peripheral provinces.

1. Water management and political power in the past. A theoretical overview

This section briefly mentions literature on the social and economic specificities of societies related to water management in history. The cited works are not strictly historiographical, but look over the longer evolution of academic interest in communitarian water management since the first governmental agronomic reformism of the second half of the 19th century, to the beginning of the 1970s and beyond, with the first studies concerning communitarian water management in the past, thus, not strictly historiographical, but that did apply a historical perspective to communitarian water management. The consulted work intends to draw the main patterns of the long-term evolution of methodology, sampling a broader list of case-studies. The general tendency is the fluctuation of interest in water management on behalf of communitarian institutions ranging from 19th century agronomy and jurisprudence to 1950s Cold War geopolitical negotiation and economic histories, finalising with the current specialisation in ethnography, anthropology, history of landscape, and history of climate.

a) Before historiography: two examples of 19th century agronomical surveys linked to Hispanic irrigation customs

Inquiries on the institutional origins of communitarian water management are a recurrent leitmotif in the works of early and mid-19th century jurists and agronomic reformers. For example, commoners and peasants setting the rules of irrigation and water use with customary laws fascinated the French-Catalan noblemean, geographer and agronomist François Jaubert, baron of Passa (1785–1856), who travelled south of the Pyrenees and spent most of his time in the Principality of Catalonia and the former kingdom of Valencia, developing an interest in archaeology, etymology and ethnology, as well as producing travel accounts including rather exoticist social insights on the complicated relations between the local peasantry and the gypsies or on cork oak cultivation[1]. He also composed a very detailed account of different irrigation models in the Valencian and southern Catalan regions, between the delta of the river Ebro and Cape Nao, south of the city of Valencia, later expanding south to Alicante, Orihuela and Murcia[2]. He measured the length of canals, the quantity of mills and branches they had and the quantity of water they carried in each season. He also consulted archives and copied *ordenanzas* (internal written rules and customs of each irrigation community) and conducted quasi empirical geological studies on the origin and nature of the Valencian soil, Valencian customs, combining them with rather imaginative original pseudo-

[1] His surname is sometimes written in Catalan as "Paçà" instead of the French orthographic adaptation to Catalan phonetics, thus. Since we are citing his original work in French and not its subsequent translations, we will retain the French spelling. Francesca Zantedeschi, *The Antiquarians of the Nation: Monuments and Language in Nineteenth-Century Roussillon* (Boston: Brill, 2019), 59–120; François Jaubert de Passa, *Historia de Los Gitanos (Traducción de 'Essai Historique Sr Les Gitanos')* (Barcelona: A. Bergnes y Ca., 1832); Ib., *Mémoire Sur La Culture Du Chêne-Liége, Sur La Récolte et La Fabrication Du Liège* (Paris: Chez Madame Huzard, libraire, Rue de l'Éperon, no 7, 1837).

[2] François Jacques Jaubert de Passa, *Voyage en Espagne, dans les années 1816, 1817, 1818, 1819 ou, Recherches sur les arrosages, sur les lois et coutumes qui les régissent, sur les lois domaniales et municipales, considérés comme un puissant moyen de perfectionner l'agriculture française / par M. Jaubert de Passa ; précédé du rapport fait à la société royale et centrale d'agriculture ; orné de six cartes* (A Paris: Chez Madame Huzard, libraire, Rue de l'Éperon, nº 7, 1823); Ib., *Canales de riego de Cataluña y Reino de Valencia, leyes y costumbres que los rigen, reglamentos y ordenanzas de sus principales acequias* (Valencia: Imprenta de D. Benito Monfort, 1844).

etymological approaches that awarded a classic mythological genesis to the irrigated plains of Valencia[3].

Despite his preponderant rationalist, empirical and scientific intentions, Jaubert de Passa's work also reveals a slightly conservative *savant* and *antique* intention, possibly fuelled by his noble lineage, seeing in the Catalan lands south of the Pyrenees the continuation of the Ancien Régime long-standing customs of this native Roussillon, where they were menaced by French Jacobism. Catalan and Valencian municipalism was one of the clearest proofs for Jaubert de Passa of a hypothetically larger tolerance of popular liberties (*us et coutumes)*, in contrast to an aggressive French Republican pulsion to centralise and supress rural Natural Law, especially when linked to agrarian cycles[4]. The scholarly rigour of his work, as well as this last aspect of praise of Valencian customs stimulated the translation of Jaubert de Passa's treatises and observations of irrigation to Spanish on behalf of the "Real Sociedad Económica de Amigos del País de Valencia", a royal society created by the king and 'enlightened despot' Charles III, in which members of Valencian high society, scientists and intellectuals, defended the ideas of the Enlightenment at first, and later of liberal Valencian regionalism in the mid-1800s.

Passa's defence of traditional agricultural customs of the former kingdom of Valencia was also shared by Valencian regionalist conservative politician Francesc-Xavier Borrull i Vilanova who delivered a long speech during the liberal courts of Cádiz in 1812 against the abolition of irrigation tribunals in Valencia among other customary institutions of the, kingdom of Valencia, which was suppressed in 1707 by the Bourbon dynasty during the War of Spanish succession[5]. Jaubert de Passa's vision is still considered a pioneering

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[3] For instance, he cites an end of the 18th century compilator of the rules of the Royal Irrigation canal of Montcada, Vicent Valls, who stated that the royal canal was built by two Roman kings, Esperus and Atlas, after the floods recorded in the Old Testament, on the foot of the hill where he believed that the original pre-Islamic Roman Valencia was built, next to Paterna: Jaubert de Passa, *Canales de riego*, 146.

[4] This intention is clearly shown in the sentence that introduces his second volume: 'Agriculture needs few laws and a lot of independence': Jaubert de Passa, vol II. 4.

[5] Tomàs Peris Albentosa, 'Las huertas valencianas: la necesaria actualización de los postulados de Maass, Glick y Ostrom.', *Agricultura, Sociedad y Desarrollo* 12, no. 3 (2015): 349; Peris Albentosa, 'El ejercicio de la autonomía local en las Acequias de la Huerta de Valencia: La olvidada imbricación municipal (Siglos XIII-XIX)', *Minius*, no. 23 (2015): 135.

starting point for the study of communitarian water management in eastern Iberia, as he was the first author to argue for an essentially Muslim origin of irrigation norms in Valencia, as well as the first to consult archival records of irrigation customary laws and irrigation communities.

Decades later, newer theories on Hispanic autochthonous water management with a historical perspective would arrive, this time linked to the government attempts of stimulating migration to the southwestern territories of the United States of America[6]. In this context, the question of water management in arid lands and its compatibility with modern industrial society engendered pioneering works not only on technical hydraulic engineering and agronomy, but also on the legal, social and political implications of planification and negotiation of water uses, with an ethno-historical approach, observing the irrigation systems of the Native and Hispanic populations[7]. For example, geologist, agronomist, naturalist and ethnographer John Wesley Powell (1834–1902), popularly known for canoeing down the Colorado river rapids at the bottom of the Grand Canyon with one arm, was one of the pioneering theorists in applying proto-ethnological and linguistical inquiries and observations to originally specifical agronomic and economic questions, in a similar way to Jaubert de Passa, this time applied to water rights of the Pueblo, Akimel O'odham/Pima ('river people'), and other natives and communities of descendants of Hispanic settlers west of the Rocky Mountains. His interest was to determine how irrigation models set by Native North Americans and Hispanic inhabitants of the regions between Texas and the Pacific Ocean could teach and set a model for the new settlers[8]. He was also among the earliest state envoys to alert the government in Washington to hydrological irregularities and the risk of water scarcity, with potentially catastrophic consequences for the aggressive, massive and disorganised colonisation of the Southwestern territories. His warning was quasi-prophetic. In light of the

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[6] José A. Rivera et al., 'Irrigation and Society in the Upper Río Grande Basin, U.S.A.: A Heritage of Mutualism', in Carles Sanchis Ibor et al. (eds.), *Irrigation, Society and Landscape: Tribute to Thomas F. Glick : Proceedings of the International Conference, Valencia, September 25th, 26th and 27th, 2014,* (Valencia: Editorial Universitat Politècnica de València, 2014), 489–90.

[7] Lawrence B. Lee, 'William Ellsworth Smythe and the Irrigation Movement: A Reconsideration', *Pacific Historical Review* 41/3 (1972): 289–311.

[8] James M Aton, *John Wesley Powell: His Life and Legacy* (Salt Lake City: University of Utah Press, 2009).

demographic expansion that the areas west of the Rocky Mountains would undergo in the following decades, it appears that the US government paid little heed to his concerns[9].

Wesley Powell thus argued that only the Hispanic model of irrigation management of *Acequia* communities–exemplified by the networks built during monastic missions established in New Mexico, California and Texas during the 1600s and 1700s–could succeed. This model permitted only a planned and less populous migration. His warning aligned with his government's initial commitment to uphold Spanish legal principles in the management of agricultural water, as stipulated in the Treaty of Guadalupe-Hidalgo of 1848, following the Mexican–American War (1846 to 1848). Although this legal orientation would persist in the constitutions of certain states, it was never implemented at the federal level[10]. This implied the first adoption of a historical perspective to explain societal models generated by water use, in this case, linking traditional Hispanic North-American farming to customary law in late medieval and Early Modern Iberian Peninsula[11]. Powell's brief historical mention within his hydrographic survey of a trans-Atlantic link between Spanish irrigation customs and the colonial communities of Texas, New Mexico and California initiated numerous studies in current North American academia, such as Michael c. Meyer's study of legal water cultures in the North American Hispanic Southwest or Thomas F. Glick's comparative case study of Valencia, the Canary Islands and the mission farms of San Antonio, Texas[12].

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[9] Thomas G. Alexander, 'John Wesley Powell, the Irrigation Survey, and the Inauguration of the Second Phase of Irrigation Development in Utah', *Utah Historical Quarterly* 37 (1969): 192–94.

[10] John Wesley Powell and Geographical and Geological Survey of the Rocky Mountain Region (U.S.), *Report on the Lands of the Arid Region of the United States: With a More Detailed Account of the Lands of Utah : With Maps* (Washington D.C.: U.S. Government Printing Office, 1879), 89–90; Diane E. Boyer, Robert H. Webb, and Michael Collier, 'Water and the Colorado Desert', in *Damming Grand Canyon, The 1923 USGS Colorado River Expedition* (Denver: University Press of Colorado, 2007), 16–18; Thomas G. Alexander, 'John Wesley Powell': 190–206; Everett W. Sterling, 'The Powell Irrigation Survey, 1888-1893', *The Mississippi Valley Historical Review* 27/ 3 (1940): 421–434. On respect for local jurisdiction over irrigation acequias of Spanish colonial origin in the context of United States relations with Mexico in the mid-19th century, see Jaramillo, 'Fluid Kinship': 720.

[11] Ronald Amundson and Dan H. Yaalon, 'E. W. Hilgard and John Wesley Powell: Efforts for a Joint Agricultural and Geological Survey', *Soil Science Society of America Journal* 59/1 (1995): 4–13.

[12] Michael C. Meyer, *Water in the Hispanic Southwest. A Social and Legal History, 1550–1850* (Tucson: The University of Arizona Press, 1984); Thomas F. Glick, *Los antecedentes en el viejo mundo del sistema*

Generalising these 19th century conclusions, both Jaubert de Passa and J. W. Powell shared a common view on communitarian water management: traditional customary laws were the prevailing differentiation factor, generating a complicated relationship with modern constitutionalist centralism and agronomic planification. In this view, Iberian and Aragonese customs in Roussillon, Catalonia or Valencia would be an obstacle to Jacobine and Napoleonic institutionalisation. This dialectical relationship would also extrapolate to the way Texan and New Mexican Hispanic settlers' rights to water supply were approached by Washington D.C.'s large-scale colonising and expansionist policies after the U.S. Civil War. Yet, apart from hinting modest interest in adopting somewhat of a historical, legal and ethnological approach to water management communities, 19th century geological and agronomic surveys had other primary objectives, thus classifying local models of water management according to the degree of utility they had or not for stately enterprises. Political autonomy of management communities and the formation of the state was not a central topic until the mid-20th century, where the issue was not only agronomic or jurisdictional, but also central to broader questions on state sovereignty and political models of government.

b) Arthur Maas and Karl August Wittfogel: historical perspectives on water management in a bipolar world (1940s – 1960s)

An in-depth legal and political study of communitarian water management appeared for the first time in the 1950s when Harvard political scientist and World War II veteran Arthur Maas worked as a counsellor for the U.S. Army Corps of Engineers in matters of negotiation of water conflicts between the state and private proprietors, both in US territory and in off-seas imperialist interventions[13]. His recruitment was mainly due to his

de irrigación de San Antonio, Texas (Granada: Editorial Universidad de Granada, 2010); Marc Simmons, 'Spanish Irrigation Practices in New Mexico', *New Mexico Historical Review* 47, 2 (1972), 135–150; Alexander Fernald et al., 'Connectivity of Coupled Hydrologic and Human Systems as the Basis of Resilience in Traditional Irrigation Communities in New Mexico', in *Irrigation, Society and Landscape: Tribute to Thomas F. Glick*, 418–28.

[13] «Arthur Maass», *Harvard Gazette* (blog), 14 giugno 2007, <https://news.harvard.edu/gazette/story/2007/06/arthur-maass/>.

academic activities in the 1940s, which shed light on the political aspects of water problematics in arid environments at the local level. Indeed, his economic surveys had evolved towards a sociology of government, elaborating strategies for current state making during hydraulic endeavours, such as the negotiation with local dwellers on land expropriation for hydroelectric projects[14]. Yet his theory was not only useful for United States Cold-War technocrats, as it also began to stimulate debates on the sociological origins of government and its link to water accessibility and arbitration.

The ideological context of the Cold War era in academia, translated in anthropological and sociological studies that sought to explain the reasons for the local non-aligned *third world* nations' eventual choice between joining the spheres of Soviet or North American influence[15]. Political mentalities, and the roots of governmental models in native societies, were traced in the observation of daily life practices and domestic forms of economy, included water management, not only of the present, but also of the distant past. The main representative of this current of thought linking the theoretical bipolarity between *totalitarianism-democracy* to water management, landscape and agrarian studies was German sinologist Karl August Wittfogel, who coined the term *oriental despotism*, which he understood as an "eastern" tendency of totalizing power, as opposed to a pre-capitalist western tendency to *democratic* and entrepreneurial management of crop produce surplus[16].

Wittfogel sustained that these totalizing tendencies originated in agricultural societies' relation with water bodies, which he considered the first preoccupation since the Neolithic, also drawing two opposing models: *hydroagricultural* societies versus

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[14] Arthur A. Maass, 'Congress and Water Resources', *The American Political Science Review* 44, no. 3 (1950): 576–93; Ib., *Muddy Waters: The Army Engineers and the Nation's Rivers* (Cambridge, Mass.: Harvard University Press, 1951).

[15] Nils Gilman, 'The Cold War as an Intellectual Force Field', *Modern Intellectual History* 13, no. 2 (2016): 516.

[16] Karl August Wittfogel, *Oriental Despotism: A Comparative Study of Total Power* (New Haven: Yale University Press, 1957); Stephen B. Jones, review of *Review of Oriental Despotism: A Comparative Study of Total Power*, by Karl A. Wittfogel, *Geographical Review* 48, no. 2 (1958): 306–8; George P. Murdock, "Wittfogel's 'Oriental Despotism'", in Anne M. Bailey and Josep R. Llobera (eds.) *The Asiatic Mode of Production* (London: Routledge, 1981): 173–6.

hydraulic societies[17]. The first category implied a *private* or domestic approach to water management and concerned stateless societies organised around households that did not generate social rules over water uses outside the boundaries of individual and family ownership. He associated this category to western temperate climates in which, according to Wittfogel, scarcity or flooding were not a preponderant menace to production. In contrast, *hydraulic* societies where those in which drought or flooding imposed a larger scale of planification and projecting outside the domestic scale, tending to develop a gradual concentration of power in bureaucratic state élites. He explained the birth of bureaucracy and authoritarian action in Ancient Mesopotamia along the Tigris and Eufrates, in Ancient Egypt along the Nile, in imperial China along the Yangtse, or in Mughal India and Baluchistan along the Indus.

As anthropologist David H. Price notes, Wittfogel has been since then subject of serious revisions and acute criticism by younger generations of geographers, political scientists and historians, who have accused him of drawing a simplified, determinist and historicised process by which every *hydraulic* society would eventually develop a centralised and "despotic" state, for instance teleologically linking irrigation models in pre-colonial China to Chairman Mao's Great Leap Forward[18]. Yet, in spite of his determinist approach adopting the heavily political terminology of the 'free world' during the Cold War, Wittfogel's theories on *hydroagricultural* and *hydraulic civilizations* founded a pioneering hypothesis, introducing water into the intellectual debate of his time over the origins of the modern state and political ideologies. Indeed, in contrast to his rather personal political crusade against Marxism in the Cold War, Wittfogel's late 1940's and early 1950's theories could paradoxically be considered as the first cultural–materialist studies of water and politics[19].

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[17] David H. Price, 'Wittfogel's Neglected Hydraulic/Hydroagricultural Distinction', *Journal of Anthropological Research* 50, fasc. 2 (1994): 187–204.

[18] Price, 192–93.

[19] In earlier stages, Karl August Wittfogel was himself a Marxist and member of the German Communist Party in the 1920s and 1930s. He suffered detainment and torture in a Nazi concentration camp. He fled to the United Kingdom in 1934 and to the United States in 1939. After the Molotov-Von Ribbentrop pact of no aggression in 1938, he abandoned the German Communist Party and grew disillusioned with the Soviet Union.

The line of inquiry that Wittfogel proposed entered in dialogue with his already cited contemporary Maass, as well as with other younger intellectuals in the United States who conceived water management problems not only as a post-Great Depression *raison d'état*, but also as a motor for understanding societies, foreign and domestic, and from both the present and the past. Although Wittfogel might have eventually exaggerated by categorically classifying cultures outside of his domain of specialisation of China and Japan within the categorical axis of his coined labels, his work surely continues to spark and provoke research of concrete regions of the world in which water management has been a preponderant factor for communitarian identifications. Furthermore, concerning one of our case studies, Wittfogel's introduction to his book *Oriental Despotism* includes a provocative assertion, imperative to respond in this dissertation, over late medieval and early modern water management in the Netherlands and the Republic of Venice: 'The water works of the Po Plain, of Venice, and of the Netherlands modified regional conditions; but neither Northern Italy nor Holland developed a hydraulic system of government and property'[20].

It is obvious to note how much the Republic of Venice's late medieval attempts to manage inland water courses are logically incomparable to the government hydraulic endeavours of Roosevelt's New Deal or Nasser's dams in the high Nile. Applying the conceptions of the industrialised 20th century centralised states to define societies of the past in distant geographical areas is rather anachronistic and unhistorical. Early Modern state water management endeavours originated from a transition between communitarian water management and magistrates that were far from working as a modern state *totalising* force. Current research questions therefore generally acknowledge Wittfogel's early intuition of linking water to social and political processes of community and state identifications, and rather avoid classifying case studies into the strict categories of *hydroagricultural* and *hydraulic*.

At that time, political scientists, along with scholars interested in agronomy and hydraulics, were already aware of conscious and organised forms of political water management for agricultural purposes that had existed prior to the Industrial Revolution and the centralisation of states. Later, with the emergence of new historiographical trends

[20] Wittfogel, *Oriental Despotism*, 12.

during the mid and late 20th century, researchers began to return to historical archive materials in order to reassess these previous assumptions.

c) Water management in social history (1970s)

1970s social history, combined with a growing dialogue with agrarian studies, anthropology and geography, introduced new theoretical tools for understanding society and water. Apart from Wittfogel's early interest in the genesis of the state via hydraulic control, questions on water's role in societies of the past arrived in the 1970s with economic agrarian history. Indeed, as Paolo Squatriti writes in his introduction to his recent work *Water and Society in early medieval Italy*, most agrarian historians of this time recognised a Braudelian approach as a starting point of their surveys, as the French historian stated that in order to understand the proto-industrial mechanisms in the Mediterranean "il faut commencer par l'eau"[21].

The same situation of communitarian water control in Valencia that had already interested Jaubert de Passa was also approached by 1960s and 1970s historiographic currents. Arthur Maass's Harvard disciple Thomas F. Glick conducted a historical survey of Valencian irrigation, composing a very complete and detailed work that can be classified as one of the first historiographic studies of water management, agriculture and society in late medieval Europe[22]. Glick concluded that water control in the Valencian region fell under the jurisdiction of markedly diverse authorities. These ranged from communitarian institutions that functioned similarly to what, by the end of the 18th century had evolved into the *Tribunal de les Aïgues de la Vega de València*–a traditional juridical body composed of irrigation communities in the Valencian hinterland–to municipal councils and royal chancelleries, which represented higher levels of late medieval institutional organisation. The former operated within a well-documented communitarian framework, while the latter belonged to more centralised structures of governance. This not only complexified large national histories, underlining the importance of field study in

[21] Paolo Squatriti, *Working with Water in Medieval Europe: Technology and Resource-Use* (Leiden, Boston: Brill, 2000), 1.

[22] Glick, *Irrigation and Society in Medieval Valencia*.

particular localities and historical sources other than ordinances and laws, but also openly contested Jaubert de Passa's and Wittfogel's vision of Valencian irrigation as a form of "hydraulic democracy".

Many of Glick's continuators, as well as Glick himself in his later work, focused on water control in regions characterised by Arabic, North African or Hispanic presence. These included areas as diverse as the qanat systems of Morocco's Rif Valley and the Hispanic mission networks established throughout the North American Southwest, stretching from the Rocky Mountains to the Californian coast. Scholars working in these contexts concluded that, despite geographic and cultural variation, irrigated landscapes in these regions shared several structural features. Beyond the archaeological and cultural continuities rooted in the Hispano-Muslim world, they exhibited a notable degree of institutional interconnection, social heterogeneity and participatory governance. From the most local institutions to those with broader territorial reach, a range of bodies were involved in the allocation and adjudication of water justice. In such arrangements, some anthropologists have identified what may be termed *hydrosocial* formations, particularly in the resolution of water-related conflicts within rural communities[23]. That a territory was *hydrosocial* did not mean, contrary to Wittfogel's views, that water problematics would categorically develop one form of government or other; it meant that a territory had developed complex and sometimes antagonistic forms of societal activities and institutions from common water problematics. In other words, the kingdom of Valencia did not host a categoric form of hydraulic democracy, but an intertwining dialectical coexistence of water-related institutions. In that way, Glick opposes concrete cases within the territories of the kingdom, such as Vila-real, near Castellón, in which irrigation control was predominantly in the hands of municipal offices, to the peripheries of the city of Valencia, where communitarian institutions boasted more apparent autonomy over municipal control, at least according to legislation and normative customary texts[24]. This did not mean that Castellón hosted a royal or municipal totalisation of power over water

[23] Ib., *Los antecedentes*; Henri Goblot, *Les qanats: une technique d'acquisition de l'eau* (Paris, Le Haye, New York: Mouton, 1979); Rutgerd Boelens et al., 'Hydrosocial Territories: A Political Ecology Perspective', *Water International* 41 (2016): 1–14; Jeroen Vos and Leonith Hinojosa, 'Virtual Water Trade and the Contestation of Hydrosocial Territories', *Water International* 41, no. 1 (2016): 37–53.

[24] Glick, *Irrigation and Society in Medieval Valencia*, 33–34.

use all the time, or that Valencia was either a constantly self-managed communal network, but that within different jurisdictional frameworks, similar forms of irrigation justice management and water distribution occurred.

Recent works have underlined the posterity of Glick's postulates on complex social and political aspects of Valencian irrigation water management in the *longue durée* and with a broad range of territorial and historical examples, where we can cite the works of Tomàs Peris Albentosa and Carles Sanchis Ibor, among others in the case of the Mediterranean coasts of the Iberian Peninsula[25]. These have further added, with the development of environmental history, the political presence of the landscape, not as a passive receptacle or material framework in which society develops, but as an active mutable element of Valencian society and power in the late medieval period after the Christian conquest of the kingdom circa 1283. The historical landscape of the kingdom of Valencia, including its complex irrigation canal system, is therefore seen as a mirror of technical, economic, social, demographic and political mutations[26].

These approaches recognized two important steps that characterised the histories of water policies post-Glick: first, they focused on more detailed scales of smaller regions of the world, in tendentially shorter periods of time; second, they endorsed the complexity of socio-environmental relations as a differentiative factor, urging a growing prudence on global or comparative categories. In other words, the categories that Wittfogel or Maass applied confidently to inter–chronological and global cases so far apart as pre-colonial China, the North-American far West or the *qanats* of Syria were left aside, addressing the complexity of the small-scale study and particularities of a given territory. Glick, at the end of his 1970 *Irrigation and Society in Medieval Valencia*, which among social studies of water management could be considered a first attempt of adopting a single region case

[25] Peris Albentosa, 'Las huertas valencianas': 349–83; Marta García Mollá and Carles Sanchis Ibor, 'Las entidades de riego común', *Agricultura: Revista agropecuaria y ganadera* 919 (2009): 448–52; Carles Sanchis Ibor et al. (eds.), *Irrigation, Society and Landscape. Tribute to Thomas F. Glick: Proceedings of the International Conference, Valencia, September 25th. 26th and 27th, 2014* (Valencia: Editorial Universitat Politècnica de València, 2014).

[26] Enric Guinot Rodríguez and Ferran Esquilache Martí, 'La reorganización del paisaje agrario en la huerta de Valencia después de la conquista cristiana. El sistema hidráulico y el parcelario de Montcada y Benifaraig en el siglo XIII', *Debates de Arqueología Medieval*, fasc. 2 (2012): 229–76.

study in modern historiography of irrigation, certainly confessed that there were *regional arrangements* by the beginning of the 1400s in which his dichotomous division of municipally owned and communitarian water courses did not completely fit, in part due to growing royal intervention in arbitration and a period of severe droughts[27]. This meant that Glick was questioning not only the monolithically conceived hydraulic democracies that his mentor Arthur Maass saw in the Valencian case, but also even the attempt to see the kingdom of Valencia as a region bound for a unified single case study, defending a portrait of different realities for each subregion of the kingdom. He did not discourage large scope comparative studies, yet he reminded future researchers of the multiplicity of factors that formed a hydraulic society such as Valencia's in the late medieval period[28].

d) A global debate with a *micro* lens

By 1970 Glick had announced therefore the current paradox of histories of specific cases nonetheless bearing global issues in mind. Many examples of scholarly conclusions on geographically, chronologically and thematically distant case-studies stimulated new insights on water, society and political mentalities. The differentiative factors at stake in defining a hydraulic society are multiple and do not produce imperative conclusions as in times of Wittfogel, yet they still do not discourage the global comparative approach. For example, the current works on specific hydraulic societies that have helped to shape this proposed research can be ranged in a classification of three concrete thematic interests: history of irrigation and land drainage, institutional history, and histories of communitarian politics and power.

Insights on water and society present in works of urban history mainly deal with medieval hygiene, such as Javier Plaza de Agustín's work on Guadalajara (Castile) or Germana Albertani's on Bologna, among others[29]. Urban history and water have also combined in

[27] Glick, *Irrigation and Society in Medieval Valencia*, 118–32.

[28] Glick, *Irrigation and Society in Medieval Valencia*, 123–25.

[29] Javier Plaza de Agustín, 'Agua y desarrollo urbano en la Castilla medieval: aportaciones a su estudio en la ciudad de Guadalajara', *En la España Medieval* 39 (2016): 249–73; Germana Albertani, 'Igiene e Manutenzione. Il caso di Bologna nei programmi legislativi e nella realtà quotidiana del XIII secolo', in Antonella Campanini and Rossella Rinaldi (ed.), *Artigiani a Bologna. Identità, Regole, Lavoro, Secc. XIII-*

works on architecture of hydraulic infrastructure, such as Annalisa Colecchia and Aurelio Manzi's work on peri-urban and Intramuros irrigation in medieval bourgs in Abruzzo or Marco Cadinu's similar approaches to northern Sardinia[30]. Other case studies of urban settlement have acknowledged the primordial role of water in developing fluvial fishing, commerce and transportation, mainly in the late medieval and early modern period, as Béatrice Leroy, Esteban Sarasa Sánchez or Enrique Giménez López recognized for the Ebro valley or Ermanno Orlando and Francesco Bottaro for the Brenta, Bacchiglione and Adige rivers, as well as the lakes and swamps south of Padua[31]. These cases call upon the role of water in generating the distinct civic identities of each city.

Water management and political identities of specific communities have also been present in many ethnological or anthropological case studies of regions similar to those studied by agrarian historians both in European and American colonial contexts. For example,

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XIV, (Bologna: Clueb, 2008), 165–85; María Carmen Hernández Charro, 'Agua y poblamiento. Notas sobre la configuración del territorio de Tudela andalusí', *Studia Historica. Historia Medieval* 24 (2006): 315–39; Alessandro Furiesi, *L'acqua a Volterra e nel suo territorio in età medievale* (Siena: NIE, 1999); Sante Bortolami, 'Le acque di Padova in età medioevale', *Padova e Il Suo Territorio* 4 (1989): 20–21.

[30] Annalisa Colecchia and Aurelio Manzi, 'Orti medievali in contesti urbani e peri-urbani dell'Abruzzo Interno: inquadramento storico-archeologico e agronomico', in Paul Arthur and Marco Leo Imperiale (eds.), *VII Congresso Di Archeologia Medievale, Lecce, 9-12 Settembre 2015*, (Sesto Fiorentino: All'Insegna del Giglio, 2015): 348–353; Marco Cadinu, 'Dalle fontane urbane agli orti. Le architetture dell'acqua tra la città e i paesaggi periurbani', in Gabriella Bonini and Rossano Passagli (eds.), *Paesaggi Dell'Acqua*, Quaderni 16 (Gattatico: Istituto Alcide Cervi, 2019), 59–73.

[31] Béatrice Leroy, 'Una riqueza fácil: el agua en la ciudad a fines de la edad media, el ejemplo de Tudela', in María Isabel del Val Valdivieso (ed.), *Usos Sociales Del Agua En Las Ciudades Hispánicas a Fines de La Edad Media*, (Valladolid: Universidad de Valladolid, 2002), 299–314; Esteban Sarasa Sánchez, 'La memoria del agua: La economía hidráulica en el Valle Medio del Ebro, ¿un ejemplo de supervivencia o de nueva implantación tras la conquista cristiana en el siglo XII?', *Aragón en la Edad Media* 8 (1989): 633–646; Enrique Giménez López, *Almadías en el Ebro y en el Consejo de Castilla. El proyecto de navegabilidad de Mateo Jaime (1776-1790)* (Madrid: Fundación Española de Historia Moderna, 2012); Ermanno Orlando, 'Governo delle acque e navigazione interna. Il Veneto nel basso medioevo', *Reti Medievali Rivista* 12/2 (2011): 251–93; Francesco Bottaro, *Pesca di valle e commercio ittico a Padova nel Quattrocento*, Confronta 8 (Padova: CLUEP, 2004); Francesco Salvestrini, 'Tra civiltà e natura : la presenza del fiume nei contesti urbani, il caso toscano fra Medioevo e prima Età Moderna', in Dario Canzian and Remy Simonetti (eds.), *Acque e territorio nel Veneto medievale* (Roma: Viella, 2012), 133–45.

communitarian water use is recurrent in Andalusia, more specifically in the inland mountainous regions where water is distributed among terraced allotments[32]. The role of water uses in communitarian identification are also present in anthropological works on Iberian pastoralism or share cropping in northern regions such as the kingdom of Aragon, north of the Ebro, or the central plains of the kingdom of León, on the foothills of the Cantabrian Mountain range[33]. This link between community and water has also inspired similar anthropological interests, linking historical Iberian systems to current rural communities in New Mexico, as Elise T. Jaramillo's work on what she coined "fluid kinship" among neighbouring farmer communities and how they settle disputes along small irrigation canals[34].

As for the case of Glick's Valencian continuators, histories of landscapes and climate also have produced an important number of works on water as a social factor[35]. Methodologically, the common point of these case studies is bearing in mind that water is one of those non-human elements of landscape that actively transformed society and government. This approach to history through landscape emerged during the 1980s, drawing upon developments in French human geography and the histoire du *paysage perçu*. It was marked by a heightened sensitivity to highly eclectic forms of sources, including narrative materials not traditionally used in historical landscape analysis. One notable example is Alessandro Barbero's use of medieval narrative sources to reconstruct

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[32] Lorenzo Cara Barrionuevo, *El agua en zonas áridas. Arqueología e historia. Hidráulica tradicional de la provincia de Almería* (Almería: Instituto de Estudios Almerienses, 1989); José Francisco Ruiz-Ruiz and José María Martín Civantos, 'La gestión comunitaria del agua en la cara norte de Sierra Nevada: acción colectiva y saberes etnoecológicos en los sistemas de riego de origen andalusí', *E-Rph - Revista Electrónica de Patrimonio Histórico* 0/20 (16 July 2017): 76–103.

[33] Pilar Pérez Viñuales, 'El "trallo", sistema tradicional de reparto del agua entre comunidad de regantes. La Hermandad de la Acequia de Pedrola y del Cascajo (Zaragoza)', in Carra Barrionuevo (ed.), *El agua en zonas áridas. Arqueología e historia. Hidráulica tradicional de la provincia de Almería* (Almería: Instituto de Estudios Almerienses, 1989), 283–307; José Antonio Fernández Otal, 'En pos del agua: inspección de abrevaderos en las Riberes del Jalón y Huerva por los ganaderos zaragozanos (1440)', *Aragón en la Edad Media* 10 (1993): 251–68; Luis Miguel Vila Rodríguez and José Luis González Arpide, 'Las comunidades de regantes tradicionales en la provincia de León' (León: Universidad de León, 2016).

[34] Jaramillo, 'Fluid Kinship': 718–35

[35] Sanchis Ibor et al. (eds.), *Irrigation, Society and Landscape*; Guinot Rodríguez and Esquilache Martí, 'La reorganización del paisaje'.

the landscape around Vercelli, in Piedmont. These texts conveyed the sensorial presence of water and forested environments, even as they documented political and ideological events[36]. This historical approach to the perceived physicality of landscape is also common to works on natural disasters involving water, such as Raffaelo Vergani's work on early modern solutions to drought and floods in Treviso, Armando Alberola Romá's work on ideological, religious and eschatological responses to floods in Valencia, or Eduardo Bueno Vergara's work on tertian fevers and malaria in 18th century Alicante, linking health to torrential rains and summer droughts[37].

Nonetheless, the Valencian study of irrigated landscapes, bearing in mind the physical transformation that humans since Andalusian rule wrought on the waterways of the region, also underlines the importance of the exercise of power. In other words, studying the intricate power structure of water rights in Valencia has to a certain degree politicised the history of landscapes, mainly treating archaeological and land-ownership mutations after the Christian conquest of the kingdom of Valencia and the weight of seigneurial privilege[38].

This interest in the position of water in human perceived landscapes did not mean the end of classic juridical and institutional histories. On the contrary, the socio-cultural histories of landscapes in the 1980s and 1990s found aid in the study of common law, ownership

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[36] Georges Bertrand, 'Les Géographes Français et Leurs Paysages', *Annales de Géographie* 9/516 (1984): 218–29; Jean-Robert Pitte, *Histoire du paysage francais. De la péhistoire à nos jours* (Paris: Talandier, 2020): 132; Alessandro Barbero, *Terre d'acqua: i vercellesi all'epoca delle crociate* (Roma, Bari, Milano: Laterza, 2007), 14–17.

[37] Raffaello Vergani, *Brentella : problemi d'acque nell'alta pianura trevigiana dei secoli XV e XVI* (Treviso: Edizioni Fondazione Benetton Studi Ricerche, 2001); Armando Alberola-Romá, 'La percepción de la catástrofe: sequía e inundaciones en tierras valencianas durante la primera mitad del siglo XVIII', *Revista de Historia Moderna* 15 (1996): 257–69; Armando Alberola Romá and Jorge Olcina Cantos, *Desastre natural, vida cotidiana y religiosidad en la España moderna y contemporánea* (Alicante: Publicaciones de la Universidad de Alicante, 2009); Eduardo Bueno Vergara, 'Fiebres tercianas, sequías y lluvias torrenciales en el Alicante del Setecientos', *Revista de Historia Moderna*, no. 35 (2017): 377.

[38] Miquel Barceló Perelló, 'El diseño de espacios irrigados en Al-Andalus. Un enunciado de principios generales', in *El agua en zonas áridas. Arqueología e historia. Hidráulica tradicional de la provincia de Almería*, 2093–2109; Ib. and Esquilache Martí, 'Algunes coses que potser cal tenir en compte quan s'estudies espais irrigats', *Afers: fulls de recerca i pensament* 34, fasc. 93 (2019): 307–10.

and autonomous institutionalisation, gathered not only in 19th century *savants*' compilations of legal corpus, such as Jaubert de Passa's, but also in contemporary works on history of water rights, such as the methodological proposal on understanding irrigated lands of the past by Enric Guinot Rodríguez, a historian of medieval landscapes and feudal hydraulic lordship, and Sergi Selma Castell, an historian of consuetudinary law applied to communitarian irrigation[39]. This revival of customary law studies with new insights and sensibility to its social application in history has also been present in Italian historiography, as in Franco Cazzola and Maria Parente's work on central Italian water uses in the Medieval and Early Modern period, Reginaldo dal Lago's work on inland Veneto, or Alessandra Minotto's on the late medieval perception of agricultural bareness or *incultus* in the marshlands of the Venetian Lagoon, during the early efforts to adapt these environments to agriculture by the monastic orders based Venice[40]. It is also worth mentioning the long Valencian tradition of jurists interested in the historical origins of certain institutions of the present, such as the current Tribunal de las Aguas de Valencia, to which Victor Fairén Guillén, a professor of Law at the University of Madrid, has dedicated his career since the 1950s[41]. Fairén Guillen's work on the *intangibility* of irrigation croppers in the *longue durée* (understood by later historians as autonomy), founded more focused, specialised and periodised works, most of which in critical contestation of Fairén Guillén's approach[42]. The idea of a monolithic constitutional and legal culture specific to Valencian irrigation communities, projected from the Andalusian

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[39] Guinot Rodríguez and Sergi Selma Castell, 'L'estudi del paisatge històric de les hortes mediterrànies: una proposta metodològica', *Revista valenciana d'etnologia* 3 (2008): 100–124.

[40] Franco Cazzola (ed.), *Acque di frontiera: principi, comunità e governo del territorio nelle terre basse tra Enza e Reno (secoli XII-XVIII)*, Quaderni di discipline storiche 14 (Bologna: CLUEB, 2000); Franco Cazzola, *Uomini e Fiumi: Per Una Storia Idraulica Ed Agraria Della Bassa Pianura Del Po (1450-1620)*, (Roma: Viella, 2021); Maria Parente, 'Gli statuti e le acque a Parma nel Medioevo' in Franco Cazzola (ed.) *Acque di frontiera*, 53–64; Reginaldo Dal Lago and Silvia Ticinelli, *Guardiani delle acque : i consorzi di bonifica dalla Valle dell'Agno alla Riviera Berica* (Sossano: Centro di Studi Berici, 2004); Alessandra Minotto, 'Lavorare l'acqua e la terra. L'incolto produttivo nella gronda lagunare di Venezia alla fine del Medioevo' (Venezia: Università Ca' Foscari Venezia, 2014).

[41] Victor Fairén Guillén, *El tribunal de las Aguas de Valencia y su proceso: oralidad, concentración, rapidez, economía*, 2ª ed. (Valencia: Caja de Ahorros, 1988).

[42] Another Valencian jurist continued the regulatory projections initiated by Farén Guillén, coining the term *intangibilidad* as a kind of centuries-old juridical immunity attributed to Valencian *comunitats*: Vicente Giner Boira, 'Intangibilidad de las Comunidades de Regantes' (Valencia: Imprenta Ortizá, 1964).

era to the contemporary era of Fairén Guillén was later contested by the work of historians of periods stretching from the Middle Ages to our present days.

In fact, these 'legalist' interpretations stimulated–or, in some cases, provoked–substantial historiographical responses. From the 1990s onwards, a wide range of historians began to challenge such views, building upon the foundational work of Thomas F. Glick. Their contributions expanded a growing body of scholarship on Valencian irrigation, focused on specific periods and contexts. In diverse and often contrasting ways, these studies have revealed historical, institutional and ideological dynamics that call into question the postulates of continuity and immutability traditionally attributed to the institutions responsible for irrigation.

The bibliography on irrigation laws and their political application within irrigation boards or comunitats is now extensive, and any attempt at an exhaustive citation would be impractical. The works most frequently referenced in the following chapters will naturally be those centred on the late medieval and modern periods. Particular attention will be given to the scholarship of medievalists such as Josep Torró, Enric Guinot, Ferràn Esquilache Martí and Luis Pablo Martínez Sanmartín[43]. Also relevant are the

[43] Josep Torró Abad and Guinot Rodríguez, *Hidraúlica agraria y sociedad feudal: prácticas, técnicas, espacios* (Valencia: Publicacions de la Universitat de València, 2009); Guinot Rodríguez, 'L'Horta de València a la baixa Edat Mitjana: De sistema hidràulic andalusí a feudal', *Afers: fulls de recerca i pensament* 20/51 (2005): 271–300; Ib. and Esquilache Martí, 'La reorganización del paisaje agrario'; Esquilache Martí and Guinot Rodríguez, 'La Gestió Técnica de La Irrigació En Les Hortes Històriques Valencianes. El Sequier, Dels Orígens a La Desaparició (Segles XIII-XVII)', *Millars: Espai i Història* 37 (2014): 59–99; Ib., 'De la vega andalusí a la huerta feudal: el regadío del mundo mudéjar-morisco (siglos XIII-XVIII)' in *XI Simposio Internacional de Mudejarismo: Teruel, 18-20 de septiembre de 2008* (Teruel: Centro de Estudios Mudéjares, 2009), 223–54; Guinot Rodríguez and Esquilache Martí, 'Not Only Peasants: The Myth of Continuity in the Irrigation Communities of Valencia, Spain, in the Medieval and Early Modern Periods', *Continuity and Change* 32/2 (2017): 129–56; Esquilache Martí, *Els constructors de l'Horta de València: origen, evolució i estructura social d'una gran horta andalusina entre els segles VIII i XIII* (Valencia: Universitat de València, 2018); Luis Pablo Martínez Sanmartín, 'Tecnoexperts, Perits i Sistemes Hidràulics: La Séquia de Mislata i Les Comunitats de Regants de l'Horta de València al Segle XV / Techno-Experts, Expert Witnesses and Irrigation Systems: The Mislata Channel and the Irrigation Communities in the Fifteenth-Century Huerta of Valencia', *Recerques. Associació Recerques. Història, Economia, Cultura* 69 (2014): 31–97; Ib. and Vicent Terol i Reig, 'El libro de los actos, provisiones y

contributions of early modernists including Tomàs Peris Albentosa, Daniel Muñoz Navarro and Frederic Aparisi Romero[44]. Among contemporary historians focusing on irrigation, 19th century liberal state reform, and 20th century agrarian corporatism and hydroelectric propaganda the works of Marc Ferri, Samuel Garrido and Francesco D'Amaro stand out[45]. All of these scholars demonstrate a heightened sensitivity to the power structures of each historical moment, as well as to the socio-economic conditions under which communal irrigation systems were shaped and transformed. This hybrid approach–combining landscape, infrastructure, historical, political and social conditions in the analysis of legal application during irrigation conflicts, and challenging the notion of historical juridical immutability within stateless communitarian water boards–has also been extended to other regions of the Iberian Peninsula. Notable examples include the work of Guy Lemeunier on Murcia, Francisco Saulo Rodríguez Lajusticia on the middle

reuniones de la acequia de Favara (1362-1521): aproximación a un registro clave para la historia del regadío en la Huerta medieval de Valencia', *Irrigation, Society and Landscape. Tribute to Thomas F. Glick*, 598–618.

[44] Peris Albentosa, *Regadío, Producción y Poder En La Ribera Del Xúquer* (Valencia: Confederación Hidrográfica del Júcar – Generalitat Valenciana. Conselleria d'obres públiques, urbanisme i transports, 1992); Ib., 'El ejercicio de la autonomía local en las Acequias de la Huerta de Valencia: La olvidada imbricación municipal (Siglos XIII-XIX)' *Minius* 23 (2015): 131–170; Ib., 'La adaptación a la irregularidad hídrica mediterránea mediante fórmulas no coercitivas: El ejemplo del agua de gracia en las huertas Valencianas', *Minius*, 24 (2016): 227–269; Ib., 'El objetivo de equidad y el criterio de proporcionalidad en las instituciones hidráulicas valencianas (siglos XVI-XIX)', *Investigaciones Geográficas* 67: 101–121; Ib., *Rasgos Institucionales de Las Entidades de Riego Valencianas (Siglos XIII-XIX)* (Valencia: Conselleria de Política Territorial, Obres Públiques i Mobilitat: Cátedra Demetrio Ribes, 2022); Frederic Aparisi Romero and Daniel Muñoz Navarro, 'Conflictividad social en torno a los azudes del Júcar a finales del siglo XVI. Un problema recurrente por la gestión del agua', *Irrigation, Society and Landscape. Tribute to Thomas F. Glick*, 203–210.

[45] Marc Ferri Ramírez, *Terratinents, camperols i soldats: regadiu i conflicte social al Camp de Morvedre* (Valencia: Universitat de València, 2002); Samuel Garrido Herrero, 'How Irrigation Functioned in Eastern Spain: Reflections on Elinor Ostrom's Work', *Historia Agraria* 53 (2011): 13–42; Ib., 'Demythologizing and De-Idealizing the Commons: Ostrom's Eight Design Principles and the Irrigation Institutions in Eastern Spain', in Rosa Congost et al. (ed.), *Property Rights in Land. Isues in Social, Economic and Global History* (London: Routledge, 2017), 121–141; Francesco D'Amaro, *Antipatriotas del agua: conflictos y grupos de interés en el franquismo* (Albolote: Editorial Comares, 2022).

Ebro Valley, and María Isabel del Val Valdivieso on Castile[46]. It has also been applied to Hispanic colonial contexts, comparing Hispanic law and pre-Hispanic practices, in order to reconstruct a more accurate view of the complexity of societies and water, where an early example is Barbara J. Price's work on Peru or Isabel Fernández Tejedo, Georgina Endfield and Sarah O'Hara's work on water rights in colonial Oaxaca, Mexico[47].

All of the latter had in common two aspects: despite the differences in place, time and theme, they first adopted single case-study methodology and a smaller scale picture; second, they recognised the complexity of components and actors in the society–water reciprocity. Whether they are ethnological, anthropological, archaeological, cultural or political studies, all position water as a main element of social and institutional (and therefore, also political), identifications. Society therefore interacts with water, not only through a vertical domination, taming and governing it with infrastructure, but also in a horizontal coexistence and adaptation of one to another, with legislation, property and use rights, cultural depictions or political control of the different sectors of society, including inclusive or exclusive collective decision making. In other words, as Jeremy H. Schmidt put it, to conduct a *hydrosocial* study implies two methodological ruptures: one with the ideal separation between man and nature (between society and water), and another with the idea of society unanimously agreeing on one common interest in water use as well as unanimously finding single technical solutions[48]. Landscape, nature, and water are not constant issues with systematic answers; the degree of social concern and the infrastructural (technical) and institutional (political) responses will depend on a given

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[46] Guy Lemeunier, 'Gestión pública y gestión privada en los regadíos murcianos: la emergencia de los heredamientos (1480-1800)', *Miscelánea medieval murciana* 19 (1995): 139–152; Francisco Saulo Rodríguez Lajusticia, 'El regadío en Magallón (Zaragoza) hasta el siglo XV y la documentación medieval sobre agua conservada en su archivo municipal y sindicato de riegos', *Aragón en la Edad Media* 25 (2014): 239–272; María Isabel del Val Valdivieso, 'El riego en los fueros castellanos medievales' in Ricardo Córdoba de la Llave et al. (eds.), *Estudios en Homenaje al profesor Emilio Cabrera*, (Córdoba, Cáceres: Servicio de Publicaciones de la Universidad de Córdoba, Servicio de Publicaciones de la Universidad de Extremadura, 2015), 593–602.

[47] Barbara J. Price, 'Prehispanic Irrigation Agriculture in Nuclear America', *Latin American Research Review* 6/3 (1971): 3–60; Isabel Fernandez Tejedo, Georgina Endfield, and Sarah O'Hara, 'Estrategias para el control del agua en Oaxaca colonial', *Estudios de historia novohispana* 31 (2004): 137–98.

[48] Jeremy J Schmidt, 'Historicising the Hydrosocial Cycle', *Water Alternatives* 7/1 (2014): 220–234.

society, on the hegemonic social actor within that given society and in the geo-historical region and period. In Veneto, it was the Venetian patricians that decided that water should serve grain economy in the 16th century, in the same way as in Valencia, it was the Christian lords that decided to prioritise vineyards during irrigation after the conquest in the 13th century.

Therefore, the proposed methodological approach to the study of water management in the past begins by integrating water and society within a common system. It is a study of common and differentiative factors of two similar case studies, in which both systems are a complex intertwining of social interests on water management, not only stimulating negotiation and pact over hypothetically common technical problematics, but also unresolvedness, conflict and imposition of water policies, tracing the roots of different interests and managerial or governmental conceptions among different sectors of society.

Summing up, the study of the relations of human societies and water in the past, before the formation of the modern state, initially caught the attention of those interested in the origin of customary institutions in the 1800s. Then followed the historical perspectives of theories on the formation of the state and its bureaucracy in the 1960s, parallel to another growing interest on ethnography and anthropology of drainage and irrigation of fluvial societies and combining with methods of social history in the 1970s. In the 1980s and 1990s, chronological and geographical specialisation generated nonetheless a dialogue and interdependence among archaeology, cultural and climatic history, geography and anthropology, acknowledging the complexity of single territories and periods of history, just as Thomas F. Glick announced as a conclusion to his work in 1970s, where he set a question mark on what he provisionally used as a state–community dichotomy in his study of Valencian irrigation politics[49].

[49] Peris Albentosa, 'Las huertas valencianas', 359.

2. Veneto and Valencia. Two comparable historical territories

As in Valencia, another European Mediterranean territory where communitarian institutions and governing bodies assumed responsibility for the management, arbitration and distribution of water, especially concerning irrigation and drainage, was the mainland territory of the Republic of Venice, known as the Terraferma. Climatic and landscape related factors in both regions gave rise to comparable social and institutional responses during the late medieval and Early Modern periods. However, these developments took place within two fundamentally different political frameworks. One was an oligarchic and mercantile republic. The other was a kingdom integrated into an intercontinental composite monarchy and administered by a viceroy. In the following, therefore, the aim is to present the factors underlying the object of the comparative study, firstly physical-climatic circumstances, and secondly, social and local institutional aspects. The aim is to start from the physical and liquid elements perceived by Valencian and Venetian societies from the end of the Middle Ages onwards, and then to carry out an etymological *arquéologie* of the institutions generated by this perception of waterways and water bodies.

a) Between marshland and desert. Geographical and climatic comparative potentialities

Human societies conceived two extremes when classifying flat habitable territories according to the quantity of water present in them. On the one hand, in the case of abundance of water, “lowlands” became “wetlands”, limiting areas of human habitation to the relatively higher points of the landscape, where the land was dry enough to settle, for example, in areas of sedimentary accumulation such as mounds or riverbanks, where the sediments that washed down for centuries had formed a sort of natural dam. On the other hand, there were the relatively higher and more arid plains, where water became a precious, limited and rare resource, either because of lack of rain, or because of the poor capacity of the land to absorb, causing any form of precipitated runoff to quickly drain away, conditioning human settlement to areas where at least a little water was to be found, mainly underground.

Rather than being real situations, the described frameworks represent the two conceptual limits that contained the spectrum of human inhabitation of plains concerning the presence of water. Waterscapes changed, wetlands became arid, and vice versa, sometimes in rather short periods of time and induced by human activity. Most cases would be somewhere in the middle between swamp and desert, and human societies developed technical capacities in order to drain excess water as well as to transport the necessary amount of it close to human habitat.

Precisely the complementary activities of drainage and irrigation were the main tasks – the main material actions– that generated social waterscapes. Anthropized waterscapes, scarred with waterways and farmland, were almost entirely created by these two human actions (irrigation and drainage)[50]. Yet, they were always delimited by these two landscape extremes, arid or wet, perceived by agricultural communities of water management as uncultivated and untamed peripheries, as the menacing otherness.

On one side, there are numerous examples of these types of wetland waterscapes in Mediterranean coasts of western Europe, representing the extreme ubiquity of water. The Agro Pontino, the Mar Menor of Murcia, the Lagoon in Comacchio, the Albufera of Valencia, the Venetian Lagoon, the more than twenty *étangs* between Perpignan and Marseilles, among many other examples, represent coastal wetlands and marshes that still serve today as witnesses to the specific and difficult technical conditions of human settlements. However, in the past, and before the development of extensive agriculture, these wetlands along the Mediterranean were much larger, and areas of similar sizes also existed deep into the continent, for example, along the river Po.

On the other side, there were also other examples of arid plains in Western Mediterranean Europe further away from the coasts, as the plateau of La Mancha, in the centre-south of the Iberian Peninsula, the plateau of Larzac in the southern end of the Massif Central, or the Karst plateau, ("Carso", in Italian), in north-eastern Italy and in the western regions of Slovenia and Croatia, among many others. The lack of water and rain stimulated human technical solutions such as wells, rain water cisterns, or aqueducts.

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[50] Salvatore Ciriacono (ed.), *Land Drainage and Irrigation* (London: Routledge, 2017).

All of these man-made infrastructures canalised, and/or retained water, and could serve the interest of individuals or social groups, ranging from an extended family to various towns and cities at the same time. Water supply in agricultural societies in plains were therefore principally two complementary actions: draining and irrigating. When involving considerable amounts of social actors, workforce and economic stakes, infrastructural innovations serving drainage and irrigation generated shared, and also sometimes opposing, conceptions of "governing the waters" in a given territory.

The given comparative examination proposes to study examples of historical adaptations of societies to similar Mediterranean landscapes within this spectrum. The *Hortas* and *Vegas* of the central regions of the kingdom of Valencia, were limited by coastal wetlands or *marjals*, such as the Albufera or the *Marjal dels Moros* and inland arid plateaux, such as the Serra Calderona or the Serra de Corbera, in the same way as the plains of the wide Po valley and the arch from the river Adige to the Livenza, that were considered the granary and vineyard of the Most Serene Republic of Venice, the 'Serenissima', in the 1500s, were limited by the amphibious peri-lagoonal areas, the *gronda*, by wetlands south of the Adige and the Polesine, and by the arid areas of the Montello range and the higher plains northeast from Treviso. These imagined peripheries represented the hydraulic menaces of the anthropized waterscapes, and the fear of the preponderance of the arid aspect over the wet or vice versa stimulated social negotiation and political innovation. All these hydrologically peripheral places have represented for water management communities and agro-productive institutions, both state and non-state, an element of vacuum or uselessness. In fact, he right by which dispossessed dwellers asserted ancient commoner rights to fish, hunt and graze in these wetlands or arid plateaux was precisely known as *vagantivo* in Italian, which derived from Medieval Latin *vaccus anticus* ("the ancient void")[51]. These great voids, topographical silences where water flowed unmanageably, or where it was severely lacking, nevertheless became the object of

[51] Vincenzo Bellemo, *Bebe e la carta di re Ottone: monumento del diritto di Vagantivo cantato dai comunisti di Cavarzere : con documenti* (Chioggia: tip. di L. Duse, 1888); Renzo Derosas, 'Strutture di classe e lotte sociali nel Polesine preunitario', *Studi Storici* 18, fasc. 1 (1977): 87; Francesco Carnelutti, 'Sulla natura giuridica del diritto di pesca', *Transporti: Diritto Economia Politica* 103 (2007), 153.

interest of new socio-productive investors, who sought to expand, to make the land useful and to optimise it by "governing the waters"[52].

Evidently, the perception of these places where water was "ungoverned" as peripheral and useless was far from unanimous in Early Modern societies, and recent historiography is making this clear, coining terms such as 'incolto produttivo' ('productive uncultivated land') in order to underline that communities had built economies on fishing, hunting and shepherding in the lands that the state saw nonetheless as useless[53]. Accordingly, the recent, mainly francophone, environmental history current denominated *histoire des zones humides* or "history of wetlands" usually cites the Venetian relationship to these "useless lands" as an example of human societies' adaptative power to liquid environments, in comparison to other European territories such as the southwestern French Atlantic Forest, called *landes*[54].

Whether useful or not for certain sectors of the population, the Venetian example clearly shows, however, that by the mid-16th century the reduction of these arid or flooded areas had become a systematically institutional issue. The management of the Venetian *inculti* or 'useless' lands (for agricultural activities), such as marshes and arid plains, as well as forests, is crucial to understand the relationship of communities with water[55]. The numerous *suppliche* or petitions to the main magistracy involved in the activities of land reclamation and draining in the mid 1550s, the *Provveditori sopra i beni inculti*, display recurrent accounts of local producers measuring and calculating potential arable property extensions into former woodlands or swamps, and asking for permission from the magistrates to deviate creeks or dig canals. It was also a Venetian *rasion d'état*, where the

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[52] Orlando, 'Governo delle acque'; Remy Simonetti, 'Governo delle acque e circolazione delle conoscenze tecniche nell'Italia comunale (secoli XII-XIV)', in Sabina Zonno et Zuleika Murat (eds.), *Medioevo veneto, Medioevo europeo: identità e alterità: atti del Convegno* (Padova: Padova University Presss, 2014), 11–26.

[53] Francesco Bottaro, 'L'incolto produttivo : pesca e zone umide tra Adige e Colli Euganei nel XV secolo', in Canzian and Simonetti (ed.), *Acque e territorio*, 83–94.

[54] Corinne Beck, Fabrice Guizard, and Bernard Bodinier (eds.), *Lisières, landes, marais et friches: les usages de l'inculte de l'Antiquité au XXIe siècle* (Lille: Revue du Nord, Université Charles-de-Gaulle-Lille 3, 2013).

[55] Minotto, 'Lavorare l'acqua e la terra'.

magistracies argued that the mainland producer's interests in governing the *inculti* and the wild waters was a shared common interest with that of the inhabitants of the Venetian Lagoon, who were menaced by torrential floods of the rivers that emptied in the Lagoon such as the Brenta or Adige. For example, this was one of the main arguments for any large project proposed at the Senate or *Consilio dei Pregadi*[56].

However, one of the most important arguments in favour of the Venetian hydraulic policies in the 1500s is the prevention of fluvial silting, given the torrential nature and the irregular hydrological conditions of the main rivers that flowed into the Venetian lagoon. This preventive intention justified the defence of the urban centre of the lagoon and the transport canals carried out by the *Savi alle acque*, while also justifying the urgency of the need to drain flooded lands in the Terraferma on behalf of the *Provveditori sopra i beni inculti* in order to optimise agrarian production. Floods, with both torrential and stagnant devastation of habitat and agriculture were also a constant concern of irrigation communities in the kingdom of Valencia, as well as of urban institutions such as the *Junta de Murs i Valls*, in charge of preventing urban devastation by reinforcing the urban course of the river Tùria– from now on, named Guadalaviar, as in the Medieval and Early Modern period–, as it passed through the northern outskirts of Valencia[57].

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[56] There are several handwritten copies of the Senate deliberation that initiated one of the largest campaigns of land reclamation and agricultural adaptation in the mid-16th century. One of the most complete printed versions is held at the Library of the Fondazione Querini Stampalia in Venice. I have not been able to identify a shorter form of citation, as the document lacks an archival reference number and is classified as a book, although its author remains unknown. From this point onwards, I cite it using its title: *Scritture fatte auanti che fusse datto principio al Retratto del Gorzon. 1557. adi. 28. Lugio in Venetia. Copia d'una scrittura appresentata nell'officio alli clarissimi Proueditori sopra li beni Inculti per il reuerendo padre don Celso cellerario de Santa Iustina, & per li magnifici Garzoni ... 1557. adi 14. Zenaro. Copia delle mesure tolte per S. Bettin Fracasso inzegner ...*, 1558, Conserved in Venice: Fondazione Querini Stampalia. Another version of the same document, preserved within a compilation of Senate deliberations concerning the Adige River, is slightly later in date. This version includes acts from the 17th century and is held in the State Archives of Padua, under the reference ASPd, Acque, 151.

[57] Vicente Melió Uribe, 'La "Junta de Murs i Valls": Historia de las obras públicas en la Valencia del Antiguo Régimen', *Estudis: Revista de historia moderna* 16 (1990): 233–47; Gennaro Varriale, 'Dangerous waters: Valencia and the Turia floods in the 16th century', in Elisabetta Bini et al. (eds.), *L'acqua: risorsa e minaccia. La gestione delle risorse idriche e delle inondazioni in Europa (XIX-XIX secolo)*, Università

Excluding Alpine habitats, two regions within the Veneto represented the extremes of hydrological behaviour, as defined by parameters such as rainfall, soil absorption and drainage capacity. At one end were the plains to the north of Treviso, between the pre-alpine ranges of Mount Grappa and Montello, west of the river Piave, characterised by arid torrentiality and rapid runoff. At the other were the lowlands south of Padova, south of the Colli Euganei, and the Polesine, along the lower course of the rivers Po and Adige, along other smaller water bodies, marked by their propensity for flooding and the persistence of stagnant wetlands. The plains north of the city of Treviso, along the river Sile, and southwest of the Piave, fit the mentioned category of higher and drier plains. This region lightly slants, and is scarred by wide and rocky river beds that discharged dolomitic detritus into the Venetian Lagoon and the Adriatic[58]. These wide sedimentary plains were formed by ravines on the pre-alpine faces under a two-seasonal rainfall regime (falls and springs) that abruptly encountered the flat and wide spaces of the lower Sile and lower Piave plains, at the doorstep of the northern shores of the Venetian Lagoon. Current annual average rainfall between the Montello range and the foothills of the pre-Alps is between 1000 mm and 1200 mm, whereas in the lower regions immediately south, in the flatlands known as the Zosagna it was almost half[59]. Given the presence of clay in the superficial layers of these plains, locally known as *ferretto*, and the consequential lower capacity of absorption, rainwater from the Montello and Pre-alpine hills tends to run quickly across the plains, added to the rather slanted form of the plains. In this context, irrigation became the main concern and priority of local inhabitants, that tried to slow the

degli Studi di Napoli Federico II. Clio. Saggi di scienze storiche, archeologiche e storico-artistiche 40 (Napoli: Federico II University Press - fedOA Press, 2023), 87–109.

[58] Vergani, *Brentella*, 11.

[59] The Zosagna was the placename that medieval and early modern documents used to name the area between the northeastern coast of the Venetian Lagoon and the river Piave: Dario Canzian, 'Ambiente naturale e intervento umano tra Sile, Piave e Livenza nei secoli XI-XV', in Ib. and Simonetti (eds.), *Acque e territorio nel Veneto medievale*, 18; Annamaria Pozzan, *Zosagna Paesaggio agrario, proprietà e conduzione di un territorio tra Piave e Sile nella prima metà del secolo XVI* (Treviso: Fondazione Benetton Studi Ricerche-Canova, 1997); Vergani, *Brentella*, 13; Ialina Vinci et al., 'The Development of Soil Science in Veneto', in Carmelo Dazzi et al. (eds.), *Soil Science in Italy: 1861 to 2024*, (Cham: Springer International Publishing, 2024), 61–62.

current down, retain and distribute water among the different sectors of the plain, including the city of Treviso.

The category of wetlands is rather preponderant in the plains south from the city of Padua and north of Rovigo, on both banks of the river Adige, and on the northern bank of the Po, Italy's two largest and longest rivers. South from the hills known as the Colli Euganei (in medieval cartography other names appear such as "Monti di Padoana"), and north of the Adige, the plains of the Bassa Padovana nowadays present a temperate climate with moderate rains (an annual average rainfall of 600mm)[60]. Nonetheless, in late antiquity and the early Middle Ages, chroniclers recorded very rainy seasons, with catastrophic floods that even caused the permanent deviation of the Adige in the 6th century AD, an episode later coined as 'rotta della Cucca'[61]. Current natural mounds and sand accumulations present in the current landscape prove the existence of dead meanders and paleochannels in which these major rivers turned into swamplands and lakes. Excessive rainwater causing permanent floods of the lowlands was even more of the case in the hinterlands of Rovigo and Adria, north of the Po delta and south of the river Adige, where the lands are almost at sea level[62]

Torrentiality, low absorption and stagnant waters were also a key elements of water management in the kingdom of Valencia. The *Hortas*, *Vegas* and *Riberes* of Valencia – those were and are the local names for the major irrigate plains of the central part of the kingdom – stand in the middle of the two Venetian environmental extremes: they have easily floodable depressions, and arid torrential plateaux in short distances. This territory was limited by the hybrid salt and fresh water lagoons and marshes of the Albufera and the other coastal bogs that fed by torrential ravines, such as the Carraixet and the Catarroja gullies, digging through relatively higher arid flatlands inland. Three main rivers, the Palància or Riu de Morvedre in the north, the Túria or Guadalaviar in the central regions

[60] Silvia Piovan, 'Evoluzione paleoidrografica della pianura veneta meridionle e rapporto Uomo-Ambiente nell'Olocene' (Padova, Università degli studi di Padova, 2008), 22–23.

[61] Chiara Maratini and Mauro Vigato, *Uomini, terre ed acque. L'evoluzione del territorio fra l'Adige ed i colli Euganei dalla Protostoria all'età moderna*, Quaderni di «Terra d'Este» 2 (Este: Società Gabineto di Lettura Este – Grafica Atestina, 2014), 16; Paolo Squatriti, *Working with Water*, 67–68.

[62] Today, thanks to industrial pump stations (*idrovore*, in Italian), there are dry lands in the Po Delta area, drained in the 1950s, which are even below sea level.

of the kingdom of Valencia, and the Xúquer, in the south, carried limestone and clay detritus from the mountain ranges inland that separated Valencia from the Crown of Castile and the kingdom of Aragon, fanning out into wide alluvial plains[63]. Today, the average annual rainfall in the central regions of the kingdom of Valencia, in the area known in Catalan as *l'Horta*, or la *Huerta* in Spanish, ranges between 400 mm and 500 mm, while in more southerly areas, in the lower reaches of the Xúquer river, it can reach 600 mm, as in the last decade[64]. These are low rates compared to some cases in the Veneto, that, as the pre-alpine foothills of the Montello range or the Asiago plateau, almost double current Valencian records. Nonetheless, there is textual, archaeological and geological evidence indicating that the area suffered long periods of more adverse climates, with higher rainfall alternating with periods of drought, specifically between the late Middle Ages and the 18th century, probably making the annual rainfall rates higher than today's[65]. Furthermore, still nowadays, the central regions of the former kingdom of Valencia have suffered torrential floods caused by atmospheric depressions in autumn, popularly known as *gota fría* ("Cold drop") also known currently in Spain as 'DANA' (*Depresión Aislada en Niveles Altos*), the last of which happened on October 29th 2024.

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[63] Vicenç Maria Rosselló Verger e Emili Casanova, *Toponímia, geografia i cartografia* (Valencia: Universidad de Valencia = Universitat de València, 2004), 37.

[64] Cátedra Tierra Ciudadana de la Universitat Politècnica de València, *Sistema de regadío histórico de l'Horta de València. Candidatura para como Sistema Importante del Patrimonio Agrícola Mundial (SIPAM)* (Valencia: Ayuntamiento de València, 2019), 54.

[65] Archaeological surveys of the Muslim fortress and medina of Alzira prove that it was an island on the Xúquer, and that the course of the river probably changed after heavy torrential floods in the 11th century (Alzira, as Algeciras in Andalusia, derive from Arabic *al-jazira* literally meaning "the island"): K. Butzer, Joan Francesc Mateu Bellés, and Ismael Miralles Segura, 'Las crecidas medievales del río Júcar según el registrom geo-arqueológico de Alzira', *Cuadernos de geografía* 32 (1983): 313; Tomàs Peris Albentosa made a very useful chronology of droughts and torrential rains in th Xùquer Valley in the Early Modern Period: Peris Albentosa, 'Las inundaciones del Xúquer (siglos XV--XIX), un exponente relevante en la cuestión hidráulica en tierras valencianas', *Revista de Historia Moderna*, 23 (2005): 75–108; In the context of the entire kingdom of Valencia, and in general, of the Mediterranean coast of the Iberian Peninsula, Armando Alberola Romá speaks of the "Small Glaciation" and its thermal contrasts as the cause of the catastrophic droughts and torrential floods: Alberola Romá, *Catástrofe, economía y política en la Valencia del siglo XVIII*, Estudios universitarios 75 (València: Institució Alfons el Magnànim, 1999): 34–39.

Therefore, the population in the hinterlands of Valencia had to cope with periods of serious drought followed by short temperate winters, nonetheless characterised by torrential rains and floods, both factors being a menace to the agricultural economy[66]. After these rainy periods, stagnant water was mainly fought against locally by filling water bodies with earth (silting), but also, on a larger scale, by taking advantage of every elevation difference between two points in the landscape, even the smallest, to channel and drain water towards the main rivers and the sea. There were also cases of land reclamation of the sea, forest and swampland after the Christian Conquest, as seen in the recent works of José Hinojosa Montalvo and Josep Torrò, though not as massively mobilising as Dutch polders or 18th century Venetian *bonifiche*[67]. As in Veneto, though, these activities meant collective workforce, and manifested themselves in the creation of institutions originally composed of more hierarchised local producers, that not only realised the main works of adapting and adjusting waterscapes, but also negotiated, mediated and took decisions[68].

b) From neighbours to investors. The evolving meanings of *consorzi* and *comunitats*

The main objects of interest in which the following comparative study focuses were thus institutions in charge of water management with predominantly, yet not only, agricultural motivations: on the one hand, Venetian agrarian *consorzi*, and, on the other hand, Valencian irrigation communities. The significance that these institutions have had for societies has not been constant over the centuries, and is important to overview a short

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[66] Ib., 'La percepción de la catástrofe': 257–69; Adrián García Torres, *Remedios técnicos a la sequía y esterilidad en las tierras meridionales valencianas: El fracasado proyecto de conducción de agua potable de las fuentes de Boriza y Urchel a la villa de Elche en el siglo XVIII* (Madrid: Fundación Española de Historia Moderna, 2012); Peris Albentosa, 'La adaptación a la irregularidad'.

[67] José Hinojosa Montalvo, 'El bosque y la leña en el reino de Valencia en los siglos Medievales (XIII-XV)', *Estudios de historia de España* 22/1 (2020): 1–19; Torró Abad, 'Tierras ganadas. Aterrazamiento de pendientes y desecación de marjales en la colonización cristiana del territorio valenciano', in Helena Kirchner (ed.), *Por una arqueología agraria: perspectivas de investigación sobre espacios de cultivo en las sociedades medievales hispánicas*, BAR International Series 2062 (Oxford: Archaeopress: Publishers of British Archaeological Reports, 2012): 157–172; Ib., 'Palafanguers. Los especialistas del drenaje agrícola medieval en humedales mediterráneos ibéricos', *Medievalismo* 33 (2023): 261–292.

[68] Torró Abad, 'Palafanguers': 266–270.

etymological and conceptual itinerary of the two concepts, from its medieval etyma to its current use. Both terms derive from Latin words which slightly differ from the use they were given in the Early modern vernacular sources employed for this study, as well as from their current employment in modern Italian, Catalan and Spanish nowadays.

b. 1. Late-Medieval connotations of *comunitats* and *consorzi*: rural vicinity and local agricultre

Archival records first mention *el comú* or *la comuna* for designating irrigation communities in the kingdom of Valencia in late 13th century, and the term *consorzio* in Veneto in its vernacular form appeared in the 14th century[69]. Both terms were employed to define groups of neighbouring landowners that had common interests and a shared productive objective in their properties or land allocations: getting rid of excessive water from a given land that pertained to more than one single proprietor, yet cyclically using the needed amount of it in order to have fertile soil. Land drainage and irrigation were, therefore, complementary collective activities of water management.

These activities were carried out by *consortia* in the 13th century in areas of north-eastern and central Italy, mainly in Lombardy, Emilia and Romagna, where major water management endeavours had to be conducted in order to transform semi-arid plains and flooded lowlands into arable soil that would eventually feed urban centres[70]. This was not a specific trait of the time period: as Paolo Squatriti develops, late antique and early medieval agrarian societies along the Po had a "shared concern for an interest in hydraulics", and the same applied to post-Roman, Early medieval agriculture in Iberia, where Late Roman and Visigoth *villæ*, as well as later *paleo-andalusian* Muslim hamlets had to build water infrastructures in order to serve their domestic agrarian produce[71]. Yet

[69] The term *comunitat de regants* is a more recent creation, see Thomas F. Glick, *Irrigation and Society in Medieval Valencia*, 31–32.

[70] Gina Fasoli, 'Organizzazione delle città ed economia urbana', in Cosimo D. Fonseca et al. (eds.), *Potere, società e popolo nell'età sveva 1210-1266*, (Bari: Dedalo, 1985), 167–190; Cazzola, *Acque di frontiera*.

[71] Paolo Squatriti, *Water and Society in Early Medieval Italy, AD 400–1000* (Cambridge: Cambridge University Press, 1998); Elena Sánchez López and Enrique Gozálbez Cravioto, 'Los usos del agua en la Hispania romana', *Vínculos de Historia Revista del Departamento de Historia de la Universidad de Castilla-La Mancha*, 1 (2012), 11–29; Ferràn Esquilache hypotheses on Roman and Visigoth irrigation

even if early medieval agricultural societies also built drainage and irrigation canals, levies, dams and ditches during the post-Roman power-void, there is no major written evidence of established joint landowner collaboration and neither of institutions or jurisdictional entities specifically in charge of conducting collective works, such as the later medieval *consorzi* and *comuna*, where the closest case of mutual action in building infrastructure happened in *Šarq al-Andalus'* 'tribal' hamlets (*alquerías*), a practice mainly hypothesised by anthropologists and archaeologists for the Paleo-Andalusian pre-caliphal period (8th and 9th centuries)[72].

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spaces in the western Horta region based on Latin toponymy, archaeological evidence of aqueducts on the Tùria/Guadalaviar basin, and Late Roman centuriation, see: Esquilache Martí, *Els constructors de l'Horta de València: origen, evolució i estructura social d'una gran horta andalusina entre els segles VIII i XIII*, (València: Universitat de València, 2018), 254–57; Thomas F. Glick makes a good synthesis of Iberian hydrographical concerns in his 1995 publication, see: Thomas F. Glick, *From Muslim fortress to Christian castle social and cultural change in medieval Spain* (Manchester: Manchester University Press, 1995); For the late-Roman and Visigothic use of the Valencian *Huerta,* see: Ib., 11–12, For coastal marshland settlements and drainage canals in the *Paleoandalusi* period (from year 711 to 756), see, Ib., 44–46; On a general explanation of early medieval rural Iberia, see Chris Wickham, *Framing the early Middle Ages: Europe and the Mediterranean, 400 - 800* (Oxford: Oxford University Press, 2005), 37–42, 225–232.

[72] Josep Torró Abad translates *Šarq al-Andalus* as "the eastern mark of Al-Andalus", and it is mainly employed in historiography as the most precise term to describe Muslim Valencia, see Torró Abad, 'The Eastern regions of Al-Andalus before the conquest by Catalonia-Aragon: an overview', *Catalan Historical Review* 5 (2012), 11–12; On the *tribal* social structure of *Šarq al-Andalus*, see: Glick, 'El sentido arqueológico de las instituciones hidráulicas. Regadío bereber y regadío español', in Instituto Occidental de Cultura Islámica (ed.), *Aragón vive su historia. II Jornadas de Cultura Islámica, vol. II*, (Teruel: Al-Fadila, 1990), 165–171; Pierre Guichard, 'El impacto de la Reconquista en la sociedad musulmana', in Lorenzo Abad Casal et al. (eds.) *Historia del pueblo valenciano*, vol. 1 (Valencia: Levante, 1988), 221–40; Júlia Olivé-Busom et al., 'Estudio antropológico de las alqueries de Benizahat y Zeneta (Vall d´Uixó, Castellón). Una ventana a la vida rural andalusí', *Saguntum. Papeles del Laboratorio de Arqueología de Valencia* 53 (2021): 193; On the 'tribal' origins of irrigation infrastructure, see Barceló Perelló, 'El diseño'; Esquilache Martí, *Els constructors de l'Horta de València*, 183: 258–65; On irrigation justice and *tribal* representation in Muslim Iberia, see Glick, *From Muslim fortress*: 64–91; J. Roldán Cañas and M. F. Moreno Pérez, 'La ingeniería y la gestión del agua de riego en Al-Andalus', *Ingeniería del agua* 14/3 (2007): 223–236; Antonio Malpica Cuello, 'El agua en la agricultura. Agroecosistemas y ecosistema en la economía rural andalusí', *Vínculos de Historia Revista del Departamento de Historia de la Universidad de Castilla-La Mancha*, 1 (2012): 31–44; Esquilache Martí and Guinot Rodríguez, 'La Gestió Técnica': 59–99; On other Muslim Iberian irrigated spaces, as the Ebro Valley, see Hernández Charro, 'Agua y poblamiento'; For an exceptional case of rare archival evidence of a tribal dispute for water in *Šarq al-*

Etymologically, the vernacular late medieval and early modern word *consorzio* derives from the Latin noun *consortium, –a*, which is defined in the Du Cange dictionary of Medieval Latin as 'ager vel dominium seu prædium, cujus plures sunt participes', thus 'A field, piece of land or meadow, in which more than one (person) participates'[73]. The Du Cange dictionary also includes the related term *consortes*, which was still the name used to designate the members of *consortia* in late medieval and Early Modern vernacular texts in Italy, defining it as two or more holders of neighbouring lands[74]. *Comuna* belongs to the much broader semantic field of *communitas* and *communia*, which are defined in the same dictionary as 'a conceded right to the inhabitants of cities and lands by a monarch or other sovereign in exchange of loyalty'[75]. In Medieval history, this term mainly applies to the notion of *ius commune* and the development of urban Europe and enfranchisement[76]. In late medieval Veneto, *comunità* served also as a juridical category

Andalus, see Alexandre Mateu Picó, Bilal Sarr, and Josep Torró Abad, 'Una disputa por agua de riego en el Sarq al-Andalus: las alquerías de Turrus y Qars (Sagunto), 619H/1222', *Historia Agraria. Revista de Agricultura e historia rural* 91 (2023): 7–36.

[73] Charles Du Fresne Du Cange, *Glossarium mediae et infimae latinitatis 2/3 [C - F]* (Graz: Akad. Druck- und Verl.-Anst., 1954), 521.

[74] Du Cange, 520.

[75] The definition given to *communitas* is: 'Incolarum urbis aut oppida universitas, domino, vel rege concedente, sacramento invicem, certisque legibus astricta', see: Du Cange, 452; *Communia* is defined as '(1) Privilegium, imunitas; (2) Universitates incolarum Urbis vel oppida. (3) Idem quod supra "commune 1"', see: Du Cange, 459.

[76] Chris Wickham, *Sleepwalking into a New World: The Emergence of Italian City Communes in the Twelfth Century*, The Lawrence Stone Lectures (Princeton: Princeton University press, 2015), 12–29; For a general bibliography and synthesis on Italian *communes* and their privileges: Giovanni Tabacco, 'Commune', in Gabriella Rossetti (ed.) *Forme di potere e strutture sociali nel medioevo italiano* (Bologna: Il Mulino, 1977), 153–74; Philip James Jones, *The Italian City-State: From Commune to Signoria* (Oxford: Clarendon Press, 1997); Manlio Bellomo, '"Ius commune" e "ius proprium": Riflessioni su tendenze e aspetti della storiografia giuridica europea sul medioevo', in Bernard Durand and Laurent Mayali (eds.) *Excerptiones iuris. Studies in honor of André Gouron*, (Berkeley: University of California, 2000), 35–47; François Menant, *L'Italie des communes, 1100-1350*, (Paris: Belin, 2005).

in which rural districts found representation, sometimes being named *magnifica comunità*[77].

Another of the major Medieval Latin dictionaries, the J.F. Niermeyer *Mediæ Latinitatis Lexicon Minus*, confirms the similar senses given in the Du Cange for these related entries, defining *consors*, as an 'owner or holder of adjacent land', *consortium* as 'joint ownership', and *communia* as 'a joint possession'[78]. *Consortium* is further defined as a community of neighbours (as in *cohabitation* in French or *Lebensgemeinschaft* in German)[79]. In a nutshell, according to the main medieval Latin dictionaries, *consorzio* and *comuna* derive from Latin terms that evoke physical vicinity of land allocations, conjoint agricultural usage, and shared professional objectives.

The first cited aspect, that of vicinity, seems to have come first during medieval water drainage campaigns. Emilio Sereni stated how peasants that worked the communal lands had also established in the 12th and 13th century communitarian associations of neighbours called *condomæ*, *viciniæ*, *colliberti* and *consortes*, in charge of managing irrigation as well as defending crops, villages and cities from floods, among other domestic responsibilities[80]. In this sense, Franco Cazzola has dedicated an important collective volume on water in Emilia-Romagna, in Central Italy, where the medieval conception of *consortes* as rural neighbours or abutting landowners appears in 14th century communal statutes such as those of Piacenza or Bologna, which ordered *consortes* to cyclically clean *fossatos* or drainage canals in each city's communal *contado*, which were the rural *extra-muros* peripheries depending from each city-state or commune[81]. According to medieval

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[77] For instance, the *Magnifica comunità* of Este south of Padova, the *Magnifica comunità* of Cadore, in the mountains north of Belluno, the *Magnifica Comunità* of San Daniele, in Friuli, or the *Magnifica Comunità* of Fiemme, west of Trent.

[78] Jan Frederik Niermeyer and Co van Kieft, *Mediae Latinitatis lexicon minus = Léxique latin médiéval - français-anglais*, (Leiden: Brill, 1993), 288–89.

[79] Niermeyer and Kieft, 336–37.

[80] Emilio Sereni, *Storia del Paesaggio Agrario Italiano*, Settima edizione (Roma Bari: Laterza, 1996), 110–111.

[81] Cazzola, *Acque di frontiera*; Paola Galetti, 'La disciplina delle acque nelle normative statutarie del territorio piacentino' in Cazzola (ed.), *Acque di frontiera*, 37–52; Rossella Rinaldi, 'La normativa bolognese del '200. Tra la città e il suo contado', in Cazzola (ed.), *Acque di frontiera*, 156–57; For literature

Valencian customary law, landowners who held allocations that adjoined directly with an irrigation canal embankment also had the responsibility of cleaning and maintaining the section of watercourse that lied beside their field, generating collective collaboration of neighbouring possessors called *frontalers*. This happened on secondary capillary irrigation canals far from the main irrigation canal (*séquia mare*), which was instead supposed to be taken care of the irrigation canal authorities (*sequier* and *veedors*)[82].

In one of the texts of the utilised corpus of archival material for this work, the medieval statutes of the commune of Montagnana (1366), a town currently in the Province of Padua and a *podesteria* loyal to the Republic of Venice by the 15th century, obliged *consortes* or neighbours to demarcate each other's allocations by building wooden fences or digging

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on late medieval city-state urban legislation in Central and Northern Italy, see, first, for Bologna, the work of not only Rossella Rinaldi, but also Augusto Vasina: Augusto Vasina, 'La città e il contado dagli albori del Comune alla pace di Costanza', in Renato Zangheri and Ovidio Capitani (eds.), *Bologna nel Medioevo*, vol. 2, Storia di Bologna (Bologna: Bologna University Press, 2007), 439–76; for Parma, see Olivier Guyotjeannin, 'Conflits de juridiction et exercice de la justice à Parme et dans son territoire d'après une enquête de 1218', *Mélanges de l'école française de Rome* 97, fasc. 1 (1985): 183–300; for Padua, in Veneto, Gérard Rippe, *Padoue et son contado (Xe-XIIIe siècle*) (Rome: Publications de l'École française de Rome, 2013); for Vicenza, see: Sergio Zamperetti, 'Per una storia delle istituzioni rurali nella terraferma veneta: il contado vicentino nei secoli XVI e XVII', in Getano Cozzi (ed.), *Stato, Società e Giustizia nella Repubblica veneta (secc. XV-XVIII)*, vol. II (Roma: Jouvence, 1985), 61–131; For a general definition of *contado* in the context of late medieval communes, see: Menant, *L'Italie des communes*, 291–97.

[82] Glick, *Irrigation and Society in Medieval Valencia*, 50–51; Peris Albentosa, *Enciclopèdia*, 321–22. The two main legislative documents that remain from the Valencian Middle Ages regarding irrigation are, on the one hand, the general *Furs* of the kingdom, as the main customary compilation, and, on the other hand, the late medieval rules of a *comunitat* of irrigators, that of the Favara canal, in the Horta. Both texts include chapters that refer to the need to regularly clean the canal beds both by the board authorities and by the "frontalers", see: Fori Regni Valentiae (In ciuitate Valentia: arte ac industria Ioannis de Mey Flandri, 1547), liber IX, c. XXXV, Rub. XXXI, c. III, fo. CCXLVIIr–CCXLVIIIv: 'Los cequiers una vegadaen l'any de sol a sol e de fons a fons scombren les cequies, e oltra aquell scombrament porguen e scombren aquelles de herbes una vegada cascun any, e no tornen l'aygua en les cequies entro que sia vist si sufficientment s'eran scombrades segons la manera sobredita'; and Arxiu del Real Col·legi Seminari de Corpus Christi de Valencia, Registros Notariales Donación, MASQUEFA, Lluís (1492-1493), Protocolo 18602, vol. 18.602, *Llibre dels actes, provisiós e ajuts de la céquia de Favara*, fol. 15v: 'c. XI (…) Que lo dit cequier sia tengut per tot lo temps del seu arrencament de scurar la dita cequia (…) sera mester a coneguda del sindich i veedors (…)'; Ib., fol. 20v: 'c. XXXX. De cavar tarquim: Item que si algun ffrontaler que affronte ab la cequia mare o alter qualsevol cavant tarquim (…) lo cequier ho fara per acost de aquell (…)'

ditches[83]. The same for the neighbouring rural district around the town of Este, where a 1629 copy of the 1319 statutes of the *magnifica comunità* state that neighbours or *consortes*, had to erect wooden fences or dig ditches obliging the other neighbour to do the same on his side of property within three days[84].

Other than vicinity, Franco Cazzola, mentions that *consorzi* in Emilia throve thanks to a common interest in ameliorating agricultural produce, promptly establishing themselves in the 1400s as independent juridical concepts that gave unity to groups of farmers and other land owners in order to confront older environmental preoccupations that dated to the fall of the Roman Empire, mainly along the river Po[85]. In the coastal plains of Valencia, the Late medieval multiplication of arable soil (1300s–1400s) was stimulated by land drainage and the demographic pulse of the Christian conquest and repopulation. Infrastructural works such as digging *fossatos* that drained land into the sea were paid by large-scale monetary amassments carried out by feudal lords and sponsored by the king of Aragon, which delegated on communities of neighbours for the workforce (both Christian peasant settlers and *moriscos*), founding long-lasting communities of farmers along irrigation-drainage canals[86]. This idea of economical investment in agrarian

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[83] ASM, Sezione Veneta, Statuti del Commune, 1: 'De seraleis inter vicinos et consortes. Statuimus quod quilibet Dominus teneatur et compellatur facere medietatem seralearum, hortorum, curtinorum, curiarum, causurarum et domorum de lignamine et parietibus inter se et vicinum suum seu consortem suum, et hoc habeat locum in Terra Montagnana et extra eam (…)'

[84] AMCE, Decreta et privilegia Magnificæ comunitatis Este. Impressa sub anni domini MDCXXIX Sub Regimini Ilustrissimi domini Zachariæ Valerii, deputatis D. Antonio de Gobbis Doctore, D. Ioanne Baptista Regazona & D. Ioanne Antonio Capovino, Patavii, 1629, fol. 56: 'Quod consortes teneantur facere Seralias. Caput XCII. Statuimus & ordinamus, quod si aliquis consors intellingendo consortes Dominos propietatis, & habentes labellum vel locationem perpetualem, aut ad quinquennium, vel decennium in aliquo casamento posito in Este , & suis perinentijs voluerit facere aliquam serialiam de lignamine , vel de candellis inter se & suum consortem, & requisiverit consortem suum, ut faciat medietatem dictæ seraliæ, quod dictus consors infra tertium diem postquam fuerit requisites teneatur, & debeat facere partem sibi contingentem de dicta seralia, sub pœna solidorum viginti parvorum, & nihilominus costringatur ad dictam seraliam faciendam'.

[85] Franco Cazzola, 'Dalle carte dei consorzi di bonifica: sviluppo agricolo e trasformazione del territorio', in Fregni Euride (ed.), *Archivi storici nei consorzi di bonifica dell'Emilia-Romagna. Guida Generale* (Quarto Inferiore: Pàtron Editore, 2003), 11–19, 11.

[86] Torró Abad, 'Tierras ganadas', 169; Ib., 'Colonización cristiana y roturación de áreas palustres en el reino de Valencia. Los marjales de la villa de Morvedre', in Ib. and Guinot Rodríguez (eds.), *Hidráulica*

activities and landscape alterations, gave birth to communities of technical knowledge with the power of raising common budgets, such as Valencian *comunitats* and in Northern Italian *consorzi*, gaining the juridical status of franchised institutions[87].

b. 2. Modern investment in agriculture and élite interests in irrigation and drainage institutions

When speaking of later periods, starting in the mid 1400s and especially in the 1500, the vicinity of allotting lands is not as present among the defining elements of *consorzi* and *comunitats* in historiography. Rather, historians have frequently stressed that financial interest in water management permeated many members of seigneurial and urban spheres, frequently residing far away from the lands that where to be reclaimed and cultivated, providing the necessary amounts of capital and distantly entrusting local dwellers in the overseeing of the agricultural produce that was projected to pay back for their assets. Drainage and irrigation in the mid 1500s were generally associated in literature with aristocratic investments in ambitious hydraulic infrastructure projects. Alberto Guenzi and Carlo Poni used the term *consortes* when speaking of groups of élite stakeholders in charge of the control of Bolognese *chiaviche* (capillary deviations of the

agraria y sociedad feudal. Prácticas, técnicas, espacios, (Valencia: Publicacions de la Universitat de València, 2012), 147–85.

[87] In the case of *consorzi*, following specifications would add to the term in the 19th and 20th centuries depending on the main activity they carried out: for land drainage and also de-forestation, the employed name would be *consorzio di bonifica*; for irrigation, *consorzio irriguo*, and for a broader sense of cooperative agriculture, *consorzio agrario,* see: Michaela Scodaro, 'L'archivio del Consorzio di bonifica Veneto Orientale. Studio delle vicende storico-istituzionali e archivistiche (1879 – 2009)' (Venezia, Università Ca' Foscari Venezia, 2020); *Bonifica* has often been translated to English as "land clearings", as Robert Burr Litchfield does in his translation of Emilio Sereni's *History of the Italian Agricultural Landscape*, see: Emilio Sereni, *History of the Italian Agricultural Landscape* (Princeton: Princeton University Press, 2014), 80–83. We will rather translate *bonifica* specifically as "land drainage and irrigation" as these were the two preponderant and closely related activities carried out by *consorzi* in the lowlands of Veneto, while its meaning to describe the medieval forest clearing activities is attributed more to the peri-lagoonal forests of the Venetian *gronda*, a topic discussed by Alessandra Minotto in her doctoral thesis, see: Minotto, 'Lavorare l'acqua e la terra'.

river Reno) that powered the city's lucrative silk-spinning mills[88]. Accordingly, Elisabetta Novello describes Early Modern *consortes* in the following manner, stressing the cooperative financial aspect: 'I propietari, dovettero subito fare i conti con difficoltà tecniche e finanziarie spesso insuperabili. I lavori di arginatura ed escavazione dei canali collettori erano generalmente al di fuori delle possibilità di singoli possedenti. Per tale ragione si misero presto in azione i consortes, propietari che decisero di unire gli sforzi per eseguire opere idrauliche di interesse comune'[89].

In the concrete case of the Venetian Terraferma in the Early Modern period, the establishment of *consorzi* has been largely conceived as a mercantile asset in which rich Venetian patricians and merchants, invested their capital and related to each other as associates. In this sense, Salvatore Ciriacono stated that Venetian land reclamation was "de natura aristocratica"[90]. For instance, philosopher and agrarian thinker Alvise Cornaro or Corner, founded *società* or associate boards for land reclamation near the river Brenta in the 1530s with fellow patricians as joint investors, using the term *caratadori*, which had been mainly associated previously to Venetian partners in maritime mercantile

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[88] Alberto Guenzi and Carlo Poni, 'Sinergia di due innovazioni. Chiaviche e mulini da seta a Bologna', *Quaderni storici* 22, fasc. 64 (1) (1987): 115.

[89] Translation: "Landowners immediately had to deal with often insuperable technical and financial difficulties. The work of embanking and excavating drainage canals was generally beyond the means of individual landowners. For this reason, consortes, landowners who decided to pool their efforts to carry out hydraulic works of common interest, soon came into action.", the original Italian is in Elisabetta Novello, 'Polesine, terra di bonifica', in Giorgetta Bonfiglio Dosio, Cristina Covizzi, and Cristina Tognon (eds.) *Regolar l'acque: gli archivi dei consorzi di bonifica*, Gli archivi della provincia di Rovigo 3 (Rovigo: Nike kai Dike, 2005), 15; Also see a similar definition in Elisabetta Novello, *Terra di bonifica. Il ruolo dello Sato e dei privati nel Veneto dalla Serenissima al fascismo* (Padova: CLEUP, 2009), 16; Bruno Rigobello defined *consorzi* in the Polesine in a similar way as Elisabetta Novello, as groups of individuals interested in land reclamation and draining the lowlands, whose insufficient individual capital forced them to act collectively as a joint-corporation, see Bruno Rigobello, 'Consorzi e retratti nel Polesine in età estense e veneziana', in Franco Cazzola and Achille Olivieri (eds.), *Uomini, Terra e Acque. Politica e cultura idraulica nel Polesine tra '400 e '600*, Rapporti. Polesine e cultura padana 2 (Rovigo: Minelliana, 1990), 103.

[90] Ciriacono, 'Transfert tecnologico, economia e istituzioni nelle bonifiche cinquecentesche. Qualche linea comparativa a livello europeo', in Alssandra Fiocca et al. (eds.) *Arte e scienza delle acque nel Rinascimento*, (Venezia: Marsilio, 2003), 4.

enterprises[91]. Mid 16th and 17th century ducal and senatorial decisions (*terminazioni*) concerning the drainage and reclamation of large territories between the rivers Po to and Piave attracted Venetian investments, advertising agriculture as a more secure resource than naval activities, a phenomenon that economic historians of Venice have named the "conquest of the mainland" (*la conquista della Terraferma*)[92]. Large Venetian *consorzi* were established first along the Brenta and Bacchiglione rivers in the late 1400s, then in the Bassa Padovana (between the hills west from the city of Padua today named the Colli Euganei, and the northern bank of the river Adige) starting in the 1540s, and finally appearing south of the Adige in the 1600s, along the Po delta. Nonetheless, it is known that these areas north of the Po and south of the Adige had been subject to land reclamation before the large-scale Venetian patrician investments, as drainage and irrigation campaigns can be traced to the 11th century, when local Benedictine monasteries in Badia Polesine, Adria, Brondolo and Cavarzere, began to experiment with water canalisation)[93].

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[91] Novello, *Terra di bonifica*, 18. The word *caratadori* is a Venetian term that originated in maritime and mercantile contexts to designate joint investors in a company.

[92] Angelo Ventura, 'Considerazioni sull'agricoltura veneta e sulla accumulazione originaria del capitale nei secoli XVI e XVII', *Studi Storici* 9, fasc. 3/4 (1968): 675; Salvatore Ciriacono, 'Istituzione politiche e governo del territorio. Il Magistrato alle Acque nella prima età moderna', in Maria Francesca Tiepolo and Franco Rossi (eds.), *Il governo delle Acque* (Venezia: Istituto veneto di scienze, lettere ed arti, 2008), 30–49; Orlando, 'Governo delle acque e navigazione interna': 251–93; Concerning the broader phenomenon of Venetian control of the mainland, see: Michael Knapton, 'The Terraferma State', in Eric R. Dursteler (ed.), *A Companion to Venetian History, 1400-1797*, (Leiden: Brill, 2013), 85–124; Michael Knapton, 'Venezia e la Terraferma, 1509-1797: istituzioni, politiche e pratiche di governo, rapporti di potere, cultura politica', in Ib.*,* Andrea Gardi, Gian Maria Varanini, Andrea Zanini (eds.) *Una repubblica di uomini: saggi di storia veneta*, (Udine: Forum, 2017), 293–322; Ventura, 'Considerazioni', 675; Ciriacono, 'Istituzione politiche e governo del territorio'.

[93] Mauro Vigato, *Il Monastero di S. Maria delle Carceroi, i comuni di Gazzo e Vighizzolo, la comunità atestina. Transformazioni ambientali e dinamiche socio-economiche in un area del basso Padovano tra medioevo ed età moderna* (Verona: Cierre, 1997); Diego Calaon, 'Prima di Venezia. Terre, acque e insediamenti. Strumenti GIS per una comprensione delle trasformazioni territoriali tra tarda antichità e altomedioevo' (Venezia, Università Ca' Foscari Venezia, 2005), 57; Michela Colombo, 'Le opere benedettine: corti e bonifiche. Il caso studio di correzzola: storia, architettura e caratteri ambientali. evoluzione del paesaggio attraverso le fonti storiche cartografiche' (Padova: Università degli studi di Padova, 2024), 9–18; Carlo Baldi, *«Cavarzere giacente humile fra palustri canne...»: Storia e cronaca dal XVI al XVIII secolo*, Documenti di storia cavarzerana 3 (Cavarzere: Mariotto, 2003); Marco Bolzonella,

The first contemporary historian to study Early Modern Venetian land reclamation and water magistrates was Ugo Mozzi, who published in 1927 a monography based on the meticulous consultation of senatorial *terminazoni* that treated water management and investment in land reclamation. Mozzi stated that *consorzi* first appear in Venetian legislation in the 1540s as an initiative of Alvise Corner to bring together stately Venetian interest and private endeavours[94]. Certainly, this was not the actual origin of Venetian Terraferma *consorzi*, as smaller *consorzi* existed in the Terraferma long before and under the communal guardianship of local *podestà* and *capitani*[95]. Nonetheless, Mozzi was the first to define *consorzi* strictly in this doubly proto-entrepreneurial and stately sense[96]. In 1937, Elsa Campos published another book on Venetian *consorzi*, also tracing Venetian official and stately interest in drainage and irrigation of the hinterlands of Treviso, Padua and Rovigo in previous private endeavours of Venetian patricians such as Alessandro Bon[97]. In other words, Mozzi and Campos saw *consorzi* as private companies of Venetian pioneers that introduced their interests and concerns in the public sphere of Venetian politics by the 1550s. For example, economic historian Angelo Ventura stated that Alvise Corner's private investment in the wetlands of Codevigo in the 1540s along with local citizens of Padua in *società*, was conducted with a 'typically capitalistic speculative spirit', in rupture with previous attempts of land reclamation, that were rather about ameliorating domestic agricultural produce, and was a decade later emulated by Venetian

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Oltre i confini del dogado. L'espansione patrimoniale degli enti ecclesiastici veneziani nel Padovano (secoli IX-XIV), (Roma: Viella, 2022); On early medieval monastic, –mainly Benedictine– hydraulic interests and innovations, see: Roberta J. Magnusson, *Water technology in the Middle Ages cities, monasteries, and waterworks after the Roman Empire* (Baltimore, Md.: The Johns Hopkins Univ. Press, 2001) and Peter Ferguson, 'Benedictine and Cistercian Water Management in Mid-Twelfth Century England', in Dario Canzian (ed.), *Acqua e Terra Nei Paesagi Monastici. Gestione, Cura e Costruzione Del Suolo* (Padova: Padova University Press, 2022), 73–83.

[94] Ugo Mozzi, *I Magistrati veneti alle acque ed alle bonifiche : l'antico veneto magistrato alle acque, l'antico veneto magistrato ai beni inculti, l'attuale magistrato alle acque per le provincie venete e di Mantova*, Biblioteca delle acque, delle bonifiche e dei consorzi (Bologna: N. Zanichelli, 1927), 18.

[95] *Podestà* ruled over urban centres, whereas *capitani* ruled over rural territories or *magnifiche communità*.

[96] Mozzi, *I Magistrati veneti alle acque ed alle bonifiche*, 1927, 23–24.

[97] Elsa Campos, *I consorzi di bonifica nella repubblica veneta*, Collana Ca' Foscari (Padova: Cedam, 1937), 38.

magistrates interested in land reclamation stakes[98]. The term used by Corner, *società*, was interpreted by Angelo Ventura almost like the English term 'company', as a board of almost essentially Venetian patricians in charge of the management of a conglomerate of private capital and stakes that financed water and agricultural endeavours. Yet, this strictly aristocratic and speculative character of the foundation of these hydraulic and agricultural *società* of which Ventura spoke is not the same in other *società* of the same period in other regions of Italy. For instance, as developed by Enrico Roveda, the pecuniary character of the origin of the *società* in Lower Lombardy is certainly clear: what gave birth to these institutions was that a number of people agree to collectively cover the expenses of a work of common interest. Yet, what Roveda stresses is that, in the concrete case of two of the major irrigation canals in this region, the Naviglio Grande and Naviglio della Muzza, most of the active foundational members of the *società* that covered the expenses for the building of local capillary irrigation canals that derived from the latter were owners of neighbouring plots of land, concerning mainly local *consortes* and local ecclesiastical estates[99]. Within these small community *società* that developed in Lombardy, the main concrete interest of its member's capital was the construction and maintenance of irrigation canals that served small plots of land, and not that of the large 'proto-capitalist' agricultural investors and thinkers, who, like Corner, were aiming for the maximisation of the agricultural potential of large estates, accumulating substantial wealth.

As in the Lombard case cited above, the Venetian *consorzi* could also be less aristocratic and speculative. In other words, the creation of the *consorzi* in the Veneto could respond either to the institutionalisation of a desire to create a common fund between neighbours for a specific structure, or to the intention of accumulating wealth in an easily growing and stable investment on behalf of members of the aristocracy (both Venetian patricians and the Terraferma nobility). Accordingly, Elisabetta Novello syntheses Mozzi, Campos and Ventura's classification of Venetian *consorzi* in three types: first, small "voluntary" *consorzi* for concrete small local agricultural endeavours; second, *consorzi coattivi*, a top-

[98] Ventura, 'Considerazioni', 686; As with the later example of patrician Giacomo Barbarigo in the Polesine, Angelo Ventura exchanges the terms *consorzio* and *società* as synonyms, emphasising the corporative aspect of 16th century Venetian investment in land reclamation, see Ventura, 697.

[99] Enrico Roveda, *Uomini, terre e acque. Studi sull'agricoltura della «Bassa lombarda» tra XV e XVII secolo* (Milano: Franco Angeli, Storia, 2012), 268.

down compulsory Venetian creation for the taming of large uncultivated surfaces; and, third, *consorzio volontario con sanzione pubblica* for those who started as a small domestic project and merged later with Venetian governmental interests, taking stately protection and administration[100].

Furthermore, the word *consorzio*, this time in its Spanish-Castilian form *consorcio*, is punctually employed by Guy Lemeunier, a historian of irrigation in the Crown of Castile's kingdom of Murcia, in the Iberian southeast, bearing the same sense of élite investment group interested in water management, in contrast with municipal irrigation[101]. In the Valencian example, the term *consortes* is much rarer, only appearing once in the corpus of consulted sources for this study, and concerning one single concrete case of water management in the Valencian hinterland designating a plaintiff's fellow joint users of an irrigation canal in 1563[102]. Lemeunier's employment of *consorcio* as a form of "private" juridical entity in charge of irrigation in Murcia responds to a larger usage of that term in the region at the time, which is confirmed in the southern boarders of the Valencian kingdom with Murcia, designating fellow irrigation community members –mainly noblemen– in the Lower Segura region and in the Horta of Alicante[103].

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[100] Novello, *Terra di bonifica. Il ruolo dello Sato e dei privati nel Veneto dalla Serenissima al fascismo*, 22–23.

[101] Lemeunier, 'Gestión pública', 142.

[102] The term only appears in the title of the court case involving an apothecary named Francesc Reyner, who is accused by the *síndich* or main representative of the Favara Canal irrigation community, south of the city Valencia, and his fellow irrigation community members, see: ARV, Real Audiencia, Procesos, I Parte, Letra F, 65: 'In causa vertente in Regia Audiencia inter Franciscum Reyner farmacopolam ex una et sindicum cequie de Favara et alios littis consortes (…) ex altera'.

[103] The Lower Segura region, *Bajo Segura* in Castilian Spanish, was considered the southernmost realm of the kingdom of Valencia, under the royal jurisdiction of the city Orihuela, the only city, other than Valencia itself, that was considered a *royal court*. Even if it was an Aragonese possession as part of the kingdom of Valencia, its irrigation network depended from that the Segura River, which flowed from the kingdom of Murcia, under the Crown of Castile, having specific relations with their neighbours. At least one of the court cases contained in the Royal court of Valencia's early modern records, currently conserved in the Kingdom of Valencia Archives (ARV), concerns water management in the Lower Segura region, and the term *consortes* is used to designate the other members of the Almoravit canal irrigation community, near the town of Callosa del Segura, see: ARV, Bailía, Letra P, exp. 301: 'Anthonio Torres procurador y síndich de la cequia de Almoravit y hereter de aquella y a Joan Bon y altres consortes (…)'. Other than Guy Lemeunier, irrigation in this region has been studied by David Bernabé Gil, who stated that municipal and

b. 3. Contemporary views of irrigation and drainage institutions and their projection onto the past

The members of present day *consorzi* and irrigation communities affirm to descend from their medieval and early modern homologues, often resulting as large conglomerates of the smaller institutions of the past. For example, the regional government of Emilia-Romagna passed a law in 1987 to unify and delineate the hydro-geographical and institutional boundaries of each *consorzio*, producing nine recognised *consorzi* in the region today[104]. In the case of the Veneto region, a further simplification and unification of these entities was voted, creating today eleven *consorzi* according to the latest law of 2009[105]. The regional government of the Autonomous Valencian Community, as well as the Spanish state, ordered an obligatory self-establishment of *comunidades de regantes* as public corporations within the existing nine Spanish *confederacies hidrográficas*[106]. Spanish Hydrographical confederations were created in 1926 under the authoritarian regime of Miguel Primo de Rivera as public entities in

royal control over irrigation canals was much higher than in the rest of Valencian subregions due to the nearby boarder and the region's dependence on Castilian waters, see: David Bernabé Gil, 'Regadío y transformación de los espacios jurisdiccionales en el Bajo Segura durante la época foral moderna', *Investigaciones Geográficas (España)* 53 (2010): 63–84; for the early medieval original Muslim *huerta* landscape in Orihuela, see Miriam Parra Villaescusa, 'Sobre l'origen de l'Horta d'Oriola: Regadiu i espais agrícoles andalusins a la Vega Baixa del Segura (segles VIII-XI)', *Afers: fulls de recerca i pensament* 34, fasc. 93 (2019): 311–44; as well as her doctoral thesis: Miriam Parra Villaescusa, 'Paisaje, Explotación Agrícola y Agua En Las Tierras Meridionales Valencianas: La Organización Social Del Espacio. La Huerta y Campo de Orihuela (Siglos XIII-XVI)' (Universidad de Alicante, 2017): 267–358. On the Horta de Alicante and the practice of auctioning temporary irrigation shifts, something that certain agricultural 'monopolists' would take over at the end of the 17th century: Armando Alberola Romá, 'Agricultores y Monopolistas: El Control Del Agua de Riego En Las Comarcas Meridionales Del País Valenciano Durante La Edad Moderna', in María Teresa Pérez Picazo and Guy Lemeunier (eds.), *Agua y Modo de Producción* (Barcelona: Editorial Crítica, 1990) 188–211.

[104] Cazzola, 'Dalle carte dei consorzi di bonifica', 21.

[105] Scodaro, 'L'archivio', 17–20.

[106] Fernando López Alonso and Gabriel López Martínez, 'Las Comunidades de Regantes como entidades de Economía Social. Perspectiva jurídica', *Anales de Derecho* 36/1 (2018): 7–8; An interesting study on a late conflict between irrigation communities and state hydrographic confederations in the 20th century is that of Francesco D'Amaro, see: Francesco D'Amaro, *Antipatriotas del agua*.

charge of main river basins, aiming to totalise the energetic, industrial and agricultural potential of water courses, as well as centralising the distribution and purification of public waters for human consumption[107]. The centralisation of functions in 20th and 21st century institutions of public and state value also translated into an attempt to monopolise the memory of water management, resulting in the archival concentration of documents produced in previous centuries in the headquarters of the current large entities that claim to be the successors of earlier associations[108].

In this direction, the preservation of documents relating to Late Medieval and Early Modern *consorzi* across different types of institutions has shaped the ways in which their history is reconstructed. State archives such as those of Venice, Padua, and Treviso preserve part of this documentation, yet, further material from the same period survives in municipal archives, including those of the Magnifica Comunità of Este, Adria, or Montagnana, as well as in the hands of current *consorzi*, such as the Consorzio Adige Euganeo or the Consorzio Piave. The coexistence of these different custodial traditions

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[107] Lorenzo Martín-Retortillo Baquer, 'Trayectoria y significación de las Confederaciones Hidrográficas', *Revista de administración pública*, fasc. 25 (1958): 92–93; Joaquín Melgarejo, 'Las Confederaciones Hidrográficas. Evolución y transformación (1926-2000)', *Alquibla. Revista de investigación del Bajo Segura* 6 (2000): 79–95; Andrés del Campo García, *Las comunidades de regantes de España y su federación nacional. The irrigatoris communities of Spain and their National federation. Les Communautés d'irrigants d'Espagna et leur fédération nationale* (Madrid: Federación Nacional de Comunidades de Regantes de España (FENACORE), 2018): 26.

[108] Euride Fregni, *Archivi storici nei consorzi di bonifica dell'Emilia-Romagna* (Quarto Inferiore: Pàtron Editore, 2003); Giorgetta Bonfiglio Dosio et al. (eds.), *Regolar l'acque : gli archivi dei consorzi di bonifica*, archivi della provincia di Rovigo, 2005; Rémy Simonetti, 'Les archives des Agences d'assainissement (Consorzi di bonifica) comme source pour l'histoire environnementale : Le projet Terrevolute', in Stéphane Frioux and Renaud Bécot (eds.), *Écrire l'histoire environnementale au xxie siècle : Sources, méthodes, pratiques*, Histoire (Rennes: Presses universitaires de Rennes, 2022), 177–86; In the case of the Valencian Community, unlike in Emilia Romagna and Veneto, there are no summary catalogues of all of the archives pertaining to water boards, and one has to resort to the regional documentary descriptions contained in a collection entitled *Els Arxius Valencians,* see: Josepa Cortés Escrivà, Vicent Pons Alós, Rosario García García and Francesc Torres Faus (eds.), *Els arxius valencians* (València: Saó, 1998). By contacting and visiting the headquarters of each irrigation community, one also realises that a large part of the medieval and early modern collections are found in public structures of state and municipal archives, especially documents prior to the 18th century. Only the archives of the Royal Xúquer canal and the Royal Carcaixent canal exceptionally contain older documents.

has contributed to the forging of a narrative of institutional 'centralisation' in the *longue durée*. According to this view, pre-modern *consorzi*, originally established around specific canals and local projects of irrigation and drainage, gradually merged over time, culminating in the creation of large 19th-century entities through the amalgamation of earlier initiatives. In other words, the present organisation and preservation of documents may suggest that, at a certain point, the members of former *consorzi* and the state decided to manage wider territories collectively, generally following the geographical logic of river basins or hydrographic districts (*comprensorio*).

The circumstances are quite different for the *comunitats* of the former kingdom of Valencia. Here, institutional continuity is not foregrounded in historical reconstructions, largely because the archival organisation prior to the 19th -century liberal reforms is essentially state or municipal in character[109]. Although present-day *comunitats de regants* or *sindicatos de riegos* consider themselves heirs to older irrigation practices, the documentation they preserve rarely predates the 19th century. Thus, the current institutions responsible for local irrigation management in what is now the Spanish autonomous community of Valencia, subordinated institutionally to the hydrographic confederations created in the early 20th century, are regarded as heirs to earlier practices only in a primarily ethnological sense. By contrast, in the Veneto, the preservation of historical archives by non-state entities reflects a continuing intention to safeguard the memory of the *consorzi* that once operated in the same river basins now overseen by the present-day *consorzi di bonifica*.

These contrasting situations therefore lead to different projections of the historical development of *consorzi* and late medieval and early modern Valencian *comunitats*. Among the Venetian records, whether produced by the *consorzi* themselves or by the magistracies that dealt with them from the 16th century onwards, it is relatively easy to construct an image of institutional conglomeration by comparing the number of *consorzi* recorded in archival catalogues with those active today. For example, consulting the catalogue of the *Provveditori sopra i beni inculti* in the State Archives of Venice, in particular the subsection "Terminazioni relative a consorzi", reorganised by Michela Dal

[109] Marc Ferri Ramírez, *Terratinents, camperols i soldats*, 111–12; Fernando López Alonso and Gabriel López Martínez, 'Las Comunidades de Regantes', 3–4.

Borgo in 1992, reveals that between 1573 and the end of the 18th century at least 152 *consorzi* approached the Venetian authorities or maintained some form of contact with them[110]. These included not only irrigation and drainage *consorzi* in the Mediterranean and peri-lagoonal lowlands, but also smaller water boards in mountainous areas and upland karstic plateaux in the present provinces of Vicenza, Udine, and Pordenone. If we compare this with the present situation, in which the same territories fall under a total of 14 *consorzi* (the aforementioned 11 current *consorzi* in the Veneto Region plus 3 in Friuli–Venezia Giulia), the impression of institutional and territorial centralisation after Italian unification is unavoidable[111]. Yet this effect does not derive solely from modern cataloguing practices. It is already evident in the lists compiled by Venetian authorities in the second half of the 18th century, which classified *consorzi* by district and territory across the Terraferma. A list drawn up in 1762 recorded 44 *consorzi* in the district of Padua and 63 in that of Treviso[112]. These territories are now encompassed by only four present-day *consorzi* (from southwest to northeast: Adige Euganeo, Bacchiglione, Acque Risorgive, and Piave).

Thus, the fact that the number of *consorzi* diminished over the centuries in inverse proportion to the extent of the river basins and irrigated plains they came to cover, partly as a result of modern policies and facilitated by technical factors such as the introduction of pumping stations (*idrovore*), could be compared to the trajectory of Iberian irrigation communities and their later subordination to the hydrographic confederations. This, however, is a question that would need to be approached through the perspectives and methodologies of contemporary historiography.

In the Early Modern Period, the prevailing model of both *consorzi* and *comunitats* was that of a community of neighbours and/or investors organised around a single shared waterway. On the basis of archival records preserved in both public and current *consorzi* collections, there does not appear to have been a significant fluctuation in the number of

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[110] Michela Dal Borgo, *Provveditori Sopra i Beni Inculti*, 2nd edn, ed. Renata Moressa, with Monica Del Rio, Inventari ASVe 500 (Venice: ASVe, 2021), 49–51.

[111] *Consorzi del Veneto – Anbi Veneto*, accessed 19 November 2025, <https://www.anbiveneto.it/consorzi-del-veneto/> and <https://www.anbi.it/anbi-regionali/geo/6-Friuli+Venezia+Giulia>.

[112] ASVe, Provveditori sopra i beni inculti, 811.

consorzi within this period. There were even cases, such as the large *consorzio* of the Gorzon canal, which we shall examine later in this work, where the opposite development can be observed. Rather than a progressive agglomeration of smaller *consorzi* along the Gorzon, the canal was subdivided in the second half of the 16th century into three *consorzi* for three sections. Furthermore, as shown by documentary collections from southern Veneto, notably the municipal archives of Adria in the Polesine, there were *consorzi* active in the territories between the Adige and the Po that do not appear in the records of Venetian magistracies but are attested in municipal documentation[113]. This difference may simply reflect issues of preservation rather than administrative absence, yet it also highlights the limitations of relying exclusively on quantitative criteria to define Early Modern *consorzi*.

With regard to the kingdom of Valencia and the territories later reorganised under different names until the present autonomous community of Valencia, it is impossible to consider to attempt a similar operation of quantifying the *comunitats* in the *longue durée* through administrative documentation. The absence of administrative, and therefore archival, continuity between the *comunitats* of the 16th century and those of today prevents the construction of comparable projections. Furthermore, the establishment of a *comunitat* did not correspond to anything resembling the modern legal registration of an association or a company. These groups presented themselves to the Valencian judicial authorities in a self-defined manner when conflict arose. In other words, the members of a *comunitat* were such because they were irrigators or investors with an interest in irrigating land adjacent to a network derived from a shared canal. Their membership was renewed when they paid their annual contribution towards infrastructural maintenance, as will be examined in the following sections.

Thus, as in the case of the *consorzi*, the only stable criterion that defined the existence of a *comunitat* was the presence of a main shared irrigation and drainage canal, as, despite later 18th century lists, these institutions were not formally recorded in state registers. A quantitative reading based on later administrative sources, which appear to survive only partially and essentially in the Venetian case, and the interpretation of these materials as evidence of institutional centralisation or concentration, do not enable us to define with

[113] ASCA, 760, f. 3.

comparable precision the institutions of the Early Modern period or to determine whether there existed any discernible pattern in the fluctuation of their numbers.

Perhaps unexpectedly, when we turn to contemporary definitions of water boards that are presented as the heirs of the *consorzi* and *comunitats*, we find criteria that differ markedly from those suggested by a narrative of growing state intervention drawn from quantitative interpretations of historical water boards. Instead of evoking processes of administrative centralisation, other 20th-century definitions emphasise notions of local autonomy and sustainability, often framed within ideas of a contemporary third-way economic model. Thus, modern state centralisation of water control, and the subsequent conception of local boards as the smallest local subdivision of the central functions paradoxically portrayed *consorzi* and *comunidades de regantes* no longer as élite financial endeavours or neighbouring irrigators, but as self-governing communitarian local non-profit entities in charge of sustainably managing water as a common-pool resource[114]. This idea of communitarian institutions as both non-profit and non-governmental precedes the work of well-known economist Elinor Ostrom, and can be traced in early 20th century local jurists' work, such as Silvio Trentin in the case of Venetian irrigation and drainage *consorzi* and Victor Fairén Guillén's study of Valencia's *Tribunal de les Aigües*[115].

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[114] Elinor Ostrom and Roy Gardner, 'Coping with Asymmetries in the Commons: Self-Governing Irrigation Systems Can Work', *The Journal of Economic Perspectives* 7/ 4 (1993): 93–112; Daniele Rosa, 'Il governo delle comunaglie. Fonti, gestione, conflitti e tutela dei beni ad uso collettivo nella Liguria d'età moderna' (Genova, Università degli Studi di Genova, 2019), 43.

[115] Martine Antona, *Une Troisième Voie Entre l'État et le Marché: Échanges Avec Elinor Ostrom.*, Nature et Société (Versailles: Éditions Quæ, 2017); Silvio Trentin (1885 – 1944) was a jurist, intellectual, Venetian federalist and partisan of the Italian and later French resistances. A native from San Donà di Piave, on the lower Piave lowlands, northeast of the Venetian Lagoon, his major contribution as a young jurist in the turn of the 20th century and deputy of the Italian Democratic Socialist Party in the 1920s, prior to his opposition, exile and resistance action, was his precocious interest in the 'bonifica', i.e. the reclamation of land from wetlands and uncultivable land, its drainage and subsequent irrigation, see: Silvio Trentin, *Della natura giuridica dei consorzi amminstrativi di bonifica nella legislazione italiana e di alcune questioni preliminari ed attinenti* (Roma: Direzione dell'archivio giuridico, 1907); Frank Rosengarten, *Silvio Trentin dall'interventismo alla Resistenza* (Milano: Feltrinelli, 1980), 56–57; Initially interested in rather technical questions of land reclamation, his thinking drifted towards broader notions of the 'bonifica', defending not only agro-sanitary interests (feeding people and preventing malaria), but arguing that this was the way to find a common ground that would accommodate the private interests of the bourgeois landowners, the

The use of the term *consorzi* and *comunidad de regantes* in current times therefore designates institutions in charge of land reclamation and maximisation of agrarian produce and water management. In the current region of Veneto, as well as in other regions of northern and central Italy, *consorzi* are considered half public half private non-profit institutions that act locally bearing a common environmental goal. Their identity is that of collectively fulfilling an environmental role, and that of a sort of local custodian of a fragile landscape. Elisabeta Novello's interviews of former 20th century *consorzi* members in rural Veneto show how they thought of themselves as native experts who knew the land and waterways and without whom the landscape would still be

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claims of the wage-earning and dispossessed seasonal workers for better conditions, and the general health of the Italian nation, for which a broader form of "stagnation" was its main enemy, not only water stagnation, but also superstition, fear and ignorance. This thesis emanated from the classical French socialism of the time, whose inter-class approach would be later appropriated by the early Italian fascists, who also appropriated Trentin's idea of 'bonifica integrale' to publicise the Mussolinian drainage campaigns of the 1930s. Trentin organised a congress in his native San Donà di Piave where he presented his concept of "bonifica integrale", along with interested agrarian engineers, landowners and industrialists, see Silvio Trentin, *La bonifica umana, scopo essenziale della bonifica idraulica ed indispensabile premessa della bonifica agraria : relazione e discussione al Congresso Regionale Veneto delle Bonifiche tenuto in S. Donà di Piave nel marzo 1922*, (Venezia: C. Ferrari, 1922); Rosengarten, *Silvio Trentin*, 73–74; Trentin died in 1944 as a prisoner of the fascists, as his later work denounced Mussolini's regime for misinterpreting, distorting and manipulating his ideas, yielding to the pressures of Southern Italian landlords and imperialism, see: Silvio Trentin, *Dalla bonifica integrale al ... «pane dell'Impero» : note sulla politica agraria del fascismo*, (Paris: Giustizia e Libertà, 1939); Víctor Fairén Guillén (1921 – 2013) was a well-known prolific Spanish jurist and constitutionalist, with important academic and legal roles in the second half of Francisco Franco's regime and the transition to democracy. His interest in customary corpuses and his political defence of a federal Spain stimulated his interest in popular extra-judiciary courts, such as the Valencian water tribunal or *Tribunal de les Aigües de València*. He admired and praised the given institution as an efficient, spontaneous and non-governmental court of justice that was genuinely engaged with the cause of peace among water users, as an alternative to private ownership and state management. His main thesis on the *Tribunal* has been largely contested by historians, who did not approve of Fairén Guillén's historical perspective which projected the institution's functioning in the 1950s and 1960s to earlier periods in a monolithic and immutable way. He resumed the court's efficiency in four priorities: orality, physical gathering, speed and economy, see: Victor Fairén Guillén, *El tribunal de las Aguas de Valencia*.

swampland[116]. The communitarian and environmental aspect are also highlighted in contemporary *consorzi*, as boards of native experts who know the land they work as well as the waterways that keep it fertile, a reality that seems quite far from that of Early Modern Venetian *consortes*, that rather cultivated a *speculative* and *capitalistic* manner instead of the land.

In short, the terms *consorzio* and *comunitat* fluctuate in meaning depending on the historical period under consideration. In the Middle Ages they tended to be associated with rural communitarian associations of neighbouring landholders. In the Early Modern period, there emerged a stronger emphasis on participation and financial investment by members, with a notable presence of social actors drawn from sectors of power. In the contemporary period, notions of state control and centralisation, partly derived from a quantitative reading of the decline in the number of water boards recorded in state lists, coexist with more ecological and less state-centred interpretations.

It is nevertheless necessary to situate this study within the meanings attributed to *consorzio* and *comunitat* that are relevant to the late medieval and early modern periods. These include proximity and contiguity of landholdings, and the financial involvement of members, but above all the defining infrastructural and functional element: both institutions were inseparably linked to the construction and maintenance of a shared irrigation and drainage canal in a Mediterranean floodplain landscape.

c) Water and comparative studies: material culture and *top-down* politics

The main currents of interest before the birth of agrarian and social histories in 1960s were essentially those of archaeology of the Islamic period in the case of Valencia and the history of legislative "privileges" of both the Valencian *tribunales de aguas* and the *consorzi* in the Po valley[117]. Even today, it is difficult not to acknowledge these as

[116] Elisabetta Novello, '"Tornerebbe la palude": i Consorzi di bonifica veneti tra storia orale e storia ambientale', *Proposte e ricerche*, 78 (2017): 54.

[117] Campos, *I consorzi di bonifica nella repubblica veneta*; José Terrero, 'El regadío en la España peninsular', *Estudios Geográficos* 11, no. 39 (1950): 251–320; Julio Caro Baroja, 'Norias, azudas, aceñas',

important starting points for historians of the social and political aspects of water management in both compared spaces. The archaeology of ancient and early medieval structures, as well as the ethno-anthropology of late modern institutions, still permeate the historical surveys of the periods in between. In the same way as the terms *consorzi* and *comuna* / *comunitat* developed so many different meanings over the centuries, the two regions that make up the comparative case study on community water management have developed different scholarly interests and therefore historiographical directions.

When it comes to comparative studies on Valencian water management, most of the studies in the last century were with regions linked by material culture, i.e., with Mediterranean regions that also had a Roman and/or Arab-North African presence. Water management carried out by the Serenissima in its inland territories, has not only stimulated comparative studies on material and infrastructural conditions, but also has guided studies comparing the Republic of Venice to similar government models in Europe, such as mercantile republics with growing Early modern interests in agrarian and fiscal control. The following is a brief summary of the main questions that have stimulated comparative perspectives in historiography, mainly concerning technical and institutional aspects of water management in the regions of interest. This is to underline the need to overcome the two questions that rhythm the historiographic production on the Venetian-Valencian hydraulic institutions, thus that of Early Modern Valencian cultural material links to Medieval Muslim infrastructure, without paying sufficient attention to the vice-royal political forces of the moment, and, on the contrary, the weight of the modern Venetian state as a driving force of centralisation and appropriation of the exclusive use of water for the interests of the Serenissima's grain market, without paying attention to the local subsistence communities that in practice also made use of water for their own domestic crops.

The numerous archaeological surveys conducted in mid-20th century in the entire former territory of Muslim Spain or Al-Andalus, including the Balearic Islands, have accentuated the importance of Arabic and North-African hydraulic infrastructures, considered similar or even identical to those in Syrian or Maghrebi sites of previous or contemporary

Revista de Dialectología y Tradiciones Populares 10, no. 1 (1954): 29–132; Giner Boira, 'Intangibilidad de las Comunidades de Regantes'.

historical periodisation, many times reinforced by etymological similarities, such as George M. Foster's 1952 work on the *feixes*, seen by anthropologist and *arabiste* Michel Goblot as the westernmost example of Arabic *qanats* or underground rainwater collection and storage systems[118]. The continuity of the Hispano-Arabic legacy in both historiography and ethnology of Spanish hydrology, concerning mainly irrigation and water mills, is still today very much present, recurring to comparative similarities of technical aspects with other present or past Middle-Eastern and North-African infrastructures, as José F. Ruiz and José M. Civantos have shown on in current ethno-geographical surveys of mountain water canalisation in the Sierra Nevada of Granada, or as M. Carmen Charro on water management in the central middle ages in southern Navarre and the northern border of the Caliphate of Cordova, among others[119]. This is also the case for recent studies on medieval Valencia, in which the irrigation network of the Valencian *Horta* is considered by Enric Guinot Rodríguez and Ferràn Esquilache Martí one of the most notable infrastructural constants that survived the transition from the Muslim Andalusian to the Christian period, in which the displaced *Mudéjar-Morisco* community (previously Muslim Christian converts), had left infrastructure and government models that served as a model for late medieval land reclamation and irrigation in hinterland closest to the city of Valencia[120].

It is worth recalling, however, that although Christian settlers in the 13th century encountered a functioning system of irrigation and drainage already in place, the Christian conquest of the kingdom of Valencia produced substantial changes in the institutions and social actors responsible for water management, now embedded within the feudal order. While a significant part of the physical infrastructure endured, its governance passed into the hands of the principal strata of late medieval Christian society: lay and ecclesiastical

[118] George M. Foster, 'The Feixes of Ibiza', *Geographical Review* 42, no. 2 (1952): 227–37; Goblot, *Les qanats*.

[119] Ruiz-Ruiz and Martín Civantos, 'La gestión comunitaria del agua en la cara norte de Sierra Nevada'; J. Roldán Cañas and M. F. Moreno Pérez, 'La ingeniería y la gestión del agua de riego en Al-Andalus'.

[120] Guinot Rodríguez, 'L'Horta de València a la baixa Edat Mitjana'; Ib., 'De la vega andalusí a la huerta feudal'; Esquilache Martí, *Els constructors de l'Horta de València*.

lords, the cities and their municipal councils, and the rural communities dependent on one or another of these authorities[121].

Frequent references in customary texts and judicial records to the "Times of Saracens" ('temps de sarraïns') served, when not simply as a legal device to evoke the immemorial antiquity of a practice under defence, to signal the legacy of a system of governance created before the conquest. Yet the remaining *Morisco* population did not partake in the higher hierarchies of this system, as they were mainly displaced to inland regions and reduced to the status of serfs, losing any official capacity for self-representation, including within irrigation institutions, where they would be subjugated to feudal lords[122]. In this regard, Josep Torró has argued that there was even a pronounced discontinuity in the transmission of irrigation canal construction techniques[123]. The methods used for building irrigation canals characteristic of Hispano-Muslim society diverged markedly from the stonemasonry techniques introduced by settlers, many of whom came from Catalonia, Aragon and France, and who reshaped, maintained and modified the inherited irrigation networks.

Yet, decades before these recent studies on the deep changes that the Christian society had introduced into water management after the conquest of Valencia, archaeological evidence pointed to an essentially Hispanic-Muslim origin of irrigation structures and their governance. This meant an unavoidable clash with those who argued an even more ancient origin of the technical aspects of irrigation and water management, in the period of Roman Hispania[124]. These pro-Roman critiques of the essential Moorish genesis of

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[121] Enric Guinot Rodríguez, 'L'Horta de València a la baixa Edat Mitjana: De sistema hidràulic andalusí a feudal'.

[122] Enric Guinot Rodríguez, '"Com En Temps de Sarraïns": La Herencia Andalusí En La Huerta Medieval de Valencia'; Ib., 'Herencia y Ruptura En Los Espacios Irrigados de Las Poblaciones Mudéjares y Moriscas de Valencia (Siglos XIII-XVII)', in Vicent Baydal Sala and Ferran Esquilache Martí (eds.), *La Herencia Reconstruida. Crecimiento agrario y transformaciones del paisaje tras la conquista de Al-Ándalus (Siglos XII-XVI)* (Castellón: Universitat Jaume I, 2023, 317–351.

[123] Josep Torró Abad, 'Canteros y niveladores. El problema de la transmisión de las técnicas hidráulicas andalusíes a las sociedades conquistadoras', *Miscelánea medieval murciana* 37 (2013): 209–232.

[124] Antonio López Gómez, 'El origen de los riegos valencianos. Los canales romanos', *Cuadernos de geografía* 15 (1974): 1–24; Margarita Box Amorós, 'El regadío medieval en España: época árabe y

Valencian water management were by the 1960s more rigorously based on material culture rather than on the previous anti-Islamic ecclesiastical narratives, such as the 1580 assertions of Dominican friar Ortiz de Mendoza[125]. The lack of Roman written sources in comparison to the later epochs of Islamic and Christian late medieval rule in Valencia had, according to these archaeologists and geographers, diminished the hypothesis on Roman water management activity in Valencia, a cause for such institutional historians as Vicente Giner Boira, with the *Tribunal de las Aguas de Valencia,* to believe that the origin of the forms of autonomy of Valencian irrigation control were strictly medieval Muslim[126]. Indeed, Antonio López Gómez's article from 1974 is a great detailed historiographical review of this early 1970s debate between the *Romanist* archaeologists and the *Arabist* historians and *savants*[127]. According to López Gómez, the pro-Roman hypotheses' group included early 20th century specialists in Roman literature and geography, such as Adolf Schulten or Jean Brunhes, as well as 1970s local archaeologists such as Domingo Fletcher or José Martínez Aloy. Of the second type, adhering to the *Arabist* hypothesis, López Gómez states that they are mostly inspired by 19th century *savants* of customary law who often cited the *fuero* of James I of Aragon and its respect of *Moorish custom* in irrigation matters, an idea that, according to López Gómez emanates from as the 1950s works of Franco-Algerian *orientaliste* Évariste Lévy Provençal[128]. Yet without entering the details of this rather long essentialist debate on the ethnic genesis of water management in Valencia, as Antonio López Gómez concludes in his article, by the second half of the 1970s this controversy seems to have come to an end by acknowledging an ambiguous validity of both theories: Roman hydraulic structures are present in Valencia, being the most well-known the aqueduct of Riba-roja, with evidence of a

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conquista cristiana', in Antonio Gil Olcina e Alfredo Morales Gil (eds.), *Hitos históricos de los regadíos españoles* (Madrid: Ministerio de Agricultura, Alimentación y Medio Ambiente - Secretaría General Técnica, 1992), 49–90; Glick, *Irrigation and Society in Medieval Valencia*, 149–74.

[125] Gómez, 'El origen de los riegos valencianos. Los canales romanos', 3; Mateo Marco Amorós, 'Sobre la herencia islámica en el regadío valenciano: comentario a la obra de T.F. Glick «Regadío y sociedad en la Valencia medieval» (Valencia: Del Cenia al Segura, 1988)', *Sharq Al-Andalus* 5 (1988): 241–44.

[126] Giner Boira, 'Intangibilidad de las Comunidades de Regantes'.

[127] Gómez, 'El origen de los riegos valencianos. Los canales romanos'.

[128] Régis Blachère, 'Évariste Lévi-Provençal (1894-1956)', *Arabica* 3, fasc. 2 (1956): 133–35; Evariste Lévi-Provençal, *Histoire de l'Espagne musulmane*, vol.1–3, Histoire du monde de l'Islam, (Paris: Éditions G.-P. Maisonneuve & Compagnie, 1950-1953).

possible use for irrigation long after the fall of the Western Roman Empire, during the Visigoth kingdom, and yet this can coexist with late Medieval Christian law adopting previous forms of water use distribution and arbitration of the Hispano-Arabic period[129]. In other words, what archaeology proves right does not prove etymology and legal history wrong. In every period, thus Late Roman, early medieval, Visigoth, Paleo-Andalusian, caliphal or Muslim *taifa* kingdoms, Christian settlement and modern times, hydraulic infrastructures of great importance modified the waterscapes of the central regions of the kingdom, responding to the societal, economic and environmental priorities and concerns of local dwellers: canals were abandoned and rebuilt, new arable or inhabitable lands were reclaimed from wetlands, whilst others went underwater.

This conclusion probably sounds evident to current historiography. Nonetheless, in the mid 1970s it was a crucial step to draw together widely varied disciplines into one single branch of Valencian *irrigation studies*. This multidisciplinary breeding ground in which Archaeology, Arabic and North African studies, Medieval and Early Modern Hispanic studies, geography and agronomy converged, also stimulated the publication of Glick's 1970 work, and is indisputably the general starting point that most researchers take today. The Harvard professor's conclusions are, of course, in constant dialogue with, and in response to, the new methods of archaeology, cartography and the generally larger availability of historical archives preserved both in state archives and in irrigation communities and institutions that supervised water management in the alluvial plains and *hortas* of the kingdom of Valencia. This does not mean that the debate based on the multiplicity of sources and archaeological evidence pointing to a pre-Arabic irrigation system is left behind, just that it does not stir conflict with studies on the transition from Arab to Christian irrigation water management systems, such as Margarita Box Amorós's article that proves through both archaeological evidence and early Hispano-Arabic chronicles of the Ummayad califal period how Hispano-Roman and Visigoth hydraulic structures were reutilised and rebuilt very commonly by the Arab and Berber settlers[130].

[129] Ignacio Hortelano Uceda, 'La red de acueductos de la Valentia romana: canales de abastecimiento rural al sur del Túria', *Lucentum* 27 (2008), 69–85.

[130] Amorós, 'El regadío medieval en España'.

Another of the issues that raised great doubts about the hypothetical Muslim origin of Valencian irrigation in the first half of the 20th century was the lack of written evidence and archival material from the Hispano-Muslim period corresponding to irrigation practices. Although it must be reiterated that this thesis is completely refuted by both archaeology and medieval Christian sources describing Hispano-Muslim irrigation channel management techniques, it is true that the *savant* figures, archivists and palaeographers of the time were noted for their positivist vision of the text, and the non-existence of the text meant the non-existence of the phenomenon. Nowadays, written water disputes in Muslim Valencia have been discovered, noting the recent work of Alexandre Mateu and Bilal Sarr on an Arabic document describing an irrigation dispute between two communities of the Camp de Morvedre region, north from Valencia[131].

The historical experience of the technical conquest of the lower Venetian plains and wetlands supported by the institutions of the Republic of Venice, historiography has carried out important comparative studies with other areas of Europe with comparable political experience, thus thee transition from medieval communes to oligarchic republics. Hydraulic endeavours in the Republic of Venice's Stato da Terra have been compared with Flemish and Dutch experiences of land reclamation, not only paying attention to the technical aspects of drainage and history of engineering, but also to the political innovations that these activities generate. This trend not only concerns specific studies of water management, but belongs to a longer and broader historiographical tradition of many classic works on late medieval communal politics which, since the times of Henri Pirenne, paired Centro-septentrional Italian communal experiences with the cities in Flanders and the hanses of Northern Europe[132]. Salvatore Ciriacono's monography intitled *Acque e agricoltura. Venezia, l'Olanda e la bonifica europea in età moderna* mainly adhered to this tendency of comparing the two spaces as the quintessential innovative territories of a later broader European phenomenon, the large-scale agricultural endeavours of the late 18th century[133]. Ciriacono links the Venetian and

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[131] Mateu Picó, Sarr, e Torró Abad, 'Una disputa por agua de riego en el Sarq al-Andalus'.

[132] Henri Pirenne, *Le soulèvement de la Flandre maritime de 1323-1328: documents inédits* (Bruxelles: Kiessling et Cie, 1900); Ib., *Les Villes et Les Institutions Urbaines*, vol. 1–2 (Paris: Alcan, 1939).

[133] Salvatore Ciriacono, *Acque e agricoltura nell'Europa moderna : il caso veneziano* (Padova: CLEUP, 1992).

Dutch 16th century hydraulic works to the 18th century proto-industrial sparks of agronomic innovation in England and France, a hypothesis that has been supported recently by historian of Early modern architecture Deborah Howard to the history of Venetian water mills and its high specialization and variability[134].

Ciriacono bases his comparative study of Veneto and Flanders not only on technical knowledge, but also on the administrative dimension of Venetian drainage projects and Dutch *polders,* as well as on the normative ideal behind the management of hydro-agricultural projects[135]. Despite concluding with considerable scepticism over the "democratic nature" of both civic republican regimes when applied to agricultural projects, the starting point of his work bears an insight on political autonomy of late medieval city states in common with many comparative studies of both territories concerning many other aspects, from political practices of deliberation, as in Bruno Boute and Maria Antonietta Visceglia's 2009 article, to intellectual histories of scientific exchange networks, as in Peter J. Taylor and others' work on mapping northeast Italian and Dutch centres of knowledge, such as Padua or Leiden[136]. Apart from Ciriacono's 1994 book, we have more recent examples of Flemish-Italian comparative works concerning swamp drainage and land reclamations, such as Michele Campopiano and Daniel R. Curtis' 2014 article on the Po and Lower Flanders[137]. In short, most comparative studies of the Venetian case are based mainly on the extreme of lowland water abundance.

Concerning the kingdom of Valencia, unlike Veneto, there are fewer classic references that compare urban institutions in Valencia or other cities to the Centro-septentrional Italian communes and *signorie*, even less to northern European hanses, or the Germanic

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[134] Ciriacono, *Acque e agricoltura*, 300–302; Deborah Howard, *Proto-Industrial Architecture of the Veneto in the Age of Palladio* (Roma: Officina Libraria, 2022).

[135] Ciriacono, *Acque e Agricoltura*, 222–224; 229–30.

[136] Maria Antonietta Visceglia and Bruno Boute, 'Cultura e Prassi Politiche Tra Fiandre e Italia Nel Seicento. Note Introduttive', *Dimensioni e Problemi Della Ricerca Storica* 2 (2009): 7–16; Peter J. Taylor, Michael Hoyler, and David M. Evans, 'A Geohistorical Study of "The Rise of Modern Science": Mapping Scientific Practice Through Urban Networks, 1500–1900', *Minerva* 46/4 (2008): 391–410.

[137] Daniel R. Curtis and Michele Campopiano, 'Medieval Land Reclamation and the Creation of New Societies: Comparing Holland and the Po Valley, c.800–c.1500', *Journal of Historical Geography* 44 (2014): 93–108.

Kommunenbewegung (that can translate as the "communal phenomenon" or "movement"). Yet the urban and mercantile aspect of economic development was large in Valencia, although it might not have couth the attention of mid-20th century urban history as it did not lead to a complete *affranchissement* from the Aragonese landed nobility (not without violent attempts, such as the Revolt of the Brotherhoods or *Germanies* in 1519–1522)[138]. Late medieval Valencian forms of burgh and parish *affranchissement* where not conquered as in Italy, thus forming communal *arenghi* or guild parliaments, violently expelling imperial representation from the cities. In Valencia, political autonomy was directly linked with the Christian conquest of the territories previously occupied by the different Hispano-Arabic *taifa* kingdoms in the 13th century, and materialised itself in the act of Royal concession of both land and rights[139].

Indeed, in more recent historiography, Spanish and French academics have given a certain importance to Valencian, Catalan and Balearic late medieval forms of city and parish autonomy generated by both military conquest and mercantile and maritime activity[140].

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[138] *Germà* in Catalan means brother, and *Germanies* translates as "brotherhoods". The latter were a series of corporations, guilds and urban militias that revolted against the nobility in the Valencian kingdom in 1519, sparking a conflict that lasted up to the beginning of 1523. See this study's chapter 6, p. 438, in order to avoid confusion resulting from the orthographic similarities of the Catalan term with everything related to Germany or the Germanic context, the English term "Brotherhoods" will be used.

[139] Guinot Rodríguez, 'Sobre la génesis del modelo político de la Corona de Aragón en el siglo XIII: Pactismo, Corona y Municipios', *Res publica. Revista de filosofía política* 17 (2007): 151–76; Ib., 'La creación de las comunidades campesinas y las parroquias rurales en una sociedad feudal de conquista' in Beatriz Arízaga Bolomburu.et al. (eds.), *Mundos Medievales. Espacios, sociedades y poder. Homenaje al profesor José Ángel García de Cortázar y Ruiz de Aguirre*, vol. I (Santander: PubliCan, 2012), 583–598.

[140] Pierre Bonnassie, *La organización del trabajo en Barcelona a fines del siglo XV*, (Barcelona : Consejo Superior de Investigaciones Científicas, Institución Milá y Fontanals. Departamento de Estudios Medievales, 1975); José Luis Corral Lafuente, 'El origen de las comunidades medievales aragonesas', *Aragón en la Edad Media* 6 (1984): 67–94; Jacqueline Guiral-Hadziiossif, *Valencia: puerto mediterráneo en el siglo XV (1410-1525)* (Valencia: Edicions Alfons el Magnánim - Institució valenciana d'estudis i investigació, 1989). María Isabel Falcón Pérez, 'Las Cofradías de Oficio En Aragón Durante La Edad Media', *Medievalismo: Boletín de La Sociedad Española de Estudios Medievales* 4 (1994): 59–79; Max Turull Rubinat, *El Gobierno de La Ciudad Medieval: Administración y Finanzas En Las Ciudades Medievales Catalanas* (Barcelona: CSIC, 2009); Francisco Paulino Iradiel Murugarren, 'Mercanti nel triangulo Valencia, Italia ed Africa mediterranea', in Valeria de Fraja and Salvatore Sansone (eds.) *Contributi. IV Settimana di Studi Medievali* (Roma: Istituto Storico per il Medioevo, 2012), 197–202; Ib.,

Assessing the modern evolution of political identities of the former kingdom of Valencia, regionalism and particularism usually recurred to this late medieval, quite mythical, past of corporativist independence from any form of Iberian territorial centralisation, stating that Valencian guilds and banks were much older and powerful than any institution in the Bourbonic Spanish kingdom, as Francisco Javier Borrull i Vilanova defended the antiquity of Valencia's Tribunal de las Aguas in front of Cádiz Constitutionalists in 1812[141]. Narratives of late medieval and early modern corporative independence of burghs are not specific to 19th century Valencia; the specific case of northern Italian *consorzi* in the Po' Valley fitted into the 1930s myth of an inherent Italian spirit of agrarian corporativism, a trend that, as seen in the case of Silvio Trentin's work, emanated from classical French socialism, and was later appropriated by the Fascist regime, justifying its agro-industrial planification campaigns[142]. It is therefore noteworthy how both examples of jurisdictional "privileges" over water management in the past, both in Valencia and Veneto, developed in the 19th and early 20th century myths of national identification, boasting of a long tradition of popular *liberties* and a sign of emancipation.

As Glick started to point out in 1970, and was later confirmed by current medievalists, the kingdom of Valencia was a mosaic of very different models of legislative power over waters, some in which the consuetudinary rights to distribute and deliberate fell to the communities of cultivators themselves, in others falling under municipal town councils, and in others derived directly from the Aragonese viceroy. Enric Guinot Rodríguez and

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El Mediterráneo Medieval y Valencia: Economía, Sociedad, Historia, Història, vol. 180, (Valencia: PUV, 2017); David Igual Luis, 'La ciudad de Valencia y los toscanos en el Mediterráneo del siglo XV', *Revista d'historia Medieval* 6 (1995): 79–110; David Igual Luis, 'La emigración genovesa hacia el Mediterràneo bajomedieval', in Luciano Gallinari (ed.), *Genova. Una 'porta' del Mediterraneo*, vol. 1, (Genova: Brigati, 2005), 295–328; Ib., 'En un temps de transició: el comerç de la Corona d'Aragó a la Mediterrània', in Ernest Belenguer i Cebrià (ed.), *Ferran II i La Corona d'Aragó*, (Barcelona: Institut d'Estudis Catalans: 2018), 117–35; Léonard Courbon, 'Oligarchy and Patronage in Late Medieval Spanish Urban Society', *Cahiers d'Études Hispaniques Médiévales* 34, no. 1 (2011): 277–83.

[141] Juan Martínez Vinat, 'Cofradías y Oficios. Entre la acción confraternal y la Organización Corporativa en la Valencia medieval (1238-1516)' (Valencia: Universitat de València, 2018); Francisco Javier Borrull y Vilanova, *Discurso sobre la Constitucion, que dió al reyno de Valencia su invicto conquistador el Señor D. Jayme Primero* (Valencia: en la Imp. de Benito Monfort, 1810).

[142] Ugo Mozzi, *I Magistrati veneti alle acque ed alle bonifiche*; Campos, *I consorzi di bonifica nella repubblica veneta*.

Ferràn Martí Esquilache confirm how this intertwining and overlapping of institutional powers, generating variations of specific statuses of water management on the micro-regional scale, had its origins in the very local consequences of Christian conquest and the social origin of Christian settlers, generally known in a very broad historiography as the actors of a very complex form of *repoblación* (in Castilian Spanish "repopulation") and *repartiment* (in Catalan, "redistribution" or "allotment"), with specific jurisdictional categories differing between regions of the Medieval Iberian peninsula, such as Valencia, the Duero valley, Extremadura or the Balearic Islands, among many other examples[143]. The creation of privileges and their very specific application to the hydraulic necessities of each community in Valencia created legislative élites that varied from one part to another, forging the appearance of territories with more apparent deliberative autonomy than others in both irrigation and land ownership. This can engender a systematic portrait of water rights as a question of centro-peripheral or *top-down* concession, as if late medieval power was concentrated in centres that either allowed or prohibited water use to communities in a large territorial periphery.

However, the legal response of a Valencian water arbitrage would be partly related to the status and privilege resulting from the Christian conquest of the city, municipality, jurisdiction or village in which the conflict occurred, it must be stated that one of the other factors for the greater or lesser legal autonomy of a particular community would also depend on the environmental picture. Western Mediterranean lowlands and peri coastal

[143] Guinot Rodríguez and Esquilache Martí, 'La reorganización del paisaje'; Torró Abad and Guinot Rodríguez, 'Introducción. ¿Existe una hidraúlica agraria "feudal"?', in Ib. *Hidraúlica agraria y sociedad feudal: prácticas, técnicas, espacios*, 2012, 9–20; Guinot Rodríguez, 'Herencia y Ruptura En Los Espacios Irrigados de Las Poblaciones Mudéjares y Moriscas de Valencia (Siglos XIII-XVII)'. For other Iberian regions and the consequences of medieval Christian feudal lordship in land allotment: for Albacete (Castile): Aurelio Pretel Marín, *Conquista y primeros intentos de repoblación del territorio albacetense: del período Islámico a la crisis del siglo XIII*, vol. 27, 1 (Albacete: Instituto de Estudios Albacetenses "Don Juan Manuel", 1986); On the Duero valley, Gonzalo J. Escudero Manzano, 'La "despoblación" y "repoblación" del valle del Duero: La problemática de las fuentes y el debate historiográfico', *Estudios Medievales Hispánicos* 5 (2016): 151–72; For Extremadura: José Luis de la Montaña Conchiña, 'Iglesia y repoblación. La red parroquial de la Transierra extremeña (1142-1350)', *Anuario de Estudios Medievales* 28 (30 December 1998): 857–73; For the Kindgom of Mallorca: Álvaro Santamaría Arandez, 'Repoblación y sociedad en el reino de Mallorca (1230-1343)', *Espacio Tiempo y Forma. Serie III, Historia Medieval* 1 (1988), 525–40.

plains suffered acute drought, as well as important periods of floods, and human collective intervention was imperative for inhabitation and economy. Water distribution was therefore a question of environmental justice.

Therefore, one of the defining elements of these late medieval and early modern institutions in charge of water management is the role they had with the application of economic justice to the historical circumstances of Early Modern agrarian practices, and the debates on the ethnic origins or institutional ethos of irrigation and drainage remain therefore rather secondary. In this concrete question of hydraulic justice, the kingdom of Valencia and the Venetian Terraferma note similar processes of gradual centralisation into hierarchical governments, englobing both local actors and sovereign offices, either introducing water-related conflicts into existing royal courts of justice, such as the *Real Audiencia* or the *Gobernación* of Valencia, or stimulating the creation of new specialised magistracies, such as the Venetian *Savi alle acque* or the *Provveditori sopra i beni inculti*. These stately legal institutions arbitrated and dialogued with local communities, and in this sense, municipal and royal court deliberations, acts and normative corpus are extremely valuable sources for assessing internal functioning and hierarchy, as well as the external projection of water management communities. By the same logic, the acts of the Venetian magistracies, mainly conserved in the State Archives of Venice, are full of petitions sent on the most concrete matters of micro-regional communities all over the mainland territories. Precisely in the Venetian case, the general conclusion that can be drawn from the consultation of the numerous *supplica* from *consorzi* members and local communities, as well as from the fiscal cadastral plans of the mid 1500s, is that the internal functioning of communitarian *consorzi*, the conglomerate of sharecroppers of a given parish, also followed very different customary particularities of pre-Venetian times, ranging from non-elective appointment of representatives to arbitrary acclamation or balloting of *presidenti*, and therefore proving a previous time of autonomy[144]. According to the rules set by Venetian magistracies, these mid and late 1500s *presidenti* of each

[144] ASVe, Provveditori sopra i beni inculti, 26, 27; ASTv, Comune, 608; ASPd, Acque, 88; On Venetian fiscal *estimi* in the territory of Padua, see: Mauro Vigato, 'Gli Estimi Padovani Tra XVI e XVII Secolo', *Società e Storia* 43 (1989): 45–82; Guido Alfani and Matteo Di Tullio, *The Lion's Share: Inequality and the Rise of the Fiscal State in Preindustrial Europe*, Cambridge Studies in Economic History - Second Series (Cambridge: Cambridge University Press, 2019), 43–5.

consorzio, as seen in the documents produced by the *Provveditori sopra i beni inculti*, were compulsorily required to declare to the Venetian authorities many different matters, such as the quantity of water used for certain crops, the number of share owners and their names, the number of livestock shared by these farmers, and the subdivisions of the property according to the different activities (pasture, cereal crops or irrigation goods). Yet circumstantial archival evidence of envoys shows less effective control, with their visits to the concerned territories for cases of indebtment spread out across gaps that can be of several years, and sometimes of various decades as in the example of the tax collection for the Gorzon canal digging between the Po valley and the lower Adige[145].

Therefore, there was an intention on behalf of modern institutions and magistracies to control the communitarian scope, yet depending on a coexistence with the preponderant participation of local actors maintaining a correct internal hierarchical structure of each of their particular institutions and securing the productive objectives of each parish. Seen from the point of view of the normative sources produced by Venetian magistracies, we could say that everything was well organised from above for the control of inland water. Nonetheless, the circumstantial sources that describe the experiences of punctual *inzegneri*, or Venetian experts in matters of water, show a more complex portrait in which the main decisions of the *consorzi* are taken only by its members and not imposed from outside. In other words, Venice, as a centre, usually preferred sending envoys to consult with the *presidenti* of a given *consorzi* over a specific hydraulic work, urging the local institutions to give their opinion on what has been presented from above.

The practice of technical consultation of local actors by the envoys of magistracies in the mid 1500s proves an underlying Venetian objective to centrally govern the waters, an objective that nonetheless could not be materialised without the knowledge, and therefore the approval, of the local proprietors. This is quite far from the modern idea of a Centro-peripheral relation of vertical domination and submission of the territorial margins to one single law. Therefore, the ideas of the end of communitarian autonomy and of an aggressive expansionism must be rather nuanced, despite the image projected in the normative acts of both the *Savi alle acque* and *Provveditori sopra i beni inculti*. In the case of water, therefore, if we consider that communitarian autonomy relies on the

[145] ASVe, Provveditori sopra i beni inculti, 26, 839.

material knowledge and physical participation, the classic chronology of the transition from Medieval communalism and Early Modern oligarchy, epitomized for example Phillip Jones' title *From commune to signoria*, must be subject to scrutiny in the case of politics *par le bas*.[146] The medieval corporative model persists at least until the mid-1500s concerning water management in many small communities, despite the large territorial jurisdiction into which they theoretically tended to be agglutinised. For example, during the 1557 digging of the Gorzon canal, Venetian magistrates of the *Provveditori sopra i beni inculti* urged all of the *consorzi* members to vote for one or two representatives or *presidente* per *consorzio* without any further details on the material ways of electing them. Some seem to have been chosen based on wealth, and therefore on who had paid more for the cropping campaign, whereas others were chosen by an anonymous or public ballot vote[147]. In this case the Venetian authorities are clearly more interested in the negotiation aspect of consultation with local producers, rather than in imposing ways of how each *consorzio* should manage itself. Autonomy is generated by knowledge and practice, rather than by simple vertical jurisdictional concessions.

[146] Philip J. Jones, 'Communes and Despots: The City State in Late-Medieval Italy', *Transactions of the Royal Historical Society* 15 (1965): 71–96; Ib., *The Italian City-State*.

[147] ASVe, *Provveditori sopra i beni inculti*, 456.

Chapter conclusion

Water management, society and political power as two holistic historical phenomena have a long tradition of scholar interest, first agronomic and juridic, then sociological and political, and finally archaeological, cultural, anthropological, and historiographical. Archival materials can be also consulted by adopting a lens within the current theoretical debates on water's role in communitarian institutionalisation, during modern centralisation of water jurisdiction and the consolidation of governmental narratives of water. Excess and lack of water were social concerns of Western Mediterranean plain landscapes, constraining societies to create institutions capable of managing water at the local level. The *consorzi* of the Veneto and the Valencian irrigation *comunitats* developed in parallel as similar institutional models of communitarian water management at the level of the technical and legal practices of irrigation and drainage of the both territories. By the 1500s, these functions also permeated the higher and more central state magistracies.

The proposed methodology is therefore that of a political history of water management, attempting to understand the role of water in the mechanisms of institutionalisation and identification of the local communities with water in the mid-15th century Aragonese kingdom of Valencia and in the Republic of Venice's Stato da Terra, and the following Early modern conglomeration of hydraulic functions in hierarchical states. A political history does not mean a history of the formation of the modern state and ideology, in Wittfogelian terms; it rather proposes to understand politics as the management and exercise of local material power, with practices of ordinary deliberation and arbitration over water in the communitarian level, potentially producing insights on larger forms justice and interest and influencing the consolidation of Early Modern states in western Mediterranean regions.

The main starting point of this comparative study is a paradoxical situation: two similar environmental frameworks generate comparable agro-productive and environmental concerns, that infiltrate the governing bodies of the kingdom of Valencia and the Republic of Venice in the 16th century, giving rise to legislative texts on water management, and to specialists, experts, surveyors and procurator fiscals. Therefore, the proposed comparative approach of two territories of the Western Mediterranean region, the

Republic of Venice's Stato da Terra and the kingdom of Valencia within the Crown of Aragon, during this transition from local to stately control of water, demands positioning within the very varied analyses of previous literature concerning communities of local water management. This vast scholarly production ranges from case studies of local history to transnational approaches of communities of water management and their approach to government. Histories of communities of the past related to water management have focused either on tracing the specific archaeological, technical and political origins of a given water institution, or applying sociological and geographic methodologies to either reconstruct landscapes or to tackle common environmental concerns of the current era in continuity with those of the past.

Concerning comparative literature, studies on Venetian and Valencian communitarian water boards have not yet been conducted. In the case of Valencian water management, comparative approaches have treated hydraulic structures and ethnographic studies of the Arabic and North-African regions, as well as its projection to irrigation systems in colonial America, motivated mainly by its similarities with Valencian archaeological evidence. In the case of water management in the Terraferma, comparative histories have rather concerned the Low Countries and Flanders in both terms of the economic history of Modern agricultural land reclamation and as an example of protoindustrial development of rich maritime mercantile states that sought to invest in agriculture.

Nonetheless, the main pillars of this proposed comparative study are methodological axes concerning the political meanings of water justice and arbitrative practices: first, similar chronologies of centralisation of water managerial practices in specialised magistracies in similar geoclimatic contexts, and, second, long traditions of regional historiography on customary laws and water rights that point to an important preponderance of local custom intermingling with top-down legislation.

Therefore, for example, the current interrogation is not about the coexistence of both Hispano-Roman and Hispano-Arabic origins of the Valencian irrigation system, it rather attempts to distance itself from the excessive weight of these two previous periods of technical and material innovation, and focuses on the circumstantial side of institutional praxis of water justice, in this case, at the beginning of the Early Modern period. The intention is to centre our interest strictly on the communitarian politics internal to the

irrigation *comunitats* and *consorzi* of Late medieval and Early Modern Valencia and the Venetian Stato da Terra in relation to the modern state's grasp in territorial and hydrological governance.

The choice of the main sources consulted is based on descriptions of these circumstantial practices, rather than on the normative corpus that was later idealised by jurists and agronomists. This is where the social history of irrigation, previously in the service of 1970s studies of agricultural productive capacities and of consuetudinary law codification, has now to deal with the question of the exertion of political power. Therefore, it is not a question of building narratives of power by means of institutional history based on the constitutional privileges and concessions in royal legal corpus as a main source, but through understanding power as the material exercise of managerial authority in a given society, microregional circumstance and landscape.

The comparative study of late medieval and early modern irrigation *comunitats* in the kingdom of Valencia and *consorzi* in the Venetian Terraferma requires a double positioning: first within the broader theoretical bibliography of *hydrosocial* studies, and second within the historiography of each case study. This project is an attempt to contribute to a broad literature on studies on water use and governance by assessing the practices of communitarian management of common waterways. The theoretical association between water and societies can be dated to the early 1800s, when the forms of communitarian water management were first linked to agrarian reformers who took interest in the history and ethnology of customary law over water uses. In the 1950s Arthur Maass and Karl A. Wittfogel applied these close ties between water management models and society to a study on power and authority, anchored in the political stakes of their days. Wittfogel's thesis, despite seen as being rather obsolete and ideologically forced by today's theories, was pioneering to the hypotheses, linking water management to political power as one of the first activities to generate narratives of satemaking, drawing pioneering conclusions that are still today provocative and stimulating starting points.

In the following chapters, the choice of linking water to politics is more of a *par le bas* approach, viewing politics as a broader exertion of power manifested in managerial practices of deliberation and arbitration. The formation of government institutions that

were first involved in issues previously dealt with by community will be addressed as an essential narrative of technical-administrative domination of the waters in the territories they sought to govern upon, but as a constant dialogue and tension with the more local institutions in charge of single shared canals.

Thomas F. Glick was the first historian to adopt this socio-political optic of water in his 1970 book, still present as a major publication, mainly inspiring *hydrosocial* studies of Hispanic past or present global areas of influence. Glick is also rightfully acknowledged for building a complex historical portrait of microregions and social conceptions of irrigation within the kingdom of Valencia, with different and sometimes contrasting forms of irrigation and normative principles, highlighting a heterogeneous and regionalised adaptation to different hydrographic regimes. This recognition came from subsequent generations of researchers of Valencian irrigation, whether historians, archaeologists, geographers or anthropologists.

Thus, we can trace a set of subdisciplines that must be borne in mind throughout the study: first, infrastructural history, where water has largely been examined through archaeological evidence and material cultures; second, landscape histories and human geography; and third, legal and juridical histories concerning land ownership and water use. Two methodological elements are particularly noteworthy: most studies adopt a microregional scale, and they are thematically interrelated. Water is understood not merely as a passive component of the landscape but as an active and mutable non-human agent within society. This work develops along these lines, conducting a socio-political inquiry into forms of water-based communitarianism across specific microregional contexts, focusing on the continental territories of the Republic of Venice and the kingdom of Valencia between 1450 and the late 16th century.

The historiography of each case reveals distinct trajectories. In the kingdom of Valencia, water management has primarily been approached through archaeology and legal history, often linked to the Islamic period and the subsequent ruptures introduced by seigneurial and later royal powers. In the Veneto, by contrast, the dominant perspective stems from the history of agriculture and early modern waterway reform, as envisioned by the technical-administrative élites of Venice. However, the focus here is not on the dichotomy between centres and peripheries, but rather on how political authority could be produced

through the presence of water in local case studies and through communities' practical knowledge and action. These autonomous forms of management frequently intersected with processes of early state formation. Archival sources, particularly magistrate and judiciary court documents, suggest a model of long-term governmental negotiation with (and adaptation to) local communitarian actors, rather than the imposition of a vertical, totalising state structure. The evidence points to a more gradual and negotiated transition from the late medieval to the early modern period, especially when contrasted with the more abrupt political changes seen in central and northern Italian city-states as they moved from communal governance to oligarchical or seigneurial regimes.

Before turning to the grassroots practices of the *consorzi* and *comunitats* as fundamental institutional and political units of agricultural water governance, it is necessary to outline the broader institutional frameworks that shaped each territorial reality. These differed not only in terminology but also in their broader governmental structures. On the one hand, Valencia formed part of the Crown of Aragon, where the political configurations imposed by the Christian conquest had long-lasting effects on the administrative traditions of community irrigation. On the other hand, the Republic of Venice, although it formally claimed absolute rights over water, developed practical mechanisms of negotiation with the inhabitants of the Terraferma, acknowledging pre-existing customs and legal norms related to hydro-agricultural management. The next chapter addresses the major concerns of the Venetian government regarding water, alongside the tensions that emerged between official policies and the responses of rural communities and agricultural élites in the Terraferma. Particular attention is paid to the creation of magistracies and specialised offices by the Senate, and to the implications of its initial efforts to impose regulatory frameworks in a post-communal context.

Chapter 2 – Water Management in the Venetian Terraferma

When speaking of water and the Republic of Venice it is inevitable not to think first of the very amphibious nature of its capital, situated in the heart of the largest lagoon in the Mediterranean. The city of Venice is an incredible example of human ingenuity and adaptation to the rhythms of the tides, to the unstable sandbars and marshes, and to the undrinkable salt waters that mixed with the muds from the inland rivers that dumped into the Lagoon. Venice not only accommodated to its environment, but flourished thanks to it, using its singular situation between the land and the sea as a defensive barrier, as Piero Bevilacqua named it, *un bastione naturale*, as well as a mercantile bridge between the Adriatic and the continent[1]. The symbolic bicephalous republic, anchored in both the solid and the liquid environments, materialised at the beginning of the Early Modern period in a clear jurisdictional distinction between the continental Stato da Terra or Dominio di Terraferma, arching from Lombardy to Istria, and the insular Stato da Mare along the Adriatic, Aegean and Eastern Mediterranean possessions, situating the city of Venice as a transitioning head of state between land and sea[2].

Land and sea from then on were judged and governed differently by Venice. Venetian rectors had to deal with local customs and institutions of powerful cities such as Padua, Brescia, Verona, Vicenza, Bergamo or Udine, whereas the Stato da Mare responded to mercantile adaptations to each insular reality, and the Lagoon represented a hybrid metropolis in the middle[3]. On top of this institutional and jurisdictional plurality stood

[1] Piero Bevilacqua, *Venezia e le acque: una metafora planetaria* (Roma: Donzelli Editore, 1998), 22.

[2] Michael Knapton, 'The Terraferma State', 99–103; Gian Maria Varanini, 'La Terraferma veneta del Quattrocento e le tendenze recenti della storiografia', in Giuseppe Del Torre and Alfredo Viggiano (eds.), *1509-2009. L'ombra di Agnadello: Venezia e la terraferma. Atti del Convegno Internazionale di studi. Venezia 14 – 15 16 maggio 2009*, (Venezia: Ateneo Veneto, 2011), 14.

[3] Alfredo Viggiano, *Lo specchio della Repubblica. Venezia e il governo delle Isole Ionie nel Settecento* (Verona: Cierre, 1998); Cristina Setti, *Una repubblica per ogni porto. Venezia e lo Stato da Mar negli itinerari dei Sindici Inquisitori in Levante (secoli XVI-XVII)* (Milano: Edizioni Unicopli, 2021).

what Salvatore Ciriacono named the *maternal lake* of Venice, from whose waters, according to civic mythology, the city of Venice was born[4].

Yet this balance between sea and land, where the preponderance of one over the other was considered detrimental to government, was not only metaphorical. Too much land and sediments from the continent could bury the Lagoon, and the wrath of the Adriatic had also consequences mainly against the coastal communities that inhabited the thin barrier islands (*lidi*) that stretched from Jesolo to Chioggia[5]. Indeed, the environmental safeguarding of the Venetian lagoon was undoubtedly the first major concern of successive ducal governments since the Middle Ages. Scientific and technological production, as well as heated innovative debates on the different solutions to the natural torrential silting of the Lagoon caused by muds and gravel from the rivers of the Veneto, intensified in the mid-15th century, and especially in the 16th century, extending well into the 18th century, culminating in the so-called *conterminazion* infrastructural policy, by which the Venetian Lagoon was almost entirely separated from the rivers that beforehand flowed into it, being furthermore protected by a perimeter of land of transitional marshes, the so-called *gronda*, between the habitable and arable *terraferma* and the open waters of the Lagoon[6].

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[4] Salvatore Ciriacono, *Building on water: Venice, Holland, and the construction of the European landscape in early modern times* (New York: Berghahn Books, 2006), 101.

[5] Massimo Galtarossa, 'Venezia e le "culture del disastro"', in *Gestione dell'acqua in Europa (XII-XVIII Secc.) / Water Management in Europe (12th-18th Centuries)*, Serie II – Atti delle «Settimane di Studi» e altri Convegni 49 (Firenze: Firenze University Press, 2018), 433–52; Denis Cosgrove, 'Platonism and Practicality: Hydrology, Engineering and Landscape in Sixteenth-Century Venice', in Ib. and Geoff Petts (eds.), *Water, Engineering and Landscape. Water Control and Landscape Transformation in the Modern Period* (London, New York: Belhaven Press, 1990), 35.

[6] On the circulation of Venetian scientific and technical hydraulic ideas and solutions, it is worth mentioning the extensive work of Salvatore Ciriacono, who will forgive me for not quoting it entirely: Ciriacono, *Building on water*, 103–15; For an extensive definition and description of the *gronda lagunare*, Alessandra Minotto, 'Lavorare l'acqua e la terra'; Definitions of *conterminazione lagunare*: Cosgrove, 'Platonism and Practicality', 39–40; Bevilacqua, *Venezia e le acque*, 89; Ciriacono, *Acque e agricoltura : Venezia, l'Olanda e la bonifica europea in età moderna* (Milano: Franco Angeli Storia, 1994), 168–70; Solène Rivoal, *Les marchés de la mer : Une histoire sociale et environnementale de Venise au XVIIIe siècle* (Rome: Publications de l'École française de Rome, 2022), 110; Ludovico Centis, 'Sulla soglia di percettibilità. I cippi di conterminazione lagunare', in Andrea Longhi and Rosa Tamborrino (eds.), *Città*

The management of this "fragile" environment and the need to protect the "island" city (Christian Mathieu calls it *Inselstadt Venedig*) from torrential fluvial muds that silted the navigable canals as well as from the pollution caused by heavy manufactural activities, such as glass in Murano or leather in the Giudecca, motivated the creation at the beginning of the 16th century of official government bodies specialized in these technical undertakings, such as the *Savi alle acque* (1501)[7]. The Venetian motivation behind these state interventions on the canals, rivers and lagoons was therefore initially to prevent and protect the urban habitat. This interest in protecting the Lagoon also had a direct influence on the course of the rivers, and from the end of the Middle Ages onwards, there was talk of taming and diverting the Bacchiglione, Brenta, Sile and Piave, as well as the smaller courses of the Marzenego, Dese and Zero so that they dumped directly into the Adriatic[8].

Nonetheless, the interests of local populations in the Terraferma regarding water management were primarily agricultural, and thus markedly different from the concerns of the inhabitants of the Lagoon and the *gronda*. The mainland's agricultural stakes in water management, mainly in drainage and irrigation was first institutionalized in the mid

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che si adattano? Adaptative cities? (Torino: DIST, Politecnico di Torino, 2024), 443–454; a congress was held on the bicentenary of the *conterminazione*, the proceedings of which include several historical studies of the origins and aftermath of this infrastructural endeavour: Augusto Ghetti, et al. (eds.) *Conterminazione lagunare: storia, ingegneria, politica e diritto nella Laguna di Venezia : atti del Convegno di studio nel bicentenario della conterminazione lagunare : Venezia, 14-16 marzo 1991* (Padova: La Garangola / Istituto Veneto di Scienze, Lettere e Arti, 1992).

[7] The fragility of human life in the Lagoon and the rise of Venice's political dominance as a product of this environmental hardship was a regular political *leitmotif* in late medieval narratives: Élisabeth Crouzet-Pavan, *Venise triomphante: les horizons d'un mythe* (Paris: Albin Michel, 1999), 69–72; On measures against manufactory pollution and the examples of Murano and the Giudecca: Salvatore Ciriacono, '7 agosto 1501. L'istituzione dei Savi ed Eesecutori alle acque: un Ministero dell'ambiente ante litteram', in Uwe Israel (ed.) *Venezia. I giorni della storia*, Venetiana 9 (Roma: Viella, 2011), 148–50; On the "insularity" of Venice: Chistian Mathieu, *Inselstadt Venedig. Umweltgeschichte eines Mythos in der Frühen Neuzeit* (Köln: Böhlau Verlag, 2007); Another recent example of this conception of Venice as an archipelago state is the title of an ongoing European Research Council (ERC) research project under the principal investigation of historian of architecture Ludovica Galeazzo, intitled *"VeNiss. Nissology. Reframing the Lagoon City as an Archipelago*", Grant agreement ID: 101040474.

[8] Ciriacono, '7 agosto 1501', 160–65.

1400s with the creation of the *Ufficio alle Acque* under the authority of the *podestà* of Treviso and mostly in charge of building and maintaining the Brentella Canal, which diverted waters from the Piave in the Prealps, irrigating the plains of the Trevigiano (more or less covering the current province of Treviso that is situated west of the Piave and east from Castelfranco Veneto and the hinterland of Mestre), and arbitrated among its users in a distributive nature[9]. While transportation was an early shared common interest in waterway management by both the Terraferma communities and Venice, mainly concerning the intention to ameliorate fluvial connections of the Venetian Lagoon with Lombardy and its lakes, water management with specific agricultural intentions, despite constituting an initiative of some single Venetian patricians since the early 15th century, became nonetheless a *raison d'état* in 1556 with the creation of the *Provveditori sopra i beni inclulti* ("Magistrates in charge of uncultivated lands"). The latter, yearly appointed by the Venetian Senate, were charge of not only allotting small irrigation and land reclamation licences to single landowners or *consorzi*, but also of rising large fiscal campaigns in charge of deforestation and marsh draining campaigns, in line with the economic pulsion of a Serenissima that saw in extensive grain (*biave*) crops a lucrative asset.

The first part of this chapter is an attempt to chronologically trace the different phases of institutional water management projected from Venice on its Terraferma, as well as to assess the consequences of these hydraulic policies in the agricultural stakes of local *consorzi*. Thus, a first overview of the *Savi alle acque* as the first primigenial institutionalized Venetian water management experience will then follow the formation of an agricultural interest in water management through debates between the main hydrological experts of the time and the eventual with the origin of the *Provveditori sopra i beni inculti*.

Secondly, this chapter examines the excavation of the Gorzon Canal in 1557 as the first major land drainage initiative undertaken by the Venetian *provveditori*, highlighting both its immediate and long-term consequences for the social waterscape of the region it reshaped. Particular attention is given to the fiscal appropriation of the territory, the authority the *provveditori* sought to assert over traditional Terraferma social actors, and

[9] Raffaello Vergani, *Brentella*, 46.

the resistance they encountered. Finally, this chapter positions the petitions, or *suppliche*, addressed to Venetian magistrates as valuable sources for understanding the principal dynamics through which Venetian *dominio* was exercised over water-user communities, as well as the role played by the *consorzi* as local institutions within the broader framework of the Republic's first major governmental experiment in water management.

1. First government institutions of Venetian Water management (1501-1556)

a) The Lagoon's priorities and the origin of the *Savi alle acque*

Water management in the Republic of Venice was first institutionalised in the beginning of the 16th century. According to the Serenissima's highest governing bodies, subjects had to respect a hierarchy of water uses, prioritising the interests of the Venetian Lagoon, thus navigation and infrastructural stability. If the building of a canal, ditch or aqueduct allowed for better drainage or irrigation of land either on the Terraferma or on one of the many arable islands on the Lagoon that surrounded Venice, but at the same time damaged the Lagoon and its waterways by silting transportation canals or creating sedimentary islands (*sacche*), the first was to be sacrificed or sanctioned[10]. Evidently, this rule mainly applied to regions within or near the Lagoon, as well as along the rivers that ran into it. The protection of this habitat against its natural silting caused by rivers could be interpreted as an early example of an environmental policy protecting what Massimo Galtarrossa called "la fragilità della sussisitenza di vita umana nell'ambiente lagunare"[11]. This did not mean that water management sought mere survival in a *liquid* environment. Venetian water management institutions instead sought to adapt and use this environment in order to create and maintain the best conditions for the urban development of Venice, one of the richest and most populated cities in Early Modern Europe[12]. Therefore,

[10] Ciriacono, *Building on water*, 102.

[11] Galtarossa, 'Venezia e le "culture"', 438.

[12] For a detailed account of the commercial wealth of the Rialto market in Venice in the late Middle Ages: Crouzet-Pavan, *Venise triomphante*, 228–71; I thank my colleague Filippo Donà for the bibliographic advice concerning Venetian demographic history. Venice was at the end of the Middle Ages one of the largest cities in Europe, surpassed only by Paris, London and Naples. The first attempt to estimate the total

managing the waters of the Lagoon meant allowing proper transportation and urban habitation: first, preventing the obstruction of canals, and second, digging up sedimentary islands and sandbars, judged insalubrious.

In charge of deciding which works and practices respected these interests of the Lagoon, three men were appointed *Savi alle acque* – "wise men of the waters"– by the highest

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population of Venice by a demographic historian was Daniele Beltrami, for instance, counting 134.871 inhabitants in 1581, 148.637 in 1586, 141.625 in 1624, among other figures dating up to 1790: Daniele Beltrami, *Storia della popolazionedi Venezia dalla fine del secolo XVI alla caduta della repubblica* (Padova: CEDAM, 1954), 38; Since then, Daniele Beltrami's work has stimulated revisions and specific literature with precise figures. Maria-Teresa Todesco estimated around 120000 inhabitants at the beginning of the 14th century: Maria-Teresa Todesco, 'Andamento demografico della nobiltà veneziana allo specchio delle votazioni nel Maggior Consiglio (1297-1797)', *Ateneo Veneto* 176 (1989): 15–16; Domenico Sella estimated an average of 150,000 inhabitants in the entire 16th century: Domenico Sella, 'L'economia', in *Storia di Venezia* (Roma: Istituto dell'Enciclopedia Italiana, 1994), https://www.treccani.it/enciclopedia/l-economia_(Storia-di-Venezia)/; An article by Giovanni Favero, Maria Moro, Francesca Trivellato and Francesco Vianello published in 1991 is one of the most accurate estimates of the population of Venice in the Early Modern Age. They included accurate figures for the years 1540, 1551, 1552, 1555, 1556, 1563, 1581, 1586, 1599, 1603, 1606, 1624, 1633, 1642, 1655 and 1696, with an average of 146155 inhabitants for the period drom 1540 to 1696: Giovanni Favero et al., 'Le anime dei demografi. Fonti per la rilevazione dello stato della popolazione di Venezia nei secoli XVI e XVII', *Bolletino di demografia storica* 15 (1991): 58–59; According to their calculations for the central years of the 16th century, 159.467 inhabitants were counted in 1552, 159.867 in 1555, 163.167 in 1556, 168.627 or 168.948 in 1563, 134.871 or 134.871 in 1581, 148.640 or 151.098 in 1586 Favero et al., 61–62 and 78–79; Luciano Pezzolo estimated 110.000 inhabitants for 1300, 65.229 in 1363 (after the Black Death) and 85.000 in 1400. Concerning the 16th and early 17th centuries, he calculated and average of 148.947 inhabitants between 1509 and 1607: Luciano Pezzolo, 'The Venetian Economy', in Eric R. Dursteler (ed.), *A Companion to Venetian History, 1400-1797* (Leiden: Brill, 2013), 257; Apart from the calculations made with the demographic sources of the Venetian magistracies it should be noted that Venice's population was most probably higher than showed in these censuses, since inhabitants from the islands of the Lagoon or Terraferma were constantly travelling to Venice to the market, as well as foreign merchants and ambassadors that spent longer or shorter periods in the city. Thus, Andrea Zannini rounds the figure to 200,000 inhabitants in the middle of the 16th century: Andrea Zannini, 'L'economia veneta nel Seicento. Oltre il paradigma della "crisi generale"', in Società Italiana di Demografia Storica (ed.), *La Popolazione italiana nel Seicento: relazioni presentate al convegno di Firenze, 28-30 novembre 1996* (Bologna: CLUEB, 1999), 474; Anna Bellavitis also mentions this interpretative limit of the Venetian proto-cadastral sources, arguing that the population was larger due to a rather loose and fluid meaning of 'residence' in the period: Anna Bellavitis, 'Family and Society', in Eric R. Dursteler (ed.), *A Companion to Venetian History, 1400-1797* (Leiden: Brill, 2013), 323.

chamber in matters of public order and justice, the Council of Ten (*Consiglio dei Dieci*), in 1501 (*Fig. 1*)[13]. With a two-year mandate, these three men could both be solicited anytime for advice by the institution that created them, the Council of Ten, or freely enter and intervene in this council's chamber to inform the members of this high governing body of the state of the *public* waters of the Venetian Lagoon and the rivers that flowed into it whenever they believed it was urgent to do so[14]. Despite initially not having the right to vote in the senate and in the Council of Ten, these three *savi* seemed to have exerted an important influence in directing Venetian stately attention to water works, stimulating the creation of a higher institution of government in 1505, the "Solemn water board or committee" (*Collegio solenne alle acque*), also known simply as *Collegio alle acque*. The latter included three *esecutori*, thus experts that not only counselled like the *savi*, but also overwatched and denounced illicit practices that were in detriment of the benefits and interests of the Lagoon, as a sort of water proto-police, for instance, prosecuting the illicit placement of fish traps in transportation channels or in dense navigational traffic areas, such as the mouth of the Brenta. In 1531, the *Savi alle acque* and the *Collegio alle acque* merged into one institution, counting therefore three *savi* and three *esecutori*, to which 3 *proti* and 3 *viceproti*, specialised in rivers, lagoon and the coastal *lidi* added, summing up to 15 men with the authority to council, observe, denounce and judge the state of the Lagoon and rivers. Later, since 1542, the *Collegio Alle Acque* often appointed a general supervisor, the *matematico*, in charge of overseeing the waterworks[15].

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[13] Salvatore Ciriacono, '7 Agosto 1501'; Denis Cosgrove, 'Platonism and Practicality:', 37. Elena Svalduz and Gianmario Guidarelli have recently made brief reference to an earlier magistracy, active during the 15th century, known as the *Procuratori sopra le acque*. This body was responsible for various legal disputes with the monks of the island and monastery of San Giorgio Maggiore. At present, however, I have not been able to identify any archival or bibliographic sources that offer further detail on this institution or its conflicts: Elena Svalduz and Gianmario Guidarelli, 'Valore Storico, Economico e Sociale Delle Bonifiche in Età Moderna', in Dario Canzian and Giovanna Valenzano (eds,), *Acqua e Terra Nei Paesagi Monastici. Gestione, Cura e Costruzione Del Suolo*, (Padova: Padova University Press, 2022), 134.

[14] Bevilacqua, *Venezia e le acque*, 91.

[15] Ugo Mozzi, *I Magistrati veneti*, 19–11. Ciriacono, '7 agosto 1501', 157; Ciriacono, *Building on water*, 139.

The establishment of the *Savi ed esecutori alle acque* was the first long lasting institutional solution to a centuries-long interest in bringing lagoonal and fluvial water management issues to the central government on behalf of individual patricians. Nonetheless, there were previous attempts of creating similar bodies. Thus, related with water management, in 1324, one hundred and seventy-seven years before the first establishment of the *Savi alle acque*, there were four *savi* in Venice specialised in marshes (*i quattro savi sopra le paludi*), with the task of supervising the digging of mud islands created by the accumulation of fluvial sediments in the Lagoon, judged as both obstacles for navigation, as well as sources of insalubrity. Then, in 1415, ten *savi sopra le paludi* were again summoned with the same intention of "re-sanitising" (*risanamento*), of the Lagoon[16]. Moreover, the very term *savio alle acque* predates the institution by several decades. Thus, in 1455, fifty years before the official creation of the *Savi alle acque*, patrician Marco Cornaro, who had gained notoriety as an outstanding water manager during the 1452 by redirecting of part of the Brenta towards the Lagoon's southern coasts facing Malamocco and the sands of Alberoni, was also called *savio alle acque* by the Venetian senate various times[17]. For instance, he was named this way when he supervised the deviation of a northerly portion of river Brenta, creating the Brenta Nova canal that dumped in Lizzafusina, a project that was concluded in 1459 and that would soon become one of the most travelled waterways connecting Venice with Padua and the southwestern Terraferma.

The singular term *savio* which, as seen above, literally translated as "wise man" broadly indicated in Venice those who were experts in a certain form of authority that aided the government and advised the Senate or *Consiglio dei Pregadi* in specialised matters. Thus, in the Late Medieval period there were *Savi alle Mariegole*, specialised in revising the statutes of each of the main mercantile and artisan corporations of Venice (*mariegole*) and informing about them to the city's government, or the *Savi sopra le beccarie*, as specialised councillors on the transactions between bovine cattle traders and butchers in

[16] Antonio Favaro, Notizie storiche sul Magistrato Veneto alle acque', *Nuovo archivio veneto* n.s., fasc. IV (1905): 180; Bevilacqua, *Venezia e le acque*, 90.

[17] Denis Cosgrove, 'Platonism and Practicality', 40.

the Rialto market[18]. Concerning higher spheres of executive power, there were the *Cinque Savi alla Mercanzia,* in charge of informing the government on economic matters concerning mercantile and navigational activities, keeping records of commercial customs duties and deciding who could participate or not in Venetian mercantile endeavours[19]. Accordingly, in matters of public opinion and religious identity, there were the *Savi all'eresia*, who played the role of reporting to the Doge instances of suspected religious nonconformity across Venice and its *dominio*[20]. There were also other important *savi* as intermediators between the ecclesiastical and urban communal powers, conforming the ten *Savi alle alle Decime*, in charge this time of making censuses of the inhabitants of each Venetian parish the parish in order to ensure the regular payment of the *decime* tithes, producing valuable sources for demographic and social history[21]. We can also cite the *Savi di Terraferma*, that informed the Doge and the senate of anything regarding the government of the Stato de Terra[22]. Another example was the *Savio cassier*, in charge of fiscal matters, or the *Savio agli ordini*, in charge of informing and advising of the state of the maritime fleet, both military and mercantile[23]. In a nutshell, the term

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[18] David D'Andrea, 'Charity and Confraternities', in Eric R. Dursteler (ed.), *A Companion to Venetian History, 1400-1797* (Leiden: Brill, 2013), 423; Ronnie Ferguson, 'Venetian Language', in Eric R. Dursteler (ed.), *A Companion to Venetian History, 1400-1797*, (Leiden: Brill, 2013), 930.

[19] Michael Knapton, 'The Terraferma State', 103; Tamsin Prideaux, 'Istituzioni e Potere: Il Rapporto Fra i Mercanti Stranieri Residenti e i Cinque Savi Alla Mercanzia a Venezia Nel Cinquecento e Seicento', *RiMe. Rivista Dell'Istituto Di Storia Dell'Europa Mediterranea*, 31 (2023), 27–52.

[20] Paul F. Grendler, 'The tre Savii sopra l'eresia 1547-1605: a prosopographical study', *Studi Veneziani* n.s., fasc. III (1979): 283–340; Pier Cesare Ioly Zorattini, *Processi del Santo Uffizio di Venezia contro Ebrei e Giudaizzanti (1548-1560)*, Storia dell'Ebraismo in Italia. Studi e testi, II (Firenze: Leo S. Olschki, 1980), 37–46; Benjamin Ravid, 'Venice and its Minorities', in Eric R. Dursteler (ed.), *A Companion to Venetian History, 1400-1797* (Leiden: Brill, 2013), 476.

[21] Jean-François Chauvard, 'Les catastici vénitiens de l'époque moderne. Pratique administrative et connaissance du territoire', in Mireille Touzery (ed.), *De l'estime au cadastre en Europe. L'époque moderne*, (Vincennes: Institut de la gestion publique et du développement économique, Comité pour l'histoire économique et financière de la France, 2007), 419–454; Ib., 'Come mai certi individui non hanno cognome ? Pratiche di registrazione a Venezia dopo il Concilio di Trento' in Adrea Addobbati, Roberto Bizzocchi, Gregorio Salinero (eds.), *L'Italia dei cognomi. L'antroponimia italiana del quadro mediterraneo* (Pisa: Pisa University Press), 357.

[22] Robert Finlay, *Politics in Renaissance Venice* (London: E. Benn, 1980), xvi.

[23] Benjamin Arbel, 'Venice's Maritime Empire un the Early Modern Period', in Eric R. Dursteler (ed.), *A Companion to Venetian History, 1400-1797* (Leiden: Brill, 2013), 129; Paolo Delorenzi, 'Devozione,

savio was very common in Venetian politics as a figure of knowledge and authority concerning a wide fan of themes of civic interest.

Thus, we can trace a long history of *savi* as expert figures in charge of advising the high offices, whereas the "proto-policing" functions of the *esecutori* from 1505 onwards constituted the institutional innovation. The union of both functions in 1531, thus advising and denouncing, constituted a powerful institution, which Salvatore Ciriacono places among the five most important state offices in Early Modern Venice[24]. Therefore, the *Savi ed esecutori alle acque* were a modern magisterial body intended to cover all aspects of the preservation of a specific hydraulic order by separating the different functions and specialities of its members. This is clearly seen in the three figures of the *proti* and their respective *viceproti*. Their function was not that of the *savi* or the *esecutori* who stayed in office, as the *proti* and *viceproti* had to rather travel constantly to the critical areas in the Lagoon, rivers or barrier islands (*lidi*), and then describe the situation to the Venetian office, usually in the form of a written report, although also sometimes stimulating cartographic production[25]. Thus, the *proti sopra i lidi*, in charge of the easterly barrier islands, had to travel to the different entrances of the Venetian lagoon from the sea, observing the movement of sea currents and producing reports in order to prevent the accumulation of seafloor sands (*insabbiamento*) that would cause shallow obstructions of these crucial navigational spots. Accordingly, the *proti sopra i fiumi* went to the western peripheries of the Lagoon, to the mouths of the main rivers and watercourses and observe to observe the direction and route of the waters, as well as their level and the state of the embankments. Finally, the *proti* and *viceproti alla laguna* were responsible for monitoring the Lagoon's currents, identifying the emergence of sedimentary islets formed by the accumulation of lagoon-floor mud (*velma*), and reporting these to the *savi and esecutori*, who could subsequently order their removal.

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potere e segreti a Palazzo Ducale: la Chiesetta del Collegio tra storia e arte' in Camillo Tonini and Cristina Crisafulli (eds.), *La Chiesetta del Doge a Palazzo Ducale di Venezia* (Crocetta del Montello, Venezia: Antiga, MUVE, 2014), 21.

[24] Ciriacono, *Building on water*, viii.

[25] Giuliana Baso and Marisa Scarso, 'Mappe delle magistrature veneziane. Immagini e schede nella cartoteca del CIRCE', in Vladimiro Valerio, *Cartografi veneti. Mappe, uomini e istituzioni per l'immagine e il governo del territorio* (Padova: Editoriale Programma, 2007), 12–13.

The *savi*, along with the three magistrates (*esecutori*) and the rest of the administrators of the *Collegio alle acque*, exerted their power in two directions. On the one hand, they dialogued with the higher or central spheres of power, speaking of ambitious and technically complex large-scale works, such as the deviation of the Brenta. On the other hand, they were also in charge of completing smaller works that responded to individual and collective petitions in matters of lagoonal and fluvial water management. For instance, one of the first recorded petitions to the *savi* and *esecutori* after the merging of the *Savi alle acque* and the *collegio* in 1531, was written by a group of "noble and subject citizens" (*nobeli et cittadini fidelissimi*) who wanted to reopen the old mouth of the river Bacchiglione, in front of the southern tip of Pellestrina[26]. In this letter, these patricians complained about expensive and dangerous detours their *gondole* were doing between Venice and the Southern Terraferma, and were asking for permission to reopen and flood the old mouth of the Bacchiglione with a regulated canal, building a guard house and an *intestadura*, thus, a regulated gated basin that seemed as a sort of lock yet did not elevate or decrease the water level between the two connected water bodies. They also asked for the setting of a line or rope that went from one bank to the other of the lagoon side of the basin in order to control and limit fluvial traffic to authorised vessels[27]. The *esecutori* accepted the petition as long as the building of the guard booth and the setting of the removable rope were paid for by the petitioners. The causes of these long and dangerous detours mentioned by the petitioners are not specified in the source, but it could be assumed that their discomfort of these with the given fluvial journey was caused by the diversion that this river had undergone in 1507, forcing navigation either along the

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[26] The Bacchiglione and part of the Brenta were later deviated further south, avoiding the silting of Chioggia's seaport, Ciriacono, *Building on water*, 110–13.

[27] ASVe, *Savi alle acque*, 92: 'Humilmente suplicamo a vostra signoria serenissimo principe et exelentissimo collegio li infrascritti nobeli et citadini fidelissimi soi, conciosia che per deliberation de questo exelentissimo collegio sia sta fatta una intestadura al Bachion per il qual impedimento essi supplicano sono impediti che dove comodamente andavano et venivano con le loro gondole dale loro possessioni, hora con intolerable spesa et longissimo viagio et a tempi de fortune periculose sono apresi pigliare una volta longissimi con grandissimo loro ricomodo spesa et danno (…) Per tanto de gratia special supplicamo (…) di poter far uno cavo pizolo alla ditta instestadura del Bachion pel tragitar solum delle gondola con la sua caseta di paglia per habitation de quello a la guarda. Ita che possimo exercitar la comodita del ditto passo, sempre perho ad beneplacito de vostra signoria et di questo exelentissimo collegio alla grata della qual humiliter si ricommandemo'.

Brenta, or having to go to the southern end of the Lagoon, near Brondolo[28]. This closer *intestadura* would allow the passage of the boats from the Lagoon to the Bacchiglione whenever needed, and also close the gates stopping both traffic and the inflow of river waters into the Venetian Lagoon the rest of the time. The guardhouse next to this projected "gated mouth" of the Bacchiglione would thus indicate two predominant interests on behalf of the petitioners: on the one hand, the maintenance of a more direct route between Venice and its central and southern Terraferma, and on the other hand, the control over the exclusion and inclusion of the vessels that would decide to take this route.

Although the motivations expressed by local petitioners–primarily concerned with the regulation of navigation–differed thematically from the broader technical and hydrological concerns articulated by the *Savi* in higher institutional contexts, notably the strategic isolation of the lagoon from major river systems, both sets of interests could be aligned. As a result, the works in question were often authorised and implemented precisely because they served overlapping objectives. The *Savi* operated simultaneously on multiple scales. On the one hand, they engaged with large-scale hydraulic transformations, such as river diversions, which were discussed in consultation with *proti* and other expert figures. On the other hand, they responded to localised petitions that focused on specific, often pragmatic, problems of transport infrastructure and economic circulation. The protection and preservation of the lagoon, as conceptualised at the level of institutional deliberation, was therefore not disconnected from the more immediate concerns addressed in the petitions received and processed by the *esecutori*. Rather, these two spheres of action coexisted, reflecting the complex interplay between strategic environmental governance and the contingent demands of local actors.

The *Savi alle acque* emerged as a formally constituted and hierarchically structured technical magistracy within the Venetian state (*Fig. 1*). Its institutional mandate extended beyond the mere execution of hydraulic interventions. It also encompassed the regulation and protection of those economic activities, particularly navigation, that were structurally dependent upon the stability and functionality of the lagoon's aquatic environment. The

[28] Roberto Cessi, *Antichi Scrittori d'Idraulica Veneta. Volume II. Discorsi Sopra La Laguna Di Cristoforo Sabbbadino (Parte I)*, (Venezia: Ministero di Lavori Pubblici. Ufficio Idrografico del Magistrato alle Acque, 1930), xiv.

magistracy's remit was thus fundamentally twofold. It was, first, tasked with the preservation and defence of the Venetian lagoon from the destabilising effects of the tides of the Adriatic Sea and the sediment-laden waters of the inland river systems. Second, it was charged with maintaining and, where possible, improving the conditions for maritime and fluvial circulation. This was essential for sustaining effective lines of communication between Venice, its mainland dependencies, and the archipelagic and coastal possessions of the *Stato da Mar*. Such responsibilities necessitated continuous negotiation across multiple levels of governance and expertise. The *Savi* interacted routinely with petitioners, local enforcers and individuals accused of transgressions against hydraulic regulation. Their deliberations also relied upon the sustained consultation of technically trained figures whose specialised knowledge underpinned both the design and the legitimation of hydraulic policy.

b) Cristoforo Sabbadino and Alvise Cornaro: the origin of a stately agricultural turn

It is important to recognise that the constructed distinction often drawn between the general environmental interests of the lagoon–articulated through consultations with high experts in hydrogeography and hydraulics–and the specific economic concerns of local petitioners, such as transporters, to which the *Savi alle acque* sought to respond to, was far from clear-cut. In reality, these domains were interdependent and frequently intersected, manufacturing different solutions to lagoon conservation models. Petitioning transport operators usually agreed with the *Savi alle acque*'s policies and consultant expert's opinions on keeping a deeper and clearer lagoon away from river sediments. The reliance of technical consultants, including *periti*, *proti* and *inzegneri*, on classical authors such as Vitruvius should not be read as evidence of purely abstract theorisation. Their recourse to scholarly tradition was often embedded in practical reasoning and, as we will see in more detail in Chapter Four, interaction with local water users. The problems they addressed were rooted in the material realities of the lagoon and responded to concerns that were shared, albeit articulated in different registers, by both magistrates and local actors[29]. Moreover, as Denis Cosgrove has aptly observed, although these figures operated within an institution composed exclusively of nobles–in strictly Venetian terms,

[29] Denis Cosgrove, 'Platonism and Practicality', 44–45.

a patrician body–they were, in many respects, representative of an 'emerging professional class'. Their status was not derived solely from social rank, but increasingly from their capacity to observe, interpret and address specific infrastructural problems within the lagoonal environment. Their authority, therefore, rested as much on technical competence as on institutional position[30].

However, although the institutions and the individual experts upon whom they relied for information and technical advice concurred on the urgent need to safeguard the urban and lagoon environments of Venice, the range of proposed hydraulic solutions revealed a significant divergence of views. One of the factors underlying these differences was the clear prioritisation of lagoon navigation and the broader conservation of Venice's urban infrastructure over another essential activity linked to water in the near Terraferma: agriculture. This factor was indeed not ignored by the *Savi alle acque*'s consultant experts, who engaged in long debates on the coexistence of lagoonal hydrologic policies with drainage and irrigation activities inland in the *Gronda* – the marshy margins of the Lagoon– and beyond into the districts of Treviso, Mestre, Piove di Sacco, Cavarzere, the southern areas of the territory of Padua, and further down to the Polesine of Rovigo. Indeed, it is worth noting the extreme individuality and originality of many of the testimonies that these *proti*, *inzegneri*, and *viceproti* sent to the *Savi alle Acque* on what they believed were the solutions and priorities for Venetian domestic water problems. Many of these men often came from other regions of the Serenissima and other Italian states and thus, employed different and frequently opposing methods, technical cultures, and conceptions regarding the dangers and advantages of water. While many remained concerned about the dual threat posed by the sea and the rivers of the lagoon and their navigability, many were also interested in raising institutional awareness of water management issues related to agricultural production[31].

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[30] Ib., 39.

[31] Among the *proti* active in the Venetian territories, there were also Lombard practitioners, particularly from Brescia and Bergamo. This points to a broader circulation of technical knowledge across regional boundaries. In the case of Treviso, such exchanges can be traced back to the early decades of the 15th century, notably during the construction of the canals derived from the Piave River: Angelo Ventura, 'Considerazioni Sull'agricoltura Veneta', 687; Raffaello Vergani, *Brentella*, 103–4; A later example of this broader circulation of technical expertise is provided by the Venetian employment of the Piedmontese cartographer Giacomo Gastaldo, also known as Gastaldi, whose work will be discussed in a subsequent

The mid-16th century marked a significant culmination of opposing theoretical positions concerning the practical application of Venetian hydraulics and hydrogeology, articulated through a dialectical struggle between two imagined Venices: on the one hand, a maritime and seafaring Venice, outward-looking towards the Adriatic; on the other, a land-based, agrarian Venice, oriented towards the Terraferma. One of the most notable instances of this development was the debate between Cristoforo Sabbadino (Chioggia, 1489 – Venice, 1560) and Alvise Cornaro (Venice, 1484 – Padua, 1566)[32]. As local examples of 'Renaissance men', both figures possess an extensive list of intriguing biographical details, which we will not cite in detail here in order to avoid straying too far from the central theme of communitarian water management. Even the specific episode of their protracted hydrological and hydro-geographical disputes between the years 1540 and 1559 has already given rise to a vast and detailed body of literature spanning from the history of ideas and Renaissance literary culture to more technical analyses in the fields of cartography and hydraulic engineering[33].

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section: Vladimiro Valerio (ed.), *Cartografi veneti. Mappe, uomini e istituzioni per l'immagine e il Governo del territorio* (Padova: Programma, 2007), 177.

[32] Giuseppe Gullino, 'Corner, Alvise', in *Dizionario Biografico Degli Italiani*, vol. 29 (Roma: Istituto dell'Enciclopedia Italiana, 1983); Luca Cancio, 'Sabbadino, Cristoforo', in *Dizionario Biografico Degli Italiani* (Roma: Istituto dell'Enciclopedia Italiana, 2017). Giovanni Caniato, 'Il Controllo Delle Acque', in Gino Benzoni and Gaetano Cozzi (eds.), *Storia Di Venezia. Dalle Origini Alla Caduta Della Serenissima*, *vol. 7 La Venezia Barocca* (Istituto dell'Enciclopedia Italiana, 1997), 483.

[33] A clear chronological progression of the hydrographic dispute is evident in the following work: Roberto Cessi, *Antichi Scrittori d'idraulica Veneta. Volume II - Parte II: Scritture sopra la Laguna di Alvise Cornaro e di Cristoforo Sabbadino* (Venezia: C. Ferrari, 1941). The revival of interest in the Sabbadino–Cornaro debate was largely the result of a rediscovery, in the late 19th century, of their correspondence and extensive technical writings in service of Venetian magistracies. This rediscovery led to the production of major source editions, especially those edited and annotated by Roberto Cessi, and to a lesser extent by Antonio Favaro: Roberto Cessi, *Antichi scrittori d'idraulica veneta. Vol. 2. Discorsi sopra la Laguna di Cristoforo Sabbbadino*; Roberto Cessi and Nicolò Spada, *La difesa idraulica della Laguna Veneta nel sec. 16.: Relazioni Dei Periti* (Venezia: C. Ferrari, 1952); Antonio Favaro, 'Notizie Storiche Sul Magistrato Veneto Alle Acque', *Nuovo Archivio Veneto* n.s., no. IV (1905): 179–99. This revival of interest gave rise to a substantial body of historical research, shaped by the work of scholars such as Salvatore Ciriacono, Denis Cosgrove, Franco Cazzola and Pietro Daniel Omodeo, among others. It also prompted broader studies on Cornaro's life and on the intellectual and scientific contexts that informed his thought, particularly within the volume edited under the general coordination of Gino Benzoni in 2004: Salvatore

What is worth noting as the main characteristics of both figures is that they were active as consultant experts or *proti* for the *Savi alle acque*, producing sophisticated writings on mathematics and geometry, as well as detailed descriptions of the lagoonal geography[34]. They thus combined scholarly expertise with practical engagement in matters concerning the Venetian government, particularly the safeguarding of the Lagoon and rivers. Both responded to the shared concern over the growing threat of riverine sediments entering the Venetian Lagoon, yet they proposed fundamentally different solutions. Their opposing views created a structural tension that became deeply embedded in Venetian hydraulic policy, enduring well beyond the early modern period and into the decades following the fall of the Republic[35].

Historical accounts have frequently characterised these antagonistic positions as emblematic of two distinct tendencies concerning the solutions to the natural silting of the Venetian Lagoon. On the one side, Sabbadino is often associated with one school of thought, a sort of *partito della laguna*, which sought to preserve the integrity of a predominantly maritime lagoon[36]. This position advocated for the separation of the lagoon from the rivers that brought sediment, which clouded the waters and obstructed maritime access between the Adriatic Sea and the canals of Venice, as well as the islands of the aquatic hinterland. On the other side and in contrast, Cornaro came to represent the *partito della terra*, which promoted a gradual reorientation of the lagoon's urban mercantile economy towards agriculture instead of maritime trade. This programme

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Ciriacono, *Building on Water*; Denis Cosgrove, 'Platonism and Practicality'; Franco Cazzola, *Uomini e Fiumi,* 181–87; Pietro Daniel Omodeo, 'Hydrogeological Knowledge from Below: Water Expertise as a Republican Common in Early Modern Venice', *Berichte Zur Wissenschaftsgeschichte* 45 (2022): 541–42; Barbara Mazza Boccazzi, 'Il Polesine sulla carta: Alvise Cornaro, Cristoforo Sabbadino e Altri', Gino Benzoni (ed.), *Verso La Santa Agricoltura. Alvise Cornaro, Ruzante, Il Polesine* (Rovigo: Minelliana, 2004), 43–58.

[34] Denis Cosgrove, 'The Geometry of Landscape: Practical and Speculative Arts in Sixteenth-Century Venetian Land Territories', in Ib. and Stephen Daniels (eds.), *The Iconography of Landscape. Essays on the Symbolic Representation, Design and Use of Past Environments*, Cambridge Studies in Historical Geography 9 (Cambridge: Cambridge University Press, 1988), 262–65.

[35] Giacomo Bonan, 'Hydraulic Engineers and Antiquarians: Political Use of the Past in Nineteenth-Century Venice', *Technology and Culture* 64/3 (2023): 851.

[36] Denis Cosgrove, 'Platonism', 40.

included projects for the partial drainage of the lagoon, aimed at expanding cultivable land and reducing reliance on foreign markets. Although the partial drainage of the Venetian Lagoon proposed by Cornaro in 1544 was never implemented, and Sabbadino's plans for the *conterminazione* of the lagoon became the prevailing trend over the subsequent four centuries, Alvise Cornaro nonetheless introduced into Venetian institutions a heightened concern for the drainage and agricultural use of marshland. This approach, which was put to practice in numerous areas of the peri-coastal Terraferma[37].

One of the many illustrative cases where Sabaddino's pro-lagoon, and almost Hippocratic position in favour of what he considered the benefits of the Lagoon, against the smaller benefits of fluvial connexions to Venice happened in 1551, when the *Savi alle acque* examined a proposal to widen the canals branching from the Piave and Sile rivers. The project sought to improve the transport of firewood between the lagoon and the hinterland of Treviso. Although the measure would have provided more direct and efficient access for communities in the *Terraferma*, particularly in supplying Venice with essential resources, Sabbadino firmly opposed it. He insisted on maintaining both rivers, which were characterised by strong and irregular currents, at a distance from the northern reaches of the lagoon. His position reflected not only technical concerns but also a broader strategic outlook aligned with the principles of the *partito della laguna*, which prioritised the preservation of the lagoon's maritime identity over the immediate economic interests of mainland petitioners. Sabbadino's unequivocal position on the 1551 proposals concerning timber transport via the Sile and Piave, reveals a moment in which the delicate balance the *Savi alle acque* sought to maintain between environmental preservation and navigational utility was decisively disrupted. The proposed route, which involved channelling traffic through the torrential waters at the northern edge of the lagoon, posed risks that Sabbadino considered incompatible with the long-term stability of the lagoon's protective system[38].

In the case of Alvise Cornaro, it is thus worth noting that he understood the transformation of land for agricultural purposes not only as a means to improve productivity and generate broader economic wealth, but also as a viable strategy for the long-term preservation of

[37] Roberto Cessi, *Scritture sopra la Laguna di Alvise Cornaro e di Cristoforo Sabbadino*, vii–x.

[38] Vergani, *Brentella*, 181–83; Ciriacono, *Building on Water*, 42.

the lagoon[39]. Yet, the structural costs associated with the *conterminazione* of the lagoon and with the river diversions promoted by Sabbadino were criticised in a passage quoted by Barbara Mazza Bocazzi, in which Cornaro openly opposed the policies adopted by the *Savi alle acque*: 'I Savi drizzeranno i canali, e i corsi delle acque impediranno la mescolanza delle dolci con le salate , faranno de gli argini e non lascieranno molto spacio oltra quelli arare e muovere i terreni' ('The *Savi* will straighten the canals and regulate the course of the waters. They will prevent the mixing of fresh and salt water, build embankments, and will not allow much land beyond them to be ploughed or cultivated.')[40]. In short, Cornaro criticised those who supported the separation of the lagoon from the mainland rivers for having failed to consider the needs of agriculture. It was precisely his fervent commitment to what he described as la 'santa agricoltura', or "holy agriculture", that led him to engage with hydro-geographical knowledge, which he placed in the service of agrarian development and not essentially the safekeeping of the Lagoon[41].

Sabbadino interpreted Cornaro's position as an opportunistic attempt to exploit the central debate on the protection and safeguarding of the Venetian Lagoon, with the aim of introducing arguments in favour of agricultural use[42]. Angelo Ventura has gone further,

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[39] In fact, Cornaro concurs with Sabbadino in recognising that the freshwater rivers flowing into the lagoon were indeed the cause of its silting. He also advocated diverting these rivers away from the areas closest to Venice, in order to preserve maritime navigation. Thus, unlike some of the accusations levelled by Sabbadino, Cornaro does not appear to have advocated for the complete disappearance and drainage of the Venetian Lagoon. Instead, he proposed its division into two distinct 'lakes': a southern freshwater lake, situated between Brondolo, Chioggia, and Pellestrina, intended for irrigation and water consumption, into which the less torrential rivers, such as the Adige and Brenta, would flow; and another saltwater 'lake' around the city of Venice, open to maritime navigation. The northern end of the Venetian Lagoon would be protected from the rivers of the *fiumare*–the Marzenego, Dese, Zero, Sile, and Piave–which were known for their torrential nature. Roberto Cessi, *Antichi Scrittori d'idraulica Veneta. Volume II - Parte II: Scritture Sopra La Laguna Di Alvise Cornaro e Di Cristoforo Sabbadino*, 6–7. A synthesis of the works carried out at the end of the 16th century and during the 17th century in the northernmost part of the lagoon and the mouths of the Sile, Dese, Marzenego and Zero can be found in the following: Caniato, 'Il Controllo Delle Acque', 493–94.

[40] Mazza Boccazzi, 'Il Polesine Sulla Carta', 49.

[41] Campos, *I consorzi di bonifica nella repubblica veneta*, 15; Cazzola, *Uomini e Fiumi*, 196.

[42] Cosgrove, 'Platonism', 38.

characterising Cornaro primarily from an economic perspective, describing him less as a traditional landowner and more as a true capitalist of his time, as follows: '(…) Non siamo qui in presenza d'un agricoltore che si proponga di incrementare le rendite migliorando le sue terre – atteggiamento che forse distingueva gli inizi della sua azione di bonifica – ma di un capitalista che *produce* terre coltivabili, trasformando per dirla col Marx la terra-materia in terra-capitali al limite per poi rivenderle, quanto meno con attento calcolo dell'incremento del capitale fisso'[43].

Yet more recent historiography has often portrayed the figure of Alvise Cornaro as a compelling expression of Renaissance culture, applying a philosophical reading to the Lagoon, in a general narrative of man taming nature since Antiquity[44]. Indeed, he was an attentive reader of classical agronomic treatises and maintained close ties with Paduan playwright and poet Angelo Beolco, known as Ruzzante[45]. While he sought to demonstrate his right to be recognised as a Venetian noble patrician, a status he was never able to fully prove, he lived in the Paduan hinterland and consistently defended interests grounded in the Terraferma, acting as a prominent landowner who invested in the improvement of agricultural yields through drainage and irrigation projects[46]. In other words, Cornaro's focus on optimising agriculture entailed a model of water management distinct from the structural preservation of the lagoon and the redirection of river courses. He perceived–what modern readers might characterise as a somewhat Malthusian insight–that the Republic of Venice faced significant demographic pressure, which demanded sustained encouragement of the grain economy[47]. He also shared a concern with some members of the Venetian Senate, who also advocated for the support of domestic agriculture and grain production, not solely out of concern for sustaining the

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[43] This translates as: "We are not dealing here with a landowner merely seeking to increase his income by improving his estates – an attitude that perhaps characterised the early stages of his land reclamation efforts – but rather with a capitalist engaged in the production of cultivable land. In other words, to use Marx's terminology, someone who transforms land-as-matter into land-as-capital, ultimately with the intention of selling it, or at the very least, with a careful calculation of the increase in fixed capital.', Ventura, 'Considerazioni', 686.

[44] Cosgrove, 'Platonism' 40–1.

[45] Benzoni, 'Verso La "Santa Agricoltura"', in *Verso La Santa Agricoltura*, 11–14.

[46] Cosgrove, 'Platonism', 40.

[47] Minotto, 'Lavorare l'acqua e la terra', 245.

population of Venice, but also with the intention of preserving the gold reserves of the Serenissima, which were annually depleted by the importation of foreign grain[48]. Yet, despite his talents as a Renaissance erudite writer, Cornaro's genuine interest in the universal development of agriculture and feeding the growing population with a higher grain produce has also been questioned by Salvatore Ciriacono, who points out that Cornaro often modified his descriptions of the hydrography to justify works that benefited his own lands in the Paduan hinterland and the triangle between Conselve, Piove di Sacco and Chioggia. In fact, Ciriacono concludes that, within the hydrographic reconstruction of the Venetian Lagoon in the modern age, Cornaro 'enjoys a far higher reputation than he deserves'[49].

c) Short-lived institutional precedents to Cornaro's hydro-agricultural thought

Whether or not the data provided by Cornaro was reliable for a detailed account of past landscapes, what remains certain is that his position was inspired on drainage and irrigation practices that had been employed in the areas surrounding his estates in Fogolana (between Piove di Sacco and Chioggia), the earliest of which were carried out under the command of local Benedictine monasteries[50]. Furthermore, the pro-agrarian arguments introduced by Cornaro to the *Savi alle acque* for water governance should not be regarded as a specifically Venetian innovation. As noted earlier, policies of drainage and irrigation intended to increase grain production were already firmly established in medieval communal governments across the Italian peninsula. For example, in the early decades of the 15th century, the *podestà* of Treviso established the *Ufficio alle Acque*, an institution tasked with the construction, maintenance and regulation of water management across a wide network of canals derived from the Piave near the town of Pederobba, serving not only the hinterland of Treviso but also a number of neighbouring *podesterie*, including Noale, Castelfranco, Asolo and Mestre. Unlike the *Savi alle acque*, established in Venice in the early 16th century with the primary aim of preserving the lagoonal environment, the *Ufficio alle Acque* of Treviso operated within a different hydraulic logic.

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[48] Campos, *I consorzi di bonifica*, 18.

[49] Ciriacono, *Building on Water*, 115.

[50] Svalduz and Guidarelli, 'Valore Storico, Economico e Sociale Delle Bonifiche in Età Moderna', 132; Colombo, 'Le Opere Benedettine', 20–23.

Its objective was not conservation and governance of the waters of the Piave and Muson rivers with strictly navigational intrests, as they added the factors or human and animal consumption, as well as agricultural irrigation. This institutional framework reflected a broader concern with demographic pressures and the need to expand grain and vine cultivation in the *Terrafema*.

As such, it paralleled, at least in intent, the more speculative and capital-driven ventures of figures such as Alvise Cornaro. Thus, other members of the Venetian lower nobility adopted similar strategies. Niccolò Cicogna, for instance, operating within the framework of the water users' *consorzio* promoted by the municipal *Ufficio alle Acque* of Treviso, sought to project large irrigation and transport canals to serve the arable lands in which he had a direct economic interest. These lands were later resold, either to members of the Venetian patriciate or to local inhabitants, in transactions that combined agricultural development with calculated land speculation[51]. Even as early as the 14th century, there were institutional attempts in Venice to establish offices or proto-magistracies responsible for the management of the lagoon's waters. These bodies aimed to separate the lagoon from marshlands under the jurisdiction of the *podestà* of Padua and to drain stagnant zones that the latter sought to exploit for salt production. Yet these small committees, composed of individuals with technical expertise in water governance, generally proved short-lived. They tended to dissolve once the immediate issue for which they had been created was resolved and none of them came to occupy the lasting institutional position later assumed by the *Savi alle acque* from the 16th century onwards, nor did they place any significant emphasis on the agricultural uses of water[52].

[51] Vergani, *Brentella*, 281–303.

[52] Antonio Favaro, 'Notizie Storiche Sul Magistrato Veneto Alle Acque', 179.

d) The *Provveditori sopra i beni inculti*: a general institutional framework

The growing discourse among pro-agricultural figures within the Venetian Senate, or *Consiglio di Pregadi*, alongside the private initiatives of Alvise Cornaro's agricultural enterprises and the spread of drainage and irrigation techniques promoted by monastic orders and local community *consorzi* throughout various areas of the southern Veneto, ultimately culminated in a Senate vote in 1545. In line with his pro-agricultural ideas, Cornaro himself claimed to have inspired this Senate's vote, a claim which, according to Salvatore Ciriacono, remains highly unlikely and difficult to substantiate[53]. Whether Cornaro's statement on directly influencing the Senate was honest or not, what is noteworthy about this senatorial deliberation was that it concluded with the appointment of three Venetian patricians that were expected to devote one year to identify all potentially cultivable lands across the Terraferma, initially covering the salaries and travel expenses of surveyors and technical consultants with their own private resources, which were to be reimbursed at the end of their term from the ducal treasury. As the first officials to hold the office of *Savi alle acque*, their role was also advisory: they were entitled to interrupt Senate sessions with matters of public concern relating to water and agriculture, whenever they judged such interventions to be necessary and urgent. During their mandate (1545–6), resignation was not permitted, under penalty of severe sanctions and temporary exclusion from political office. This post did not acquire a permanent institutional status until 1556–7, when a formal governmental body was established to assume and expand the functions provisionally exercised by the three patricians appointed in 1545[54].

Nonetheless, a decade later, on 18 December 1556, the Venetian Senate formally approved the establishment of a new magistracy, the *Provveditori sopra i beni inculti* ('Magistrates in charge of uncultivated lands'), tasked with the development of new agricultural terrain in the Terraferma through land reclamation, primarily via wetland

[53] Ciriacono, *Building on Water*, 114.

[54] Despite its age, Elsa Campos's study remains a key reference for the institutional history of the *Provveditori sopra i beni inculti*, as later literature and archival sources in the State Archives of Venice continue to support its findings: Campos, *I consorzi di bonifica*, 15–25.

drainage and irrigation[55]. As in 1545, the office was initially composed of a board of three patricians appointed by the Senate, each serving a maximum term of one year. Their primary task was to dispatch technical experts to the districts, *podesterie* and communes of the Venetian Terraferma to survey and assess land suitable for cultivation, in response to the increasing demand for grain that characterised the Venetian economy in the second half of the 16th century. As with many other magistracies of the period, their appointment was determined through secret ballot by members of the Senate[56]. These three overseers assumed responsibilities that had previously fallen to private surveyors working on behalf of individuals interested in land reclamation. According to the manuscript entitled *Creation dell'uffitio delli beni inculti*, they were not only authorised to interrupt Senate sessions with urgent matters concerning water and agriculture, but were also expected to report to the Senate every twenty days. These regular updates included assessments and opinions on specific plots of land considered potentially suitable for reclamation and agricultural production[57].

Over the following decades, both the rotation and internal organisation of the office became more complex. In 1557, the Senate authorised the reappointment of those who, having completed their term, had either distinguished themselves through competent service or were engaged in ongoing projects requiring continuity. By 1563, the two-year mandate had become a standard practice, and the initial annual term model was dismissed. To ensure institutional continuity, new *provveditori* were appointed at staggered intervals of eight months, so that no three officeholders would serve the full two-year term simultaneously. At any given time, whilst one *provveditore* had eight months' more experience than the most recently appointed official, another would have served sixteen months longer[58]. This measure was therefore designed to minimise disruption and avoid delays in the execution of drainage and irrigation works aimed at bringing new land into agricultural use.

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[55] ASVe, Provveditori sopra i beni inculti, 7, 456 and 782; Elsa Campos, *I consorzi di bonifica*, 17–19; Ventura, 'Considerazioni': 689; Cosgrove, 'The Geometry of Landscape', 256; Ib., 'Platonism', 39.

[56] Reinhold Mueller C., 'Nel segreto dell'Urna. La riforma della procedura elettorale adottata nel 1492 dal Consiglio dei dieci di Venezia', *Quaderni Veneti* 2 (2013): 219–28;

[57] ASVe, Provveditori sopra i beni inculti, 4 and Cazzola, *Uomini e Fiumi*,182.

[58] Campos, *I consorzi di bonifica*, 21–22.

Although the *provveditori* were not necessarily trained in agriculture or water management, their familiarity with ducal institutions and access to the *Maggior Consiglio* made them particularly suited to managing the administrative and political dimensions of land and water governance close to Venetian power. As the institution developed in complexity, it incorporated an increasing number of technical specialists. According to Elsa Campos, in 1589, the original board of three *provveditori*, each serving a two-year term, was complemented by four additional *provveditori* appointed annually, whose mandate focused on urgent or particularly technical matters requiring greater budgetary attention. According to Elsa Campos as well, a further institutional expansion took place in 1590, with the appointment of four more annual *provveditori* specifically tasked with overseeing major infrastructural works in the marshy southern reaches of the Paduan district, bringing the total number to twelve[59]. While Campos's contribution remains fundamental to understanding the institutional evolution of this office, this latter claim is not clearly supported by the archival documentation from the period consulted for this dissertation–such as confirmations of petition receipts preserved in the State Archives of Venice– which continues to bear the signatures of three *provveditori*, and no explicit mention of a twelve-member board has yet been identified in more recent scholarship or surviving administrative records. It is nonetheless possible that these correspond to the three ordinary members of the board, while others may have held more specialised or auxiliary roles not reflected in these particular records.

In any case, despite this detail, we can nevertheless affirm that the significant institutional involvement of the *Provveditori sopra i beni inculti* in major drainage projects and their persistent efforts to adapt land for agricultural use implied the existence of a substantial body of salaried and specialised personnel–ranging from land surveyors and couriers to notaries, accountants, and secretarial staff. This can be inferred from the systematic functioning of the magistracy itself, which, rather than merely serving an advisory capacity as was the case with the original *provveditori* of 1545, came to exercise a genuine role of oversight, coordination, and confirmation in the execution of waterworks and land improvement schemes. Just as the *Savi alle acque* drew upon the expertise and technical reports of figures such as Cristoforo Sabbadino and Alvise Cornaro, the work of the

[59] Ib., 22–23.

Provveditori sopra i beni inculti likewise fostered the collection of hydrological and territorial data. This, in turn, contributed to the production of valuable sources for reconstructing past landscapes and led to a notable increase in cartographic activity, as reflected in the work of figures such as Niccolò del Cortivo, Giacomo Gastaldi, and Cristoforo Sorte[60]. In addition to these cartographers, the information-gathering activities of the *Provveditori sopra i beni inculti* also relied on the systematic dispatch of technical personnel and surveyors that also produced smaller, less detailed sketches of plots of land. These experts not only contributed to large-scale works initiated directly by the institution, but also undertook regular journeys to verify and measure water concessions and minor interventions carried out by local actors, often in response to petitions (*suppliche*) or complaints. Unlike the *Savi alle acque*, who, in theory, dealt primarily with large-scale technical matters initiated by the Venetian Senate, the *Provveditori sopra i beni inculti* were more frequently involved in responding to local requests for water concessions or construction authorisations.

The institution's functions where thus grounded in a clear jurisdictional principle: the appropriation of all bodies of water by the Republic of Venice. In this sense, the senatorial written deliberation minute that records the creation of the office, reminded everyone in the chamber that 'tutte le acque d'ogni sorte sono giurisdiction del dominio' ('All waters of every kind fall under the jurisdiction of the Venetian Dominion')[61]. In other words, according to their laws, water was property of the Republic of Venice, and any private modification of its course for any reason, in the case of the *Provveditori sopra i beni inculti* magistrate for irrigation or draining, had to be consulted with the Venetian government. This was not a new notion in 1556, as by the beginning of the 1500s Venetian laws appropriated water as a particular good of the duchy[62]. Therefore, water use was sold

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[60] Cosgrove, 'The Geometry of Landscape'; Ib., 'Platonism', 42; Ciriacono, *Building on Water*, 105.

[61] ASVe, Provveditori sopra i beni inculti, 4 and Franco Cazzola, *Uomini e Fiumi,*182. For a comprehensive explanation of Venetian dominio in the Terraferma, and of how it was effectively adapted to the particularities of each local context, see: Alessandra Rizzi, 'Dominante e dominati: strumenti giuridici nell'esperienza "statuale" veneziana', in Gherardo Ortalli (ed.), *Il Commonwealth veneziano tra il 1204 e la fine della Repubblica. Identità e peculiarità* (Venezia: IVSLA, 2015), 235–271.

[62] Ciriacono, 'Istituzione politiche e governo del territorio. Il Magistrato alle Acque nella prima età moderna', 32; Ivone Cacciavillani, *Le leggi veneziane sul territorio, 1471-1789: boschi, fiumi, bonifiche e irrigazioni* (Limena: Signum, 1987), 102.

by the Venetian offices to anyone who needed it for both domestic and agricultural needs, as for instance, Bortolamio Reggio, an inhabitant of Verona that paid 200 *ducati* for the use of a part of the flow of the river Fibio[63]. In short, according to the law, water was something that was bought from the government. Thus, whilst the *Savi alle acque* oversaw the governance of the major rivers and the lagoon, any interventions on minor waterways or stagnant bodies of water for agricultural purposes, now also defined as falling under Venetian jurisdiction through the establishment of the *Provveditori sopra i beni inculti*, were in principle subject to notification and approval by this new magistracy. Similarly, the execution of works not authorised by the magistracy, as well as any damage caused to existing infrastructure, could, where deemed necessary, result in the imposition of fines and referral to the courts of justice of the Republic[64]. The *provveditori* thus acted not merely as advisers, but also as promoters and supervisors of hydraulic works deemed to be of strategic interest to the Venetian government, while simultaneously performing technical and executive functions in the enforcement of these policies. In theory, the functions of the *Provveditori sopra i beni inculti* were exercised in two principal ways: first, through the direct coordination of large-scale drainage works and the adaptation of land for agricultural use; and second, by delegating such responsibilities to local *consorzi*. These *consorzi*, upon which the *provveditori* delegated responsibility for these undertakings, were either voluntarily involved in the promulgated programmes of land reclamation, drainage and irrigation canal construction–typically as the original petitioners seeking authorisation for the project–or else participated under compulsion, following official orders[65].

However, in this modus operandi, the distinction between what was mandatory and what constituted a voluntarily formed *consorzio* proves more difficult to discern in practice. Likewise, the boundary between local interests and those of the Venetian institution tends to blur under closer scrutiny. For instance, in the same text that established the

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[63] ASPd, Acque, 87, fol. 32: (…) 1560. 6. X^{bre} per Bortolamio Reggio citadin di Verona: La Serenissima Signoria per onto d'acqua ducati dusento per l'amontar di quadretti due di acqua del fiume del Fibio, a lui venduta come appare nelli atti dell'officio. Note that the portion of waterflow from the river Fibio that Reggio bought was measured in *quadretti*. There will be further attention brought to the question of water measurement in chapter 4, p. 254.

[64] Campos, *I consorzi di bonifica*, 23.

[65] Ib., 24.

Provveditori sopra i beni inculti in 1556, reference is made to the mandatory implementation of a major drainage campaign south of Padua. This episode, to which we will return in greater detail in the following section, describes how communities were compelled to elect spokespersons for their *consorzi*, who would agree to coordinate both the infrastructural and financial responsibilities involved[66]. In other words, the undertaking is imposed from above and must be executed. However, the organisation of its coordination at the local level is left to the communities themselves, who are expected to arrange it on a supposedly 'voluntary' basis.

Given the multiplicity of situations that arose in the relationships between the Venetian magistrates and local interests, and considering how the enactment of regulations for the creation of this office may distort our understanding by presenting an overly governmental perspective, the following section seeks to shed light on the function effectively exercised by the local consorzi in water management for agricultural purposes. This will be done through an analysis of the first major project undertaken by the institution in the southern part of the Paduan territory, known as the Bassa Padovana–a region and a campaign that, significantly, constitute the first detailed case addressed in the Senate deliberation that established the *Provveditori sopra i beni inculti*[67].

[66] ASPd, Acque, 151: 'Secondo decreto. 1556. 22. Decembre in Rogatis. Vi commettemo coram, che facciate publico proclamar che tutti quei consorti che conveengono unirsi per condurre le loro valle o terre à cultura debbano fra termine de giorni 15 ellegger tre di essi interessati li quali habbino quell'autorità come se fossero tutti essi consorti (…) Che il detto retratto resti obligato.'

[67] Ib.: 'Di quanto benefitio & utile habbi ad'essere al stato nostro il ridur a cultura quella maggior quantità di valle & altri luochi inutili che si può, ogn'uno di questo conseglio per la prudenza sua fácilmente l'intende, il che succederebb quando si procedesse di dar esito all'Aque superflue, che inondano una gran quantità di valle & altri luochi nelli Territori Nostri di Cologna, Montagnana, Este, Castelbaldo, & nelli luochi di Veghezzuol, della Val Granda, Val Urbana, Vila di Carmignan, Vescoana, Solecin & Anguillara, sicome affermano li Proveditori Nostri sopra li Beni Inculti (…)'.

2. Agricultural concerns of water drainage. The Gorzon canal and the communities of the Bassa Padovana (1556–1589)

a) Draining the *incultus*: The Gorzon water governance project

The *Provveditori sopra i beni inculti*'s first major project was draining a large portion of the Bassa Padovana region, south of Padua and the hills known as 'Colli Euganei', and on the northern bank of the river Adige (*Fig. 2* and *3*). As developed by historians Camillo Corrain and Mauro Vigato, this enterprise implied deep modifications of the landscape, which initiated with the fractioning of a natural sedimentary levee, known as the Gorzon, that kept fresh-water wetlands separate from the southern end of the Venetian Lagoon[68]. This geological formation later gave its name to the projected drainage canal, the *taglio del Gorzon*, which could translate literally as the "fracture" or "sectioning" of the Gorzon, a project that begun between 1556 and 1557. A complex network of ponds, lakes and meanders fed by creeks such as the Rabiosa, the Guà, the Fratta, the Frassine, and the Fossa Lovara, was to be canalized into a single course of water. This meant not only a modification of landscape, but also a deep social and political change for both the Republic of Venice and the local communities of the Bassa Padovana.

Before the 1557 conclusion of the first half of the Gorzon canal, draining a large marshland between the coast of the Chioggia Lagoon and Anguillara, most lands in this sector were considered uncultivated ('incolti') and useless ('inutile') by the Venetian senate[69]. Ubiquity of water, along with its absence, was deemed problematic for the case

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[68] Camillo Corrain et al., *Terra, Acque, Uomini in Bassa Padovana. Appunti per Una Esplorazione d'ambiente* (Stanghella: Gruppo Bassa Padovana, 1982); Camillo Corrain, *Il 'Retratto Del Gorzon' Nella Cartografia Storica Tra Medioevo Ed Età Veneziana*, II, Itinerari e Documenti per Una Storia Della Bassa Padovana (Stanghella: Gruppo Bassa Padovana, 1988); Maratini and Vigato, *Uomini, Terre Ed Acque*; A recent and notably detailed study worth highlighting in relation to Venetian water management in this territory is Alberto Faccio's master's thesis, supervised by Walter Panciera. Although this work could not be engaged with in detail due to time constraints in the final stages of this research, it offers valuable insights on several of the themes addressed here, and merits further scholarly attention: Alberto Faccio, 'La gestione delle acque nel padovano sud-occidentale in età moderna' (Università degli studi di Padova, 2022).

[69] *Scritture fatte auanti che fusse datto principio al Retratto del Gorzon. 1557. adi. 28. Lugio in Venetia (...)*, 1558, Conserved in the Fondazione Querini Stampalia, Venice.

of the Gorzon, where the Republic of Venice as well as its local governments (*capitani* and *podestà* loyal to Venice) linked water management to their interest in eradicating bare and what they believed as useless or unproductive lands, and made sure of spreading this perception among the communities of the Bassa Padovana. In the Bassa Padovana, the Republic of Venice had publicized the supposed universally shared benefit of drainage and irrigation, where excess stagnant water had to be diverted all the way to the Adriatic. As the founding text of the *Provvveditori sopra i beni inculti* states, the territory of Padua, as well as the more southern Polesine district, by the lower course of the Po, were seen as long-lost opportunities to produce grain, finally potentially achievable with Venetian ingenuity[70].

Investment in the construction and implementation of the Gorzon canal –or Gorzon 'retracting' (*retratto*)– brought together diverse social actors, ranging from Venetian patrician families to local Paduan noblemen, smaller scale farming communities, and even monasteries. Petitions to Venetian officials written by local populations are an opportunity for the understanding of the Gorzon canal construction *par le bas*, thus reconstructing the concerns and the interests of these smaller local institutions, sometimes in contrast the Venetian narratives of "governing the waters"[71]. Bearing in mind the contrast between these sources and the norms established by the government, the following sections aim to define Venetian *consorzi* as an agrarian-economic unit formed by landowners invested in land reclamation and irrigation. At the same time, it seeks to highlight the socio-political implications of these associations at the outset of Venice's hydraulic hegemony and agronomic expansion.

b) Diverting water and investing in cereal crops. The example of Boara and the Pisani

Cadastres and land occupation documents conserved in Este and Montagnana contrast the broad extension of Venetian land ownership on the one side, and the humbler local

[70] ASVe, Provveditori sopra i beni inculti, 4: '1556. 3 Decembre. In pregadi. Si attrovano molti terreni affondati nel Territorio nostro di Padova, Verona et nel Polesine, che si potriano ridur a coltura, (…) per benefitio universale (…)'.

[71] Benzoni, 'Verso La "Santa Agricoltura"', 11–14.

assets on the other[72]. These sources were produced with a fiscal intention, and are the traces of campaigns conducted by either Venetian magistracies, local *podesterie* or seigneurial authorities. One of these sources, studied in depth by Camillo Corrain, is conserved today in the Civic Ethnographic Museum of Stanghella, a small town in the heart of the Bassa Padovana, located between the Gorzon Canal to the north and the Adige to the south[73]. The map, drawn in 1633 by Hercole Peretti, depicts patterns of landownership prior to the excavation of the Gorzon Canal in 1557, and it is believed to be a copy of a now-lost original produced that same year for *the Provveditori sopra i beni inculti*. What first strikes the viewer is the scale of the parcels owned by members of the Venetian patriciate, such as the Morosini, the Contarini, the Zen or the Pisani, in contrast with land owned by the *comunità* of Este, Montagnana or Castelbaldo[74]. As noted by Corrain, the cadaster map is a representation of the past seen by 17th century populations, yet land ownership depicted in it can be closely corroborated by mid 1500s sources, such as the *estimi* of Este, ordered by such municipal authorities as the *podestà* (head of the city) and *capitano* (head of the hinterland county that depended on the city)[75].

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[72] ASM, Sezione Veneta, Acque, 416, 444, 535; AMCE, 89. AMCES, t. 12 and Hercole Peretti, *Carta del Rettrato del Gorzon. 20 Gienaro 1633 in Este.*

[73] Camillo Corrain, *Introduzione storica alla lettura della carta catastale del Retratto del Gorzon: itinerari e documenti per una storia della Bassa Padovana* (Stanghella: Gruppo Bassa Padovana, 1986).

[74] For legal reasons related to its ongoing digitisation process, it was not possible to include in this dissertation any reproductions of this monumental document measuring approximately 24 square metres and kept at the Camillo Corrain Civic Ethnographic Museum in Stanghella. All references to the document are based on personal materials and notes taken during research visits to the institution in 2022.

[75] From the point of view of economic and demographic historians, quantitative reliability of sources such as Venetian *estimi* is a matter of debate, see: Guido Alfani and Matteo Di Tullio, *The Lion's Share*, 20–56; Matteo Di Tullio, 'Dinamiche della disuguaglianza economica nella Repubblica di Venezia: fonti e metodi d'indagine a partire dal caso padovano' in Giampiero Nigro (ed.), *Disuguaglianza economica delle società preindustriali: cause ed effetti,* Datini Studies in Economic History (Firenze: Firenze University Press, 2020), 67–81; Matthieu Scherman, *Familles et travail à Trévise à la fin du Moyen Age : vers 1434-vers 1509*, Bibliothèque des écoles françaises d'Athènes et de Rome 358 (Roma: École Française de Rome, 2013); Francesca Cavazzana and Ermanno Orlando (eds.), *Gli estimi della podesteria di Treviso*, (Treviso: Pubblicazioni degli archivi di Stato, 2006); Yet from the political point of view, the divergence between the Venetian-owned land and its uses with the localities clearly shows an imposition of Venetian agrarian policies over local customs. Continuing with the example of Este, it is notable how the Podesteria of Este commenced a long-term campaign of recording the possessed goods of its rural districts, with its monetary contributions intended for the salaries of city servants such as the *consoli* that were sent to negotiate with

This situation of land jurisdiction is traceable with the aforementioned sources by sampling, for instance, the situation of Boara, a hamlet by the northern banks of the Adige and fiscally part of the territory of Este. As its current name, Boara Pisani, suggests, this vicinage was notable for being surrounded by large estates owned by the Venetian family of the Pisani, to which many renowned merchants and bankers had belonged, as well as important political and ecclesiastical figures. The Pisani had bought the lands between Boara and the neighbouring Vescovana in the late 1400s from the noble house of Este, initially facing opposition from village communities dependent from the neighboring *podesterie* of Montagnana and Este, such as Vigghizzolo or Gazzo, as noted by Vigato[76]. During the decades previous and following the Gorzon canal, the Pisani estates were in the hands of two important members: Cardinal Francesco Pisani (who died in 1570) and his sister Paola. They held more than 10,000 *campi* only between the towns of Boara and Vescovana, whereas only a few thin patches along the banks of the river Adige were left for vineyards (‘terre vignà’ or ‘terreni videgadi’, in vernacular) and miscellaneous fruit trees used by Boara’s dwellers[77]. This meant that a considerable quantity of the grain consumed by the *boaresi* was produced in the Pisani estates which, on the contrary, did not produce any crop other than cereal. In contrast, small communities’ produce in the Bassa Padovana responded to a domestic model of heterogeneous though not numerous

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other cities, an *avvocato* in representation of the community of Este in Venice and even a *maestro di scuola*. See: AMCE, 89, 'Spessa ordinaria della splendida comunità di Este per anno uno (…)'; Vigato, ‘Gli Estimi Padovani Tra XVI e XVII Secolo’.

[76] Vigato, *Il Monastero di S. Maria delle Carceroi,* 71–77; Ib., 112–14; Ventura, ‘Considerazioni sull’agricoltura’, 678. On the purchasing of the Estense lands see: Giuseppe Gullino, ‘I veneziani e la terra: la questione del Polesine’, in Gino Benzoni (ed.), *Verso La Santa Agricoltura. Alvise Cornaro, Ruzante, Il Polesine* (Rovigo: Minelliana, 2004), 91

[77] Caterina Furlan and Patrizia Tosini, ‘PISANI - Albero Genealogico - Cardinali Della Serenissima’, Udine, Cassino: Università degli Studi di Udine, Uiversità dgli Studi di Cassino e del Lazio Meridionale, 2013): <http://cardinaliserenissima.uniud.it/55-pisani-albero.html>; According to an 1877 collection of conversion tables between Italian traditional measurement units and the metric system, 1 campo padovano corresponded to 3862,5726 m^2, see: Ministero di agricoltura, industria e commercio, *Tavole di ragguaglio dei pesi e delle misure : già in uso nelle varie provincie del Regno col sistema metrico decimale : approvate con decreto Reale 20 maggio 1877, n. 3836* (Roma: Stamperia Reale, 1877), 483; Mauro Vigato, *Il Monastero*, 10.

crops[78]. This example of Boara shows therefore an investment of the Pisani family solely in grain, surpassing enormously the size of property when compared to that held by the villagers. Thus, Venetian agrarian investment meant a large-scale mutation of the Bassa Padovana landscape by the second half of the 1500s, from motley planting to monoculture.

The lands of the Pisani and the neighbouring lots of Boara were in fact west of the argillaceous bank called Gorzon that retained the waters of the Frassine and the Fossa Lovara (*Fig. 2*)[79]. Just north of Boara was the *Lago della Girguola*, the largest of the lakes that formed the Fossa Lovara, where, according to the 1636 cadastral map of the Gorzon, the waters and therefore the fishing rights of the lake belonged to the inhabitants of the community of Monselice, whereas the lands on the shores were shared between Paola Pisani and the Polcastro, a noble family from Padua[80]. None of these lakes and meandering creeks were left after the creation of the Gorzon canal, and newer reclaimed lots added to the already large estates of the Pisani (*Fig. 2*)[81]. The case of the Pisani family and unequal land occupation when contrasted to the neighboring local farmers of Boara was not an exception in the region; after the Gorzon canal was concluded, most of the new lands went to Venetian holders.

c) Financing the Gorzon canal and its consequences (1556–1568): a long debate

The 1556 announcement of Venetian interest in draining the Bassa Padovana said that whoever was interested in modifying water courses for his own lands in this region should ask for the permission of the *Provveditori*, and explain in detail the arguments for the modification, attaching a drawing of the lot intended for its adaptation to agriculture (*adaquation* in Venetian), by both its drainage and irrigation. Afterwards, the *Provveditori*

[78] According to a 1549 to the mid-1700s fiscal record of Este, Boara had 292 inhabitants in 1577; all of them were essentially proprietors of the communal vineyards along the river. (AMCE, b. 89: 'Descrizion dell'Anime o persone d'Este dall'anno 1568 sino 1780')

[79] AMCE, 52, *De Acquis*.

[80] Hercole Peretti, *Carta del Rettrato del Gorzon. 20 Gienaro 1633 in Este*, conserved in AMCES; AMCES, t. 9, d. 275.

[81] ASPd, Acque, 151, disegno 1.

sent surveyors in order to check the accuracy of what the petitioner intended in his letter and drawing. The travel expenses of the surveyors were to be borne by the petitioner when the proposed project affected only his own property. In contrast, larger undertakings were financed through collective contributions. The responsibility for collecting these funds fell either to the members of the local *consorzi* in charge of internal accounting, known as *cassieri*, to whom the Venetian authorities delegated such tasks, or to notaries sent directly from the city. These *periti* went back to the *Provveditori* with a second drawing giving their opinion of what they had observed, and then the *Provveditori* approved or not[82]. Once the project was approved by the *Provveditori*, the work of building or reinforcing the structures, generally dykes, was at the expense of the proprietor who had solicited the hydraulic and agrarian project, including not only the material, but also the payment of the salaries of those who worked on these works.

Paying for these *expeditioni* or *cavalcate* was not the only monetary effort that many communities, joint-land owners and single propietors made to the recently created chamber of the *Provveditori sopra i beni inculti*. Many also engaged in common expenses for larger scale draining campaigns such as the Gorzon canal. In this case, they were obliged to pay a tax, named *campatico*, proportional to the extension and quality of the lands that were to benefit from the drainage (*scolladori* or *scoli*) or irrigation canals (*seriolle*)[83]. The first *campatico* tax campaign of the Gorzon was promulgated in 1557: proprietors were to pay two *ducati* for each possessed bare or not sown (*non piantà*) *campo padovano*, and 1 *ducato* for each possessed flooded *campo padovano*. Ventura noted how the total of six tax campaigns involved the Gorzon canal project from 1557 to 1594, with a theoretical total contribution of an amount between five and nine *ducati* per *campo Padovano*, depending of the type of land to benefit from the canal dig[84]. If payments were not made on time, a proportionate part of land would be expropriated by the Venetian magistracy and auctioned among the other stakeholders.

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[82] ASVe, Provveditori sopra i beni inculti, 456.

[83] A precise definition of *campatico* and its role in the Venetian fiscal system is found in: Guido Alfani and Matteo Di Tullio, *The Lion's Share*, 31.

[84] Ventura, 'Considerazioni sull'agricoltura veneta', 696.

For instance, in 1561 the *Provveditori sopra i beni inculti* produced a list of the different owners whose lands were to be confiscated as the magistrates considered that they had unlawfully declared their goods during a taxation campaign for the Gorzon canal. These included commoners such as Niccolò Fibri of Montagnana, local clergy goods, such as the parish church of Castelbaldo and Merlara, or even a company owning a manufacturing pottery mill (*fabbrica*) in Piacenza d'Adige[85]. Paying for canal building work was a frequent case of conflict between communitarian interests in which the Venetian *Provveditori* acted as arbitrators. Large infrastructural works given the substantial monetary effort they implied, were taken care not by single owners, but by *corsorzi*. The confrontations between *consorzi* on the payment for a construction job could last for many decades, being notable in the specific case of the Gorzon, which, despite Venetian expectations during its promulgation in the senate of the Serenissima, had met with fiscal resistance from the *consorzi* already present in the territory, which lasted until well into the 17th century. Thus, for instance, in April 1600, a dispute was still dragging on between the *consorzio* of the Bocca del Conselvan and the *consorzio* of the lower section of the Gorzon canal over the payment for the reinforcement of the dykes (*arzerazione*) on the north bank of the canal, which had flooded the lands south of the Bacchiglione near Conselve in the 1550s. The *Provveditori* summoned the *presidenti* of both *consorzi*, which were all patricians, to the Senate in Venice, which decided that the debtors were those of the Conselvano, headed by patrician Piero Venier, and those who were forgiven from paying were the *consortes* of the canal whose dykes had broken and flooded the Conselvano 50 years earlier. This financial litigation extended over half a century, as it involved prominent members of the Venetian patriciate and the lands belonging to the Santa Giustina Abbey of Padua. However, when construction costs were left unpaid by any of the parties involved, particularly when the properties in question belonged to village communities, confiscation tended to proceed much more swiftly[86]. Thus, the communities of Masi and Castelbaldo each had 50 *campi padovani* expropriated for not

[85] ASPd, Acque, 87.

[86] ASPd, Acque, 88, fol. 64-65: 'Caso di arbitraggio fra consorti della Boca del Gorzon et gli consorti della boca del Conselvan su chi è da pagare l'arzeratione (…) citati in presidentia al senato (…) del Gorzon, di Santa Giustina di Padoa, Giovani Paolo Gradenigo, Cristoforo Barbarigo, Zuane Pisani (…) del Conselvan, Piero Venier et debitori'. A document from 1568 describes how the *consorzio* of the Conselvano had attempted to make the *consorzio* of the Lower Gorzon canal pay for the reinforccing of the canal's embankments vita the *Savi alle acque*: ASVe, Provveditori sopra i beni inculti, 780.

being able to pay the canal diggers' salaries on time. It appears that, in addition, the town of Masi had several fiscal disputes during the following decades with the *Provveditori sopra i beni inculti*, since, in the drawings they made of their possessions during the Gorzon *campatico* tax campaign of 1572 these towns declared fewer quantities of *campi* possessed as communal lands (planted with communal vineyards, according to Peretti's map, as he maps it as 'Campagna di Castelbaldo et Masi videgà' and 'Terre alte videgà'), thus attempting to avoid the payment of a higher tax[87]. The due amount eventually was paid by patrician in 1587, Gasparo Grimani, and charitable entities such as the San Bernardino convent and the 'Arca del Santo' (in the famous Basilica of St Anthony of Padua), whose donations nonetheless did not impede the annulment of the Venetian order of land confiscation of Masi and Castelbaldo[88]. In short, the *provveditori sopra i beni inculti* appeared as unifying every social and institutional sector of the Terraferma under its jurisdiction when it came to paying for water and water infrastructure building, regardless of whether the petitioner was a private owner, a *communanze* (village community) or an agrarian board or *consorzio*, and anyone who didn't pay on time was at risk of requisition.

[87] ASVe, Provveditori sopra i beni inculti, 456: 'Al podestà de Castelbaldo. Magnifico home fratello honorando. D'istanza dell'Eccelente Advocato Fiscal dell'offitio nostro per l'interesse della Serenissima Signoria piacerà alla Magistratura vostra per pubblico (…) ciò della corte sua far citar li homini del comun di Masi à dover comparir avanti di Noi et offitio nostro nel termine di giorni otto doppo la citazione et per ogni altro zorno seguente fino all'espedizione della causa à veder far la consegnazione de campi cento de valli non piantadi alla Via Nova posti nel disegno pubblico per l'offitio intitolato Disegno Castelbaldo, Masi et Piasenza in nome del comun di Masi, nel qual pretende et conseguentemente metter nella Serenissima Signoria li campi che a lei spetta, per non esser di quelli sia fatto il debito deposito iusto le lezzi. Aliter ed oltra di ciò la fara far publica proclama nelli lochi soliti, et consenti di quella terra et al ditto loco della Via Nova che tutti quelli che pretendono haver raggion nelli detti campi debbano comparir avanti di Noi et offitio nostro nel termine sopradetto che non se gli mancarà di Giustitia altramente se fará la detta consignazione, et divisione per quello che averemo (…) A Venexia adì 6 Novembre 1572.'

[88] ASVe, Provveditori sopra i beni inculti, 456. The final part of the act lists additional sources of funding for the salaries, including private contributions from various actors. These include the comune of Masi (200 *ducati*), the comune of Castelbaldo (199.12 *ducati*), crediti dei dotti (356 *ducati*), noblemen such as Borso San Bonifacio of Padua (853.13 *ducati*) and Giacomo Gasparo Grimani from Padua (940.4 *ducati*), the monks of the San Bernardino convent in Padua (544.23 *ducati*), and the Arca di Sant'Antonio (1683 *ducati*).

This problem dragged out a decades-long process of payment reclamation for the Venetian institution for both tax payment and expenses for the experts' and land surveyor notaries' travel to solicitor's lands for re-measurement of lands or mediation between two or more litigants, causing long and tedious disputes[89]. Thus, during the 1540s and 1550s an old conflict reappeared in the Venetian senate over the opening or closing of the Rotta Sabbadina, a large sluice gate on the Adige built in the late 1400s[90]. This controversy is traceable to 1495, when the inhabitants of Este and Montagnana were accused of opening it for too long, causing the Adige to overflow and flood the southerly territory of Rovigo. By 1561, the *capitano* of the territory of Padua, Geronimo Cicogna, in representation of Este and Montagana, was willing to meet the representatives of the communities of Rovigo by the Rotta Sabbadina, with a third party of mediators from the *Provveditori sopra i beni inculti*. They agreed to meet on a Tuesday morning in April, and the *cavalcata* to the Rotta Sabbadina was to be paid for by equal parts, covering also the expenses of the Venetian mediators. Nonetheless, the folder in which this episode is conserved in the State Archives of Padua includes documents from as late as 1585 that show that the two parties, Este-Montagnana and the territory of Rovigo, continued to argue over who was to pay for the settlement ceremony.

When proposed to the landowners inland, the Gorzon project was not too different from that of the neighbouring Rotta Sabbadina. The project was announced by the *trombetta*, a sort of town crier employed by the local *podestà* that every Sunday in 'li luoghi consueti' ('the regular places'), would inform of the drainage project and invite the locals to sign up as *interessati* or shareholders. "Regular places" were generally market squares during market days, as in Cona or Anguillara, or in front of the local *podestà* palaces in towns such as Este, Montagnana or Cavarzere[91]. These *Ufficio* announcements read in public make it seem as though the process of acquiring shares in the project was a rather easy operation. Nonetheless, local petitions and denunciations depict a complex negotiation of prices that sometimes lasted until the late 1660s. Likewise, in June 1568 the *Provveditori*

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[89] On growing inequality between rural Terraferma districts and cities in the Republic of Venice through the lens of fiscal sources and debt: Guido Alfani and Matteo Di Tullio, *The Lion's Share*, 14–18 and 95–112; Matteo Di Tullio, 'Dinamiche della disuguaglianza'.

[90] ASPd, Acque, 176.

[91] ASVe, Provveditori sopra i beni inculti, 456, 767.

sopra i beni inculti asked the *capitano* of the district of Padua, Marco Grimani, for the whereabouts of two inhabitants of the region who owed tax money for buying drained land after the digging of the Gorzon. They could not be found, as they had only used their first names when soliciting the permit to drain the stagnant waters of their properties in the Val Granda, near Sant'Urbano. The *capitano* was given eight days to find the two men, named Ieronimo and Antonio, and lamented to the Venetians that '(…) ne sono molti che hanno questi nomi, che quando gli fussero gli nomi delli loro padri si sapriano trovare (…)' ("There are many men that take these names, if we knew the names of their fathers, we would know how to find them"). Through a parallel visit of a *perito* to the Val Granda area, the *Provveditori sopra i beni inculti* discovered that Ieronimo and Antonio where members of the Paduan aristocratic family of the Capodevaca. This generates numerous hypotheses over the Paduan local authorities not discovering, or not wanting to discover, the identity of the debtors to the Venetian magistrate. It also shows how the local aristocracy resisted the Venetian fiscus in the Bassa Padovana, as broadly shown also for other families such as the Polcastro, who had a more than century-long fiscal negotiation with the *Provveditori* over the financing of the Gorzon canal[92].

Additionally, this difficulty in more efficiently collecting the *campatico* tax was a consequence of the landowners' knowledge of measurement and calculation of land and water flow. Indeed, the area drained into the Gorzon canal was not terra incognita for Venetians as, when the Gorzon canal was first proposed in 1551, various members of the senate and patriciate like the forementioned Pisani already had properties in the region. Venetian landowners had had surveyors visit and measure their properties for their own interest. Sometimes the landowners had even measured their possessions previously with a privately hired surveyor who also worked for the *Bene Inculti* office, as local farmer Dario Malchiavello and his wife did in 1568, considering that the measurement done by the *pertegador* of the *ufficio* was too large and therefore asking for an unjustly high tax[93]. Furthermore, during the digging of the Gorzon, the *Provveditori sopra i beni inculti* rarely

[92] AMCES, t. 12, f. 002

[93] ASVe, Provveditori sopra i beni inculti, 558; ASM, Sezione Veneta, Acque, 321, f. 26.

visited the places *in situ*, sending delegates instead, causing widely variable accounts on land ownership measurement and long debates before tax disbursement[94].

Not only tax money but also the degree and nature of harm caused to particular interests were vectors of perpetual litigation between magistrates and *interessati*. The office promised monetary reparation in case of damage of lands and properties during or after the dig, and numerous landowners of the Bassa Padovana sent dispute letters to the *Provveditori* arguing for harms caused by the Gorzon, and thus asking for compensation. The 1551 proposal of the Gorzon indeed stipulated in a rather Hippocratic way that any landowner who wished to deviate waters for irrigation or drainage was to make sure that it didn't cause more harm to his neighbours than benefit to his own personal lands[95]. Probably acknowledging that some degree of conflict and damage was inevitable when deviating waters, the text then continued saying that, in the case of disturbance of a landowner, a *perito* would be sent from Venice to calculate the harm to his production and decide whether to compensate or not, and by how much.

For example, in 1564 Venetian Lorenzo Foscarini was considered a *dannificato* of the Gorzon and received a total of 4727 lire after a *perito* calculated the harms to his lands in the town of Borgoforte, which were completely bisected by the Gorzon canal[96]. Also, an anonymous author from Vighizzolo complained in 1568 about not being visited by *periti* to calculate the damages of the Gorzon in his land, arguing that the drainage system before 1557 had been better. Among these numerous contentions between the Magistrates and personal owners on compensating harm from the Gorzon, there was also a very critical intercession in 1568 of another Venetian magistracy, the more veteran *Savi alle acque*, that reproached the *Proveditori sopra i beni inculti* of not considering the floods of that

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[94] Except for three times from 1558 to 1561, the first accompanying Piemontese cartographer Giacomo Gastaldo to draw his project of the Gorzon mouth, second in 1559 to see how engineer Anzolo Romittano completed the new mouth of the Adige, paid for the Gorzon shareholders, and the third in 1561 in the aforementioned attempt to pacify negotiations between the inhabitants of the Bassa Padovana and those of the Polesine of Rovigo on the closing of the Rotta Sabbadina. See: ASVe, Provveditori sopra i beni inculti, 839; ASPd, Acque, 176.

[95] ASVe, Provveditori sopra i beni inculti, 456.

[96] Ib.

year, when water from the Gorzon, previously flowing south to the Adige, went to the Bacchiglione and into the Lagoon[97].

Compensation on the loss of production and its environmental causes therefore created a longer and more complex negotiation process for the Gorzon than projected in the 1551–1557 *terminazioni*. Monetary contribution, compensation and debt were therefore the main factors of conflict during the Gorzon. Social entities involved in the project, both those who benefited and those who were injured, also demonstrate the initial incapacity of the magistracy in the 1550s and 1560s to fiscally grasp total control of the lands and waters of the Bassa Padovana.

d) ‘Sia particolare che universale’: political nepotism and private initiative in the Gorzon

Reclamation of water belonging to the Venetian *dominio* in the 1556 senate deliberation was closely related to the ideal intention of separating family interests from the *Provveditori*. A *provveditore* could be excluded from the office if it was proven that he was deciding on a hydraulic matter involving property either his own or belonging to a close family member. In that case there was a secret denunciation to the senate, employing at least one *avogado*, and if the *provveditore* was proven guilty the exclusion would be balloted among the members of the Senate. The earliest case in the Venetian sources of this exclusion within the *Ufficio sopra i beni inculti* is from 1557, the second year of the institution’s existence, in which Antonio Zorzi was excluded from any decision over the continuation of the digging of the second half of the Gorzon canal, draining the Griguola lake. The anonymous denunciators point out that Zorzi was the brother-in-law of Piero Loredan and also related to former *provveditore* Lunardo[98]. In practice, excluding Zorzi from making decisions on the Gorzon would have seemed quite contradictory, as the Loredan family, present intermittently among the *Provveditori sopra i beni inculti* as well as proprietors in the area of the Gorzon canal for the whole decade of 1551-1560, never had any problem in expressing their opinions in the senate and

[97] ASVe, Provveditori sopra i beni inculti, 780.

[98] ASVe, Provveditori sopra i beni inculti, 4: ‘(…) Nobile Homo Antonio Zorzi (…) possi esser ballotato sopra la differentia del Gorzon, over hora, et stato nominato essendo etiam esso cugnato del Nobile Homo Piero Loredan che è interessato in esso Gorzon’.

making decisions on the Gorzon canal, following a double interest, 'd'interesse, sia particolar che universale'[99]. In fact, the almost unanimous vote against excluding Antionio Zorzi from deciding on the Gorzon is not surprising. The document continues listing other patricians concerning their eligibility to access the office; all of them are permitted to opine on the project, being nonetheless either directly interested in buying particular property after the Gorzon derivation or related personally to other *interessati*[100].

Another more obvious proof of this contradiction between the normative theory of the *Provveditori sopra i beni inculti* and its praxis during the Gorzon digging is the fact that one of the first voted *Provveditori* in 1556 was Niccolò Zen. Zen was also father of Catharin Zen, a Venetian patrician and one of the major landowners in the central course of the Fossa Lovara, between the hamlets of Carmignano and Sant'Urbano, as depicted in the 1633 cadastral map of the Gorzon. Catharin Zen, apart from being *podestà* of Rovigo in the 1580s, was also the president of the *consorzio* or agrarian board of the Val Granda in 1568, an institution that sought to drain stagnant waters near the two towns into the Adige, near the previously mentioned Rotta Sabbadina. He was also the head of the Gorzon board in 1581 along with his brother Piero[101].

The most notable case involves the aforementioned Pisani of Boara and Vescovana, who best blurred the boundaries between the *interesse universale* and the *particolare*. In order to communicate more efficiently with local interests, the Venetian magistrate ordered the unification of shareholders investing in the new lands drained by the Gorzon canal in large *consorzi*, as in most cases of larger-scale water deviation projects proposed by the *Provveditori*, such as the later cases of the Lozzo and the Brancaglia canals proposed in 1558[102]. The Gorzon was divided into two large boards, each with three voted representants or *presidenti*: the *Gorzon inferiore* for the lower course of the canal to the

[99] ASVe, Provveditori sopra i beni inculti, 782: 'Terminazioni relative al Gorzon inferior 1556. 3 Decembre. In pregadi'.

[100] ASVe, Provveditori sopra i beni inculti, 4.

[101] ASVe, Provveditori sopra i beni inculti, 456; ASPd, Acque, 176; ASM, Sezione Veneta, Acque, 321, f. 26

[102] Mauro Vigato, *Il Monastero*, 101.

east, and the *Gorzon superiore* for the higher course of the canal to the west (after 1595, there was a new subdivision, the Gorzon medio for the central course of the canal)[103].

The Pisani estates, being mainly within the lower sector, between lake Griguola and Sottomarina (*Fig. 2* and *3*), usually appointed presidents of the board of landowners, such as Alvise Pisani (appointed in 1592), Zuane Pisani (appointed in 1597), Alessandro Pisani (appointed in 1599) or Marcantonio Pisani (appointed in 1605). These members of the Pisani family acceded to the office of *presidente* of the lower Gorzon by ballotage among the members of the board. Yet, as proven by a series of letters written by the *Provveditori* in Venice, the authorities believed that there weren't enough members of the board present at most of the ballotages of these Pisani presidents, and that the few members who were willing to vote were not there on the day and at the hour when the election had to be carried out. This generates two hypotheses: first, that the board members' lack of electoral participation was a consequence of local indifference towards matters of the Gorzon canal in the late 1500s, combined with their other priorities on ballotage days; or second, that they acknowledged that the result of the vote was always going to be in favor those who owned larger pieces of land and benefitted more from the draining of the Gorzon[104].

The reasons for the lack of electoral participation are difficult to completely demonstrate with the existing documentation. However, since the appointment of the three presidents of the *Gorzon inferior* tended to come directly from Venice, and since these were recurrently members of the Pisani, it can be deduced that by the last decades of the 16th century the Venetian magistrates believed that power of decision over water flow in the Gorzon should be exerted by those who had more property that would benefit from the water deviation. In the case of the *Gorzon inferiore*, this meant the Pisani, who were nonetheless not all happy with being appointed *presidente*. Certainly, although Alvise Pisani personally asked the *Provveditori* to be reappointed in 1599, later Alessandro Pisani, despite having been elected, didn't take the office and wrote to the *Provveditori* urging them that he did not want to be made president, as he did not have enough property

[103] ASVe, Provveditori sopra i beni inculti, 782.

[104] ASVe, Provveditori sopra i beni inculti, 782: 'Havendo noi Proveditori Sopra li beni inculti Infrascritti inteso che non si sono ridutti quel numero d'interessati nel Ritratto del Gorzon, che era necessario per far l'elettione delli Presidenti del Retratto sudetto (…)'.

benefitting from the Gorzon canal and therefore was not sufficiently interested in representing those who were.

Therefore, the *Provveditori sopra i beni inculti* engendered a paradoxical conception of water and agrarian politics. Ideally, in the legislative sphere, if a *provveditore* had particular interests in a given land, he could not deliberate from Venice over that land, whereas the more lands that someone possessed and that benefitted from the Venetian constructors, the more legitimate his political voice as a local representative. In practice, members of the office were voted unanimously as potentially appointable even if the cadastral map of the Gorzon indicated their families as possessors of benefitting lands. The formula 'interesse sia particulare che universale' expresses how much the political system legitimating land and waters had by this time mutated from avoiding having too many stakes in the common shared water to legitimise representative participation, to just the opposite: the more land personally possessed and served by the governed water canal, the greater the voice in the name of the *consorzio*.

Therefore, government of water boards went from preferring an ideal of an external and "non interested" magistrate arbitrating drainage and irrigation for the universal benefit of the inhabitants in the normative expression of Senatorial decisions, to advocating for the leadership of those who personally had more at stake in water drainage in practice. The high stakes of the Gorzon project therefore positioned venetian institutions at a crossroads between foundational theoretical intentions of neutrality and justice, and an oligarchical praxis, in which political authority was proportional to land ownership and the monetary quantity of shareholding.

e) Local meanings of *consorzi* in the Gorzon canal region (15th – 16th centuries)

The participation of the Pisani family as legitimate representatives of all of those *interessati* in the lower course of Gorzon canal fits the conception of what water boards were for the collective memory of the Veneto, as discussed in the previous chapter. The *Provveditori sopra i beni inculti*, starting in 1556 with the Gorzon project, would soon

attempt to control and organize large scale water boards, or *consorzi*, that were defined from both the economic and institutional points of view by Georgina Bonfiglio Dosio[105].

Those who put more capital for the common good, would be seen also as the legitimate leaders of the board, like the Pisani in the *consorzio* created for the lower section of the Gorzon canal. Yet this definition of *consorzi* from the strictly economic point of view, as a corporate institution of associates with a common goal of 'making the land adequate' for grain crops, is just partial. This is because the word *consortes* appeared slightly nuanced in other types of sources concerning the Gorzon canal land reclamation project, mainly the petitions or *suppliche* made to the *Provveditori sopra i beni inculti* during the decades of 1560 to 1600, and also in 15th century local statutes of the *podesterie* of Este and Montagnana[106].

As in most governments in Early Modern Europe, the *suppliche* that the Venetian *Provveditori* received on the Gorzon Canal came from any type of entity, individual or collective, under the authority of the Stato da Terra. As noted by Andreas Würgler, late medieval petitions probably initiated as the only legitimate political voice of most sectors of society that attempted to receive exceptional vertical concessions from their sovereigns, moved by *justitia et compassione*[107]. By the 1560s and into the 1580s, the petitions addressed to the *Provveditori sopra i beni inculti* had largely abandoned their original connotation of seigneurial submission. While retaining elements of that rhetoric, they increasingly dealt with formulaic and technical questions concerning water management. This was particularly evident in individually signed petitions, usually submitted by landowners requesting permission to excavate private derivation canals from the Gorzon. Petitioners tended to move directly to outlining the condition of their lands in relation to water, typically pursuing one of two objectives: either obtaining

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[105] Bonfiglio Dosio et al. (eds.), *Regolar l'acque*.

[106] ASVe, Provveditori sopra i beni inculti, 7; AMCE, 35, 'Repertorio de leggi statutarie, Quod consortes teneantur facere seralias Caput XCII'; ASM, Sezione Veneta, Statuti del Comune, 1: '*Liber I, De vineis et arboribus plantandis; Liber II, De Seraleis inter vicinos et consortes*'.

[107] Andreas Würgler, 'Suppliche e "gravamina" nella prima età moderna: la storiografia di lingua tedesca', *Annali dell'Istituto storico italo-germanico in Trento = Jahrbuch des italienisch-deutschen historischen Instituts in Trient* 25 (1999), 515–46; ASVe, Provveditori sopra i beni inculti, 26: '(…) cosa in vero degna di Justitia et compassione'.

authorisation to use water from the Gorzon, or, more frequently, requesting exemption from taxation, often citing poor harvests caused by flooding or drought.

In both cases, there was a *leitmotiv* in arguing a defence of the older norms present in the territory before the creation of the magistracy, as a sort of revindication of older customs. Additionally, there were sometimes vaguer accounts of the forms of life that endured before the Gorzon, gradually tampered with by 1557[108]. As developed by Vigato, Corrain and Bottaro for the Bassa Padovana, or Carlo Baldi for the Polesine, and as suggested by the 1366 statute of Montagnana and the 1485 court dispute of the Polcastro family against the communities on the Griguola lake, fresh water fishing, as well as hunting in a smaller proportion, was a very important part of the economy of these lowlands[109]. When the Venetian authorities in the 15th century started to consider modifying those landscapes in favour of cereal, many inhabitants clung to the early medieval right of the *vagantivo.* The *vagantivo*, a vulgarization of Latin term *vaccus anticus*, was the free right to use forests, wetlands or simply bare terrains for communal timber, veneries and fisheries[110]. The appeal to old rights of communitarian usufruct in times of economic and political shifts in property is not specific to these regions. Many authors have shown in their case studies that despite the particularities of each landscape, region and period, local forms of subsistence economy were problematic in the context of stately capitalistic investment in landscape modification and productivity. This generated dissonant and relative conceptions of sustainability, as shown by Matteo Di Tullio for Early Modern Northern Italy, Romain Grancher for the fishermen early 19th century Normandy or Daniel Schneider for the rural lakeside communities of 19th century Illinois[111]. In the case of the

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[108] Andreas Würgler, 529.

[109] Camillo Corrain, *Introduzione Storica*; Bottaro, *Pesca Di Valle*; Maratini and Vigato, *Uomini, Terre Ed Acque*; Carlo Baldi, *'Cavarzere Giacente Humile*. ASM, Sezione Veneta, Statuti del Comune, 1: 'De Piscatoribus et Vendictoribus Cancrorum'; AMCES, t. 11, 053.

[110] Vincenzo Bellemo, *Bebe e la carta di re Ottone: monumento del diritto di Vagantivo cantato dai comunisti di Cavarzere : con documenti* (Chioggia: tip. di L. Duse, 1888).

[111] Matteo Di Tullio, 'Contested Water. The Management of Natural Resources and the Emergence of Sustainability Problems in Northern Italy During the Early Modern Period', *Global Environment* 0 (2024): 1–21; Romain Grancher, 'La guerre du chalut. Résister au changement technique dans le monde de la pêche (Dieppe, 1818)', *Artefact : techniques, histoire et sciences humaines* 14 (2021), 89–107; Daniel W.

Gorzon, customs and rights over waterways permeated both more technical requests in the hydraulic field as well as broader inquiries on fiscal justice.

Thus, the first type of *supplica* on the Gorzon Canal concerned technical matters, mainly asking for permission for the punctual use of irrigation water, or also repairing and modifying pre-existing hydraulic infrastructure. For example, in 1564, Zuan Mussato and Augustino Saccomando of Montagnana, judging the bad state of a bridge over the Monselice canal, near the Gorzon, asked the magistracy if they could repair it, citing their local water board's *capitoli* or norms. According to the two men, this text stated that the water passage was to be safeguarded by the *consortes* of the Monselice canal, and not by the newer Gorzon boards and the *Provveditori sopra i beni inculti*[112]. By doing so, they reminded the *Provveditori* that their bridge preexisted the Gorzon canal, and that it should be under the rules of those who built it, despite its structure crossing the embankments of the Gorzon, within the property of the *ufficio*.

Concerning fiscal petitions, the *Provveditori sopra i beni inculti* announced to the local *interessati* who had solicited irrigation water from the Gorzon in 1556 that they had two months to send their *suppliche* to the office in case they had any impediment for paying (*esborsar*) the owed *campatico* tax, and to therefore look for trustees who could pay for them[113]. Once past this period, they would have to contact an *avvocato fiscale* in order to investigate and decide between a tax pardon or a longer deferral. When arguing for tax exemption, petitioners declared praiseworthy activity, such as hard work or generosity. For example, Zaccharia Cagnolino, son of Lorenzo, of Montagnana, asked the *Provveditori sopra i beni inculti* to pardon the *campatico* tax of 1564 for his lands possessed in the neighbouring town of Megliadino (today named Megliadino San Fidenzio), saying that he and his father had been trustees in the past, giving an eighth of their land to the magistracy in order to cover the *campatico* tax expenses of those fellow proprietors who couldn't pay it in the past[114]. Other times, asking for tax exemption via

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Schneider, 'Local Knowledge, Environmental Politics, and the Founding of Ecology in the United States: Stephen Forbes and "The Lake as a Microcosm" (1887) ', *Isis* 91/4 (2000): 681–705.

[112] ASVe, Provveditori sopra i beni inculti, 558.

[113] ASVe, Provveditori sopra i beni inculti, 4.

[114] ASVe, Provveditori sopra i beni inculti, 57.

suppliche was also a moral responsibility of local authorities who presented the community as a hardworking and obedient population. The aforementioned *podestà* of Rovigo, Catharin Zen, did so in 1585 in order to secure a pardon of a *campatico* tax for the inhabitants of Lendinara and Badia, arguing that they had pawned most of their household properties in the past in order to pay for the logs for the dykes ('pennelli per arzeri') in the region of the Rotta Sabbadina[115].

Citing a later source, this trend of underlining both individual and collective work as well as generosity in order to obtain a fiscal exemption continued in the 1600s, with cases such as Niccolò Zuan Degrio's account as an inhabitant of the Bassa Padovana expressing 'un breve raconto istorico che rendesi necessario per sviluppare una materia che deriva da quasi due secoli' ('A brief historical account, which is necessary in order to develop a subject that has been evolving for almost two centuries')[116]. Apart from acknowledging that the problems relating to the Gorzon canal at the time extended for almost two centuries, he also exposed in his letter a narrative of how his family, starting with his father Anzolo and going back in lineage, had worked hard and loyally as canal diggers for both Cardinal Francesco Pisani's family and the Republic of Venice. He went back to 1551, mentioning each ancestor and how, according to him, he should be pardoned by the *Provveditori* from paying a *campatico* on use of the Gorzon waters.

Some supplicants of fiscal matters employed a general pauperized self-projection in order to be pardoned from paying the *campatico* tax. Massimo Vallerani and Simona Cerutti coined the expression "se faire pauvre" as a rhetorical necessity for supplicants in Medieval Bologna in order to bend the rigidity of tribunals with the banner of Christian *caritas*[117]. In a similar way, farmers from the hamlets of Agna and Cona, near the town of Anguillara, presented themselves to the *Provveditori* in 1567 as 'noi poveri et miserabili consorti di Agna et Cona sotto il taglio del Gorzone' ('We, the poor and miserable *consortes* of Agna and Cona, by the Gorzon canal dig'), and an anonymous

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[115] ASPd, Acque, 176.

[116] ASVe, Provveditori sopra i beni inculti, 826.

[117] Simona Cerutti and Massimo Vallerani, 'Suppliques. Lois et cas dans la normativité de l'époque moderne - Introduction', *L'Atelier du Centre de recherches historiques. Revue électronique du CRH* 13 (2015): 11.

writer from the Valgrande area between Sant'Urbano and Carmignano affirmed that 'si vede de molti abitanti (…) esser cascatti in povertà et miseria' ('It is observed that many inhabitants (…) have fallen into poverty and misery') [118]. The mentioned petition of the *podestà* of Rovigo for the inhabitants of Lendinara and Badia also used similar means, telling the *Provveditori* about the different 'afflitioni et miserie' suffered by the people of these towns, and that even the *monte di pietà* and the local Jews had difficulties in lending money for the payment of the *campatico*[119]. Catharin Zen continues explaining how these two towns had not yet overcome a 1575 flood on the Adige, blaming the inhabitants of its northern bank, the Bassa Padovana, who, wanting to drain their lands, had released too much water from the Gorzon to the Rotta Sabbadina, causing the river to overflow.

Apart from initial acknowledgment of reception and reading, the responses to many of these petitions have not yet been found. Yet the large quantity of conserved *suppliche* that the *Provveditori sopra i beni inculti* received, concerning not only the Gorzon but also any region of the Terraferma, points to how much the magistrates relied on these accounts from every loyal territory and social entity, as well as how much actual activities had to do with negotiating the exception to their institutional norms. It also shows to what extent poverty and misery were important rhetorical figures when composing a petition.

None of these traits are specific to the Bene Inculti office, and neither are they specific to Venetian politics. Historiography on *Ancien Régime* petitions or *supplicae* is extensive, although the classic interest has always been in the more *revolutionary* and universal subversive ideals within pre-reformation Germany, 17th century revolutionary England, or 18th century French *cahiers de doléances*[120]. Nevertheless, as pointed out by Andreas

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[118] ASVe, Provveditori sopra i beni inculti, 26, 456.

[119] ASPd, Acque, 176: '(…) hora si attorva il monte di Pietà tanto pieno de pegne et medesimamente gli Ebrei che con difficultà l'uno et gli altri possano piu rittrovare danari per dar sopra pegni (…)'.

[120] David Zaret, *Origins of democratic culture : printing, petitions and the public sphere in early-modern England*, Princeton studies in cultural sociology, (Princeton: Princeton University Press, 2000); James E. Shaw, 'Writing to the Prince: Supplications, Equity and Absolutism in Sixteenth-Century Tuscany', *Past & Present*, 215 (2012): 51–83; Helen Lacey, '"Grace for the Rebels": The Role of the Royal Pardon in the Peasants' Revolt of 1381', *Journal of Medieval History* 34/1 (2008): 36–63; Simona Cerutti and Massimo Vallerani, 'Suppliques'; Didier Fassin, 'La supplique. Stratégies rhétoriques et constructions identitaires dans les demandes d'aide d'urgence', *Annales* 55/5 (2000): 955–81; Würgler, 'Suppliche e "gravamina"'.

Würgler, none of the latter examples used the majoritarian tone *supplica* did in both Late Medieval and Early Modern times[121]. These 'lacrimabile' accounts written by subjects of the Gorzon – as the authors of the petition from Agna and Cona put it– express animosity to their current situation, reinforcing a memory of the past as a better time, rather than explicitly subverting the established order. Nonetheless, these petitions were not *conservative*, as Würgler affirms for the general European *supplicae*, exempting those of English and German radical revolt movements[122]. The fact that supplicants during and following the completion of the Gorzon drainage and irrigation canal did not include a scatological, reformist or revolutionary tone as did central European hussites or English levelers, does not mean that their *suppliche* were not obstinate towards the Venetian authorities' decisions. They did not accuse the authorities of being illegitimate or un-religious but of being punctually unjust. Furthermore, they accused the *Provveditori*, as the *consortes* of Agna and Cona, of being the cause of their loss of the little authority they had over their own possessions, stating 'che siamo reduti de patroni che erimo de qual cosa, parte mendicar et parte con le nostre brazze portar il viver a nostri poveri fighioli (…)' ('We have been reduced from masters of something to a condition where we must partly beg and partly earn a living with our own arms to feed our poor children'). Moreover, they describe what the lands and economic activities had been like before, and how now everything was 'ruinato'[123]. This was not only an appeal for the return to the previous system of laws, but also a projected alternative ideal future for the locals in which they could continue to fish, hunt and cultivate the land with fruit trees and vineyards without feeling forced to leave[124].

More than assessing whether these *suppliche* were *revolutionary* or *conservative* in the terminology of literature of Ancien Régime petitions, the interesting outcomes are two: first, they are proof of a transition in political (who decided on water management?), economical (which crops were to be produced?) and environmental (what landscape should have prevailed?) terms. Second, most *suppliche* on the Gorzon reveal subtle disagreement with the *Provveditori*'s policies. It is precisely this degree of subtlety which

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[121] Würgler, 'Suppliche e "gravamina", 535.

[122] Würgler, 529.

[123] ASPd, Acque, 176. ASVe, Provveditori sopra i beni inculti, 26

[124] Vigato, *Il Monastero*, 89.

also determines authorship of *suppliche*. The general pattern is that the most simple or technical petitions were signed individually, as were some of the more concrete tax exemption petitions, such as those of the aforementioned Zachacaria Cagnolino of Montagnana, whereas those in which the complaint about the Gorzon was harsher tended to either be anonymous, such as the 1568 letter from the Val Granda, or collectively signed, such as the petition from Agna and Cona of 1567. It was precisely in these jointly signed petitions that the term *consortes* bore a different meaning from Venetian sources. Decisions made by the *Provveditori sopra i beni inculti* on *consorzi* are conserved in the Venetian State archives in a collection entitled *terminazioni relative a consorzi*, in which the names of the *consorzi* are ordered alphabetically. None of the listed names of the boards correspond to a village or a place of inhabitation, except for Monselice (in reference to the *Fossa Monselexana* canal). They rather refer to a water way or a wetland that was to be drained or canalized[125]. This suggests that Venetian authorities only acknowledged a *consorzio* when its foundational activity and objective was to ameliorate (*adaguar*) the land via water management. Yet, the words *consortes* and *consorzi* in the Bassa Padovana, as noted by Vigato when citing the trials to which the communities of Gazzo and Vighizzolo brought the neighboring monastery of Santa Maria delle Carceroi, are used by local authorities either accompanying the word *comunità* ('comunità e consorti di Vighizzuol'), or directly using the word *consortes* followed by the name of the place (*consortes di Gazzo*)[126]. In late medieval statutes of Montagnana and the Magnifica Comunità di Este, we can find an almost interchangeable sense of *consorte* with *vicino*, meaning the neighbour in land possession, separated by land boundaries such as fences but dependent on each other for water[127]. For example, the authorities of Montagnana prohibited planting vineyards or fruit trees in both the city and its hinterland less than a foot and pertica padovana away from the boundaries (*confinia*) with *vicini vel consortes* (1 *piede da terra* was 0,357 meters and a *pertica padovana* was 6 *piede da*

[125] ASVe, Provveditori sopra i beni inculti, 839.

[126] Vigato, *Il Monastero*, 70.

[127] AMCE, 35, 'Repertorio di leggi statutarie'*;* Baptistam Martinum and Livium Pasquatum, *Decreta et Privilegia Magnificae Communitatis Este Impressa Sub Anno Domini MDCXXIX* (Patavii, 1629), 56: 'Quod consortes teneantur facere seralias, caput XCII'; ASM, Sezione Veneta, Statuti del Comune, 1: 'De Seraleis inter Vicinos et Consortes'.

terra, therefore 2,142 meters)[128]. The 1633 cadastral map of the Gorzon canal showed that the inhabitants of the different *comunanze* and parishes indeed held contiguously very small and narrow lots of land where fruit trees and vineyards grew parallel to roadsides, rivers and canals. As developed by Belgian geographer Jean–Pierre Grimmeau, vicinity depends on contiguity of inhabitants (both domestic dwellings and labored lands), and is not only a source of potential conflict among individuals, but also a vector of communitarian cohesion[129]. The fact that the term *consortes* of a given community appeared interchangeable with *vicino* in late medieval customs indicates a strong dependence on common share investment in water management among short distance residents, rather than the proposed large scale Venetian model of *consorzio* during the Gorzon canal dig, in which participants came from different geographical and social havens.

The word *consortes* is also employed in these late medieval Bassa Padovana customary texts in close relationship not only with canal digging and maintenance but also with road construction. The bind between both activities, as in the statutes of Montagnana, was due to the correlative action of moving the earth dug from a deepening canal to the higher roadside (embankments and dykes still today coincide with roads)[130]. This relation is therefore a continuity in the Early Modern period, where water boards were not only in charge of the canals and dykes, but also of the roads; even today there are various toponyms in Veneto of *strade consorziale* or *consortile*. Particularly in the case of the late 14th century statutes of Montagnana, the community's *consortes* bore important obligations on regularly repairing canals, dykes and roads, dictated directly from the *podestà* and penalized harshly if neglected. The role of *consorzi* in urban and peri urban medieval centers of the Bassa Padovana in maintenance of local common infrastructure and daily material activities depicts further its identification with ordinary everyday local politics, including water management.

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[128] *Tavole di ragguaglio dei pesi e delle misure*, 483. ASM, Sezione Veneta, Statuti del Comune, 1: 'De Vineis et arboribus plantandis'

[129] Jean-Pierre Grimmeau, 'Un outil pour l'analyse d'autocorrélation spatiale la fonction de voisinage, critères et algorithme', *Travaux de l'Institut de Géographie de Reims* 47/ 1 (1981): 49–59.

[130] ASM, Sezione Veneta, Statuti del Comune, 1: 'De Cavantibus Fossatos apud Vias'

Chapter conclusion

Venice, the dominant centre of the homonymous Republic, was an amphibious city oriented towards both sea and land. This Republic articulated its power by ruling differently across these two domains. The allegorical balance between maritime and terrestrial rule also permeated and materialised in the population and in the government's hydrographic concerns. These oscillated between the torrential threats of continental rivers and the winds and tides of the Adriatic, both of which endangered the structural integrity of the city.

The management of these dangers was entrusted to the *Savi alle acque* from the early 16th century. This institution established a hierarchy of water uses that placed the structural stability of the city and its Lagoon as the highest priority. By enforcing this hierarchy of priorities, the *Savi alle acque* became a doubly technical office: they not only offered consultancy to the government but also supervised and enforced. This office represented the first durable solution to previous attempts at appointing specialised experts in lagoonal, fluvial, and coastal water management since the 14th century. Yet the expertise–authority nexus acquired by the *Savi alle acque* in the 16th century followed an institutional continuity with traditions of ducal consultancy and Venetian governmental oversight of quotidian activities by *savi*.

By the 1530s, the *Savi alle acque* had expanded both in number of offices and in the specialisation of their members. Their remit and power extended in two directions. On one hand, they coordinated state-promulgated infrastructural projects. On the other, they responded to petitions, mainly from local fluvial transporters. These dual functions–'high' coordination of complex hydraulic works and 'lower' engagement with the petitions of subjects with everyday technical concerns–gave rise to figures of practical experience and technical knowledge who became indispensable to Venetian water management.

The men responsible for designing, organising, and overseeing the main services that enforced the *Savi alle acque*'s projects and policies were the first to warn the Venetian government of a growing imbalance. Water management increasingly favoured lagoonal

transportation and maritime trade over policies that supported agricultural activities in the nearby Terraferma. The most notable of these mid-16th century polemics opposing the primacy of maritime-lagoon management to agricultural interests was the debate between Alvise Cornaro and Cristoforo Sabbadino. Cornaro advocated the drainage and irrigation of large tracts of land in the Terraferma, drawing upon practices already undertaken by local *consorzi* since the rule of the Duchy of Ferrara in the lower Adige and Po basins.

Beyond Cornaro's speculative projects in the southern lagoon, or those of Niccolò Cicogna in the Treviso hinterland a few decades later, what deserves emphasis is that these pro-agricultural experts introduced such themes into the political arena. Their interventions stirred the Senate and Venetian politics to adopt agricultural perspectives within water management. In other words, the debate between Cornaro and Sabbadino contributed to a growing institutional commitment to both hydraulic regulation and agricultural development.

In this context, the Senate created a new body that functioned in ways comparable to the *Savi alle acque*, but with responsibilities specifically directed towards agricultural aims in the Stato da Terra: the *Provveditori sopra i beni inculti*. This was a hierarchical and organised institution under the close supervision of the Venetian Senate, which determined the terms of office, provided salaries in exchange for consultancy, and oversaw the enforcement of agricultural waterworks. Like the *Savi alle acque*, it relied on a dual mechanism of expertise and consultancy, establishing two channels to communicate with and impose its policies upon subjects. The first took the form of major state-promulgated projects. The second consisted of individual or collective petitions. In both cases, the *Provveditori sopra i beni inculti* operated within the same jurisdictional logic that had previously grounded the *Savi alle acque*, whereby the Venetian government claimed to be the sole and ultimate proprietor of water-use rights. This logic extended to the imposition of policies upon a wide array of local mainland agrarian *consorzi*, as well as to the creation of new state-controlled *consorzi* ruled by patricians.

The first major state-led initiative coordinated by the *Provveditori sopra i beni inculti* in the Terraferma was the construction of the Gorzon canal in the Bassa Padovana. This specific case provides a detailed lens through which to analyse how governmental policies concerning water management and agriculture were implemented within the concrete

social and institutional configurations of the Terraferma. The Gorzon project was initially conceived within a framework promoted by Venetian authorities, rooted in the dominion of state institutions over water resources and the presumed 'uselessness' of land not deemed a priori suitable for agricultural exploitation. However, the proto-cadastral map of the territory prior to the drainage–copied in 1633 by Hercole Peretti and now conserved in Stanghella–reveals a more complex reality. Despite official narratives of unproductive land, much of the area had already been under active cultivation. Yet this cultivation did not align with the grain-based agricultural model envisioned by the Venetian government. Instead, it consisted of pastures, communal fishing grounds, communal vineyards, and domestic orchards. These were interspersed with local noble holdings and real estate owned by Venetian patricians, often acquired from former possessions of the House of Este.

With regard to the latter, these Venetian policies, implemented by the *Provveditori sopra i beni inculti*, also responded to private initiatives by Venetian patricians to adapt terrain for cereal cultivation. Notable among these were the endeavours of the Pisani and Mocenigo families, who had been investing in the region's agricultural potential since the late 15th century. However, Venetian policies of inland water governance with agricultural objectives met with resistance at the local level. This opposition stemmed primarily from the fiscal burdens that local noble families and rural communities–subject to the *podestà* of Montagnana, Castelbaldo and Este–considered excessive or insurmountable. The Gorzon project itself was not imposed as swiftly as intended by authorities in Venice. Instead, it became entangled in a protracted process of negotiation, revealing divergent perceptions among local societies regarding the courses and uses of the region's waterways.

The frequent litigations and petitions for tax exemptions submitted by members of local *consorzi* reveal underlying dissonances in the very notion of the 'general interest' as it was projected by Venetian magistrates. This concept was central to their attempt to appropriate control over water use–control which, paradoxically, they had initially intended to delegate to the communitarian institutions responsible for promoting the Gorzon canal excavation. The actions of patrician stakeholders who acquired expropriated land in the Bassa Padovana while simultaneously occupying offices within

the *Provveditori sopra i beni inculti* further contributed to the blurring of this imagined notion of collective benefit.

Furthermore, the petitions (*suppliche*) submitted to the Venetian magistracy reveal that the theoretical model of *consorzi* imposed upon the communities of the Bassa Padovana conflicted with the pre-existing meanings attached to the homonymous communitarian institutions historically responsible for managing water and agricultural production along individual canals. This tension was compounded by the discontent of a minority within the population whose livelihoods did not fundamentally depend on communal agricultural practices–such as roadside communal vineyards and domestic cropping–which had already been dismissed as 'useless' by the Venetian magistracy. Moreover, this segment of the population benefitted economically from the wetland landscape through activities such as fishing and hunting, which were increasingly marginalised under the new hydraulic regime.

Agricultural water usage and the practical dissonance it exhibited in this case with formal normative and jurisdictional concepts–concepts that facilitated governmental and oligarchic appropriation of agricultural produce–demonstrate that, despite the Venetian magistracy's intention to effectively 'govern the waters of the *dominio'*, the hierarchical and specialised institutional framework not only depended on its delegation to inland *consorzi*, but also clashed with these pre-existing forms of communitarian institutional representation. These local bodies did not align with the projected policy, particularly when such policies entailed the imposition of high taxation. The Gorzon canal project, therefore, represented a vertically imposed innovation. Within the chronology of Early Modern Venice, it constituted the first large-scale enterprise motivated by economic and productive concerns. The land reclamation and drainage of the Bassa Padovana, carried out between 1551 and the end of the 16th century through the construction of the Gorzon canal, marked the crystallisation of patrician interests in the Terraferma. This process was reinforced by the creation of a new governmental office. Particular interests thus merged with an imposed notion of the common good, to the detriment of the diverse and locally embedded perceptions of the Bassa Padovana wetlands.

Another realm along the north-western shores of the Mediterranean that articulated a vision of water usage for broad agricultural and domestic purposes–apparently, at first

glance, diametrically opposed to the 'proto-nationalisation' of Venetian waters–was the kingdom of Valencia. According to its legal tradition, the sovereigns granted full rights of water use to their subjects, who were organised into communities of water users and local irrigation boards. In theory, not only was the management and distribution of water delegated to these bodies, but they were also entitled to use water freely, without the need to request authorisation or to pay tribute. Yet, just as the implementation of the Gorzon canal drainage and irrigation project in Venetian territory reveals heterogeneous forms of adaptation and resistance to governmental principles, the case of the kingdom of Valencia likewise demands scrutiny. It is necessary to determine whether the jurisdictional framework and its regulatory intentions at the onset of the Early Modern period were effectively realised in practice.

The following section offers an overview of the types of water-related conflict from which one may derive social models of water usage, as reflected in judicial proceedings before the main courts of the growingly influential Hispanic Crown. These proceedings constitute a circumstantial source distinct from the *suppliche* addressed by Venetian subjects to their magistrates, yet they similarly illuminate how irrigation and drainage rights were applied to specific cases of conflict. In such cases, local user communities, in accordance with the laws of the kingdom, possessed full authority to resolve disputes autonomously.

Figures referred to in Chapter Two

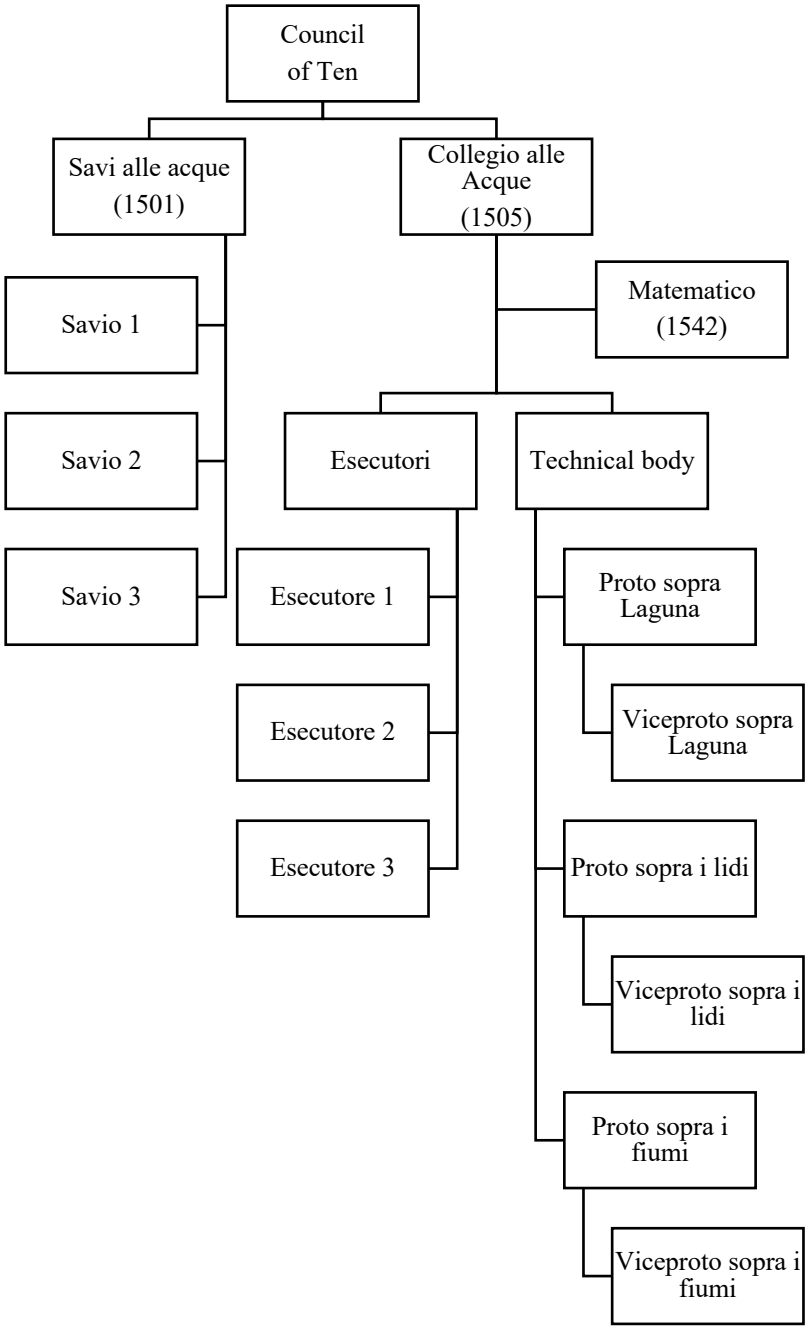


Fig. 1: Organisational structure of the *Savi ed Esecutori alle Acque* and the *Collegio alle acque* in the mid-16th century[131]

[131] Ciriacono, '7 agosto 1501'; Ib., *Acque e agricoltura*; Ib., *Building on water.*

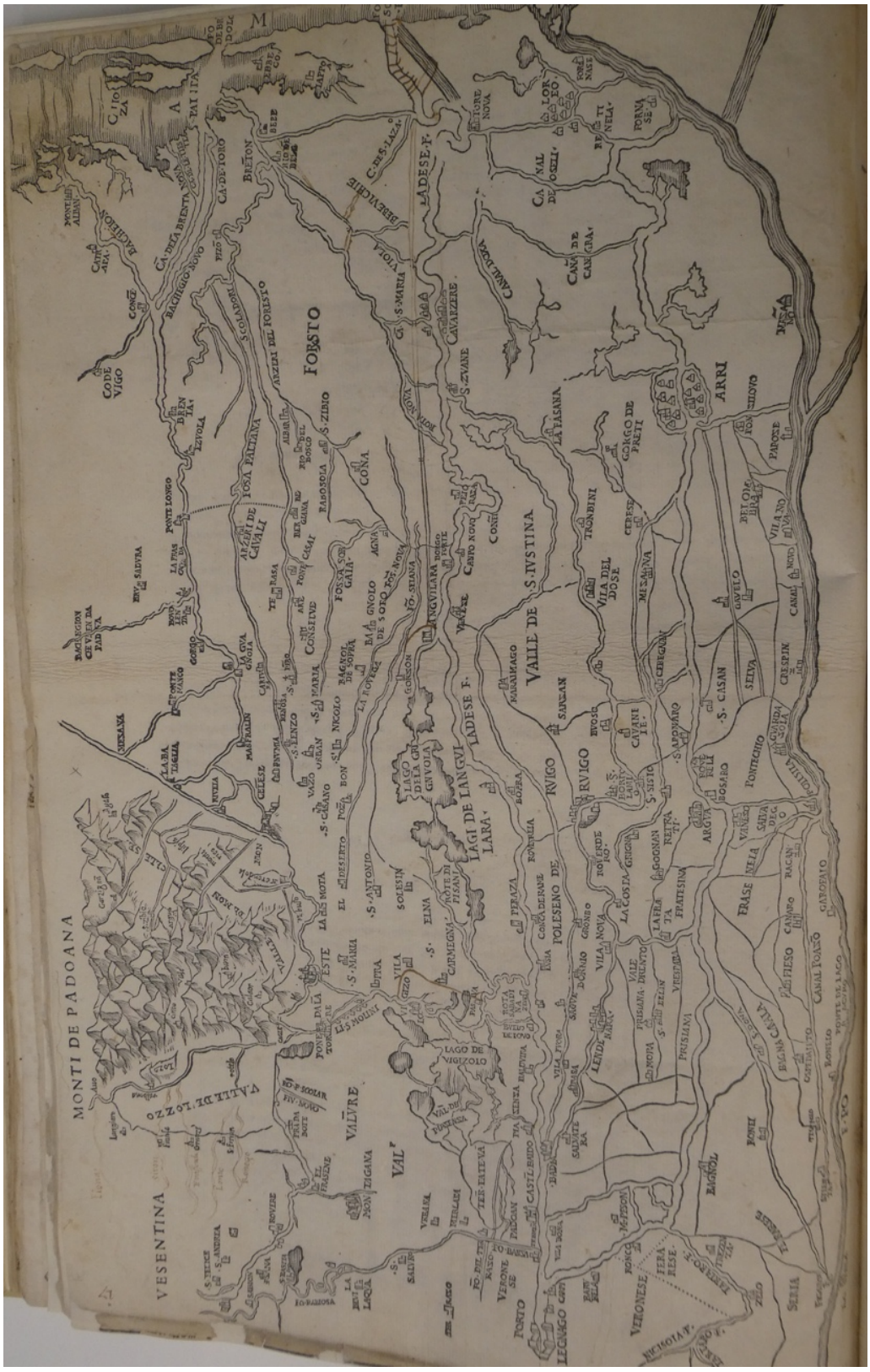


Fig. 2: Map of the Polesine and Bassa Padovana in the early 1500s[132]

[132] AMCE, 52, *De Acquis*, fol. 17. The Gorzon sedimentary levee that was breached in 1556 arches just northwest of Anguillara in this early 1500s representation.



Fig. 3: 1600s map of the Veronese, Polesine and Padovano[133]

[133] ASPd, Acque, 151, disegno 1. Note the rectilinear representation of the Gorzon Canal north of the Adige.

Chapter 3 – Hydrological, Jurisdictional and Social Frameworks of Water Conflict in Valencian Legal Sources

The kingdom of Valencia in the Late Medieval and Early Modern periods can be defined as a "kingdom within a kingdom", where the Hispanic and Aragonese monarchy intertwined with local Valencian institutions[1]. Water conflicts, usually already bond to imbrication, involving territories and social actors along water courses, in the context of 16th century Valencia implied an also complicated institutional framework, defined frequently in historiography as *polysynody*[2]. Water transgressions were judged on all levels of justice and in every court in the kingdom, from the most local scope of oral extra-judiciary action to the highest court in Madrid treating affairs concerning the Crown of Aragon, the *Consejo Supremo de Aragón*[3].

Among these, there were two main courts physically present in the city of Valencia to which proprietors and other witnesses of deviances in water management went to declare from every part of the kingdom. These were the *Real Audiencia* and the *Gobernación*, both situated at the currently demolished royal Palace of Valencia, on the northern bank

[1] Rafael Narbona Vizcaíno, Rosa Muñoz Pomer, and Enric Cruselles Gómez, 'Política e instituciones en la Valencia medieval', in Lorenzo Abad Casal et al. (eds.) *Historia del pueblo valenciano*, vol. 1 (Valencia: Levante, 1988), 261–80; Enric Guinot Rodríguez, 'Sobre la génesis del modelo político de la Corona de Aragón en el siglo XIII'; James Casey, 'De reino a provincia: de la Valencia foral a la absolutista (1609–1707)', in Lorenzo Abad Casal et al. (eds.), *Historia del pueblo valenciano*., vol. 2 (Valencia: Levante, 1988), 453–72; James Casey, '"Una libertad bien entendida": los valencianos y el estado de los Austrias', *Manuscrits* 17 (1999): 237–52.

[2] Polysydony is a term usually applied to justice in the 18th century French monarchy, as it was coined in this context; nonetheless, the Crown of Aragon and the Hispanic kingdom presented a comparable system of theoretically hyperspecialized small courts of justice, each focusing on one sort of crime, although, in practice, criminal justice, fiscal crimes, and others varied types of crimes permeated every court of justice of the Valencian kingdom. For more information on Valencian polysydony, see: Javier Sánchez Rubio, 'El Real Acuerdo de Valencia en las postrimerías del ius commune', *Anuario de historia del derecho español* 71 (2001), 395–438.

[3] Nuria Verdet Martínez, 'Los pleitos de incorporación a la corona durante el seiscientos valenciano', *Cahiers d'études romanes. Revue du CAER* 35 (2017), 209–29.

of the original course of the river Guadalaviar (*Fig. 5*)[4]. Both courts were personally attended by the viceroy or the lieutenant governor of the kingdom, accompanied by a permanent council of notaries specialised in civil and canon laws (*doctors en cascun dret*)[5].

The current chapter aims to present and classify the corpus of consulted court cases, whether they'd be court hearings or sentences, bearing in mind parameters such as geographical location of the conflict and socio-political background of the involved parties. Additionally, the consulted corpus includes minor court cases, one belonging to the higher court in Madrid, and half a dozen concerning the royal Chancellery, that coped with *Intramuros* merchants and other economic protégées of the Monarchy that owned irrigated soil in the kingdom.

In order to plunge into this question on water and the Royal court, this chapter will first suggest a critical approach to legal corpuses and customary compilations concerning water management, comparing them to sources witnessing its practical application in society. We will then seek to define the role of the *Real Audiencia* and other minor judicial bodies operating under the authority of the Viceroy of Valencia in matters of water management–domains in which, at least in theory, these institutions were not meant to intervene. Following, there will be a small definition of the different offices present in court cases, and the main roles in representation of common water users (municipal and intermunicipal irrigation boards). Then, a hydrogeographic mapping of the areas of conflict within the micro-regional scope will follow, opening questions on a possible interdependence among legally separate river basins in Valencia as a source of conflict.

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[4] The river is currently known as Tùria, and was deviated south of Valencia after the 1957 flood. The Royal Palace was turned into a stable and gun-powder deposit for the Napoleonic troops, then demolished in the mid 1800s; Luis Arciniega García, 'Construcciones, usos y visiones del Palacio del Real de Valencia bajo los Austrias', *Ars Longa. Cuadernos de arte* 14–15 (21 febbraio 2018): 131.;

[5] Teresa Canet Aparisi, 'Las instituciones reales del periodo foral moderno', in Jorge Hermosilla Pla (ed.), *La ciudad de Valencia: historia, geografía y arte de la ciudad de Valencia*, Vol. 1, (Valencia: Universitat de València, 2009), 344–50; Teresa Canet Aparisi, 'La Audiencia Valenciana: Estructura de poder y grupo de servicio', *Pedralbes: Revista d'historia moderna* 13 (1993): 45–52; Teresa Canet Aparisi, 'Las Audiencias reales en la Corona de Aragón: de la unidad medieval al pluralismo moderno', *Estudis: Revista de historia moderna* 32 (2006), 133–74.

The aim, thus, is to offer a general classification of water-related conflicts involving the comunitats, whether among themselves or with external entities, framed both spatially and, above all, in socio-institutional terms.

1. A *delightful garden*? The importance of reading beyond customary compilations

The first Modern narratives of Valencian irrigation were descriptions of 19th century foreign engineers and geographers, such as the aforementioned agronomics and ethnology enthusiast French Jaubert de Passa (1823), or British colonists Clements R. Markham (1867) and Colin Scott Moncrieff (1868). In the context of Spanish politics, advocates for Valencian self-government also recurred to archetypical images of irrigation customs, as a banner of regional pride. The best known among these authors was conservative Francesc Borrull i Vilanova (1813), who gave a long speech at the Parliament of Cadix in defence of Valencian rural institutions, such as irrigation boards. It was at this chamber that Spain's' first liberal and centralist constitution was approved, taking advantage of the disorders of the Napoleonic invasion and king Ferdinand VII's abdication in Bayonne. Borrull i Vilanova argued that, although maybe necessary in some parts of Spain, it was absurd to abolish serfdom and other Ancien Régime structures in Valencia, as he believed that Valencian peasantry had been self-governed and free since the kingdom was founded by James I the Conqueror. He also stressed that Valencian farmers were the indisputable collective organizers of a perfectly fair and just irrigation system, dating back to the Umayyad Caliphate of Cordoba.

He was prematurely accurate at his time when defending his thesis of an Arab-Berber origin of the irrigation system. Nonetheless, when it came to his understanding of the *mise en pratique* of water management in the Valencian hinterland along the centuries, he had a rather stagnant and immutable vision of a constantly peaceful, autonomous and just distribution of water among free farmers, as 20th century jurists would also develop. Researching on Borrull i Vilanova's speech, we can deduce that he dug into customary corpuses for his cause, such as the *Fueros*, or *Furs* in Valencian. These customs were generally conceived in this context as the origins of the Valencian nation, unjustly abolished after the war of Spanish succession under Bourbonic proto-absolutism (1701–1713). His irenic views of Valencian equity and justice, extended to an equally idealised

landscape of Valencia's hinterlands, evoking a beautifully and efficiently anthropized terrain, built by the Muslims ex-nihilo on rocky deserts and dense swamplands, creating, in the words of Borrull i Vilanova, a 'delightful garden' ('delicioso jardín')[6].

19th century works on irrigation did not only overlook the application of the *Furs* but were also silent on the different social strata that participated in managing the water courses of the kingdom. Maybe this is given to a dispersion of archival evidence recording exercise of justice, still today scattered in numerous archives present in the current Spanish region known as the Community of Valencia. When exclusively reading the widely available

[6] Francisco Javier Borrull y Vilanova, *Discurso sobre la distribución de las aguas del Turia y deber conservarse el tribunal de los acequieros de Valencia que dijo Don Francisco Xavier Borrull y Vilanova, diputado por el Reyno de Valencia en la sesión de 31 de julio de 1813, de las llamadas Cortes Generales y Extraordinarias. Tercera impresión española ilustrada con varias notas* (Valencia: Imprenta de don Benito Monfort, 1828), 10: '(…) ya antes del siglo XI, se había transformado en un delicioso jardín la campiña de Valencia a beneficio de esta multitud de acequias, y admirable distribución de agua' ; François Jacques Jaubert de Passa, *Voyage en Espagne*, 115: 'Le royaume de Valence n'est plus aujourd'hui qu'une des plus petites provinces de l'Espagne ; sa superficie est de 838 lieues carrées ; des montagnes d'une très grande élévation, des torrents d'un abord difficile et sauvage et des rochers à pic occupent 598 lieues de cette superficie. Sur les 240 lieues restantes, des grèves immenses et quelques *Albuferas*, réduisent encore l'étendue des terres arables, et l'on est étonné, en parcourant ces contrées, de rencontrer tant de territoires incultes et des communications si difficiles (…)'; Ib., 169: 'Nous sommes enfin parvenus dans la contrée la plus riche (Plaine de Valence), la mieux cultivée et sans contredit aussi la plus intéressante de la Péninsule. Tous les voyageurs qui l'ont visitée, tous les historiens qui l'ont décrite, nous représentent la plaine de Valence comme un immense jardin (…)'; Clements R. Markham, *El Regadiu de l'Espanya de l'Est (1867)*, Col·lecció Politècnica 46 (Valencia: Edicions Alfons el Magnánim - Institució valenciana d'estudis i investigació, 1991), 109: 'Des de l'elevada torre del Miquelet, al centre de València, hi ha una vista gloriosa de la més rica i ben regada horta d'Espanya' – Note how this citation is in Valencian Catalan, as the only mainly available edition or Markham's report is a 1991 Valencian-Catalan translation from the original one in English, sponsored by the Institució valenciana d'estudis i investigació Alfons el Magnànim and introduced by a preliminary study written by Thomas F. Glick on British colonial Indian geographers and engineers interested in comparing Spanish irrigation institutions and Northeastern Indian ones; I have failed to find the original print or online version of Markham's report, entitled *Report on the Irrigation of Eastern Spain. Printed by Order of the Secretary of State for India, in Council*, (London, 1867); Colin Scott Moncrieff, *Irrigation in Southern Europe* (London, 1868), cited in Markham (1991), 28–9: 'I can turn with pleasure to the irrigation which seemed beautifully managed. Nowhere in Valencia did I see a flooded road. The watercourses were all neat, with little shutters and aqueducts where necessary. The fields were everywhere clean and carefully terraced to receive the water (…)'.

legislative corpus of the kingdom, the *Furs*, which were a collection of royal privileges mixed with local urban customs, chapters on water management and irrigation reflect three concepts: first, a vertical concession of water use from the monarch to all of his subjects; second, a minimum governmental intervention in water matters; and, third, horizontal self-management in behalf of every inhabitant.

Searching among the *Furs* that were in force during the mid-16th century, mentions of social differentiations of land proprietors and water usufruct are indeed inexistent, as every subject had, in theory, the right to use water from every canal and river, except for the waters of the Royal Canal of Montcada, the latter being, again, in theory, under the direct management of the king in the Late medieval period, and, in the 16th century, of the viceroy[7]. For example, the *Liber III* of the 1547 edition of the *Fueros*, printed in Valencia by Flemish-born printer Juan Mey, mentions a very generic category of population when it came to define water rights, as the monarch was the one that 'donated and awarded every (…) single inhabitant of the city and kingdom of Valencia (…) the use of every type of water, without the need of paying any feudal tribute of servitude'[8]. Furthermore, according to that same edition, autonomy in matters of irrigation was not only a royal grant of privilege, but suggests also the recurrence of periodic addresses to the king in behalf of the Valencian urban authorities, reminding him of these granted privileges. Indeed, after the aforementioned *fur*, follows a copy of what was supposed to be a royal petition made from Valencian urban élites to their king, Ferdinand of Aragon, at the 1510 General Courts of Monzón (currently in the Spanish province of Huesca). Valencian royal

[7] Paradoxically, as Josep Torró notes in his analysis of a privilege granted by James I in 1268, although the Montcada irrigation canal remained royal property, its management was entrusted to the group of users entitled to its waters ('el comú'). It operated in a manner closely resembling other irrigation canals in the Horta of Valencia, which were administered by irrigation communities drawn from various municipalities and landed estates: Torró Abad, 'Colonización cristiana y roturación', 164.

[8] *Fori Regni Valentiae* (In ciuitate Valentia: arte ac industria Ioannis de Mey Flandri, 1547), liber III, c. XXXV: 'Per nos, e per los nostres donam, e atorgam per tostemps a vos tots ensemps, e sengles habitadors e pobladors de la ciutat, e del regne de Valencia, e de tot lo terme de aquell regne totes e cascunes cequies franques e liures majors e mijanes e menors ab aygues, e ab manaments, e ab duhiments d'aygues, e encara aygues de fonts: exceptat la cequia real qui va a Puçol de les quals cequies e fonts hajats aygua e enduhiments, e manaments d'aygues tostemps continuament de dia e de nuyt. En axi que puscats d'aquelles regar e pendre aygues sen alcuna servitut, e servici e tribute, e que prenats aquelles aygues segons que antiguament es, e fo stablit e acostumat en temps de sarrahins'.

envoys recommended the king not intervene in matters of Valencian irrigation, as "knowledge about the canals and waters of the river Guadalaviar belonged to the *jurats* (urban authorities) of that city (Valencia)"[9].

Customary canons seem to perpetuate this idea of clear and untouchable orders of the king over water. Indeed, medieval monarchs never intervened personally in matters of water in Valencia. Nevertheless, there is numerous evidence of indirect royal intervention via procurator-fiscals and other types of royal prosecutors, monitoring the uses of canals such as the Xúquer -Alzira and the Montcada canal.

The crown's apparent non-intervention did not mean an automatically egalitarian self-government of the waters among small proprietors, as Borrull i Vilanova would believe in the 1800s. Indeed, since the 1980s, medievalists such as Enric Guinot, Josep Torró and Ferran Esquilache have depicted a rather uneven application of water rights in Valencian society, characterised by seigneurial abuses, and advantages for rich cereal and vineyard farmers, over humbler inland domestic estates in seigneurial fiefs for accessing water in times of drought, and even exceptional royal intervention dictating who had the priority when using the water of an irrigation canal[10]. In this heterogeneous context, these medievalists identified at least four territorial frameworks for water justice enforcement and water distribution in the post-conquest kingdom of Valencia, all of which were marked by asymmetry–if not outright injustice–in their implementation: 1) noble estates, 2) royal estates, 3) affranchised municipalities, and 4) intermunicipal communitarian irrigation boards' jurisdiction. Nonetheless, depictions of perpetual egalitarian water management in Valencia have persisted on some current literature, mainly outside the historiographic discipline, as Samuel Garrido and Tomàs Peris Albentosa have recently

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[9] *Fori Regni Valentiae*, liber III, c. XLI: 'Ferdinandus Rex. Anno. M.D. x. Montissoni. Ad supplicationem brachii regalis XLI. Item senyor com per Furs, e privilegis del dit vostre regne de Valencia: la conexença de les cequies e aygues del riu de Guadalaviar pertanga als jurats de la dita ciutat: excepto la cequia real appellada de Moncada. Supplica per tal lo dit braç real placia a vostra real Magestat per observança dels Furs, e privilegis provehir, e manar que lo Governador, ni Batle general del dit regne no s'entrameten, ne puixen entramentre de la conexença, e administració de les dites cequies. Plau a sa Magestat sien guardats los privilagis, e altres provisions Reals: si e segons fins ací son praticats'.

[10] Torró Abad and Guinot Rodríguez (eds.), *Hidraúlica agraria y sociedad feudal*; Guinot Rodríguez and Esquilache Martí, 'Not Only Peasants'.

criticised when applying economist Elinor Ostrom's work to their own archival evidence[11].

2. Intra and extra judiciary spaces of justice. Irrigation boards, The *Real Audiencia* and the *Gobernación*

When addressing water justice in both the Veneto and Valencia regions, it is essential to begin with a prior context in which conflicts were often resolved outside the formal legal mechanisms centred in the seats of power. Numerous judicial sources from these central courts attest that the comunitats of irrigators employed their own dispute resolution methods and exercised judicial authority and sanctioning. As a result, a considerable proportion of water conflicts involving at least one comunitat never reached these courts. Frequently, these comunitats–particularly those linked to or dependent upon the municipal authorities of significant towns within the kingdom–held not only the power to impose fines and bolster municipal revenues, but also the authority to confiscate property and imprison individuals accused of unlawful water practices.

In 1564 a young lad (*moço*) working as a labourer for Vicent Ametler, a yeoman from the town of Puçol (*Fig. 10*) was forcefully taken to Morvedre by armed municipal guards and enclosed in the jailhouse under the city hall palace[12]. According to Morvedre's municipal *sequier* (canal overseer) named Martí Puig, Ametler had ordered his labourer to steal water from a canal pertaining to the city of Morvedre, the Gausa canal, without having the right to do so, as he was not part of the *rech* (in words of Thomas F. Glick, 'the service area of a canal')[13]. That same night, land owners of the town of Puçol went to Morvedre, to the *sequier*'s house, and tried to talk the municipal authorities into liberating the lad,

[11] Guinot Rodríguez, 'L'Horta de València a la baixa Edat Mitjana'; Torró Abad and Guinot Rodríguez (eds.), *Hidraúlica agraria y sociedad feudal*; Garrido Herrero, 'How Irrigation Functioned in Eastern Spain'; Albentosa, 'Las huertas valencianas'; Guinot Rodríguez, 'Herencia y Ruptura'.

[12] ARV, Real Audiencia, Procesos, III Parte, Apéndice, 6456: '(…) Et dix que la veritat es que ell responent entengue en lo sobredit any que haurien pres ha un moço de Vicent Ametler de Puçol hi'l'haurien posat en la presó de Morvedre perquè hauria furtat la aygua de la sequia de Gauza'.

[13] Glick, *Irrigation and Society in Medieval Valencia*., xviii.

explaining that the water that he was using to irrigate Ametler's field came from a different canal. One of the proprietors, Joan Llorenç, is said to have been rude and impolite with Puig, the *sequier*, commencing a small brawl, that ended with the liberation of Ametler's *moço* and them escaping back to Puçol[14]. As justice was not served by the municipal authorities, a year later those involved in this conflict would end up narrating this episode in 1565, in front of the royal doctors in criminal and civil laws, who interrogated more than thirty proprietors along the fluvial basin of the Riu de Morvedre (currently known as the river Palància).

Therefore, as in this described incident, water justice in Valencia happened primarily outside courthouses. Assuming extra judiciary practices as a starting point is essential in every history of legal cultures[15]. Negotiation took place before and after a conflict was recorded in written documents. Yet the essentially oral and unappealable custom that still today exists during Thursday morning sessions of the Tribunal de las Aguas de Valencia, was not the only form of justice before the intervention of *higher* courts[16].

Irrigation boards (*comunes* or, more recently, *comunitats de regants*) hired notaries, experts in law, and other written offices. They exerted the power of including and excluding members, setting regular pecuniary contributions –the *sequiatge*– that were supposed to be proportional to the amount of running water in the main "mother" canal (*séquia mare*) and the size of the possessed land that was intended to irrigate[17]. This also meant that irrigation boards had an intention to observe and measure waterflow as well as to decide when it was officially a time of scarcity ('temps de sterilitat'), utilizing this

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[14] ARV, Real Audiencia, Procesos, III Parte, Apéndice, 6456: '(…) que lo dit Joseph Llorenç era estat descortès y malcurat ab aquell (…) que lo dit Joseph Llorenç parla en presencia del dit testimoni ab Frances Puig sequier de la dita vila de Morvedre a la porta de la casa de aquell huna vesprada y veu ell dit testimoni que aquell li dix al dit sequier tals o semblants paraules en effecte.'

[15] Bianca Premo, '"Lo extrajudicial": between court and community in the Spanish empire', in Griet Vermeesch, Manon van der Heijden, Jaco Zuijderduijn (eds.), *The Uses of Justice in Global Perspective, 1600–1900* (Abingdon: Routledge, 2019), 183–197.

[16] Giner Boira, *El tribunal de las aguas de la Vega de Valencia*, 1969; Fairén Guillén, *El tribunal de las Aguas de Valencia y su proceso*; María José Mascarell Navarro, Ramón Tarín López, and Daniel Sala Giner, *El Tribunal de las Aguas de Valencia* (Valencia: El Tribunal de las Aguas de Valencia, 2002).

[17] Glick, *Irrigation and Society in Medieval Valencia*, 34–41.

pretext to defend proprietary interests against upstream or downstream neighbours[18]. Furthermore, irrigation boards established and compiled normative sources in the form of statutes or *capítols*, mainly lost today, with the exception of one compiled by Valencian notary Lluis Masquefa in 1492 and 1493 for the Favara canal board, conserved nowadays in the Corpus Christi convent archive of Valencia[19]. In other words, the exertion of justice and power during water management that happened outside official urban and royal government courts was not only oral, but also, at least by the mid 14th century, a formally codified and written exercise, emulating municipal courts.

Nonetheless, the lack of conserved sources that testify the application of internal norms in local irrigation board court sessions, pushes research towards more unified and centralised archival collections produced by urban and royal courts. Indeed, the centrality of irrigation board norms and customs in water conflicts is mainly accessible when consulting royal court case interrogations, where members of water boards mentioned frequently that their actions were justified 'according to ordinances and custom' ('segons capítols i consuetut')[20]. Therefore, central courts produced and accumulated sources that paradoxically point to a decentralisation of water norms, and a heterogeneous mosaic of conflicting perceptions of water justice.

As José Bordes García affirms in a very detailed historiographic outline of Valencian history of law, mapping the complete structure of judiciary power in *Ancien Régime* Valencia without falling into reductionism and partial schematic representations of

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[18] ARV, Real Audiencia, Procesos, III Parte, Apéndice, 6294: 'lo sequier passat (…) aconstumava partir dita aygua donant una fila per als de Stivella y la mateixa fila el altre dia apres seguent en lo loch de Albalat la qual partició de aygua ell testimoni ha vist fer axi en temps de abuncancia de aygua com en temps però de sterilitat esta en record que prenent alguna volta los vassalls de Stivella dita aygua ans del sol eixit lo sequier los penyorava y executava'.

[19] Arxiu del Real Col·legi Seminari de Corpus Christi de Valencia, Registros Notariales Donación, MASQUEFA, Lluís (1492-1493), 18602, Protocolo 18602; Martínez Sanmartín and Terol i Reig, 'El libro de los actos', 598–618.

[20] ARV, Gobernación, 559: '(…) Item dihuen ut suppra que quant la dita cequia es escurada los dits vehedors de dita cequia presten y acostumen de prestar jurament en poder del dit cequier major prometent (…) dita cequia e que si aquella no stava ben scurada en los comuns y altres parts de aquella aquells los fen recórrer y scurar conforme als capítols, consuetut e pratica parlants de la scura e conservació de dita cequia e axí es ver'.

hierarchy is a difficult task[21]. Yet, in general terms, by the 16th century, the city of Valencia had at least four different courts, interconnected with each other, among which, one, the *Real Audiencia*, had the last word of appeal, experiencing an increment of court case frequency by the mid 1500s, and its peak by 1590 (*Fig. 4*). The *Real Audiencia* appeared as the central keystone of penal justice for both the city and kingdom of Valencia, under the protection of the viceroy and his experts in Roman law, who represented the king[22].

When inhabitants of the kingdom went to the royal palace to declare in front of the *doctors*, it was as a last recourse of a long going conflict: most of the consulted court cases refer to conflicts that had been going for at least half a year before. Then, when involving violent acts, both verbal and physical, *criminal justice* was in another court, the *Gobernación*[23]. Concerning fiscal transgressions, as well as actors participating in merchant activities, it was the court at the Royal Chancellery (*Real Cancillería*) that took action. Finally, pertaining municipal affairs of the city of Valencia, there was the court of the *mostassaf* (in Castilian Spanish, *almotacén*), an office of medieval and Arab origin that by the 16th century took care of a very reduced and local form of *intra-muros* conflict, mainly also related to tax collection, urban hygiene and public order, although his court of justice was known to have taken care of water management in the 13th to 15th centuries[24].

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[21] José Bordes García, 'La documentación judicial de la ciudad de Valencia durante la Baja Edad Media', in David Igual Luis and Germán Navarro Espinach (eds.), *El País Valenciano en la Baja Edad Media. Estudios dedicados a profesor Paulino Iradiel* (Valencia: PUV, 2018), 47–70.

[22] Josep Martí Ferrando, *El Poder Sobre El Territorio (Valencia, 1536-1550)* (Valencia: Biblioteca Valenciana, 2000): 87–110.

[23] Martí Ferrando, *El Poder Sobre El Territorio*, 111–75.

[24] Glick, *Irrigation and Society in Medieval Valencia*, 20; Rafael Narbona Vizcaíno, 'La configuració del perfil municipal en la xarxa urbana del regne de València (1238-1329)', in María Teresa Ferrer i Mallol (ed.), *Jaume I. Commemoraciò de viii centenari del naixement de Jaume I*, vol. 2, (Barcelona: Institut d'Estudis Catalans, 2013), 579–88.

3. Defining a court case. Types of conflicts

The entire collection of consulted court cases – both solved and unsolved – sums up to 105 court cases related to water, together with a total of 14 sentences (*Fig. 7*). This corpus is conserved in three archives:

- **The Archives of the Kingdom of Valencia** (*Arxiu del Regne de València*), conserve 61 court cases in total, plus 12 sentences, pertaining to the following collections: *Real Audiencia* (53 court cases, 10 sentences), *Gobernación* (4 court cases), The court of the lieutenant governor of Valencia or *Portantveus de General Gobernador* (1 court case), the court of General Bailiff of the kingdom or *Batlia General del Regne* (1 court case), the Royal Chancellery (1 court case and 2 sentences) and the Council of Aragon in Madrid (1 court case). The consulted documents date from 1505 to 1603, with the exception of three documents from 1436–7.
- **The Archives of the Xúquer Royal Canal** (*Archivo de la Real Acequia del Júcar – Arxiu de la Séquia Reial del Xúquer*), conserving 15 court cases dating from 1471 to 1587.
- **The Municipal Archives of Alzira** (*Arxiu Municipal d'Alzira*), conserving a total of 29 court cases and 3 sentences, pertaining to the following collections: Royal manuscripts and letters or *Cartas y cédulas manuscritas* (1 sentence), Notarial census and writings or *Escrituras de censo, notariado* (1 sentence plus added ratification), the Royal Canal of Alzira or *Acequia Real de Alzira* (13 court cases) and Government disputes or *Gobierno, pleitos* (16 court cases). The consulted documents date from 1509 to 1614.

a) Classification of involved social actors in water court cases (*Fig. 8, 9 and 10*)

16th century court hearings and sentences from the main courts in the kingdom, the *Real Audiencia* and the *Gobernación*, point to a rather inconsistent and unequal application of customs to water distribution. A heterogeneous group of landowners, inhabitants of Valencia, *Morisco* serfs and royal officials, gathered at court hearings, where they were interrogated. These sources open a window on a more confusing and complicated social landscape, where water was in the middle of political tensions, and even exchanging accusations on theft, violence, blasphemy and sympathy towards the

rebellious faction of the 1520-1521 Revolt of the Brotherhoods (*Germanies*, in Valencian Catalan or *Germanías* in Castilian Spanish), as we will see in later chapters[25].

The four social categories that participated in water conflict in the kingdom of Valencia, individuated during studies of *feudal irrigation* are also present in the consulted late 15th and 16th century sources of court litigation[26]. Feudal manors with a majoritarian *Morisco* population of serfs, free bourgs and their municipal assemblies such as Valencia, Morvedre and Alzira, inter-village irrigation boards, such as the ones in the irrigate plains of the *Horta* of Valencia, and royal estates, represented by royal chancellors, bailiffs and minor notarial offices, declared at the kingdom's court when speaking of water management in this period. According to these title distinctions, water infractions were to be judged by different legislation, yet what 16th century sources show is that the royal courts in Valencia concentrated every social stratum that could potentially own land or represent communities involved in water management.

It is argued that the Aragonese Crown, and subsequently, from the reign of Charles I onwards, the Hispanic Crown, tended to benefit post-conquest Christian-founded bourgs and their economies over seigneurial interests, unless, the latter were royal protégées or had had important military roles first during the conquest, or proven loyalty to regal institutions and service during the Revolt of the Brotherhoods[27]. This can partly apply to the consulted corpus, for instance, when the municipal councillors (*justícies*) of the city of Morvedre and the municipal *sequier* (irrigation canal overseer) were able to punish inland *Morisco*-serf hamlets such as Gilet, Estivella or Albalat for irrigating their domestic possessions, giving precedence to Morvedre's wine production in 1552 (*Fig.*

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[25] AMA, Acequia Real de Alcira, Pleitos, 067/3. Despite the general tendency in this study to retain vernacular terms in their original language, in this case the English translation proposed by John H. Elliott–'Brotherhoods'–has been adopted, in order to avoid confusion between the original Catalan term *Germanies* and its potential erroneous associations with the Germanic peoples or the modern nation-state of Germany: John H. Elliott, *Imperial Spain. 1469–1716*, 9th ed. (London: Pelican Books, 1985), 156.

[26] Torró Abad and Guinot Rodríguez, *Hidraúlica agraria y sociedad feudal*; Guinot Rodríguez and Esquilache Martí, 'Not Only Peasants'.

[27] Antoni Furió Diego, 'Un país d'aigua i marjal. Paisatge agrari i repartiment de terres a la Ribera del Xúquer abans i després de la conquesta del segle XIII', *Cuadernos de Geografía de la Universitat de València*, 108–9 (2022): 241–71.

10)[28]. Yet, not all seigneurial privileges were systematically subjected to city interests, as in the case of Morvedre, two years prior, the noble-woman in charge of the manor of Gilet, Leonor d'Ixer i Llançol, was benefitted in a court-case against the municipal authorities of the city of Morvedre, where she was exempted from paying the main irrigation contribution tax, the *sequiatge* to the city authorities[29]. Nonetheless, even if this noblewoman was part of a family related to the Borgia and the Crown and exempted from paying municipal taxes, her serfs had to walk to Morvedre every time they planned on irrigating their lands, and visit the municipal *sequier* asking him for permission, despite the contrary being more common and customary for the irrigators to use water during their shift and to be visited daily by the *sequier*, who gave them permission *in loco*. The municipal court of Morvedre in this case turned an imposed royal pecuniary dispensation of their upstream neighbours into a spatial and productive reaffirmation of their presence outside their landed jurisdiction, yet still within the river, the Riu de Morvedre (known as the 'riu de Sogorb' in its upper course, and urrently known as the river Palància), that fed the irrigation network of the irrigate plain in which the city stood.

When concerning local irrigation boards, composed by proprietors of various villages along a canal, court cases tend to show also contrasting results. There are numerous moments in which the justice secretary of the viceroy (*portantveus*), along with other justice prosecutors of the kingdom, benefit irrigation canals over cities or feudal manors; but the contrary cases also exist to an extent, arguing for a not-so general tendency of crown-city collaboration. For instance, Valencia-based merchant and *intra-muros* inhabitant Benet Conill, was obliged by the general governor of the kingdom to compensate the irrigation board of the Mislata canal, west of Valencia, for piercing a hole (*forat*) on the canal's dykes without the permission of the board in 1531[30].

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[28] Esquilache Martí and Guinot Rodríguez, 'La Gestió Técnica de La Irrigació En Les Hortes Històriques Valencianes. El Sequier, Dels Orígens a La Desaparició (Segles XIII-XVII)'; ARV, Real Audiencia, Procesos, s. 6294

[29] ARV, Real Audiencia, Procesos, 6260; Indeed, the Llançol were known to be close to both the Crown and the Borgias since the 1400s.

[30] ARV, Gobernación, 136

Similarly, apothecary Francesc Reyner was punished for stealing water from the irrigation board of the the Favara canal, northwest of Valencia, in 1562[31]. Hieroni Santangel, a knight of the military order of Saint James of the Sword, owning a rice mill (*molì fariner*) and member of the irrigation board, denounced Reyner for opening illicit conducts on the canal embankment and irrigating the herbs that Reyner sold, causing the loss of the necessary amount of water flow to power both his private mill and a city-owned olive mill, on the Guadalaviar river between the town of Mislata and the western faubourg of Valencia, a structure then known as the '*almossera* Morisca'. He first acceded to denounce Reyner to Joan Luys Foyos, *sequier* of Favara, and then, when seeing that Reyner, wouldn't close his conducts on the dyke, he acceded to denounce him to the *Real Audiencia.* This example does not fit with the idea of an irrigation board only composed by free villagers or yeomen, confirming what Enric Guinot and Ferrán Esquilache argued for medieval Valencian irrigation – they were 'not only peasants', as indeed, Santangel appeared in court with other local knights and owners of mills: Don Giner de Perellós, lord of Benetússer and close relative of the lord-marquises of Dos Aguas, which was one of the richest and mnost powerful military aristocratic families in Valencia, and Don Pedro de Sanoguera, lord of Catarroja and member of a noble house of Catalan origin from the Osona region, a family that had been among the first to receive the Albufera coastline during the *repartiment*[32]. All three noblemen were also members of the Favara irrigation board and presented themselves as such[33]. Second, it does not fit with the idea

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[31] ARV, Real Audiencia, Procesos, II Parte, Letra S, Apéndice, 470

[32] Pablo Pérez García, 'Historia Moderna de Catarroja', in Jorge Hermosilla Pla (ed.) *Catarroja. Historia, Geografía y Arte* (Valencia: Universitat de València, 2014), 172; Antoni López i Quiles and Vicent Olmos i Tamarit, 'El domini català a la senyoria de Catarroja', *Paratge: Quaderns d'estudis de Genealogia, Heràldica, Sigil·lografia i Nobiliària* 1 (1990): 27. The location of these three mills has been confirmed through toponymic evidence – such as *molí de Sanoguera* – and by recent detailed studies of the material heritage associated with this initial section of the Favara canal: Martínez Sanmartín and Terol i Reig, 'El libro de los actos', 607; Sergi Selma Castell, 'Paisatges històrics, patrimoni i didàctica (Les séquies i les hortes del Tribunal de les Aigües de València)' (Universitat Jaume I, 2014), 148, 258, 392-3.

[33] Guinot Rodríguez and Esquilache Martí, 'Not Only Peasants'; ARV, Real Audiencia, Procesos, I Parte, Letra F, 65: '(…) Don Giner de Perellós señor de Benituser, Don Pedro Çanoguera e don Luis Çanoguera señor de Catarroja e Mossen Hieronim de Sentangel comanador de milicià de Sant Jaume de la Spada e lo síndich e veedors de la cequia de Favara e sequiers de la dita sequia dihuen e proposen que Frances Reyner apothecari de fet ha acupat y pres certa part de la rambla del riu de Guadalaviar de la present ciutat de Valencia per hon passava lo camí e solia haver camí publich per obs de regar aquell volent-lo cultivar e

that noblemen automatically recurred to noble forms of justice. Santangel's concerns with the merchant's *furt d'aygua* (water theft) took a rather different way, first recurring to the internal forms of justice pertaining to the irrigation board, and second, recurring to the highest appeal court in the kingdom.

It can therefore be concluded that there was no such thing as a general pattern of priority and privilege in the kingdom's justice when managing water uses, and that judiciary practices took other directions than that expected ones from a certain social stratus: noble men used communitarian irrigation boards as arbitration bodies, at the same time that municipal councils appropriated functions of royal canal overseers.

Furthermore, social classification of actors of water management as done in *Fig. 5*, *6* and *7*, is not but a partial representation of the social category of plaintiffs; sometimes a plaintiff used different categories to present himself, depending on the court. For instance, many plaintiffs presented themselves as members of an irrigation board, which at same time was under the appointment of municipal authorities; this is the case for the irrigation boards of the Gausa Canal and the Séquia Major of Morvedre, both under appointment of the city counsellors. That is why it is important to make a difference, strictly at the jurisdictional level, between intermunicipal irrigation boards, such as the main canals of the Valencian hinterland, that irrigated the lands under the jurisdiction of different towns, and those that were within the boundaries and control of one single municipal entity. In practice, irrigation boards, whether municipal or intermunicipal, functioned similarly, with cyclic representative elections and common budget contributions[34]. Therefore, when reading a quantitative classification of the social status of plaintiffs, such as in *Fig. 7*, one might deduce that irrigation boards were not present among the conserved documents of the Municpal Archives of Alzira, as intermunicipal irrigation boards occupy 4% of the conserved cases. Nonetheless, the municipal authorities of Alzira, as those of Morvedre, delegated on an irrigation board that was structured the same way as the intermunicipal

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regar de fet ha obert lo caixer de la dita sequia de Favara prop la almocera appellada Morisca y ha fet hun roll o dos e lo dit quexer per a pendre aygua de la dita sequia de Favara e portarla dita aygua clandestinament a la dita rambla per a regar aquella e coltivarla e ferne hun camp particular en prejuhí dels dits suplicants e dels hereters de la dita cequia e dels que tenien camí e via per la dita rambla (…)'.

[34] Glick, *Irrigation and Society in Medieval Valencia*, 4.

ones, practising the same arbitrative, surveillance and distribution functions, yet pertaining to a single township, and therefore with close ties with the interests of the city or town rulers.

In the same sense, there is also a rather blurred conceptual limit when treating institutions such as the Royal canals, thus, the Royal Canal of Montcada and the Xúquer Royal Canal. The first, as seen in the previous legislation, was supposed to be the only water course of kingdom that belonged personally to the monarch, structurally pre-existing the Christian conquest and appropriated by James I the Conqueror. The second was considered a royal construction (although archaeology proves the contrary, as noted by Tomàs Peris Albentosa), granted later to the municipal powers of Alzira, that by the 1550s were materially under total control of the viceroy[35]. When consulting interrogations and testimonies in the court cases, both are frequently named 'the common canal' (*la séquia comuna*, or simply *la comuna*). For instance, as will be examined in Chapter Six, the representatives of the Royal Montcada canal entered into conflict with royal procurator-fiscals in 1551, exclaiming that they only respected the ultimate laws of 'the commune' or the 'commons', not knowing only about the laws of those who worked the land, evoking a tense social identity of the Royal Canal between those who used it and those who appropriated it[36].

Therefore, two main conclusions arise when concerning an attempt to define court cases according to the social background. First, the participation of certain socio-political

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[35] Martínez Sanmartín and Terol i Reig, 'El libro de los actos', 607; Selma Castell, 'Paisatges històrics', 148.

[36] ARV, Gobernación, 559: '(…) Item diu ut supra que los dits delats vinguessen ja acordadament y deliberada y presenhint entre aquells concert y deliberació de derrocar dita noria no curaren de obehir los manaments que per lo dit lochtinent de alguazir de manament de vostra senyoria los foren fets, ans, en gran menyspreu de aquells e ab molt ultrage i ab paraules molt desacatades manaren a rescort quatre homens que portaven ab axades que derrocasen dita noria dient entre les altres paraules "pegali cap de deu, que la comuna nos ne traura" (…) Item dihuen ut suppra que los dits vehedors son lauradors, no son persones expertes ni perites en semblants fermes de dret y negocis majorment no sabent ni tenint notícia explecita dels plets tocants a la dita comuna y diers de aquella com tots los altres tocants y que si an resposte a dita comuna en coses de justícia se fan y acostumen fer ab lo síndich e procurador de la dita comuna e no ab los dits vehedors ni cequier major e axí es ver'.

groups in water conflicts did not imply procedures and solutions specific to their own category. Second, actors in water management recall a more fluid and complex social categorization than the stipulated social categories of land use in Valencia (nobility, city dwellers, yeomen and royal estates). This does not mean that these categories are not crucial in the general outcome of court cases, but actors would identify with different ones at the same time, recurring to resolution of conflict via communitarian water board institutions, municipal, noble and royal courts in similar proportions.

b) Hydrogeographic contexts

Social classification of involved actors therefore recalls completion with the material elements of the landscape, of the geographical contexts specific to each case. The chosen geographic section for the given study (*Fig. 9*) is the fraction of coastal plains limited by the Mediterranean Sea eastwards, the inland foothills of the Iberian System range westwards, the swamplands of Almenara to the north (in the current province of Castellón), and the Sierra de Corbera southwards. The latter is a brusque sedimentary interruption of the irrigate plains on the left bank of the river Xúquer. Other court cases from southern regions, such as the Low Segura valley, between Elche and Orihuela have been peripherally overviewed in the Archives of the Kingdom of Valencia – *Arxiu del Regne de València* (ARV), with comparative intentions, yet the quantity of recent work on this area, its lack of fluvial and general waterway connexion with the other subregions (*comarques*) and given the scattered archival situation for this region (Murcia, Orihuela, Elche and Callosa del Segura, among other smaller archives), has made that this study prioritise the hinterlands of Valencia, Sagunto and Alzira.

The current names of the six subregions or *comarques* in north to south order are: Camp de Morvedre, Horta Nord of Valencia, Horta Oest of Valencia, Horta Sud of Valencia, Ribera Baixa and Ribera Alta. The three main rivers that traversed, nourished and menaced these subregions were, from north to south, the Riu de Morvedre (also known at the time as Riu de Sogorb and currently known as Palància), the Guadalaviar (currently known as Tùria, inits lower course) and the Xúquer ('Júcar', in Castilian Spanish). The choice of sampling the current territorial subdivision of *comarques* responds to a rather pragmatic methodologic choice, as the recent map is largely defined by physical geographical elements, such as river basins and canals. Nonetheless, it is important to

bear in mind that these six toponyms were not present in 15th and 16th century sources. 16th century documents included placenames that had a certain officiality when it was the case of cities, villages or hamlets with legal representation, yet, when speaking of canals, hills, swamps and rivers, names varied and were introduced to the members of the court as 'vulgarment dit' and 'vulgarment dita', thus, 'vulgarly known as'[37].

b. 1. The Camp de Morvedre (Fig. 10)

With a surface of almost 300 square kilometres, the Riu de Morvedre or Palància flows from northwest to southeast, opening two main irrigation canals, one on the northern bank, the Séquia Major, and another one in the southern bank, the Séquia de Gausa, both under the management of the municipality of Morvedre since the Christian conquest of 1238. The main crops in the 16th century were wheat and vineyard in the plains, with some terraced terrain inland. The valley of the Palància is shaped as a funnel, with the broader end facing Morvedre and getting narrower towards the northwest. Inland towns, on both sides of the river, were built on valley sides.

The structure of property included the free Christian-founded city of Morvedre, which managed and had the jurisdiction over the land around it and the waterways that irrigated it[38]. This land was owned by yeomen and inhabitants of the *intramuros*. The towns around Morvedre were generally of seigneurial jurisdiction, populated by serfs. Inside the Palància Valley, towns such as Gilet, Estivella, Albalat and Algar, where the water from the Riu de Morvedre or Palància is deviated into the Séquia Major, had a majoritarian *Morisco* population.

[37] For example, Morvedre farmer and municipal *sequier* Jaume Pancrudo, when interrogated in 1552, names the Gausa canal as 'el bras vulgarment dit de la cequia de Gausa' in ARV, Real Audiencia, Procesos, III Parte, Apéndice, 6294.

[38] When referring to the term 'founding', I mean the granting of the charter of affranchisement that formally established the borough as a municipality with its own legal jurisdiction. This does not imply that the urban structure was created ex novo, as the site had been inhabited since prehistoric times and, at the moment of its conquest by Christian lords in the 13th century, already featured a Muslim fortress and a substantial part of the irrigation system in its hinterland.

The Camp de Morvedre was the theatre of seven court cases of the consulted corpus, all conserved at the Archives of the Kingdom of Valencia – *Arxiu del Regne de Valéncia* (ARV)[39]. In a general view, court cases in the Camp the Morvedre implied a constant dispute over water uses of the Riu de Morvedre between the city authorities of Morvedre and inland serfs from both sides of the valley. This can be explained first as a product of the Christian conquest, where the monarchy tended to grant more privileges to Christian founded cities in the plains with a larger agrarian produce, as the case was for Morvedre.

Concerning the structure of irrigation canals, the Camp de Morvedre shows conflicting models. The city authorities were in charge solely of the Palància Valley's main two canals or *séquia mare*, thus the Séquia Major on the right bank of the river, and the Séquia de Gausa, on the left bank. Nonetheless, the branches of these main canals were taken care of by smaller irrigation communities pertaining to seigneurial *Morisco* villages that sometimes did not ask for permission or dismissed the municipal authorities of the main canal, as discussed in detail in a specific case in Chapter Four, as one of the principal complications arising from the incomplete correspondence between land jurisdictions and the service areas of irrigation canals. Most of these cases were resolved by the intervention of the noblemen that owned these seigneurial villages, who were exempted by the *Real Audiencia* of paying to the municipal authorities of Morvedre.

b. 2. The Horta Nord (Fig. 11)

With almost 200 square kilometres, the Horta Nord of Valencia is a subregion on the northern banks of the river Guadalaviar. Its irrigation waters depended exclusively on the aforementioned river, with at least three main irrigation canals, being the Royal Canal of Montcada, flowing northeast from the limits between the towns of Paterna and Burjassot to Puçol and Gilet and into the *marjal* dels Moros, a coastal marshland north of Puçol. Montcada was the largest and longest irrigation canal, not only in this subregion, but also in the kingdom of Valencia prior to the extension of the Alzira irrigation canal and its renaming as the Acequia Real (Royal Irrigation Channel) in the 18th century. It is

[39] ARV, Real Audiencia, Procesos, III Parte, 6260, 6294, 6325, 6456; ARV, Real Audiencia, Procesos, II Parte, Letra S, 505; ARV, Real Audiencia, Procesos, III Parte, 2167; ARV, Real Audiencia, Procesos, III Parte, Apéndice, 372.

also argued to be the oldest and most important canal during the Christian conquest, and the only, theoretically, personally owned and managed by the king[40]. Other main canals that deviated water from the Guadalaviar into the Horta Nord were, and to a certain extent, still are, the Tormos canal, the Mestalla canal and the Rascanya canal, all following a west-east direction towards the Mediterranean Sea. The main crops at the time were vineyards and cereal, with also smaller domestic heterogeneous cropping at the outskirts of each village.

Concerning the structure of property and water use, the Horta Nord was mainly occupied by towns with municipal council representation (*universitats*), such as Meliana, Foios and Puçol, represented by a *sindicus* and a council of *jurats*, expert in Roman Law. There were also smaller *llocs* – literally translated as 'places' – also controlled by local experts in laws, yet dependent on larger territorial conglomerates and extra-municipal institutions when it came to solicit water use. Citeable *llocs* were, among others, Burjassot, Godella, Alboraia or Rafelbunyol. There were also some *alqueries*, thus, Muslim-funded bourgs which continued to be inhabited by *Mudéjar* serfs, one of the closest to Valencia was Soternes, northwest of Valencia, although most of this population was displaced inland[41]. The Horta Nord also had a series of noble estates, and a large number of royal possessions, usually along the Royal Canal of Montcada.

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[40] Enric Guinot Rodríguez, *La Real Acequia de Moncada*, Collecció Camins d'Aigua 1 (Valencia: Generalitat Valenciana, Conselleria d'Agricultura, Peixca i Alimentació, 1999); Guinot Rodríguez and Esquilache Martí, 'La reorganización del paisaje'.

[41] Soternes (historically Soterna) was an *alquería* located immediately west of the city of Valencia. In 1549 a conflict arose over the management of the *braçal* de Soterna, a secondary diversion of the main irrigation canal of Mislata on the right bank of the Guadalaviar, between the authorities of the Mislata *comunitat* and the lord of the *Morisco*-inhabited manor. The episode is noteworthy because it represents an unusual case of a water dispute between a *Morisco* manor and an 'old' Christian irrigation community situated directly beside the western walls of Valencia. Conflicts involving Morisco communities were more commonly attested in the mountainous inland rather than in such close proximity to the city. The archival reference for this case is: ARV, Real Audiencia. Procesos, III Parte, Apéndice, 6253. A recent study showing that not all the Muslim population was displaced to the mountainous interior after the conquest in the 13th century, and that some settlements persisted on the plains, including areas close to the city of Valencia, is: Guinot Rodríguez, 'Herencia y Ruptura En Los Espacios Irrigados de Las Poblaciones Mudéjares y Moriscas de Valencia (Siglos XIII-XVII)'.

In the consulted corpus of sources, the Horta Nord sums up to 15 court cases, all conserved at the Archives of the Kingdom of Valencia – *Arxiu del Regne de València*[42]. Most of the court cases in the Horta Nord point to a specific type of conflict, involving individuals, mainly inhabitants of Valencia, artisans, merchants or noblemen, against intermunicipal water boards such as the Tormos, Mestalla, Rascanya and Montcada canals. The proximity of the city of Valencia, caused a larger mingling of water uses. An example of this conflict between an irrigation board and an inhabitant of Valencia would be the conflict that *intramuros* merchant Joan d'Arguedes had with the Royal Canal of Montcada irrigation board representatives, who destroyed a water wheel or *noria* Arguedes had had built in order to elevate water from the Royal Canal and irrigate a garden he owned in the town of Burjassot[43]. When interrogated by the Royal doctors in laws, the Montcada canal representatives say that Arguedes was not an irrigator, yet a merchant that did not know about irrigation customs.

b. 3. The Horta Sud (Fig. 12)

The Horta Sud has more than 300 square kilometres of surface, of which almost a half of them was permanently flooded by the peripheral marshlands of the Albufera[44]. The irrigation waters of the subregion came from the River Guadalaviar, branching mainly into three irrigation canals flowing from the northwest to the northeast, either dumping into the Mediterranean Sea or into the Albufera Lagoon. The longest of these canals was the Favara canal, heading from the town of Quart de Poblet southeast towards the towns of Catarroja and Silla, until it reached the town of Albal, where it dumped into a gully on the shores of the Albufera Lagoon. Three other main canals flowed from the southern bank of the Guadalaviar to the Albufera, the Bennager, Faitanar and the Mislata canals. The jurisdiction over these canals fell into parallel autonomous irrigation boards.

[42] ARV, Real Audiencia, Sentencias, 470, 1692, 1760; ARV, Real Audiencia, Procesos, II Parte, Letra S, Apéndice final, 443, 606; ARV, Real Audiencia, Procesos, II Parte, Letra S, Apéndice, 53, 56, 180, 672; Real Audiencia, Procesos, III Parte, 6304, 6356; ARV, Real Audiencia, Procesos, III Parte, Apéndice, 72 bis; ARV, Gobernación, 136, 559, 702; ARV, Procesos de Madrid, Letra L, Exp. 9.

[43] ARV, Gobernación, 559.

[44] Carles Sanchis Ibor, *Regadiu i canvi ambiental a l'Albufera de València* (Valencia: PUV, Departament de Geografia, 2010).

The control of water use in the Horta Sud was essentially in the hands of the water boards pertaining to each of the aforementioned canals, with the exception of the waters and lands of the Albufera, that pertained directly to the crown, as a particular manor for the Crown's hunting, fishing, and rice cropping activities. The largest towns in the area, such as Catarroja, Silla or Beniparrell were important fishing ports on the Albufera since, at least the Muslim period, activities that were at times either in symbiosis with irrigation, or in contestation, mainly after 18th century swamp drainage policies, designed initially by botanist and agronomist Antonio José Cavanilles[45].

The number of consulted court cases concerning water management in the Horta Sud is quite low in comparison with the other subregions, summing up to five cases, all conserved at the Archives of the Kingdom of Valencia – *Arxiu del Regne de València*[46]. This might respond to a question of archival organization or loss. As with the Horta Nord, its vicinity with the city of Valencia caused conflicts between inhabitants of the city that conducted different main professional activities and yeomen, noblemen, farmers and other essentially land-based economic actors. For instance, the aforementioned case of Valencian apothecary Francesc Reyner, accused of stealing water from the Favara canal in 1565. Reyner was accused by noblemen owning land between Catarroja and Silla. Additionally, he was accused also by neighbouring millers, as he was apparently reducing the necessary flow to power a few mills[47].

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[45] Ib.:15.

[46] ARV, Real Audiencia, Procesos, II Parte, Letra S, Apéndice, 120, 470; ARV, Real Audiencia, Procesos, III Parte, 6565; ARV, Gobernación, 17; ARV, Gov Pro Crim, 17, caja 4783, exp. 2496

[47] ARV, Real Audiencia, Procesos, I Parte, Letra F, 65: '(…) y pres certa part de la rambla del riu de Guadalaviar de la present ciutat de Valencia per hon passava lo camí e solia haver camí publich per obs de regar aquell volent-lo cultivar e regar de fet ha obert lo caixer de la dita sequia de Favara prop la almocera appellada Morisca y ha fet hun roll o dos e lo dit quexer per a pendre aygua de la dita sequia de Favara e portarla dita aygua clandestinament a la dita rambla per a regar aquella e coltivarla e ferne hun camp particular en prejuhí dels dits suplicants e dels hereters de la dita cequia e dels que tenien camí e via per la dita rambla lo que de justícia nos pot ni deu permetre, ans es vedat e prohibit no solament per Furs e privilegis del present regne per los quals no's dona lloch a semblats e vantaments specialment en la rambla qu'es deputada per al us publich poderse fer camp privat e particular mas encara per los stabliments de la present ciutat e capítols de la sequia de Favara'.

b. 4. The Horta Oest (Fig. 12)

With a surface of under 200 square kilometres, the Horta Oest is the smallest fraction of the Valencian Horta, and also the smallest of the sampled geographical regions for this study. As its name indicates, it extended west of Valencia, on both sides of the river Guadalaviar, parallel to the royal road that connected the kingdom of Valencia with Castile. Most irrigation canals from the Guadalaviar commenced in this region, branching either north, as the Royal Montcada canal does in the town of Paterna, either south, as the Mislata canal does in the homonym town of Mislata.

Following the royal road towards the inland and Castile, most of the inhabited centres were situated parallel to it, being Quart de Poblet, Xirivella, Aldaia, Mislata and Torrent the main *llocs*. Quart de Poblet is sometimes mentioned as a *lloc* and other times as a *vila*; the confusion of both terms theoretically would encompass jurisdictional contradictions, as one evokes dependence on larger municipal entities, in this case from Valencia, and the other term, as also the term *universitat*, shows that it was indeed a city with a council of *jurats* and *justìcies* (municipal council of Roman Law doctors). In a court case of 1552, a certain Luys Mercaner presented himself to the *Real Audiencia* as a *batle* (municipal bailiff), pointing to a certain degree of independent municipal justice in a lower level[48].

Among the consulted corpus of judiciary sources, 12 pertain water transgressions in the Horta Oest, all conserved at the Archives of the Kingdom of Valencia[49]. All cases point towards municipal actions that continued later at the Royal courts of justice, either between small village irrigation boards among each other or with individuals. One particularity of the Horta Oest is that one of its irrigation canals, the Rovella canal, entered the walls of Valencia, running through the city. The Rovella canal was the shortest primary or *mother* canals (*séquia mare*) of the Horta in Valencia, running west to east parallel to the river Guadalaviar at the beginning, near the town of Mislata, then shifting south towards the *alqueria* of Russafa, and exiting back into the Guadalaviar about a

[48] ARV, Real Audiencia, Procesos, II Parte, Letra S, Apéndice, 53.

[49] ARV, Real Audiencia, Procesos, 6565; ARV, Real Audiencia, Procesos, II Parte, Letra S, Apéndice final, 15, 53, 220, 392, 483, 439; ARV, Real Audiencia, Procesos, III Parte, Apéndice, 72, 1543, 5906 (17); ARV, Real Cancillería, 266, f. 64v; ARV, Real Cancillería, 267, f. 33r–34r

kilometre before the Guadalaviar dumped into the sea. In the case of the Rovella canal, conflicts therefore also implied a large quantity of *intramuros* inhabitants of Valencia, with a very different professional activity. For instance, the *sequier* of the Rovella canal had to cope in 1542 with the abbess of the Convent of Santa Clare who refused to pay for the cleaning and cutting of the weeds of the part of the Rovella canal that entered inside the monastery, arguing that they didn't use the water of the canal for any of their daily activities[50].

b. 5. The Riberes of the river Xúquer (Fig. 13)

The river Xúquer (in Castilian Spanish known as 'Júcar') was the longest and most quantious river in the kingdom of Valencia, and in the times of the Christian conquest, a borderland between the domains of James I the Conqueror and the remaining Muslim *taifa* kingdom of Dénia[51]. In Spanish and Valencian, *ribera*, coming from the Latin *ripa*, evokes the banks of a River[52]. In the Iberian Peninsula, it is common to encounter this hydrographic term designating a region, for instance, the Ribera of the Ebro as a subregion of the Kindgom of Navarre, the Ribera del Ebre, on the homonymous river, in the principality of Catalonia, la Ribera del Duero in the kingdom of Castile or the Ribera del Sella in the principality of Asturias. In the kingdom of Valencia, there are two *Riberes*: The Ribera Alta and the Ribera Baja or *Baixa*, in Valencian. Both are along

[50] ARV, Real Audiencia, Procesos, II Parte, Letra S, Apéndice, 15: 'les reverents abadessa, monges e convent del Monestir de la Inmaculada Concepció de la veren Maria olim de Sancta Clara de la ciutat de Valencia lo qual diu e posa que lo dit convent e monestir es en quieta e paciffica possessió (…) no sols de quatre, sis, deu, vint, trenta, quaranta, sexanta anys e de tant temps que memòria de homens no es encontrari de no contrubuhir ni participar dit estament, ni judir esta y en lo scurar e neteiar la cequia apellada de Rovella, la qual passa per lo dit monestir e límits de aquell en tot ni en part impero son quieta e paciffica possessió per tot lo dit temps immemorial de requerir als síndichs de dita cequia e oficials de aquella que scuren aquella dins los límits del dit monestir u en fer compellir aquells en scurar la dita cequia en lo dit loch e com axí lo sindich e oficials de la dita cequia com altres persones particulars cominen voler perturbar al dit convent e monestir en la dita sua paciffica possessió (…)'.

[51] Thomas N. Bisson, *La Corona d'Aragona : storia di un regno medievale* (Genova: ECIG, Dimensione Europa, 1998), 86–87; Juan Manuel Del Estal Gutiérrez, 'Vicisitudes del reino taifa de Denia en los dos tercios últimos del siglo XIII', *Anales de la Universidad de Alicante. Historia Medieval* 4–5 (1986): 49.

[52] Joan Corominas i Vigneaux, *Diccionario Crítico Etimológico Castellano e Hispánico - RI–X*, (Madrid: Editorial Gredos, 1983), 7–8.

the river Xùquer, and name a region at the higher (*alta*) and at the lower (*baixa*) course of this river. This division is important given the uses of the water course of the Xùquer, with different economic activities, generating long term territorial tensions. This differentiation between the high course and the low course of the river has permeated today the territorial and cultural scope, conceived today as two different subregions. Nonetheless, in 16th century sources, there is no explicit mention of a higher and a lower Ribera, yet there is indeed a clear separation of interests and water conflict among each other. The Ribera Alta is the largest of the two regions, summing up almost 1000 square kilometres; nonetheless, the all of the consulted sources pertain to the flat irrigable land of the Ribera Alta, concerning the city of Alzira, and more than ten smaller towns under seigneurial jurisdiction, such as Massalavés, Alberic, Carcaixent, Benimuslem, Guaduassuar, l'Alcúdia, etc., leaving aside the drier inland plains and mountains, west of the city of Xàtiva, a free burgh and one of the most populated cities of the kingdom at the time, after Valencia. The Ribera Baixa instead, with almost 300 square kilometres, is situated parallel to the coast, with two main towns with the statute of *vila*: Cullera, on the coast, and Sueca, on the southwestern shores of the Albufera lagoon. The main watercourse in both regions was the Alzira canal, managed maily by this municipality, and flowing across the plain northwest to southeast from the town of Antella, where its main diversion dam (*assut*) is located, dumping into the swamplands north of the Albufera Lagoon[53]. The *Real Acequia del Júcar*, before the 18th century was known as the Real Acequia de Alzira or Royal Canal of Alzira; nonetheless, it was also sometimes named the *Séquia Comun d'Alzira* or Common Canal of Alzira. According to popular narratives, it would have been built ex-nihilo after the Christian conquest by orders of James I the Conqueror, in difference of the Royal Montcada Canal that was said by Christian sources to be already present once the Aragonese troops took over. Nonetheless, given its meandered itinerary, it has been suggested that the Real Acequia was a product of linking pre-existing small canals that served Muslim founded villages[54]. Still, it was considered at the time to be built by James I, and then granted to the Christian settlers of towns such

[53] Peris Albentosa, *Enciclopèdia*, 106–116.

[54] Peris Albentosa, *Regadío, producción y poder en la Ribera del Xúquer*, 31–34; Miguel Gual Camarena, *Estudio histórico-geográfico sobre la Acequia Real del Júcar*, Publicaciones del Instituto de Geografía de la Institución Alfonso el Magnánimo 10 (Valencia: Institución Alfonso el Magnánimo, 1979).

as Alzira, Sueca or Cullera. This was also the origin of the almost systematic conflict with upstream seigneurial fiefs such as Massalavés[55].

Being the largest sampled region, it is also the largest number of consulted court cases, summing up to 75 cases in total, from which 65 belong to the Ribera Alta and 10 to the Ribera Baja, distributed in three archival collections, thus, the Archives of the Kingdom of Valencia (*Arxiu del Regne de València*), the Municipal Archives of Alzira (*Arxiu Municipal d'Alzira*) and the Archives of the Júcar Royal Canal (*Archivo de la Real Acequia del Júcar – Arxiu de la Séquia Reial del Xúquer*)[56]. Given the archival quantity of court cases that pertain to water conflicts in this area, drawing a general characteristic specific to the two Riberes of the Xúquer is difficult. All of the aforementioned patterns of conflict that generally happened in the 16th century at the level of the entire Kindgom of Valencia happened also in the subregional scope of the higher and lower course of the river Xúquer.

Nonetheless, we can draw two important frequent specificities to this area. Firstly, given the larger mass of water carried by the Xúquer, torrentiality, floods and river dam management points to have been more of an issue, mainly concerning down water populations in the lower and flatter Ribera Baixa, such as Cullera. As so, the inhabitants of these lower plains seem to have frequently entered in conflict with upstream inhabitants, accusing the latter of keeping the dams open for too much time in times of heavy rainfall in September and October, causing damage of bridges and overflow of irrigation canals[57]. Second, there is a notable tension between municipal offices of Alzira and royal envoys on the control of the Royal Canal of Alzira or Xúquer Royal Canal.

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[55] AMA, 067/3.

[56] ARV, Real Audiencia, Sentencias, 462, 557, 559; ARV, Real Audiencia, Sentencias, 471, f. 1819; ARV, Real Audiencia, Procesos, I Parte, Letra I/J, 224, 252; ARV, Real Audiencia, Procesos, I Parte, letra M, 573; ARV, Real Audiencia, Procesos, II Parte, Letra A, 447; ARV, Real Audiencia, Procesos, II Parte, Letra F, 55; ARV, Real Audiencia, Procesos, II Parte, Letra S, 16, 68, 284, 331, 639, 992, 1144; ARV, Real Audiencia, Procesos, II Parte, Letra S, Apéndice, 50, 120, 274, 317, 331, 478; ARV, Real Audiencia, Procesos, III Parte, Apéndice, 1054; AMA, 020/61–62, 067/1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13; AMA, 17/I, 42, 50, 56, 62, 69, 76, 77, 83, 86, 92, 102, 108, 110, 111, 17/I, 126.
ARJ, c.1, n. 2, 4, 6, 8, 11, 12, 13, 14, 16, 17, 18, 19, 21, 24; ARJ, c. 9, n. 11, 12, 13.

[57] AMA, 17/I, 102; ARV, Real Audiencia, Procesos, II Parte, Letra S, Apéndice, 120.

Municipal authorities tended to firmly grasp the canal with jurisdictional privilege of the city, from its retention dam or *assut* in Antella, even if notably far from the city of Alzira. This did not only generate conflict with the landed nobility and their serf towns as mentioned previously, but also a larger agency and preoccupation of the viceroyalty in maintaining order in the canal. As part of this royal agency, by at least 1552, canal officials were no longer elected by the town council of Alzira, but directly appointed by the royal authorities, as part of the gradual campaign of suppression of communal and guild electoral practices, started by Ferdinand of Aragon, interrupted after the 1520s civic revolts in Castile, Valencia and Mallorca, and materially accelerated with the reign of Philip II[58].

c) Land division or water division? The limits of Valencian River basins in 16th century hydro-politics through the example of the Arrif irrigated plains

The borders of the previously described subregions have been in part traced following river courses, either using a river as a north-south separation axis, in the case of the Guadalaviar between the Horta Nord and the Horta Sud, or using the river as the central vein that nurtures a given territory, including the further more distant lands that were irrigated smaller remote capillary canals, as in the Riberes. It is precisely this river, the Xúquer, being the largest, that defined the most extensive region; the quantity of water carried by the Xúquer, and its wider distribution network was therefore proportional to the size of the region.

These regions did not correspond to a specific political jurisdiction, as they were composed, as mentioned before, by seigneurial manors, cities, communitarian irrigation boards and royal domains; and, second, that there were conflicts in determining the origin of certain water canals, mainly in the more distant canals from the dam deviation on the river. In other words, land jurisdiction did not always coincide with the *rech* or canal-river demarcation area.

[58] AMA, 0/70, I

The largest area of hydrographic and jurisdictional uncertainty among the sampled subregions was the southern part of the Camp de Morvedre (*Fig. 10*) and the northern end of the Horta Nord, between the mouth of the Montcada irrigation canal in the marshlands to the east of Puçol, and the start of the Gausa Canal, near the town of Gilet, under the jurisdiction of a municipal *sequier* appointed by Morvedre. 'Jurisdictional uncertainty' refers to the fact that identifying irrigation canals as originating from one river system or another (Guadalaviar in the south or Riu de Morvedre in the north) was more difficult and complex, as they did not coincide with jurisdictional territories mainly managed by one system or another: Morvedre generally managed irrigation canals derived from the homonymous Riu de Morvedre (currently known as 'Palància'), while the intermunicipal irrigation communities of Horta Nord in Valencia did so exclusively from waters derived from the Guadalaviar. However, in this area between the two sectors of irrigated alluvial plain, there were irrigation canals belonging to both systems– the largest of which were the last stretch of Montcada canal derived from the Guadalaviar, and the last stretch of the Gausa canal, derived from the Riu de Morvedre– complicating their belonging to a municipal management community in Morvedre or an intermunicipal community in Horta Nord. In 1565, yeomen Vincent Epila, Jaume Llorens, and Vincent Ametler from the town of Puçol– protagonists of the aforementioned brawl that started with the arrest of the young lad that worked for Ametler and ended with his disordered liberation from the Morvedre prison– again confronting the town authorities of Morvedre, argued at the *Real Audiencia* that since 'immemorial times' the inhabitants of Puçol benefited from waters of the Montcada canal, and therefore form the Guadalaviar river of Valencia, and not from the nearer Gausa canal, that rather obtained its waters from the river Riu de Morvedre (currently known as the river Palància), in the jurisdiction of the city council of Morvedre. Ametler and his fellows possessed irrigated vineyards in an area known as the Arrif plains, a land which was under the jurisdiction of the town of Morvedre (meaning that it was royal land granted originally to the city by an extendable contract after the Christian conquest). The contradiction between land jurisdiction and water precedence was clearly the origin of the problem, going back centuries to the genesis of the kingdom in the 13th century[59].

[59] ARV, Real Audiencia, Procesos, III Parte, Apéndice, 6456.

Indeed, the Montcada canal headed north, officially ending at Puçol, but in times of Muslim Valencia, a prolongation of it was built after Puçol, named the Arrif canal, where all the excess water from the irrigation shifts from the village of Paterna to Puçol ended up, dumping into a coastal marshland named the 'Marjal dels Moros' (Swamp of the Moors). When the post-conquest municipal delimitation of Morvedre was conducted, both municipal authorities and the head of the Montcada canal irrigation board had ignored the existence of this north-eastern prolongation of the canal, and even the existence of the lands it irrigated in the homonym Arrif plain. It was not until 1564 that the municipal *sequier* of Gausa thought that this municipally-controlled plain was also irrigated from municipally controlled waters. This made him ask for the municipal monetary contribution to those that worked the lands of that plain. Then, Ametler and his fellow yeomen resorted to the *Real Audiencia*, explaining that the water they used was independent from Morvedre's jurisdiction.

Further, when interrogating royal procurator-fiscals and authorities of the Montcada royal canal, it was also noticed that the proprietors of the Arrif plain neither paid their *sequiatge* contribution to the board, arguing as well that those northeast of Puçol were also excluded from the domains of the Montcada canal irrigation communities. It can be argued therefore that the material presence of the Arrif canal and the land it irrigated was in the dark for every type of existing legal court in the kingdom, nevertheless used by many since 'temps inmemorial'.

Yet, one of the yeomen owning plots on the Arrif plain, Martí Ramón, supported by the testimonies of more than twenty testimonies form his town, Puçol, argued that the Montcada canal authorities believed that it was a simple drainage canal with no other use than that of occasionally dumping excess water after it had gone through all of the previous irrigation shifts (*turns*) and each of the proportional lands that and all the different irrigated areas through which these shifts alternated (*tandas*), that served the lands between Paterna and Puçol[60]. The Arrif canal was therefore seen by local authorities

[60] ARV, Real Audiencia, Procesos, III Parte, Apéndice, 6456: '(…) los oficials justicies, jurats ne sequiers de la dita vila de Morvedre havent partit ni demanat la dita aygua perço com la dita aygua es aygua perduda y ve aquella molt atart y algunes vegades passa h-un any que no ni ve. Et es recordant encara ell dit testimoni que ha molts anys que ho ha hoyt dir algú amic de ell testimoni nomenat Martí Fornario del dit loch de

as not as an irrigation canal, but as a peripherical structure that served to avoid water stagnancy, comparable to the Venetian Terraferma's *scolo* or, in more recent times *canale scolmatore*[61]. In other words, neither the authorities of the intermunicipal *comunitat* of the Montcada irrigation canal nor the municipal authorities in charge of the Morvedre irrigation canals realised the possibility of irrigating this portion of land in Arrif with surplus water from Montcada, furthermore, a land which the municipal authorities of Morvedre erroneously believed was irrigated with water from the Gausa canal.

The Arrif plain was not a marshy uncultivated terrain in practice, it was an arable land covered with vineyards and wheat, with more than twenty proprietors, all inhabitants of the town of Puçol, that did not have to pay any monetary contribution for it or ask for permission to irrigate, as it was 'aygua perduda' ('lost water'), and furthermore, Arrif plain proprietors said that there was only water in the Arrif canal when the Montcada canal contained excessive amounts of it[62].

It is on this argument precisely, that proprietors and municipal authorities of Morvedre then built their defence. They assured that the inhabitants of Puçol in possession of lands at the Arrif plain also used water from Morvedre's Gausa canal, and that the Arrif canal received not only drainage *lost* water from it, but also that they inhabitants of Puçol had intentionally built an undocumented water course that stole water from an illicit puncture in the southern embankment of the Gausa Canal, opened during the night. The *Real Audiencia* then sent experts and procurator-fiscals to walk the entire length of the Gausa

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Puçol que la dita sequia del Ariff servia per desexida y escorredor de la sequia de Moncada fins al rui de Canet y que la dita aygua era aygua perduda y que de aquella regaven y podien regar los hereters de la dita partida del Ariff a son plaer sens demanar licencia a persona alguna ni sens pagar cosa alguna per rahó de la dita aygua'.

[61] In late medieval and early modern Venetian sources, the term used for runoff drainage canals is *scolo,-i*, as it is today in the Bassa Padovana and Polesine regions. In the current *gronda* of the Lagoon, which was subject to the 18th century *conterminazion* and later Austrian rule, there are numerous place names that rather include the term *canale scolmatore*, such as 'Canale Scolmatore della Bazzera', between Campalto and Tessera: Ettore Ausilio, 'Dalla Repubblica all'Unitàd'italia, i cambiamenti ambientali e culturali nella Gronda e nell'Entroterra Lagunare', *Terra Antica: Ricerche*, 2011, <https://www.terraantica.org/?p=508>; Lionello Pellizzer, *Da San Martino Di Campalto a Terzo Di Tessera. Il territorio della Gronda di Venezia nei documenti della Mensa Patriarcale* (Favaro Veneto: Quaderni di Terra Antica, 2021).

[62] Peris Albentosa, *Enciclopèdia*, 49.

canal, finding no connection to the Arrif canal, and therefore exempting Ametler and his neighbouring proprietors from paying the municipal sanctions.

Looking at present maps and satellite images of the involved area, it is impossible to reconstruct who was *right* in this conflict, although the Arrif canal still exists today and indeed, it seems clearer to link it to the Montcada canal instead to the Gausa one, although this area is heavily urbanised and industrialised today, impeding an actual confirmation. It is neither the intention of this study to verify if the *Real Audiencia* was right or not absolving the proprietors of the Arrif plain. What this case contributes to the given study is warning on how land delimitation and the geographical classification of the consulted court cases is sometimes ambiguous and incomplete. Indeed, some court cases pertained to different hydrogeological contexts, pointing to an interdependence of river basins and institutional unawareness or dismissal.

Chapter conclusion

Understanding water management in the kingdom of Valencia during the 15th and 16th centuries not only requires consulting customary legal corpora, statutes, and royal privileges, as these may lead to forms of political idealisation of a justly distributed resource, or simply underline a normative principle or ideal that might lead to believe in a situation of extreme-self regulation and autonomy of *comunitats*. Reading Valencian water management norms in the Early Modern period, particularly within the context of the Hispanic monarchy's efforts to structure and centralise justice at the viceregal courts, necessitates a critical approach. This approach must bear in mind a broader legal framework that interacts with the subject producing the sources–namely, the viceregal courts–that describe the application of justice in cases of water conflict involving at least one *comunitat*.

This implies that the kingdom's ordinances and laws on water management for agricultural purposes must always be verified or cross-checked by combining them with the parallel consultation of sources that document their application–or non-application–under specific chronological, social, and geographical circumstances. Unlike water conflicts in Veneto, which were generally handled by specialised magistrates following petitions or *suppliche* from subject water users, in the kingdom of Valencia, problems in communitarian water management, in response to denunciations and reports filed by water users, were ultimately addressed by various courts of justice in the city, principally the *Real Audiencia* and the *Gobernación*. These courts accumulated cases, conducted interrogations, and issued sentences as a result of prior regional attempts at extrajudicial resolution of water conflicts by municipal and intermunicipal irrigation boards. This points to a growing intent by monarchic institutions to centralise water arbitration.

Given the large number of court cases preserved in various archival collections, it is methodologically useful to conduct a quantitative classification within the chosen chronological framework. However, the conceptual parameters of classification that allow for this quantitative approach, such as the socio-political origin of plaintiffs and other involved actors, as well as the geographical area of the conflict, sometimes prove incomplete. Thus, the social categories that defined land ownership and political influence did not always align with the various water uses that took place in the irrigated

plains between the rivers Riu de Morvedre (currently knon as Palància) and Xúquer. For example, noble lords often presented themselves as regular members of irrigation *comunitats*. Moreover, the geographic boundaries of river basins, which sometimes led to the present regionalisation of *comarques*, are also blurred by evidence of conflicts involving neighbouring inhabitants of different fluvial networks in a same jurisdictional territory. Other conflicts pertained to two or more jurisdictional entities simultaneously, demonstrating that in the peripheries of water service areas there was recurrent confusion regarding the boundaries of each *comunitat*, whether intermunicipal or under city council control. For this reason, the quantitative methodology of Valencian court cases only partially helps to define the patterns of water conflicts in the region. The political concerns and stakes of Valencian populations and institutions in water management are best analysed in each specific case. Individual court cases provide closer insights into the practices and actions that prompted specific accusations, as well as on the internal technical and political solutions that were put to practice by *comunitats*.

As this approach and quantitative classification is only partially effective for situating the various sources of Valencian water conflicts, in which *comunitats* were involved and dealt with by the main courts of the kingdom during the reigns of Charles I and Philip II in their hydro-geographical and jurisdictional context, as well as for identifying the possible limits of the latter and of a classification of general patterns, the following section will address cross-cutting aspects. These have been extracted in a comparative manner and will describe the practices of distribution and application of communal water justice in the contrasting territories of the Venetian Stato da Terra and the kingdom of Valencia. Specifically, we will first focus in the next section on the practices of measuring water flow carried out by basic local community institutions, and how the respective states also adopted these practices to measure justice and the degree of interest shown by water users.

Figures referred to in Chapter Three

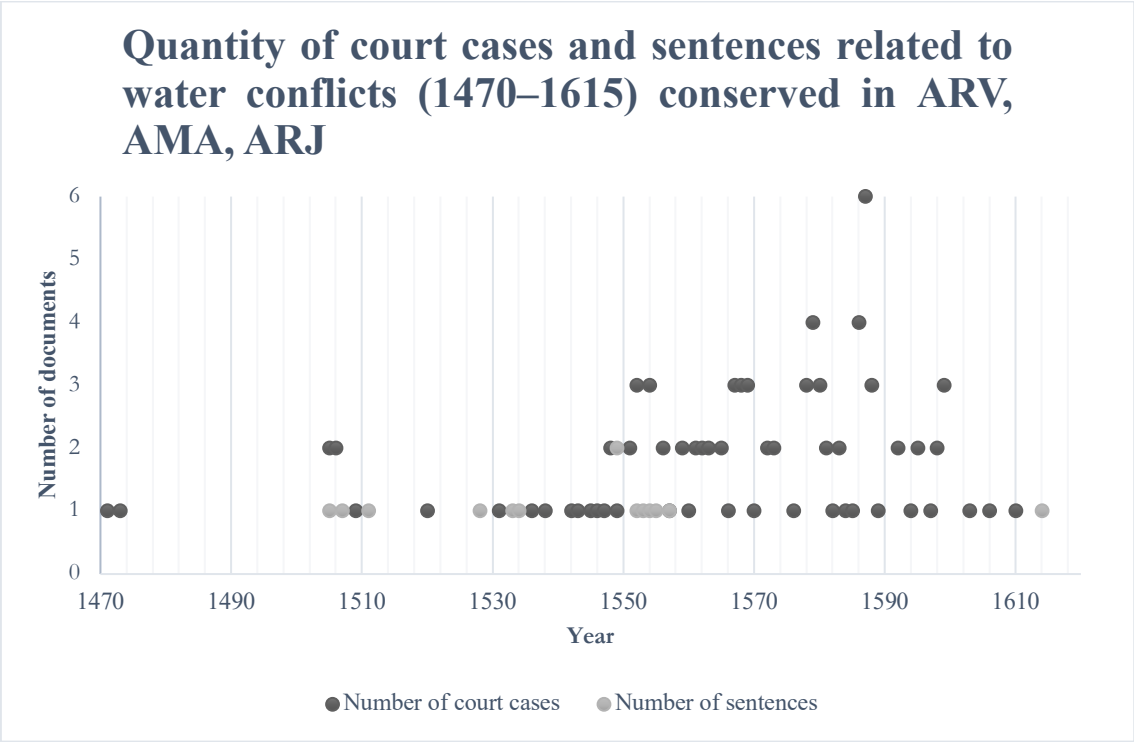


Fig. 4: Quantity of court cases and sentences related to water conflicts (1470–1615)

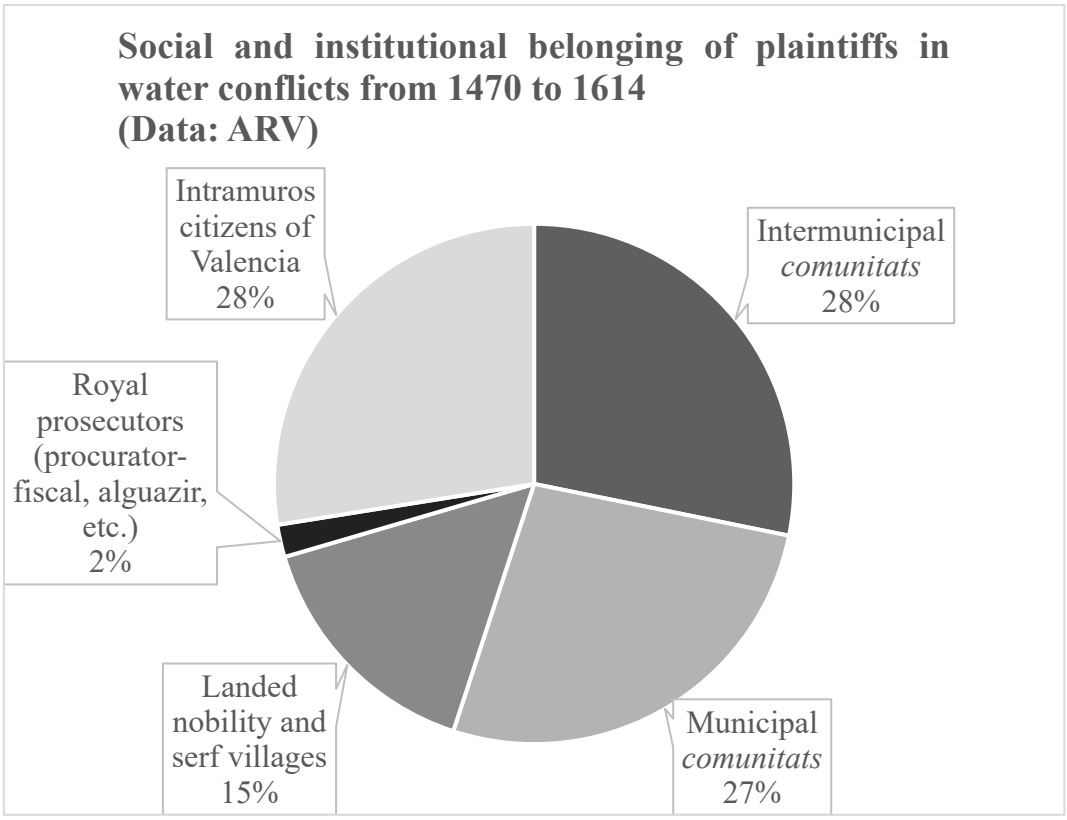


Fig. 5: Social and institutional belonging of water conflict plaintiffs in the kingdom of Valencia

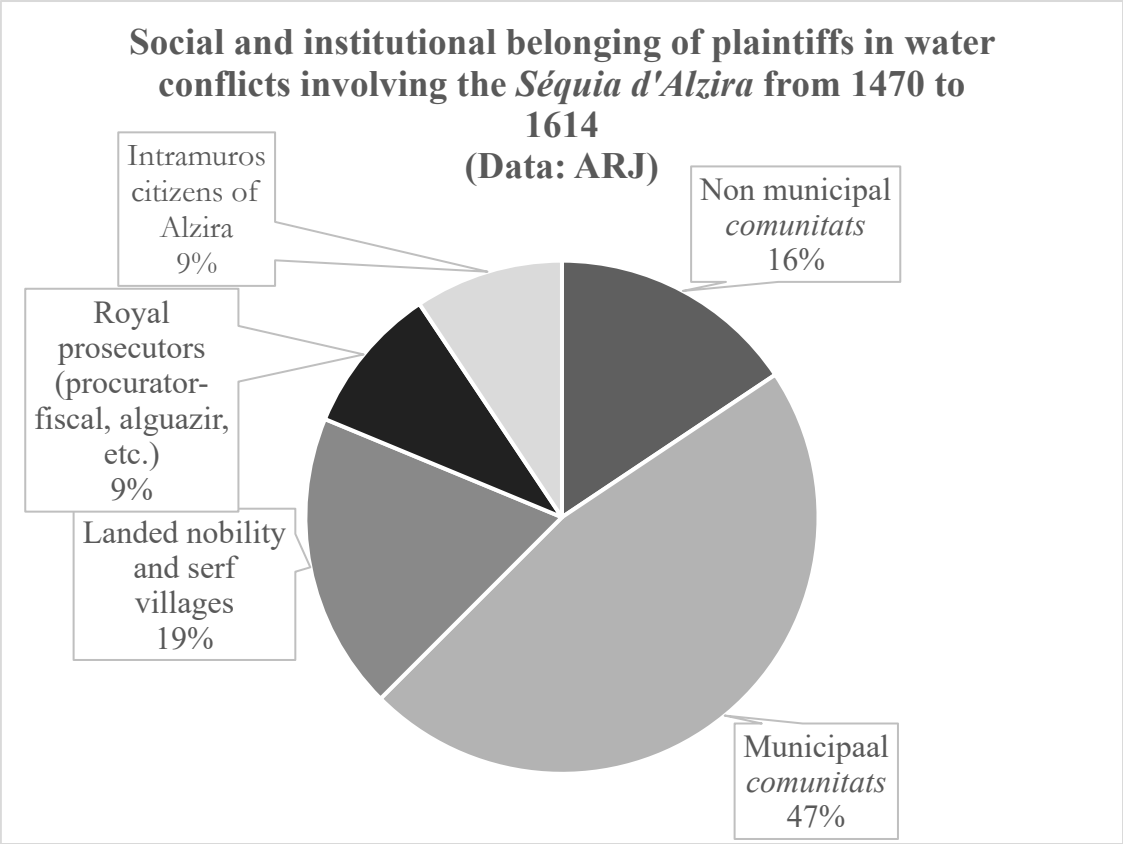


Fig. 6: Social and institutional belonging of Plaintiffs involving the Séquia Comuna d'Alzira, controlled by the municipality of Alzira (1470–1614)

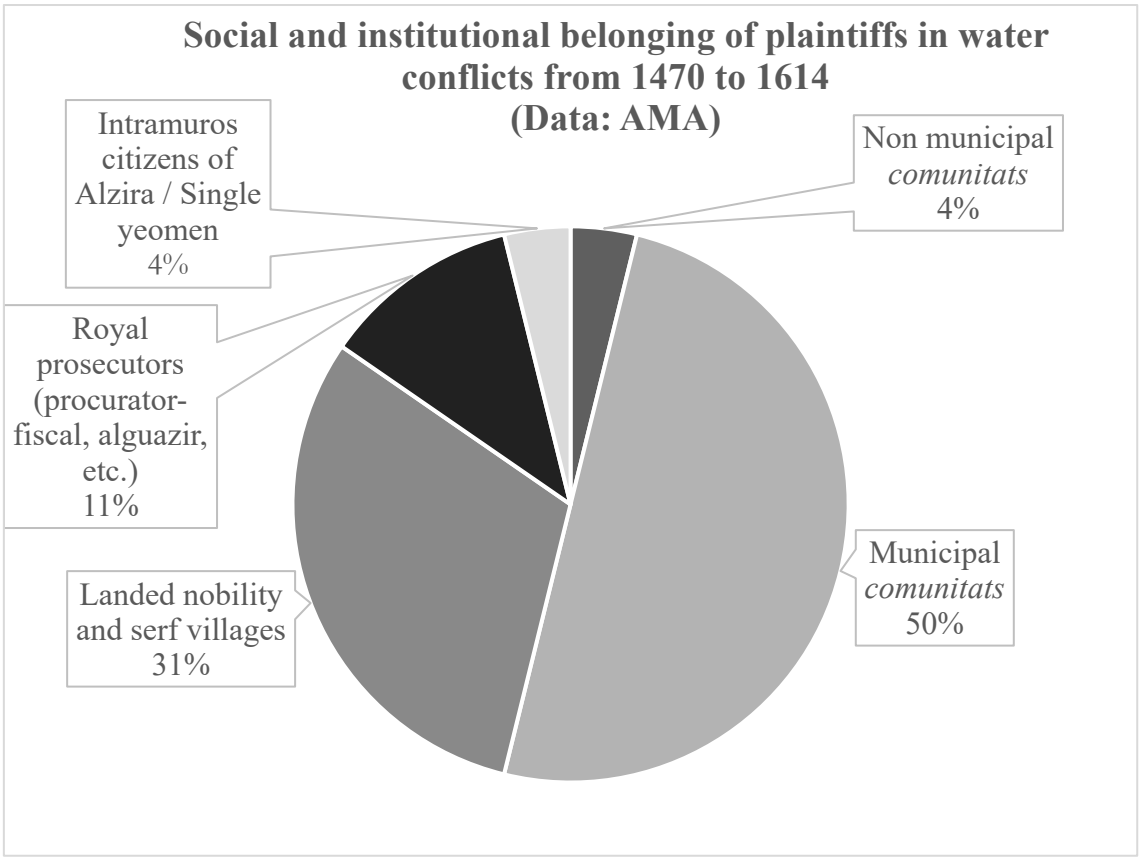


Fig. 7: Social and institutional belonging of plaintiffs involved in the municipal irrigation canals of Alzira (1470–1614)

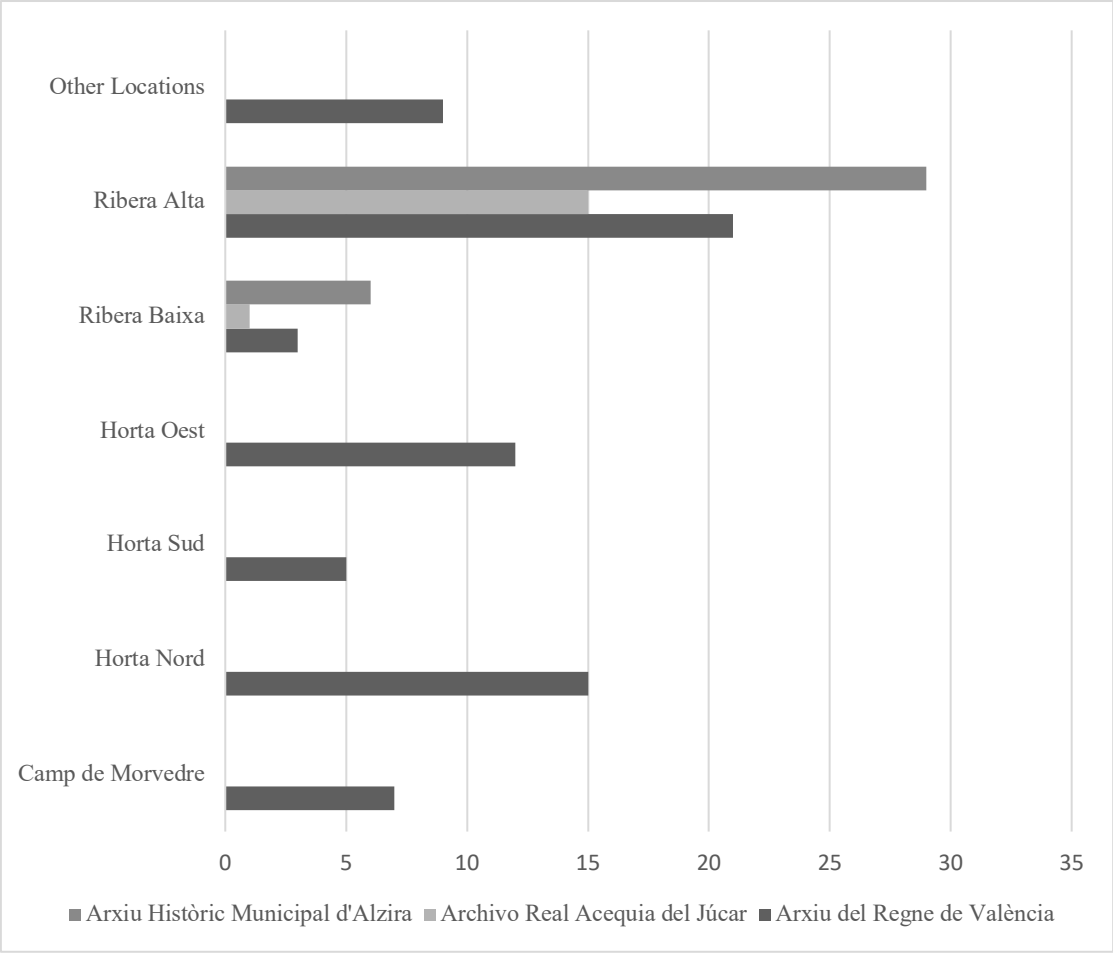


Fig. 8: Hydro-geographical distribution of the consulted court cases

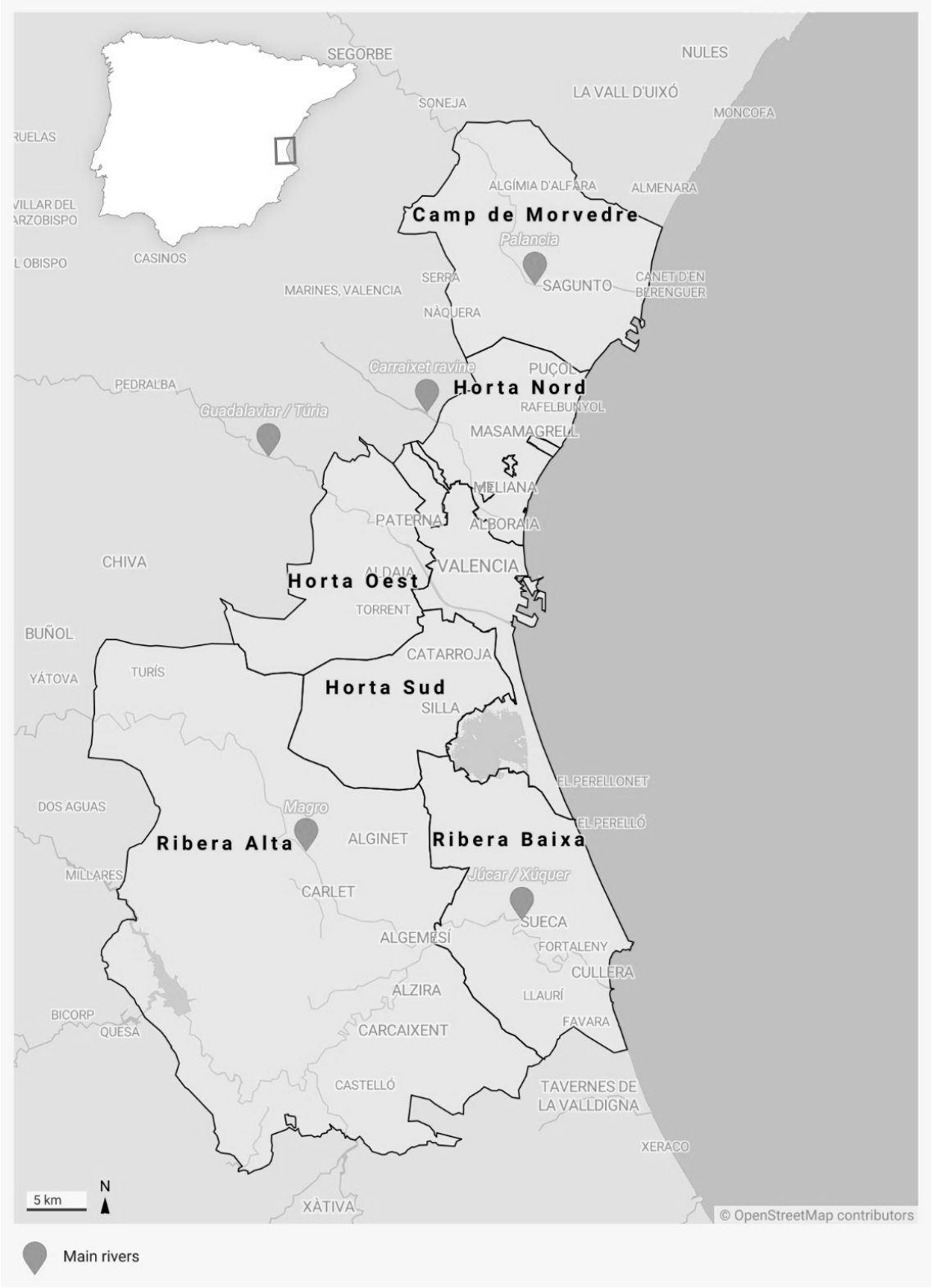


Fig. 9: Map of the analysed irrigated plains and the main river basins they depended of[63]

[63] Note the current situation of the river Guadalaviar, south of Valencia (before the late 1950s, it went north of the city). Own elaboration.

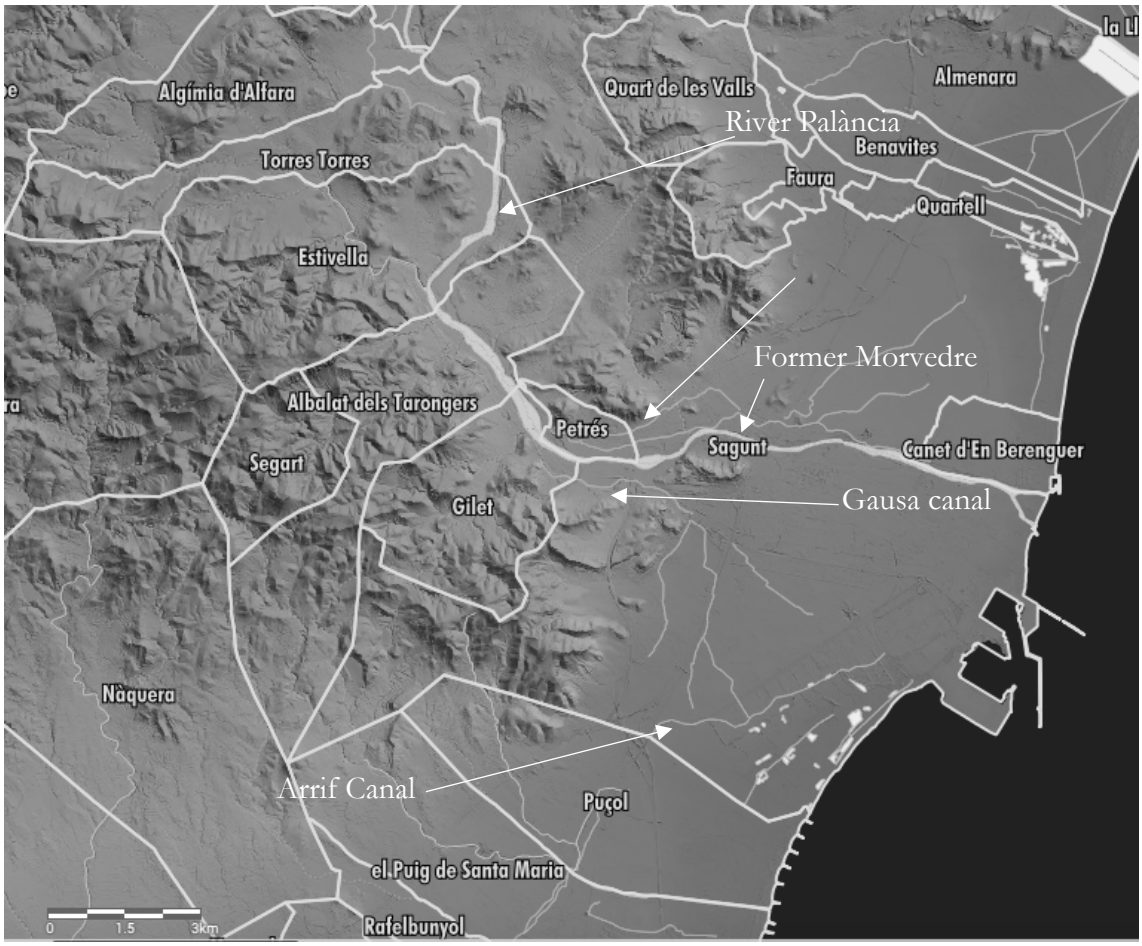


Fig. 10: Map of the Camp de Morvedre region[64]

[64] Note Morvedre's current name, Sagunt. Source: Visor de Cartografia, ICV (Institut Cartogràfic Valencià).

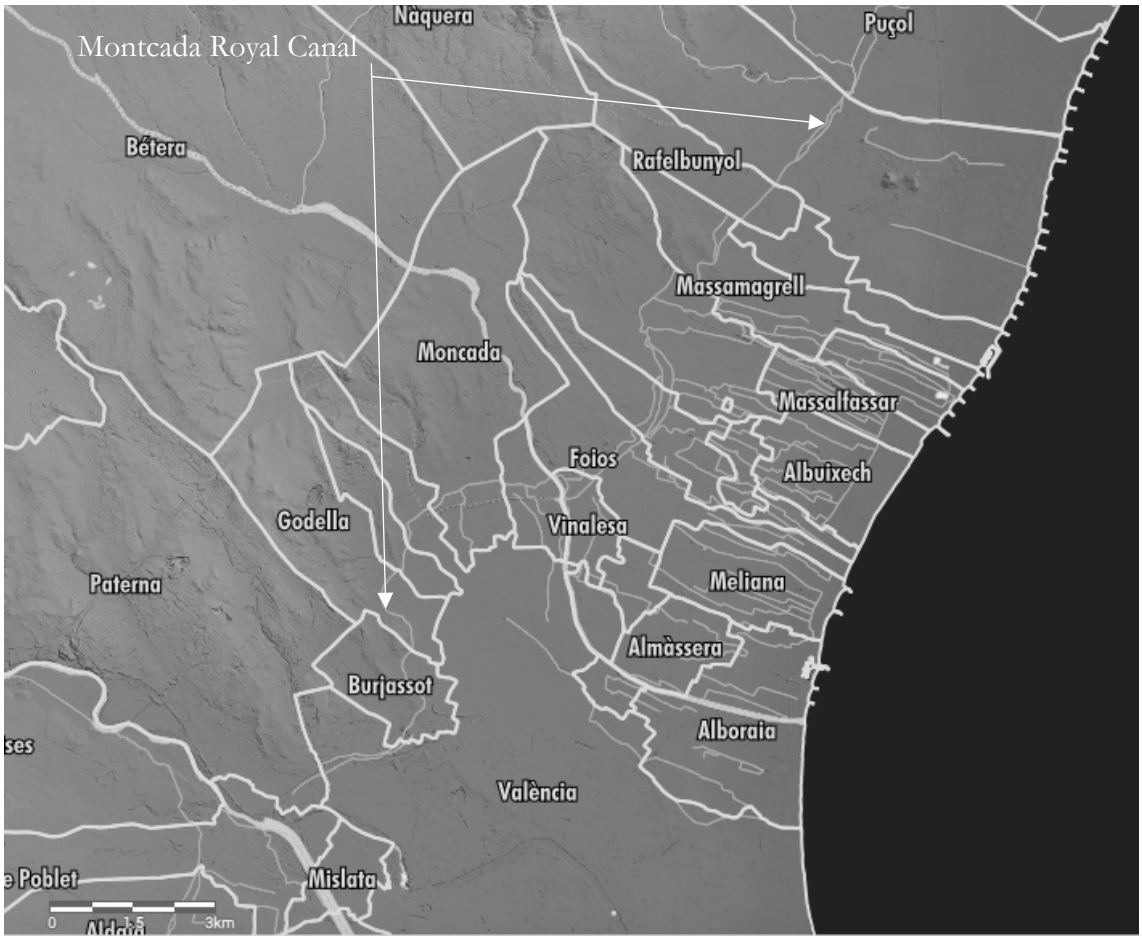


Fig. 11: The Horta Nord[65]

[65] Source: Visor de Cartografia, ICV (Institut Cartogràfic Valencià).

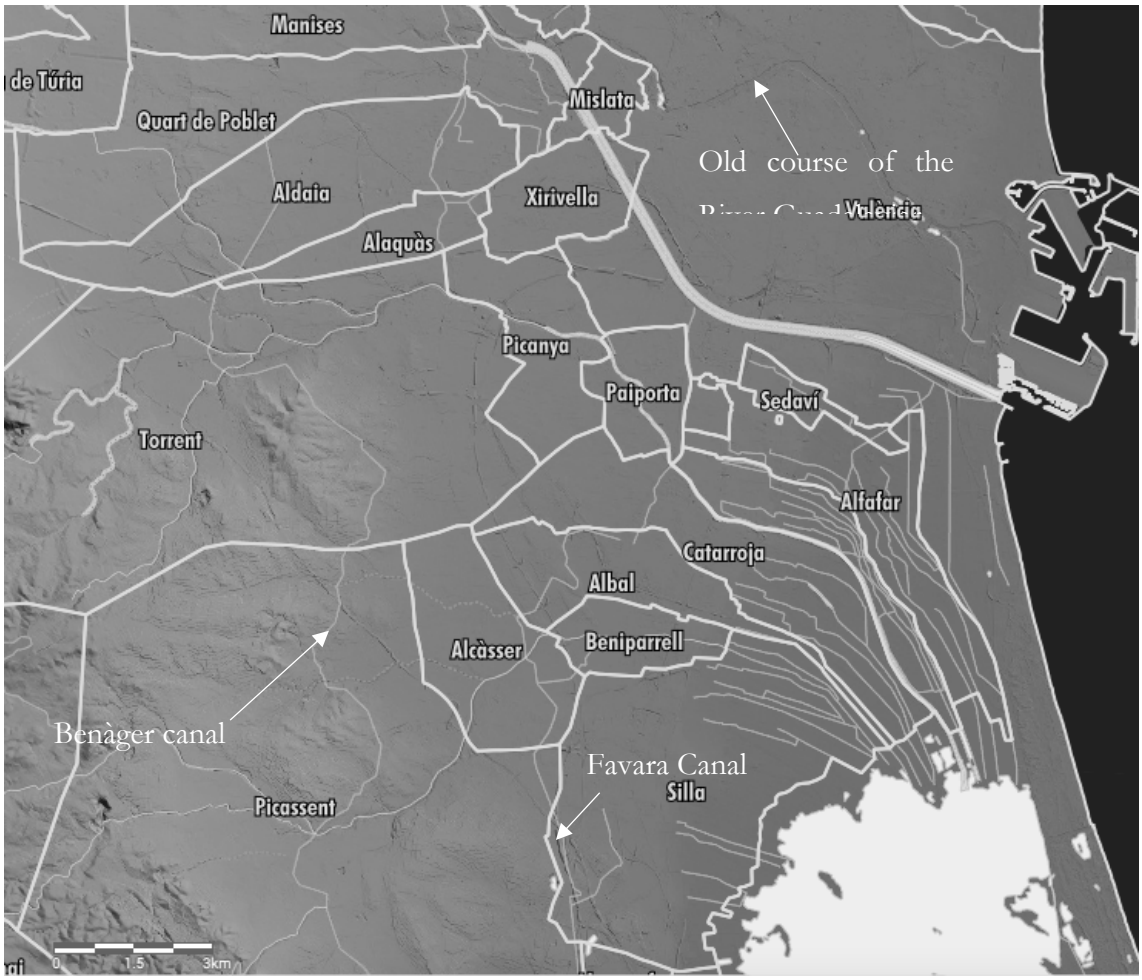


Fig. 12: The Horta Sud and Horta Oest[66]

[66] Source: Visor de Cartografia, ICV (Institut Cartogràfic Valencià).

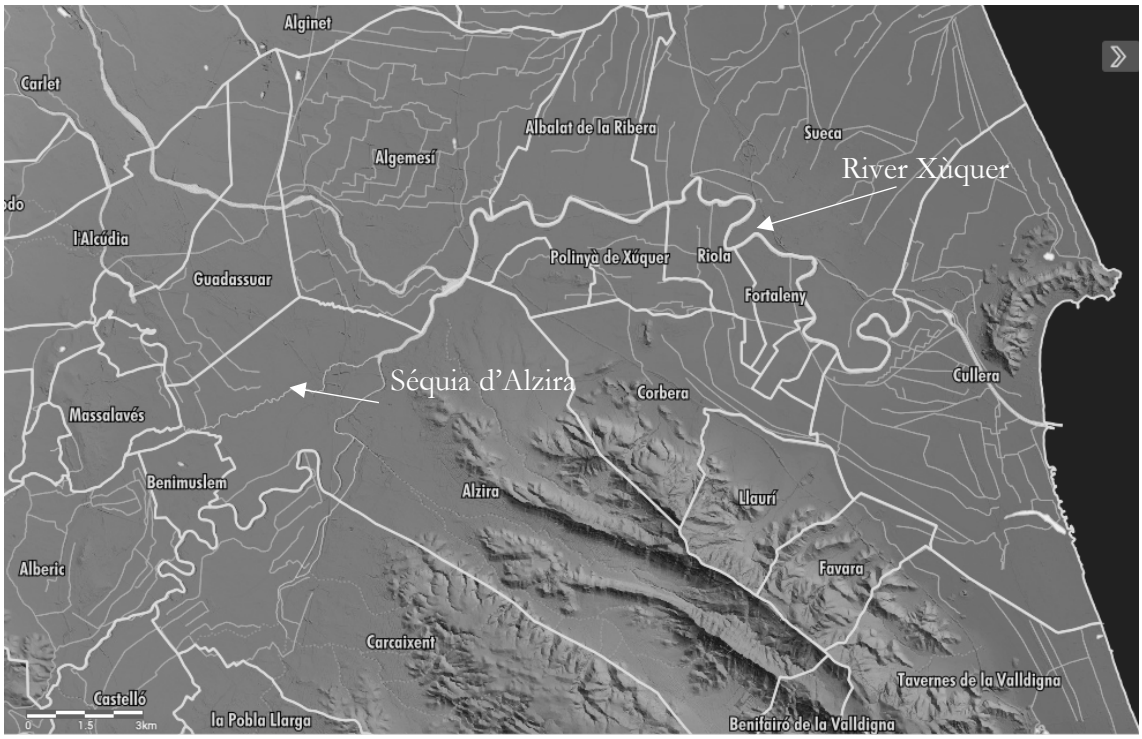


Fig. 13: The Ribera Baixa and the Ribera Alta[67]

[67] Source: Visor de Cartografia, ICV (Institut Cartogràfic Valencià).

Chapter 4 – Measuring Water: Communitarian Roles of Expertise

Societies observed water courses on a daily basis, attempting to estimate the quantity of water in them and describe their movement and direction. When realising the periodic tasks of distributing water among the canal's users, as well as building, repairing and monitoring its containing structures, specialised social roles appeared, linking technical experience to local social leadership and political authority. The main activities these actors conducted in order to describe and quantify water according to the quality of embankments, water current and use, were visual itineraries along rivers and canals, as well as verbal interactions with the communities and territorial networks of users. This chapter therefore proposes to trace the concrete practices that generated these forms of technical and social expertise within communitarian water management, paying attention to the ordinary application of knowledge not as the enforcement of Early Modern scientific literature to water distribution, but as the tracing of repeated methods and conflict resolution patterns in concrete local conditions.

Indeed, water expertise in the Late Medieval and Early Modern periods has been generally associated to the roots of scientific literature, and a scholarly network of interested individuals that were mainly appointed by courts and chambers in order to address high state concerns on the maximisation of agriculture, or the safeguarding of river, lagoon and maritime transport and trade networks, or the later issue of draining marshlands for prophylactic purposes against tertiary fevers[1]. Problems already mentioned in the first chapters that preoccupied the ruling elites in the cities, such as the never-ending debate on the safeguarding of the Venice lagoon, or the enlargement of the Imperial Canal of Aragon, all centuries-long debates with certainly drastic consequences as far as the intellectual and scientific development of modern hydraulic disciplines is concerned, but which seem to have had a smaller impact in the ordinary administration of irrigation and drainage. We are therefore interested in the hypothetical time scale of subtle change, not in the intellectual and proto-scientific revolutions induced by the scholarly debates of the experienced men of the 16th century, such as cartographer

[1] Ciriacono, *Building on water*, 101–156; On tertiary fevers: Bueno Vergara, 'Fiebres tercianas'.

Giacomo Gastaldo, patricians Alvise Cornaro and Niccolò del Cortivo, the Veronese architect Fra Giocondo, or the father of Venetian hydraulics and Lagoon safe guardianship techniques, Cristoforo Sabbadino, among many other figures studied in depth by Salvatore Ciriacono, who underlined an important European circuit of ideas that went from 15th century Lombardy, to 16th and 17th century Venice and to the 18th century Netherlands[2]. The same viewpoint is applied to the Hispanic world, where century long calculations, debates and miscarried yet fruitful attempts on behalf of 16th century men of experience, such as Gil de Morlanes, materialised in the great hydraulic works of bodies of engineers, such as those governed by Aragonese-Neapolitan Ramón Pignatelli in the early 1700s for the Imperial Canal of Aragon[3]. In Valencia, great-scale water management would not interest any elite scientific experiences until the 18th century, with local man of the Enlightenment (*ilustrado*) Antonio José de Cavanilles, worried about rice, stagnant waters and tertiary fevers[4]. It is true that, with regard to technical knowledge of irrigation in Valencia, the circulation of ideas has been primarily examined in relation to medieval material culture, rather than through the lens of technical literature. Scholarly attention has focused instead on the techniques employed by 'foreign' stonemasons and levellers from the central regions of Catalonia in the 14th century, as well as experts in marsh drainage from northern France, who frequently took part in the construction and repair of irrigation and drainage canals in post-conquest Valencia, as documented in the work of Josep Torró[5].

Yet, this methodological positioning does not create an artificial and naïve barrier between a theoretically high and abstract literature and the daily observation and ordinary preoccupations of societies. The intention is not to prove a *plebeian culture* in contraposition to *patrician science*, as it is evident that in Early Modern societies these

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[2] Cosgrove, 'The Geometry of Landscape', 257–58; Ciriacono, *Acque e agricoltura*, 142–144.

[3] José María Torres Pérez, 'Las comisiones de servicio de Julián Sánchez Bort en Tudela para estudiar el proyecto y obras del Canal Imperial de Aragón', *Príncipe de Viana*, 52/194 (1991): 83; Julián Vidal, *Goya y el Canal Imperial de Aragón. La época de Ramón Pignatelli*, (Zaragoza: Institución Fernando el Católico, 2017), 32.

[4] Antonio González Bueno, 'Reflexiones en tomo a los viajes de A. J. Cavanilles por tierras de Valencia (1791-1793)', *Asclepio* 47, fasc. 1 (1995): 137–67.

[5] Josep Torró Abad, 'Canteros y niveladores. El problema de la transmisión de las técnicas hidráulicas andalusíes a las sociedades conquistadoras': 210; Ib., 'Palafanguers': 33.

spheres were interdependent and never separate, and experts could both feed the Republic of Ideas whilst serving local practical professional activities on the ground[6]. In this sense, Pietro Daniel Omodeo, through the Venetian case, in which fishermen in the Venetian Lagoon became experts in the eyes of the governing bodies of the Serenissima in the early modern age in what would today be the fields of hydrology and geology, suggests that this separation between the *high* and the *low*, between popular epistemology and scientific production is not applicable to pre-Enlightenment times[7].

What is rather the aim of this chapter is the tracing of the repeated practices that generated expertise in the concrete tasks of agricultural water distribution. Indeed, Salvatore Ciriacono, in the case of Venetian water governance, accepted that the silences of high state epistles, reports and scholarly treatises was filled with 'tutto un sapere empirico, di origine popolare, che si fonde, alimentandole perennemente, con le conoscenze di "matematici" alle acque, di "proti", di periti (…)'[8]. In the same way, John Emrys Morgan, in the context of ordinary tasks ordered by institutions in charge of water management in Gloucestershire in the Early Modern Period, the Commissions of Sewars, points out how during the daily tasks of canal maintenance, ordinary actors from each parish were consulted by its envoys on how to carry out these tasks, including women, who, although they had no official voice in the institution's councils, were indispensable in the generation of technical knowledge and the elaboration of management rules, regulations and custom[9]. In the specific context of the central Horta of Valencia, anthropologist and historian Luis Pablo Martínez Sanmartín defines *techno-hydraulic officials* any irrigator farmer who, irrespective of whether he formally occupied administrative positions within irrigation communities, possessed a *non-exhaustive* yet functional knowledge of the fundamental rules of water distribution, along with a basic familiarity with the shared hydraulic infrastructure, thus acquiring recognition of authority from the community and water board[10].

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[6] The English word 'expert' is identical to the Catalan word found in 16th century Valencian sources.

[7] Omodeo, 'Hydrogeological knowledge from Below': 555–56.

[8] Ciriacono, *Acque e agricoltura*, 142.

[9] John Emrys Morgan, 'The Micro-Politics of Water Management in Early Modern England: Regulation and Representation in Commissions of Sewers', *Environment and History* 23, fasc. 3 (2017): 420.

[10] Luis Pablo Martínez Sanmartín, 'Tecnoexperts, perits i sistemes hidràulics: la Séquia de Mislata i les comunitats de regants de l'Horta de València al segle XV / Techno-experts, expert witnesses and irrigation

Adding to this conceptual grasping of practical expertise, this time applied to the management of the fisheries of the Venetian Lagoon in the 18th century, Solène Rivoal coined the term *expertise profane*, designating the phenomenon by which members of the ordinary Venetian *popolo* by way of repeating a certain practice, acquired ability and mastery, in this case in fishing and fish farming, developing an indispensable role in consultation and dialogue with Venetian authorities, and therefore conquering a political voice in quotidian matters[11].

Following Rivoal's point of view, this chapter therefore proposes the long- and slow-time scale, of the cyclical annual agricultural production and the exercise of justice in court cases and petitions pertaining mainly to agricultural water use. Seeking water justice, was the main driving force in the forging of technical knowledge along drainage and irrigation canals, sparking debates on water measurement and infrastructure quality according to the concrete concerns of the communities that they used. Thus, whilst treatises and reports of the high states indicated broad questions on the safeguarding of the landscape and population, whether it be the fight against the torrential rivers of the Veneto, or the concern for the tertiary fevers of the inhabitants of the city of Valencia in the 18th century, the preoccupations of the local agricultural communities and the day-to-day management of the water bodies they governed that fuelled expert consultation were rather those of the respect of a fair water distribution and the good use of shared infrastructure. The subtle exertion of power of *periti* and *experts* in the Venetian Terraferma and the Valencian *hortas* and *vegas* happened thus via quotidian tasks of justice and arbitration that were made visible with expeditions to the concerned localities where justice was required. Observation of water did not suffice, and the interrogation of stakeholders revealed a social preoccupation in better understanding water, giving birth to local units of measurement, coining terms for faulty infrastructure, and debating on the exceptional measures in cases of drought or flooding.

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systems: the Mislata channel and the irrigation communities in the fifteenth-century Huerta of Valencia', *Recerques. Associació Recerques. Història, Economia, Cultura* 69 (2014): 75–76.

[11] Solène Rivoal, *Les marchés de la mer*, 473.

The main concrete practices that we will address in this chapter have been identified in response to *pleas* or *complaints* from local actors to magistrates and courts. These responses, always in the form of visual inspection expeditions, surveillance and interaction with local managers, beneficiaries or injured parties, share a number of common traits. Firstly, in the first section of this chapter, we will pay attention to the forging of an informal social expertise before strictly technical expertise, making the acquisition of hydraulic skills a collective experience among the involved parties. Then, in section number 2, we will try to define the objects of greatest interest in these observations, where the action of reinforcing structures as dams and levees went hand in hand with the notion of common benefit among those in favour of a fiscal contribution. In section 3, following the conceptual axis between benefit and harm, attention will be brought to the different forms of measuring water devastation of agricultural goods. In section 4, we will pay attention to the creation and adaptation of units of measurement of water current used in times of exceptional drought or for the identification of illicit water use and water thefts on behalf of waterboards and courts of justice. Finally, in section 5, attention will be paid to a specific Valencian case in which the jurisdictional confusion over the use of water for agricultural purposes also manifested itself in a heterogeneous and conflicting conception of the measure used to determine the amount of water that corresponded to each of the feuding communities. In this particular micro-regional case, the abundant preservation of written sources allows us to understand how the itineraries of the agents sent by the Hispanic Crown to mediate were key to understanding a situation of triple communal confrontation: 1) the right to a fixed quantity of regular water versus an arbitrary and irregular quantity; 2) the metrological confusion of how many units of measurement flowed under visual inspection; and 3) a disagreement between the opposing parties over the validity or otherwise of the inspection according to the people who participated in it, highlighting a debate over the specialisation and legitimisation of the voices of the people involved.

In short, the main thread that this chapter follows is that of the analysis of concrete cases of communitarian water conflicts in which expert figures in water distribution and agricultural land use emerged, either by appointment and recognition of the offices and courts of government and justice of the republic of Venice and the kingdom of Valencia, or by *spontaneous* identification on behalf of the social actors involved in the conflicts, all of them members of *consorzi* and irrigation communities. It is therefore proposed that

the local circumstances of water injustice, especially droughts, floods, and the improvable state of the containment infrastructures (dykes, palisades and dams), or the distributive asymmetries of water for agricultural purposes, stimulated forms of practical knowledge that were not only merely hydraulic in the modern technical sense, but also legal and social skills that were in all vectors for the exercise of power.

1. Calibrating the social stakes of waterways: Lozzo – Este (1596)

The interrogation of the different actors involved in a situation of water injustice on behalf of courts of justice, specialised magistratures or private endeavours, often took place on the local emplacement where the scene happened rather than in the offices of the aforementioned centres of power. This was because the observation of the state of watercourses was an experience parallel to that of consulting the communities of canal users. Moreover, these expeditions were the initiative of not only the inhabitants of the places involved, but also of any person who owned, or was interested in becoming the owner of, land along the concerned waterways, often residing far from these sites, involving the organisation of relatively long expeditions and itineraries. Thus, to what extent can we say that these land and river trips were directed by the offices of the central power? Moreover, who or what interests were represented by those who collected the necessary information during these expeditions?

The region now known as the Bassa Padovana was the place where these itineraries of oral and visual information gathering were the longest, many of which departed from Venice, and were not always organised directly by the Venetian magistracies. It is worth noting a particularly detailed case of water information collection in this region in which technical experts were set up under the initiative of a group of agrarian owner partners, with the intention of interrogating users involved in water distribution.

On 13 June 1596 two boats unmoored from the canal embankments in front of the Corpus Domini church, in the southwestern peripheries of Venice's *sestier* of Cannaregio, and set sail towards the mouth of the Brenta Nova in Lizzafusina, on the shores of the Venetian

Lagoon[12]. This arm of the river Brenta, apart from being the closest source of running fresh water to Venice, was the main artery for internal navigation between Venice and its loyal *podesterie* in the Terraferma, such as Padua[13]. Aboard the boats were at least ten members of the Venetian patriciate, all stakeholders (*caratadori*), or potentially interested in becoming stakeholders (*interessati*), in a major land drainage project southwest from Padua, near the town of Lozzo (today known as Lozzo Atestino), on the southwestern flank of the Colli Euganei hills.

These men navigated the Brenta Nova until the eastern flank of Padua, where they then headed south on the Battaglia Canal, called "Fiume Novo" in 16th century cartography, arriving that evening in Este[14]. There, they were supposed to meet with members of the Gorzon canal *consorzio*, who were worried that the excess waters from land drainage

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[12] The *sestieri* of Venice (Cannaregio, Castello, Santa Croce, Dorsoduro, San Polo and San Marco) were each of the six districts into which the city was divided from the 12th century onwards: Giuseppe Boerio, *Dizionario del dialetto veneziano* (Venezia: G. Cecchini, 1867), 649; *Sestieri* and parishes were not only administrative subdivisions, but determined economic activities, forming also networks of communication and solidarity with strong civic political identities in the late Middle Ages: Dennis Romano, *Patricians and Popolani. The social foundations of the Venetian Renaissance State* (Baltimore and London: The John Hopkins University Press, 1987), 19–20; Claire Judde de Larivière, 'Senses of neighbourhood (Vicinanza) in sixteenth-century Venice', in Kane C. Bronach and Simon Sandal (eds.), *The experience of neighbourhood in medieval and early modern Europe* (Abingdon: Routledge, 2022), 48–60.

[13] On early modern Fresh water extraction and transportation from Lizzafusina (nowadays known as Fusina) to Venice: David Gentilcore, 'The Waterwheels of Lizzafusina: Technological Innovation, Patenting, and Practical Necessity in Sixteenth-Century Venice', *Technology and Culture* 66, fasc. 1 (2025): 107–33; through reading *The Merchant of Venice,* we can conclude that even the Shakespeare, who never travelled outside England, knew that this branch of the river served as the main artery between Padua and Venice: Catherine Hatinguais, 'Shakespeare's Tranect and the Traghetto of Lizza Fusina', *The Oxfordian* 23 (2021), 267–314.

[14] AE, 1-III-6, f. 2f: '1596 Zugno adi 13. Li clarissimi Zanantonio Foscarini, Antonio Longo, Andrea Tron, Niccolò Memo, Marc'antonio Valaresso, Gieronimo Zustinian e Zuane Ligamano, giudici dellegadi dall'eccelentissimo senato sopra il ritratto de Lozzo. Partirono da Venezia insieme con li presidenti et interessati et caratadori d'esso retratto per ridursi sopra loco per essecusion della parte de Pregadi 1590 qualli andarono quell giorno stesso che fu del Corpus Domini da Venezia a Este'. "Fiume novo" is the name for the Bisatto canal or Battaglia canal on a map probably made by Piedmontese cartographer Giacomo Gastaldo or Gastaldi, who worked for Venetian Magistrates in the mid 1500s, AMCE, 52, *De Acquis*, 40r.

activity in Lozzo would overrun the embankments of the river Frassine, which eventually went into the Gorzon canal. This danger had an alternative solution: deviating the stagnant waters of Lozzo towards the north, to the river Bacchiglione, instead of to the south, towards the Gorzon, and many stakeholders, such as Marco Antonio Magro and Lorenzo Priuli defended this option. In fact, Antonio Magro (or Marcantonio, or 'March'Antonio', as named in some sources), had worked as one of the main consultant experts (*periti*) of the *Provveditori sopra i beni inculti* during the calculation of the first *campatico* or *campedego* taxation campaign to pay for the digging of the Gorzon canal, observing in 1568 the benefits of this drainage project that he had started a decade earlier in 1557. Thus, we suppose that Magro, by 1596, had acquired an important reputation as a surveyor with expertise in the field of canal inspection. As for the other advocate of the idea of draining the lands of Lozzo northwards towards the river Brenta, the patrician Lorenzo Priuli (not to be confused with the doge who died in the middle of the 16th century) could have been a close relative of another *provveditor sopra i beni inculti*, Domenico Priuli, who took office in the same year in which the Magro surveys were conducted along the Gorzon, indicating familiarity with land drainage expertise[15]. This northbound solution proposed by Magro and Priuli had already been attempted before, in 1566, and the Venetian *provveditori sopra i beni inculti* had encountered fiscal resistance and poor collaboration on behalf of the local *consortes* from the southwestern regions of the district of Vicenza who, according to one of the patrician *presidenti* of the Lozzo drainage project *consorzio*, Andrea Memo, had written a report 'full of beautiful and ornate words, but without any essence and contrary to truth' ('piene di belle et ornate parole, ma senza sostantia alcuna, et contraria alla verità')[16].

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[15] ASVe, Provveditori sopra i beni inculti, 456*:* 'Presentatta la parte scritta per il nobile homo Messer Catharin Zen per nome suo et del Magnifico Contte? Borso da San Bonifacio, come presidenti della Val Granda et de consorti alla presentia delli clarissimi Messer Domenego di Priuli, Messer Jacomo da Molin et Messer Marchantonio Morexini honorabili proveditori sopra I beni inculti, che per loro Clarissime Signorie ordinati il mandato de periti nelle persone del signor Lucha Zappatti et s. Antonio Magro'.

[16] ASVe, Provveditori sopra i beni inculti, 558: 'Li artificciosi et accorti Magnifici consorti delli loci superiori del retratto di Lozzo che con ogni dilatione et artificio hanno tentato et tentano di non esser compresi in esso per fugir la debita contribution iuxta la forma delle leggi, doppo che hanno condutto Vostre Signorie Clarissime sopra li lochi a tempo che per esser tutti li scoladori et lochi inferiori vodi di acque et li terreni aridi essi suoi lochi si trovavano piu liberi da acque piozane poco avanti seguite che sieno mai state in alcun tempo dell'anno per che non ostante ogni loro artificioso proceder nel modo di mostrar essi

The stakeholders on the two Venetian vessels had therefore the memory of century-long experience of conflict negotiation in the areas north and south of Lozzo, and were ready to encounter similar situations. In fact, the patricians aboard the two boats knew about these conflicting interests, first with the *consortes* on the Bacchiglione in the district of Vicenza, and then with the *consortes* in the southerly Bassa Padovana. Given this situation, two experts in law (*avogadori / avvocati*) were also travelling on one of the two boats, accompanying a member of the Pisani family whose name is not revealed. These *avvocati*, Secondo Cremona and Flaminio Cariero, were supposed to help the men mediate with those worried about the excessive water release from the western flank of the Colli Euganei to the lower lands near the Adige[17].

Once the boats arrived in Este, the Lozzo drainage project stakeholders spent the night in Venetian patrician mill proprietor Vicenzo Gradenigo's villa in Este. Also, the rival *interessati* of the Gorzon Canal *consorzio* were staying in a different residence in the same town of Este, in Ca' Mocenigo, nowadays known as "Palazzo Mocenigo", a sumptuous palace that the homonymous Venetian patrician family had erected in the early 1500s, as testimony to the important presence of this noble lineage in this region, who at the time were financing land drainage of a large lake, Lake Vighizzolo, into the Gorzon canal. The two parties were to meet on the following day, on the of 14 June, and navigate together along the waterways of the Bassa Padovana, asking mill-owners, farmers, town

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lochi V.S. hanno veduto in piu ville, valli, palludi, marci et altri lochi bassi dannificati et sommersi dale acque. Et che io Andrea Memo, presidente tolio licentia da V. S. Clarissime et che elle erano fuori delli lochi consentiosi in Burchielo, si hanno imaginato di proveder una scrittura piena di belle et ornate parole, ma senza sostantia alcuna, et contraria alla verità (…)'.

[17] Secondo Cremona died some months after leading this fluvial expedition in 1596. He also worked as a notary, supervising the elections for the presidents of the Gorzon Canal *consorzio*, being substituted by Zambatista Tiraboscho / Giovanni Battista Tirabosco in January 1596 *More Veneto* (January 1597): ASVe, Provveditori sopra i beni inculti, 782: 'Adi 20 Zener 1596. Essendo seguita li mesi passati la morte dell'Eccelente Signor Secondo Chremona, avocato del nostro Retratto del Gorzon et essendo stà fatto intender li zorni passati la redutione à tutti noi pressidenti per far l'elletione in loco suo laqual non avendo a(v)uto effetto (…) essendo necessario che tal elletione non sia piu ritardatta noi sottoscritti presidenti elegemo per avocatto del ritratto nostro lo Eccelentissimo Messer Zambatista Tiraboscho, (…) con il salario che aveva il sopradetto Eccelente Signor Secondo Chremona.

authorities and other local dwellers their opinions on draining the waters from Lozzo southbound to the Gorzon, or northbound to the Bacchiglione[18].

On the 14th, both parties navigated the waterways south of Este, meeting at the beginning of the Restara Canal, which connected Este with the Adige[19]. At the Restara, they encountered a mill owner from Vighizzolo, Niccolò Donado, who made a drawing of the area and explained to the Venetian stakeholders that the territory had suffered a lot from floods, a situation that would get worse if the waters from Lozzo also ran south into the area. In order to illustrate how deep the waters near one of the mills on the Restara would get during floods, he said that they would sometimes be "four horses deep"[20]. Measuring altitude and depth with horses seems to have been common in the kingdom of Valencia as well. For example, the height of a bridge built in 1568 over an irrigation canal was said to be measure a 'man on horseback'[21]. Thus, the horse would have represented a sort of common reference point for everyone, a proto-unit of measurement, although, when reporting measurements of a field or structure to the magistratures, more precise units of measurement were chosen, as developed in the following pages.

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[18] AE, 1-III-6, 2f: 'Li interesadi caratadori de Lozzo erano con essi il Clarissimo Alvise Foscari con dui suo fiolli, il signor Francantonio da Mosto, il signor Zuanfranesco Liggamano, il Signor Bortolamio Malimpiero et suo fiol Giovani Vettor il signor Antonio Venier, il Signor Alvise Contarini, il signor Piero Barbarigo, il Signor Antonio Basadona. L'istesso giorno partissemo de Venezia seguitando essi signori il signor Pisani, il signor Zuan Francesco Grimani, il signor Piero Zen, il signor Secondo Cremona et il signor Flaminio Cariero avocati, il signor Gasparo, il signor Marco Antonio Magro, Lorenzo Priuli per sup particullar interesse et come president delle ville che scolano il tel Bachegion. Gionse (…) a Este li signori, alozorono nella casa del Clarissimo Signor Vicenso Gradenigo et li rappresentanti il Gorzon in Cha Mosenigo'.

[19] In a 1633 copy of a 1530s map by cartographer Hercole Peretti, the canal named Restara joined the Vighizzolo canal and then the Buel del Lovo canal, then going southbound to the Adige, between the towns of Ca' Morosini-Sant'Urbano annd Barbuglio, Hercole Peretti, *Carta del Rettrato del Gorzon. 20 Gienaro 1633 in Este*.

[20] AE, 1-III-6, 2f: 'Adì, 14, ditto. I clarissimi delegadi andorono alla Restara per montar in barcha ove il clarissimo Signor Nicolo Donado patron del mollin di Vigisuol ch'era stato citado da quelli da Lozzo fesse spiegar un desegno dilla fassa del loco et dice che solevano capitar molte aque in quel loco con quatro cavalli che tutti andavano abasso'.

[21] AMA, Acequia Real de Alcira, Pleitos, 067/3: '(…) un home a cavall podia passar per davall de dit pont sens tocar aquel'.

Further down the Restara Canal, near the town of Vighizzolo, the Lozzo drainage project *interessati* met some more stakeholders and *consortes* of the Gorzon canal *consorzio* on other boats, leading the expedition to a bridge. There, the *consortes* pointed out to the crowd of embarked patricians a continuously flowing fracture, a '*rotta continua*', on one of the embankments under the bridge, releasing water eastwards and flooding the plains south of Este. Some of the present *consortes* accused Donado of making this fracture in order to feed a small canal that powered his mill, and even requested the Lozzo canal *interessati* to demolish the structure[22]. The *avvocati* got closer to the opening, and stated that it was about three *perteghe* wide (more than 6 metres), and that the water did not flow very fast[23]. Secondo Cremona then asked who had been the builder of the canal that began under the bridge in Vighizzolo, to which the present men responded that it had been Ferigo Foscari, a Venetian patrician who rented grain and hemp spinning mills and had spent 6000 *ducati* for the building of this canal powering Donado's mill. Cremona then measured the depth of the canal with one of the boats' oars, counting approximately "2, 4 or 5 *piedi*" (from 0,7 to 1,8 m). He also appreciated the embankments Ferigo Foscari had had built, stating that they were "very strong" ('potentissime')[24]. As they kept going down the canal Foscari had built, Cremona nonetheless noted how the embankments were built more clumsily, with poorer materials consisting of loose soil ('tera cativa cativa'), and were probably closer together, as Cremona described the water current gaining speed

[22] Ib.: 'Capitando in altre barche, e quelli del Gorzon et l'agenti della magnifica communità d'Este da qualli si dimostrata una rotta alli signori in detto canale s'ando fina al pontecanal da Vigizuol ove si era una rotta continua a esso pontecanal nell'alla disotto d'eso ponte in quella de sotto volt oche pateva le aque nel canal verso Val Granda dalla Banda de Este, Val Granda (…) ora assai bassa siché si vedeva il sustegnamento che ga esso volto del ponte d'Este aqua al benefissio del mollin del Clarissimo Donado'.

[23] Ib.: 'La rotta poteva eser de tre perteche, et coreva l'aqua ma pero non con molta decaduta'. 1 pertica padovana is about 2,142 meters according to the *Tavole di ragguaglio dei pesi e delle misure : già in uso nelle varie provincie del Regno col sistema metrico decimale : approvate con decreto Reale 20 maggio 1877, n. 3836* (Roma: Stamperia Reale, 1877), 483.

[24] Ib.: 'Fu calata la bara delli signori in esso canale ove montarono essi signori et furono ciamati del Gorzon il Signor Piero Zen et il Signor Secondo Cremona, dicevano quelli de Lozzo il Signor Ferigo Foscari che aveva spessi sei mille ducati a cavar quel canal molto profundo, fu livellata con un remo l'aqua poteva esser de do, 4 in 5 piedi. Dimostro' li arzeri fatti dalle partid estera e sinistria esso Foscari dicendo eser stati fatti da lui et potentissime'. 1 *piede padovano* or "paduan foot" corresponded to 0,357m, *Tavole di ragguaglio*, 483.

at that point[25]. Foscari told Cremona that Gorzon canal *consortes* and Alessandro Gradenigo had undone his embankments, and that one of them, Cattarin Zen, who had also been *provveditore sopra i beni inculti* during the 1560s, had done a bad job ('un'opera cativa')[26].

In a nutshell, there was a clear recurrence of former members of the *provveditori sopra i beni inculti* of previous decades who were not only owners of drained lands obtained through the Venetian policies of confiscation for non-payment of the *campatico* of the Gorzon and their subsequent auction among members of the patriciate in the 1560s, but also became expert authorities in the observation of the canals, the quality of their construction, and the benefits, or lack thereof, that these hydraulic enterprises brought to the territory. Unlike other cases in the past in which magistrates sent an expert to a specific point in the Terraferma in response to a *supplica*, it is difficult to see that this fluvial expedition that departed from Cannaregio responded to an order by a particular authority. It rather seems that it arose as a somewhat informal initiative of a group of patricians who had held formal offices in the past and by then were privately interested in the Lozzo drainage project. These groups of interested parties, although predominantly patricians, constituted a spontaneous miscellany of curious travellers who expressed their opinions about what they saw *re oculis subjecta*[27]. This practice of seeing, measuring and judging was the main guiding activity of the itinerary, which departed from Este and headed, with a broader scope of destination, to the "lower lands". Members joined and abandoned the

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[25] AE, 1-III-6, 2r: 'Il stato delli arzeri era discendeno un pezzo vi era molta tera posta sopra essi ma l'in giu sempre diminuiva cossi dall'una come dall'altra parte et non era acomodata in arezere et ne era piu dalla parte sinistra descendendo che dalla destra et quando si fu piu abasso che non era terra rossa, condota dal fiume si vide (…) dalla patte destra in non in equali de terra ma terra cativa cativa (…) e coreva verso il canal con molta velosità'.

[26] Ib.: 'Dise il Foscari he li presidenti havevano levata la terra cavata da lui dalla parte destra del dito alveo et nomino particolarmente Allesandro Gradenigo (…) dise il Foscari che quellaera un'opera cativa del signor Cattari Zen'.

[27] I have taken the licence to quote this Latin expression contained in a report that is part of a Valencian court case concerning the Alzira irrigation canal, in which an expert sent by the judge calculates the distance between a dam and a bridge 'by eye'. I think it illustrates well the central practice that guided the Venetian itinerary along the waterways of Este in 1596. AMA, Acequia Real de Alcira, Pleitos, 067/3: 'lo qual dista del dit pont sequia amunt re oculis subjecta (…)'.

expedition, according to their own interests, and those who stayed longer were proclaimed *periti* and *avvocati*.

Thus, Secondo Cremona and Flaminio Cariero would become during the expedition the main references for knowledge of the local waterways not because they were water technicians, but because they interacted the most with the *interessati in loco* and did not abandon the fluvial itinerary. They not only collected information on the technical and physical aspects of the constructions along the canal and water current, but also the names and parties involved in the conflicts encountered along the way. Cremona measured current speed, depth, length and quality of the waters as well as opinions and land property stakes, and was met along his expedition by men who waited for him on canal embankments with points of view to share on water and land. His expertise manifested itself therefore not only in close observation and measurement of the waterways and stagnant water bodies but also in an understanding of the social factors that sparked strife in order to conduct better arbitration. Cremona, similar to what Antonio Magro had been in the past for the *provveditori sopra i beni inculti*, was essentially an expert in negotiation more than an infrastructural technician, exerting what Judde de Larivière called *connaissance sociale* for ordinary Venetian urban offices, thus ordinary social interaction as the main vector of specialisation and authority, rather than top-down appointment[28].

Yet although Cremona was working for the Pisani family and the patrician *interessati* in the Lozzo drainage project, he was not officially serving a Venetian institution. Indeed, there were many other cases of practices of informal expertise, such as observing, describing and measuring water and water infrastructures, that were not monopolised by modern magistracies, and it seems not even established by any formal act of contractual hiring, in the same way that Alessandra Minotto describes for the case of the medieval *pertegadori* in the peripheral areas of the Venetian Lagoon which often started a survey work in service of one party, and ended up informally serving the interests promulgated by the Venetian central power thanks to their technical and legal capacity[29]. They rather emanated directly from the local urge for justice held by regional potent parties and

[28] Claire Judde de Larivière, *L'ordinaire des savoirs. Une histoire pragmatique de la société vénitienne (XVe - XVIe siècle)* (Paris: Éditions EHESS, 2023), 50.

[29] Alessandra Minotto, 'Lavorare l'acqua e la terra', 132–33.

groups of stakeholders with shared intentions. Furthermore, requesting experts' measurement of water and the quality of contiguous terrain with either the goals of transforming barren or flooded land into arable, or the maximisation of agricultural produce of an already arable terrain, also concerned other humbler land owners, far from large patrician *consortes* such as Pisani and associates. Single households also asked for *avvocati* and *pertegadori* to estimate compensation, such as Dario Malchiavello and his wife in 1565, whose land was expropriated in order to dig the Della Pezza canal south of Vighizzolo and who were asking for a remeasurement of their land[30]. In this case Malchiavello and his wife, whose name is not revealed, independently solicited a new measurement of their land on behalf of a person with similar functions to those usually sent to the *provveditori sopra i beni inculti*, according to *suppliche*.

Thus, the information on a watercourse collected by these technical figures was often rather about the interest of the different types of social actors using the water. Moreover, beyond the interrogation of the different parties, the observation and collection of technical information on the structures was aimed at the resolution of the social conflict. This relationship between technical knowledge of the canals and embankments was seized upon by justice bodies to set themselves up as potential arbitrators in disputes. It was with this same sense that Giorgio Politi explained the birth of the *Ufficio degli Argini e Dugali*, an institution active in 16th and 17th century in charge of inspecting embankments and resolving irrigation conflicts in the plains of Cremona, southeast from Milan, on the northern banks of the Po. According to Politi, this early modern water magistrature did not originate as a technical body, but as judiciary and fiscal body ('L'Ufficio degli Argini e Dugali non ebbe originariamente carattere tecnico, bensì amministrativo-fiscale e giudiziario')[31]. Both in Veneto and Valencia, the symbiosis

[30] ASVe, Provveditori sopra i beni inculti, 558: 'Clarissimi Signori proveditori sopra i beni inculti. Essendo in execution di un mandato di Vostre Signorie Exelentissime sta perticato et estimato il terreno occupario a me Dario Malchiavello, uxore nominee, per il cavamento arzeri et marezane del canal della Pezza come nella stima appare presentata nel officio di vostre signorie clarissime le supplico per justitia vogliano terminare che me ne sia dato credito et fatto il pagamento juxta la parte de l'exelentisimo senato de 5 ottobre 1556 et reverentemente mi li riccomando'.

[31] Giorgio Politi, 'Presentazione', in Marco Bellabarba, *Seriolanti e arzenisti. Governo delle acque e agricoltura a Cremona fra Cinque e Seicento*, Annali della Biblioteca Statale e libreria civica di Cremona 36/1 (Cremona: Libreria del Convegno editrice, 1986), 15.

between technical and judicial expertise and political-fiscal power was also particularly evident when two or more *consorzi* or irrigation communities clashed over the payment for the construction and maintenance of shared or neighbouring containment structures, such as dykes or wooden palisades that contained the banks of canals.

2. Setting the price of collective benefits: the case of water-intensive rice paddies and embankment palisades

The main motivation behind these water information accounts was to try to answer two concrete questions: what were the benefits of the then current water and land situation, and what could be done to either preserve or transform it to enable or optimise agriculture? In order to respond to these questions, the state of waterways in irrigated flatlands was observed and described as benefitting or harming parties by expert figures appointed by the opposed stakeholders, such as the Venetian Patricians that requested Flaminio Cariero and Secondo Cremona to take a visual tour of the lands south of Este.

This also happened in a top-down direction, where state envoys sent by the official courts of justice and magistracies demonstrated to communities how much they were benefitting from hydraulic endeavours promulgated by magistracies. Thus, for example, in 1573, the *Provveditori sopra i beni inculti* sent experts Domenico Gallo and Bortolamio Galese to draw up a map specifying the measurements of some plots of land owned by Matteo Preguerra and other neighbours of Rottanova, west of Cavarzere, as well as estimating the quality of the crops and timber forests growing in them, and to estimate the presumed damage to the land that Mateo Preguerra and his neighbours had suffered as a result of the construction of the Gorzon canal. In the letter, these experts sent from Venice were asked to gather information from local experts who were not influenced by the petitioners in Cavarzere, in order to avoid undermining the interests of the Venetian office as the sole arbiter in such decisions[32].

[32] ASPd, Acque, 151: 'Mandato ad'Instanza Nostra rilasciato à Publici Periti dell'Offitio per estimar li danni patiti del Retratto del Gorzon. 1573. 17 Aprile. Noi proveditori sopra li Beni Inculti del Serenissimo Ducal Dominio di Venezia. Commettemo à Voi Z. Domenico Gallo perito ordinario dell'offitio nostro, et S. Bortolo Galeze, perito extraordinario in questa causa cavatià fortee che ad'ogni richiesta de s. Mattio

Bortolamio Galese of Vicenza, together with another consultant expert, the aforementioned Venetian Antonio Magro, were also centrally involved in a complex case between 1592 and 1599 that required continuous observation, measurement, and reassessment of landholdings belonging to the nobleman Count Odorico Pojana. Odorico was a member of the Pojana family, formerly known as the Paltineri, a noble lineage originally from Padua who were expelled from the city in the mid-14th century and subsequently established a seigneurial domain in the south-western corner of the territory of Vicenza, between Pojana and Noventa Vicentina, obtaining in 1510 the title of "count of Pojana" from the Holy Roman emperor Maximilian I[33]. Odorico was not only the owner of a Palladian villa built in 1549, but in 1580 he had also acquired a series of irrigated lands, some 100 *campi* (almost 40 hectares), located in the vicinity of the small village of Caselle, which he irrigated with water from the contiguous Ronego irrigation and drainage canal[34]. It seems that in 1595, the water from Ronego was not enough for

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Preguerra, et nepoti, Zuanne da Molin, et Fratelli Antonio Fava, et Fratelli, et Zuan Battista Cechin consorti et dannificati peer far l'Alveo del Gorzon, et altri loro danni, dichiariti et specificati nella loro suppplicationi, che con questo haverete copia dobbiate trassferirvi nelle pertinenze di detto retratto sopra li luochi delli sopradetti dannificati, dove vedrete, perticharete, et stimarete li danni che loro asseriscono a ver patido giusto la loro Suppliatione. Tolendo information da prattici, et esperti dalli luochi, che non siano interessati, havendo rispetto al far di detta stima di farla per quello che valevano li terreni avanti che fossero fatti li danni sopradetti et il tutto con Depositione di Vostra mano, et con giuramento rappresentarete all'Offitio Nostro, facendo ancora un dissegno con li venti misure, et qualità delli terreni, accioché per noi viste ese vostre depositioni et dissegno possiamo deliberar quanto ne parerà per Giustitia (…)'. Upon hearing the news that Domenico Gallo had died, the *Provveditori* ended up sending Andrea Magro, Ib.: 'Comettemo à Voi, signor Andrea Magro, perito ordinario dell'Offitio Nostro (…) che stante la norte de S. Domenico Gallo dobbiate in compagnia di S. Bortolo Galese, perito estraordinario, andar ad esequir il Mandato Nostro (…) insieme con missier Bortolamio Galese (…) sis siamo trasferiti in Territorio di Cavarzere (…) Habbiamo visto un pezzo di bosco di ragionee di misier Mattio preguerra e Nepoti posti nella contrà della Rotta Nova'.

[33] Franca Cosmai, *Archivio storico Fondazione Museo Miniscalchi-Erizzo. 1262 dicembre 3 - 1876 novembre 10* (Verona: Fondazione Museo Miniscalchi-Erizzo, 2019), 4.

[34] AE, 1-III-15: '1592, 23, 8bre. Copia. Illustrissimi Signori Proveditori sopra beni inculti. Sotto li 20 Giugno 1580 nell'Offizio di Vostre Signori Illustrissime fù supplicato per me Odorico Pojana, che per uso de luoghi miei di Pojana mi fossero commesse diverse acque, qual supplicazione mia al presente con proroga si trova viva nel suo Offizio e perché dalla multeplicità delle acque per me supplicate, nasceria molta dilazione alla espedicione di detta mia supplica, e desidero io rimossa ogni dilazione servirmi al

him, as he wanted to plant rice paddies on part of his land, a crop that requires much more water than other cereals that were irrigated by flooding. The count proposed to take advantage of several bodies of water in the surrounding wooded areas, both flowing and stagnant, such as several *scoladizze*, or small canals that drained the plains between the Colli Euganei and the Colli Berici hills, directing these waters towards the Ronego canal and the river Frassine, and, eventually, the Gorzon canal and the Adige, in the south-eastern corner of the territory of Padua[35]. This *supplica*, addressed in accordance with established practice to the *provveditori sopra i beni inculti*, constituted a formal request for permission to utilise the waters in question and to construct the necessary infrastructure to irrigate the count's land and to divert surplus water back into the Ronego. Although this document seems to have not survived, it was reportedly accompanied by a technical drawing produced by a surveyor in the service of the count, which indicated the specific watercourses to be diverted and the locations where canals were to be excavated[36]. It also included an estimate of 50 *ducati* for the total volume of irrigation water required. However, when *the provveditori sopra i beni inculti* sent Antonio Magro from Venice to join his Vicentine counterpart Bortolamio Galese in order to verify the claims set out in the count's petition and accompanying plan, it became clear that the

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preseente di quella parte di esse acque da me supplicate di più pronta espedizione (…) come meglio mi tornerà comodo in una mia possessione di campi cento in circa in contrà delle Caselle.' On Pojana's Palladian villa: «Villa Pojana, Miniscalchi-Erizzo, Bettero, Chiarello», consultato 11 agosto 2025, https://www.culturaveneto.it/beni-culturali/ville-venete/6866e849a8261d58aab5f812; Roberta Spallone and Michele Calvano, 'Parametric Experiments on Palladio's 5 by 3 Villas', *Nexus Network Journal* 24, fasc. 2 (2022): 287–313.

[35] AE, 1-III-15: 'però supplico le Vostre Signorie Illustrissime volermi al presente investire dell'acqua del Ronego, qual Ronego consiste così dalle fontane sue rio discendente da Lonze, come dalle scoladizze che cadono dalli prati, nominate del Bosco, e di Meledo, territorio Colognese, e che lì cavano per una chiavicha vicina alla terra di Cologna a d'altri luoghi, e di piozane, e altre acque che entrano in quelle quosismodo e di ogni augumento che li potesse avere con qualche escavazione questo per poter far risare, ovvero innegare, come meglio mi tornerà commodo (…)'. For locations mentioned, Orazio Morelli's hydrographic map is useful: Orazio Morelli, *Carta idrografica stradale amministrativa consorziale della provincia di Padova, in 12 tavole*, (Padova: Prosperini, 1882): <https://phaidra.cab.unipd.it/detail/o:268299?mycoll=o:268300>, Tav. 7; The current topography referred to is also available online in the Consorzio Adige Euganeo webpage: <https://adigeuganeo.it/il-consorzio/cartografia-del-consorzio/>.

[36] AE, 1-III-15: 'dobbiamo riveder ed accommodare il disegno fatto a supplicazione del dì 23 8bre 1592, per esso Magnifico Signor Conte sopradetto (…) pigliandole e scolandole (le acque) come meglio da periti sarà giudicato'.

situation on the ground differed significantly from the account provided by Count Odorico Pojana. The amount of 50 *ducati* appeared to correspond only to the cost of water needed for conventional irrigation, and not for the preparation of land for rice cultivation. In fact, while the irrigation of other crops typically required relatively modest infrastructure, rice paddies demanded more substantial interventions. These included reinforced embankments capable of retaining floodwater, and the installation of more robust sluice gates to accommodate larger volumes of water, drawn not only from the Ronego but also from several smaller canals in the surrounding area. The consultant experts Magro and Galese argued that a new survey of the count's holdings was necessary, and accordingly requested additional funds from the *provveditori sopra i beni inculti*. This led to multiple inspections of the land situated between Caselle, Noventa Vicentina and Pojana. By the end of 1595, they concluded that the real cost of the proposed works amounted to twice the sum initially estimated by the count. It seems that, upon realising the financial burden of the rice cultivation project, Count Pojana chose to continue with traditional irrigation, as already recommended by Magro and Galese during one of their visits[37]. However, in 1599 MV (1600 in the Julian Calendar), he reversed this decision and ultimately paid the full amount of 100 *ducati* in order to proceed with the rice fields. In that same year, the *provveditori* granted him permission to purchase the necessary water and to build the required infrastructure, on condition that he did not exploit the privilege by levying taxes on the owners of land through which the count's private conduits passed. They also warned the count against drawing excessive quantities of water, ensuring the inhabitants of the downstream communities of Caselle and Noventa retained sufficient water for the irrigation of their own lands[38]. In this case, one may

[37] Ib.: 'Illustrissimi Signori sopra li Beni Inculti, Padroni e signori come sempre colendissimi. Per debita esecuzione del mandato delle vostre Eccelentissime Signorie fatto nella persona di me Antonio Glisenti detto Magro, e a me Bortolmio Galese sotto li 21 Agosto 1595 ad istanza del Magnifico Signor Conte Odorico Pojana, che dobbiamo riveder ed accommodare il disegno fatto a supplicazione del dì 23 8bre 1592, per esso Magnifico Signor Conte sopradetto, riverente li dico aver visto l'accomodamento in esso dissegno di maniera tale che adesso si dice per uso solamente di irrigar dove altre volte si diceva per far risara, ora che cessa il voler far risara o sia da irrigar solamente li dirò che bisogna far mutazione del prezzo del qual giudizio che per una volta tanto il detto supplicante debba pagare ducati 50 (…). Data in Vicenza alli 22 Genajo. Bortolamio Gallesi.'

[38] Ib.: '1599 adì 24 Marzo (…) in Venezia. Li Clarissimi Signori Pietro Magno e March'Antonio Valaresso onoranti Provveditori Sopra li Beni Inculti, (…) esequendo la loro terminazionee de dì primo instant, hano

discern a degree of Venetian attentiveness to the interests of local communities in the region, reflecting a concern to prevent water-related conflicts between municipalities and seigneurial authorities. The consultant experts appointed by the Venetian magistrates were thus entrusted with the task of measuring and monitoring water use, as well as inspecting the infrastructure designed to manage it, in order to ensure that the initiative of a single individual did not give rise to broader collective tensions. Moreover, this intention appears to have informed the decision to appoint not only a Venetian consultant such as Magro, but also Galese from Vicenza, whose familiarity with the local landscape and with the dynamics surrounding the Pojana-Paltineri family made him particularly well suited to act as an arbiter if needed.

Another example of top-down measurement activities related to the physical conditions of the land, as well as the gathering of information from local experts regarding the interests and stakes of local societies in water management–this time prior to the creation of the *Provveditori sopra i beni inculti*–occurred in 1546. On that occasion, the ducal notary Pietro Anselmo, recognizing that the *Savi alle acque* required increased revenue to fund repairs of the Rotta di Castagnaro–a canal draining into the Adige River that was suffering from embankment failures and flooding–proposed sending two consultant experts to assess potential reinforcement measures for the canal's embankments and to promote the project locally. Once this work was completed, the inhabitants of the neighbouring village of Castagnaro would be called together with the then "rival" communities of the Polesine of Rovigo to the site to observe and assent with each other

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dato, concesso e vendurto al Magnifico Signor Contee Odorico Pojana, eredi e successori suoi, e a quelli che da lui averanno causa le acque contenute nella terminazione sudeta de dì primo del presente per servisene, giusto in tutto e per tutta la sopradetta terminazione, e questo per prezio e ammontar di ducati 100 (…) non possino in alcun tempo far edifizi, ne molini con tal sorte di acque, ma solo servirsene giusta in tutto e per tutta la presente terminazione e facendone s'intendino quelli rimaner per conto della Serenissima Signori senza rifacimento di alcuna sorte i spesa, che vi fosse adata a farli. Item che per condur le acque sudette alli predetti luoghi, e per scolar quello possi passar con la seriola per l fossi di altri e per luoghi de Beni communali, se l''accaderpa senza pagamento così di sopra come di sotto all'altre seriole in modo però che non toglia le acque ad altri particolari e passando con dette serioli per terreni de particolari persone debba pagar il fondo e rippa di quellegiusto la continnzia della sudetta parte di 6 febraro 1556, promettendo li ssopradetti clarissimi signori provveditori per nome loro e delli clarissimi suoi successori far conservar nel quieto e pacifico possesso il supplicante signor Conte Odorico Pojana delle acque, come di sopra a lui vendute'.

('rivedere et laudare'), in acknowledgement of the benefits of the construction, potentially agreeing to pay for it.

It is worth emphasising the meaning of these two aforementioned verbs, *rivedere* and *laudare*. Firstly, *rivedere* implied the direct viewing of the results of the infrastructural work by all of the actors involved in the confrontation or water feud. As for *laudare*, it rather pointed to the political intention of the Venetian magistracies to position themselves as the sole arbiters in these local practices of communitarian conciliation, an action that was carried out locally by dispatched third party notaries such as Pietro Anselmo. Indeed, *laudare* could be initially interpreted in its classical Latin meaning, which is "to praise", sharing etymology with the current Italian verb *lodare*, its Spanish form *loar*, or its English form *to laud*, among other examples[39]. However, this was not a mere collective admiration or praise of the infrastructural repair of the Rotta de Castagnaro, but a formal codified practice of formalising an agreement, of sealing the resolution to a conflict. The main dictionaries of Medieval Latin define *laudare* as a late medieval Latin legal term, meaning to approve a pact or conclude an arbitration taking an oath on behalf of the two implied parts of the conflict, as a ceremonial sealing of a truce, pact or agreement. Thus, the entry for the verb *laudare* in Charles Dufresne Du Cange's dictionary defines it as both the practice of sentencing a final discretion, or the practice of giving consent to a previous arbitration deal ('Arbitrii sententiam ferre (…) approbare, consentire (…) arbitrium, voluntas')[40]. J.F. Niermeyer's dictionary translates *laudare* in the same sense, as 'to approve of, acquiesce in a thing' as well as 'to arbitrate, to pass a judgement' and 'to agree on a thing'[41]. Of the same etymology and semantic field are the terms *laudatio* and *laudator*, the former meaning the approval of a pact, and the latter meaning the person

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[39] I thank Professor Dario Canzian for pointing out a misinterpretation I made of the Latin verb *laudare*. «Lodare», in *Il Vocabolario Treccani. Dizionario dell'italiano Treccani. Parole da leggere* (Rome: Istituto dell'Enciclopedia Italiana, 2022); Real Academia Española, «Loar», in *Diccionario de la lengua española*, *23.ª ed*., [versión 23.8 en línea], <https://dle.rae.es/loar?m=form>; Lesley Brown (ed.), «Laud», in *The New Shorter Oxford English Dictionary on Historical Principles* (Oxford: Clarendon press, 1993).

[40] Charles Du Fresne Du Cange, «Laudare», in *Glossarium Mediæ et infimæ latinitatis. Unveränderter Nachdruck der Asugabe von 1883-1887* (Graz: Akademische Druck - U. Verlagsanstalt, 1954), 41.

[41] Jan Frederik Niermeyer e Co Van de Kieft, «Laudare», in *Mediæ Latinitatis Lexicon Minus – Lexique latin médieval – Medieval Latin Dictionary – Mittellateinisches Wörterbuch*, a c. di Jan Burgers (Leiden: Brill, 2002).

in charge of approving witnesses' validity and participation of the parties involved in the agreement[42]. Moreover, a mid-19th century dictionary of Venetian legal and customary terms compiled by Marco Ferro includes a derived term in the Venetian language, *laudemio*, indicating that this was the final act of transfer of a right of emphyteusis between two parties, presided by the final lord of a feud, and that this term derived from the Latin verb *laudare*, as the lord approved the new user of the land ('Deriva questa parola del latino *laudare*, appunto perché il padrone lauda ed approva il nuovo enfiteuta')[43]. Thus, Pietro Anselmo, the ducal notary in charge of leading confronted communities was therefore a sort of sent arbitrator, a *laudator*, that believed that the conflict had to be resolved in a double manner. First, the *rotta* had to be fully repaired and re-examined by expert figures, and the opposing parties had to see and praise the new work. Second, the opposing parties would have to formalise their agreement on the spot that gave origin to the conflict, signing a sort of inter-communitarian water-truce.

Thus, *rivedere* and *laudare* in the Rotta of Castagnaro on the northern bank of the river Adige would have meant an important step not only for the technical governance of the waters by the Venetian *Savi alle acque*, but also in terms of strengthening their indispensable role within local communities as the first effective arbitrators. Indeed, many authorities had tried to settle the frequent conflicts caused by floods and the poor state of the Adige's embankments and the wooden palisades that contained them, during which the inhabitants of the northern bank of the river and the inhabitants of the southern bank accused each other of not retaining the river sufficiently or of releasing too much water into the Adige instead of draining it into other minor rivers. In fact, between the

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[42] Charles Du Fresne Du Cange, «Laudatio», in *Glossarium Mediæ et infimæ latinitatis. Unveränderter Nachdruck der Asugabe von 1883-1887* (Graz: Akademische Druck - U. Verlagsanstalt, 1954); Jan Frederik Niermeyer e Co Van de Kieft, «Laudatio», in *Mediæ Latinitatis Lexicon Minus – Lexique latin médieval – Medieval Latin Dictionary – Mittellateinisches Wörterbuch*, a c. di Jan Burgers (Leiden: Brill, 2002); Charles Du Fresne Du Cange, «Laudator», in *Glossarium Mediæ et infimæ latinitatis. Unveränderter Nachdruck der Asugabe von 1883-1887* (Graz: Akademische Druck - U. Verlagsanstalt, 1954); Jan Frederik Niermeyer e Co Van de Kieft, «Laudator», in *Mediæ Latinitatis Lexicon Minus – Lexique latin médieval – Medieval Latin Dictionary – Mittellateinisches Wörterbuch*, a c. di Jan Burgers (Leiden: Brill, 2002).

[43] I am grateful to my colleague, Matteo Rossetti for the bibliographic recommendation of Marco Ferro's dictionary: Marco Ferro, «Laudemio», in *Dizionario del diritto comune e veneto* (Venice: Andrea Santini e Figlio. Merceria San Giuliano N. 715, 1847), vol. 2, 160–61.

communities on both banks of the Adige, Castagnaro to the north and the Polesine of Rovigo to the south, this serious controversy had persisted since at least the 15th century, which the ambassadors of the Territory of Padua, the *podestà* of Rovigo, the *provveditori sopra l'Adige* and, finally, the *Savi alle acque* had tried to mitigate. It is noteworthy that the first authorities to try to settle this inter-communitarian problem between the two sides of the river were the civic and military powers typical of the Venetian Terraferma in the late Middle Ages, thus the 'ambassadors' sent by the *capitano* of the territory of Padua, who was the main figure in charge of the military defence of the Paduan hinterland, and the *podestà* of the city of Rovigo, the highest political figure of urban government in the latter city[44].

The origin of the controversy was the various *rotte* on the northern bank of the Adige, built by the inhabitants of the territory of Padua allowing the drainage of stagnant water, releasing it into the Adige. Among which the widest of these "mouths" were the aforementioned Rotta di Castagnaro and the more easterly Rotta Sabbadina, reinforced at the beginning of the 16th century by the Venetian *Savi alle acque*[45]. The inhabitants on the other bank of the Adige, those from the Polesine and the territories of Rovigo, Adria and Lendinara, saw these structures as the cause of an excessive amount of water being channelled into the Adige, threatening the dykes on the south bank with collapse and the devastation of the Polesine by flooding. The Venetian solution in this case, as it had been for the Rotta Sabbadina previously, was to reduce the width of the Rotta di Castagnaro

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[44] Ciriacono, *Building on water,* viii.

[45] Although it probably existed as early as, at least, the 15th century, the Rotta Sabbadina was enlarged and reinforced under the supervision of the *Savi alle acque* and the *provveditori sopra i beni inculti*, who appointed Niccolò del Cortivo as it main *inzegner* and cartographer: ASVe, Provveditori sopra i beni inculti, 839: 'Honorabili Proveditori sopra i Beni Inculti (…) commettemo a Voi Messer Nicolo Dal Corttivo inzegnero del offitio nostro che dobiatte transferirvi sopra il cavamento novo della Rotta Sabbadina già principiata et farette metter le (sic) comenzando da il Lago de Veschoana andando per la via piu dretta sia posibele fino al Lago della Greguola tenendovi largo de dove sboca il canal de Santa Chattarina si come vi parera per iudicio vostro fazendo chavar il detto canal dela Rotta Sabadina (…) Di Venetia alli 14 Agosto 1559'. Also see: Mauro Vigato has recently produced a very useful online Geohistorical study of the Bassa Padovana, with detailed historical explanations of digitalised cartography, including a historial overview of the Rotta Sabbadina: «Terra di cuori», ArcGIS StoryMaps, 17 June 2025, <https://storymaps.arcgis.com/stories/6dd5f789b07045e2917c5d8097a37ce1> and Valerio (ed.), *Cartografi veneti*, 167.

and reinforce it with palisades and soil, allowing the water to drain more slowly and with less current[46]. And it was precisely this work that both communities had to be convinced of, especially those from lower lands in the Polesine (Rovigo, Lendinara, Badia an Adria), by way of making them see with their own eyes, and understand the great benefit they would have to pay for[47].

Assessing the state of water and its containing structures (embankments and canal beds, mainly) therefore meant assessing these benefits and harms, encouraging the engagement of intermediary figures who not only described and measured but also led itineraries down or up waters, seeking to convince stakeholders and local dwellers of specific forms of water management regimes. These observations were frequently initiated when one of the parties involved asked either to be exonerated or to make the other party pay for the water management costs and necessary infrastructure. Indeed, communities also frequently responded to authorities that hydraulic endeavours were not worth paying for, and use of benefit and loss as an argument was present in most Venetian petitions or *supplica* asking for exoneration from paying for a given hydraulic work, as in many Valencian court cases concerning irrigation fees[48]. Although in the case of the Rotta di Castagnaro the

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[46] ASVe, Provveditori sopra i beni inculti, 839: 'Tenor Partis Seguntur Videlicet. MDXVLI. Essendo di grande Importantia à provedere che iuxta la dispositione della parte del MDIIII l'acqua dell'Adese discorri à suo cursu per la Chirola et per la Rotta di Castignaro et che la Bocca della detta Rotta di Castignaro sia redutta alla debita Largeza acciò che non si perdino le Possesioni del Polesene con infinito danno delle familia (…) per redure la Bucca della Rotta de Castignaro alla Larghezza che dispone la parte et quella bene fortificare et debba dare a fare sopra di se tutte reparatione all'incanto à persona idonea et sufficiente da esser fatta fra quel piu breve termine che potra portare l'importantia dell'opera'.

[47] Ib.: 'Et debbano gli Consorti del Polesene reddotti al numero di Vinti in su far tre presidenti, li qualli habbino ad apprenstare all'offitio nostro delle Acque via Poliza nella quale siano notati quelli del locho che per opinion loro devano contribuire alla detta spesa et per il detto offitio sia scritto alli Rettori de Rovigo, Lendenara, Abbatia, Adria et alli Rettori dove fara bisogno che debbano far publice proclamar che tutti quelli, che hano à fare in li luochi descritti in detta poliza'.

[48] There are numerous examples of this argument in *suppliche* to local authorities as well as to Venetian Magistrates: ASPd, Acque, 151, f. 16: '1481 – die X4 Junij in Rogatiis. (…) reparation et manuntentio in culmine Agerum Fluminist Atticii Veronensii est omino necessaria non solum pro benefitio particularum et subditorum, sed etiam pro universali utilitate; ASPd, Acque, 176: La spesa iuxtamente di dette reparationi et provisioni sia fatta per gli Consorti di quelli Luoghi, che sono per ricever Beneficio di tal opera (…) l'utile et beneficio dello Illustrissimo Dominio per il navigare dei fiumi della Chircuola sopradeditta et per satisfar al benefitio di voi magnifici consorti'; ASVe, Provveditori sopra i beni inculti, 456: '(…) cavamenti

documents describing the arbitration carried out by Pietro Anselmo do not include any details of the amount that the *consortes* on the two banks of the Adige would have had to pay after having *riveduto* et *laudato* the repairment work, there are other cases in which members of opposing agrarian communitarian institutions argued over the cost of the work of construction, repair and maintenance of the structures containing a canal, stimulating the intervention of experts who travelled to the site to examine the state of the dykes and palisades and deliberate on who had to pay. The material state of structures therefore was closely linked with the responsibilities of *consorzi* and irrigation communities, and these responsibilities, particularly the budgetary ones, tended to be dodged and passed around among neighbouring institutions. Apart from the great rivers that separated different jurisdictions, as the Adige did between the territories of Padua and Rovigo, another type of location where these conflicts over the payment for construction, maintenance and repair of canal structures arose in the confluences of several canals that were represented respectively by different *consorzi* or water boards.

For example, a municipal community of irrigators from the town of Callosa in the Lower Segura River valley sent a petition to the *Real Audiencia* in Valencia saying that the city of Orihuela was making them pay for a construction job on one of the town's irrigation canals from which they had not obtained any form of benefit ('non han abut benefici')[49]. This petition proceeded from a region near the southern borders of the kingdom of Valencia and the kingdom of Murcia (the latter depending from the Crown of Castile), and started a court case in which the irrigators from Callosa ended up denouncing Baltasar Blanes, a former *síndic* or irrigation board representative, who was accused by the municipal authorities of Callosa of not confirming that builders had properly completed a work in front of the water intake of the village's municipal irrigation channel, the Callosa

et arzeri per beneficio delli lochi et ville (…)'; ASVe, Provveditori sopra i beni inculti, 766: '(…) a benefitio di essi luochi con le auttorità et obligationi solite'.

[49] ARV, Real Audiencia, Procesos, I Parte, Letra S, 1001. Regarding irrigation management in this region, it is worth noting the extensive and rigorously documented doctoral thesis of Miriam Parra Villaescusa, which offers a detailed analysis of the subject: Miriam Parra Villaescusa, 'Paisaje, explotación agrícola y agua en las tierras meridionales valencianas: la organización social del espacio. La huerta y campo de Orihuela (siglos XIII-XVI)'.

irrigation canal, in 1590[50]. Blanes represented a joint community of three irrigation canals named Almoradí, Almoravit and Escorratell, which carried water from the river Segura within the city walls of Orihuela towards the coastal marshes of Guardamar, north of the salt mines and salt lagoons of Torrevieja[51]. The work consisted in modifying the structure of a mill belonging to Andreu Mas from Orihuela, and reinforcing the embankments of the beginning of the Callosa irrigation canal with wooden palisades, as well as getting rid of a sedimentary island that had formed in front of Mas' mill on the Segura. This island, which had formed also in front of the diversion dam that fed the municipal canal of Callosa, dependent from the authorities of the latter, was nonetheless still in the municipal territory of Orihuela, and therefore was a job that was supposed to be taken care of by Blanes, who represented Orihuela[52]. Yet the irrigation community of Callosa assured the Valencian judges at the *Real Audiencia* that town rivalry between Callosa and Orihuela had fuelled Blanes' obliviousness of the fact that sediment was diminishing the quantity of water that Callosa needed to irrigate its fields[53]. Later in the court case a clearer cause of the conflict was revealed, as both municipalities were supposed to pay larger wages per "man, workbench and mallet" to the labourers, and the low salaries had caused the men to abandon the construction site and walk out, leaving the job half concluded. Despite the clear reading of the incident as a case of poor pay for work and two parties refusing to raise salaries, this case also showed in detail how both parts had initiated a debate on

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[50] The court case happened between March and July 1590: Ib.: 'Die XXIII marcy anno MDLXXXX(SIC) pro parti Baltasar Blanes. IHS. Los testimonis produhidors per lo síndich de la Universitat de Callosa, coregants de la cequia de Callosa, sobre la escriptura de articles últimament per aquell posada a supplicació del síndich de les cequies de Almoradi, Almoravit y Escorratell medio juramento (…) haxí suplica Balthasar Blanes, notari síndich de dites cequies esser sentenciat y declarat, cum expensarum condempnatione partis adverse com així et compliment implorant. Die 28 mensis Julii'.

[51] A detailed description of the route of these irrigation canals can be found at: Miriam Parra Villaescusa, 'Paisaje, explotación agrícola', 257–58.

[52] The irrigation canals of the Lower Segura, their derivation dams and current uses, are mapped in Arturo Trapote Jaume, José Francisco Roca Roca, and Joaquín Melgarejo Moreno, 'Azudes y acueductos del sistema de riego tradicional de la Vega Baja del Segura (Alicante, España)', *Investigaciones Geográficas. Instituto Interuniversitario de Geografía. Universidad de Alicante* 63 (2015): 144.

[53] The municipality of Callosa even asked the judge to interrogate men from Orihuela in Valencia to see if they were conspiring against their town's interests at the viceroy's court in the last six to eight years: Ib.: '(…) VII) Item, si saben o han hoyt dir que la universitat de Callosa de sis o huyt anys a esta part ha tengut y te en la present ciutat de Valencia diversos negocis contra diferents persones y contra la ciutat de Oriola'.

different measurements for the benefit of irrigators and quantities of water flow before and after the sedimentary island had formed in front of the mill[54]. Indeed, one of the first questions posed to the different stakeholders by the court in Valencia was whether the involved parties believed that removing the sedimentary island in the Segura riverbed was benefiting Callosa or Orihuela[55]. In order to respond to this question, the authorities of Orihuela told their counterparts they knew that a lot of experts in "law, lands and waters" lived in the city who could easily visit the site and deliberate[56].

The region of the Lower Segura has mostly been excluded from this study given its distance from the court in Valencia, its arid climate, and the interference of neighbouring Castilian customs differing from Valencia's communitarian water management practices. Indeed, as proven by records studied by David Bernabé Gil, among others, the Segura is, and was, the river with the most irregular annual waterflow in the kingdom of Valencia, suffering the longest seasonal droughts and making seasonal water retention a major activity of local irrigators, who were aware that the river would run dry for almost half of a year[57]. This climatic condition differed substantially from the conditions faced by dwellers of the central regions of the kingdom or in the peri-lagoonal plains of the Venetian Terraferma. This caused the adoption of different exceptional customs and legal frameworks of water use, rather generalised in the neighbouring Castilian kingdom of

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[54] Ib.: 'declaren si saben, han entès o hoyt dir a quin preu se troben los jornalers ordinàriament en la ciutat de Oriola y orta de aquella fora del temps de les veremes, del sembrar y batre y cavar (…) si saben que al temps que es feu la estacada y parte del molí de Mas qu'esta en quin temps era y a com corrien los jornals. III) Item diguen y declaren al temps qu'es clavaven les estaques en dita estacada quants homens treballaren en clavarles ab quants banchs y ab quantes maçes'.

[55] Ib.: 'IIII) Item si saben, han entès o hoyt dir que desfer com se desfeu la isleta que estava davant la boquera de la cequia de Callosa fonch de molt gran utilitat y profit per als regants de dita cequia de Callosa'.

[56] Ib.: 'Et dix (…) que té noticia (…) que en la present vila i ha advocats y procuradors práctichs e intelligents per (sic) ayguas y terres y heretats'.

[57] David Bernabé Gil, *Tierra y sociedad en el bajo Segura (1700-1750)* (Universidad de Alicante / Universitat d'Alacant, 1982); David Bernabé Gil, 'Regadío y transformación de los espacios jurisdiccionales en el Bajo Segura durante la época foral moderna', *Investigaciones Geográficas (España)*, fasc. 53 (2010): 63–84. On the history of landscape transformation and adaptation of this region to irrigation, Manuel de Gea Calatayud, 'Los regadíos de la huerta histórica de Orihuela', in Trino Ferrández Verdú and Emilio Diz Ardid (eds.), *Historia natural de la huerta de Orihuela* (Orihuela: Ayuntamiento de Orihuela, 2015), 215–49.

Murcia, by which water for irrigation in the dry season was privately owned (and not possessed), and bought by individuals or small enterprises of landowners in market auctions[58]. Because of the region's distance from Valencia, most court cases were taken care of by royal courts in the city of Orihuela, the only site in the kingdom apart from Xàtiva and Valencia to welcome sessions of royal justice.

Nonetheless, this court case from 1590 is an archival anomaly quite worth including for three reasons. First of all, because the town of Callosa is almost 160 kilometres south of the now demolished Royal Palace of Valencia, and only eight kilometres away from the royal courts in Orihuela, yet it still decided to take the conflict to the courts at the largest city in the kingdom. Second, it describes a procedure that is rather archetypical from the central regions of the kingdom, involving irrigation communities directly against municipal authorities. Last and most importantly, it linked the notions of collective benefit and observation of the quantity of water in a given infrastructure, as well as the latter's quality of construction. All of these reasons therefore link technical observation with benefit and budgetary duties.

In anticipation of conflicts between different communities, such as those that occurred in the embankments of the Rotta de Castagnaro on the Adige, or those of the irrigation and mill canals of Orihuela and Callosa on the river Segura, government magistracies and local communities inspected the state of infrastructure, attempting to better estimate the final price. In other words, the projected budget of infrastructure construction, repairing and maintenance was measured by political authorities also by means of consultant expert observation.

Thus, measuring the quality of maintenance of embankments had also stimulated three decades before the Rotta de Castagnaro concord, in 1552 the creation of a "general canal digger" for the river Adige ('cavarzerano general dell'Adese'), sent by the *capitano* of Padua to assess the quality of the northern embankments of the river after a period of

[58] Guy Lemeunier, 'Gestión pública'; María Teresa Pérez Picazo and Guy Lemeunier, 'Los Regadíos Murcianos Del Feudalismo al Capitalismo', in *Ib.* (ed.), *Agua y Modo de Producción*, (Barcelona: Editorial Crítica, 1990): 150–187.

floods[59]. The *capitano* of the Territory of Padua then quoted the first report of the *cavarzerano generale* in 1552, saying that most of the *pennelli* or aligned logs that were ready to be used to reinforce the embankment had rotted, and that the expert suggested discarding those logs and buying new ones from the territory of Verona, outside the limits of the *capitano*'s jurisdiction. In fact, this report is not conserved today, and it is only cited by the *capitano* of Padua in a letter to the Venetian doge, Francesco Donà, who died the following year, 1553. In this letter, the *capitano* asks not only for permission to use logs from a different jurisdiction, Verona, but furthermore asks the doge to pay for it, as the river Adige is of general interest to the *Dominio*, and that the cost of the danger posed by the rotten logs in the embankments was much higher than the cost of new logs, which the *cavarzerano* had calculated at "not higher than 70 or 80 *ducati*"[60]. The *capitano* furthermore reminded the doge of a law deliberated in the Venetian senate on 8 October 1530, by which the Serenissima's arks were to take care of the Adige's embankments[61]. We have failed to find this law, but it coincided with the year of creation of the *provveditori sopra l'Adige*, two magistrates appointed by the *capitano* of Padua to oversee and care for the state of the northern embankment of the river and also produce information for the Venetian *Savi alle acque*. The letter to Francesco Donà, as in the case

[59] This term designating a technical authority in charge of canal maintenance and distribution is mentioned for the first time in late medieval communal statutes of southern Veneto and the Duchy of Ferrara, as seen in Salvestrini, *Water and the Law*, 25 and 36. For more details on the the functions of the *cavarzerani*, see chapter 5, 308.

[60] ASPd, Acque, 84: '(…) Il cavarzeraro general dell'Adese è stato alla presentia della Signoria Nostra et ne ha fatto intender che li agenti di quell fedelissimo territorio nostro hanno comprarà una bona (sic) de legame nel Veronese per far reparar li penelli et arzeri dell'Adese che sono del tutto rovinati et destrutti et per derredar che nella prima crescente dell'acqua le campagne et seminati del paese non se irregano essendo ditti penelli in manifesto pericoli di far qualche gran rotta et che vogliamo far provisione del dannaro che bisogna spender nelle megistranze et ferramenta che occorerà per ditti perelli, essendo noi informati che innesta sorte de spese è stata sempre fatta delli danari de quella camera et che non eccederà la suma di ducati 70 fino 80 (…) Considerata circa l'importantia de questa materia et a fine de la Sua Honestà non manchi di quello che è solit'à fare et chel legname già preparato non se marcisca, havemo volute far in queste'.

[61] Ib.: '(…) et vi commettemo col senato antedetto che sicome hanno fatto tutti li vostri precessori dobbiate spender li ducati ottanta di ogni sorte de dannari di quella Camera nostra obbligati per questo consilio come etiam fu deliberato il anno 1530 alli 8 ottobre et redareti arrive della essecutione, et de che sorte de danaro haveresti speso, accio sepossiano far conciar le parti de dove bisogna'.

of Callosa against Orihuela, showed how expertise on the quality of embankments, and the calculation of hydraulic benefits and dangers to a community, was asserted by local authorities, and eventually responded to pecuniary matters on the ordinary maintenance of structures. In other words, harm and benefit were calculated by examining and remarking on the physical aspect and the movement, or lack of movement, of water bodies, afterwards setting a price. As seen in the previous chapter on the ordinary functioning of the Venetian *provveditori sopra i beni inculti*, communities of stakeholders claiming that the projected benefit had not reached expectations were not a new phenomenon pertaining only to practices of water depth measurement and observation of water bodies, but extended to a broader rhetoric that fuelled most *suppliche*. The situation was slightly different when concerning climatic variations and exceptional conditions, which was another factor that stimulated the development of water knowledge and water measurement.

3. Measuring water adversity and devastation

As in the arid Lower Segura, the urge for water justice and measurement of benefits and losses was even more present in times of floods and droughts, and experts acknowledged catastrophe as a conditioning factor. For instance, in 1568 the *Savi alle acque* were very critical with the *Provveditori sopra i beni inculti* in a session at the Venetian senate, stating that torrential waters from the Gorzon canal had not only affected the Lagoon near Chioggia, but had also flooded arable land in the district of Conselve, north of Anguillara, sending experts in law, *avvocati* like the aforementioned Cremona, to calculate and compensate for property losses in this region, and even asking the *Provveditori sopra i beni inculti* to obstruct the mouth of the Gorzon[62]. Similarly, in 1566,

[62] ASVe, Provveditori sopra i beni inculti, 780: '1568 adi X Agosto in Pregadi. Si è veduto per vera esperientia ch'el danno grande che dal 1557 há havuto la Laguna Nostra di Chiozza et la navigation di Lombardia è preceduto al Taglio de l'arzere del Gorzon fatto senza deliberatione d'alcuno delli consegli ò collegi nostri (…) è cosa certa che (…) non sarianno successi li predetti danni che il Conselvano paese cosi fertile como è nato à cadunno di questo conseglio haveria tante inondationi quante ci sono state da alcuni anni in qua et ci sono tuttavia con danno grandissimo dell'interessati li quali danni ogni giorno si faranno maggiori se l'acque correreanno di quel modo che fanno al presente, (…) in questo conseglio gl'interessati nel Conselvano et gl'interessati nel Gorzon con li loro avocatti giusta la deliberation presa a cinque del

fiscal *perito* Sebastian Brani was sent by the Venetian *provveditori sopra i beni inculti* to Anguillara after a period of floods that deteriorated and caused the fracture of the embankments on the Gorzon canal. He had to calculate the losses in crops and material goods of the shareholders in order to pay them with compensation, yet he obliged them at the same time to prove their property or share of the concerned flooded lands[63]. In these cases, measuring water had an underlaying intention of conducting an economic calculation of losses, essentially concerning landed goods (crops and real estate). Yet, despite having the *periti*, *avvocati* and *pertegadori* write to the magistrates assuring that these calculations were made, the latter are usually not found as responses to single land owner petitions, resulting usually in general descriptions of devastation. It is true that for the case of the Gorzon canal drainage campaign, closer records were kept on strictly monetary matters, such as who had paid the *campatico* tax and who still had to, concerning the nature of the crops planted and produced, responding to the higher fiscal stakes that the Venetian patriciate had in the area[64]. These lists of debtors and producers do not include exemptions in case of flooding, apart from the responses that the *provveditori* gave, mainly to larger collective communities such as Anguillara.

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presente mese in esse consiglio, (…) che li proveditori nostri sopra i beni inculti dal detto giorno in qua non hanno potuto fare alcuna qualuncque minima provisione per effetuar quanto è predetto però l'andera parte che per authorità di questo Conseglio sia comesso alli predetti proveditori sopra i beni inculti che nel termine di mesi doi prossimi (…) che debbano faver fatta serar la bocca del Gorzon'.

[63] Ib.: 'Havendo io Sebastian Brani fiscal et esator fedelissimo di Vostre Signorie (…) per debita obedientia veduta la scittura presentata per quei dell'Anguillara sotto'l giorno di hieri intorno alla restaccion di danni che essi asseriscono a ver patito nei fondi tra l'Adice et Gorzon per causa del taglio di detto Gorzon dico riverentemente essa scrittura sive composition per le cause molto ben note a Vostre Signorie Clarissime potersi abbracciar con questo però che cadaunno di essi particolari dannificati siano tenuti avanti che siano fatti creditori presentar i loro particolari acquisti, giusti titoli o vero quelle altre chiarezze che possano far certo l'officio essi esser i veri et legitimi patroni di detti fondi dannificati'.

[64] A late example of this type of source concerning the Lozzo deviation canal, which is summarised in lists of handwritten declarations by each landowner of having paid the *campatico* and of the type of main crops he cultivated on each of his plots, is one from 1599 preserved in the archives of the Consorzio Adige Euganeo in Este, relating to the construction works of the Francazan canal, a paralell smaller canal that went from the town of Albettone, in the territory of Vicenza, to Vo' Vecchio, just north of Lozzo: AE, 1-III-7: '1599. Campadego sopra Beni che colano nel condoto Francazan (…); for example: Posiede li eredi del signor Gierolemo Repeta in contrà d'il Bogognolo campi 3 prativi et un paludoso (…) ducati 393'.

In case of the other catastrophe, drought introduced exceptional measures and measurement, and there are scarcer traces of *periti* measuring scarcity in Veneto. This situation was in clear contrast to the central regions of the kingdom of Valencia or, especially, the Lower Segura valley, where irrigation adapted to periods of drought, although, as discussed in previous chapters, drainage and land reclamation also constituted an important part of irrigation activities in areas of lesser relief, such as the *vegas* or coastal plains after periods of flooding and intense rainfall. Yet, being a smaller problem than "draining the stagnant waters" (*scolare le acque morte*) in lowlands as the Bassa Padovana during the rainy late 1500s, irrigation conflicts emanating from drought in Veneto mainly concerned the higher plains of Treviso, from the river Sile to the Montello and Mount Grappa pre-alpine ranges, and this drought was not induced by low atmospheric precipitation but rather by karstic terrains with fast runoff and low retention. The communal deliberations of the *Ufficio alle Acque*, conserved in the State Archives of Treviso, mention measures of water involving concessions to villages going back to 1441, and most of them concern retention and distribution of water for both human and animal consumption as well as for irrigation[65]. In 1503, the *podestà* of Treviso, Marin Salomon, admitted that scarcity was the main problem of his subjects' lands, and stated that water was 'the very necessary element' ('el necessarissimo elemento') that was lacking[66]. For instance, Salomon and the *Ufficio alle Acque* of Treviso ordered the towns of Ries, Godego, Vallà and Salvarrosa to build an irrigation canal from Spineda to Castelfranco that derived waters either from the Brentella coming down from Pederobba and thus from the left bank of the river Piave, or from the westerly Muson creek, which flowed from behind Mount Grappa range, recognising that that the territory had to "drink" ('beverar')

[65] ASTv, Comune, 609. Unfortunately, most of these deliberations are copies of the late 1700s, the original of which are not conserved, or are undergoing restoration and therefore cannot be consulted at the moment. In fact, according to some public catalogues of the Veneto Region, the archive of the Ex-consorzio Brentella of Pederobba conserves many original deliberations of the *Ufficio Alle acque* of Treviso, as well as of the council of the *podestà*, but these are not currently available for consultation given their state of preservation and that they are undergoing restoration and reordering.

[66] ACP, Libri Rossi, 1E, 121r: '(…) di quanta utilità et profecion sia el necessarissimo elemento dell'aqua à questo territorio Tarvisano et di quanta bellezza et fertilità saria et al dicto territorio nelli luoghi Dove discorreno le aque (…)'.

and that those towns suffered "much from aridity and dearth" ('tanta aridità et penuria')[67]. The authorities from Treviso gave these communities the full freedom to divert as much water as they needed, taking "the portion of water that they judged best" ('la parte che li parerà'). In other words, from the harsh situation of drought emanated a more generous political concession of water. Therefore a paradoxical situation arose: on the one hand, the severe conditions of water scarcity stirred compassion in rulers who granted water privileges, making water no longer *giurisdiction del dominio*, as stated in the foundational statutes of the *Provveditori sopra i beni inculti*, but instead a particular asset belonging to communities struck by thirst; on the other hand, Treviso's authorities' grant of *grace* to the local communities made the latter decide by themselves how much water was needed, pointing to the rhetoric manufacturing of a pact of hydric generosity in exchange for fiscal loyalty. It could therefore be deduced that given that Ries, Godego, Vallà and Salvarosa

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[67] The *torrente* Muson is a watercourse that flows from behind the Monte Grappa range and has been subjected to numerous modifications. Before the 19th century it divided itself near Spineda, one arm flowing into the Marzenego, which went into the Lagoon south of Mestre, and another to the Brenta Vecchia, flowing into the Lagoon in Lizzafusina. "Torrente", both in Spanish and Italian, and as the English etymon suggests, usually refers to a torrential and seasonal gully, similar to Spanish *barranco*, Catalan *barranc* or Arabic *wādī*. Nonetheless, in the case of the Muson, I have translated "torrente" as "creek" since, despite suffering high season floods and fluctuations, the flow of the Muson was more constant than in other *torrenti* and *barrancs*, where the bed is seasonally dry and completely exposed to the air, as in the Carraixet gully in Valencia. In fact, in medieval and early modern sources, the Muson is described as a river, with a clearly identified source next to Asolo and considered since the middle ages as the border between the territories of the communes of Padua and Treviso: Raffaele Roncato, 'Acque e insediamenti: sinergie sovradistrettuali fra Muson e alto-Sile (secoli XII–XIV)', in Dario Canzian and Remy Simonetti (eds.), *Acque e territorio nel Veneto medievale* (Roma: Viella, 2012), 41–42; For a map of the medieval course of the Muson: Ib., 56. The fact that the authorities in Treviso let the dwellers of these towns to deviate water from the Muson also suggests that the quantity of water that it carried was substantial, meriting being called a "creek" rather than a "gully". Concerning the names of the villages that were to build the irrigation canal, Ries is nowadays known as Riese Pio X (Pope Pius X was born there in 1835), Godego as Castello de Godego and Salvarrosa as Salvarosa, being the latter a rural district of the municipality of Castelfranco Veneto. ACP, Libri Rossi, Cap. 33, 127r-127v: 'Et perché la intention della Illustrissima Signoria Nostra et de tutta questa Magnifica Comunità, è che tutto il territorio Trevisan per il bisogno suo debba haver de dita aqua saltem per beverar. Perhò essendo le ville de Ries, Godego, Vallà, et Salvarrosa molto bisogno de aqua et tanta aridità et penuria, che più dir non si puol, volemo che à spese de ditte ville sia fatta una seriolla appresso il Mollin de Misser Zuan Antonio da Proisco, ovver appresso la Cassa de Signor Nicolò da Spineda, aut dove meglio parerà alli Magnifici Rettori deputadi qual habbia condur quella parte de aqua parerà a loro per servir à ditte ville tanto bisognose'.

had to divide and portion running water by themselves, they also had to deliberate among themselves on local forms of measurement of this portion of granted water.

In this 1503 case, any information on the quantity of water from the Brentella or Muson taken by these towns is obscure, yet it was not common for authorities to allow an unlimited portion of water[68]. In this sense, Raffaelo Vergani notes an important imbalance between the quite low rate of irrigation concessions on behalf of Treviso's *Ufficio alle Acque* as response to *suppliche* and the number of water thefts committed along the Brentella canal in the mid-1500s. He furthermore explains, as we have verified consulting water theft accusations conserved in the Consorzio Piave archives in Montebelluna, in the current province of Treviso, that the majority of these thefts were motivated exclusively by irrigation needs and not human and animal water consumption, and were committed by puncturing the embankments with *boccaroli*, suggesting a disproportional preponderance of human and animal consumption vis-à-vis a rather underrepresented irrigation[69]. From the point of view of the punitive hegemony of the communal authorities of the *podestà* of Treviso over the Venetian authorities, these highly disproportionate figures between human and animal consumption of water on one hand and irrigation on the other not only evidently respond to a period when the retention of sufficient water for both population and production was an urgent economic problem, but also explain an autonomous functioning of water justice in this territory at the height of hypothetical Venetian centralisation of water under the *Savi alle acque*. In fact, for the period of 1501-1520 all of the *denontie* were exclusively reported to Treviso's *Ufficio alle Acque*, and not to the *Savi alle acque*, the Venetian magistracy it supposedly to depended from since 1501 (*Fig. 16*). It was at the *podestà*'s palace in Treviso that transgressors were judged

[68] Nowadays, satellite images show a traceable ditch with running waters near these towns, although we cannot conclude that it was the one described in the 1503 concession. Indeed, the original medieval system of *brentelle* fanning out from the Piave has been deeply modified by 19th century and 20th century hydroelectric plans, and many of the capillary *brentelle* have either disappeared or carry just a tickle of seasonal waters (the main Brentella canal still exists but carries a larger amount for powering hydroelectric plants). Given this current situation, it is difficult to conclude that this ditch carried the same amount of water as in the 1503 concession.

[69] Vergani, *Brentella*, 209–18.

and set a fine to pay, and there is no archival record in Venetian archives that any of these practices were later reported to its magistracies[70].

Thus, at times when water devastated the economy and the habitat of societies, either through abundance or absence, timid mechanisms of clemency and safeguarding were activated by the magistracies and governing bodies. This rhetoric of indulgence, seeking political loyalty in exchange, not only manifested itself in the forgiveness of taxes or monetary contributions, but also led to an intensification of expeditions of consultant experts to the flooded or bare places to calculate damages and losses and to interrogate the victims. Paradoxically, however, there was an intensification of the exercise of punitive power, through which an attempt was made to prioritise one use of water, such as human and animal consumption, over another use, such as irrigation. This punitive function also entailed a task of observation and measurement, not only from the point of view of surveillance, but above all from the point of view of measuring distribution among the different communities of water users. In other words, either the economic compassion of water authorities in times of catastrophic exceptionality manifested itself, on the one hand, in the concession of 'la parte che li parerà', or what in Valencian irrigation was called *aigua de gràcia*, constituting a vague and charitably undefined portion, or, on the other hand, in the greater control of the portions of water assigned to each user and the uses they make of it, in the case of drought, and greater control of the real causes of economic and material losses, in the case of flooding.

4. Adapting to the flow. The manufacturing of units for measuring water current

Bearing in mind that the campaigns of observation and measurement of watercourses, both within the *consorzi* and irrigation communities, and on behalf of central magistracies

[70] I am grateful for the advice of Prof Tanja Skambraks at the ESSHC Congress in Leiden, who asked me about a possible calculation of the monetary income from fines related to these *denontie*. By reconsulting these sources of denunciations of the *Ufficio alle acque* of Treviso, I have noticed that very few of them mention the exact amount of the fine imposed, which was probably imposed later in the *palazzo del podestà*. In order to make such a calculation, it would probably be necessary to consult the deliberations of the communal council of Treviso, preserved in the State archives of Treviso.

and justice apparatuses, were articulated around the notion of the social benefit of their users (seen as *stakeholders*), the following questions must then be asked about the terminological *outillage* employed during the practices of water measurement and water benefit. Thus, attention will be drawn to a hypothetical creation of units of measurement of water flow used during these campaigns, and we will try to answer whether these units responded to a fixed and abstract quantity of flow, as would be the case today in our metric decimal system, or whether, on the contrary, they were flexible and variable concepts that depended on the place, seasonal water regime, water use and social stakes involved during each single survey.

a) *Boccaroli*, *fori tondi* and *oncie* in 15th century Treviso

The *denontie* received and treated by Treviso's *Ufficio alle Acque* generate repetitiveness of the term designing the orifices on the embankments through which the theft was committed, suggesting recurrence and a structural similarity between each single case, mainly because thefts were mostly committed by individuals on communal parish lands. Indeed, it could be that this term, *boccarolo*, which designated the illicit holes in the canal embankments of the territory of Treviso, represented a given size or at least a proportionality that would roughly identify them by their size, as etymologically they would be a diminutive of *bocca*, implying that they were all of humble proportions and permitted the irrigation of rather small pieces of land. Indeed, an 1877 conversion table includes a measurement unit for liquid capacity, the *boccale*, which, also meaning "pitcher" in current Italian, according to the main etymological dictionary of the Italian language derives from *bocca*, just like Treviso's *boccaroli*[71].

Still, despite we can deduce that these *boccaroli* reported along the Brentella Canal were of similar sizes given the similarity of the reports and their fines, it would be far-fetched to assume that a 15th century term represented a unit of measurement that is convertible to the current metric system by essentially linking it etymologically to the name of a 19th

[71] The referred conversion tables were produced by the Italian Ministry of Agriculture, Industry and Commerce in 1877: *Tavole di ragguaglio dei pesi e delle misure*, 733; «Boccale[2] - Significato ed etimologia - Vocabolario», Treccani, consultato 6 marzo 2025, <https://www.treccani.it/vocabolario/boccale2/>.

century unit of measurement. Moreover, historical milling terms from before the 19th century suggest that *bocca* did not represent an opening of any specific dimensions, but simply a generic aperture with a spout. Thus, Claudio Grandis, in a detailed glossary of historical milling terms from the lands around the town of Battaglia Terme, in the south-eastern area of the current province of Padua and along the Battaglia canal, makes this distinction between a generic meaning of *bocca* as a simple physical element of variable dimensions that fed a mill's chute, and other terms, such as *quadretti* (square-shaped *bocche*), that did represented specific dimensions, which, despite varying regionally, corresponded all to fixed quantities of water flow. In other words, according to Grandis, *quadretti* were all *bocche*, whereas not all *bocche* were *quadretti*[72].Water current was indeed measured in very different forms depending on each region of the Terraferma, where the preferred unit of measurement was this aforementioned *quadretto*, which, according to Simone Rauch, coincided with a square hole that measured one square *piede*, which practically varied from town to town[73]. Accordingly, Grandis, states that the most employed regional form of the *quadretto* in the early 1700s was the *quadretto* from Verona, which he converted to 145,36 litres per minute[74]. Indeed, in sources relating to

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[72] Claudio Grandis, «Bocca» in 'Vocaboli di idraulica e molinari del padovano', *Battaglia Terme Storia. Battaglia Terme, un borgo fluviale tra acqua e terra* (blog), 2019, https://battagliatermestoria.altervista.org/vocaboli-di-idraulica-e-molinari-del-padovano/. Milling and flow measurement techniques were also closely related in Valencia. According to some authors from the 18th and 19th centuries, milling also stimulated the creation of local units of measurement for water flow, which, like the *quadretto* of Verona, would eventually be adopted by irrigators, farmers and other broader uses of water. The aforementioned Antonio José de Cavanilles, by way of etymology, linked a unit of waterflow measurement called *mola*, to the supposed amount of water needed for a millstone to turn completely, but, as Ferràn Esquilache Martí states, it is difficult to support this explanation as, since the quantity of water needed to move a millstone depends on many other very variable factors, such as the slope of the water chute, the diameter of the millstone, its weight, etc. Ferran Esquilache Martí, 'La "Fila" de agua valenciana y otras medidas de aforo. La verdadera naturaleza de un sistema de medición de caudales de origen andalusí', *Espacio, Tiempo y Forma: Historia Medieval, Serie III*, 34 (2021): 310.

[73] I am grateful to Rachele Scuro for her knowledge and help on the subject of water flow measurement in the Early Modern Terraferma; Simone Rauch, 'The role of water: A multi-purpose resource', in Deborah Howard (ed.) *The Proto-Industrial -Architecture of the Veneto In the Age of Palladio*, (Roma: Officina Libraria, 2022), 68.

[74] Grandis, «Quadretto» in «Vocaboli di idraulica e molinari del padovano». I gather that the fact that Grandis includes time as a factor in calculating waterflow corresponds to what was said to be the *quadretto* when it ceased to be used as a measure well into the 19th century, when the Italian state promoted

the selling of water flow to mill owners in the hinterland of Verona by the Venetian magistrates of the *Savi alle acque* or the *Provveditori Sopra i beni inculti*, *quadretti* were quantified, measured, granted, bought and sold. For example, in December 1560, Bortolamio Reggio, a citizen of Verona and owner of a mill, purchased two *quadretti* of the Fibio River, a tributary of the Adige, from the *Provveditori sopra i beni inculti* for the price of 200 ducats, 165 of which were paid in August 1561 to Pompeo, a man whose surname was not included but who was described as an *inzegner* for having measured the irrigated fields next to the Fibio ('per haver perticà li campi') and for having measured the size of the *bocche* through which the sold quantities of water, measured in *quadretti*, flowed ('misurare le boche')[75]. With this last example, it is clear that *bocca* referred to the physical element, and *quadretto* to the quantity of water measured by Pompeo, and sold by the Venetian office. This mensurable, quantifiable and transactional character of Veronese *quadretti* cannot be applied to *bocche* and *boccaroli* as hypothetical units of water flow measurement in Treviso.

The hypothesis of the term *bocca* as a unit of measurement is further disproved when consulting its meaning in fields other than milling or hydraulics. Thus, Giuseppe Boerio's dictionary of Venetian language includes similar terms which do not point to there being an element of fixed or proportional dimensions that was used to measure water flow. Thus, Boerio mentions the Venetian nautical term *bocaròli di saorna* as the row of small cavities located parallel to the keel of a boat and slightly above the waterline, which allowed the water that seeped into the vessel to drain. He also mentions the term *bocariol del camín*, to designate the hole in a chimney through which smoke could escape, the

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standardization of units of measurement, since neither the primary sources used nor the other works that mention the *quadretto* in this study for the 16th century make any mention of time being taken into account as a factor. Similarly, the only way to understand that they took time into account when measuring flow in 16th-century Valencia is when they used the expression 'from sun to sun', or rather 'from sunrise to sunset' ('de sol a sol'). Otherwise, they were just considering width of the orifice and height of the water level within the canal.

[75] ASPd, Acque, 87, f. 32: '1560. 6. X^bre. Per Bortolamio Reggio, citadin di Verona a Serenissima Signoria per conto de per conto de acqua ducati dusento per l'amontar di quadretti due di acqua del fiume del Fibio a lui venduta come appare nelli atti dell'officio (…) 1561. 9. Agosto. Offitio di Beni Inculti debe dar per casa del Bernardo Sagredo ducati 165 in contadi a Pompeo, inzegner, per haver perticà li campi che adaguano il Fibio et misurare le boche'.

term *bocariole dei muri*, as an architectural element that allowed the double walls to ventilate, preventing the retention of vapours, and the term *boccarioi di forno*, as a sort of a vent in an oven.

We can therefore assume that the term repeatedly used by the horseback watchmen (*cavalcantes* or *equites*) in service of Treviso's *Ufficio alle Acque* did not represent a fixed dimension, and simply designated small holes on the dike through which a stream of water was illegally extracted. Furthermore, *boccaroli* were quantified only when denounced along the Brentella canal, as the physical proof of a water theft (*Fig. 16*), and are not mentioned in any other type of source concerning other canal's concessions, suggesting, first, an extreme regionalisation of the term, and, second, a short periodisation of its use.

Thus, unlike some cases of water theft in the central regions of the kingdom of Valencia, where the amount of water stolen tended to be measured by irrigation communities' watchmen and by royal procurator fiscals in the event that a conflict reached the judicial sphere, there is no specific mention in the Treviso sources that these illicit denounced *boccaroli* represented a unit of measurement, or at least a measurable proportion in concrete terms. Units of measurement of current and capacity were listed and quantified in times of distribution and modification of the canal course rather than for signalling irregularities. Thus, when it was not an illicit abstraction of water, Treviso's authorities made rather proportionate and measured concessions with measured holes on the embankments, especially when the deviated water came from the Piave via the Brentella canal, contrasting with the aforementioned case of granted water from the Muson to Ries, Godego, Vallà and Salvarrosa, where the concession was generously ambiguous.

Thus, similarly to the *quadretto* in Verona, or, as we will see later in the central regions of the kingdom of Valencia with other units of measurement, the municipal authorities of Treviso used a unit of measurement that related the size and diameter of an opening on the canal embankments with the quantity of water that flowed through it when its entire diameter was fully submerged. Contrasting with the irregularity and ambiguity of the *boccarolo*, this unit was named *foro tondo tutto sotto l'acqua*, thus literally translating as

"a fully submerged round whole" (*Fig. 15*)[76]. Unlike units of water measurement used in the Bassa Padovana at the same period (the *campo* and the *pertega*) which focused in length and surface of irrigated or flooded land and which can be easily converted to current units of measurement with the use of 19th century conversion tables, there is no further information in Treviso's sources or in contemporary conversion tables on the size of the *foro tondo* that would enable a contemporary estimation of its physical proportions. What we can say is that it was a circular orifice (*tondo*), which contrasted with the *quadretto*, which was square-shaped and which, as mentioned above, at least in its 18th century Veronese form, could have been converted to the decimal metric system according to Claudio Grandis.

Despite not finding any information on the exact or approximate length of the diameter of the *foro tondo*, it is quite evident that the *foro tondo*, in contrast with the *boccarolo* and similar to the *quadretto*, did indeed represent more than just a physical object and a variably sized puncture, as *fori tondi* were quantified and divided in very precise mathematical fractions. For instance, sometime in the mid 1400s (the document is undated), the hamlet of Pozebon (nowadays Case Pozzobon, northeast from Vedelago) was granted 6 *fori tondi* of water for irrigation, whereas the neighbouring and larger town of Fossalonga received 14 and ½ of *fori tondi*[77]. Such specific fractions would only make sense when a specific unit of measurement is involved. There are no mentions of "half *boccaroli*" in the denunciation sources produced by the *equites*, as there are half *fori tondi* in the sources produced by *periti* and *inzegneri* sent by the *podestà*. And, unlike the sources that describe and measure water in the flooded lands of the Bassa Padovana and the Polesine of Rovigo, the *foro tondo* measured the quantity of water not according to the surface covered or irrigated, but specifically according to its own current or flow. In other words, the amount of water in the irrigation concessions in Treviso was measured in relation to the time it took for the water to pass through a particularly sized orifice.

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[76] ASTv, Comune, 609, 2v.

[77] Case Pozzobon and Fossalunga are currently both part of the municipal district of Vedelago, in the Province of Treviso. An undated 1700s copy of 1400s deliberations of the *podestà* of Treviso's council – this assumed by the calligraphy and by the fact that it is marked as *copia* – mentions the amounts of water distributed for irrigation of not only these mentioned towns, but also of a large quantity of towns between the Muson and the Piave: ASTv, Comune, 609, 2v-r: 'Copia. Nota Potestati et riparto delle acque per Ville infrascritte: (…) Pozebon un foro tondo tutto sotto acqua di nº 6 (…) Fossalunga nº14 ½'.

Irrigation, as well as human and animal consumption of water in regions which, like the high plain of Treviso, suffered greater droughts due to the inability to retain torrential flow, as in the cases of the Muson and the Piave, seem to have stimulated the measurement of water in relation to time, in the same way that the practice of the *turno* of Iberian irrigation was measured in concrete divisions of the canal in different proportional wholes. It seems that the *foro tondo* could be a precedent in the Veneto regarding the measurement of the water flow according to time. In this case, the *foro tondo* represented a physical container of water that is of fixed dimensions in all cases, whereas in most cases current was measured according to the variable width, depth and length of the solid infrastructural elements that conformed the canal.

Perhaps due to the lack of documentation, it can be concluded that the *foro tondo* was an innovative but minoritarian unit of measurement, since most of the water measurements during the Trevisan distributions of water used units of length. According to the records of the *podestà*'s council in Treviso, water courses in the territories north of Treviso in the late 1400s were mostly divided among communities using another unit of measurement, the *oncia* (*Fig. 14*). There is no clear information in these sources about the nature of this unit and whether it measured current and waterflow as the *foro tondo*, or other aspects of water in its stagnant state, such as volume or capacity. The *oncia* (written *onza* in the source in an orthography that is closer to current Venetian phonetics), as the English *ounce* in late 19th century Venice, according to Giuseppe Boerio, was exclusively a measure of weight[78]. This is further confirmed by naval conversion tables of units of measurement from the Venetian republican navy to current Italian marine units[79]. Yet, this *oncia* as unit of weight was frequently used to describe the weight of coins, becoming not only part of the specialised numismatic vocabulary, but also, in 14th century Venice, a new type of coin that emerged from the subdivision of the Venetian silver *ducato*[80]. The relationship between the unit of measurement of weight called *oncia* and the type of coin also known

[78] Boerio, *Dizionario del dialetto veneziano*, 452: *(colla z cruda) s. f.* Oncia, *Peso La parte dodicesima della libbra.*

[79] Marco Santarini, *Le artiglierie della Marina Veneta nel XVI secolo. Aspetti storici di impiego relativi alle armi in servizi e stima delle principali caratteristiche techniche della colubrinda da 50*, Bullettino d'archivio dell'Ufficio Storico della Marina Militare, Supplemento dicembre 2011 (Roma: Ufficio storico della Marina Militare, 2011), 23: 11 oncia = 25,1333g

[80] Tommaso Bertelè, *Moneta veneziana e moneta bizantina* (Firenze: Leo S. Olschki, 1973), 20.

as *oncia* is clear. Less clear would be a hypothetical relationship between the coin called *oncia* and the *oncie* used to measure the amount of water granted by the *Ufficio alle Acque* to the different communities on the plains around Treviso in the end of the 15th century. This confluence of a numismatic term and a unit of measurement for the quantity of water could be suggested as a hypothesis, given that elsewhere in the Italian peninsula, coins were used as a reference for measuring the diameter of conduits, and thus the quantity of water passing through them. For example, in the city of Naples, experts in the distribution of urban waters between the 16th and 17th centuries, at the service of the city's specialised magistrature in water infrastructure, the *Tribunale della Fortificazione, Matonatta e Acqua,* used different types of coins to establish the dimensions of pipes and conduits[81].

However, this unit had also traditionally been a unit of length, volume and capacity in many regions of Italy. As Ronald Edward Zupko defined the *oncia*, it indicated one twelfth of a larger unit of measurement[82]. In fact, the North-American historical metrologist identifies the *onza*, specifically written in Venetian orthography, as a length measurement in Venice and its Terraferma, with regional variations in Venice, Udine, Belluno, Padua, Vicenza, Verona, Bergamo, Brescia and Treviso[83]. Furthermore, a 1910 publication by Gustavo Boldrin on the history of Venetian cistern-wells mentions the Venetian *oncia* as a unit of measurement of length corresponding to 2.80 centimetres, an amount which is quite similar to the conversions subsequently displayed by Zupko[84]. If the municipal authorities of Treviso were referring to length for water distribution when

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[81] David Gentilcore, 'Between practical knowledge and self-promotion: situating Giovanni Antonio Nigrone and his manuscript', in Gaia Bruno and David Gentilcore (eds.), *I disegni e i discorsi di Giovanni Antonio Nigrone «fontanaro e ingegniero de acqua» (1585-1609 ca.)* (Rome: Viella, 2024), 10.

[82] Ronald E. Zupko, *Italian Weights and Measures from the Middle Ages to the Nineteenth Century*, Memoirs of the American Philosophical Society. Held at Philadelphia For Promoting Useful Knowledge 145 (Philadelphia: The American Philosphical Society, 1981), 73: '(…) twelfth part of diverse measures (…). A measure of length, measure of capacity, measure of volume, and weight throughout Italy, Sicily, Sardinia and Malta equal generally to 1/12 of some other unit such as the PIEDE or LIBBRA'.

[83] Ronald E. Zupko, *Italian Weights,* 73–74: 'LENGTH (…) (0.0284 m) at Udine, 12 linee; (0.0286 m) at Verona, 12 linee; (0.0290 m) at Belluno and Venice, 12 linee; (…) Padua (12 linee or minuti) and Vicenza; (0.0303 m) (…) Treviso, 12 linee; (0.0363 m) (…) Bergamo, 12 punti; (0.0372 m) (…) (0.0396 m) at Brescia (…)'

[84] Gustavo Boldrin, *I pozzi di Venezia, 1015-1906* (Venezia: C. Ferrari, 1910), 55. I am grateful to Professor David Gentilcore for sharing with me the information contained in this work, of which I was unaware.

using the *oncie*, they were probably referring to the width of the *partidori*, each of the division dams or weirs that initiated a *seriolla*, which were the capillary irrigation canals or portions of the main canal, such as the Brentella, that served for human and animal consumption as well[85]. The equivalences proposed by Boldrin are quite consistent when applied to the conversion of the *oncie* contained in the act of concession and distribution of the waters of the Brentella produced by the *Ufficio alle Acque* in Treviso in the late 15th century. For example, looking at *Fig. 14*, the community of Vallà would have received its share of water through a conduit measuring only 12.60 cm wide at the point of its intake derived from the Brentella, while the town of Boiago received its water in a canal more than one metre wide at its beginning.

However, we cannot deduce that the meaning of the *oncia* in this source was essentially that of a unit of measurement of length, since there are other meanings in dictionaries and conversion tables that could refer directly to quantity of water, either its volume or its flow. Nonetheless, there is less evidence in the conversion tools cited that the mentioned *oncie* in the water distributions or *riparto delle acque* in Treviso were units used to essentially measure water. Still, Zupko and a local dialectal dictionary from the Basso Piave region, north of Venice and south from Treviso, point to a regional use of *onze* as capacity and volume units. According to the latter, the *onza* or *oncia* was a sort of pitcher used to measure oil capacity both in Rimini and in the area of San Donà di Piave, the latter situated in Veneto, in the lower course of the river Piave, where it was also used specifically to measure the volume of silk worm eggs in the local silk spinning mills. According to Zupko, the *oncia* was also used for volume measurement of manure in Salò, 25 km northeast from Brescia and on the western shores of Lake Garda[86]. Yet Rimini is rather far from the higher plains of Treviso, and the *oncia* from Rimini corresponded to a very small volume (0.0315 litres), which would be absurd to employ to measure the

[85] Vergani, *Brentella*, 64–79.

[86] Zupko, *Italian Weights and Measures from the Middle Ages to the Nineteenth Century*, 74: 'CAPACITY -- (0.0315 l) at Rimini for oil. VOLUME -- (0.2015 cu m) at Salò for manure';Gian Carlo Ruffato e El Solzariol. Associazione Storico-Culturale di San Donà di Piave Gruppo, *Dizionariet del dialetto del Veneto Orientale: «Da 'ndove nasse 'e paròe»* (San Donà di Piave: Digipress Book, 2023), 33: 'ÒNZ(S)A = oncia, unità di misura usata per l'olio, ma soprattutto per i bachi da seta (cavalieri) : circa 1000 uova di farfalla, (crisalide) da cui nascono i bachi, dal lat. unciam = piccola quantità o quantità di cose piccole, la dodicesima parte di un asse, o della libbra'.

volume of irrigation canals. Therefore, discarding Rimini, we can trace two possible connections between the *oncie* employed for water distribution and the *onze* of capacity and volume used in San Donà di Piave and Salò. The first connection could have been simply a matter of geographical vicinity, as San Donà di Piave was downstream on the same river from which most of the water of the higher plateau of Treviso was extracted (excluding the Muson, which flowed instead from the Mount Grappa pre-alpine range).

The second connection, with Salò, could be explained by the geographical origin of many of the men in charge of coordinating the design, the building, measurement and inspection of the municipal canals and waterways in the *Alto Trevigiano*. For instance, the *Ufficio alle Acque*'s *provveditori*, Venetian patricians Gasparo Malimpiero and Bartolomeo Contarini, under the authority of the *podestà*'s council in Treviso, ordered in 1519 the appointment of two *inzegneri* and *livelladori d'acque* from Brescia and Bergamo to visit and inspect the state of the lands along the Piave, accompanied by as many experts as they thought they needed at expenses of the city council. If this report was well done, Treviso's council, would vote the best of the *bresciani* and *bergamasco* water experts by *bossoli et ballote*, appointing them for a second job concerning water deviation from the Brenta for irrigating the lower plains of the Trevigiano, thus the districts of Bassano del Grappa, Cittadella, Castelfranco and Noale[87]. This connection with eastern Lombardy

[87] ASTv, Comune, 609: 'Copia) 1519: die 26 Martii in Rogatis. Havendosi à deliberar la materia dell'Adaquation delle campagne del Trivisan cioe del loco dove s'habbi à traher l'acqua della Piave opera di tanto benefficio et pubblico et privato come ognium aferma et essendo stà mandà per tal effetto per inzegneri et livelladori di acque da Bressa et da Bergamo parte de quali sono gionti et li altri s'aspettano di hora in hora le ben conveniente ch'el si proveda ch'el vadi à tal essamination et consultation do notabili zentilhomini (…) li quali possano provar che tutti procede con quella rettitudine et perfection che si desidera et posino far relation alla signoria nostra di quanto si va visto et consultato per ben deliberar la matteria predetta per questo conseglio et però l'andera parte che per auttorità di questo conseglio predetto sii datto facultà al colleggio nostro di poder à bossoli et balotte far election deli dó predetti da esser elletti d'ogni loco, et offitio quali vadino in Trivisana et menino con se inzegneri et quelli che li parerà vadano a spese della signoria nostra con quella comission lì sora detta per esso colleggio et spediti veramente in Trrivisana andar debbino poi à veder et consultar etiam il modo di adaquar con l'aqua della Brenta le campagne di Bassan, di Cittadella, di Castelfranco et de Noal et non possi esser elletto alcun che habbi possession, molini (…) né altri edefitii da aqua nelli territori predetti. (…) die 23 supradicta. Signanter Gasper Marinpetro et Bortolameo Contareno, commissio Nob. Virorum Gaspero Maripetro et Bortholomeo Contareno provissorum super adaquatione campanee Territorii Tarvisini'. See also Salvatore Ciriacono, *Acque e*

happened vice-versa, as exemplified by the case of nobleman from Treviso Michele da Villorba, who had worked as a notary and grain accountant for the communal governments of Brescia and two other towns near Bergamo, amassing sufficient capital to fully and privately pay workers from Brescia and Bergamo to build a canal more than 10 km long from the Piave in Nervesa to feed his town, Villorba[88]. The *bresciano* and *bergamasco* origin of the *oncia* as a measure of volume could also be corroborated by consulting the conversion tables published by the Italian Ministry of Agriculture in 1877, in which a large number of units of measurement for each province and district, compiled since the Napoleonic period, were converted to the metric decimal system. For instance, mention is made of the subdivision of one *bracio cubo da fabbrica* (0,107488 m^3) into 12 *oncie* (1 *oncia* = 0,00895 m^3) in the locality of Verolanuova, in the southern plain of what is now the province of Brescia, however corresponding to a unit of measurement that is too small to concern a materially useful quantity for both consumption and irrigation[89].

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agricoltura, 140–41. The *Provveditori sopra i Beni inculti* also employed mechanisms of reward, such as the automatic assignment of new tasks and salary increases in recognition of satisfactory performance. For instance, the inzegner Arcanzolo Romittano, initially paid 20 ducati for his work at the mouth of the Gorzon on the Adige, was subsequently granted an additional 14 ducati to remain in the area for several more weeks and carry out further interventions on the Rotta Sabbadina, ASVe, Provveditori sopra i beni inculti, 839: '1559. Adi 14 Zener in Venetia. Havendosi operatto Clarissimo Archanzolo Romittano inzegner alla intestatura del Adese alla Foce Nova per contto del Retratto del Gorzon per moltti zorni per il finir di quella con il stipendio a lui promesso che fu de ducati vinti et tanto piu quanto che mediante l'industria sua per l'aseguracion di essa intesttatura fazendo l'opera tottalmente perfetta si vedesse che merittaseno le sue fattiche et operacione sue li qual a vintti gli furono pagati iusta la promessa ut supra et hora essendo statti sopra il loco li Clarissimi Francesco Barbaro, Messer Zuane Donado et Messer Federigo Badoer, honorabili proveditori sopra li beni inculti et visita per sua Clarissima signoria essa intestadura esser benissimo achomodata et havutta informazione che nel far ditta opera esso Magnifico Archanzolo lui estatto alli zorni et a spexe del viver (…) in modo che e parso a quelle terminar di dar a esso clarissimo Archanzolo anchora ducati quatordese per merittar colli sue fatiche et spexe (…) perhò sia obligatto esso Clarissimo Archanzolo operrli a quanto far bisogno senza altro pagamentto che detta havendo condutto sue clarissime signorie esso Clarissimo Archanzolo dalli 9 fin 19 del presente mexe che zorni undexe alla Rotta Sabadina per contto delle difficulta mosse da quelli del Polesene in matteria della ditta rotta perhò terminando hanno terminatto che sia datti ducati undexe al detto Clarissimo Archanzolo per li ditti zorni undexe che in tutto fano ducati vinticinque et hanno comesso che sia fatto il conto direttivo al Cappitano del Retratto del Gorzon che gli habia a pagare essi ducati vinticinque inquorum fidele. Gasparo da Riva de suo offitio'.

[88] Vergani, *Brentella*, 103–4.

[89] *Tavole di ragguaglio dei pesi e delle misure*, 139.

The same applies to the *oncia* of volume mentioned in these 19th century documents with regard to the units of measurement of the city of Bergamo, according to which they are either each of the 12 units of *a braccio da cubo da fabbrica di Bergamo* (0,130072 m^3) or each of the 12 units of the *braccio cubo di Milano* (0,210377 m^3)[90]. In these same conversion tables, different *oncie* are mentioned as a unit of volume measurement for the Venetian provinces of Vicenza and Treviso, where an *oncia* was each of the 12 parts of a cube foot, which in 1877 corresponded to 0.042018 m^3 and 0.067373 m^3, respectively. In short, although *oncie* are widely mentioned as a unit of volume measurement in both Lombardy (Salò, Verolanuova and Bergamo) and Veneto (Vicenza, Treviso and San Donà de Piave), they do not represent a credible quantity of water sufficient to cover the needs of human and agricultural consumption.

Therefore, ruling out, that the *oncie* used by the *Ufficio alle Acque* of Treviso for the distribution of water of the Brentella canal between the towns mentioned in *Fig. 14* were units of weight, volume or capacity, the most logical option that remains is that it corresponded to a unit of measurement of water flow, thus volume in relation to time. Indeed, although the aforementioned option that they were length measurements referring to the diameter of the division dams is plausible, there are mentions of *oncia* as a unit of water flow in the same chronology in more western regions of Lombardy, specifically in the lower basins of the Ticino and Adda rivers, as developed by Enrico Roveda[91]. Roveda, using the same conversion tables mentioned above, concludes that one *oncia d'acqua* in these regions between the 15th and 17th centuries corresponded to 2500 litres per minute for the Milanese hinterland and the lower Ticino valley, whereas to 1299 litres per minute for the lower Adda valley and the town of Lodi[92]. For the distribution of the Naviglio Grande and the Muzza, the two main irrigation canals built in the Middle Ages in this region and owned directly by the Duchy of Milan, Roveda also notes between the end of the 15th century and the middle of the 17th century a low variability in the number of

[90] *Tavole di ragguaglio dei pesi e delle misure*, 107.

[91] Enrico Roveda, 'Il beneficio delle acque. Problemi di storia dell'irrigazione in Lombardia tra XV e XVII secolo', *Società e storia* 24 (1984): 269–87; This work was republished in 2012, as part of a book by the same author, and, from here onwards, reference will be made to this edition: Enrico Roveda, *Uomini, terre e acque*, 260–77.

[92] Roveda, *Uomini, terre e acque*, 30.

bocche, thus each of the orifices or openings in one of the embankments of the main canal that fed an irrigation ditch and that were either bought by local communities or conceded to them. This figure contrasts with a notable increase in the number of *oncie d'acqua* in the same period, suggesting that most *bocche* remained where they were, and just suffered a notable enlargement in their width. *Bocche* in southwestern Lombardy had therefore variable and not fixed dimensions, and, thus, the only fixed unit used to measure the flow was the *oncia d'acqua*, either in its Milanese or *Lodigiana* version. For instance, Roveda counts 73 *bocche* in 1498 and 74 at the end of the 17th century on the Muzza canal, yet counts 666 Milanese *oncie* in 1498, which double to 1475 Milanese *oncie* by the end of the 16th century[93].

In short, the unit of measurement used for the sale or concession of the right to a quantity of running water was therefore the *oncia*, while *bocca* or *boccarolo* simply designated the physical element of variable dimensions through which water was diverted from the canal, whether it was the Milanese Naviglio Grande or the Brentella in Treviso[94]. So far, it has not been possible to convert the late 15th century Treviso *oncia* into the metric system in the way that Enrico Roveda has done for south-western Lombardy. However, if we use the equivalences mentioned by Roveda in his work to convert the *oncie* mentioned in *Fig. 14*, whose total is between 382 and 384 *oncie* consumed by all the towns of the Treviso hinterland except for Villorba, the total figures in metrical units of measurement resemble more closely a credible portrait of the total flow of a canal such as the Brentella at the end of the 15th century[95]. Thus, assuming that the equivalences used by Enrico Roveda were the same in Treviso, the total flow diverted from the Piave at the end of the 15th century to cover the water consumption of the Lower Treviso plain, excluding Villorba, would have been 955.000-960.000 litres per minute (approximately 16 m^3/s), in the hypothetical case Treviso's *oncie* were Milanese, and 496.218-498.816 litres per minute (approximately 8,5 m^3/s) in the hypothetical case Treviso's *oncie* were

[93] Ib., 262–64.

[94] Ib., 266.

[95] Villorba is excluded because it received the rest of the Brentella's total flow that was distributed among the previous villages such as Boiago, Padernello, Trivignano, Fanzolo, San Vito - Altivole, Ciano, Villa, Paderno, Pezzan-Istrana, Sant'Andrea di Carpenedo - Cavasagra, among others, up to the canal's intake on the Piave, north of Montebelluna.

equal to those used in Lodi. It is true that the difference between both conversions is remarkable, since the flow of the Brentella distribution system excluding Villorba, taking the Lodi *oncia* as a reference, is almost half of what the flow was when taking the Milan *oncia* as a reference. Yet, despite the great seasonal variations of the Piave, a river which, as mentioned before, has a remarkable torrential character, and ignoring the hydrological variations that it may have undergone since the 15th century, the quantities of the distribution converted with the Lombard equivalences, although much lower, can relate to the measurements of the flow in the first half of the 20th century. Thus, at the beginning of the 20th century, the annual average flow rate of the Piave in its mid-course was of 120-130 m^3/s, and the Brentella and Vittoria canals derived from it an annual total of 46 m^3/s at the town of Pederobba, where the medieval Brentella canal also begun[96]. The latter figure of 46 m^3/s is evidently much larger than the 8.5-16 m^3/s in the 15th century Brentella, but it should be remembered that not only the fraction of waterflow conceded to Villorba is excluded from this calculation, but also that in the 15th century the wider and deeper Vittoria canal was not built yet, as the latter is a modern waterway that was enlarged in 1920 to contain sufficient flow to feed several hydroelectric plants. Finally, the notable increase in both the available irrigated arable land and the population of the plains of Treviso in post-industrial times must be excluded from the calculation, acknowledging that the population of 15th century Treviso required significantly lower consumption figures than the same province in the 20th century, where intensive agriculture, demographic pressure and hydroelectric production required a larger share of the Piave's flow.

Thus, excluding these factors, therefore, the hypothetical quantities represented in the *oncie* distribution applying Roveda's equivalences from Lombardy fit with a coherent view of the flow distributed by Treviso's *Ufficio alle Acque* in the Brentella canal. In a nutshell, apart from allowing to conclude that the *oncie* employed in Treviso probably corresponded to a similar quantity to the *oncie* of Milan or Lodi, what is most noteworthy is that, as in the case of Lombardy, Treviso used specific units of measurement for the flow of water.

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[96] Elio Migliorini e Amedeo Tosti, «Piave», in *Enciclopedia Italiana Treccani* (Roma: Istituto dell'Enciclopedia Italiana, 1935): <https://www.treccani.it/enciclopedia/piave_(Enciclopedia-Italiana)/>.

What is also noteworthy is that most of the water distributions in the higher plains of Treviso were made in *oncie* representing larger quantities of water and therefore responding to greater social, animal and agricultural consumption pressures coming from the most important population centres in the territory, while the *foro tondo* was used for the concession, or theft, of humbler amounts of irrigation water for single allotments or smaller hamlets. In other words, units pertaining to the measurement of solid structures (width and length) or stagnant water (capacity and volume) were broadly employed in Treviso and the rest of the Terraferma for larger portions of distributed water, whereas the measurement of water current (volume in time) was only employed for smaller quantities required by domestic and extended families. This contrasts with Wittfogel's assertion mentioned in the first chapter regarding Venetian water management, in which the German-American sinologist affirmed that, despite the size of its rivers and lagoons, the Po plains were never governed in a *hydraulic* manner, as in ancient, medieval and modern China, India or Egypt, and that Early modern northern Italian states conceived watercourses as small-scale (*hydro-agricultural*) resources, modifying only 'regional conditions'[97]. Instead, if this Wittfogelian dichotomous interpretation between the *hydraulic* and the *hydroagricultural* is to be applied to Treviso's *Ufficio alle Acque*'s distinction between measuring large scale concessions in fixed units (*oncie*) and the variable and undefined amounts used for small scale concessions, it could be argued that the use of concrete units of water flow measurement responded to a *hydraulic* pulsion, whereas undefined small amounts responded to *hydro-agricultural* interests. Thus, adopting this terminology, *oncie* would have served a rather stately, *despotic* and bureaucratised form of government when measuring larger bodies of water, disbursing town budget to pay for appointed experts from Brescia and Bergamo, and responding to the needs to feed urban centres, whereas the much lower number of water flow measurements with *fori tondi* responded to occasional, incidental and less relevant interests of minoritarian subsistence farming communities.

Clearly, no attempt is being made to forcedly categorise this historical circumstance with the concepts elaborated by Wittfogel in the 1950s. There is no indication that the distinction made by the authorities in Treviso between the use of water for total human and animal consumption (not only irrigation) and the use of water exclusively for

[97] Wittfogel, *Oriental Despotism*, 12. See also Chapter 1, page 47.

agricultural use (only irrigation) responded respectively to the mechanical development of more or less *authoritarian* political practices. However, what we can affirm is that this difference in water uses had an impact on a metrological distinction between the large and measurable and the small and unmeasurable when it came to observing, describing and managing the territory's watercourses.

b) The adaptative meanings of the Valencian *fila*

As seen also in the case of Treviso's *ville superiori*, water scarcity was prevented by more effective retention, stimulating expert observation, reporting on current and capacity measurements and the measured possibilities for its distribution. Yet units of measurement were also far from standardised in the sense given nowadays, and this situation of metric heterodoxy depended not only on the regional customs and landscapes, but also on seasonal variations within specific regions. Experts and communitarian water boards debated on the meaning of measurement units and their significance according to local custom and seasonal water availability.

One of the most studied and debated examples of this double micro-regional and seasonal variability affecting the represented quantity of water by a unit of measurement is the Valencian *fila d'aygua*, or just short *fila* (plural *files*), literally translating to English as "the water thread". This unit of measurement, which we still today do not know how to convert to our contemporary units, was different almost from each micro-irrigation system to another in the kingdom of Valencia, and depended on the quantity and seasonal variables of each of the rivers or wells that originated each network. In a very general manner, the *fila* has had three meanings that have coexisted throughout history and in the entire territory between the Sénia river, in the Principality of Catalonia to the north, and the Segura river to the south, bordering with the Castilian kingdom of Murcia. As Tomàs Peris Albentosa summarises in his encyclopaedia of Valencian historical irrigation, the *fila* can be, first, a measurement of waterflow through a hole of a concrete width, second, a portion of the complete waterflow in a single canal, or, third, a small capillary canal of variable size and current. Indeed, in some regions, either constantly all year round, or only in the season of greatest quantity and regularity of flow of a main irrigation canal (the *séquia mare*), the *fila* corresponded to the amount of water that constantly flowed into a capillary distribution canal through a completely submerged orifice, known as a

roll in the Huerta de Valencia, or *arbelló* in the Ribera del Xùquer[98]. In this case, unlike the case of Treviso's *foro tondo* or the Veronese *quadretto*, which were terms used for both the hole on the embankment and the unit of measurement used to represent the amount of water that ran through it, the names *roll* and *arbelló* in the kingdom of Valencia designated specifically the physical orifice, whereas the *fila* was the constant and concrete amount of water flow that ran through the *roll* when it was completely under the water level. As recorded and synthesised very recently by Ferràn Esquilache Martí, the *fila* was thought to be essentially the latter, according to those who conducted its first theorisation and first rediscovery of Valencian irrigation studies, going back to 19th century agronomy, in which François Jaubert de Passa and Sir Clements Roberts Markham believed that the *fila* was the first unit of measurement of water flow combining width with quantity of water (previous to 17th century hydraulics, which rather focused in quantity of water and speed). Yet, as Thomas F. Glick noted firstly in 1970, the *fila* had indeed other meanings depending on the seasonality of the river, the quantity of water available and the number of irrigated surfaces of an irrigation system[99]. Glick noted that some irrigation distribution systems, as that of the plains around Castellón, with water from the river Millars, had a medieval custom of dividing canals in twelve or twenty-four *files*, coinciding with the hours of a day[100]. Thus, each community had the right to a twelfth or twenty-fourth of the main current for an hour, after which, the capillary canal that derived that proportion would close its *portell* or water gate, and another would open, a process that happened under the supervision of water board authorities in a similar way to which Treviso's *Ufficio alle Acque* sent *inzegneri* from Brescia and Bergamo or *equites* to supervise the closing of *boccaroli* and the distribution of licit concessions to irrigation communities. An example of this measurement of waterflow by proportionally dividing the width of a canal happened in 16 October 1596, when noblemen brothers Estheve and Miquel

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[98] The *séquia mare*, translating literally as the "mother irrigation canal", was the main irrigation canal that constituted an irrigation community in Valencia. From this *séquia mare*, directly deviated from a river, branched out the different capillary canals. For a synthetic definition of the possible meanings of the fila de aigua, see Peris Albentosa, *Enciclopèdia*, 312; One of the latest studies to organise and define the complexity of the meanings and representations of the Valencian fila de aigua is Ferràn Esquilache Martí. He also has employed archaeological evidence, including the photography of early modern *rolls*: Esquilache Martí, 'La "fila" de agua valenciana', 293–322 and 303; Peris Albentosa, *Enciclopèdia*, 50–51.

[99] Glick, *Irrigation and Society in Medieval Valencia*, 207–208.

[100] Ib., 210.

Fenollet had a long going conflict with the municipal irrigation community of the El Puig canal, dependent from the city of Xàtiva (more than 50 km southwest from Valencia), which derived its waters from the river Albaida, a northern tributary of the river Xùquer. The latter's *sequier*, the highest representative of the El Puig canal's community, as he was overseeing irrigation activities along the canal, spotted an *albellò* deriving water towards lands owned by the two noblemen, which did not participate as members of the irrigation communities, and ordered the watchmen to cover it and try to get a hold of the two brothers. The latter took the conflict to royal justice, to the *Real Audiencia* in Valencia, where they cited an old *concòrdia*, a two-party settlement approved by a notary by which the El Puig canal was divided in 7 parts or *filas*, 6 of which were for the irrigation community under the municipal authorities of Xàtiva, and one seventh of the canal's flow was reserved as a seigneurial right for the Fenollet brothers[101]. The latter, although eventually losing the court case, being obliged to close the orifice on the embankment, insisted to the vice-royal authorities that the water that their *albellò* took corresponded to that one seventh. Eventually, the proportions of the El Puig canal were remeasured and a new one-seventh part of the water was distributed to the Fenollet brothers with a new capillary canal that took its part of waters further upstream, a construction that was overseen by the canal authorities[102].

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[101] However, in another fragmented Royal Court case, the Puig de Xàtiva irrigationcanal, and its neighbouring Murta irrigation canal are described as carrying 5 *files* of water from the Albaida respectively: ARV, Real Audiencia, Procesos, II Parte, Letra S, 284: 'En lo riu de Albayda que pasa por los termens generals de la ciutat de Xativa de temps inmemorial ençà y hagut y de present y ha un açut y cequia vulgarment dita del Puig qu'es preu del riu y rega moltes terres y heretats (…) certs particulars de dita ciutat obtingueren cert establiment conforme al qual sols poden prendre del dit riu cinch files de aygua (…)'.

[102] ARV, Real Audiencia, Procesos, I Parte, Letra M, 573: **'**Del Noble don Miquel Fenollet contra lo síndich de la séquia del Puig de Xàtiva, 1592; Auditor lo molt noble don Pedro Sans; Scrivà Balthazar Lazer Notari; Die XVI Mensis octobris anno MDLXXXXII; Propartis Miquel Fenollet nominibus Infrascriptis; Don Estheve y Don Miquel Fenollet suplicants dihuen que entre aquells de una y los hereters y regants de la cequia del Puig de la ciutat de Xativa de altra ab acte rebut per Noffre Orto notari en dotse de Abril passat del qual fantse fret inquantum inter alia fonch transigit y concordat en lo tercer capítol de dit acte de transacció y concòrdia que per quant lo dit don Estheve era señor de la setena part de l'aygua de dita cequia la qual rebia e huy reb per un albello dit lo albello del Pont d'en Ferriol y que per ocasió del afronto y pòstuma de dit abello hi havia entre dites parts moltes differensies, plets y questions fonch concordat que lo dit don Estheve hagués de tancar y tancás ab tots efectes lo dit albello y que en lo en dret de dit albelló o mes amunt o en la part hon mes convinga en dita cequia se fessen uns partidors ab ses soles en los quals

Nonetheless, as noted by Esquilache, measuring proportionality by subdividing irrigation canals into *files* was only the case in a dry summer season, when the water of river-based irrigation systems in Valencia was less abundant. In times of more regular abundance, the definition of a *fila* shifted to be a concrete amount of water determined by the orifice or narrow canal it was fed through constantly and simultaneously, flowing into capillary canals and not during shifts[103]. In other words, the *fila* was a fixed amount of waterflow in times of abundance, and a proportional fraction of a specific canal in times of drought. Thus, in times of regular water supply, a *fila* was hypothetically the same amount in the wide and long Montcada canal, the longest in the *Horta* of Valencia, as in humbler capillary canals. Yet when water availability was scarcer the *fila* became a subdivision of a single canal, usually either one twelfth or one twenty-fourth of it, depending on the specific width, depth and length of the specific canal (one twelfth of the larger Montcada canal equated to more water and more current than a twelfth of a smaller canal). It was therefore a clear case of the term's meaning fluctuating depending on season and availability of the resource in a given region. Furthermore, Esquilache traces even more nuanced meanings of the *fila* in the more permanently arid regions in the southern end of the kingdom of Valencia, in the aforementioned Lower Segura Valley where the *fila* permanently signified a proportion of a given canal, whereas in the peripheries of Alzira, Valencia and Morvedre the meaning changed from a concrete unit of measurement of water in regular times to a proportion of the canal in times of drought[104].

No record supports the *concòrdia* that the Fenollet brothers settled with the irrigation community of the El Puig canal having responded to a season of drought or water scarcity on the river Albaida basin. Nonetheless, the river Albaida tended to have more seasonal irregularity than the Xùquer or the Guadalaviar, with a higher possibility of dividing

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hi haia de haver dos particions tant solament per la una de les quals çoes per la part dels hereters de dita cequia discorreguen sis parts de la dita aygua y per lo altre partidor hi haia de discórrer y discorrega la setena part de l'aygua de dita cequia la qual fineheixca en loch de l'aygua que discorrer per lo dit albelló del Pont d'en Ferriol per a obs y utilitat del dit don Estheve y de lo sens (…)'.

[103] Esquilache Martí, 'La "fila" de agua valenciana', 299–300.

[104] Esquilache Martí, 'La "fila" de agua valenciana', 306.

canals proportionally, and the multiplication of charitable water granting in cases of severe drought (*aigua de gràcia*)[105].

5. The *fila* of water in conflict: a detailed case study of Morvedre against inland seigneuries (1552-1554)

a) From an exceptionally gifted amount of water to a fixed customary right

There are more detailed cases of dividing irrigation canals in proportional *filas*, and not fixed units of measurement, one in particular concerning a conflict in the Camp de Morvedre subregion, north of Valencia, along the river Palància, then known as "Riu de Morvedre"[106]. In the particularly dry summers of 1552 and 1554 the towns of Estivella, Beselga, Albalat and Segart, on the foothills of the Sierra Calderona and on both sides of the Riu de Morvedre river valley, about 5 kilometres inland from the point where the river fans out in its coastal alluvial plain, complained to the *Real Audiencia* in Valencia that the waters from the Séquia Major de Morvedre, an irrigation canal that deviated waters from the Riu de Morvedre, were not being distributed to them according to custom[107]. The Séquia Major de Morvedre, despite taking its waters from the Riu de Morvedre more than

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[105] Abel Soler Molina, 'Canvi climàtic, oratge i percepció del medi geogràfic a les valls de Xàtiva i Albaida', *Almaig. Estudis i documents* 16 (2000): 56–57; Tomàs Peris Albentosa, *La gestió hidràulica en la Sèquia d'Escalona* (Alcàntera: Ajuntament de Castelló de la Ribera, 2003), 5; Ib., 'El objetivo de equidad'; Tomàs Peris Albentosa has recently worked on the episodes of *aigua de gràcia* as a mechanism for attenuating water conflicts in times of scarcity: Tomàs Peris Albentosa, 'La adaptación a la irregularidad hídrica mediterránea'.

[106] In its higher course this river was also known as "Riu de Sogorb", as it flows through the town of Sogorb (currently known as Segorbe in Castilian Spanish). In this chapter, as in the rest of this study, the used toponymy for this river will be "Riu de Morvedre", as every case study concerning this river happened in its lower course at a time in which the name "Palància" was not employed.

[107] ARV, Real Audiencia, Procesos, III Parte, Apéndice, 6294: 'Die XXI mensis aprilis MDLII regent e doctors del real Consell ex deliberatio in regie audienitie. Instant los nobles Don Berenguer Martii de Torres y de Aguilar senyor de Stivella y de Beselgua e don Heronim de Vilarasa senyor de Albalat y Seguar provehien que ha manat als Justicia e jurats e cequier de la vila de Morvedre que a pena de cinquanta lliures donen la aygua que acostumen de donar per a regar los forments e terres dels dits llochs de Stivella e Beselgua, Albalat e Segar (…)'.

15 km away from the town of Morvedre, was managed exclusively by its *jurats* and *justícies*, thus by the municipal authorities of Morvedre, who boasted knowledge of Roman law and juridical representation. Therefore, as in the case of other irrigation canals in the kingdom of Valencia, the longest of which was the Séquia d'Alzira, this canal was under the jurisdiction of a municipally controlled community of irrigators, and voted annually a *sequier* in charge of deliberating, overseeing and exclusively giving permission to distribute the waters and irrigate. Nonetheless, these four hamlets on both sides of the river were inside the feudal manors of two important noblemen in the kingdom of Valencia. Estivella, on the northern bank of the Riu de Morvedre, and Beselga, facing it on the southern bank, were part of the fief belonging to Don Berenguer Martí de Torres i de Aguilar, a nobleman from Segorbe who came from a family proved loyal to King Charles in the 1520–1523 Revolt of the Brotherhoods[108]. The other two hamlets, Albalat and Segart, also on opposite sides of the river, were part of the adjacent fief of Hieronim de Vilarrassa, son of one of the captains of the personal royal guard of King Ferdinand of Aragon, and a close relative of the then viceroy of the kingdom of Valencia, Joan Llorenç de Vilarrassa i Llorach[109].

The problem between the two fiefs and the town seemed to arise, as seen in previous cases, from a confusion between land jurisdiction and water usufruct, over land owned by the nobility that was nonetheless dependent on water pertaining to a municipally managed network. In these cases, it cannot be dismissed that the smaller domestic

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[108] Adrià Hernàndez García, 'La familia Martí de Torres y el señorío de Alaquàs', *Quaderns d'investigació d'Alaquàs* n.s., Estudis i documents (2015): 37–40. In chapter 6 we pay more attention to the Revolt of the Brotherhoods in the kingdom of Valencia (*les Germanies*, in Catalan) which began as a revolt of the artisan and merchant guilds of Valencia and other cities of the kingdom, and later generalised into an anti-seignorial war that pitted the Christian municipalities against the noble lords and their Moorish servants, later confronting the troops of King Charles I (Charles V of the Holy Roman Empire), who had just begun his reign in Spain. For more information, see chapter 6, p. 438.

[109] The formal title in Valencian Catalan at that time was that of *lochtinent*, the highest corporal representation of the King of Aragon and therefore of Spain. On Joan Llorenç de Vilarrassa, and the Vilarrassa family in general, see: María Antonia Piles Almela, 'El virreinato de D. Joan Llorens de Vilarrasa', *Estudis: Revista de historia moderna* 9 (1981): 243–66; On Early modern viceroys and governors of Valencia: Josep Martí Ferrando, *El poder sobre el territorio*, 121–124 and 144–147 ; María de los Peligros Belchí Navarro, *Felipe II y el Virreinato Valenciano (1657-1578). La apuesta por la eficacia gubernativa* (Valencia: Biblioteca Valenciana, 2006).

orchards and gardens that fed the inhabitants of these hamlets could have also been irrigated by water from autonomous sources such as rainfall cisterns, fountains or wells. For instance, on the northern bank of the Riu de Morvedre, a conglomerate of small towns autonomously irrigated with underground water from a fountain known as Font de Quart de les Valls[110]. Many Valencian fiefs contained aquifers that were canalised into streams and fountains such the latter, and the entire irrigation network would therefore fall under one single seigneurial jurisdiction. There were also cases in which these small fountainhead irrigation networks were managed by a municipal power and came into conflict with manors which were normally excluded from the given network yet nevertheless in times of drought asked the town authorities for a donation of water from the spring. This was the case in 1553 of an underground water stream outside Llíria, a *universitat* 25 kilometres northwest of Valencia, originating a small irrigation network bordering the manor of Benisanó, which belonged to Doña Leonor de Borgia i Llançol, not only a member of the papal family of the Borgia and the Valencian episcopal dynasty of the Llançol, but then also the widow of a member of the powerful vice-royal family of the Cabanyelles[111]. In this case, the noblewoman accused the municipal representant

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[110] Sandra Mayordomo Maya et al., 'Caracterización, análisis y evaluación del sistema de regadío tradicional valenciano de la Font de Quart (España) desde una perspectiva paisajístico-patrimonial', *Agua y Territorio* 25 (2025): 215–38.

[111] ARV, Real Audiencia, Procesos, III Parte, Apéndice, 6304. As for the aforementioned Vilarrassa family, two Valencian *lochtinents* (the word "vicerrey" was still not employed at the time) belonged to the Cabanyelles family, also written "Cabanilles" or "Cabanillas", which also had ties with the Borgia family. I have failed to conclude which of the Cabanyelles were the defunct husband of Leonor de Borgia i Llançol, but based on works on the vice-royal court and the Early Modern military aristocracy in Valencia, chronology seems to point that Leonor de Borgia i Llançol was the widow of Lluís de Cabanyelles, who held the office of *lochtinent* of Valencia various times along the 15th century: Ivan Parisi, 'L'ambasciatore Joan Escrivà de Romaní i Ram e il libro delle Cartas Reales. Nuove fonti per lo studio delle relazioni tra monarchia di Spagna e il regno di Napoli alla fine del '400', *Bulletí de la Reial Acadèmia de Bones Lletres de Barcelona* 49 (2004): 207–12; Indeed, the other major member of the Cabanyelles that held that stately function was Hieronym Cabanyelles, but, as María Isabel Lorite Martínez shows in her doctoral thesis on Valencian military aristocracy, he was still alive in 1553, dispatching royal correspondences in the 1560s: María Isabel Lorite Martínez, 'Pactismo y representación del Reino: las juntas del Estamento militar de Valencia (1488–1598)' (Valencia: Universitat de València, 2015), 31, 88 and 225. The Llançol family also found in vice-royal institutions of the 1600s a recurrent career, concerning the aforementioned district or *gobernación* of Orihuela: David Bernabé Gil, 'Nobles valencianos en el servicio regio. La provisión del

(*síndic*) of Llíria, Pere Magaluff, of not exerting the right she claimed over one proportional *fila* of water from this spring, corresponding to one fourth of the total amount of water that came out of the fountain between Llíria and Benisanó, an amount that was theoretically agreed upon after a measurement practice conducted by a notary in June 1482[112]. However, with the exception of this last case most of the court cases mentioning a donation of municipal waters to manorial lands in times of drought in the kingdom of Valencia happened with waters of fluvial origin, as in the case of Morvedre.

Certainly, in times of drought such as the summers of 1552, 1553 and 1554, underground water sources did not suffice for manorial hamlets, and fiefs had to rely on differently managed water sources. There is no proof today that Estivella, Albalat, Segart and Beselga relied on underground water on times of regular rainfall, and it is precisely on this ambiguity and grey zone between municipal and seigneurial waters that the lords of these places based their accusation that the municipal authorities of Morvedre had not distributed municipal waters to them.

Thus, the two parties had different notions of the water dependency of the towns: on one hand, the manorial sires alleged the town's rights to regular use of a fixed portion of the waters of the Séquia Major of Morvedre, whereas, on the other hand, the municipal *sequier* of Morvedre, the irrigation canal's annually voted first authority, held that on the contrary this water was granted irregularly according to the own personal will of the *sequier*[113]. Therefore, the inhabitants of these upstream smaller towns said that they had

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oficio de portatveus de gobernador ultra sexonam en la Edad Moderna', *Revista de Historia Moderna* 26 (2008): 49.

[112] ARV, Real Audiencia, Procesos, III Parte, Apéndice, 6304: '(…) al magnífich messer de Cabanyelles señor del loch de Benizano de una quarta parte de filo de aygua de la font que naix en lo terme de Llíria (…) segons se diu per en Pere de Assió, notari a onze de juny, any mil cuatrecents huytanta dós, la qual concessió de aygua de la font que nexe en lo terme de Llíria'.

[113] ARV, Real Audiencia, Procesos, III Parte, Apéndice, 6294: 'Die XII Agustii MDLII P^{t} Ludovicus Anenar Notarius-sindicus. (…) En Luis Anenar notari en nom de síndich de la dita universitat e procurador del dit cequier fa, diu e posa lo que segueix: (…) (V) Item diu ut supra que lo dit cequier lo qual regix e administra la aygua que discorre per la dita cequia mare te plena e libera facultat de dividir e partir entre los regants de la dita cequia tota la aygua que per aquella discorre segons la necessita dels regants abundancia o sterilitat del temps a sa bona e justa coneguda'.

the right to one *fila* of water "from sun to sun" for each side of the valley, thus from sundown to sunrise for Albalat and Estivella, and the following day, from sunrise to sundown for Segart and Beselga, and that the *sequier* from Morvedre would fine these towns' farmers if they were caught taking water from the Séquia Major when not authorised[114]. The upstream vassal populations therefore suggested that, strictly under the pretext of water distribution, they had frequent interactions with the authorities of a different jurisdiction, in this case, communal-municipal authorities. For instance, a first generation converted *Morisco* serf from Albalat named Luys Ferrer, said that he had seen for at least 50 years the municipal *sequier* of Morvedre go to the towns to announce in the squares the beginning of the irrigation turn in sundown and sunrise[115]. Yet, Ferrer also recalls that in 1554, this practice had ceased to be recurrent, as a more oblivious or passive municipal *sequier* named Francesc Cubertoret was lazy about walking to the towns at sunrise and sundown, Ferrer stating that he even had to walk down once to where Cubertoret had a small guard hut and wake him up, asking him "Francesc, the sun wants to peek, would you still allow me to irrigate two fields that are not ready yet?" ('Frances, lo sol vol eixir, voleu que acabe de regar dos tandes que no estèn?'), to which the barely awake *sequier* responded negatively, as "the irrigation turn was over" ('ja tenien sa

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[114] Ib.: 'Die XXVII supradictorum mensis et anni; Lo honorable en Arnau de Cao sastre habitant del loch de Stivella de present resident en Valencia testimoni produhit y donat (…); (I) Et primo (…) ell testimoni a setze anys poch mes o menys que sta en lo dit loch de Stivella y algun temps es stat en lo loch de Albalat y en lo dit temps ell testimoni ha vist que los señors de Albalat y Stivella y vassalls de aquells reguen e han regat les sues heretats de la cequia qu'es diu en lo present capítol e de la qual cequia ell testimoni ha vist moltes vegades que lo cequier los donava una fila de aygua de sta manera que de part de vespre los partia una fila de aygua y axí ell testimoni ha vist y ven moltes vegades que los vehins dels dits lochs regaven tot aquell dia y la nit apres seguent fins que eixia lo sol çoes hun dia y una nit segons te dit tenia dita aygua la hun loch e de la mateixa manera la partia e donava altre dia al altre loch y també ha vist ell testimoni que si algú apres eixir lo sol regava ell testimoni ha vist que lo cequier de dita cequie real los executava y feya pagar la pena y aço juro als dix saber ell testimoni(…)'

[115] Ib.: 'Dicto die. En Luys Ferrer nou convertit vehí e habitant del loch de Albalat e de present attrobat en lo loch de Stivella testimoni lo qual jura (…) E dix que lo que sab es lo que segueix çoes que sta en veritat que de cinquanta anys a esta part tostemps ha vist ell dit testimoni que los cequiers del dit temps de la cequia mare que va a la vila de Morvedre repartint l'aygua de esta manera çoes donant un dia una fila de aygua de sol a sol al loch de Stivella en lo dia apres seguent la mateixa fila de aygua donava e ha donat de sola sol e lo loch de Albalat e axí es estatada y es la costum y pratica de partir la dita aygua en los dits lochs (…)'.

jornada acabada')[116]. Apart from proving an ordinary presence and participation of these vassals in the policies of distribution of an *a priori* municipal irrigation system, in the court case they try to demonstrate their knowledge of an ordinary process and custom, and of what they considered to be a concrete and regular portion and quantity of water which they had the right to use.

Yet the version asserted by the *sequiers* of Morvedre, along with other interrogated inhabitants of the downstream town, was that the water given responded to a completely arbitrary will, depending on how much water was running at the moment in the Séquia Major, the number of lands belonging to the irrigation community that had already received water, and whether the *sequier* himself, according to his own observation, felt that the lands of Estivella, Beselga, Segart and Albalat could use some water[117]. Indeed, Noffre Hierony Pérez de Montagut, a former *justícia* of Morvedre and thus a supposed expert in Roman Law who presided over the city council, maintained that there was no obligation for the municipal *sequiers* to give any recurrent and fixed amount of water to the four towns upstream, and that he was sure that if the *sequiers* had ceased from distributing this water, it was because the water in the canal was either running low or not running at all, and that therefore in his words "the given water was arbitrary" ('aquella dita aygua sia arbitrària')[118]. Accordingly, Francesc Cubertoret, the apparently oblivious

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[116] Ib.: '(…) es recordant ell dit testimoni que es essent cequier en Frances Cubertoret de Morvedre regar ell dit testimoni un camp de aquells en sa forma a restant-li per regar dos tandes com se acabas ja la jornada ell dit testimoni vingue al dit loch de Stivella on stava lo dit cequier et troba aquell que encara stava dormint, que non se era llevat, e desperta ad aquell e li dix "Frances lo sol vol eixir voleu que acabe de regar dos tandes que no esten" e lo dit cequier çoès lo dit Frances Cubertoret li dix e respós que no que ja tenien sa jornada acabada haço e no als dix ell dit testimoni per lo que ha dit (…)'.

[117] Ib.: 'En Joahn Assensi laurador de la vila de Morvedre, habitant testimoni lo qual (…) dix que des de del any trentahu o trentados a esta part ell dit testimoni es estat cequier tres voltes de la cequia de la vila de Morvedre e usant de son ofici ha partit l'aygua de la dita cequia entre los hereters regants de aquella e senyaladament als de Stivella y Albalat als quals segons l'aygua que venia per la cequia e la necessitat dels splets (…)'.

[118] Many of the answers to the interrogation of 1554 by the authorities and irrigators of the municipality of Morvedre can be found in another fascicle with a different archival shelfmark: ARV, Real Audiencia, Procesos, III Parte, Apéndice, 6325: 'Die quarta mensis Augusti anno a nativitatis domini MDLIIII^{o}. Lo honorable e discret en Noffre Hierony Perez de Montagut notari habitador de la vila de Morvedre de present resident en Valencia justicia qui es estat de la dita vila de Morvedre en los anys MDXXXVI finint en

sequier of Morvedre who had been woken up at sunrise by Luys Ferrer, had an older brother, Gaspar, who had also been elected municipal *sequier* of Morvedre thrice, first in 1532, then in 1535, and finally in 1542. With his long experience, Gaspar Cubertoret assured that he had distributed water to the four hamlets in Berenguer Martí de Torres and Hierónim Vilarrassa's manors, but never in a fixed amount, always depending on how much water ran in the main canal (*séquia mare*), and that he had sometimes granted each town two *files* of water, other times none at all, further remembering one particularly dry year, 1535, in which the towns of Albalat and Estivella remained without water for several days[119]. Besides, the consequences of irrigating without the *sequier*'s permission in times of drought had been sometimes quite drastic for the mentioned four upstream towns, as Jaume Agostí, a former municipal *sequier*, testified that he caught Hierónim's sister Beatriu Vilarrassa, who was *de facto* in charge of the manor of Albalat, ordering the serf in charge of her garden, Zaldori, to steal water twice when they weren't supposed to. The first time Agostí made Doña Beatriu Vilarrassa pay 60 *sous* and the second time she had to pay with a horse, a fine for which the former *sequier* still seemed annoyed, as the noblewoman would pay with a mule instead[120].

MDXXXVII en lo any MDXXXVIIIIo ó XXXX et en lo any MD cinquanta tres finint en lo present any MDLIIII responent lo qual jura a nostre senyor Deu dir veritat (…). E dix ell dit responent que no y sab res sobre lo dit capítol però te per cert que si dits cequiers mencionats en dit capítol han dexat de continuar lo sobredit orde del repartiment de les dites filles de aygua per als dits lochs de Stivella, Beselga y Albalat y Segart serà stat faltant aygua en dita sequia com aquella dita aygua sia arbitraria'.

[119] ARV, Real Audiencia, Procesos, III Parte, Apéndice, 6294: 'Die Secundo May MºDºLº Secundo. En Gaspar Cubertoret laurador de Morvedre testimoni lo qual jura (…) dit que (…) es estat cequier de la cequia de la vila de Morvedre desde Algar fins a la mar tres voltes çoes lo any XXXII y l'any XXXV y l'any XXXXII y en dit temps ha acostumat repartir als regants de dita cequia y senyaladament als de Albalat y Stivella donant ad aquells l'aygua que a ell dit testimoni parexia segons la quantitat del aygua que discorria de dita cequia e que alguns dies los ha donat en caschun loch dos files de aygua y altres vegades una e altres vegades no nenguna e esta en record que en lo any XXXV en lo qual per lo semblant hi hague molta necessitat y sterilitat de aygues ell testimoni s tingue de fer dies que no dona aygua alguna a Stivella ne a Albalat (…) com sia costum e pratica segons el testimoni ha vist praticar del temps que te record'.

[120] ARV, Real Audiencia, Procesos, III Parte, Apéndice, 6325: '(…) dix que lo qu'es conte en lo present capítol es ver e dix ho saber ell testimoni per ço com sia stat cequier y essent cequier ha penyorat a moltes persones axçí del loch de Alguar, Alfara, Algimia, Torres Torres, Stivella, Albalat y de la vila de Morvedre y dels altres lochs constituhits dins los termens generals de la dita vila y senyaladament ell testimoni ha penyorat en sexanta sous a la noble dona Beatriu Vilarasa dos vegades per que aquella havia pres o fet prendre aygua de la dita cequia sens licencia de ell testimoni la qual penyora fonch hun cavall, per en apres

In a nutshell, according to those from Morvedre, distribution to these manors was not compulsory by law and depended on the observation of the *sequier*, who divided the waters proportionally to the concrete amount of water that ran in the Séquia Major at the moment. Distribution was therefore arbitrary, depending on the moment and season, whereas punishment for water use without permission was certain and constant, and as one of the members of the Morvedre city council assured, "none of the irrigators of the said irrigation canal can use its water, no matter how much and how great their shortage is, without the permission of the *sequier*" ('ninguna persona dels regants de la dita cequia pren aygua de aquella per molt gran necessitat que tingué sens licencia del cequier')[121]. In this case, distribution of the waters of the Séquia Major of Morvedre was more than a simple voluntary and charitable donation similar to the aforementioned *aigua de gràcia* practices occurring along the rivers Albaida or Xùquer, or to the case of the Arrif canal

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lo alcayt del dit loch de Albalat pringue a ell testimoni lo dit cavall e dona a ell testimoni una mula per açó feya a ell testimoni per son offici y encara ell testimoni penyora a moltes altres persones e senyaladament al ortolà del ort del dit señor de Albalat lo qual se nomena Zalori nou convertit per ço qu'aquell havia regat lo ort sens licencia del testimoni'. The Valencian *sou* was a common Valencian coin that corresponded to 12 *diners*, while 20 *sous* made 1 *lliura*: Manuel Gonzalbes Fernández de Palencia and Nuria Lledó Cardona, 'Continuïtat i ruptura monetària: els Àustria i els Borbó (1479-1868)', in Pere Pau Ripollés and María del Mar Llorens (eds.), *Els diners van i vénen*, Col·lecció Perfils del Passat 6 (Valencia: Museu de Prehistòria, 1999), 152. 60 *sous* does not seem to be too high a sum for the noble Vilarrassa family. In the middle of the 17th century, a sack of wheat flour from Segorbe, about 20 km inland from Morvedre, costed each Valencian household around 7 *lliures*, thus, 140 *sous*: Joan Brines Blasco and Carme Pérez Aparicio, 'Aproximación al sistema impositivo de la ciudad de Valencia (Siglos XVI al XIX)', *Studia Historica: Historia Moderna* 5 (1987): 120. Furthermore, in the decades prior to a cereal price crisis in Valencia in the first decade of the 17th century, the price of bread was probably even more expensive, as much of wheat in Valencia proceeded from Sicily in the mid 16th century, a commercial practice that initiated in 15th century Tuscan maritime companies present in Valencia: Amparo Felipo Orts, 'Las repercusiones de la crisis triguera de 1629-1631 sobre las finanzas de la ciudad de Valencia', 2005, 266; David Igual Luis, 'La ciudad de Valencia y los toscanos en el Mediterráneo del siglo XV', *Revista d'historia medieval* 6 (1995): 83. This factors suggest therefore that the imposed fine of 60 *sous* were derisory in proportion to the Vilarrassa's capital.

[121] ARV, Real Audiencia, Procesos, III Parte, Apéndice, 6294: '(VIIII) Item diu ut supra que si ninguna persona dels regants de la dita cequia pren aygua de aquella per molt gran necessitat que tingué sens licencia del cequier es en correguda en pena de sixanta sous e lo cequier per son ofici executa e penyora y fa penyorar e pagar la dita pena a la tal persona'.

irrigators who freely received the irregular excess runoff waters from the Montcada canal, as seen in the previous chapter[122]. On the contrary, it first underlined the clear priority in water use of the larger downstream town of Morvedre, to the detriment of the smaller manorial villages inland. Second, it implied a rigorous rationing of the water level, with seasonal and daily observation, an action which, according to authorities in Morvedre, was the exclusive responsibility of the *sequier*, but in which in practice many of the actors in the manorial localities participated, expressed their opinions and, as in this case, disagreed with Morvedre.

This disagreement was not just about deciding whether or not there was a period of drought, requiring greater attention to water distribution, or whether there was an imminent danger of crop loss. Nor was it a discrepancy essentially based on the priority of some crops over others, or of a municipal power over a manorial power or vice versa. We can also discern a disagreement between the two communities over the very concept of distribution, namely the meaning of the *fila* of water and what it represented for each side of the conflict. On one side, the manorial villages defended a legal right to two *files* that represented a concrete amount of water flow and a regularity of the distribution practices in time, "from sun to sun". On the other side, the *sequier* and the irrigators from Morvedre conceived the *fila* in this case as a fraction of the total quantity of water present in the Séquia Major in a concrete moment and season, and therefore rather than being a fixed amount, responding to a relative figure. Therefore, the practice of measurement represented opposing conceptions of water: regularity versus seasonality, concrete versus relative units of measurement, and customary rights versus circumstantial observation and deliberation. Indeed, concerning the latter, this conflict on measurement distinctly illustrated the contradictions between normative theory and practice and the impasse that encountered by both sides.

Estivella, Beselga, Albalat and Segart evoked continuity and immutability of the hydric and customary order, and Morvedre its variability. Both sides supported and justified their position with time immemorial customs and laws. For instance, Morvedre evoked its right to exclusively elect the *sequier* for the entire length of the Séquia Major since "times of

[122] ARV, Real Audiencia, Procesos, III Parte, Apéndice, 6456.

the Moors", a custom that was further validated by a royal sentence from 1283[123]. Accordingly, the manors sent the elders of the vassal communities to the interrogations, such as ninety-year-old *Morisco* Gaspar Gallego from Estivella, Miquel Ros, an 'orchard watchman' of *Mudéjar* origin, from near Teruel in the neighbouring kingdom of Aragon, or the *alcayts* or communitarian chiefs of these *Morisco* villages, as a form of ancient, native testimony of custom[124]. The references in these circumstantial sources to positions and functions held by Moriscos within their hamlets and communities, such as the chief (*alcayt*) or the orchard watchman (*guàrdia d'horta*), suggest a degree of informal continuity in the internal organisation of Morisco communities, including in day-to-day agricultural practices such as irrigation. Although these authorities were not officially recognised by the power structures characteristic of feudal and urban Christian Valencia, the social structures typical of these communities appear to have persisted in the daily life of rural Morisco populations living on feudal estates, such as those of Vilarrassa or Torres d'Aguilar. In practice, as in the case examined here, they could function as a source of local knowledge and legitimisation in the defence of a custom, invoked on the grounds of its presumed pre-Christian antiquity, with the intention, in this instance, of helping to

[123] ARV, Real Audiencia, Procesos, III Parte, Apéndice, 6294: '(IIII)Item diu ut suppra que la dita vila de Morvedre axí en temps que era de moros com apres que es estada de cristians contínuament fins ha huy ha elegit cascun any hun cequier lo qual regeix, distribueix e guarda tota la aygua de la dita cequia e divideix e partix la dita aygua (…). E axí es ver (…) ab huna sentencia donada in contradictorio judicio en lo any Mil Doscents Huytanta tres duodecimo Kalendas novembres per la qual se mostra que lo dret de eligir e nomenar cequier per a la distribució e requirent de la dita aygua se es guarda e pertany a la dita vila de la qual sentencia (…)'.

[124] Ib.: 'En Gaspar Gallego nou convertit vassall vehí i habitador del loch de Albalat de Segart de edat segons aquell dix de novanta anys de present attrobat en lo dit loch de Stivella'; Ib.: 'Dicto die. En Miquel Ros, guardia de la orta de Stivella, vehí de la pobla de Vall Verde del regne de Aragó e de present en dit loch testimoni per lo qual jura (…) E dix que lo que ell dit testimoni sab es lo que segueix çoes que ha tres anys que sta et habita en lo dit loch de Stivella guardant la orta de aquell e per dita rahó sab moly be per qu'en ha vist que los cequiers de la vila de Morvedre que son stats en dit temps tostemps han repartit l'aygua de la cequia axí als de Stivella com als de Albalat d'esta forma e manera donant una fila de aygua de sol a sol a Stivella e la mateixa fila en lo altre dia après seguent en Albalat e axí ha vist ell dit testimoni praticar per tot lo dit temps que es estat en dit loch de Stivella e axí ha hoit dir a moltes persones del dit loch de Stivella y de Albalat en la forma que ell dit testimoni dix saber per lo que ha dit y deposat dessus (…) Dictis loco die et anno. Lo honorable en Miquel de Ontoria, alcayt del loch de Stivella y Beselgua de present resident en Valencia testimoni produhit y donat (…) Dictis die et anno. Lo honorable Johan Calbo alcayt del dit loch de Albalat e del dit loch de Albalat habitant de present atrobat en lo dit loch (…)'.

clarify a water dispute before the Real Audiencia of Valencia. Thus, it can be observed that the *Morisco* population did play an active role in water management, despite not belonging to the official *comunitats*. However, evidence of this *Morisco* involvement in the management of irrigation water in the upper reaches of canals administered by municipal or intermunicipal *comunitats* only emerges when it serves to reinforce, by virtue of its presumed antiquity, one side of a water dispute, following a logic similar to the well-known formula mentioned previously in Chapter One, 'com en temps de sarraïns' ("as in times of Saracens").

Yet paradoxically, despite this rhetorical intention to evoke perpetual ancient rights, the search for a practical solution to this specific water conflict was rather innovative. Indeed, noblemen Vilarrassa and Martí Torres de Aguilar menaced the authorities of Morvedre with requesting that the *Real Audiencia* set a compensation of 50 *lliures* for the days that these towns had been deprived of water. They furthermore requested the dispatchment of an *alguazir* or royal procurator fiscal to walk the Séquia Major upstream and distribute the two *files* of water to each manor in case the municipal *sequier* continued excluding these towns from distribution in the following days; furthermore, Morvedre's arks would have to pay for the *alguazir*'s expedition[125]. This practice would not have only violated the aforementioned custom of Morvedre, royally approved in 1283, but would have also directly violated the Valencian *Furs* or customs by which, in theory, the crown should not interfere in the functions of the *sequiers* of the kingdom.

Nonetheless, in the summer of 1552, King Charles I (Charles V of the Holy Roman Empire) – or rather his representative in the kingdom, the *llochtinent* Joan Llorenç de Vilarrassa –, had a letter written by the Royal Chancellery to Hierony Arrufat, one of the *doctors* or experts in Roman Law at the *Real Audiencia* court in Valencia. The viceroy conceded his relative Hierónim Vilarrassa not only the right to the two *files* of water from the Séquia Major of Morvedre for his fief, but also the realisation of an expert's survey (*visura*) of the irrigation canal. This letter reveals two interesting elements concerning the

[125] Ib.: '(…) provehien que ha manat als Justicia e jurats e cequier de la vila de Morvedre que a pena de cinquanta lliures donen la aygua que acostumen de donar per a regar los forments e terres dels dits llochs de Stivella e Beselgua, Albalat e Segar. Lo contrari auria hun alguazir valla ad espeses de aquells a partir l'aygua'.

hydraulic interests of the Vilarrassa family in the fiefs upstream from Morvedre. First, that even if the expedition of the procurator fiscal or *alguazir* in charge of overseeing the division of the waters was supposed to be covered by the municipal arks of Morvedre, the *visura*, the broader survey of the irrigation canal, was imposed on the arks of the other nobleman allied with the Vilarrassa, Don Berenguer Martí de Torres i Aguilar[126]. We have not found any additional information in the source that could explain the concrete reason for this decision taken by the Vilarrassa to exclude themselves from paying for the survey, although everything suggests that the family, being closer to the military and administrative apparatus of the kingdom than the Martí and Aguilar families, took advantage of their privileged governmental position to save additional money. Second, this royal letter reveals that this was not just a simple conflict between inland lordships and the municipality of Morvedre, as another nobleman, Don Francesc Joan Blanes de Berenguer, lord of Canet, the last town through which the Séquia Major de Morvedre passed before flowing into the coastal wetlands, is accused of allying himself with the authorities of Morvedre and the *sequier*, so that in the early summer of 1552 he would be given priority, granting him a greater quantity of water than the other seigneuries along

[126] Ib.: 'Don Carlos favorint la divina clemencia Emperador de Romans sempre, august rey Alemanya dona Joana sa mare el mateix Don Carlos per la gracia de Deu Rey de Castella, de Aragó, de les dos Sicilies, de Hierusalem, de Leó, de Navarra, de Granada, de Toledo, de Valencia (…) Don Johan Lorens de Villarrasa cavaller regent la lloctinenencia e capitania generals en lo present Regne de Valencia al Magnifich amat conseller de la Cancelleria Real Magestat Micer Hieronym Arruffat doctor en cascun dret, comissari per nos per al efecte davallscrit elet e diputat salut e dilectió. Per quant per humil exposició a nos feta per los nobles Don Berenguer Martí Torres de Aguilar sennor quis diu dels lochs de Stivella e Bezelga e Don Hieronym de Vilarrasa sennor quis diu dels lochs de Albalat e Segart situats e posats dins los termens de la vila de Morvedre havent entès que ab provisió per nos a vint y hu del infrascrit mes ab vot e parer dels magnífichs doctors del Real Consell a instancia dells dits exponents feta seria stat manat als iusticia jurats e cequier de la vila de Morvedre que sots les penes en dita provisió contingudes donassen l'aygua que acostuimaven donar per a regar los forments e terres que los vehins e habitadors de Stivella e Bezelga, Albalat e Segart tenen e que si ho recusarien fer en tal cas a despeses de aquells y feria trames un alguazil real (…) fos feta visura axí de la cequia per la qual discorre la aygua de la qual se reguen les terres dels dits lochs com encara de altres parts e lochs a hon dita aygua sta custodida e guardada axí per a beure los vehíns e habitaors de dits lochs e animals com encara los viandants e animals (…) e manar esser feta dita visura e per al dit effecte manar (…) f(a/e)ian visura de les aygues laqual axí per vols feta provehiren sobre la partició de dites aygues tot allò qu'ens parexerá esser (…) a justicia (…) manam se facia ad espeses del dit Don Berenguer Aguilar'.

the irrigation canal[127]. The date of the court case, several months before the grape harvest, and the fact that this crop had been abundant between the mouths of the Séquia Major of Morvedre and the Montcada irrigation canal since the Christian conquest in the 13th century (wine being one of the main sources of income for the municipal coffers of Morvedre), suggests that this alliance between Francesc Joan Blanes de Berenguer and the town of Morvedre was plausible, as both possessed vineyards in the coastal plain or eastern *horta* of Morvedre[128].

b) Visual inspections revealed a metrological confusion

Apart from this unique water alliance between a manor and a municipality along the vine-growing plain of Morvedre and Canet, and what seems to be unequal financial coverage of judicial costs between the two feudal lords allied in the dispute, the central and crucial information in this royal missive is that not only did the Crown interfere in the management of municipal irrigation channels, favouring of the powerful families in the governmental apparatus, but also put this new justice into practice, sending new figures 'in loco' who watched over the application of justice while dividing the waters, also observing and opinionizing on the quantity of water in a given course. Indeed, the same term *visura* used in this royal letter, which would also be used and adopted from that moment onwards by the interrogated witnesses of the inland lordships when the

[127] Ib.: '(…) lo amat de sa Magestat Mossen Frances Blancs de Berenguer señor qu'es diu del loch de Canet pretenent tenir interes fahent part junstament ab lo syndich de la dita vila de Morvedre se ha immiscuit contra los dits Don Berenguer Martí Torres de Aguilar e Don Hieronym de Vilarassa (…)'. It is no coincidence, then, that today the town of Canet is called 'Canet d'En Berenguer'.

[128] Enric Guinot Rodríguez, 'Continuidad y cambio en los espacios irrigados (huertas) de la Valencia medieval (siglos VIII-XV)', *Agua y Territorio* 24 (2024): 36; Juan Leonardo Soler Milla, 'Una villa medieval volcada al Mediterráneo: Morvedre en los itinerarios mercantiles locales e internacionales durante la baja Edad Media (ss. XIII-XV)', in Fundación Bancaja (ed.), *De Murbiter a Morvedre* (Valencia: Bancaja, 2006), 173–85; In fact, it has been suggested that vines have been present in the eastern part of Morvedre's *horta* since the first drainage works in wetlands carried out by the Romans, in the then Roman city of Saguntm: Ricardo González Villaescusa, 'Bonificación de zonas palustres en el ager Saguntinus', in Elsa García Próper and Ferràn Arasa i Gil (eds.), *Catastros, hábitats y vía romana paisajes históricos de Europa : (proyecto Interreg 3C Vistoria)*, (Valencia: Generalitat Valenciana, Conselleria de Cultura, Educació i Esport, 2006), 221.

conflict repeated in the summer of 1554, derives directly from Latin *vīsum*, "what is seen", emphasising the main tool employed to assess water courses: the human eyes[129].

Visures, like Venetian *cavalcate*, although usually initiated as a dispatchment of one or two experts ended up being a collective experience, an expedition in which the dispatched experts completed a long tour and the local actors or stakeholders travelled along the sections or segments of the canals that concerned them. For instance, in the case of Morvedre's conflict with Estivella, Beselga, Albalat and Segart, several of these *visures* were included, the first of which was solicited by Francesc Joan Blanc de Berenguer, lord of Canet, in April 1552. Francesc Joan asked Hieroni Arrufat, the *doctor* in Law from the *Real Audiencia* in charge of the court case, to travel upstream on the Séquia Major himself, and meet Luys Anenar, the notary from Morvedre chosen by the municipal authorities for their defence[130]. Thus, the nobleman on the city's side had written a petition or *suplica* where he asked the authorities of Valencia to 'go to the city of Morvedre, and wherever it will be convenient, to walk the sections of land with the intention of conducting an inspection of the waters' ('accedat ad oppidum Muriveteris vel alio quo

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[129] Antoni María Alcover, Manuel Sanchis Guarner, e Anna Moll Marquès, «Visura», in *Diccionari Català-Valencià-Balear* (Barcelona: Gràfiques Instar, 1969), vol. X, 842.

[130] Hieroni Arrufat was a notable *doctor en cascun dret* or "doctor in both Laws (Civil and Canon)" in the main Royal court houses in Valencia, notably in the *Real Audiencia* and the *Real Consell*. He had a career of more than half of a century, from the mid 1500s to the early 1600s. Recent studies have shown that he was a key figure in important social processes in Valencia, such as giving greater recognition to noble and merchant-class widows, as well as participating in important historical events, such numerous ransom negotiations for sailors and merchants' captivities in Algiers, including that of the author of Don Quijote, Miguel de Cervantes, who was held captive in the North-African city port after the battle of Lepanto (1571) for almost five years before his mother, Leonor de Cortinas, organised a ransom negotiation for him based at the port of Valencia in 1580. Arrufat attended the inspections of silk and other luxury goods left on the beaches east of Valencia, which were to be afterwards taken secretly by light vessels to the Barbary Coast in exchange for the captives: Manuel Vicente Febrer Romaguera, 'Pere Joan de Capdevila, catedrático y abogado (hc.1495-1558): Biografía y estudio bibliográfico de su biblioteca jurídica', *Cuadernos de Documentación Multimedia* 10 (2020): 197; Cynthia Ann Gonzales, 'Taking it to Court: Litigating Women in the City of Valencia, 1550-1600' (Tucson: The University of Arizona, 2008), 136; Rafael Benítez Sánchez-Blanco, 'La tramitación del pago de rescates a través del reino de Valencia: el útimo plazo del rescate de Cervantes', *Publications de l'École Française de Rome* 406, fasc. Numéro Thématique : Le commerce des captifs : les intermédiaires dans l'échange et le rachat des prisonniers en Méditérranée, XVe-XVIIIe siècle (2008): 196.

opportuerit, et andino partibus in suis pretensionibus inspectionem seu visuram aquarum faciat et pro inde quos iustum fuerit')[131].

There is no mention in the court case proving that this first expedition in response to the lord of Canet and city of Morvedre's petition was actually conducted. We can nonetheless find the results of a similar *visura* in response to the royal letter written in defence of the lord of Estivella and Beselga and the lord of Albalat and Segart[132]. In this second case, Arrufat sent a notary to the location in question (*notari en loch*), Salvador Berra, whom he also called *comissari*[133]. Berra met with four men in Morvedre on 27 April 1552: first, Marc Anthoni Bernich, a legal representative, generally called *notari*, representing Berenguer Martí de Torres i Aguilar; second, Hieronim Lobera, representing the other knight, Hieronim de Vilarrassa; third, Hieroni Caydia a royal procurator fiscal or *alguazir ordinari de Sa Magestat*, thus an armed watchman and legal enforcer serving the king; and fourth, Pere Puig de Pasques, an *expert* named by the city of Morvedre[134].

The two sides of the court case, upstream manor and downstream town, were therefore represented in the expedition, along with the intermediary *comissari* Berra and the armed

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[131] ARV, Real Audiencia, Procesos, III Parte, Apéndice, 6294: 'Haventse posat huna scriptura de artis per Luis Anenat notari et syndich de la Universitat de la villa de Morvedre (…) Sua spectabililitas ex deliberatione Regis Audientie Providet quod sine prejudicio Jurium ac supplicatorum pro partem Sindici oppidi Muriveteris et Francisci Joannis Blanci et de Berenguer dominus qui dicitur loci de Canet: Magnificus Hieronymus Arrufat accedat ad oppidum Muriveteris vel alio quo opportuerit, et andino partibus in suis pretensionibus inspectionem seu visuram aquarum faciat et pro inde quos iustum fuerit, et pro his expediantur comissis opportuna expensae in dicta visura faciende (…)primit per nobilem Berengarium de Aguilar qui dicitur dominus loci di Stivella'.

[132] Ib.: '(…) fos feta visura axí de la cequia per la qual discorre la aygua de la qual se reguen les terres dels dits lochs com encara de altres parts e lochs a hon dita aygua sta custodida'.

[133] Ib.: '(…) lo dit Magífich e altres ministres de la Real Audiencia e convocat a Micer Salvador Berra notari en loch i per lo scrivá de la present causa en (…) a la visura de la cequia de l'aygua que discorria per aquella (vila de Morvedre) et dels termes d'amunt dits (…)'.

[134] Ib.: '(…) honorables e discrets en March Antoni Bernich notari procurador del dit noble Berenguer Aguilar et Hieronym Llobera notari procurador del dit noble don Hiernomym de Vilarasa cavallers (…) lo dit magnífich mossèn Hieronym Caydia alguazir de sa Magestat e altres ministres de la real audiència (…) dit Salvador Berra notario en loch e per lo scrivá de la present causa acompanyat de les parts d'amunt dites (…) e lo dit Pere Puig de Pasques expert nomenat per la vila de Morvedre'.

procurator fiscal Caydia. Caydia and Berra led the other three men walking the Séquia Major upstream, also meeting representatives or *experts* from each town. They repeated the procedure through the whole long day: wherever they thought it was worth stopping, they stopped and interrogated the men one by one, making sure the others were distant enough not to hear each other's responses. Unlike the judge's questions on memory of ancient customs and rights to water, *comissari* Berra and *alguazir* Caydia's questions were strictly technical, concerning what was seen at the moment. For instance, the first stop they made after exiting the western walls of Morvedre was the division between the Séquia Major and the Bras de Gausa (also named "Séquia de Gausa"), the shorter canal that was managed by the town of Morvedre which ran through the fields of Estivella. Taking one by one to see the *partidor*, the dam that divided the two canals, the two men sent by the judge asked the three legal representatives and other men present at the scene to tell them how many *files* of water were running at the moment[135]. The responses on what was seen at the *visura* were all contrasting: the notary Pere Puig de Pasques from Morvedre said that he "saw two *files* and a half of water", Joan Jola, an *expert* appointed by the inhabitants of Estivella, said that he saw at that moment two *files* of water, whereas Joan Calbó, sent by the irrigators of the hamlet of Albalat said that he saw three *files*[136]. The expedition stopped again on the other side of the Séquia Major, this time next to the *partidor* named Povera, which divided the waters of the Séquia Major for the town of Albalat, finding it dry and proving that the authorities of Morvedre had left the hamlet

[135] Ib.: 'los dessus dits sperts vista la dita cequia tornant en avall per passades les arguades del dit loch de Stivella arriba a un partidor que sta mes avall de les dites arguades que vulgarment se nomena lo partidor de Gausa lo qual te dos portells lo hun dos voltes major que la altre qu'es diu la cequia Major en la qual no y vagora de aygua al present e l'altre portell qu'es lo menor les parts que presentes eren dixeren era lo Bras de Gausa lo qual passa per lo terme de Stivella e va a Montalt e al loch de Gilet per lo qual bras al present hi anava y discorria bona partida de aygua e vist dit partidor e aygua de dit bras de Gausa lo dit Magnífich comissari feria partar les distes parts e prengue dits experts dels quals separatis medio juramento rebe relayio de aquells quanta aygua discorria per dit pres dit de Gausa (…)'.

[136] Ib.: 'e lo dit Pere Puig de Pasques (…) medio juramento y en la forma d'amunt dita dix que per dit bras de Gausa al present discorren dos files y mij de aygua e lo dit Johan Jola espert nomenat per lo dit loch de Stivella per lo semblant medio juramento dix que per dit bras dit de Gausa al present discorren tres files de aygua e lo dit Johan Calbo spert nomenat per lo loch de Albalat et a medio juramento interrogat dix que per lo dit bras de Gausa al present hi discorren tres files de aygua e fetes dites coses discorrent vora cequia a vall (…)'

without water[137]. Afterwards, while Joan Jola abandoned the expedition, the rest of the men crossed the canal and went back to the Bras de Gausa, which ran "in front of the hillside" ('avant a la falda de la muntanya'), where they stopped by to the end of the section of canal that irrigated the fields of Estivella[138]. Berra and Caydia's objective here was to verify whether there was indeed less water flowing in the canal after it passed the village. If the level was the same, it meant that the municipal authorities of Morvedre were not distributing water to Estivella at that time, while if the quantity was lower it meant that part of the flow was being retained there. They repeatedly separated the *experts* sent by each community, and their answers were as dissimilar as at the first stop: Pere Puig de Pasques from Morvedre said that there was only half a *fila*, whereas Joan Calbó from Albalat counted one[139].

Despite the variations in the described quantity of water, it was clear from the water running between the *partidor* of Gausa and the end of Estivella's canal section that the town of Estivella was using a certain amount of water. Faced with this situation, *comissari* Berra and the *alguazir* Caydia announced that they were returning to rest at the inn in Morvedre where they were staying, ordering the other members of the expedition to go back upstream starting from the Estivella end, going as far as they could in an hour[140].

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[137] Ib.: 'lo dit magnífich comissari dessusdit perossegui en fer la visura de la cequia e aygua de aquella arriba fins a la partida vulgarment dit de Povera e (…) no si troba aygua alguna en dit partidar e cequia (…)'.

[138] Ib.: '(…) avant a la falda de la muntanya ve a discórrer la cequia con bras dit de Gausa que passa per Stivella, Montalt, e Gilet (…) a la dita hora e loch no's trobes lo spert nomenat per Stivella qu'es diu Johan Jola lo dit Bernich en presencia del dit Magnífich Jutge e comissari (…)'.

[139] Ib.: '(…) per absència del dit Johan Jola spert per aquell nomenat an Johan Calbo alcayt del dit loch de Albalat et comvocats asi los dits Pere Puig de Pasques e Johan Calbo experts dessus dits et medio juramento per aquells prestat en la forma d'amunt dita interroga ad aquells separatim que li diguessen quin bras de cequia era aquell e quanta aygua al present (…) e lo dit Pere Puig de Pasques dix que al present discorria per dita cequia e bras de Gausa mija fila de aygua chircha et (…) lo dit Johan Calbo dix que discorria al present per dita cequia y bras de Gausa una fila de aygua circha'.

[140] Ib.: '(…) per major clarícia de son animo mana als dits sperts que anassen cequia amunt tant lluny com poguessen y vesen que era que tan poca aygua discorria per lo dit bras de Gausa si la havien furtada e que era que per dit bras no discorrien les tres files de aygua que en lo present dia de huy foren vistes entrar per lo partidor dit de Gausa en lo bras de aquell e del que vessen, fessen verdadera relatio per a fer la qual relatio mana ad aquells vinguessen a la vila de Morvedre a com ell dit magnífich comissari s'en anava a

After that hour, they were to return to the inn in Morvedre and confess if they had found any point where water was being stolen. Yet when the men got back to the inn, the royal authorities lamented that their information was inconsistent, despite having taken an oath "to our lord Jesus Christ", as they all agreed that they hadn't found any point from Gilet to Estivella where they saw that water was being stolen, and that they all agreed on seeing, unlike the previous contradictions, one single *fila* of running water[141]. Again, it is confirmed that a large part of the conflict stemmed directly from each side's understanding of water measurement.

reposar y star essent arribats a la posada en dita vila de Morvedre en continents apres una hora poch mes o menys los dits sperts arribaren a la dita posada (…)'.

[141] Ib.: 'los quals venien de fer la visura de la dita cequia de Gausa segons los era stat manat et incontinents en virtut del dit jurament per aquells era d'aquells prestat a nostre senyor Deu Jesuchristi (…) que es ver que ells dits relats e experts dessus dits segons los era stat manat dixeren esser anats cequia amunt per es bras de Gausa des del diu azut del riu fins mes amunt de Gilet de gran part y en tot lo que han vist no y han trobat sinó una fila d'aygua chirqua e haçò diuhen haver vist per lo jurament que fet han'.

c) Measuring water and land implied political participation

Participation, both personal and pecuniary, are also revealed as sources of dissent among the two parties. Not only did they not agree on the measurement of the waterflow, but then continued disagreeing with the procedure and the approach of the expedition or *visura*. Once Caydia and Berra made it back to the inn at mid-day, the city of Morvedre's *jurats* complained about both the *comissari* and procurator fiscal's apparent passivity and the physical absence during the whole *visura* process of lords Berenguer Martí de Torres i Aguilar and Hierónim Vilarrassa, who sent appointed *experts* from each town instead[142]. Morvedre further accused the *visura* of being brief and not too rigorous, observing only at a very short section of the Séquia Major that had nothing to do with the distribution of water to the interested towns[143]. Indeed, most of the *visura* was carried out between the city walls and the *parador* of Montíber, which distributed downstream water to Petrés and other municipally owned lands far from Albalat, Estivella, Beselga and Segart. Moreover, the dissatisfaction with the practices carried out by the two inquirers sent from Valencia was expressed not only by the municipal side, but also by the judge in the case himself. Hieronim Arrufat complained that the *visura* he'd ordered for Berra and Caydia aimed not only to determine the quantity of water flow along the Séquia Major and its capillary derivations distributing water to the hamlets (*braçals*), but also to assess whether the situation of cereal and fruit crops was as dire as according to Vilarrassa and Martí de Torres i Aguilar[144].

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[142] Ib.: 'E fetes les dites coses en contiment les dites parts aggregats junts en la posada de lo dit magnífich comissari real en la vila de Morvedre stava (…) lo magnífich comissari real del magnífich mossèn Hierony Caydia alguazir ordinari de sa Magestat e present lo dit Miguel Fortuny notari síndich de la dita vila de Morvedre axí en nom de procurdador dels dits nobles don Berenguer Aguilar e de don Hierony de Vilarrassa com lo dit don Hierony al present fos absent com sen fos anat deixant en son loch al dit March Antony Bernich com encara com a síndich de les dites universitats e baronies de Stivella e Albalat (…)'.

[143] Ib.: '(…) no entenja qu'es fes mes visura de la qu'era stada feta fins als partidors de Montiber qu'estan prop del azut de la vila de Morvedre e que si lo síndich de la dita vila volia qu'es fes mes visura protestava que aquella fos ad espeses de la dita vila e no a carrech e despeses dels dits jos(?) principals e baronies dessus dites'.

[144] Ib.: 'lo dit magnífich micer Hierony Arruffat doctor e comissari real dessus dit sentencia e volia entendre en fer visura dels termens de les dites universitats per veure la necessitats de aquells feren acte que eren

When reading about these experts' *visura*, one realises both the short distance they covered and the mistake of visiting distributive structures (*paradors*) that were not directly relevant to the interests of either of the two parties involved. Indeed, measured in a straight line, 6 km separate the western wall of Morvedre from the *parador* of Gausa, and the *parador* of Montíber in Petrés is also about 3 km away. If we add the stops made to interrogate each town *expert*, and the turns that had to be made due to the landscape's morphology, for instance crossing the Riu de Morvedre twice, the *visura* seems like an activity worthy of a full day's work. However, they still did not get as far as the dams that distributed water to Beselga and Segart on the Séquia Major, and this could easily have been realised the following day.

The observation and inquiry carried out by the experts who inspected the state of the diversion dams and questioned the local irrigators about them in response to the inhabitants of the four inland villages of the Camp de Morvedre region's plea to the Real Audiencia, perhaps seems much shorter and quantitatively minor compared to the long distances covered in other Valencian court cases, as well as compared to those covered during Venetian inspections in the Bassa Padovana. It is true that in the Venetian *cavalcate*, such as that of the *interessati* in the campaign to drain the plains of Lozzo towards the Restara Canal of Este in 1596, the number of participants and their interaction with the 'consultant experts' was more or less as high as during the interrogations and *visures* carried out by the Valencian experts and *alguazirs* in many cases[145]. In contrast with other Valencian and Venetian examples, the low number of people summoned to the distribution points of the Séquia Major de Morvedre during this specific case of the *visura*

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contents (…) per la dita visura dels sussdits termens no-s fes sinó tant solament de la cequia e aygues de aquella per ço com a tots era notory e publich de la sterilitat dels dits fruyts e forments dels dits termens de les quals coses axí lo dit Magnífich comissari com encara les dites parts requeriren a Misser Salvador Berra notari que en lo loch e lo scriva de la present causa(...)'.

[145] The judicial process with the largest number of respondents included in the archival corpus from Valencia has more than 250 interrogated persons, AMA, Acequia Real de Alcira, Pleitos, 067/3. As for the Venetian itineraries, there is no explicit mention of all the members of the *cavalcate*, but, for example, the aforementioned one of 1596 made by the *interessati* of the Lozzo deviation names 31 patricians together with a larger number of unidentified stakeholders: AE, 1-III-6, f. 2f.

of 1554, could indicate a failure of the judicial and technical inquiry directed by the Real Audiencia.

However, the number of members on each expedition or long distances in a numerical-quantitative sense does not primarily affect the analysis of social actors concerned at the time with communitarian water distribution and conflict arbitration. In this sense, it is rather important to understand whom and what each of the actors present at inspection sites represented, as well as the expectations of local communities after the *visura* or *cavalcata* was conducted. In the concrete case of Morvedre's complaint after the *visura* of 1552, we can glimpse not only their dissatisfaction with the absence of the feudal lords who had initiated the court case, but also the rejection of their serfs as valid voices in water justice. The legitimacy of these *Moriscos* who used the water of the municipal irrigation canal was diminished in court when they represented the communities that appointed them as *síndich*, *alcayt*, or simply and broader *expert*.

There was thus a disparity between what the manorial communities in the hinterland considered legitimate parties to justice and legitimate exponents of water inspection and measurement, and what the municipality with its own representation under Roman law, headed by *justícies* and *jurats,* understood by expertise. Indeed, municipal experts such as the *sequier*, theoretically the sole authority in charge of dividing the waters of the Séquia Major, received his *potestas* from the practice of formal written appointment or ballotage in the town hall, conducted by the law-savvy city élite. Like the Cubertoret brothers, the *sequier* was a farmer and irrigator who, apart from representing an important figure in the irrigation community of Morvedre, had also gained a reputation as an expert recognised by the city council. Instead, communitarian functions within serf communities such as the "orchard watchman" (*guàrdia d'horta*) or the chief (*alcayt*), on which noblemen such as Vilarrassa or Martí de Torres i Aguilar relied for controlling the agricultural produce and the use of water within their estates, were not recognised by the city, as their appointment was not validated by Roman law or written custom, but by what might have seemed more a practical, arbitrary and spontaneous appointment. The details on how, where and when these village representative appointments were made are obscure and do not appear in judicial sources that nonetheless record the interrogations in which these men are mentioned. What is clear is that these village serf chiefs, despite not having their own formal legal recognition as the *sequier* in Morvedre did, were

consulted by those who were sent from the Real Audiencia who interrogated them with technical questions about the state of the infrastructure and the amount of water flowing within it at a particular time, and whether this quantity corresponded to custom. In other words, the royal bailiffs (*alguazirs*) and municipal canal authorities, represented by the Morvedre's *sequier*, who were legally and officially the technical and juridical experts in irrigation and water use disputes, depended on the opinions of those spontaneous and unofficial experts from the inland vassal communities with whom they materially and infrastructurally shared a waterway.

Chapter conclusion

Communitarian water conflict between different water boards generated a concrete interest in technical solutions to what one, several or all of the parties involved considered a water injustice involving a faulty state of infrastructure that caused a situation of permanent flood or drought. Thus, although in the same century, especially in Veneto, important technical debates contributed to the development of hydraulic knowledge and large scale projects, the apex of which were the discussions between Sabbadino and Cornaro on the deviation of the main rivers and the potential drainage of part of the Venetian Lagoon, one should not underestimate the fact that a large part of the technical knowledge on water courses came from smaller scale quotidian micro-experiences that experts and surveyors carried out in response to many of the pleas and petitions that many communitarian water boards sent to the centres of judicial power.

Communitarian water justice was thus a major vector of technical knowledge and authority, and modern magistracies and courts of law knew that, by going about observing and describing the state of embankments, waterways and dams, they were contributing, or at least seeking to contribute, to the justice of the pleading communities. When expert delegations arrived on the scene, it was imperative that they engaged in dialogue and interaction with members of local water boards and communities of predominantly agricultural water users. During ordinary visual itineraries and observations of water distribution and of the state of the containment and canalisation structures there was thus an exchange of certain technical information between the appointed consultant experts and those who the latter though were worth inquiring.

These exchanges included information on the measurement of the flow, the quality of the constructions, the quantification of the level of benefit or damage, and, most importantly, the social roles of the people involved in water management and use. In other words, technical knowledge at the time also recalled legal arbitration skills and awareness of the social and economic stakes of the communities involved in conflict. This meant that surveyors and consultant experts, in service of government magistratures or of one of the involved *consorzi* or irrigation boards were also field interrogators in matters going from customary rights to the physical state of conservation of infrastructure.

The main concerns of water boards were thus predominantly socioeconomical rather than purely technical, and this priority implied the thorough ordinary maintenance of canals, as well as cyclical estimations of the benefits or losses of infrastructure construction and maintenance projects, frequently after periods of drought and flooding. Certainly, adversity and devastation were also motors of human observation of water, stirring the clemency of fiscal authorities and the proliferation of propaganda for new infrastructures *de benefitio universale*. Social preoccupations also simulated the appearance of a heterogeneous panoply of water measurement units that attempted to better grasp technical characteristics of water distribution and justice, such as the width of conducts, the volume and capacity of canals, and even certain forms of water current bound to be divided among communities of water users. These units not only varied from one micro-region to another, but also on the climatic, hydrological and seasonal conditions of the irrigation and drainage network. The *quadretti* in southern and western Veneto, the *fori tondi* and *onze* in the plains of Treviso, or the various flexible meanings of the *fila* in Valencia were used to describe concrete circumstances and conditions of water distribution among different communities, serving the specific goal of justly benefitting those within communities of users. Precisely because each unit served a specific regional and social interest, there was such a high variability, added to the difficulty to convert these units or proto-units that expressed an attempt to measure water to our current contemporary and standardised units of measurement.

Yet, in part thanks to the level of detail of the judicial court case between the Morvedre irrigators and the inland lordships from 1552 to 1554, we can conclude that the issue of expertise and authority was highly intertwined and polyhedric, where the involved social actors and witnesses confused the customs and privileges of time immemorial, with an equally confused per se conception of the quantity of flowing water to which one *fila* would be equivalent. Thus, heterogeneous and opposing views on water measurement units between different water boards and communities of users represented the stakes and benefits of each of the opposed parts. For the municipal authorities of Morvedre, the *fila* was a generously and arbitrarily granted portion of the canal, whereas that for the vassal irrigators of the inland fiefs, it represented a concrete and regular quantity that could be seen and measured at each of the diversion dams that brought water to their towns from the main shared canal. It is precisely from this intentioned metrological convolution, that the *experts* sent from the Real Audiencia sought to build their political authority as the

real arbitrators between the municipal and seigneurial irrigators. Far from any hint of an intention to *standardise* methods of observation, measurement and judgement in a modern, scientistic sense, the practices by which ordinary 16th century experts sought to dispense water justice responded to a constant adaptation to circumstance, driven only by the social and productive rhythms of agricultural work.

Obviously, this does not mean that there was not an important knowledge and intellectual production in the field of hydraulics and hydrographical cartography in the early modern age, resulting from a hypothetical primigenial practice of genuine curiosity and contemplation of water. However, it is important to underline the role that the sense of injustice between rival water boards, communities and jurisdictions played in technical innovation of water inspection. Exercises such as *cavalcate* and *visures* illustrate a double process of technical and social mastery acquisition on behalf of stakeholders, envoys and communitarian representatives, who tried to steer the results of their estimations in favour of a clear political intention to convince of the need for a water regime that was favourable the communities these men of knowledge represented and served. In other words, the pragmatic exercise of knowledge in justice also consisted of a political stance on who had the authority to measure, describe and decide on the infrastructural quality of waterways and if they served a fair and beneficial purpose or not[146].

We can therefore conclude that the interest of the institutions in charge of water management that governed irrigation and drainage, whether they were local or sent from the courts of justice of the centralising power, entailed an observation of the physical conditions of the waterways parallel to a remarkable sensitivity to the local interests at stake. The surveillance of dykes, dams, gates and canal beds implied thus a surveillance of social practices. The second aspect will therefore be dealt with in the next chapter, thus on the economic techniques of water appropriation and their prosecution.

[146] Pietro Daniel Omodeo begins his study with a similar phrase: "Knowleedge about water is intrinsically political": Omodeo, 'Hydrogeological knowledge from Below', 539.

Figures referred to in Chapter Four

Town / community	Oncie
Boiago	36
Padernello	12
Trivignano	15
Fanzolo	14
San Vito (Altivole)	26
Ciano	3 (*alto)* x 4 (*largo*)
Villa	15
Paderno	21
Pezzan (Istrana)	12
San Andrea di Carpenedo (Cavasagra)	19
San Floriano	7
Sovernigo	18
Riva?	3 (alto) x 4 (largo)
Monigo	24
Ponzano	12
Istrana	24
Albaredo	13
Vallà	4 1/2
Salvatronda	4 1/2
Altivole	13
Merlengo	12
Villorba	*"il resto dell'acqua dietro il Bosco"*
Sala	12
Vedelago and Albaredo	13
Caselle	4 1/2
Salvatronda	4 1/2
Guarda di Montebelluna	22 1/2
Pieve di Montebelluna	13 1/2
Postioma and Signoressa	4

Fig. 14: Late 15th century water distribution of the Brentella canal measured in *oncie*[147]

[147] ASTv, Comune, 609.



Fig. 15: Late 15th century water distribution of the Brentella canal measured in *fori tondi*[148]

[148] ASTv, Comune, 609.

Period	Total reports	*Boccaruolo* irrigation theft	Percentage of irrigation thefts
1510 – 1520	359	223	62,12

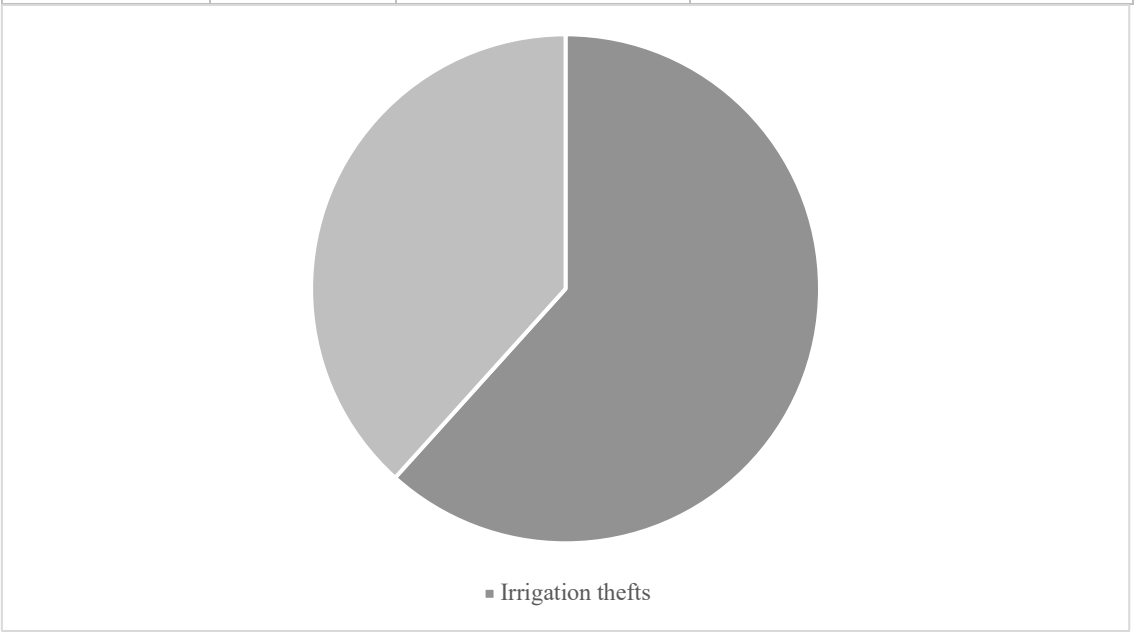


Fig. 16: Proportion of irrigation thefts with *boccaroli* reported to the *Ufficio alle Acque* of Treviso (1510–1520)[149]

[149] ACP, Libri 1E, 2E and 3E. Note how than half of the denunciations received and recorded by Treviso's Ufficio alle acque concerned thefts for irrigation

Chapter 5 – Routines of Infrastructure Vigilance and Political Representation

Tangible knowledge of infrastructure in Venetian and Valencian water boards entailed social knowledge of those who benefited from them. The routines of inspecting containment structures such as embankments, canal beds and dykes required not only sustained interaction with canal users, but also engagement with their recurring practices of water use. These inspections were not merely technical assessments; they involved a continual circulation of opinions and judgements about daily water usage, issued both by appointed experts and by ordinary members of the water boards. Observation, approval and rejection of particular uses of water were inseparable from discussions about the state of the infrastructure and debates over the measurement of flow and volume. In this context, technical expertise operated as a form of political authority, and the practical exercise of such expertise generated an expanding sphere of surveillance over human activity.

These surveillance functions were carried out by individuals who simultaneously embodied roles of internal enforcement and external representation. They served as the spokesmen of water boards in their relations with neighbouring *consorzi*, other communitarian bodies and state institutions. Within the canal networks themselves, they functioned as guardians and enforcers of the rules governing water distribution and usage. In the case of longer canals or more complex water systems, such responsibilities were often distributed across a small body of individuals, either elected or appointed by the water boards' assemblies, who collectively exercised authority over the perceived fairness and regularity of water use.

This chapter seeks to understand why infrastructural maintenance and the monitoring of water use consistently gave rise to forms of political representation, and how the expectations placed upon such representatives were shaped. Central to this inquiry is an examination of the physical and procedural conditions that made canal surveillance both necessary and legitimate in the eyes of its practitioners. It considers the material practices that instilled a collective sense of infrastructural responsibility, and the electoral and

nominative mechanisms through which individuals were selected to occupy, at regular intervals, these representative and executive positions.

The procedures of nomination, election and supervision, whether grounded in communal consensus or determined through the random drawing of lots, reflected the normative ambitions of these communitarian institutions. These ambitions were not limited to the technical management of infrastructure but extended to broader conceptions of fairness, legitimacy and internal cohesion, expressed through the selection and recognition of those entrusted with the governance of shared water resources.

The analysis begins with a study of how specific figures such as the *sequier* in Valencia and the *presidente* and *cavarzerano* in the Venetian context emerged as central agents of political representation. Their authority was anchored in practical functions of inspection, maintenance, sanction and communication, and took shape through a combination of voluntary obligation and salaried service. This section, section 1, also examines how the physical labour involved in canal maintenance contributed to delineating and reaffirming the spatial and juridical boundaries of the irrigation systems themselves.

From there, in section 2, attention shifts to the actual routines of vigilance and punishment, tracing how certain offences–ranging from failures in maintenance to unauthorised water use–were addressed through both formal ordinances and informal disciplinary practices. Special emphasis is placed on the flexibility of these punitive mechanisms, which could be softened or intensified depending on environmental contingencies or economic entanglements.

The final part of the chapter, section 3, turns to the procedures by which these representatives were selected, highlighting the ideological legacies of Late Medieval practices of institutional nomination, as well as more modern forms of election, drawing of lots and economic preselection. By considering how figures entrusted with the enforcement of water discipline were themselves subject to processes of oversight and trust, the chapter concludes with a reflection on how these communitarian water institutions sought to legitimise the exercise of power over shared infrastructures through both inherited ideals and practical adaptations.

1. The emergence of representative authority through *sequiers* and *cavarzerani*

a) Related functions: cleaning, monitoring, punishing and representing

One of the most frequent infrastructural canal management practices carried out by communitarian water management institutions in Valencia and Veneto was the cyclical cleaning of the canals. By partially or completely cutting off the flow of the canals, and exposing the canal bed to the air, different authorities and groups of users who either compulsorily offered their work, or did so voluntarily with or without a salary, went along the canals, removing filth, weeds and accumulated sediments (the *giara* in Veneto, or the *tarquim* in Valencia)[1]. This routine activity became officially established as a custom and customary law in the late medieval kingdom of Valencia, whose *Furs*, the kingdom's customary compilations, came to include a section expressly dedicated to this activity, which fell under the authority of the most important presential representative of each community of irrigators from times prior to the Christian conquest of the kingdom, the *sequier*. It is important to emphasise this characteristic of first-hand material power of the *sequier*, since throughout the 14th and 15th centuries, irrigation communities under royal, municipal or intermunicipal control had externally nominated legal representatives named *diputats*, who were usually noble or urban élite, and who instead of covering the technical activities that *sequiers* carried out along irrigation infrastructure, legally represented the institution from a distance[2]. In other institutional contexts of north-central Italy, such as in Sforza and later Spanish-ruled Cremona, the analogous term *deputati navigii* was used to designate those responsible for the oversight and construction of the Naviglio canal of Cremona, appointed by both communal and ducal authorities.[3]. However, in Valencia, by the middle of the 15th century, the *sequiers* became in practice

[1] A very complete study on the transmission of Catalan-Aragonese stonemasonry and building techniques applied to Valencian irrigation canals after the conquest of the kingdom in the 13th century is: Torró Abad, 'Canteros y niveladores'.

[2] Guinot Rodríguez and Esquilache Martí, 'Not Only Peasants': 148.

[3] Marco Bellabarba, *Seriolanti e Arzenisti. Governo Delle Acque e Agricoltura a Cremona Fra Cinque e Seicento*, Annali Della Biblioteca Statale e Libreria Civica Di Cremona 36/1 (Cremona: Libreria del Convegno editrice, 1986), 57.

the highest authority of irrigation communities, as royal courts of justice dialogued directly with them and not with the theoretical legal authorities of the community[4]. This concentration of authority under the *sequier* happened because he exerted a multi-faceted function: on the one hand, in purely physical actions of maintenance and distribution, opening gates, closing embankment punctures and cleaning canal beds; and, on the other hand, by conducting routine surveillance, denunciation, admonishment and sanction of water uses and users. Routine embankment cleaning was often the responsibility of the *frontalers*, who possessed plots of land directly adjacent to the irrigation canal. The *sequier* was in charge of inspecting and surveying that each *frontaler* was getting the job done correctly, and, if this task was not carried out previous to the *sequier*'s inspection, the *frontaler* paid extra for the diggers accompanying the *sequier* to carry it out[5]. This obligation to have the adjoining section of the main canal or *séquia mare* clean was also included in the late 15th century ordinances of the Favara canal[6]. Annual moments of cleaning also coincided with the annual observation and finding of material elements along the waterways, such as non-authorised sluice gates (*portells* in Valencia and *chiaveghe* or *chiaviche* in Veneto), or secondary diversion dams within a main canal (*partidors* or *partidori*), as well as communities of users, that indicated different extraction practices at the service of different forms of water use that were then judged as licit or illicit.

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[4] In fact, in the corpus of sources consulted on 16th century irrigation court cases, the term *diputat* is only used in a hybrid form, together with other more common terms used in the everyday administrative language of the irrigation communities: ARV, Real Audiencia, Procesos, III Parte, Apéndice, 6325: 'diputats sequiers'; The term diputat is also used interchangeably with the term *síndic* in a mid-16th century court case interrogation concerning the Montcada canal irrigation board: ARV, Gobernación, 559.

[5] *Fori Regni Valentiæ* (In civitate Valentia: arte ac industria Ioannnis de Mey Flandri, 1547), liber IX, c. XXXV, Rub. XXXI, c. III, fo. CCXLVIIr – CCXLVIIIv: 'Los cequiers una vegada en l'any de sol a sol e de fons a fons scombren les cequies, e oltra aquell scombrament porguen e scombren aquelles de herbes una vegada cascun any, e no tornen l'aygua en les cequies entro que sia vist si sufficientment s'eran scombrades segons la manera sobredita'. The *sequier*'s role as supervisor of cleaning was limited to the main channel, while the cleaning of the various branches was usually the sole responsibility of the *frontalers*: Thomas F. Glick, *Irrigation and Society in Medieval Valencia*, 50–51.

[6] Luis Pablo Martínez Sanmartín and Vicent Terol i Reig, 'El libro de los actos', 615–16; Arxiu del Real Col·legi Seminari de Corpus Christi de Valencia, Registros Notariales Donación, MASQUEFA, Lluís (1492-1493), Protocolo 18602, vol. 18.602, fol. 15v and fol. 20v.

An example of the interaction generated by this annual gesture of cleaning the beds of the irrigation canal, in this case rather conflictual, is that which arose in 1542 between the *sequier* of the Rovella irrigation canal and the nuns of the Convent of the Sacred Conception or of Saint Clare, a building located within the south-western walls of the city of Valencia and which irrigated its garden with the water from the aforementioned canal[7]. The nuns of the monastery, despite technically and physically being *frontalers*, not only refused to participate themselves in the work of cleaning the section of the canal that passed inside the monastery, but also refused to pay the *sequier* the annual contribution that would pay the salaries of those other *frontalers* that worked in the cleaning[8]. Valerio Claramunt, one of the irrigators of the Rovella canal board, stated that this annual cleansing was publicly announced each year by the *comunitat*'s authorities as an obligation imposed on all the *frontalers* of the canal. If a *frontaler* did not clean his section of the canal within a given deadline, he had to pay the *sequier*, his watchmen and other *frontalers* to do this job. According to Claramunt, that is what the nuns in the monastery had done since 'time immemorial'[9]. Another witness, Vicent Roures, a farmer from the

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[7] ARV, Real Audiencia, Procesos, II Parte, Letra S, Apéndice, 15: 'Procès del Convent e Monestir de la Sacratissima Concepció de la present ciutat de Valencia (…) Contra Lo síndich de la comuna de Rovella. Relador lo Magnífich Micer Johan Frances Benavent, cavaller doctor en cascun dret del Real Consell'

[8] Ib.: 'En presencia de vos, molt spectable portantveus de general governador de la present ciutat e regne de Valencia personalment constituhit en Joan Guimera notari e síndich e procurador de les reverents abadessa, monges e convent del Monestir de la Inmaculada Concepció de la Verge Maria olim de Sancta Clara de la ciutat de Valencia lo qual diu e posa que lo dit convent e monestir es en quieta e paciffica possessió (…)no sols de quatre, sis, deu, vint, trenta, quaranta, sexanta anys e de tant temps que memòria de homens no es encontrari de no contrubuhir ni participar dit estament, ni judir esta y en lo scurar e neteiar la cequia apellada de Rovella, la qual passa per lo dit monestir e límits de aquell (…) en tot ni en part impero son quieta e paciffica possessió per tot lo dit temps immemorial de requerir als síndichs de dita cequia e oficials de aquella que scuren aquella dins los límits del dit monestir y en fer compellir aquells en scurar la dita cequia en lo dit loch e com axí lo sindich e oficials de la dita cequia com altres persones particulars (…) en voler perturbar al dit convent e (…) monestir en la dita sua paciffica possessió (…) e té lo dit convent e monestir de no contribuir ne pagar cosa alguna en lo scurar e neteiar a preu general com en particular per lo tret que passa per lo dit Monestir (…) los oficials de la dita cequia scuren e neteien aquella e la faren scurar sens contribuir lo dit convent cosa alguna del scurar e neteiar aquella permetent en lo dit nom fer dret davant vostra senyoria e cort sua e star a dret e pagar la cosa jurada.

[9] Ib.: 'Item diu ut suppra que lo síndich de dita comuna y cequier de aquella cascuns anys acostuma de fer netejar la dita cequia de sol a sol cascun anys una veguada fent crida publica als frontalers que netejen dita cequia paguant e fent paguar als dits frontalers lo neteig de aquella. (…) Item diu ut suppra que no neteigant

village of Russafa, southwest of Valencia and on the banks of the Rovella canal, claimed to have been a watchman at the moment the conflict with the Monastery of Saint Clare had initiated, together with the then *sequier*, named Colçalbo, and other ten or twelve men who were digging and carrying out the annual cleaning of the Rovella canal, next to the monastery. Roures remembered *sor* Ysabel Diez, the monastery's abbess, and another of the religious congregation's sisters telling the men who were working in the cleaning and digging to make sure to 'clean the canal properly', adding that they would afterwards pay them for the work. According to Roures, although he did not remember the exact amount set by the *sequier* Gonçalbo for that job per man and per day, he did recall that they asked the abbess to pay eight *sous* in total for the cleaning of the monastery's canal section. To this the abbess replied that she did not have that amount that day at that moment, but reassured the diggers that she would pay the following day. She seems not to have kept the promise, triggering the complaint lodged by the *sequier* of the Rovella irrigation canal to the Real Audiencia[10].

This case illustrates how, alongside the tangible function of cleaning and maintenance and the monetary retribution of labour, there was an associated function of monitoring and deciding which licit or illicit practices allowed for the inclusion or exclusion of water users from the institution that represented the canal, implying the presence of at least one overseer, in this case, Vicent Roures. In other words, we can see how a cyclical and material practice was not only anchored in the legal regulations, customs and statutes of

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lo dit monestir lo neteig de dita cequia, lo dit cequier feya scurar dita cequia ad espeses del dit monestir e lo dit monestir paguava e acostumava de paguar lo dit monestir per tant de temps que memòria de homens no es en conttrari'.

[10] Ib.: 'Lo honorable en Vincent Roures llaurador del lloch de Ruçaffa (…) dix (…) que en dies passats (…) hera cequier de la dita cequia Goçalbo (…) veu ell testimoni escurar la dita cequia y ell testimoni era vehedor de certs homens qui escuraven aquella y entraren en lo (…) dit monestir (…) y deu o dotze homens qui escuraven en dita cequia y essent dins lo dit monestir escurant (…) la avadessa del dit monestir ensemps ab una monja ixqueren en lo dit hon ell testimoni e los altres homens feyen fahena y digueren ad aquells que scurasen be la dita cequia puix ho pagareu e axí s'en tornaren havent dites les dites paraules (…) no es recordant que pagaven per lo escurar de dita cequia certa cosa que no sab ell testimoni quant es. E es recordant ell testimoni que demana dos jornals heren deguts per escurar la dita cequia que heren huyt sous a la dita abbadessa e aquella li respongue que al seu demà pagaria, que no tenia diners aquella hora just del lloch'. Mention of the abbess' name: 'La reverent sor Ysabet Diez abadessa del convent e monestir de la conceptió olim Sancta Clara de la present ciutat de Valencia'.

the various communitarian institutions and, in the case of Valencia, the *Furs*, but also generated mechanisms of integration or separation of individuals from the participation of user communities, in this case, the self-exclusion of the sisters of Saint Clare from monetary contribution to physical labour.

In Valencian normative sources, essentially in the kingdom's *Furs*, the figure of the *sequier* seems clearly to serve a triple function: first, as distributor and arbitrator; second, as observer and watchman of the tasks of cleaning and maintenance; and, third, as representative of the community projected to the outside world in case of conflict or interaction with other forms of power. In short, the *sequier* was the highest authority of an irrigation community[11].

Nonetheless, throughout the long Middle Ages and Early Modern period, the concrete functions of the *sequier* varied and were limited by specialised figures, as it was also logistically coherent for longer irrigation canals. Middling figures of authority in charge of cleaning and arbitrating, as well as in charge of judging and punishing, appeared, for instance, in the longer Montcada irrigation canal, as we can see, for example in some court cases from the mid 16th century (*Fig. 24*). Members of the Montcada *comunitat* voted twelve *síndics*, and the latter appointed twelve *veedors* for each of the twelve sections of the canal, and, generally, although it could be variable, at least ten *síndics* were elected by ten main municipalities, while two *síndics* came from two smaller municipalities that rotated annually[12]. Thus, each of the twelve sections into which the Montcada canal was divided each year had a *síndic* and a *veedor*, normally coinciding in their places of origin or residence. This fact is interpreted by Tomàs Peris Albentosa as an interference of municipal interests of the towns adjacent to the canal, whose formal management should in theory have been 'intermunicipal'. In other words, what Peris Albentosa suggests is that, although the municipal authorities allowed the annual

[11] *Fori Regni Valentiæ* (In civitate Valentia: arte ac industria Ioannnis de Mey Flandri, 1547), liber IX, Rub. XXXI, c. I, fol. CCXLVIIr: 'Los cavacequiers vajen sobre les aygues, e les cequies de tot lo terme de la ciutat e negun no sia osat de pendre les aygues ne torbar les cequies, ne tolre les aygues de una cequia, ne menar per altra, ne trencar les mares de les cequies, o les filloles, ne fer ninguna cosa de justicia a son vehí sobre les pagues, e si alcun ho fara pach sexanta sols, e penyor'quell per la damunt dita pena, e per la força ab la cort, e sens la cort e segons que a ell sera ben vist.'

[12] Enric Guinot Rodríguez, *La Real Acequia de Moncada* , 45.

'intermunicipal' election of the *sequier*, practical management and vigilance functions fell directly to the *síndics* and *veedors* of each respective section of the canal, loyal to the interests of the towns that had appointed them rather than to a hypothetical common interest of the entire canal[13]. In irrigation canals under municipal jurisdiction, such as the Alzira irrigation canal (whose route forms a large part of the present-day Royal Júcar irrigation canal or Real Acequia del Júcar / Séquia Reial del Xúquer), groups of intermediary figures were also created in which the *sequier* delegated his powers of maintenance, surveillance, punishment and representation. Thus, in 1510, farmer Juan Sanz from Alzira was caught trying to avoid paying the annual *sequiatge* contribution, and denounced by some *veedors*, or, as the Latin legal sentence calls them, '*offitiales visure*', who were inspecting the state of the canal and collecting the annual contributions for the irrigation community[14]. Nonetheless, whether in the normative formulation of the *sequier* as the only canal cleaner, judge and representative of an irrigation community in the *Furs*, or in the factual functions that the middling *síndics* and *veedors* occupied, what both theoretical-practical concepts show is that, concerning water management, communitarian political representation went hand in hand with routine gestures of cleaning and maintenance of the canals.

Since Venetian *consorzi* have not produced statutes and ordinances similar to those of the Valencian irrigation communities, or at least these documents have not been preserved, we cannot say that such an obligation to routinely clean the canals was formalised in any normative text, either internal to each board or in the level of the Stato da Terra. The lack of descriptions of the cleaning of the canals of the Venetian Terraferma in legislative compilations spares us, in part, the terminological imbroglio that on the contrary happened in Valencia around the meanings of *sequier*, *síndics* and *veedors*, which, in practice, exercised very similar and overlapping functions (clean, maintain, judge, sanction and represent). However, there are legislative texts dater prior to the Venetian governmental presence in the Terraferma. Although they do not give many details of administrative positions and political functions, like the Valencian *Furs* did for *sequiers*, they do describe similar cleaning and maintenance practices, added to vigilance and

[13] Peris Albentosa, 'El ejercicio de la autonomía local': 134–4, 23; Guinot Rodríguez, *La Real Acequia de Moncada*, 46–47.

[14] ARV, Real Audiencia, Sentencias, 462: 'offitiales visurem seu videdores rigantis'.

punishment of water and water infrastructure uses. Thus, some late medieval communal statutes in various towns in the southern limits of the district of Padua, such as those of Montagnana or Este, include chapters in which similar cleaning, or rather, dirt-cleansing and weed-clearing activities are described as part of the construction and maintenance of small irrigation ditches under the jurisdiction of the city's *podestà* and municipal council, entitled 'De cavantibus fossatos'[15]. And, apart from medieval normative texts, specifically in the petitions produced by *consorzi* in dialogue with the Venetian magistracy of the *Provveditori sopra i beni inculti*, we find terms that do suggest that behind these tasks there were elected figures of authority in charge of coordinating the cleaning and maintenance, as well as judging and punishing practices of water use. Thus, for instance, in 1566 the members of a local *consorzio* that possessed lands protected from a dam between the now drained and reclaimed lakes Vighizzolo and Buel del Lovo, voted a *cavarzerano* in charge of 'well governing and safeguarding the levees' in exchange of an annual salary of 25 *ducati*[16]. The term was widely employed in the region, for much larger and longer watercourses, as it was in the case of the *cavarzerano general dell'Adese*, appointed by the municipal authorities of Padua in 1552, as mentioned in the previous chapter[17]. The functions that these *cavarzerani* seemed to have conducted appeared mainly technical, of ordinary and regular inspection of the dams, levees and embankments. Indeed, in his dictionary of Venetian language, Giuseppe Boerio associates this term to the Italian form 'capo d'argine', i.e. the 'head of the dyke', just as the homonymous town on the banks of the Adige and the Gorzon canal, Cavarzere, was frequently Latinised as 'Caput Ageriis', intending that it was a sort of metaphorical 'head' of the Adige[18]. Boerio defined *cavarzaran* as 'he who watches over the men who work

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[15] ASM, Sezione Veneta, Statuti del Comune, 1. There were similar rubrics in other communal statutes from other cities in Veneto, for instance, Cittadella, in Padua included amog its 14th century statutes a rubric entitled 'De cavantibus foxatos apud vias': Ermanno Orlando, *Strade, traffici, viabilita in area veneta: viaggio negli statuti comunali*, Quaderni del corpus statutario delle Venezie 5 (Roma: Viella, 2010), 105.

[16] ASM, Sezione Veneta, Acque, 320, f. 16: '(…) quel cavarzenano che per noi interessati nella dita Presa li sara appresentati qual haver debba ducati vinticinque all'anno con carico di far tenir essi arzeri ben governati et custoditi'.

[17] ASPd, Acque, 84, as seen in p. 245.

[18] Giuseppe Boerio, «Cavarzaran», in *Dizionario Del Dialetto Veneziano* (Premiata Tipografia di Giovanni Cecchini Editori, 1856), 153; Baldi, *'Cavarzere Giacente Humile Fra Palustri Canne...': Storia e Cronaca Dal XVI al XVIII Secolo*, 36.

on the embankments of a river'. Although the supervising function identified by Boerio is accurate, in the early modern period the *cavarzerano* was apparently not only present during intense construction activities, but also in overseeing regular uses of water infrastructure. Thus, in 1568, *cavarzerano* of the Gorzon Canal, Niccolò Padavino, wrote to the Venetian *Provveditori* asking for a tax exemption in exchange of his own regular service along the canal, as well as for his father's service – who he also called *cavarzerano* – during the digging of the canal in 1557[19]. This suggests that he covered a dual function depending on the moment: during extraordinary construction campaigns, he became a sort of master digger, in a similar way to the Valencian 'levellers' (*livelladors*), whereas during regular times, the *cavarzerano* was a sort of quotidian overseer of infrastructure, cleansing the canal bed and covering punctures, in a comparable way to which *veedors* and *sequiers* did cyclically in Valencia[20]. Following this same sense of *cavarzerano* as not only an embankment building and canal digging supervisor, but also as a watchman and judge, another example can be cited in the case of the Mezzana canal *consorzio* of Adria.Its members voted a *cavarzerano* or *giudice d'argine*, which translated literally as 'embankment judge' with a one-year term and, by 1572, a salary of 20 annual *ducati*[21].

[19] ASVe, Provveditori sopra i beni inculti, 456.

[20] Torró Abad, 'Canteros y niveladores'.

[21] ASCA, 760, f. 3: 'De dui ottobre. Havendo besogno quod utille et benefitio universal del dicto Retratto de Mazzana (…) per far provisione et ellectione de uno Judice d'arzere del dicto retratto che salii caricho di (…) funzione necessarie et utille a detto retratto come si osserva così (…) con li altri giudici d'arzeri. (…) 18 Marzo 1572. Jacometo Zola si offre per un salario di ducati 20 essere giudice d'argine del consortio.'

b) Voluntary and remunerated services of maintenance and surveillance

Thus, digging canals, together with annual inspection, dredging and cleaning, generated interaction and vigilance with the different users of the water networks. With a greater labour intensity than cyclical cleaning practices, digging old canal beds that were clogged with sediment or directly digging new canals ex-nihilo also implied close monitoring of potential water transgressions perpetrated by users along these structures. Excavating the canal was carried out in exchange of different models of retribution, depending on each community and institution involved. It was common that, as in the case of the Rovella canal, this yearly job was obligatory for the members who owned plots in front of the main canal (*frontalers*), who, under the supervision of the *sequier* and watchmen, would realise this work without any kind of salary, or in exchange of a small one, since cleaning was supposed to serve a shared common benefit for all of the users. This was also the case of the Brentella canal and its different ramifications across the plains north of Treviso and south of the Montello and Mount Grappa ranges, responding the concept of *publicum* (or *piòvego*, in Venetian). According to this, the communities that were supposed to benefit from the Brentella canal once it was completed, were to offer free work in the form of annual *corvées* in the digging and maintenance of the canal. Raffaello Vergani interprets this initial period of forced labour as the root cause of long-term structural deficiencies and inadequate maintenance, attributable to local communities that lacked genuine interest in the project. He also links it to widespread passivity in the local oversight of the canal, and to an enduring resentment among the communities of the Treviso plains toward the city that had imposed the construction of the Brentella upon them. This resentment, according to Vergani, also explains the frequent and largely unpunished instances of water theft–commonly carried out through *boccaroli*–which were discovered annually but seldom reported or sanctioned, partly because the local guards belonged to the same communities and shared the memory of the coerced labour[22].

[22] Vergani, *Brentella*, 51. The Venetian word *piovego* also gave origin to a canal built in the 1200s north of the walls of Padua that connected the Bacchiglione to the Brenta, permitting thus a direct waterway to Venice from the northern walls of Padua. Fiscal, contractual or usurious irregularities were judged in medieval and modern Venice by a magistracy also known in vulgar terms as Piovego, the term having

In an effort to better engage local stakeholders, the *podestà* of Treviso began to offer paid employment for the excavation of the Brentella canal's further extensions, approximately a decade after the establishment of the *Ufficio alle Acque*, which had initially proposed the project. As a result, the system of mandatory one-man-per-village labour was gradually replaced by paid work during subsequent construction campaigns. This change responded to earlier protests from the *rettori*–the legal representatives of the rural districts of Treviso's backcountry and the neighbouring *podesteria* of Asolo–against the system of *corvées*. Wages were set at 14 *soldi* for each labourer recruited from the rural communities of the Treviso, Mestre, and Ceneda hinterlands[23]. Nevertheless, instances persisted in which entire communities refused to carry out work for the *podestà* of Treviso, even if remunerated. One such case was that of Quero, located on the pre-Alpine foothills along the western bank of the Piave, whose inhabitants showed no interest in diverting water

undergone a similar evolution from the Latin *iudices publicorum*: Marco Ferro, «Piovego», in Dizionario Del Diritto Comune e Veneto, Seconda edizione, II (Andrea Santini e Figlio. Merceria San Giuliano N. 715, 1847), 439–42; Giuseppe Boerio, «Piovego», in *Dizionario Del Dialetto Veneziano* (Venezia: Premiata Tipografia di Giovanni Cecchini Editori, 1856), 312; Other cities in Veneto included similar policies of obligatory forced labour for the cyclical maintenance of canal infrastructures, such as Verona, whose medieval statutes established that the city's judges 'possit compellere omnes habitantes in villis laborare ad ageres, stratas et dugalia': Orlando, *Strade, traffici, viabilita in area veneta*, 161. However, Salvatore Ciriacono also suggests that there was a certain favouritism among the Treviso nobility elite in charge of the management of the Brentella, and that for this reason there were major irregularities in both justice and infrastructural maintenance of the canal in the second half of the 16th century: Ciriacono, *Building on Water*, 40.

[23] ACP, Libri Rossi, 1E, 4v-5r.: 'Divisio pecuniarum intr. Civitatem Tarvisii et terram Asyli et quod omnes rectores Agri Tarvisium obedire debeant Domini Pottestati et Capitaneo Tarvisii (ex libro primo Aquarum). 1443 die 15 Martii in Rogatis. Franciscus Foscari Dei Gratiam Dux Venetiarum et Nobile et sapienti viro Victore Barbaro de suo mandato potestati et capitaneo Tarvisii (…) deliberamus cum nostro consilio (…) quod omnes comitates Tarvisiae et Cenetesis et Mestrinensis (…) debeant pro utilitatem (…) contribuere et dare ad predictorum laboriem unum operarius pro quolibet anno (…) et dare solidos 14 pro alio loco'. It is worth noting that, although today Mestre belongs to the municipality and province of Venice, at that time it was a burgh with its own *podestà* yet closely related to Treviso. As for Ceneda, it was an important *podesteria* of the territory of Treviso, which today, together with the neighbouring town of Serravalle, is part of the municipality of Vittorio Veneto.

towards the water-needing plains of the '*campaneas tarvisinas*', and asked the authorities of Treviso for the respect of '*antiquas exemptiones*'[24].

Yet, by the second half of the 16th century in the Veneto, as had been the case in Valencia since the Christian conquest, the most intense campaigns of construction and levelling of canals, the latter essential to keep water flowing in flat places with low relief variation, were activities that paid the labourers a salary, while the master levellers potentially also received land[25]. For example, in 1558, *Provveditori sopra i beni inculti* Giacomo Barbarigo and Niccolò Zen, after having ordered the cleaning and relevelling of the Battaglia canal, decided to appoint Marcantonio di Garzoni as an accountant and tax collector (*cassier*) in charge of collecting taxes from local mill owners and mill renters that would pay for the salaries of those who worked in the digging and cleansing[26].

Nevertheless, there were times in which only a portion of the work was remunerated, while the remainder was considered voluntary, and thus unpaid. For example, in the aforementioned case from 1566, when a *cavarzerano* was appointed to oversee recently reinforced dykes along a canal between the lakes of Vighizzolo and Buel del Lovo, the individual received an annual salary for his supervisory role. In contrast, other tasks assigned by the *consorzio* responsible for that canal were considered gratuitous and carried out without compensation. In this case, as it was related to the interests of the *consorzio* of the upper part of the Gorzon canal, the *Provveditori sopra i beni inculti* had

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[24]ACP, Libri Rossi, 1E, 22r.: 'Contra illos de Quero nolentes laborare ad antescriptum laborerium. Franciscus Foscari Dei Gratia Dux Venetiarum, nobile et sapiente viro Joanni Malinpetro de suo mandato potestati et capitaneo tarvissi salutem et dilectionis (…); comparentibus diebus pretrioris ad partiam nostram (…) plebis Queri in nostri territorio Tarvisii (…) supplicantis fuit ut dignaemur sibi (…) facere debere eos antiquas exemptiones quodque non cogerentur ad opus fosse conducti aquarum per campaneas Tarvisinas.'

[25] Torró Abad, 'Canteros y niveladores', 213–14; Ib., 'Palafanguers', 270.

[26] ASVe, Provveditori sopra i beni inculti, 839: '1558. Havendo noi Jacomo Barbarigo et Nicoló Zen, proveditori sopra li beni inculti a far chavar il canal della navigation da Este alla Battagia et constar li livelli delli molini della Restara Bagnaruol et alla Rivella per la regolacion delle aque (…) et essendo necessario dar caricho a una persona o particular (…) debba far li pagamenti alli operarii non possendo noi far tal effeto di nostra mano habiamo eletto per cassier del dito chavamento a Marcantonio di Garzoni il qual volemo che deba pagar tutti li operarii et alttre opera che ochorrerano farse pertal contto
(…) In Este alli 22 decembrio 1558'.

engaged to fund these dyke reinforcement works in the drainage canal between the two lakes with a previous deposit of the local *consorzio*, and thus also decided which salaries they covered and which they did not[27]. The *Provveditori* ensured that two men from the *consorzio* approved, certified and publicised the completion of the work in front of other stakeholders and local observers in the neighbouring towns, performing this task without compensation as they were themselves stakeholders in the *consorzio*[28]. Another function, that of the *cassier*, in charge of firstly collecting the contributions of each *consorte* and then paying the salaries to the diggers and builders (*operarii*) that had done the physical work of repairing and fortifying the dykes, neither received a salary. Following the recommendation of the patrician Pandolfo Morosini, the members of the *consorzio* appointed as *cassier* a farmer from his family's estate, Battista Maganza. Both the *Provveditori* and Maganza's employers, 'li magnifici suoi padroni', ensured that he received no remuneration for his service[29]. In this way, both the Venetian *Provveditori* and the members of the *consorzio* they supported drew a clear distinction between routine tasks that were compensated–such as surveillance and infrastructural maintenance–and those duties expected to be performed voluntarily by *consortes*, who shared common interests and were required to contribute unpaid labour.

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[27] ASM, Sezione Veneta, Acque, 320, f. 16: '1566 al modo di Venetia adì 25 Zener (…) li Clarissimi (…) Provveditori sopra li beni inculti (…) vista la scrittura presentata sotto il Giorno di heri per li magnifici Messeri Jacomo Contarini et Pandolfo Moresini per li nomi che intervengono come interessati nella presa superior del lago de Vighezzuol nel ritratto del Gorzon (…) proclamiamo che essi interessati possano à cambio di quella quantità de dannaro che fara bisogno per la presente occorrentia del repparar et fortificar detti Arzeri dovendo esser reintegrati detti interessati delli predetti dannari (…)'.

[28] Ib.: 'Che siano et s'intendano approbatti li doi soprastanti infranominati eletti per detti Magnifici Interessati che habbiano carico di far li laudi delli arzeri predetti di quella misura et qualità che saranno fatti (…) e delli quali laudi sian fatti li pagamenti per il cassier á questo deputato á quelli operarii che haveranno lavorati, et detti soprastanti non possano domandar ne haver alcun salario per tal carico perche si ahnno voluntariamente offerti per esser ancora loro interessati della ditta presa superior (…)'

[29] Ib.: 'che messer Battista Maganza fattor delli magnifici da Ca' Morosini per loro per loro magnifici interessati eletto per cassier sia et s'intenda approbatto con carico di far li pagamenti (…) il qual cassier non possi domandar per tal conto alcun salario ne utilitá per haverli cosí obligato a richiesta delli magnifici suoi patroni da Ca' Moresini'. According to Ercole Peretti's map, the Morosini family was the largest landowner around Lake Vighizzolo before the construction of the Gorzon Canal: Hercole Peretti, *Carta del Rettrato del Gorzon. 20 Gienaro 1633 in Este.*

There were also cases in which forced labour during the digging or repair of a canal was a sort of punishment received by the communities for practices of water appropriation for uses that were judged illicit by the canal or territorial authorities. Thus, in 1569, the authorities of the territory of Padua and the territory of Verona denounced to the *capitano* of the district of Vicenza a series of *rotte* excavated in the dikes of the lower course of the river Chiampo, which irrigated some meadows near the town of Cologna (today known as Cologna Veneta, currently belonging to the province of Verona, yet then within the jurisdiction of Vicenza). They considered them to be the cause of eastward stagnation of water in the territory under the jurisdiction of Padua. The authorities of Padua proposed to make the inhabitants of the neighbouring areas, accused of making holes on the embankments of the Chiampo to irrigating communal grazing lands, work in the rebuilding and recovering of these *rotte* under the supervision of the stakeholders and *consortes* from the flooded lower lands of Lonigo, just north from Cologna. They also recommended the later to monitor the area annually in order to prevent new punctures[30]. In the meantime, when technical levelling of canal beds was required, the costs were borne by municipal authorities, irrigation communities, or even royal treasuries, which

[30] AE, 1-III-10: '1569. Lettera in matterie delle Rotte del Chiampo. Al capitano di Vicenza. Ad istanza dell'Ambasciatori della Magnifica Comunità di Vicenza, noncio della Magnifica Città di Padova, et delli intervnienti della fidelissima comunità nostra di Cologna et altri intressati. Comettemo per nostre di 14 Marzo prossimo passato al prossimo precessor nostro che essendo fatte certe rotte nel Fiume del Ciampo, et specialmente ne luogo del monte Pella, per le quali uscendo le acque fuori dell'alveo ordinario, fano gravissimo danno alli luoghi inferiori et in particolare del territorio di Lonigo et altri del Vicentino, Padovano et Colognese et (…) vedute le Terminazioni, et giudicate, che sono in tale proposito avesse a fare, che da quelli a chi tocca fossero senza dillazione prese et acconcie in modo che le acque avessero a contenersi nel loro alveo ordinario, et a correre senza far danno ad alcuno, secondo il consueto (…) non esser stà per ancora eseguito per la difficoltà che viene posta dalli comuni, sotti i quali sono le dette rotte et i quali intendono gl'interessati delli luochi inferior esser obbligati a prenderle siccome sono tenuti tutti li altri del vicentino, onde così essendo stada novo supplucati (…) vi comettemo che dobbiate far ad'ogni modo che le dette rotte siano prese da quelli comuni a chi tocca per le giudicature a terminazioni che sono in questo proposito, le quali potrete vedere e se continuassero detti comuni metter (…) delle difficoltà, (…) che le rotte fra questo tempo stiano con tanto danno de predetti luochi ancora asenté lasciarete che gli interessati inferior le faccino prendere, et acconciare in modo che siano sicuri, et che ogni anno non tornino a rompere'.

provided higher salaries to itinerant master levellers, as was the case in post-conquest Valencia (*livelladors*)[31].

c) Construction and maintenance contributed to the delimitation of spatial boundaries

But beyond how these activities were forced or not, and paid for or not, what is worth noting is how important these practices of cleaning, digging and repairing were in the physical involvement of the societies in the water boards' common infrastructural tasks, overseen by figures of authority. The very gesture of digging earth, thus extracting it out of the ground and then moving it elsewhere, was, if not regulated in detail in normative sources, at least clearly codified and supervised among water board members, as described in court cases and petitions. Silt and sediment (*giàra* in Veneto or *tarquim* in Valencia) was supposed to be placed on the sides of the canal right after it was taken out of the ground, which would thus contribute to the reinforcing of the embankments or levees, which also frequently coincided with roads or property limits[32]. In the 14th century statutes of Montagnana, for instance, anyone who intended to dig or clear a ditch adjacent to his field was obliged to deposit the earth on the sides of the canal or road, unless this dirt was piled up in an uncultivated waste or fallow land owned by the person who was digging[33]. Similarly, the Valencian *Furs* included a rubric on how to dig an irrigation ditch that branched out from a river or a common irrigation canal respecting the fields next to it, by which whoever was digging the ditch had to leave the earth strictly on the sides of

[31] Thomas F. Glick, 'Levels and Levelers: Surveying Irrigation Canals in Medieval Valencia', *Technology and Culture* 9/2 (1968): 168; Glick, *Irrigation and Society in Medieval Valencia*, 108–9; Torró, 'Canteros y niveladores', 222; Peris Albentosa, *Enciclopèdia*, 365–66; Josep Torrò Abad has recently shed light on a specific type of digger and leveller specialised in land drainage of peri-coastal marshes in 13th century Catalonia, Valencia and Murcia: Torró, 'Palafanguers'.

[32] Roads and canal embankments were frequently related in normative texts, such as communal statutes in Veneto, for instance, the 14th century statutes of Cittadella, in the province of Padua, included rubrics entitled 'De argeribus et viis publicis manuntendis'. Similarly, Padua's 13th century statutes made sure that 'carriages could pass on top of canal embankments': Orlando, *Strade, traffici, viabilita in area veneta*, 105 and 122.

[33] ASM, Sezione Veneta*, Statuti del comune*, 1: 'Obligamus quoscunque volentes fodere aliquod fossatum de novo (…), quod totam terram cavatam de dicto fossato debeat proijcere super dictam viam. Si vero fos statum esset antiquum et vellet eum recavare, tunc primam manum vangam seu vanganturam terram possit proijcere super campis vel terris ibi positis'.

the canal[34]. Glick further defined canals as 'field boundaries', and much of the dug dirt from the bottom of the canals was not placed in embankments as a physical and material contribution to the factual sturdiness of the structures, but to contribute to a clearer and larger visible boundary or fence between the shared structure and the owned plot[35]. When this gesture of piling dug earth in the legitimate spaces was not respected, conflicts arose, triggering the presence and surveillance of the places concerned on behalf of water board authorities. Precisely the non-respect of this rule when cleaning or digging a canal caused a conflict in 1594 between the *sequier* of the Xirivella canal, which was a branch of the Mislata canal, in the southwestern Horta of Valencia, and Josep Ridaura, a *frontaler*, thus the owner of a piece of land which shared at least one of its sides with the canal's embankments. Ridaura complained that the *sequier* had ordered the piling of dirt and sediments from the canal on his *cafissada* of land (a plot of approximately 5000 m^2) and not on the sides of the canal. On the contrary, the *sequier* assured that Ridaura's property had always been uncultivated wasteland, and that the previous *sequiers* had always deposited debris on it without being bothered by none of the *frontalers*[36]. Riudaura defended thus that dirt from the canal bed was only to be piled on the sides of the canal,

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[34] *Fori Regni Valentiæ* (In civitate Valentia: arte ac industria Ioannnis de Mey Flandri, 1547), liber III, Rub. XVI 'De servitut d'aygua', c. XXIIII, f. XC: 'Si alcú per lo camp de son vehí haura dret: ço es servitut de menar aygua a regar lo seu camp perçò deu aver carrera al riu, o a la cequia a combrar o a refer: el senyor del camp deu a ell leixar sapy de cascuna part de la cequia en que pusque posar aquelles coses que seran ops a refer lo riu, o la ceque en que pusque posar les scombradures, et terquim d'aquell riu, o d'aquella cequia'.

[35] Glick, *Irrigation and Society in Medieval Valencia*, 17–18.

[36] ARV, Real Audiencia, Procesos, II Parte, Letra S, Apéndice, 392: 'Del sindich de la acequia de Girivella bras de la cequia de Mislata contra Joseph Riudaura notari. Valero Garcia sindich de la cequia vulgarment dita de Girvella bras de la cequia de Mislata lo qual diu e propossa que axí aquell en dit nom et etiam en nom propri som ha hereter regant de dita cequia com encara sos antipassats en dit ofici de síndich estan y son estats en quieta e paciffica possessió de fer escurar dita cequia per la enrruna (…) fer traure y llançar a la una part (…) a los camps que afronten en dita ceruia de pus de du, vint, trenta, quaranta, e sexanta anys (…) sia pervengut a noticia y nova sabiduria (…) que Joseph Riudaura pretès señor de una cafissada de terra confrontant en dita cequia (…) voler molestar e perturbar al dit supplicant en dits noms de la possessió que han tengut y tenen de scurar dita cequia y posar dita enrruna en los llochs dessus mencionats'. Thomas F. Glick uses a Latinised form of the names of these Valencian surface measures, and explains the proportions and equivalences between them: 'Fields were measured in fanecates, cafizates and jovates (six fanecates to the cafizate, and six cafizates to the jovate)', Glick, *Irrigation and Society in Medieval Valencia*, 15.

in a similar way to that described in the statutes of Montagnana, whereas the *sequier* of the Mislata canal used his authority to order dirt piling on Ridaura's plot, further saying that it was not in the middle of it, but on the sides of it, contributing to the property's delimitation slope.

This correlation between water containing structures and land delimitation was deeply rooted in Late Medieval and Early Modern rural communities that were in charge of maintaining embankments and dykes, permeating not only customary and normative legal texts, but also toponymy. Thus, in the aforementioned map of the lands previous to the Gorzon canal land reclamation and drainage campaign, copied by Ercole Peretti in 1633, toponymy suggests this close double function of dykes as a watercourse containment and a land road or a barrier Examples include 'strada et arzere della Fratta', on the western banks of the river Fratta, the 'arzer del Barbarigo'; a road near the hamlet of Castelbaldo built on an embankment that seems to have been dry at the time when the map and built on lands pertaining to the Venetian Patrician family of the Barbarigo; and various 'Arzer del confin' (translating as 'border levy') or the 'via del Arzer Vecchio del Gorzon', a road that coincided with the sedimentary embankment that was later fractured to let the stagnant waters of the Bassa Padovana flow south and eastwards towards the Adige's mouth in what is currently known as Punta Gorzone, in Sottomarina, south of Chioggia[37]. Modern northern Italian toponyms not only include numerous examples of 'via' or 'strada argine/arginale', 'via' or 'strada lungoargine', but also hint at who was in charge of maintaining embankments in the past centuries, with numerous examples of the term 'strada consortiva' or 'via consortile', among others[38]. This terminological cultural convergence between water containment structures or barriers and landed roads was also frequent in other European marshland contexts, such as Brandenburg or the Pomeranian coasts of the North and Baltic Seas, where the German term *Damm*, to which the Dutch and English *dam* relate, not only meant 'levy', 'embankment' or 'dam', but also

[37] Hercole Peretti, *Carta del Rettrato del Gorzon. 20 Gienaro 1633 in Este.*

[38] «Strada Consortile o Consorziale», «via arginale», in Silvio Dell'Acqua, 'Denominazioni urbanistiche generiche italiane', *Lapůta* (blog), 21 October 2012, accessed 7 March 2025, <https://www.laputa.it/denominazioni-urbanistiche-generiche/>.

'roadway' or 'carriage-way'[39]. In short, the infrastructural system in which water canals, their containing dykes, the roads that passed over them and the boundaries they represented can be said to be part of the wider infrastructural system that Ermanno Orlando, for the case of the Veneto called 'sistema integrato vie d'acqua – vie di terra'[40].

Construction and maintenance of this system implied forms of collective activities, which were imposed and coordinated by the water board authorities. The *comunitats* and *consorzi* thus imposed concrete manners with which water users were to relate to the solid infrastructure containing the running water for common use. This relationship, in the form of paid or unpaid work, presented three possible scenarios depending on routine frequency, interaction and presence of external figures to *consorzi* and *comunitats*:

- Type 1: Though less frequent, these interventions were characterised by high labour intensity and required the involvement of external specialists to liaise with local users– thus, the medieval Catalan *livelladors* summoned to Valencia for the extension of Muslim irrigation networks following the conquest of the kingdom, or the Lombard *inzegneri* employed on the Brentella canal in the 15thcentury[41]. This would also be the case, for example, with the construction of the lower stretch of the Gorzon canal, undertaken under the orders of the father of *cavarzerano* Niccolò Padavino.

- Type 2: More frequent, normally annual, with a lower intensity of work, yet with a high interaction and participation of water users, and carried out and led by the main authorities of the waterboards. This was the type of activity that the *sequier* Gonçalbo, the ten or twelve *frontalers* and the overseer Vicent Roures carried out in front of the convent of Sainte Clare in Valencia along the Rovella irrigation canal.

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[39] Édouard Muret, Daniel Hendel Sanders, and Otto Springer, «Damm», in *Langenscheidt's Encyclopaedic Dictionary of the English and German Languages*, Part II - German - English (Berlin, München, Wien, Zürich: Langenscheidt, 1974), 349; Adriaan E. Verhulst and Beatrijs Augustyn, «Deich- Und Dammbau», in *Lexicon Des Mittelalters* (München, Zürich: Artemis, 1995), 644-5.

[40] Ermanno Orlando, *Strade, traffici, viabilita in area veneta*, 41–48.

[41] Torró Abad, 'Canteros y niveladores', 210–12; Vergani, *Brentella*, 151–52.

- Type 3: Highly frequent–almost daily–and involving low-intensity labour that could be undertaken by a single individual, these activities typically entailed interaction limited to neighbouring landowners along boundary lines. Examples include the periodic and sporadic cleaning and maintenance of dykes adjacent to a *frontaler*'s private field, or when a *consorte* chose to dig a small ditch or *fossato* to divert water to their land. During such earthworks, care was taken to reinforce visual boundaries, dykes, or the paths and roads atop the embankments. Violations of this minor maintenance work could provoke conflicts, such as the dispute between Josep Ridaura and the authorities of the Favara irrigation canal, or result in fines imposed by the *podestà* of Este or Montagnana.

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Building, digging and cleaning all constituted material gestures through which communities of users engaged with both the physical environment and the institutions that governed it. In the 16th century, the maintenance of shared water infrastructure was closely tied to the emergence and consolidation of representative authority within the *comunitats* and *consorzi*. This labour could be either remunerated or imposed upon the communities themselves, often presented as voluntary contribution or an act of common utility, despite its compulsory nature. Regardless of its formal status, such labour required continuous oversight, not only of the physical state of the canals but also of the social boundaries that defined who was included within the community of users. Through acts of construction, maintenance and cleansing, whether it involved the initial deposition of sediment under the supervision of the *cavarzerani*, the seasonal clearing carried out by the *frontalers*, or the regular inspection of embankments undertaken by the *sequiers* and the *cavarzerani*, infrastructure became a site where authority was enacted, experienced and made visible. These material interventions contributed to the reinforcement of spatial boundaries between members and non-members, shaping a sense of the canal as both a shared and exclusive resource. What emerged was not simply a functional system of water distribution, but an imagined common good whose preservation was intimately linked to the exercise of surveillance, judgement and control. Authority within the *comunitats* and the *consorzi* was therefore grounded not only in formal office or institutional delegation, but also in the capacity to observe, interpret and intervene in the daily use of water. The

following section will examine the punitive dimension of these practices, considering how routine observation gave rise to acts of correction and sanction, and how these interventions shaped the representative position of those charged with the care of water and its infrastructure, while also defining their relationship with external powers.

2. Malleable practices of vigilance and punishment

a) Ordinary vigilance and punishment during common infrastructural tasks

Both internal sources produced by *consorzi*, as the reports of water thefts conducted by the Brentella canal *consorzio*, as well as Valencian judicial sources and petitions to the Venetian *Provveditori sopra i beni inculti* from the mid-16th century, recurring patterns can be observed in the types of practices that were routinely sanctioned in the daily management and use of water. One of the most frequent infractions, that is, actions considered illicit, harmful or contrary to the collective interests of water users, was, as Thomas F. Glick succinctly noted in his 1970 study: "irrigating where they (the accused) had no right"[42].

This section, however, shifts the focus away from specific types of illicit actions to examine instead the routine practices of surveillance and *in loco* punishment carried out by regular canal authorities during the monitoring, cleaning, and maintenance of the canals. Rather than concentrating on accusations of theft, appropriation, or flooding brought forward in court cases and petitions, attention is directed toward mentions of the immediate and extra-judiciary prosecution of individuals who left physical traces of illicit water use or infrastructure damage, as observed by the *sequiers* and *veedors* patrolling the Valencian irrigation canal on behalf of municipal or intermunicipal *comunitats*, as well as by the *cavarzerani* and watchmen on horseback operating across the Venetian mainland employed by *consorzi*.

[42] Glick, *Irrigation and Society in Medieval Valencia*, 31.

And here we encounter an important limitation of the sources consulted, since, as we have mentioned, we must assume that most punishments were meted out far from the 'central' organs of justice and government that produced most of the sources we are using. It should therefore be reiterated that the court hearings and sentences produced by the Valencian viceregal courts of the *Real Audiencia* and the *Gobernación*, or the petitions sent by representatives of the Venetian *consorzi* to the *Provveditori sopra i beni inculti*, are nothing more than the last resort that the actors in these conflicts decided to activate, after an initial attempt at punishment, or disobedience to abide to punishment, within the communitarian and local institutional framework. This does not mean that everything took place in a context of essentially customary and oral practice, as it is though would have been the case in the predominantly clan-based Muslim period in Valencia or in the Langobardic early medieval Po plains; rather, that the notarial sources produced by these institutions with the help of notaries are often scattered in protocol archives[43]. However, there are exceptions of more accessible documentation than the dispersed and miscellaneous protocols or the minutes of communal or municipal councils, which, to a certain extent allow us to assume that in the management of *comunitats* and *consorzi*, inner circuit punishment mechanisms were established and that it was these ordinary inspection and surveillance figures, *sequiers* and *cavarzerani*, who carried out, or were expected to carry out by the users or institutions that appointed them, punishment of anyone who committed a water transgression, preferably imposing the punishment at the very moment the material evidence was discovered. Among these exceptions, we can highlight the books of complaints carried out by the horseback watchmen (*cavalcanti*) of the Brentella *consorzio*[44]. The rest of the sources produced by *comunitats* and *consorzi* in which vigilance and instant punishment are described are of a normative and legislative nature (ordinances and statutes). Here, the functions of surveillance and punishment described are also attributed to these figures of authority, not as evidence of their *mise en pratique* to specific cases, but as collective expectations of the majority of the community

[43] On early medieval water management, law, and Muslim-Andalusian irrigation procedures:Alexandre Mateu Picó et al., 'Una Disputa Por Agua de Riego En El Sarq Al-Andalus: Las Alquerías de Turrus y Qars (Sagunto), 619H/1222'; Barceló Perelló, 'El Diseño de Espacios Irrigados En Al-Andalus. Un Enunciado de Principios Generales'; Glick, 'El Sentido Arqueológico de Las Instituciones Hidráulicas. Regadío Bereber y Regadío Español'; Squatriti, *Water and Society*.

[44] ACP, Libri Denunce, 1–5E.

of users. Finally, we can find references to the surveillance and punishment powers of these local authorities among the sources of conflicts that went beyond extrajudicial practice, paradoxically as attempts to overcome this internal framework of internal justice application of the *consorzi* and *comunitats*.

Thus, while the routine inspection of shared hydraulic infrastructure served as a means of asserting authority and representing communities connected by common waterways, authority was also most visibly exercised through the punishment of individuals who made unlawful use of water and its infrastructure. Routine inspections and examinations went hand in hand with the exercise of authority and disciplining. The routine patrols conducted by technical authorities along the canal embankments, examining each water intake and assessing its conformity with accepted norms of use, constituted, in Foucauldian terms, a *système disciplinaire*[45]. While the daily inspections and sanctions imposed by the water boards in the Early Modern period were far from the overtly hierarchical and coercive penitentiary structures of the modern state critiqued by this author, such examinations nonetheless fulfilled a dual function of local surveillance and punishment in relation to illicit uses of shared water infrastructure, attempting to establish a shared model of inner justice to each communitarian water institution[46].

b) Punishment in legal compilations and ordinances

Visible infrastructural damage, rather than water theft as reflected in procedural sources, appears as the most frequently cited offence in the normative texts of both the *consorzi* and the Valencian irrigation *comunitats*. The 1597 ordinances of the Favara irrigation canal, for example, established penalties for individuals who damaged the canal banks ('Dels que rompen caixers de la séquia de Favara'), in order to steal irrigation or to drain excess water ('Dels que rompen màrgens per llançar l'aigua de sa heretat')[47]. Likewise, the *Furs*, the highest body of customary law in the kingdom, explicitly stated

[45] Michel Foucault, *Surveiller et Punir. Naissance de La Prison* (Paris: Gallimard, 1975), 180.

[46] Ib., 186–87.

[47] Although we have not been able to locate the original text or the specific penalties associated with these offences, references to these sections can be found in Martínez Sanmartín and Terol i Reig, 'El libro de los actos, provisiones y reuniones de la acequia de Favara (1362-1521)', 617.

among the duties of the *sequiers* that they were to impose penalties on all those who damaged or dismantled the structures that contained running water, thereby allowing it to flow in a disorderly manner[48].

Venetian ordinances are more specific about the potential penalties for such acts, which seemed rather harsh. For instance, in 1444, the *consorzio* of the Brentella canal received a letter from Doge Francesco Foscari, conveyed through the then *podestà* of Treviso, Melchior Malimpiero. The letter established fines starting at 200 *libre* for anyone who 'maliciously' damaged the embankments of the newly constructed canals branching from the Brentella. These penalties were issued under the authority of the Doge, who granted full discretion to the authorities of the *consorzio* and the *Ufficio alle Acque* to increase the amount as they wanted, depending on the gravity of the infraction[49].

Referring to widely circulated silver coinage, and following Frederic C. Lane and Reinhold C. Mueller's work, the average daily wage of a skilled craftsman at the Venetian Arsenale (shipyard) in the early 15th century was approximately 1 *libra* or *lira grossa*, while personal night guards for the members of the Consiglio dei Dieci earned around 3 *libre* per night service. This implies that a fine starting at 200 *libre* would have posed a considerable economic hardship on the accused, assuming also that the later probably did not occupy such well-paid positions of responsibility[50]. Two years later, in 1446, the *podestà* of Treviso extended the scope of the penalties established in the 1444 ducal letter,

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[48] *Fori Regni Valentiæ* (In civitate Valentia: arte ac industria Ioannnis de Mey Flandri, 1547), liber IX, c. XXXV, Rub. XXXI, c. III, fo. CCXLVIIr – CCXLVIIIv: '(…) e demanen les penes que son stablides a aquells que derrocaran, o trencaran les cequies, o les filloles de les cequies, o lexaran anar l'aygua no degudament, e no tornaran aquella a la mare el temps que deuran (…)'.

[49] ACP, Libri Rossi, 1E, 18r: 'Contra rumpentes Ageres, fossee predicte seu impedientes cursum aquarum. Fraciscus Foscari Dei Gratia Dux Venetiarum. Nobile et sapiente viro Melchior Grimani de suo mandato pottestati et capitaneo Tarvisii, et successoribus suis fidelibus dicelctis salutem et dilectionis affectorum, sicut libertissime audicimus quod aqua fluminis Plavis posita erat in fossea novam et fluebat cum (…) bona profunditate (…) It displiceatissimi audicimus quod aliqui fueriat ates temerarii et malignique presumpterient rumpere ageres tam notabilis et utilis laboreri (…) vobis arbittium imponndi taleam lbrarum ducentarum.'

[50] Frederic C. Lane and Reinhold Mueller C., *Money and Banking in Medieval and Renaissance Venice. Volume One: Coins and Moneys of Account*, 2nd edn (Baltimore: John Hopkins University Press, 2019), 7, 12, 132, and 483.

which had set fines of 200 *libre* for those who damaged the Brentella dykes. The updated provisions included additional forms of structural interference, such as damage to the beds of secondary ditches when dry, sluice gates, floodgates, and the upstream faces of the dykes, as well as any action obstructing water flow. Furthermore, an extra fine of 20 *libre* was introduced for anyone caught fishing along the canal banks[51].

These regulatory measures were in line with many of the initiatives of late medieval communes similar to those mentioned above for roads and methods of cleaning and digging *fossatos* and other types of small ditches and pits adjacent to roads. They are also in line with policies enacted by the various *podestà* and *capitani* of periods prior to Venetian rule in some regions of the Terraferma, who expressed concern about some inhabitants who were wont to break dykes, whether to steal irrigation water for pastures, cereals or grapevines, to drain water from lower lands, or for other reasons not specified by the sources. These enactments by the late medieval local communal authorities, which were usually modifications and additions to communal statutes, were also adopted and added to more modern compilations of miscellaneous writings on hydrology and proto-hydraulics, that were useful for both local enforcers and the agents sent by the *Serenissima*, such as the volume entitled *De Acquis*, conserved in the archives of the *Magnifica Comunità*, in Este (currently in the province of Padua), with Piedmontese *cosmographer* Giacomo Gastaldi's notes, along with other mid-16th century consultant experts'. For instance, the latter included some fragments of the annexes to the mid-13th century statutes of Padua that established a fine of 1000 *libre* in cases where the breaching of an embankment was carried out by a community, institution or collective body, such as *consorzi*. In contrast, the same statutes prescribed the death penalty for individuals caught intentionally damaging public embankments. These provisions were then cited in a petition submitted in 1530 by Giovanni Moro, the *capitano* of Padua, to the Venetian Doge, Andrea Gritti, and the *Consiglio dei Pregadi* (the Venetian Senate). In his petition,

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[51] ACP, Libri Rossi, 1E, 23v: 'De poena imposita frangentibus ageres Brantelle sive fossee predicte. Millessimo Quadrangentessimo Quadragessimo sexto in dictione nona die lune iiii mensis Julii. Tarvisii in Audiencia dominorum Proveditor Magnificus et Gratiosus Domino Ioannes Malimpetro pro serenissimo ducalis dominio Venetiarum potestas et capitaneo Tarvisii, ut rippes, ageres et fossati aquarum non damnificantur, seu devastantur, quod nemo audeat romperé, seu devastare portas, rippas, seu ageres, fossearum dictarum aquarum neque ipsarum aquarum cursus impedire sub pena in litteris ducalibus contenta neque in eisdem fosseis et aquis piscari possit aliquo modo sub poena libra vigintiqua (…)

Moro urged the closure of several embankment breaches that fed waterpower to unauthorised mill chutes along the northern bank of the Adige River. He even called upon the Senate to enforce the death penalty against those responsible for constructing these conduits, explicitly referring to 13th century punitive measures[52]. All of this written

[52] AMCE, 52, *De Acquis*, f. 22v: 'Contra incidentes Ageres publicos pars exelentissimi consilii rogatorum. Andreas Gritti dei Gratia Dux Venetiarum et exelentissimus Nob. et Sap. viris Joanni Mauro de suo mandato capitano Padue (…) che per le cose disputante hora et allegate nel senato nostro per il spectabile cavalier Francesco Capodilista et splendido domino Vicenzo Rosso doctor oratori della magnifica città di Padoa como altrimente per parte delli nobilhomeni Gioanfrancesco Pisani et fratelli fo de S. Lorenzo siia per authorità di questo consiglio imposto al Capitano di Padoa che subbitto de la signoria nostra sopra il fiume pubblico di l'Adese (…) tutti quelli tagli et rotte far otturar et serar con tal fortificatione che l'acqua per essi piu intrar non possi non si debe e da noi sii preso que sotto pena della vita non possi aclun nello advenir tagliar o altramente rompere l'arzere maestro (…) per il nobil homeni Gianfrancesco Pisani et fratelli que s. Lorenzo nello Arzeretto in la Fossa Lovara sia comisse al capitano nostro di Padoa che faccia immediate otturar la rotta predetta doppo (…) immediate debba fat destruir del tutto li mollini (…)' the *rubricae* of the medieval statutes of Padua cited are: 'Statutum civitatis Padue contro incidentes aggeres publicos sub Rubrica de Possessione Turbata. Potestate Domino Jacobino Rubeo. 1267. Qui per se vel alium fegerit vel inciderit aut frangi (…) fecerit aliquem aggerem (…) ultimo supplicio puniantur vel aliter etiam in pecunia ad arbitrium potesttatis (…)'. The other *rubrica* cited by Moro in 1530 is: 'Ex Volumine Magno statutorm Padue sub Rubrica de Ageribus et publicis quarti libri dictorum statutorum. Potestate domino Henrico d'Auro de Veneciis 1281. Statuimus et ordinamus (…) quot nulla comunitas, nullum collegium sive corpus nulla singularis persona audeat vel presumat icidere seu incidi fare vel destruere aliquem aggerem factum ad defensiomen acquarum alicuis fluminis Paduani districtus (…) et qui contrafecerit si fuerit comunitas vel collegium sive corpus condemnatur in libris mille et plus ad voluntate potestatis et maioris partis ancianorum et officialium comunis secundum condicionem (…) si vero fuerit singularis persona, ultimo supplicio puniantur.' A 19th century list of the *podestà* and *capitani* of Padua confirms the year of Giovanni Moro's term as *capitano*, which was 1531 in the Julian calendar (the letter is dated February 1530 MV): Andrea Gloria, *I Podestà e Capitani Di Padova Dal 6 Giugno 1509 al 28 Aprile 1797. Serie Cronologica Provata Con Documenti* (Padova: Co' Topi di Gio. Battista Randi in ditta Angelo Sicca, 1861), 17. A printed document, preserved in the library of the Querini Stampalia Foundation in Venice, containing the Terminazioni of the Consiglio dei Pregadi, or Venetian Senate, includes a decision from 1568 to renew the 1530 law, adding also to those who harmed roads: 'Parte presa nell'Eccellentissimo Consilio di Pregadi. 1568.24. Agosto In materia di quelli che rompono li Argeni & Strade commune (…) Fu preso in questo Conseglio à 9 de Febraro 1530 che sotto pena della vita, nonsi potesse tagliar, ò altrimente rompere gli argeri delli fiumi maestri & publici. Et perche nella detta deliberatione non è fatta mentione alcuna, del non potersi tagliar ò rompere le strade publice, per li tagli delle quali havessero poi à succedere delle innondationi a grave danno di particolari (…) L'Anderà parte, (…9 sia comesso à cadauno delli Rettori delle città, terre & luoghi nostri di Terraferma (…) che se alcun sarà cosi ardito ch'abbia

material concerning the protection of the medieval *aggeres publici* in the Paduan territory was eventually incorporated into the aforementioned volume *De Acquis*, as a compilation of notes and documents on water management and hydrography. These served as illustrative episodes of the technical solutions and governance models applied to water management prior to Venetian rule, while also functioning as precedents for more modern systems of surveillance and punishment of water infrastructural transgressions in the following centuries.

Yet beyond the repeated invocation of such harsh penalties by legislators, these reflections point to a broader issue: whether the severity enshrined in legislation was effectively mirrored in the enforcement of water governance at the everyday level, particularly during routine inspections that revealed breaches in embankments.

c) Routinised sanctions in everyday water use. Between *mutual monitoring* and vertical disciplining

According to the 16th century judicial sources consulted, such extreme penalties, like the death penalty, appear to have been rarely imposed, particularly in the context of routine detection of illicit practices. Instead, surveillance carried out by the *sequiers*, *veedors*, and *cavarzerani*, serving the *consorzi* and *comunitats*, typically resulted in more moderate punitive or disciplinary measures. Thus, when such infractions such as punctures and breaches in embankments were identified, penalties were not always applied uniformly by the technical and administrative bodies of the waterboards, and usually did not follow strict compilation of ordinances and laws. For instance, among the numerous *boccaroli*, that is, unauthorised openings, identified by the Brentella authorities through the *Ufficio alle Acque* of Treviso (as discussed in the previous chapter, the term *boccaroli* did not refer to a specific volume of water stolen but rather denoted any instance of water theft), only a small number of those found guilty were ultimately subjected to fines. This was particularly evident in jurisdictions served by the Brentella canal but administered by *podestà* other than that of Treviso, such as Asolo's or Castelfranco's, where, despite frequent instances of water theft during the first fifty years of the

romper, tagliar, o far tagliar gl'argeri & strade publice in qual si voglia luogo della signoria Nostra con danno d'alcuna terza persona, conosciutasi la verità del fatto, sarà irremisibilmente punito di pena capitale.'

Brentella's operation, no fines were issued. This reluctance to enforce water justice in these districts on behalf of Treviso's municipal authorities reflected a strategic avoidance of jurisdictional confrontation with their institutional counterparts, revealing how political considerations could override consistent forms of prosecution[53]. However, from the early 1500s onwards, reports of water theft along the Brentella canal began to be recorded more systematically by the watchmen (*cavalcanti*) of Treviso's *Ufficio alle Acque*, who presented themselves as overseers in service of the *consorzio* Brentella, as a supra-municipal authority, rather than of the city office[54]. Nevertheless, the fines that were ultimately imposed appear either to have gone unenforced or to be only sporadically traceable within the fragmented deliberations of the communal council of Treviso. In this case, while it might be argued that the municipal authority of Treviso did not actively seek to encroach upon the jurisdictions of Asolo and Castelfranco, despite being the sole body formally invested with legal authority over the shared water canal extending across neighbouring territories, it may also be contended that this was a context in which the majority of canal guards, originally recruited from the communities situated along the canal's course, together with those bound to perform obligatory *corvée* labour in the mid-1400s, in practice exercised a degree of tolerance towards actions officially classified as infractions. Rather than imposing fines or formal sanctions, they more commonly resorted to verbal warnings or the circulation of information among those engaged in illicit practices. That said, although the guards charged with surveillance and enforcement along the Brentella canal were drawn from the very communities it served, one cannot assume that they consistently held land dependent on its waters. Such a condition would have made them fully integrated members of the community of stakeholders.

At first glance, one might be inclined to associate what appears, in light of the limited availability of sources attesting to high levels of vigilance and reporting but low levels of punishment, to be a relatively weak system of formal enforcement along the Brentella canal. This apparent punitive weakness, typical of all forms of pre-modern practical justice that initiated with harsh presentations of the normative statutes which then led to a usually mitigating tendency in negotiation, might also seem consistent with some of the characteristics attributed by Elinor Ostrom to her concept of 'mutual monitoring', as

[53] Vergani, *Brentella*, 213.

[54] ACP, Libri Rossi, 1E, 2E, 3E.

articulated in her study of contemporary irrigation communities in Valencia and Murcia. In those cases, in which each irrigation network user was a potential watchmen and enforcer for his fellows, enforcement was characterised by minimal punishment and significant flexibility among those who shared similar stakes[55]. When considered in relation to the Brentella, this framework could give the impression that community members, as beneficiaries of the canal, monitored one another's actions along its course. In this sense, and assuming the ideal scenario in which users acted as mutual watchmen over one another's water consumption, the *Ufficio alle Acque* and the Brentella *consorzio* would have had little need to invest in appointing salaried overseers.

However, reports submitted by *cavalcanti* drawn from the communities served by the Brentella indicate repeated instances of embankment breaches aimed at diverting or extracting water for use in adjacent fields, although there is no available evidence that these reports ever resulted in formal punishment for those implicated. Thus, while the Brentella *consorzio* was formally composed of stakeholders who, in principle, held an equal voice within the council of Treviso, its operation nonetheless relied on a group of agents, the *cavalcanti*, who were not *consortes* and were appointed from above by the municipal authorities. Entrusted with duties of surveillance and enforcement, these agents may not have held any direct interest in the water system. As such, when they monitored or imposed punishment, they did so from a position distinct from that of the water users themselves. Furthermore, while it can be affirmed that these Brentella canal guards never reported transgressions leading to severe sanctions such as 200-*libre* fines or death sentences, as outlined in earlier sources, it would be inaccurate to claim that they did not occasionally encounter and penalise illicit practices. Consequently, the historical record suggests a reality far removed from a mutual monitoring scenario characterised by low rates of infractions and minimal punishment. Moreover, although the *cavalcanti* may have maintained certain connections with users from communities in the Treviso hinterland during their routine vigilance, this did not render them inter pares individuals who, whether out of disinterest or affinity, refrained from imposing fines.

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[55] Elinor Ostrom, *Governing the Commons. The Evolution of Institutions for Collective Action* (Cambridge: Cambridge University Press, 1990), 44–45; Tomàs Peris Albentosa, 'Las huertas valencianas: la necesaria actualización'; Peris Albentosa, *Rasgos Institucionales*, 351.

For similar reasons, the application of Ostrom's notion of mutual monitoring to the historic pre-industrial irrigation communities of the kingdom of Valencia has generated scholarly debate, in part due to the 'popular' and 'egalitarian' lens through which she interprets collective resource management[56]. As Peris Albentosa has noted, such an approach risks obscuring the oligarchic structures that often shaped arbitration between competing uses of water in the Medieval and Early Modern periods, an observation that may also be applied to the major Venetian *consorzi*, where, as seen previously, it was not uncommon for representatives to come from patrician backgrounds[57]. These criticisms are partly justified, insofar as Ostrom's definition of *mutual monitoring* rests not only on the premise that water distribution was subject to essentially horizontal oversight among users, with participation from all, but also on the assumption that those who undertook the more demanding tasks of monitoring and maintaining communal infrastructure did so voluntarily and without pay. Ostrom notes that this voluntary system of water-use monitoring was favoured by irrigation communities because it entailed low costs and, being a shared responsibility, fostered a genuine sense of commitment among members, who collectively entrusted all users with this task. Although this idea may apply to certain cases of irrigation communities in the contemporary territories that conformed the provinces of Valencia, Castellón and Alicante in the 20th century, (and, eventually, in 1982 the autonomous Valencian Community), as discussed by Samuel Garrido, in earlier pre-industrial periods this was not the case[58]. Instead, routine maintenance and surveillance tasks were financed by the communities of water users and other local contributors[59]. Furthermore, most medieval and early modern sources show that *sequiers* were not 'zero-cost enforcers', quoting Ostrom's terminology[60]. The wages arranged by *consorzi* for their *giudici d'argine* and *cavarzerani*, as well as those received by the *sequiers*, *veedors*, and other representatives of the Valencian irrigation communities, suggest that such roles were neither entirely voluntary nor unpaid. In fact, in the early years of the Brentella Canal *consorzio*, the projection from Treviso to the *ville superiori* of the idea of the canal

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[56] Peris Albentosa, 'Las huertas valencianas'; Garrido Herrero, 'How Irrigation Functioned in Eastern Spain'.

[57] Peris Albentosa, 'Las huertas valencianas', 365.

[58] Garrido Herrero, 'How Irrigation Functioned in Eastern Spain'.

[59] Peris Albentosa, *Rasgos Institucionales*, 333.

[60] Ostrom, *Governing the Commons*, 96; Martínez Sanmartín and Terol i Reig, 'El libro de los actos', 608; Gual Camarena, *Estudio Histórico-Geográfico Sobre La Acequia Real Del Júcar*, 57.

as a 'useful' asset led to the imposition of *corvées*, a measure that was soon replaced by the provision of remuneration for the canal diggers supplied by these communities. Thus, the hypothetical 'zero-cost enforcer' model proved ineffective, functioning more as a mechanism for the imposition of unpaid labour than as a sustainable system of enforcement.

To account for the arrangements that required the presence of paid external figures, such as arbitrators and builders, Ostrom introduced another concept, intended to explain why individuals were convinced to contribute as a sort of 'proto-tax payers' to the shared costs of construction, maintenance and surveillance. This notion, which she termed 'quasi-voluntary compliance', may be somewhat more applicable than that of 'mutual monitoring' to the case of irrigation in late-medieval and early modern south-eastern Iberia or the Brentella canal of Treviso's hinterland, though the fit is still not exact[61]. This is because Ostrom associates institutional compliance among contributing members with shared systems of water distribution, arguing that such arrangements tend to generate a low incidence of conflict. However, the substantial number of conflict cases documented in early modern Valencian procedural records, arising solely from disputes over non-compliance with collective pecuniary contributions, calls this assumption into question. Securing the cooperation of irrigation community members in meeting shared expenses was a far from straightforward or harmonious process; rather, it was often a laborious and highly contentious endeavour, shedding light on the complexities of stakes in water management during that period. From the example of the nuns of the convent of Saint Clare in Valencia, described above, it can be inferred that, although they were formally recognised as irrigators sharing the resource and contributing since 'time immemorial' to common expenses, according to customary practice and the recollections of long-standing members of the irrigation community that had been canal overseers and *sequiers*, the sisters' refusal to pay the *sequiatge* suggests their rejection of the established norms of participation within the irrigation community, and that they were not convinced to see themselves as sharing the same stakes as the rest of the irrigation community members. The nuns furthermore did not agree with the cleaning and cleansing of the canal as a pretext for the *sequier* to ask them for money, and thus the abbess refused to recognise the *sequier* and his *veedors*. While the monastic context, particularly due to the enclosed

[61] Ostrom, *Governing the Commons*, 94.

nature of convent life, indeed increased the likelihood of tensions surrounding the exclusion or separation of nuns from other members and the shared responsibilities of the irrigation community, the case of the Rovella Canal offers a contrasting dynamic. As the most 'urban' among the canals in the Horta of Valencia, and the only one that passed through a substantial section of what was then the inner city, it served not only agricultural landowners but also small workshops, printing presses and butcher shops. Consequently, the *sequier* and other irrigation authorities often sanctioned users who did not fit the typical profile of irrigator-farmers, yeomen or noble landowners. In practice, these authorities included a wide range of urban stakeholders, such as artisans, confraternities and residents living along the canal within the city walls, in the annual obligation to clean the canal bed and contribute to the *sequiatge*[62].

Refusal to pay this amount, which was thus a common practice, as corroborated not only by the proceedings of the Real Audiencia but also by studies carried out by Glick from the 1970s to the present day, could have consequences far more drastic than the micro-sanctions and 'low-rate punishment', described as characteristic of Ostrom's 'mutual monitoring'[63]. In fact, this measure gave rise to punitive practices comparable to those enforced by other contemporary judicial authorities, far removed from notions of 'micro-punishment'. It is worth reiterating that, although these were not the death penalties that some were calling for those who broke the Adige and Brentella embankments, the sanctions imposed frequently had drastic economic consequences on accused perpetrators, which, as the *consorti* of Agna and Cona that were not able to pay the *Campatico* tax to the Gorzon *consorzio* had lost everything to confiscation[64]. These punitive actions practised upon perpetrators of infrastructural and water use infractions not only included the more frequent Venetian practice of confiscating and reauctioning of lands, but also consisted, in the seizure of material possessions such as utensils,

[62] Ferran Esquilache Martí, 'La distribución tradicional del agua del río Turia entre las acequias de la Huerta de Valencia: Un sistema de origen bajomedieval', *Historia Agraria Revista de agricultura e historia rural* 85 (2021): 90–91; Rosa María Gregori Roig, *La Impressora Jerònima Galés i Els Mey (València, Segle XVI)* (Valencia: Generalitat Valenciana, Conselleria de Turisme, Cultura i Esport, 2012), 48.

[63] Peris Albentosa, 'Las huertas valencianas', 351 and 372.

[64] See Chapter 2, p. 161.

livestock, and even imprisonment[65]. Routine inspection thus entailed both surveillance and the imposition of sanctions, and the collection of contributions fell under the remit of local technical and administrative authorities (*digger-cleanser-enforcers*). Although these monitoring and sanctioning practices were implemented with a degree of flexibility, as penalties were rarely as severe as prescribed in the regulations, they did not originate from a predominantly horizontal and consensual system of mutual oversight, nor from systematic compliance grounded in a shared sense of the common good.

d) Justifications and conditions for flexible punitive practices: non-payment after flood events

Although the punitive measures implemented by the *sequiers*, *veedors* or *cavarzerani* cannot be fully characterised as 'non-conflictual' or 'micro' in Ostrom's sense of mutual monitoring, it remains the case that these institutions, operating independently from central judicial authorities, developed relatively flexible frameworks of enforcement. These frameworks were shaped by a range of factors inherent to the dynamics of water distribution. One such factor was frequently the invocation of climatic and hydrological conditions considered unfavourable for the application of certain standards or models of water management under ordinary circumstances. Such appeals could lead to the cancellation or attenuation of penalties that might otherwise have been imposed in normal times.

A case in point occurred in 1559 when farmers from of Carcaixent accused those from the municipality of Castelló (today known as Villanueva de Castellón in Castilian Spanish, to distinguish it from Castelló de la Plana) of failing to adequately clean their section of the Séquia dels Cent–an irrigation canal sourced from the Albaida River and shared by both towns, with Castelló situated upstream from Carcaixent[66]. The upstream

[65] Examples of tools, mules and horse confiscations on behalf of canal watchmen: ARV, Real Audiencia, Procesos, IIIa parte, apéndice, 6294 and 6325. Example of municipal incarceration: ARV, Real Audiencia, Procesos, IIIa parte, apéndice, 6456. Sending to the galleys: AS, SV, Acque, 319.

[66] ARV, Real Audiencia, Procesos, II Parte, Letra S, 1138: 'Requesta Nº138/3: Procés de la Universitat de Castelló

town contended that these maintenance tasks would have been properly executed, ensuring adequate water flow, had the River Albaida not experienced a period of flooding that severely damaged the infrastructure. The floods had overburdened the municipal *sequiers*, Berthomeu Armengol and Pere Garau, with repair work, as they further argued that, anticipating another imminent flood, they considered any cleaning efforts at that stage to be futile, and that the complaint made by the people of Carcaixent was only to disturb their upstream neighbours[67]. This reference to enmity between the two towns

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Contra Los sobrecequiers de la Orta vulgarment dita dells Cent. 1559. Governació'. We have been unable to accurately locate the Séquia dels Cent on contemporary maps; however, the toponymy recorded in the Real Audiencia indicates that it was a canal drawing water from the Albaida River, northeast of Castellón, and extending to Cogullada, a hamlet situated southwest of Carcaixent, where it dumped into the Barxeta gully. It is possible that the Real Audiencia misidentified the place name, as Antoni Furió and Luis Pablo Martínez Sanmartín refer to a vast irrigated area in the region known as the Horta dels Cent, which dates back to the Muslim period. This area is supplied by two main irrigation channels, l'Énova and Algirós, both of which still exist today, albeit only in part: Antoni Furió Diego and Luis Pablo Martínez Sanmartín, 'El Regadío En La Ribera Alta Del Xúquer. El Margen Derecho', in Jorge Hermosilla Pla (ed.), *Las Riberas Del Xúquer: Paisajes y Patrimonio Valenciano*, (Valencia: Universitat de València, Departament de Geografia. Generalitat Valenciana, Dirección General de Patrimonio Cultural Valenciano y Museos, 2006), 90–93.

[67] ARV, Real Audiencia, Procesos, II Parte, Letra S, 1138: 'Anno a nativitate domini millessimo quinqgentessimo quinqueagesimo primo nono die vero intitulata vigèsima sèptima mensis octobris davant la presencia del molt spectable señor governador y en cort sua personalment comparegue lo honorable en Pere Garan, laurador del lloch de Carcaxent lo qual posa la scriptura del thenor inmediate seguent JHS. Davant la presencia de vos molt spectable portantveus de general governador en la present ciutat y regne de Valencia constituhits personalment los honorables en Berthomeu Armengol e Pere Garau lauradors vehíns e habitadors del lloch de Carcaxent sobresequiers en lo present any de la sequia vulgarment dita dels Cent los quals en los dits noms y en qualsevol altre nom que mes los pertanga en tota aquella millor via, forma e manera que de justícia poden e deven diuen e proposen que les terres posades e situades en lo terme de dit lloch de Carcaxent se reguen e acostumen de regar de l'aygua que discorre per la dita cequia dels Cent la qual ista reblida y arrohinada ab la gran innundació de aygua que stos dias propassats ha vengut axí del riu de Xuquer com del riu vulgarment dit de Albayda, del qual riu del Bayda pren la aygua necessària la dita cequia e per la dita rahó d'estar la dita cequia reblida y encara per alguns altros respectos e senyaladament per (…) lo dit riu de Albayda gros no torne arreblir la dita cequia e cause los danys que fins a huy a causat axí en lo dit lloch de Carcaxent y en les heretats que de dita cequia se reguen com ve que la dita cequia (…) no sia scurada per no haver hi oportunitat ni rahó per a que aquella sia scurada e pot sia molt notori e manifest lo que dit es axí als vehins e habitadors del dit lloch de Carcaxent com encara als vehins e habitadors del lloch de Castelló, de Xativa, ser predistis non obstantibus los vehins e habitadors del dit lloch de Castelló per los respectos a ells ben vists attenen de voler scurar la dita cequia sols per fer

appears credible, as evidenced by a 1510 judiciary sentence issued by the Real Audiencia. In this case, several farmers from Castelló were fined by *sequiers* from Carcaixent, representing the Algirós irrigation canal *comunitat*–part of the Horta dels Cent–for irrigating plots of land outside of their allowed turn in an irrigated plain known as 'Partida dels Mochals', located northeast of Castelló. The farmers deemed the fine excessive and lodged a formal complaint against the irrigation authorities with the Real Audiencia[68]. Thus, regardless of whether it stemmed from long-standing enmity between Carcaixent and Castelló, the authorities responsible for the Séquia dels Cent irrigation canal consequently cancelled the annual clearing work on the stretch between Castelló and Carcaixent, and waived the fines imposed on the *frontalers* of each section for failing to perform this task, despite complaints from the downstream town. Therefore, the decision to waive the fine for failing to cleanse the irrigation canal correctly in 1559 was ultimately justified by conditions of climatic irregularity.

Nevertheless, the punitive authorities within the Valencian irrigation communities and the Venetian *consorzi* did not always respond with leniency to such situations, as these were often seen not as genuine mitigating factors but as excuses used by water users to avoid punishment or to continue engaging in practices regarded as abuses of water access. This reflects a broader tension between institutional flexibility and the effort to uphold established norms within systems of customary water governance. In 1603, the municipal

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dany e mal als vehins e habitadors del dit lloch de Carcaxent lo que en manera alguna no's pot ni deu fer fins tant lo dit negossi dans yrreperables que descurarse la dita cequia se porian seguir en lo dit lloch de Carcaxent y de Cugullada y en les heretats situades en los termens dels dits llochs requiren per ço los dits proposants a VS li plaria.'

[68] ARV, Real Audiencia, Sentencias, 462, f. 557: 'en la cort juram com a portantveus de General Governador en lo present Regne de Valencia causa e rahó de unes penyores que son stades fetes per lo cequier de la dita orta del Cent a alguns dels dits vehyns y habitadors del dit loch de Castello en lo qual procés per lo dit syndich de Castello es estada posada una scriptura de ferma de dret (…) E considerant que per rahó e causa de les dites penyores fetes per lo dit cequier de la dita orta del Cent es stat inherat lo dit y present procés: car pretenem los dits hereters de la dita orta del Cent y terme de Alzira que lo dit cequier justament ha penyorat los dits vehyns y habitadors del dit loch de Castello per haver aquells pres la aygua de la cequia de Algirós en los tres y dies y tres nits an la dessus dita arbitral sentencia donada als hereters de la dita Orta del Cent (…) sentencia als dits hereters de la dita orta del Cent sien stats donats los dits tres dies y tres nits per a poder prendre la aygua de la dita cequya axí per lo braçal dels Mochals com per altres parts de la dita cequia'.

authorities of Sueca, located in the Ribera Baixa del Xúquer subregion, submitted to the Real Audiencia the testimonies of several irrigators from their local irrigation canals that drew water from the river Xúquer. These individuals complained that, following a major flood which had altered the course of the river Xúquer, the diversion dam or weir (*assut*) built on the river to feed the town's irrigation canal, originally constructed to divert an adequate flow under previous conditions, was no longer receiving sufficient water. Moreover, the municipal water board of Alzira, responsible for managing irrigation drawn from the Xúquer upstream of Sueca, refused to allow the redirection of the river to its former course, arguing that the request was merely a pretext to increase Sueca's water intake[69]. They were eventually required to pay a penalty to the *sequier* of Alzira for having attempted to alter the weir. Furthermore, royal authorities confirmed that the volume of water entering Sueca's weir at the time had remained unchanged from what it had been prior to the floods on the Xúquer.

The practice of invoking external climatic events that had affected the quantity of water required for cultivating a specific plot of land as a basis for claiming increased rights to water access is also exemplified by the case of the nobleman Count Odorico Pojana between 1592 and 1599 examined in the previous chapter[70]. When he petitioned the *Provveditori sopra i beni inculti* to renew the water concession for the Ronego canal,

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[69] ARV, Real Audiencia, Procesos, II Parte, Letra S, 1144: 'Vicent Sanchis notari syndichus y procurador del justícia y universitat y singules persones de la vila de Alzira supplicant, diu que en lo terme de la vila (…) de Corbera, territori de Riola en la partida de l'Angla lo Riu de Juquer s'adventit ans ordinari y ha fet nou alveo por lo qual burda la major part del riu (…) Comparent in Regia Audiencia, coram scriba presentis cause Joan Baptiste Dagui, notari síndich de la universitat del lloch de Sueca lo qual diu que demana revisió de la provisió feta al peu de una supplicació posada per Visent Sanchis notari en vint dies dels corrents mes e any la qual pro nunch justifica primo perque no ha constat ni consta que la vila de Alçira de la qual diu tenir sindicat dit Vicent Sanchis tinga la pretesa possessió que allega de prohibir y vedar nos façer nous açuts ni parades en lo Riu de Jucar. Ittem, en cas que fora així que dita vila tingues dita pretesa possessió quod negatur per lectura de dita supplicació contra que lo que representa la part adversa no es obra nova, sinó reparació y conservació de la obra vella y antigua (…) açut antich segons que es cosa patent y notòria y puix expredits constat que lo que la part altra allega no es novella obra sinó reparació y conservació de la Antigua y en la dilació que la part altra procurasse tracta de gran dany e perjuhí de la universitat de Sueca per que no estant lo açut tancat y reparat ni los particulars tendrian aygua per a regar ses terres ni los molins la tindran per a moler lo forment y altres grans que han menester per a son sustent.'

[70] AE, 1-III-15.

originally granted in 1580 to irrigate land near Noventa Vicentina, the Count of Pojana also seized the opportunity to request permission to utilise several smaller canals which he identified as *scoladizze*–that is, minor conduits facilitating the drainage of marshy and wooded terrain situated to the north-west of his estates. Indeed, a recent study examines the severity of flooding in the area surrounding Padua during the final decade of the 16th century, suggesting that local populations were compelled to construct numerous additional drainage ditches akin to those referenced by the Count in his *supplica*[71]. However, reiterating once more that land drainage did not occur without complementary irrigation, when the consultant experts serving the Venetian magistrates arrived at the Count of Pojana's lands and examined these *scoladizze,* they identified them instead as *seriole*, that is small irrigation ditches designed to divert water from the Ronego canal, which served as the main irrigation canal for the communal lands of the inhabitants of Noventa and Caselle[72]. In other words, what the Count portrayed as a gratuitous favour to drain the region during times of flooding was ultimately regarded by the Venetian agents as a potential abuse of water usage. This was due to the fact that the Count paid for only half the amount of water he intended to utilise, 50 *ducati*, treating it as if it were conventional irrigation rather than rice cultivation, which according to the Venetian *Provveditori* costed 100 *ducati* instead.

However, beyond the expert opinions on water use and the projected costs provided by the surveyors repeatedly sent by the Venetian *Provveditori* to the area where the Count of Pojana intended to establish rice paddies, the question remained as to how it could be ensured that the Count and his descendants would honour the agreement in the long term. This referred in particular to the commitment not to make disproportionate use of the water drawn from the Ronego canal, as stipulated by the authorities. While no definitive evidence has yet emerged to confirm that local authorities oversaw and potentially sanctioned illicit practices in the use of water from the Ronego canal for the count's estates, a number of notarial deeds from the 1560s and 1570s, appended to the consultant

[71] Massimo Galtarossa, 'Padova e le sue acque nella prima età moderna', in Giuliana Albini et al. (eds.), *Il fuoco e l'acqua. Prevenzione e gestione dei disastri ambientali fra Medioevo e Età Moderna*, Quaderni degli Studi di Storia Medioevale e di Diplomatica 7 (Milano: Pearson Education Resources Italia S.r.l., 2022), 191.

[72] AE, 1-III-15: '(…) pasando commodamente seriole per terreni de particolari persone'.

experts' report produced between 1592 and 1600 for the Venetian *Provveditori*, suggest that the guardianship of the Ronego canal, even within the boundaries of the territory of Vicenza, as in the case of Pojana, fell within the remit of the Lozzo canal *consorzio*, into which the Ronego discharged, already within the district of Padua[73]. This suggests that the *cavarzerano* employed by the aforementioned *consorzio* was aware that part of the water from the Ronego, and eventually from the network that this canal formed with the westernmost branch of the Lozzo canal, was being used by communities located upstream, further north of Montagnana, including the fief of the Count of Pojana and the municipality of Noventa Vicentina. The *cavarzerano* would regularly travel through the region accompanied by a *cassier*, in order to collect the *campatico* tax from the water users in these communities, as it was intended that these towns were included within the Lozzo canal *consorzio*'s jurisdiction, 'under the same terms and conditions stated' ('con li medesimi modi e condizioni dichiarite')[74]. It is therefore plausible that the *consorzio* authorities conducted regular inspections and carried out the cyclical cleaning of the Ronego canal beds. They would also have been in a position to report any improper or unauthorised use of water to the Venetian *Provveditori*, should the Count of Pojana or any other user of the canal act contrary to accepted practice. If such a case arose, Odorico,

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[73] A document from 1562 lists the secondary canals that flowed into the Lozzo-Brancaglia canal and were thus under the jurisdiction of the Lozzo canal *consorzio*: AE, 1-III-15: 'Terminazione del Magisrato de Beni Inculti ordina sia fatto il Ritratto di Lozzo (…) a richiesta delli presidenti et interessati nelli reratti del Gorzon, Lozzo et Brancaglia terminar et dar regola che l'uno et l'altro dessi retratti possi scolar per il Taglio del Gorzon, come veramente debbano avertire tutte le dette aque et essendo noi sati allí dì passati a loro instanzia con molti d'essi interessati et inzegneri nostri (…) calcolar et considerar le acque della Fratta, et Fiumicello, et Bampador che vengono da Montagnana (…) et símilmente le acque del retratto di Lozzo, cioè Piron, Ronego, Lon et Liona, Frasenella, Nina Bandiza, Fiume Novo, Bacaglion et ogni altra sorte d'acque ch'entra in detti retratto, nec non considerate le acque pioggiane.'

[74] For instance, on 10 July 1570, the authorities of the Lozzo canal *consorzio* dispatched a *cassier* to the territories of Vicenza that formed part of the Lozzo canal network. As recalled in the previous chapter, this network drained areas situated between the Colli Euganei and the Colli Berici, directing water partly towards the Bacchiglione and Padua, but primarily southwards towards the Gorzon and the Restara canal. The latter connected river navigation between Este and the Battaglia canal, ultimately reaching the Brenta Nova and the Venetian Lagoon at Lizzafusina: AE, 1-III-15: 'Debitori per quanto importerà il dinaro che sarà stato esborsato come di sopra. Quelli veramente chee pagleranno le porzioni del detto secondo campadegho nelli termini sopra dichiarati habbino il dono di dieci per cento (…) essendo tenuti l'interessati delli luochi superiori del Visentino pagar li ducati quatro mille (…) e intenda essa parte superior esser inclusa nel corpo del detto Ritratto di Lozzo, con li medesimi modi e condizioni dichiarite (…)'.

Count of Pojana, might have reiterated the argument he had put forward when attempting to pay only half the expected contribution for seasonal flooding for rice cultivation. By flooding his own rice paddies, he claimed to be assisting in the drainage of surplus water from upstream fallow fields. In so doing, Odorico sought to align his own advantage with that of the wider community in the aftermath of devastating floods. At the same time, this argument may also be read as an attempt to mitigate, or renegotiate, the consequences of an otherwise sanctionable appropriation of water.

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Abusive practices in water management were thus often justified by appealing to exceptional flooding, which allowed those involved to avoid penalties or negotiate more favourable outcomes. Whether it was the *sequiers* of the Del Cent canal exempting the *frontalers* of Castelló from paying the *sequiatge* after the floods of the Albaida river, or the *sequiers* of Alzira rejecting the claims made by Sueca about changes to their weir, or the *consortes* of the Lozzo canal doubting the diversion of water from the Ronego branch to the rice paddies of the Count of Pojana, a common pattern emerges. In all these cases, actors used episodes of severe flooding to try to reduce or delay penalties related to the misuse or unauthorised adaptation of canal infrastructure. Hydrological variation, then, influenced how sanctions were applied in both the *comunitats* and the *consorzi*. The maintenance of embankments and the surveillance exercised by those responsible did not follow a single, uniform set of rules. Instead, enforcement was shaped by local conditions and often left room for interpretation. Sanctions were neither rare nor exceptional, but were applied by recognised officials as part of the normal functioning of these systems.

In sum, responsibility for protecting the embankments along communal water canals rested with specific surveillance bodies. These authorities were tasked not only with maintaining the hydraulic infrastructure, but also with identifying and reporting illicit practices. Such infringements were often material in nature, including damage to, or the deliberate opening or breaching of, the embankments. Others were financial, such as the refusal to contribute to the shared costs of construction and upkeep required by the community institution in charge. Daily surveillance, which regularly involved exemplary and disciplinary measures, contrasted noticeably with the harsher penalties prescribed in normative sources against alleged offenders. In practice, during the cyclical maintenance

of the canals, minor offences were often addressed through warnings, which did not always lead to fines. Even when fines were imposed, they were applied with a degree of flexibility, depending on the hydrographic conditions at the time the guards reported the offence. This room for manoeuvre in enforcement was well known and was frequently taken advantage of by users pursuing specific interests. Nevertheless, the flexible character of this punitive oversight should not be mistaken for its being either sporadic or egalitarian in nature. On the contrary, the considerable number of disputes and formal complaints recorded in the 16th century between the internal authorities of each community institution and its members attests to the regular identification of breaches committed against common water infrastructure. Moreover, these were not minor or informal collectives of users overseeing one another's behaviour during irrigation, drainage, or the excavation of new ditches. Rather, the functions of construction, cleaning, and maintenance of hydraulic works coincided with the formal surveillance roles exercised by specific officials: the *cavalcanti*, *giudici d'argine*, *sequier* and *veedors*.

As explored in section 1 of this chapter, these technical and administrative figures, who were responsible both for coordinating tasks related to the upkeep of hydraulic infrastructure and for supervising and enforcing communal norms, also frequently acted as spokespersons and political representatives of their communities in dealings with other authorities or institutions. The following section turns to an examination of the various ways in which these individuals formally came to occupy such roles, and the extent to which their mandates were defined in terms of duration or renewal by those in charge of regulating the appointment of these technical, arbitrative and political figures at the head of communitarian water institutions. In doing so, attention will be given to the procedures of nomination, election and the drawing of lots, in order to consider what the principles behind these practices can reveal about the normative frameworks that governed the water user communities they represented.

3. Making agents of representation: practices of political nomination

Those who decided how to maintain, clean and dig canals in a correct way were either themselves conceived as the political representatives of the communities of water users, as *sequiers* and *síndics* in Valencia when interrogated by royal courts of justice or consulted by users, or were appointed closely to those who were seen as representing water boards, as the *cavarzerani* were when appointed next to the *presidenti* in Venetian *consorzi*, or as the *veedors* were seen when named by the elected *síndics* that represented each of the stretches of the Montcada irrigation canal (*Fig. 24*). The mechanisms by which these figures acceded to power were different. These ranged from random drawing of lots among candidates, to the imposition of specific individuals through appointments by external powers, passing through electoral practices of anonymous balloting (*Fig. 17* and *18*), public balloting (*Fig. 21*), collective acclamation (*Fig. 23*), bargaining to arrive at the best price for the annual salary of the person running for office and the costs of maintenance, and many other practices similar but at the same time slightly particular to each institution, region and time in which they happened. The level of tutelage by external authorities, such as the Venetian magistracies or the different juridical arms of the Hispanic Monarchy, also varied according to the moment and the political and economic interests at stake. But before analysing the more detailed specific cases of legitimisation practices of electing and appointing vigilance offices of the *comunitats* and *consorzi*, it is first important to analyse the ideological origins of the processes of communal political legitimisation.

a) Late-Medieval ideological continuities: *boni homini* and the *podestà straniero*

Canal dredging officials and institutional representatives were not only expected to carry out their concrete material functions, but also to fulfil a series of ideological characteristics that were transmitted by those who voted or appointed them. For example, in 1549, Baltasar Sabata, municipal *sequier* of the city of Morvedre, reminded water transgressor and noble woman Leonor d'Ixer i Llançol that he and his fellow *síndics*, who were in charge of cleaning and overseeing water distribution along the town's *Séquia Major*, were elected by the town's irrigators and approved by the *jurats* of the city in

order to carry out a 'righteous administration' of the canal[75]. In Treviso's *Ufficio alle Acque*, normative texts recalled how municipal authorities were to vote a '*calculator ad calculandum rationes*', in order to lawfully calculate and divide the waters of the Brentella[76]. Similarly, the Camparian canal *consorzio*, near Montagnana, asked the town's *podestà* to approve the ballot they held of four 'respectable' men in order to re-dig the canal bed and build a new sluice gate, to whom, as agreed among *consortes*, they had granted complete freedom to do the job in the best way they judged[77]. Likewise, in 1565, farmer from Morvedre, Pere Collado, agreed that *sequiers* were elected for a just 'distribution of the waters' and to punish landowners who made bad use of water[78]. In 1506 farmer Miquel Marí, from the town of Albal, in the Horta Sud region, said that the municipal *sequier* was chosen every year by the town's authorities to 'put order in the canals and its waters'[79]. In short, what all these assertions had in common was that the institutional representatives in charge of the structural maintenance and the correct distribution of water use were all elected or appointed and trusted by members of water boards and municipal authorities according to a common shared ideal canon of a just and morally righteous portrait of those men.

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[75] ARV, Real Audiencia, Procesos, III Parte, Apéndice, 6260: 'Fonch fer la electió de persones per los dits lochs per a regiment de la administració de dita cequia, creant sindichos de dita cequia et hereters. (…) Item diu ut supra que del dit dia setén de Abril del any MDXXXXVIIençà lo cequier de dita cequia se ha elegit y acostumat elegir per los dits hereters y síndichs de dita cequia (…) Item diu ut supra que ara san que lo dit en Baltasar Çabata cequier que huy es de dita cequia es vehí de la dita vila de Morvedre los jurats que de present son de la dita vila de Morvedre de facto se ha volgut ocupar la dita cequia et usar de aquella.'

[76] ACP, Libri Rossi, 1E, f. 29.

[77] ASM, Sezione Veneta, Acque, 320, f. 22: '(…) sia data libertà alli quatro eletti sopra il Cavamento de Camparian de far fare la tal parte (…) come meglio apparerà a detti quattro con li spettabili deputadi et Massaro la qual parte letta, disputata et de mandato ballotata debbe. Ballotte Pro 36 contram 5'

[78] ARV, Real Audiencia, Procesos, III Parte, Apéndice, 6456: 'alguns (…) terratinents han regat sens licencia lis han executat y penyorat com (…) als dits sequiers toque s'es guarde repartir les aygues y per aquesta causa son elegits y creats.

[79] ARV, Gov Pro Crim, 17, caja 4783, exp. 2496: '(…) ell dit testimoni es natural vehy y habitador del lloch de Albal y axi de tot lo recort de ell dit testimoni que la dita universitat del loch de Albal, justícia, jurats y de mes officials han acostumat y acostumen de nomenar y elegir caschun any un cequier per a que rixca y done orde en les cequies y aygua de dita universitat.'

Political practices such as elections and appointments within these communitarian institutions in charge of water management thus adopted late medieval political terminology, and were deeply rooted in an ideological system similar to that which gave rise to the *boni homini* present in the civic parliaments or *arenghi* in many of the Guelf-leaning centre-north Italian communes, such as, among many other examples, the *boni homini* that were voted by the artisan and mercantile corporations and guilds in 13th and 14th century Bologna to the city council, after the expulsion of the aristocratic and imperial faction[80]. Similarly, in the 1629 copy of the 1319 statutes of Este, three 'good men, the best in the town council' ('tres boni viri, de melioribus Concilii') were to be elected annually on 15 January by the members of the *podestà*'s council, in order to serve as accountants responsible for managing communal properties under lease[81]. These *boni homini* as ideal and morally impeccable political figures of late medieval civic ideology were also mentioned in the Iberian Peninsula in similar times regarding, for instance, the consolidation of Castilian urban councils (*concejos*), and some consider these the figures as the main loyal representatives of a 'municipal' political tendency with which the Hispanic monarchs had to deal and negotiate with for centuries[82]. As in the case of many of the Valencian irrigation communities in the central regions of the kingdom, Castilian *boni homini* became members of city councils if they possessed inherited properties (*heredades*, related to the Catalan term *heretat*), or could have the capital to acquire them

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[80] Roberto Greci, 'Bologna nel Duecento', in Ovidio Capitani (ed.), *Bologna nel medioevo* (Bologna: Insitituto per la Storia di Bologna, (Bologna: Bononia University Press, 2007), 553; A good synthesis of electoral processes in medieval Italian comunes is: Hagen Keller et al., 'Formes électorales et conception de la communauté dans les communes italiennes (12e-14e siècle)', *Revue francaise de science politique* 64/6 (2014): 1083–1107.

[81] AMCE, Decreta et privilegia Magnificæ comunitatis Este. Impressa sub anni domini MDCXXIX Sub Regimini Ilustrissimi domini Zachariæ Valerii, deputatis D. Antonio de Gobbis Doctore, D. Ioanne Baptista Regazona & D. Ioanne Antonio Capovino, Patavii, 1629, fol. 21: 'De ellectione sindici possessionum Comunis Caput. XXXII. Statuimus et ordinamus, quod quolibet anno quindecim diebus ante Kalendas mensis Januarii elligantur in concilio, per consiliarios trs boni viri de melioribus Concilii, qui debeant in ipso concilio ballotari et is, qui plures obtinueri ballotas constituatur et esse deeat sindicus ad affitandum, livellandum et locandum possessiones comunis de Este (…) et habeat pro suo salario à comune de Este libras octo denariorum parvorum.'

[82] Enrique Orduña Rebollo, 'La Tradición Municipalista En Castilla', in Mariano Esteban de Vega and Antonio Morales Moya (eds.), *Castilla En España. Historia y Representaciones* (Salamanca: Ediciones Universidad de Salamanca, 2009), 25–26.

at the moment of their appointment. In the same way, Thomas F. Glick defines the functioning of the Valencian irrigation communities as 'typical of Valencian medieval corporations', and Enric Guinot and Ferrán Esquilache underlined that irrigation communities' structures were 'similar to that of guilds'[83]. In fact, the same expression of *boni homini* that was used in Castilian urban councils or in northern Italian guilds was also explicitly employed to designate the righteous head administrators of what today, and since mainly the 19th century became the 'Consejo de los Hombres Buenos' in Murcia, in charge of the management and arbitration of the city's hinterland's irrigation canals[84]. Also, the adoption of political-administrative terminology such as *síndic* (*syndicus*), *deputati*, *presidenti*, etc. within these *consorzi* and *comunitats* denotes an important ideological penetration of late medieval civic language in water management[85].

Likewise, the places where many of the representatives of Venetian *consorzi* were elected also coincided with common places of political decision-making in late medieval burghs, such as parishes, marketplaces and the palaces of the *podestà* (*Fig. 17*, *2* and *5*), in the same way in which municipal *sequiers* were appointed in city council chambers where they also celebrated gatherings of the communal council with *justícies* and *jurats*, the city's representatives according to Roman Law, as in the case of Morvedre's *sequier*[86]. For instance, in 1573, the *consorzio* of the Brancaglia canal gathered 'sono campane', summoned by the ringing of bells, under the tower of the *podestà*'s palace in Este, for the election of three of their new *presidenti* by a ballotage presided by Giuseppe Francesco Minotto, the town's *podestà* himself (*Fig. 18*)[87]. Similar to how water infrastructure

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[83] Glick, *Irrigation and Society in Medieval Valencia*, 40; Guinot Rodríguez and Esquilache Martí, 'Not Only Peasants', 150.

[84] María Martínez Martínez, 'Vigencia de Una Institución Medieval: El Consejo de Hombres Buenos de Murcia', *Murgetana* 112 (2005): 21–67. The Consejo de Hombres Buenos of Murcia obtained the status of UNESCO immaterial heritage in 2009 together with the Tribunal de las Aguas de la Vega de Valencia/Tribunal de les Aïgues de la Vega de València.

[85] Marco Bellabarba, *Seriolanti e Arzenisti*, 47 and 57.

[86] ARV, Real Audiencia, Procesos, III Parte, Apéndice, 6456: 'magnífichs jurats de la dita vila de Morvedre (…) son elegits y creats los dits sequiers'.

[87] ASVe, Provveditori sopra i beni inculti, 767: 'Convocato et congregato consilio (…) sono (…) campane more et loco solitis in quo interverunt clarissimus Signoris Josef Francus Minotus Este e districtus pottestas meritissimus et infrascripti sp. domini consiliari (…) Stante absenti domini Antonii Manzoni electi

endeavours were publicly announced by local town criers, as the Gorzon canal drainage project of 1557 was announced in Montagnana, Este or Anguillara, elections of *presidenti* of a *consorzio* also happened in market squares[88]. Other than market squares and communal palaces, *consorzi* members also met and appointed their representatives in churches, once again, similar to guild practices in many parts of Europe. For instance, nobleman Guglielmo de Bricoli announced in the churches of several villages of the region that today is known as the 'Riviera Berica', south from Vicenza, that the members of the Brendole *consorzio* had to vote four new *presidenti* for the re-digging of the region's irrigation *seriolle* – two from Vicenza, and two from the local parishes– on 13 December 1588, feast of St Lucy, in the Church of the Holy Sepulchre in the town of Sossano[89]. As in this case, the choice of the dates of the year was symbolically crucial in late medieval electoral practices, representing the end of an annual cycle and the creation of a new power occupied by a new person. Such was the case in 14th century Venice, when, on every St Barbara's day, young patricians (over 25 years old and under 30) were voted and sorted to exceptionally join the Great Council of Venice (Maggior Consilio), in

presidente per hanc sp. comuntitatem in retractu Branchaleei (…) propositus fuit quod fiat electio alterius de hoc consilio loco presidenti Antonii in presidenten in dicto rectractu et hic facta fuit ellectio infrascripta.

[88] ASVe, Provveditori sopra i beni inculti, 456: (...) quelli che sono interessati nel ritratto del Gorzon (...) per presente li dico che hoggi giorno di mercado nel luoco (…) solito et consuetto essendo multitudino grado di populo ho fatto publicar (...) Di 5 marzo 1568. ASM, Sezione Veneta, Acque, 321, f. 26: '1556 die 27 decembris in rogatis universis rectoribus (…) Havendo noi eletto tre nobili nostri sopra i beni inculti et havendo posti alcuni ordeni e leze circa tal materia, ve ne mandamo esempio accioché facciate publice proclamar in quei luochi che alla prudencia vostra parerà (…) comettemo etiam che faciate publice proclamar che tutti quei consorti che convengono unirse per ridur le loro valle o terre à coltura debbano frat ermine de giorni quindeci elleger tre di essi interessati li qualli habiano quella authorità come se fussero tutti essi consorti et tal elletione possa esser fetta à ruodalo (…)'.

[89] ASVe, Provveditori sopra i beni inculti, 768: 'Vollendo li interessati de San Zerman, Campolongo, Villa del Ferro, Orian et Campigia, Vilaga et Barbaran far li loro presidenti per far scolladori (…) cosi richesti dal Nobile Homo Messer Giglielmo di Bricoli vecchio presidente delle ville de San Zerman, Campolongo, Villa del Ferro et Orian Vostra signoria fara proclamar nelle chiese de dette ville (…) che (…) tutti li interessati et particolari delli terreni in esse ville ville compresi che per li tredese del presente che sarà in giorno de Santa Lucia si debbano riddure nella chiesa del sepulcro della villa de Zossan per far elettione de quatro presidenti, duoi vesentin, et duoi delle ditte ville di quali abbiano autorità di provedere quello che sarà bisogno per benefitio di esse ville altramente facendo essa ellettione la faremo poi noi com'è conveniente et di raggione.'

a ceremony that therefore acquired the name *Barbarella*[90]. This was also a characteristic of late medieval elections in Valencian municipal councils, where 26 December, St Stephen's day, coincided with the ballotage of *sequiers* in Castelló de la Plana[91].

With regard to churches as spaces of election, as in Sossano, in 1510 town élite from Corbera, southwest of Alzira, met irrigators from the hinterlands in the church of Saint Mary, in the village of Riola, where they elected a local farmer as the *síndic* in charge of supervising the new Corbera irrigation canal construction[92]. Similarly, the city council of Valencia chose a *sequier* for the control of the irrigation and drainage canals of the north-eastern marshes in an appointment ceremony in the Cathedral, with the presence of members of the Cathedral chapter, who owned lands along the canals that ended in the marshes and beaches north of Valencia's seaport village, Grau[93].

This spatial coincidence of markets and churches as centres of information (announcements) and political consensus (election of community representatives) as an element recalling late medieval civic and corporate repertoires, took place relatively late, well into the second half of the 17th century. For instance, in 1664 the Fossa Larga *consorzio* in Albaredo d'Adige, currently in the south of the province of Verona, asked the local priests to announce the annual elections of *presidenti* in the market square, in front of the church[94].

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[90] Claire Judde de Larivière, 'Élection ducale, usages institutionnels et pratiques populaires : le tirage au sort dans la République de Venise', *Participations* Hors Série, no. 4 (2019): 225.

[91] The term 'Castelló de la Plana' is employed here to refer specifically to the city located in the northern third of the kingdom of Valencia. Although this toponym is of relatively recent origin, its use serves to distinguish this locality from the other settlement named Castelló, discussed in the previous section, which is situated in the region known as the Ribera del Xúquer, in the central-southern third of the kingdom: Glick, *Irrigation and Society in Medieval Valencia*, 43.

[92] Salvador Vercher i Lletí, 'El naixement de la sèquia Major de Corbera a començaments del segle XVI', in Carles Sanchis Ibor (ed.), *Irrigation, society and landscape: tribute to Thomas F. Glick* (Valencia, Editorial Universitat Politècnica de València, 2014), 176–77.

[93] Glick, *Irrigation and Society in Medieval Valencia*, 45.

[94] ASVe, Provveditori sopra i beni inculti, 776: 'Padre Don Benedo Bernardi come Proclami del M. Rv. Padre Don Piacia (…) fa pubblicamente proclamar in quella terra in quello giorno di mercato come anco il passato lugio messe in villa di Albaredo (…) che tutti li interessati in dito consorzio debbano presentarsi in questa terra et loco.'

Yet, apart from the conception of the elected representatives for the maintenance of water infrastructure and distribution as *boni homini*, and the recurrence of spaces and dates in which such elections took place, there was a third characteristic that would associate these political practices of election or nomination of technical-political representatives to late medieval ideological contexts: sometimes choosing men who were in some way rightfully external to the interests in stake among the members of the water board. For example, Guinot and Esquilache observed that the *sequier* appointed by irrigators who owned property or by municipal councils was 'more likely to be an outsider' during the late Middle Ages and the Early Modern period[95]. This indicates that the contemporary irrigation communities' representatives and watchmen that Ostrom identified as 'participant-enforcers' did not exist in the Medieval and Early Modern periods, where *sequiers* and *cavarzerani* rather resembled the outsider 'personnel spécialisé' which 'devient indispensable, constamment présent et distinct' during modern technical exams described by Foucault as agents of power and vigilance[96]. However, although this does not constitute a case of pure 'mutual monitoring' in Ostrom's sense, in which all those involved in monitoring and sanctioning are themselves users of what she called the 'common-pool resource', the search for proto-judges and water administrators, who were external to the water user communities, did not always represent a vertical imposition of a punitive and external system of *surveillance hiérarchique*, as was the case in the modern schools, military barracks and state prisons forming the empirical basis for the French scholar's analysis. Instead, the presence of external *sequiers* and *cavarzerani* who examined, monitored and judged water use was at times rooted in a late medieval political rationality that was widespread in institutions which mirrored guild-like and communal structures and practices. Thus, water board members believed that an individual owning properties benefiting from the common irrigation canal would not act as an impartial administrator. In other words, justice and authority were related to the lack of stakes in the commons. Nonetheless, this Valencian reality concerning some of the choices of 'outsiders' as *sequiers*, which seems to be in line with the late medieval Italian political tradition of the foreign *podestà*, is paradoxically quite different from other 16th century cases in both Valencia, generally in municipal irrigation canals cases, and in Veneto,

[95] Guinot Rodríguez and Esquilache Martí, 'Not Only Peasants', 148.

[96] Ostrom, *Governing the Commons*, 94; Foucault, *Surveiller et Punir*, 177.

where those who had the authority in representation and water justice were precisely those who held more interests and property behind the management of a given watercourse[97].

b) Modern stakes and representation. The Mezzana canal against the Gavello canal

Since the *sequier* swore oaths to fulfil the dual function of being a specialist in infrastructural maintenance and arbitrative justice, one might affirm that he also developed a representative power in the name of the irrigators of his community, making the envoys of the royal justice treat him as such, rather than addressing the true formal legal representatives, the *diputats*, as in the earlier 15th century. The *sequier*'s appropriation of representativeness of the whole group of users (*el comú dels hereters*) vis-à-vis the modern organs of justice also occurred in the Veneto, although less clearly and systematic.This took place when the figure of the *cavarzerano* or *giudice d'argine*, in parallel to his technical authority in times of construction of the canals, also developed a certain authority that was not only technical but also punitive in times of ordinary maintenance and distribution of water, once most of the infrastructure of the main canal was in place.

However, the first legal and formal representative authority of the *consorzi* when addressing courts of justice and magistrates was not the *cavarzerano*, but the aforementioned *presidenti*. *Presidenti* furthermore became systematically the sole external representatives of *consorzi* in the second half of the 16th century, when they had to report their election to the *Provveditori sopra i beni inculti* after their creation in 1556. It is precisely this close administrative relationship that each *presidente* of *consorzio* generated the sources that today allow us to see what functions were expected from the *presidenti*, who used to or could accede to these offices and how these practices of election or appointment were carried out.

Thus, the principal difference between Venetian *presidenti* and Valencian *sequiers* was that the former were expected to perform a purely representative and executive function,

[97] Jean-Claude Marie Vigueur, 'Flussi, Circuiti e Profili', in Ib. (ed.), *I Podestà Dell'Italia Comunale. Parte I. Reclutamento e Circolazione Degli Ufficiali Forestieri (Fine XII-Metà XIV Sec.)*, vol. I, Collection de l'École Française de Rome (Roma: Publications de l'École française de Rome, 2000): 897-1099.

without directly undertaking the tasks of surveillance and maintenance assigned to the latter. The *presidenti* delegated these responsibilities to the *cavarzerani*. Consequently, the Valencian *sequier* occupied a hybrid role, combining aspects of both the *presidente* and the *cavarzerani*. The position of the *presidenti* was analogous to that of the Valencian *deputats* described for the Middle Ages, although the latter did not serve for fixed terms, whereas the *presidenti* usually held office for a maximum of two or three years (*Fig. 21*). Another distinction was that the *presidenti* were expected to personally own land and derive benefit from the water and infrastructure of the canal they represented, thus affirming their status as members of the community rather than as external actors. Putting it in Valencian terms, if on the one side, the fact that the *sequier* was not a proprietor owning land that benefitted from the canal he governed over, thus, the contrary of a common *hereter*, the Venetian *presidenti*, as the late medieval Valencian *diputats*, precisely acceded to power given the high stakes they held in properties along the canal, such as his fellow *consortes* who appointed him. Thus, to be an authority worthy of representing a *consorzio*, one had to own land that benefited from the shared canal. In other words, a *presidente*, was first a *consorte*, and thus an insider rather than the contrary preferred for *sequiers*. This also meant that the *presidente*'s own particular interests had to be parallel to those of the commons. Thus, in 1565 members of the Mezzana canal *consorzio* complained to the *Provveditori sopra i beni inculti* that three years prior (*Tab.1*) three men had been voted *presidenti* and whose interests and stakes were 'too great' in other canals that were rivals of the *consorzio* they were voted for. In this direction, the signatories of this appeal denounced brothers Orazio an Ettore Bregonzo, who were elected *presidenti* in 1561, Rutilio Lovato, who was a candidate for the same ballotage, or Giulio Machiavelli, Lovato's brother-in-law, and brother of another 1561 ballotage candidate, Alfonso Machiavelli, of having interests in the Gavello-Dragonzo canal, north from the Mezzana canal[98]. Moreover, the *consorti* who signed the petition sent to the

[98] By consulting the current hydrography of the territory, available on the website of the *consorzio* that manages the area today, the Consorzio Adige Po, based in Rovigo, we can see that the Mezzana, Stellà, Pezzuoli and Sorio canals no longer exist, while the Gavello-Dragonzo canal still flows, or at least a section of its old route, east from the town of Gavello and a few kilometres southwest of Adria, between the 'collettore Padano Polesano' and the Canalbianco, itself part of the Po di Levante system that flows between Mantua and Porto Viro. However, there are toponyms in the area, such as 'val Mezzana' oor 'Fossa Stella', between Adria and Cavarzere, that attest to the approximate location of the canal that formed the homonymous *consorzio*: <https://adigepo.g6.arcadiasit.com/g6/web/G6AdigePo/>; ASCA, 760, f. 3:

Provveditori sopra i beni inculti in 1565 recall that the three-year mandate of these *presidenti* had already passed, suggesting that they were turning a deaf ear in order to keep their representative and executive positions. In fact, an older document, the attestation confirming the validity of the elections of the *presidenti* of 1561 (*Fig. 17*), shows how Ettore Bregonzo was already *presidente* then, suggesting that by 1565 he was already in office for at least seven years[99]. In fact, the year 1565 was quite conflictual between most of the *consortes* of the Mezzana canal and its board of *presidenti* composed by the Bregonzo brothers and Rutilio Lovato. They were not only accused of defending interests outside the canal's *consorzio* and of holding office for longer than three years, in violation of a regulation allegedly imposed by the *Provveditori sopra i beni inculti* – which has not been corroborated by any other source. Also, 23 of the total 25 *consortes*, led by one in particular, Geronimo Dolce, went to the palace of the *podestà* of Adria to have him fine or impose a penalty on the three *presidenti* of his *consorzio* for cutting off the flow of the Mezzana canal giving them eight days to reopen its weir[100]. Geronimo's

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'Exelentissimi presidenti della Stellà, Pezuoli, Mezzana et Sorio. Ad Nomine de Dio amen. 1565 adì 15 Ottobrio. Perché non é giusto ne conveniente che il governo et carico del Retratto detto della Stelà-Mezzana che sia dato a tante dii person che habbino maggior interesse in detto retratto di Gavello et Dragonzo, luochi et retratti opposti con loro argeri in detto Retratto di Mezzana. Con rispetto a canal Castagnaro, qual passso di mezzo (…) tutti li inzegneri mandati per la maggior parte in deto Retratto di Mezzana in loco di Messer Rotilio Lovato, interessado rispeto a suo socero Messer Giulio Malchiavello il chanaleto in Gavello et Dragonzo et de Messer Oration Bragonzo interessato in detto Dragonzo di molto maggior interesso ambi dui che in detto Retratto di Mezzana essi presidenti à giorni passati (…) furono creati per li meno interessati in detto Retratto'.

[99] Ib.: 'Die 25 julii 1561. In saloto Clarissimi Domini Potestiatis (…) Havendo esposto al Clarissimo signor podestà el consorzio del Retrato della Mezana messer Hetor Bregantion, comitato a tal effeto che essendo stà già anni quatro elleto presidente di esso retrato con la forma ddel capitolo delli Signori delli beni inculti il qual vol et disponi che detti presidenti sino solamente per anni 3 et che di anni 3 in anni 3 si facii nova ellitione di presidente, dimandando perhò per sua Magnifica Clarissima et esso concortio dever esser 3 presidenti.'

[100] Ib.: 'Die 7 settembrio 1565 (…) Essendo stato scrito per li clarissimi proveditori sopra li beni inculti al Clarissimo signor podestà nostro di Adria ad instantia del Magnifico Messer Hieronimo Dolce, (…) i magnifici Padri di Santa Maria de Gratia, el Magnifico Messer Alphonso Marchiaelo, el splendido Messer Antonio Guatto de sua magnificencia deba far intimar alli signori presidenti del rettarto della Mezana et Pezzolo et che in termine di gionrni octto (…) debano far aprir il detto tagio.' Girolamo Alessandro Capellari Vivaro mentions a Venetian patrician family named 'Dolce' that was excluded from the Maggior Consilio in the *Serrata* of 1297 but readmitted as part of the patriciate in 1648, however, there he does not

brother, Niccolò Dolce, also wrote the same year to the *Provveditori sopra i beni inculti*, accusing the three *presidenti* in office of being absent from the activities, and proposing their substitution with one of the 1561 winners of the ballot, who, strangely, did not accede to the office, patrician Andrea Foscarini (*Fig. 17*)[101]. In fact, it is noteworthy to observe how in the 1561 elections, Ettore Bregonzo acceded to the position of *presidente* he already occupied since at least 1558, despite losing the ballot against Andrea Foscarini, similarly to how his brother Orazio became also one of the three *presidenti* despite having obtained 9 votes against the 15 that elected Giulio Pallamede. Orazio Bregonzo replied to Niccolò Dolce's letter, describing it as a 'strana opinione', while accusing him of being blinded by his excessive will to make himself the 'absolute boss and lord' of the *consorzio* ('poiché accecato dal troppo desiderio di farsi patrone absoluto et signor di tutto il povero Retratto'). He also implies that Dolce had manipulated the *Provveditori sopra i beni inculti* to make him *presidente*, and that the sign or poster that Dolce exposed with these magistrates' approval contained information 'far from the truth' ('contiene cose lontane dalla verità'). He furthermore stated that the news of the magistrate's appointment of Dolce and will to depose the Bregonzo brothers and Rutilio Lovato from the head of the board made many members of the *consorzio* 'cry loudly to the sky' ('cridano forte al

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mention ther presence in the Polesine: Girolamo Alessandro Capellari Vivaro, 'Campidoglio Veneto, in Cui Si Hanno l'Armi, l'origine, La Serie de Gl'huomini Illustri et Gli Albori Della Maggior Parte Delle Famiglie, Così Estinte, Come Viventi, Tanto Cittadine Quanto Forastiere, Che Hanno Goduto e Che Godono Della Nobiltà Patritia Di Venetia' (1741), Venezia, Biblioteca Nazionale Marciana, Codd. It. VII, 15-18 (=8304-8307), Vol. II - It. VII, 16 (8305), ff. 30v-31r: <https://bibliotecanazionalemarciana.cultura.gov.it/manoscritti/Dl/Cap2031.htm>

[101] ASCA, 760, f. 3: 'Il retratto presente (…) di tempo in tempo in il suo luocho succederà come interessato in bona parte del mezzo di detto retratto il Clarissimo Andrea Foscarini, figlio del clarissimo Messer Marcantonio come interessato inferiore un detto Retratto per presidenti di detto Retratto da esser approbbato et confirmato per li Clarissimi Signori Provveditori con quella maggior auctorità (…) conceder detti clarissimi signori parerà giusto, et (…) possono constituir uno et piu loro confidenti in suo loco exerciti à benefitio sotto Retratto quali giustamente li parerà necesario et qualli haabbiamo intessa auctorità in loro absentia qual si habbimo detti magnifici signori presidenti (…) acciò che detto ritratto mai resta senza tre capi presidenti ordinari per il presente rotulo tutti deti infrascripti interessati contentano che cadauna volta et semper che alcuno deli presidenti eletti et che si trovano exenti de tempo in tempo refundasero detti Clarissimi Signori Provveditori et (…) elegano il corpo del rotulo delli interessati in detto Ritratto (…)'. The document is then signed by 1) 'Francisco Prior del Monasterio di Santa Mari delle Gratie', an island-monastery near the Giudecca in Venice. 2) 'Niccolo Dolce figlio di Messer Agustin', and 22 more signatures, some with legal representation for not knowing how to write ('per non saper scrivere').

ciello'). He lastly said that if the *Provveditori* enforced what Dolce was intending, it would not only violate the *consorzio*'s customs ('consuetudine'), but also it would cause the total ruin of the *consorzio*[102].

Several conclusions can be drawn from this case. Firstly, that the act proving the ballot results of 1561 is in contradiction with the final access to the offices, giving rise to the suspicion of certain irregularities whereby the *presidenti* declared to the *Provveditori sopra i beni inculti* were not in fact those who 'de facto' represented the *consorzio* after 1561. However, this may simply be due to the fact that the archives do not contain another later voting act with different results in favour of the Bregonzo brothers and Rutilio Lovato, since it was quite common for votes to be annulled due to the absence of important members or ties between candidates (see, for instance, *Fig. 21*, where a ballot was repeated by a tie)[103]. Secondly, the struggles for representing of the *consorzio* of the Mezzana canal in Adria between 1561 and 1565 indicate the importance of having a vested interest in water management to gain access to such offices, and how problematic it was to be accused of being an indifferent 'outsider'. In this case, two factions within the same *consorzio* were trying to convince the Venetian magistrates that their rivals shared no interests in line with the general interest of the *consorzio*, or that, at least this interest was not enough to make them *presidenti*. Finally, we can also glimpse in the exchange between Dolce and Bregonzo that there was a certain tension between the different available ways of accessing the functions of *presidenti*: on the one hand, the

[102] Ib.: 'Strana opinione e veramente quella del magnifico Messer Nicolo Dolce poiché accecato dal troppo Desiderio di farsi patrone absoluto et signor di tutto il povero Retratto di parti della Stellà, Mezzana, Pezoli et Soria procura contra il voler della maggior parte delli interessati in detto Retratto, sustentando l'ingiustissima termination fatta per li Clarissimi signori sopra i beni inculti sotto di 19 nono 1565 et fondata sopra un certo rotulo presentato per lui sopra il quale (…) contiene cose lontane dalle verità (…) è stato fatto a pregiuditio de tanti e tanti che cridano forte al ciello vedendosi manifestamente ch'esso magnifico Messer Nicolo solo et perpetuo presidente como sarebbe quando veniesse la detta terminatione non può essere se no la total roina et destrutione di esso Retratto essendo egli con tante sue possessioni superiori alli altri terreni de quello per il qual devono passar le acque che scolerano di soi campi. Però dovrebbe aquietarsi et lasciar che li presidenti eletti per il consortio fossero quelli che havessero à (sic) per le consuetudine et manutentione di quello non essendo ragionevole contra il voler di quasi tutti li interessati (…)'.

[103] In the case of the 1594 elections of the three *presidenti* of the Ceresuol *consorzio* of Lendinara, also in the Polesine, there were two balloting rounds, the first one being annulled because of a tie with 26 votes in favour of Lelio De Conti and Matteo Zoso della Bella: ASVe, Provveditori sopra i beni inculti, 771.

ballot between two opposed *consorte* candidates, as seen in *Fig. 17*, and that represented the internal custom of the *consorzio*; on the other hand, the interference of the *Provveditori sopra i beni inculti* wanted by brothers Geronimo and Niccolò Dolce in case the voted *presidenti* were absent from their functions. In other words, two different practices of legitimisation of institutional representative power were described: election versus vertical appointment.

c) Appointment procedures: random drawing and balloting

As illustrated in the case above, the choice between appointment or election to political representation represented different models of communitarian water board government, ranging from the category of an impartial 'outsider' to that of the 'insider' as a stakeholder involved in the common interest. Different procedures thus represented different political functions projected on representatives and canal dredging and cleansing supervisors. The three main ways by which a person became *sequier* or *síndic* in Valencian irrigation *comunitats* or *cavarzerano* and *presidente* of the Venetian *consorzi* were: first, via a ballot election by the members of the given institution; second, via appointment by a power on which the institution depended (for instance, municipal or state); or, third, by the random drawing of lots. It must be stressed nonetheless that this classification into three types of election-appointment to representative and technical positions in communitarian water management institutions is rather general, since, as Hagen Keller stresses for the late medieval Italian communes, 'qui veut présenter une synthèse des procédures électorales (…) se voit en même temps confronté à la diversité, à la variabilité et aux spécificités locales des formes électorales'[104].

Keller's impression on this large variety of electoral procedures in late medieval Italy also fits the different practices with which water boards chose their representatives, watchmen and work force. Only within the category of randomly drawing names by lot were there large differences among different *comunitats* and *consorzi*, with a high vast range of electoral objects and tools employed, as well as an extensive diversity of electoral processes intermingling with them, as random drawing usually initiated a second phase

[104] Keller et al., 'Formes électorales', 1083.

of nomination or ballot. Thus, Glick recalls that the election of a new *sequier* in Castelló de la Plana, occurring every 26 December, on St Stephen's day, initiated with the drawing of wax balls, called *redolins*, each of which contained the name of a nominee, among which then the *comú* would deliberate on making them *sequier*[105]. The use of wax *redolins* for draws was also put into practice in the higher state parliaments, as in the *Generalitat* of Valencia, a sort of general parliament of the kingdom where the ecclesiastical, noble and citizen estates were represented. King Ferdinand II, who married Isabella of Castile, sought to cyclically control the elections of the city representatives or *jurats* in the *Generalitat* of Valencia, and had obliged them to access to their offices by random drawing of *redolins* and not by internal appointment, having a similar impact in municipal institutions of the late 1400s to what later became the royally controlled municipal office elections by *insaculación* or drawing of wooden or wax spheres or papers from a sack[106]. Moreover, the Venetian Maggior Consilio also made use of certain wax balls to wrap the ballots containing the names of the members before they were drawn by lot as nominees[107]. This term, *redolins*, is still used by the centuries-old fishing community of the village of El Palmar, on the shores of the Albufera, the lagoon that stretches south of Valencia. At some point, *redolí* came to mean the right to fish in certain areas of this community-owned lagoon, like the Venetian *valli di pesca*, although it originally alluded to the– this time wooden and not wax,– balls that were used to draw lots annually for the assignment of the common fishing grounds among the members of this fishermen's guild. This draw is still held every year among local fishermen on the second Sunday of July, a tradition re-enacted thanks in part to the novelist Vicente Blasco Ibáñez, who described this practice in his novel *Cañas y Barro* (*Reeds and Mud*), published in 1902[108].

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[105] Glick, *Irrigation and Society in Medieval Valencia*, 43.

[106] José María Castillo del Carpio, 'Poder Municipal y Generalidad En La Valencia de Fernando II', *Saitabi: Revista de La Facultat de Geografia i Història* 43 (1993): 197.

[107] Judde de Larivière, 'Élection ducale', 222.

[108] Francisca Ramón Fernández, *El Ingreso En La Comunidad de Pescadores de El Palmar y La Transmisión Hereditaria Del 'Redolí'* (Valencia: PUV, 2001), 23; Francisca Ramón Fernández, 'La Comunidad de Pescadores de El Palmar y La Gestión Del Redolí o Derecho de Pesca En La Albufera de Valencia / The Community of Fishermen of El Palmar and the Management of the Redolí or Right of Fishing in the Albufera de Valencia', *Revista Iberoamericana de Autogestión y Acción Comunal* 73-74–75

Chance, hazard, and fate were thus present to a certain extent in many of the electoral practices happening in institutional and guild assemblies of both spaces in the late Middle Ages, including the internal offices of representation and water justice of the *comunitats* and *consorzi*. It is true that, more than the *redolins* mentioned by Glick as being used among the irrigators of 15th century Castelló de la Plana, the most widespread practice of appointment by lot in most institutions in the kingdom of Valencia in the 16th century was nevertheless the *insaculación*, a system of drawing papers, paper balls or wooden spheres containing names from a cloth sack. This practice, which was also common in late Medieval Italian city-states such as Siena or Florence, began to be imposed in the kingdom of Valencia in the last years of the reign of King Ferdinand II (r. 1479-1516), and became widespread in the decades following the anti-seigneurial revolts in the cities of the kingdom in the 1520s, under the reign of Charles I (the Holy Roman Emperor Charles V), and above all, the reign of his son Philip II[109]. Monarchs, suspicious of municipal councils, imposed their own nominees, or at least a large part of them, and made every council draw a ball from the bag, all under close supervision of royal envoys[110]. The spread of this practice would therefore mainly affect those irrigation communities under municipal control, such as the *Séquia Major* of Morvedre or the Alzira Canal. By imposing this practice of *insaculación* or random drawing, Royal legislation thus advocated for a more or less standardised form of access to the office, in response to several centuries of changing forms of election and appointment, and the concentration of the management of the municipal irrigation canals into a few hands, especially in the 15th century. This was caused by a closed circulation of the position among the wealthiest members of the urban élite, who controlled the office of *sequier* either by informal

(2019): 301–5; Vicente Blasco Ibáñez, *Reeds and Mud*, trans. Isaac Goldberg (Boston, MASS: E. P. Dutton & Company, 1928).

[109] Keller et al., 'Formes électorales et conception de la communauté dans les communes italiennes (12e-14e siècle)', 1100–1101.

[110] Amparo Felipo Orts, 'El Síndico de La Ciudad de Valencia. De Las Germanías a La Insaculación', *Revista de Historia Moderna* 19 (2001): 5–77; *Insaculación* was also widespread in other municipalities in other territories of the Crown of Aragon, such as Girona: Santiago Sobrequés Vidal, 'Régimen municipal en la baja edad media. La "insaculación"', *Annals de l'Institut d'Estudis Gironins* 10 (1955): 165–234; It also occurred in the municipalities of the neighbouring Crown of Castile: Regina Polo Martín, 'Los Reyes Católicos y la insaculación en Castila', *Studia Historica. Historia Medieval* 17 (1999), 137–197.

recommendation or directly by occupying the position for life, although, in theory, this was not allowed in most of the Valencian communal irrigation canals. For example, in Alzira's municipal irrigation canal, whose course forms a large part of that of the current Xúquer / Júcar Royal Canal, the position of *sequier* was, at the end of the 13th century, initially for life and was accessed by royal appointment: the king or his lieutenant chose a man to be the *sequier* in Alzira. Then, in the mid-14th century, the *sequier* was appointed by the municipal council of the town of Alzira, leading then to a 15th century in which the *sequier* was sometimes appointed by royal appointment, other times by appointment of the previous *sequier*, and other times by the urban élites' recommendation of a lot of candidates to the city council, who then voted one among them[111]. This intense fluctuation in the ways to appoint or choose the main authority in charge of the Alzira canal was, in part, one of the reasons why lot drawing under royal supervision and official approval was imposed on the *sequier*'s appointment. That said, , as we will see in the following chapters through a case study from this region, this intensification of royal control over urban institutions can be understood in the wider context of conflicts generated by a constant tension between the seigneuries and towns. In any case, as Tomàs Peris Albentosa has noted, despite the fact that the *sequier* of the Alzira irrigation canal was elected by a supervised *insaculación* in the 16th and 17th centuries, the names drawn by lot under royal tutelage were still chosen from among the municipal councils of the city, what Peris called the 'oligarchy of Alzira'. They also had complete power over the proposal of the topics to be discussed in the annual general councils of the irrigation community, a place where the irrigators had, in theory, the right to discuss any issue of concern to them[112].

Some of the appointments of the *presidenti* of various *consorzi* in the same period in the Veneto were also random draws from a more or less narrow list of names previously proposed, all interested in the management of water for agricultural purposes, and all generally coming from noble and powerful urban social groups that could be considered as members of what Peris Albentosa called an 'urban oligarchy' in the case of Alzira. Thus, in 1595, a list was published and displayed on the steps of the Rialto Bridge and in St. Mark's Square of all the main *interessati* of the Bottenigo canal *consorzio*, between

[111] Gual Camarena, *Estudio Histórico-Geográfico Sobre La Acequia Real Del Júcar*, 56–60.

[112] Peris Albentosa, 'Las huertas valencianas', 368–69.

Oriago and Marghera, today a highly industrialised area between the northern banks of the Naviglio del Brenta and Porto Marghera[113]. In this list we find members representing three important religious congregations spread between the islands of Giudecca and Lido, and the *sestier* of Dorsoduro, including a leather merchant, a feather merchant, a lawyer, a notary specialised in ducal sentences and accounting, several procurators of San Marco and a dozen patricians, representing powerful Venetian families such as the Donà, the Memo, the Foscarini or the Tron (*Fig. 20*). Of the list of more than 25 persons and institutions, only one is based outside the city of Venice, in Oriago, although still a member of the Venetian patrician family of the Giustinian. Among those summoned, in the presence of the *Provveditori sopra i beni inculti*, three men would be first drawn by lot, and then agreed by election, in the Sala Del Piovego inside the Ducal Palace, resulting in the *presidenti* of the *consorzio* of the Bottenigo canal for the next two years, frequently reporting to the Venetian Magistrates on the state of the canal[114]. We have failed to find the results of the election of the three *presidenti* of this *consorzio* in the Ducal Palace, something that, within the archival holdings of the *Provveditori sopra i beni inculti* is quite rare, as it is more usual to find the results of the elections declared by each *consorzio* than the lists of candidates previous to the appointment. Compared to other processes of appointment or election of *presidenti*, the latter case seems also exceptional in combining an intermediate drawing of lots from a list of *interessati*, as the publication of the list of candidates and their subsequent vote by ballot among each other was more frequent without the intermediate drawing of names. However, in other types of institutions in Venice, practices similar to the drawing of lots for the *interessati* in the Bottenigo canal were carried out, such as the annual drawing of lots for workers who wished to work in the shipyards of the Arsenale, and who, after registering as candidates, were given access

[113] ASVe, Provveditori sopra i beni inculti, 766: 'essendosi stato proclamato in questa città sopra le scalle di San Marco et Rialto (…) Adi 6 Lugio 1593 Zuane Zulian Comandador dell'offitio aver publicato e proclamato a San Marco et a Rialto et alli lochi soditti al detto nostro popullo come Inquella.
Interessari nlle Valli del Bottenigo'.

[114] ASVe, Provveditori sopra i beni inculti, 766: 'qualunque interessato nelle Valli di Bottenigo tra le Zatterine et Malghera dall'Arzere delle Lagune in suso che tutti detti interessati debbano ritrovarsi nella sala di Pioveghi per li 18 di Luglio instanze in giorno di Domenega à hore 20 in circa per far elettion di Presidenti di esse valli'.

to the different positions in the shipbuilding production chain by a drawing of nominative papers in a sack, as in the *insaculación*[115].

In the aforementioned Venetian case of the Bottenigo canal *consorzio*, we are thus dealing with a hybrid form of access to office, first a random selection from a list chosen, which is then confirmed by deliberation. Indeed, in Venetian political practices, unlike the *insaculación* that took place in the Crown of Aragon, the drawing of lots was always combined with other mixed phases of election, whether public or secret, as would happen mainly from the end of the 15th century onwards[116]. The very election of the doge after the funeral of the preceding one constituted a complicated and potentially lengthy succession of ballots and elections similar to that which follows the actual death of a pontiff in Rome[117]. Despite not knowing the names of those who were finally drawn and elected to represent the Bottenigo canal *consorzio*, we can deduce that it functioned similarly to another case that can be cited from the same decade, namely the election of the *presidenti* of the *consorzio* Ceresuol that took place on 27 November 1594 in the audience hall of the palace of the *podestà* of Lendinara, in the Polesine (*Fig. 21*). In this case, four names were drawn from a list of the participant members of the *consorzio*, who were then balloted by *pro* and *contra* votes. Of these four drawn names, the three candidates with the largest difference between positive and negative votes accessed office, while the fourth was excluded. Thus, on that November day in 1594, 38 men arrived at the palace of the *podestà* of Lendinara, all of them interested in the drainage of the Campagna Vecchia into the Ceresuol canal, an area that had already been drained previously in the Ferrarese period between Lendinara, Badia Polesine and Fratta Polesine and that depended on the correct management of the aforementioned Ceresuol canal to the north, and the Scortico canal to the west, eventually dumping its waters into the Adigetto and Canalbianco[118]. We do not have any details of the physical utensils used for

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[115] Judde de Larivière, 'Élection ducale', 228.

[116] Mueller, 'Nel Segreto Dell'urna'.

[117] Judde de Larivière, 'Élection ducale', 218–22.

[118] It is possible to identify both canals, built in the middle ages, according to Paolo Sicchiero, the present-day hydrography of the Polesine, although the latter has undergone profound changes over time. The cartography used to identify these bodies of water in the triangle of land called 'Campagna Vecchia' between Badia, Fratta and Lendinara was: Paolo Sicchiero, *La Fratta Medievale* (Fratta Polesine: 'Il Manegium': Gruppo culturale e di ricerca, 2017) and the Adige-Po *consorzio* maps:

the first draw, whether they were sacks from which pieces of paper, wax or wooden balls were extracted from, or other forms of drawing names. What we do know is that four names were drawn: Lelio de Conti, Giovanni Battista Malmignati, Rugerio Cattaneo and Matteo Zoso della Bella. The surnames of the first two have a strong presence among the 32 mentioned members of the total group of 38 elector-candidates, suggesting an important attendance and participation of the De Conti and Cattaneo families in the *consorzio*. This was not a coincidence, as the Cattaneo, Conti and Malmignati were important noble families that had ruled over Lendinara, in the case of the first, since the Carolingian era, holding palatial residences and real estate[119]. After the drawing of these names, there was then a first ballot that resulted with Malmignati and Zosso della Bella appointed, and a draw among De Conti and Cattaneo, who both received a 26 *pro* and 12 *contra* votes, forcing the repetition of the ballot. The second ballot resulted with De Conti receiving 20 *pro* and 18 *contra*, thus losing by one ballot against Cattaneo, who received 21 *pro* against 17 *contra*.

<https://adigepo.g6.arcadiasit.com/g6/web/G6AdigePo/>.

[119] The Cattaneo were the first lords of Lendinara, appointed by the Carolingians in the 9th century, and, despite the end of the seigneurial-imperial regime that transformed Lendinara into commune with a podestà, as in many northern Italian city-states, this noble family from Verona maintained a residence in Lendinara: Capellari Vivaro: Vol. I - It. VII, 15 (8304), f. 250r: <https://bibliotecanazionalemarciana.cultura.gov.it/manoscritti/Caphtm1/Ca1v250r.htm> Bruno Rigobello, *Storia antica di Lendinara - La Signoria dei Cattaneo (870 - 1283)* (Lendinara: Tip. Lendinarese, 1974); According to Capellari's Campidoglio Veneto, the De Conti were a family of an important Lombard *condottiero* or mercenary military official who served the *Serenissima* at the beginning of the 15th century against the Visconti of Milan, and who had thus become Venetian patricians. Capellari also mentions a family with origins among the local nobility of Padua and Vicenza, the Conti, which despite not including the preceding 'De' article, seems to be more in line with the situation of the members of this consorzio, as Capellari includes the petition that Manfredo Conti with which the family was included in the Maggior Consilio in the 1660s where there is mention of receiving lands in the Polesine previously owned by the Carraresi as a prove of the family's loyalty to Venice, This is confirmed by the presence of a late 15th century palace in Lendinara called 'Palazzo Malmignati Conti', later owned by the Malmignati noble family, the richest in Polesine in the early modern period: Capellari Vivaro: Vol. I - It. VII, 15 (8304), f. 317r–317v: <https://bibliotecanazionalemarciana.cultura.gov.it/manoscritti/Ac/Cap1317.htm>, Elena Baldin, 'L'attività Espositiva e Gestionale Di Palazzo Roverella a Rovigo: Una Stgine Di Mostre Dalle "Meraviglie Della Pittura Tra Venezia e Ferrara" al "Demone Della Modernità"' (Venezia: Università Ca' Foscari Venezia, 2016), 26.

Other elective processes followed a similar procedure as in the cases of the Bottenigo or Ceresuol *consorzi*, although they do not contain any mention of prior random drawing of names (*Fig. 17* and *2*). This practice coincided with a very extended Venetian tradition of deliberating by *bossoli* et *ballote* in a wide panoply of fields and institutions, that could range from the appointment of the *bresciani* and *bergamasco* canal builders for the Brentella canal on behalf of Treviso's *Ufficio Alle Acque*, to, among many examples in the Venetian areas of influence, the daily deliberations of the city council in Split in the 14th century, where the members of the city élite, emulating Venetian Maggior Consilio deliberations, decided who was *pro* and *contra* proposals 'ad bussula et ballotas'[120]. In this case, deliberations were realised by depositing the ballot containing the name of the candidate in an urn, called a *bossolo*, that either represented the 'yes'/*pro* or the 'no'/*contra*. In the Venetian context, this system gradually evolved towards the secret ballot, and ways were devised to create multi-hole ballot boxes which, from the outside, the other members present at the voting, could not see on which side the voter was depositing his ballot. This way of electing or deliberating constituted a real Venetian material innovation as regards the use of utensils for a 'fairer' vote, especially after the electoral reform of 1492, where the secret ballot was made official and obligatory thanks to the invention of these Venetian-style *bossoli* where the vote was secret, adding also the use of padded balls that did not produce noise when deposited in the ballot boxes, acoustically revealing the vote[121]. However, despite being quite unique in the concrete way in which Venetian electoral instruments added to the spread of secret voting, this evolution did not only occur in Venice, as most Italian communal councils-initiated functioning with public displays of political agreement and disagreement in the central Middle Ages, and ended in more organised and discrete systems of adhering to proposals. Thus, there was a shift from simple acclamation, with expressions such as 'fiat!', pronounced in the Bolognese *arengo* to elect representatives or to adhere to propositions in the mid-12th century, to a quicker and more effective practice of publicly displaying

[120] Nella Lonza, 'The Culture of Voting in Medieval Split: Appearance and Reality', in Serena Ferente, Lovro Kunčević, Miles Pattenden (eds.), *Cultures of Voting in Pre-Modern Europe* (Abigndon: Routledge, 2018), 162–64.

[121] Mueller, 'Nel Segreto Dell'urna', 226.

the decision by sitting down or standing up ('de sedendo ad levandum')[122]. However, the first votes of the communal councils and within the artisan and merchant guilds of the central-septentrional Italian communes were with the deposition in an urn or sack of two different colours of beans, usually black or white, symbolising adherence or disapproval[123].

Reinhold C. Mueller includes contemporary foreign and Venetian descriptions of the *bossoli et ballote* system introduced in the Maggior Consilio and other Venetian institutions in the late Middle Ages that indicate that this procedure derived from, and was intended to perfect, the widespread aforementioned system of bicoloured beans[124]. It is most likely that elections within *consorzi* in the 16th century were carried out with a similar, if not identical, system to the post-1492 Venetian procedures described and studied by Mueller. That said, it must be reiterated that no concrete descriptions of these practices are preserved among the *Provveditori sopra i beni inculti* archival collection beyond the mere mention of electing *a bossoli et ballote*.

Another aspect of these balloting practices worth noting is that *consorzi* authorities also validated or invalidated them according to the level of participation. High participation in ballots meant that the expression of the collective will was more precise, and thus fairer. Close draws and repetitions of elections, such as the one that happened in Lendinara between Giovanni Battista Malmignati and Matteo Zoso della Bella, were generally preferred to distorted unanimity caused by only a few stakeholders who were furthermore likely associates and agreed upon the same candidates and direction of the *consorzi*. This is not to say, of course, that a potentially unanimous agreement was not sought at best.

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[122] Arthur M. Wolfson, 'The Ballot and Other Forms of Voting in the Italian Communes', *The American Historical Review* 5/1 (1899): 5; Edward Coleman, 'Representative Assemblies in Communal Italy', in *Political Assemblies in the Earlier Middle Ages*, Studies in the Early Middle Ages 7 (Turnhout: Brepols, 2003), 204–6; François Menant, *L'Italie des communes, 1100-1350* (Paris: Belin, 2005), 84–86; Massimo Sbarbaro, *Le delibere dei Consigli dei comuni cittadini italiani: secoli XIII-XIV* (Rome: Ed. di Storia e Letteratura, 2005), 13–19.

[123] Lorenzo Tanzini, 'From Discussion to Vote: Practices of Political Deliberation and Written Records in Communal Italy', in Serena Ferente, Lovro Kunčević, Miles Pattenden (eds.), *Cultures of Voting in Pre-Modern Europe* (2018), 180.

[124] Mueller, 'Nel Segreto Dell'urna', 222.

Nonetheless, agreement was legitimised by participation in ballots and previous *presidenti* and Venetian magistrates were insistent when announcing dates and locations of elections, seeking the involvement of the main local *stakeholders*. Furthermore, among the cases of elections that have been dealt with, only one expression has been found that suggests that unanimity was a condition capable of validating the election. It occurs during the announcement for the need to elect a new *giudice d'argine* on 2 October 1561, when *presidenti* asked it to happen 'with urns and ballots, all for and no one against' ('ad bussolas et ballotas omnis favorande et non in contra')[125]. The rest of the ballots declared to the *Provveditori sopra i beni inculti* put more emphasis on the number of electors, often lamenting the lack of it. Thus, in 1592, patricians Piero Emo and Geronimo Soranzo, at that time in office as *Provveditori sopra i beni inculti*, complained that despite having written to the administrative representants of the Republic in each Terraferma city and town (*rettori*) about the need to elect by ballot new *presidenti* for the Gorzon canal *consorzi* (two *consorzi*, one for the high course stretch of the canal, and another for the low one), and despite having been clear about the date and place it was supposed to have taken place – 30 August, after diner, in the 'Sala dei Pioveghi' in the Ducal palace in Venice–, 'the number of stakeholders that appeared was not sufficient for the election'[126]. The pragmatic solution that the Venetian magistrates came up with was the appointment by themselves of whomever they thought fit, appointing the abbot of the Abbey of Carcere and patrician Filippo Bembo as *presidenti* of the high course *consorzio*, and Andrea Bragadin, Ottaviano Malimpiero and Catharin Zen, many of them notable patricians of the with property in the Bassa Padovana (Zen, as previously seen in Chapter 2, was son of one of the first *Provveditori sopra i beni inculti* and owned a large estate between Carmignano and Sant'Urbano)[127]. The same situation was repeated after the two-year

[125] ASCA, 760, f. 3.

[126] ASVe, Provveditori sopra i beni inculti, 782: '1592 alli 16 Settembre. Havendo noi Proveditori Sopra li beni inculti Infrascritti inteso che non si sono ridutti quel numero d'interessati nel Ritratto del Gorzon, che era necessario per far l'elettione delli Presidenti del Retratto sudetto secondo l'ordinario, non ostante che siano state scritte lettere alli rettori di fuori et fatto intender etiam de qui per il fante dell'officio nostro che si dovressero ridur per li 30 Agosto prossimo passato il doppo disnare nella sala dei Pioveghi onde parendine necessario cosi per interesse publico come particolare venir noi à tal elettione in essecutione delli ordeni dell'offitio nostro (…)'.

[127] Ib.: 'siamo venuti noi Proveditori sudetti all'elettione delli sottoscritti magnifici presidenti del detto ritratto del Gorzon come persone à noi ci sono parse atte à tal carico i quali pressidenti habbino à star in

term of the latter, in 1594, when the *Provveditori* despite having informed local authorities of the ballot of the new *presidenti* scheduled for 4 September 1594, also in the Sala dei Pioveghi of the ducal palace, 'after dining' ('doppo disnare'), decided to appoint themselves the new *presidenti* for the Gorzon canal *consorzi*, given that no one had shown up to their call. Catharin Zen was also appointed *presidente*, this time shifting to the higher course Gorzon *consorzio*, whereas the Pisani who owned lands in Boara, in concrete Alvise Pisani, was reappointed together with a Giacomo Grimani and Alessandro Gradenigo as *presidente* of the lower course *consorzio*[128]. The problem of low attendance in the ballots of the Gorzon canal *consorzi* occurred again in 1597. This time the source revealed what the *Provveditori* considered not enough electors, in this case, ten men, which contrast with other numbers such as the 25 electors in the Mezzara *consorzio* in 1561 (*Fig. 17*), the 32 in the Brancaglia *consorzio* in 1573 (*Fig. 18*), or the 38 that participated in 1594 in the Ceresuol *consorzio* (*Fig. 21*).

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questo carico per il spatio di anni doi da questo giorno in dietro giusta la continentia della terminatione de Clarissimi M Precessori di 5 februaro 1581 con tutte e cadaune auttorità concesse à Presidenti per leggi dell'eccelentissimo senato et terminationi dall'offitio nostro in tal materia disponenti: Li Clarissimi presidenti della parte superior: Il Reverendo Abbate dell'Abbazia della Carcere, Messer Felippo Bembo filio dell'eccelentissimi Messer Zuan Francesco; Li Presidenti per la parte inferior: Messer Andrea Bragadin, Messer Ottavian Malimpiero fo dell'eccelentissimo messer Michiel, Messer Chatarin Zen, filio dell'eccelentissimo Messer Nicolo. Piero Emo proveditor, Hieronymo Soranzo proveditor'.

[128] Ib.: '1594 à 26 novembre. Havendo noi Proveditori sopra li beni inculti infrascritti inteso che non si è redutto alcuno d'interessati nel Retratto del Gorzon per far elettione delli Presidenti del Retratto sudetto secondo l'ordinario non ostante che siano state scritte lettere alli Rettori di fuori et fatto intender et de quei per il far fare dell'offitio nostro che si dovessero ridur per li 4 di settembre presente passato il doppo disnare nella sala dei Pioveghi onde essendo necessario cosi per interesse publico come particolare venir à tal elettione in esecutione delli ordeni dell'offitio nostro Christi Nomine invocato non siamo venuti noi proveditori sudetti all'elletione delli sottoscritti presidenti del detto Ritratto del Gorzone come à persone che à noi ci sono parse atte à tal carico quali pressidenti habbiano à star in questo carico per il spatio de anni doi solamente da questo giorno in dietro giusta la continentia della terminationi dei Clarissimi nostri predecessori de di 5 febraro 1581 con tutte et cadauna auttorità concesse à presidenti per leggi dell'eccelentissimo senato et terminationi dell'offitio nostro in tal materia disponenti. Li NNHH: Messer Christoforo Barbarico, Messer Piero Boto et Messer Cattarin Zen, presidenti della parte superior. Li NNHH: Alvise Pisani, Alessandro Gradenigo, Messer Giacomo Grimani, presidenti della parte inferior. Zuane Corner proveditor, Alessandro Zorzi, proveditor.'

It is also worth noting that the *Provveditori sopra i beni inculti*, unlike the other previous examples for Gorzon canal election cancellations, also decided to record the names of the ten participants in the ballot. Thus, of these ten which did not seem sufficient, eight were patricians (three of from the Zen family, a Pisani, a Querini, a Valier, a Minotto, and a Da Mollin), along with two other men, Giovanni Paolo Gardo, and Flaminio Cariero, who was presented as an ambassador of the city of Padua, and who, as seen in the previous chapter, had been an *avvocato* mediating and inquiring stakeholders during the expedition between Lozzo and the Adige a year before, together with Secondo Cremona[129]. This document therefore allows us to deduce that these mediation professionals and notaries such as Flaminio Cariero could also participate in electing and being elected *presidente* of *consorzi*. Furthermore, at the same time as being potentially appointed or elected, they were also sometimes given the notarial task of recording, supervising and approving ballots. Indeed, Secondo Cremona, who had died a year before the participation of Flaminio Cariero in the Gorzon canal ballot, had also worked as a sort of election notary-supervisor for the validation of ballots of *presidenti* of the Gorzon canal *consorzio*, and was later substituted by Giovanni Battista or Zambatista Tirabosco as the main *avvocato* of the *consorzio* in January 1596 MV (January 1597 in the Gregorian calendar). Furthermore, and if the redundance of this problem was not enough, the election of Cariero's replacement, which should have taken place by ballot, was also invalidated due to lack of participation. Thus, the *Provveditori sopra i beni inculti* directly appointed Tirabosco as *avvocato* without taking into account the previous ballot[130].

Thus, the cancellation of the ballots for lack of participants by the *Provveditori sopra i beni inculti* appears to have been particularly frequent in this decade of 1590, as can be

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[129] Ib.: '1597 alli 27 April in sala di Pioveghi il doppoi disnar doppo consilio. Li Signori Interessati nel ritratto del Gorzon che ci sono reduti in locho per far li presidenti del detti ritratto sono: Li Clarissimi M Zuane Minoto, M Zuan Paulo Grado, M Piero Zen, M Catarin Zen, M Battista Zen, fratelli, M Zuane Pisani, M Bortolamio Querini, M Lunardo da Molin, M Ottavian Valier, L'eccelentissimo Flaminio Cariero nontio della magnifica città di Padoa.'

[130] Ib.: 'Adi 20 Zener 1596. Essendo seguita li mesi passati la morte dell'Eccelente Signor Secondo Chremona, avocato del nostro Retratto del Gorzon et essendo stà fatto intender li zorni passati la redutione à tutti noi pressidenti per far l'elletione in loco suo laqual non avendo a(v)uto effetto per non haversi (…) riduto nessuno (…) noi sottoscritti presidenti elegemo per avocatto del ritratto nostro lo Eccelentissimo Messer Zambatista Tiraboscho'.

seen in particular in the various documents invalidating such elections, which occurred both in Venice and elsewhere in Terraferma. For example, beyond the elections organised in the Sala dei Pioveghi of the ducal palace of the Gorzon *consorzi*, we can cite the example of an invalidation for low turnout that took place in the palace of the *podestà* of Adria in 1592. In this case, the members of the Delle Corbole *consorzio*, in the Po Delta (nowadays, there is a town with the same name, but in singular, Corbola), did not show up to the call made by the *podestà* of Adria, as ordered by the *Provveditori sopra i beni inculti.* The solution was to send a notary to Venice with a list of names that the Delle Corbole *consorzio* had produced, from which they drew three names that where those of who became *presidenti* of the *consorzio* for the next two years[131].

There were examples of *presidenti* elections or appointments from that last decade of the 16th century which the *Provveditori sopra i beni inculti* validated without major detail on the number of electors who participated in the ballot. Furthermore, they validated these election confirmations that might have been rather just an appointment as the aforementioned Delle Corbole *consorzio*. For instance, there is no mention proving that the appointment of Marcantonio Badoer as *presidente* of the Gavello *consorzio* in 1595 (*Fig. 22*) was an actual election by ballot or just a direct appointment[132]. Only the number of signatures of *consortes* approving such an election, namely nine signatures, can suggest a certain collective participation in the election of such a president, forming a constituency. However, there is another example of a document validating another election of the same *consorzio*, this time held in Adria in 1599 (*Fig. 23*) in which only three signatories internal to the institution were enough for the election to be valid,

[131] ASVe, Provveditori sopra i beni inculti, 770: '1592 8 Aprile. Li Clarissimi Signori Nicolo Bondimin et Hieronimo Soranzo prov. sopra i beni inculti havendo veduto dalle lettere del Magnifico Podestà di Adri di 20 Marzo prossimo passato che gli interessati nelle Ville di Corbole non si sono ridutti per il giorno terminato per far elettione di Presidenti si come gli fu per l'offitio nostro scritto fino sotto li 3 febraro prossimo passato (…) sue Signorie Clarissime sono devenute à far elettione di Pressidenti nelle ville di Corbole il Nobile Homo Francesco Querini, il Messer Giustignan (sic), et Ercole di Lardi cavati da una polizza che li fu mostrata da Domino Michiel Travaglian per nome d'interessati come di persone atte à tal carico à benefitio di esse ville con l'auttorità et obligationi solite darsi à Presidenti et di dover continuar per anni dui solamente non più giusta la termination dell'offitio nostro di 5 febraro 1581'.

[132] ASVe, Provveditori sopra i beni inculti, 779.

something that makes it far from being a sufficient electorate according to the rules of the *Provveditori sopra i beni inculti*, yet, who, nevertheless, validated the new *presidenti*.

Another factor that distances the hypothetical coincidence of the internal signatories validating the appointments with a possible participating electorate is that in this document of 1599 none of the three names that sign (Bernardin di Pattarelli, Orazio Dolandi and Barbara Momi Romei) coincide with the three *presidenti* who accede to the office (Giovani Badoer, Ludovico Fressi and Giovanni Trivisano). This picture differs substantially from the draw and balloting practices previously discussed, in which the *presidenti* drawn by lot and ballot are also participants in the vote. These cases would therefore indicate that they were rather appointments that were not the result of specific elective procedures, but direct access to the post that were then accepted with the signature of a few consorts.

What is worth noting, however, is that, despite not giving any specific information about the procedures used to elect and deliberate, these two documents relating to the *consorzio* Gavello give us certain details about the social composition of the institution's representative body. Thus, in both we see the accession to power of a Venetian patrician from the Badoer family, Marcantonio, in 1595, and Giovanni four years later. We can also see the signature of several women of the Ferrarese nobility, Anna Giliolli, together with her brother Galeazzo, in 1595, and Barbara Momi Romei, in 1599, a not insignificant gender factor in the work carried out, since the only woman *consorte* previously mentioned in the case of the Gorzon was a noblewoman substantially more powerful than the previous ones, Paola Pisani, the Cardinal of Venice's sister. In addition to this factor, we can also verify an important aristocratic component of the Gavello *consorzio*, based on a symbiosis between the Ferrarese nobility, represented by the Giliolli and the Romei, together with the prior of the *Certosa* of Ferrara, Teofilo Da Bologna, and the Venetian patriciate, represented by the Badoer.

Why, then, should it be that the elections of the Gorzon *consorzi*, also with a significant presence of large aristocratic landowners, were subject to such control by the Venetian magistrates, while in the case of the Gavello *consorzio* the elections, without any details as to the number of participants in the ballot, were approved without any problems? Several factors could be cited. The first is the extent of land and jurisdictions covered by

the Gorzon canal as opposed to those covered by the Gavello *consorzio*. Already the length of the Paduan canal, more than 60 km and going through the territories of various *magnifiche comunità*, *podesterie*, patrician estates and ecclesiastical manors, had forced the institutional fragmentation of the initial *consorzio*, into, first, two *consorzi*, one for the upper and one for the lower halves of the canal, and from 1595, introducing an additional third *consorzio* for the central part of it. In the meantime, the Gavello was a drainage and irrigation canal of barely 12 km all within the *podesteria* of Adria. The number of stakeholders was thus much larger in the Gorzon, concerning a larger involvement of the Venetian magistrates in approving an election that better represented the main stakeholders along the canal. The second factor was that of distance from Venice, as most of the areas served by the Gorzon canal, as seen in the previous chapter, were reachable by fluvial navigation in a day from Venice, whereas the Polesine was further south and closer to Ferrara. The third factor was that the social background of the participants Gorzon canal *consorzi* elections had all an important presence in the city of Venice. That is, they were patricians with property in Venice, with access to the Maggior Consilio and other main institutions. This made daily exchanges with the *Provveditori sopra i beni inculti* more frequent, and therefore stirring more interest and concern. By contrast, the Gavello *consorzio*, despite having the important presence of the Venetian Badoer family, was further away from the political influence of the Serenissima, and most stakeholders came instead from Ferrara, the northernmost region of the Papal States. In short, the validation of the electoral processes of the representatives of each *consorzio* in the Venetian Terraferma by this external institution of the *Provveditori sopra i beni inculti* depended largely on the presence of participants familiar with close-circuit Venetian politics. The tutelage and surveillance of the internal elections of each *consorzio* was less when the *consorzio* was small and included generally external figures, either local commoners, as in the elections of the *consorzio* of Mezzara, or aristocratic elements from other states, as in the case of the areas bordering the Papal states in the Po Delta.

All this information on the place, time and procedures used for the appointment or election is due to the fact that the *Provveditori sopra i beni inculti* exercised an important control over the cycles of occupation of *presidenti*'s offices, according to a rule promulgated by them in February 1581 MV (February 1582) which is frequently quoted. According to this, the *presidenti* could hold office for a maximum of two years before a new election could be made, although as seen in some cases, this term was also sometimes

exceeded in practice (*Fig. 21*)[133]. Thus, the archival collection of the *Provveditori sopra i beni inculti* allows us to know in greater detail and at first hand the results and, in some cases, the procedures by which the members of the *consorzi*, or the institutions that controlled these *consorzi*, chose their representatives and persons in charge of the construction, maintenance and surveillance of the canals, as the Venetian authorities made it obligatory to send records of these election or appointment practices. This situation contrasts with the Valencian case, where the aforementioned control by the institutions of the Hispanic monarchy exercised through the imposition of *insaculación* cannot be seen explicitly in the sources consulted in royal court cases. This is due to the fact that, to a large extent, the minutes of the meetings of the communities of irrigators, of the deliberations and elections carried out within these annual general irrigators' meetings are scattered in a myriad of notarial protocols, organised according to the names of notaries, who treated the widest panoply of matters one can imagine in the kingdom[134]. Whenever appointments of irrigation canal authorities happened by other ways that were not *insaculación*, the consulted sources for Valencia, thus *Furs* and *capítols* on the one hand, and court cases, on the other hand, only mention that the *sequiers*, *síndics* and *veedors* were sometimes elected by the *commons* (*el Comù*) of irrigators and, in the case of irrigation canals managed by municipalities, by municipal councils (*justícies i jurats*), without mentioning the concrete procedure carried out to appoint them.

Thus, in 1506, a dispute arose between the authorities of the Favara irrigation canal and the supposed legal representatives of the small town or *lloc* of Albal over whether the latter had the right to vote on a municipal *sequier* for the stretch of irrigation canal that passed through the town's jurisdiction[135]. The *sequier* of Albal, according to some locals from the town, had been voted by the municipal council for many years, since time

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[133] ASVe, Provveditori sopra i beni inculti, 782: '(…) i quali pressidenti habbino à star in questo carico per il spatio di anni doi da questo giorno in dietro giusta la continentia della terminatione de Clarissimi M Precessori di 5 februaro 1581'

[134] Ferran Esquilache Martí and Enric Guinot Rodríguez, 'La gestió técnica de la irrigació en les hortes històriques valencianes. El sequier, dels orígens a la desaparició (segles XIII-XVII).', *Millars. Espai i Història*, 37 (2014): 79.

[135] ARV, Gov Pro Crim, 17, caja 4783, exp. 2496: 'Procès de la universitat del loch de Albal contra lo síndich y cequier de la acequia comuna de Favara'.

immemorial, without any hindrance or contradiction with the *sequier* of Favara[136]. The *sequier* and the other authorities of the irrigation community of the Favara irrigation canal, on the contrary, feared an overlapping of the authorities, and were opposed to allow Albal to elect a parallel *sequier*[137]. In this sense, the former claimed that they did not want to interfere in the custom that all the members of the irrigation community of the Favara irrigation community had of voting their *sequier*, but that they also wanted to continue to exercise their custom of electing an own *sequier* for the section of the canal within the boundaries of the village[138]. After the court reading of the proclaimed *síndic* of Albal, two witnesses, farmers Frances Romero and Miquel Marí, supported this position. On the other hand, those from Favara not only claimed that this custom of Albal was false, but that the municipal *síndic* that supposedly chose the municipal *sequier* was himself self-proclaimed and that his office did not exist, as Albal was a village without single municipal representation[139]. Throughout the court hearing, there was talk of having the

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[136] Ib.: 'Davant la presentia de V.S. loctinent general en lo ofici de portantveus de general governador en la present ciutat y Regne de Valencia personalment constituhit lo sindich y procurador de la universitat del loch de Albal lo qual com millor pot y deu diu e propossa que la dit universitat justícia y jurats y de mes oficials de aquella han acostumat y acostumen de pus de deu, vint, trenta, quaranta y cinquanta anys a esta part y de tant temps ençà que memòria de homens no es encontrari de nomenar y elegir cascun any un cequier per a que rixga y done degut ordre en les cequies per aygua de dita universitat pels que reguen en lo terme de aquella lo qual té conte en totes les coses concernents a dites aygues sens que per persona alguna sels haja ferma y contradictió legítima (…)'

[137] Ib.: '(…) lo lloch de Albal y les terres del terme de aquell se reguen ab la aygua de la cequia de Favara y qualsevol qüestió y debat la ha y deu discidir lo cequier de Favara juntament ab los oficials de dita cequia de la manera que en los capítols de aquella està ordenat los quals en tot y per tot prohibexen tot lo que pretén la part altra'.

[138] Ib.: 'Die XIII mensis Julii anno a nativitate Dominis MDCVI (…) Frances Romero llaurador del lloch de Albal (…) dix esser de quaranranta VII anys. E dix que (…) de pus de trenta anys a esta part viu y habita en lo lloch de Albal y per dita rahó ha vist (…) que la dita universitat, justícia, jurats y del mes particulars son estats y estan en quieta y paciffica possessió sens empaig ne contradicció de persona alguna de (…) nomenar y elegir (…) caschun any un çequier per a que rixca y done orde en les cequies y aygua de dita (…) universitat y dels que reguen en lo terme de aquella (…) lo qual dit cequier axí nomenat se conte en totes les coses concernents a dites aygues sens que per persona alguna sels haja fet contradicció (…) dels sequiers de la cequia de Favara'.

[139] This could be possible, since Albal is defined by the judges of the *Real Audiencia* as a 'lloc', without its own legal representation, while the witnesses from Albal call it 'universitat', as if it were a municipality with *jurats* and *justícies*. Ib.: 'Comparint en cort (…) Jaume Amat syndich de la cequia comuna de Favara

right to elect a *sequier*, showing tension between the representation and management of the canal from its intake to its mouth, and the representation and management of each section of the canal, thus following a model similar to that of the 'municipalised' Montcada irrigation canal by which section *síndics* had more power than the general *sequier*. However, at no time do the participants in the court hearing make any mention of the system by which these *sequiers*, entire-canal or municipal, were to be elected, and whether it is a matter of a random draw of *redolins*, an appointment by agreement of the respective councils, an election or a combination of the latter. Luis Pablo Martínez Sanmartín and Vicent Terol i Reig, having meticulously identified among the large number of notarial protocols those documents that testify to both the annual and extraordinary meetings of the *Comú* of the irrigators of the Favara canal between the 15th and 16th centuries, have been able to access more detailed information on the ways in which the members of this community of irrigators of Favara elected their representatives. Although the descriptions of a hypothetical election of a *sequier* of Albal have not been found, one of the interrogated witnesses of the town, Frances Romero, did hint that the alleged election of their *sequier* happened as some form of nominative annual deliberation of the town council, in which the town's '*justícia*, *jurats* and other land owners' participated ('justícia, jurats y del mes particulars')[140]. Moreover, it was not the first time that a group of irrigators from a section of the Favara irrigation canal had tried to organise elections, as Glick had already found a mention of a group of irrigators of the Favara irrigation canal, who, against the will of the majority, were accused of deciding to call an election of *síndics* in 1446[141].

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y Frances Vicen cequier de aquella los quals de dits noms respectivament dixerent que de manaven com de fet demanaren correctió de la provisió de admissa Juris ferma feta y provehida per Joan Riudaura llaurador dient-se syndich del lloch de Albal (…) illegimitatis persone per que no ha constat ni consta que lo dit Joan Riudaura sia syndich de dit lloch ab poder per a fermar de dret lo que era y es necessari per a fer dita instancia'. The name of the alleged self-proclaimed *síndic* of Albal is Josep Riudaura, like name of the aforementioned case of the *frontaler* of the Xirivella branch of the Mislata irrigation canal in 1594 (ARV, Real Audiencia, Procesos, II Parte, Letra S, Apéndice, 392). It is unlikely that they were the same person, given that, if one was already a *síndic* of Albal in 1508, it is quite unlikely that he was alive in 1594. It has neither been able to verify if Josep Riudaura from Albal (1508) and Josep Riudaura from Xirivella (1594) were relatives. In order not to cause confusion, in the main text, the Riudaura of Albal will simply be called the *síndic* of Albal.

[140] Martínez Sanmartín and Terol i Reig, 'El libro de los actos', 608.

[141] Glick, *Irrigation and Society in Medieval Valencia*, 35.

It is therefore clear that the holding of elective processes by lot and deliberation that were not authorised or did not follow the rules stipulated by those in charge of validating them, whether they were the *Provveditori sopra i beni inculti*, the agents sent from the Crown to supervise municipal *insaculaciones*, or, as in the previous case, the council of the irrigation community of the Favara irrigation canal, were frequent causes of conflict that reached the spheres of state judicial bodies. These conflicts were therefore the result of a desire to externally control the representativeness of those considered to be the managers and guardians of the canals or of sections of them.

d) Internal forms of controlling representation: auctions and economic trust

The imposition of *insaculación* under the strict scrutiny of Crown officials, applied to some municipal irrigation communities such as that of the Alzira canals, represents the greatest degree of external control suffered by the water boards under study. Similarly, the wide spectrum of control that the *Provveditori sopra i beni inculti* exercised over the elections, ranging from a rather close vigilance of these when the Venetian aristocratic interest was at stake to a laxer approval of the elections of those local *consorzi* in which they had lesser interests, proves the capacity that state magistrates and institutions had to oversee water board nominations of representatives externally. However, the oversight of the appointment and election processes was not only sought by external state legal-administrative authorities. There were also other elective practices that allowed for greater internal control of the functions of the *sequiers* and *presidenti* on behalf of the own communities of water users that appointed them.

In the aforementioned example from 1508, the reason for the opposition of the authorities of the irrigation community of the Favara irrigation canal to any attempt to elect parallel local representatives for specific sections of the canal stems from two factors. Not only was there an evident desire to avoid what Peris Albentosa calls the 'municipal overlapping' (*la imbricación municipal*) affecting the Montcada canal, but there was also the fact that the method and procedure by which this irrigation community elected its representatives, according to their customs and thanks to some council minutes uncovered by Martínez Sanmartín and Terol i Reig, was different from the drawing of lots

(*insaculación* or *redolins*) or voting in council[142]. Thus, there was a clash between deliberative and chance or raffle drawing systems, on the one hand, versus a third type of procedure, on the other: that of acceding the office by auction (*arrendament*).

It was precisely this other type of appointment procedure, which for example was used for the naming of new *sequiers* in the Favara canal, that a rigorous surveillance of the activity of the *sequier* was activated. Auctioning *sequiers*, according to Glick and more recent studies of notarial protocols, consisted in proposing the price of the annual expenses, or for the customary duration of their post, including mainly the common expenses of the periodic cleaning and maintenance of the canal; the candidate who offered the lowest price was the one who got the job[143]. Thus, the agreed and auctioned price, including construction materials, tools and salaries of board authorities (*síndics*, *veedors*, *frontalers*, etc.), was paid in advance out of the pocket of the new *sequier*. He was then responsible for getting reimbursed by collecting the *sequiatge* paid by all the user members of the community, having a notary or *escrivà* register annually who had paid, proportional to the size of the lot of land that was possessed. In addition to inferring that those who applied to become *sequiers* had to be financially solvent to be eligible for the post, the advance payment of the common expenses gave the *sequier* an even greater sense of responsibility and personal involvement in the supposed common interest of the irrigators. Similarly, given that the *sequier* advanced these common expenses out of his own pocket, he would tend to be more committed to being reimbursed by each member of the *comunitat*, since if the *sequier* did not carry out his routine inspections and remind the irrigators present in each of the sections under his control of these amounts, irrigators could potentially benefit from this work by evading payment and, in some cases, also avoiding offering their physical labour for these purposes. The technical and administrative control expected of the *sequier* was therefore crucial. In addition, the advance payment of these costs also prevented the *sequier* from deriving any financial benefit from these activities in addition to the regular salary he received.

[142] Peris Albentosa, 'El ejercicio de la autonomía local en las Acequias de la Huerta de Valencia'.

[143] Glick, *Irrigation and Society in Medieval Valencia*, 38; Esquilache Martí and Guinot Rodríguez, 'La Gestió Técnica de La Irrigació En Les Hortes Històriques Valencianes': 81–82.

Thus, the most suitable candidate for *sequier* was the one who managed to fix the lowest common expenditure for maintenance and cleaning, as well as for the salaries of the *veedors* and other officials of the irrigation community. Auctions lasted, for instance, the same time it took a candle of a specific size to burn out, as practised during the auctioning for a *sequier* in the late 1400s in Vila-Real, near Castelló de la Plana[144]. Once the auction finished, the winning candidate then paid the agreed amount, and, by advancing the payment, would thus accede to the position of greatest responsibility in the community, concerning both material infrastructural tasks, as well as in political representation of the community. The newly acceded *sequier*, by putting his money first, and calculating the amount that was subsequently supposed to be paid back by each *hereter*, sealed an annual agreement with the users who would gradually reimburse him what was due with the payment of the *sequiatge*, a tax that rarely went exempted, although some *sequiers* sometimes allowed for their delayed payment, in case of crop failure due to floods and drought[145].

This monetary involvement of the *sequier* was similar to how the main stakeholder investors (*carattadori*) at the beginning of Venetian land reclamation campaigns advanced what each *consorte* then was supposed to pay with the *campatico* tax. The main difference is that Venetian stakeholders or *interessati* in larger *consorzi*, despite proposing a projected total price for a common endeavour, such as the *retratti*, that was collectively advanced in different amounts by shareholders, did not systematically accede formal political and administrative representation of the *consorzi* they belonged to. Thus, despite calculating a common total price, each stakeholder advanced out of pocket what they considered to be a portion of the total price of the ex-nihilo construction of a canal, which they then received on a regular basis in smaller but annual payments from the *campatico* (or *caratada*), which were proportional to the land owned by each member of the *consorzio*[146]. Moreover, unlike the *sequier*, advancing the common costs did not automatically make a *consorte* the representative enforcer of the *consorzio*, although, through some election minutes preserved in the archival collection of the *Provveditori*

[144] Esquilache Martí and Guinot Rodríguez, 'La gestió técnica de la irrigació en les hortes històriques valencianes', 82.

[145] Martínez Sanmartín and Terol i Reig, 'El libro de los actos', 608.

[146] Ventura, 'Considerazioni', 688 and 690; Ciriacono, *Building on Water*, 41 and 266.

sopra i beni inculti where the presence patrician and local noble names is preponderant among the candidates, we can suspect that there was a correlation between the advance payment of such expenses and the access to the candidacy to be president of a *consorzio*[147]. However, at no point is this relationship systematic or formalised in the way that some *sequiers* are described as having access to their functions. In the Veneto, the one who advanced the common expenses first was not therefore the one who directly represented the *consorzio*, although this did add more probability of becoming candidate, since representing a greater share in the common interest meant also a higher commitment to build and maintain drainage and irrigation canal correctly. For example, when, in the 1570s, the Venetian patrician Niccolò Cicogna (cousin of the *provveditore sopra i beni inculti* in the late 1560s, and doge of Venice Pasquale Cicogna from 1585 to 1595) proposed to the Brentella *consorzio* that he and some partner shareholders could finance a new branch of the canal that would significantly extend the irrigated area of the Treviso plain, further waiving the payment of the *caratade* to the members of the *consorzio*, in exchange for a quarter of the canal's total water flow, he presented himself and his partners as also members of the *consorzio*[148]. However, although they considered themselves the highest stakeholders of the Brentella, and promised to pay the costs of the extension of the canal (something that, in the end, would be taken care of by the communal coffers of Treviso), at no time did Cicogna's men proclaim themselves official spokesmen of the *consorzio*, respecting the election of its *presidenti* from the communal council of Treviso and the *Ufficio alle acque* of that city[149].

Therefore, we can conclude that the correlation between, on the one hand, the advance payment of common expenses and its auctioning, and, on the other hand, the access to

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[147] *Fig. 20* or the aforementioned presence Pisani in the Gorzon canal *consorzi* elections are the best examples of this correlation between wealth, property area and political representativeness.

[148] Raffaelo Vergani mentions that a brother of Niccolò Cicogna, Zuan Domenego, was a *provveditore sopra i beni inculti* twice, first between 1580 and 1581, and then between 1591 and 1593, while his cousin, Pasquale, was elected doge in 1585: Vergani, *Brentella*, 279–80. However, there is a document from 1566 that suggests that his cousin Pasquale Cicogna was also at least once one of the three *provveditore sopra i beni inculti* that year: ASM, Sezione Veneta, Acque, 320, f. 16: '1566 al modo di Venetia, adí 25 Zener (…) li clarissimi Messer Domenego di Priuli, Messer Pasqual Cigogna et Messer Zuan Donado, honorabili Provveditori sopra li beni inculti (…)'

[149] Vergani, *Brentella*, 281–303; Ciriacono, *Building on Water*, 44.

the representative authority of the communities of water users, was a Valencian specificity, although it gradually disappeared towards the beginning of the 18th century in favour of other types of elections or nominations[150]. What this practice represented in the late Middle Ages and Early modern period was an important relationship of reciprocity and vigilance between the *sequier* and those, the members of an irrigation community, who reimbursed him for the leased price. In effect, it functioned as a kind of bail, in which the irrigators, if they considered that the *sequier* had not fulfilled the expectations projected on him, could refuse to pay all or part of the *sequiatge*, arguing that they had not received any particular benefit for the cleaning, maintenance and surveillance works, as in the case between the irrigators of Callosa against the *sequier* from Orihuela, who refused to pay him for digging out a sedimentary island in the town's irrigation canal, saying that they 'had not obtained any benefit' ('no han abut benefici')[151]. Thus, this auction of the price of the common expenses formalised a covenant of good behaviour. Mutual vigilance was thus monetised and counted.

But this practice of oversight by the person who grants the office to the *sequier* did not only occur in this peculiar form of election, but also had repercussions on the specific functions of other officials of the irrigation community. Indeed, the men called *veedors,* who accompanied the *sequier* along routine vigilance and inspection, were not only assisting him, but also making sure that he was doing his job correctly[152]. Thus, *veedors* were responsible not only for ensuring that the price set by the *sequier* at the beginning of his term of office was correctly reimbursed by users in the form of the *sequiatge*, but also that the *sequier*, in exchange, would fairly distribute the water, penalise abusive uses, as well as clean and maintain the infrastructure. In this relationship of trust between water users and the executor of the basic functions of the common management of the canal, mutual surveillance was thus a routine.

The supervision of the functions that motivated the pact established by the auction of the common amount thus stimulated, in some cases, the multiplication of

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[150] Esquilache Martí and Guinot Rodríguez, 'La gestió técnica', 95.

[151] See chapter 4, p. 242; ARV, Real Audiencia, Procesos, I Parte, Letra S, 1001.

[152] Gual Camarena, *Estudio Histórico-Geográfico*, 60; Feran Esquilache Martí and Enric Guinot Rodríguez, 'La Gestió Técnica', 84.

intermediaries who supervised and represented, giving rise to the fragmentation of the main functions of the *sequier* in two directions in their local expression in each section of the canal. This can be clearly seen in long intermunicipal canals, like the Montcada canal (*Fig. 24*). On the one hand, there was the representative function, occupied by the *síndics*, who acted as representatives of the irrigators of a specific section of the canal and as intermediaries in the event that the irrigators they represented had a conflict with the *sequier*. On the other hand, there would be the *veedors*, who, as seen above, would help the *sequier* in its maintenance and surveillance functions. For instance, in the case of the Montcada canal in 1553 (*Fig. 24*), whose structure we can partially reconstruct thanks to a court case in the *Gobernación* of Valencia, which we will deal with in more detail in next chapter, *síndics* were appointed by municipal and village councils of the towns closest to given sections of the canal. These *síndics* then appointed a *veedor* in charge of overseeing the length of the canal and accompanying both the *síndic* and the *sequier* in quotidian tasks. We can thus infer that the establishment of this triple management function produced situations of triple mutual surveillance. Taking for example the section of the irrigation canal corresponding to the town of Foios, during its cleaning, the *sequier* Noffre Reguart would have thus been accompanied by Frances Gueran, the *síndic* of the irrigation board for that section, and Jaume Real, the *veedor* of the section. In this case, Jaume Real would watch over Frances Gueran, making sure the latter fulfilled the functions he was expected to carry out in the section. At the same time, Frances Gueran was supposed to check if *sequier* Noffre Reguart was meeting the norm. This form of mutual surveillance was commonly practised by appointed authorities, though, again, not in the horizontal sense described by Ostrom, whereby all users monitor each other equally. Rather, it took on a more institutionalised character, resembling a 'watching the watcher' function that overlapped with an auxiliary or assistant role to the official watchman[153]. This practice was rooted in the political and ideological expectations of local communities, which, as in the case of the assistants to municipal officials in late medieval Treviso responsible for calculating tax contributions–examined by Mattieu Scherman–regarded the appointment of municipal agents in charge of monitoring other public agents, in this case, tax collectors, as essential to ensuring their honesty and loyalty to civic authority[154].

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[153] Ostrom, *Governing the Commons*, 44–45.

[154] Scherman, *Familles et Travail à Trévise*, 26–27.

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Thus, we can conclude that the different forms used to elect these representative figures, who were responsible for the guardianship of the canals' infrastructure, responded to different situations in which it was necessary to show equity, representativeness of the stakeholders, external justice and/or mutually supervised and monitored cohesion between the different water users. An electoral or appointment practice was thus a mirror of the ideological principles that were intended to be projected towards external powers and promoted among internal members.

However, this was not specific to water boards, as there is no doubt that these elective processes would follow very similar or identical procedures to those in other institutions at the time, such as guilds with random drawing, communal-municipal or senatorial councils, with both public deliberation and secret balloting, or corporate mercantile associations with the auction of the lowest price to cover common costs. Whatever the practices by which the *sequiers*, *presidenti*, *veedors* and *cavarzerani* were elected or appointed, we can therefore conclude that these elections or appointments were a vector of trust on the part of the users represented and included in the common work of the canals. In them these figures were charged with the responsibility of maintaining the structure and functioning of the canal cycles common to the *comunitat* or *consorzio*. This ordinary technical function eventually led to political representation in dialogue with external powers. Thus, the *sequier* not only kept an eye on the day-to-day internal tasks, but was also the one who filed complaints in the royal courts when entities outside the irrigation community acted against the internal regulations or the common interests of the irrigators. In the same way, the *presidenti* ensured that the *cavarzerani* or *giudici d'argine* maintained the canal infrastructure correctly, on the one hand, while, on the other, they were in charge of sending the petitions to the *Provveditori sopra i beni inculti* in the name of all of the represented *consortes*. As in the case of the experts discussed above, in charge of observing the infrastructure and arbitration, the *sequiers*/*síndics* and *presidenti* were thus figures of political authority. However, what elevates the institutional position of these representatives, such as the *sequiers* and *presidenti*, beyond the more spontaneous consultant experts or *periti*, is that their activity was cyclical and quotidian, and they did not respond to the call or complaint of a petitioner in case of a conflict. Instead, they

normally reported and penalised inappropriate uses of canal water at the very place where the illicit practice was committed, which they discovered during their daily patrols and technical inspections. Thus, the above-mentioned authorities were not acting in response to hypothetical complaints from users, but rather their political representativeness stemmed from the parallel phenomenon of, on the one hand, carrying out technical inspections of shared infrastructure, while at the same time monitoring and punishing its illicit use. *Sequiers* and *presidenti* also differed from waterway experts and surveyors as they did not express their opinion in order to generate a fairer technical and social knowledge in the context of arbitration. On the contrary, they were systematic enforcers of orders and customs. These communitarian technicians, enforcers and representatives, were further formalised either by external confirmation of an internal election or appointment, by external regulation of the elective process, or by direct external imposition of the office on a given community of users.

Chapter conclusion

Cleaning, cleansing and maintaining common infrastructure such as canal beds and embankments functioned as a vector of political authority. These collective tasks of construction and upkeep, undertaken on the infrastructure shared by all members of the *comunitats* and *consorzi*, fostered the emergence of specific roles associated with surveillance, enforcement and political representation. The material and physical character of these activities contributed both to the reinforcement and delineation of the spatial boundaries under the jurisdiction of the canal service–comprising the canal itself, the embankments and the adjoining roads–and to the intensification of cyclical interaction among the members of the institution. The supervision of the proper execution of these tasks, along with the oversight of whether all beneficiaries had contributed either monetarily or through labour, established a framework of formalised vigilance and coercive authority in the hands of particular individuals, who also acted as representatives of the *consorzi* and *comunitats*.

In Valencia, the distribution of water, the supervision of infrastructure usage and institutional representation were concentrated in the figure of the *sequier*. In contrast, in the Veneto these functions were generally distributed among a limited circle of collaborating *presidenti*, responsible for representation, *cavarzerano* or *giucide d'argine*, who oversaw maintenance and vigilance, and *cassier*, tasked with monitoring financial contributions. In the case of longer canals, such responsibilities tended to be subdivided and hierarchised into sectors. These were, at least formally, delegated to intermediary figures, such as the *síndics* in Valencia and the *cavalcanti* in Veneto, or other local agents who reported to the main canal authorities. In the Venetian Terraferma, these agents were initially drawn in the 15th century from local communities upon which forced labour was imposed. This was paradoxically portrayed by canal authorities as voluntary, in a manner analogous to the obligations of Valencian *frontalers*, who were expected to clean the stretches of canal bed adjoining their properties. By the 16th century, the progressive shift towards regular monetary compensation for these cyclical activities further enabled the hierarchical individuation and eventual professional recognition of these figures, who came increasingly to serve as formal representatives of the shared canal interests of *consortes* and *hereters*.

The regular imposition of sanctions offers insight into how these infrastructure guards came to embody roles of common representation and political identification. Among the offences recorded, the most recurrent was the physical degradation of canal infrastructure, whether through deliberate damage or through failure to act when maintenance was required. This often appeared alongside the frequent accusation of unauthorised water use, a charge that features prominently in judicial proceedings. Equally common was the non-payment of both annual and extraordinary common expenses associated with the *sequiatge* and the *campatico* or *caratada*. In the normative sources, such infractions were expected to be penalised with far greater severity than appears to have been the case in the actual practice of surveillance and enforcement exercised by the internal authorities of the canal user communities. This greater flexibility in the application of sanctions for unauthorised practices uncovered during cyclical infrastructure inspections depended on several factors. These included exceptional water conditions, material devastation caused by natural disasters, and the degree of economic or communitarian entanglement with the shared water resource between the enforcers and those reported or suspected of engaging in the contested practice. However, the frequency of conflicts documented both in the court cases of the Real Audiencia in Valencia and in the regular reports stemming from the example of the Brentella canal in Treviso demonstrates the consistent operation of a disciplinary system coordinated by these standing authorities, rather than reflecting a presumed consensual norm of horizontal mutual monitoring.

Beyond their roles in surveillance and the imposition of sanctions during routine canal inspections, another way of approaching the political expectations placed upon these figures of internal representation and justice is to examine the processes through which they came to occupy, and eventually relinquish, their positions within the water boards. Many of these procedures for appointing individuals to roles of political representation, vigilance and enforcement reflected Late Medieval ideological patterns akin to those developed in civic, guild and corporative settings. Among the most notable were practices such as the deliberate formation of morally irreproachable groups of men to whom the members of the communitarian institution entrusted responsibilities of surveillance and punishment, or the selection of impartial and uncorrupted outsiders to carry out such functions.

However, traces within these practices of nomination and access to positions of internal authority in the *consorzi* and *comunitats* also suggest that, paradoxically, personal economic involvement was understood to qualify political representatives as fair and effective judges in matters of canal maintenance and water distribution. The election or appointment of the *presidenti* of the *consorzi*, for instance, often fell to the *consorte* who took the largest share of the common resource, almost as if he were the principal shareholder in a modern company. This reflects an imagined correlation among users between the degree of responsibility for maintaining the shared infrastructure and the share one held or advanced. Likewise, within the *comunitats* of the kingdom of Valencia, those electing or appointing the guardians and representatives of the shared infrastructure obliged the supposed outsider appointed as *sequier* to act as a kind of temporary principal stakeholder by advancing the annual general costs, following their auction among board members. In doing so, his material commitment to the common good was rendered particular and tangible.

The records concerning access to positions of representation, surveillance and enforcement within the Venetian *consorzi*, submitted to the *Provveditori sopra i beni inculti* from the second half of the 16th century onwards, offer valuable insight into the regulatory principles governing these elective procedures. Chief among these were nomination and the drawing of lots, both of which reflected a high degree of formal oversight concerning the number of participating members required to render such practices legitimate. These records also reveal a significant aristocratic and oligarchic Venetian presence, particularly within the *consorzi* overseeing extensive agricultural territories. In Valencia, meanwhile, the methods of access to roles such as those of *sequier* and *veedor* within the large municipally administered irrigation canals were likewise, by the mid-16th century, increasingly subject to regulated procedures of random selection by lot. This process was carried out among preselected individuals and overseen by notarial agents of the Crown.

This indicates that the representatives of the *comunitats* and the *consorzi*, although elected by their members, were generally validated and legitimised by external institutions as legal agents capable of engaging in dialogue with broader forms of power. Such dual representation, both within communitarian institutions and externally before the judicial bodies of the centres of power, was neither unanimous nor constant. On the contrary, the

sequier and the *presidenti* often found themselves in situations of tension between the agents of state justice and the members of the institutions they represented when conflicts arose. This tension between defending the interests of the members and respecting the judicial framework established in the courts and senate of the respective states was particularly evident in cases where one of the parties to a water conflict resorted to violence, whether directed against the structures themselves or against people involved in water management.

Figures referred to in Chapter Five

Date	25 July 1561	
Location	*Podestà*'s salon ('in salotto domini Potestatis'), *Podestà*'s palace, Adria	
Former *presidente*	Ettore Bregonzo (Bregontio)	
Number of electors	25	
Ballot for *presidenti*	Foscarini, Andrea (19)	Bregonzo, Ettore (6)
	Pallamede, Giulio (15)	Bregonzo, Orazio (9)
	Lovato, Rutilio (24)	Zagato, Zuan (1)
	Bergonzo, Orazio (21)	Machiavelli? Alfonso (4)
	Marcon, Ercole (5)	Pallamede, Giulio (20)
	Scudella, Anzolo (6)	Tenozza, Antonio Maria (19)
	Mezanato, Franco (6)	Sacheto, Zuane (19)
New *presidenti*	Bregonzo, Ettore Bregonzo, Orazio Lovato, Rutilio	

Fig. 17: Election of *presidenti* and *giudici d'argini* for the Mezzana *consorzio*[155]

[155] ASCA, 760, f. 3.

Date	4 August 1573	
Location	Main chamber, *podestà*'s palace, Este	
Former *presidente*	Antonio Manzoni	
Number of electors	32	
	Ieronimo Rizzardi (23)	Piero Donà (9)
	Piero Donà (17)	Stefano de Leonico (15)
	Paolo de Pontis (12)	Gaspare Bianca (20)
New *presidenti*[156]	Bianca, Gaspare Donà, Piero Rizzardi, Ieronimo	

Fig. 18: Election of *presidenti* for the Brancaglia canal *consorzio* by a ballot of couples of opposed candidates[157]

[156] By surname and name, in alphabetical order

[157] ASVe, Provveditori sopra i beni inculti, 767.

Date	28 December 1590 – January 24th 1590 *MV* (1591)
Location	Adria
New *presidenti*	Fielsi, Sebastiano Ziliolo (Giliolli), Almerigo (*count*)
Confirming signatures of *consortes*	Badoer, Marcantonio Di Lardi, Orazio Fielsi, Ludovico Giliola (Giliolli) Romea, Zulia (Giulia)

Fig. 19: Election or appointment confirmation of two *presidenti* of the Gavello *consorzio*[158]

[158] ASVe, Provveditori sopra i beni inculti, 779.

Name	Title / Occupation
Fathers of Santa Maria della Carità (Dorsoduro, Venice)	Religious congregation
The nuns of Santa Croce (Giudecca, Venice)	Religious congregation
(Sic) Duodo	Prior
Andrea Dolfin	Prior
Procuratori of Saint Mark *di Supra*	State administrators
Scuola Grande of Saint Mark	Religious confraternity
Zorzi Foscarini	Patrician
Marcello and Zuane Donà (brothers)	Patricians
Francesco, Zuane and Piero Lamberti? (brothers)	Patricians?
Piero and Michiel Priuli (brothers)	Patricians
Piero and (sic) Duodi/Duodo (brothers)	Patricians
Niccolò Memo	Patrician
Zuan and Sebastian Moro (brothers)	Patricians
Geronimo Moro and his wife	Patricians
Vicenzo and Piero (*cannonici* of Saint Niccolò, in Lido)	Religious congregation
Niccolò Tron and sisters	Patricians
Filippo Basadonna	Patrician, Accountant chamberer or ducal sentence executor (*gastaldo*)
Francesco (sic)	Expert in law (*avocato*)
Fancesco dal Oio	Wool tradesman (*mercante de lana*)
Francesco Della Stella	Feather tradesman (*penachier*)
Simon Sarella	Priest
Simon Giustinian	Patrician, resident in Oriago

Fig. 20: List of the stakeholders (*interessati*) called for the election of the *presidenti* of the *consorzio* of the Bottenigo canal, in Marghera (currently a *terraferma* district of the city of Venice), as publicised in Rialto and San Marco on 6 July 1593[159]

[159] ASVe, Provveditori sopra i beni inculti, 766.

Date	27 November 1594		
Location	Court chamber ('Camera Nova della Audienza'), *podestà*'s palace, Lendinara		
Former *Presidenti*	Flaminio Leopardi, Giulio Gherardini		
Term	3 years		
Candidates	Number	Names	
	38 (of whom 32 are named)	Alberici, Antonio Alvusaro, Giovanni Arondi, Giovanni Bersello, Niccolò (in the name of M. Petrobelli) Cattaneo, Battista Cattaneo, Giacomo Cattaneo, Girolamo Cattaneo, Rugerio De Conti, Alberto De Conti, Antonio Maria De Conti, Lelio De Conti, Salvio De Conti, Tullio De Lorenzi, Cristoforo Fantini, Battista Genaro, Giovanni Battista Gritti, Pasquale Leopardi, Cesare Leopardi, Giovanni Litegati, Carlo Malmignati, Bartolomeo Malmignati, Cesare Masiero, Hiannetto Mirandola, Tognino Petrobelli, Patrizio Raini, Gabrielo Rondoni, Antonio Rubbolo, Giacomo Volpa, Gianni Volpa, Matteo Zosso della Bella, Matteo	
Ballot	**Name**	***Pro***	***Contra***
	De Conti, Lelio	26, 20[160]	12, 18[2]
	Malmignati, Giovanni Battista	28	10
	Cattaneo, Rugerio	26, 21[2]	12, 17[2]
	Matteo Zoso della Bella	27	2
New *presidenti*	Giovanni Battista Malmignati, Matteo Zoso della Bella, Rugerio Cattaneo		

Fig. 21: Election of *presidenti* for the Ceresuol *consorzio*[161]

[160] Second ballotage as a result of an initial draw.

[161] ASVe, Provveditori sopra i beni inculti, 771.

Date	16 June 1595
Location	Adria?
Former *presidente*	Fressi, Ludovico
Elected *presidente*	Badoer, Marcantonio
Confirming signatures of *consortes*	Bardi, Horatio Da Bologna, Teofilo (Prior of the Charterhouse or *Certosa* of Ferrara) Fressi, Ludovico Giliola (Giliolli), Anna Giliolli, Galeazo Romei, Alfonso Severi, Giacomo Valeri, Ludovico ('mandatario del Messer Conte herede del Romei')

Fig. 22: Election or appointment confirmation of the *presidente* of the Gavello *consorzio* (1595)[162]

Date	14 September 1599
Location	Adria
Elected *presidenti*	Badoano (Badoer), Giovanni Fressi, Ludovico Trivisano, Giovanni
Confirming signatures of *consortes*	Di Pattarelli, Bernardin Dolandi, Orazio Momi Romei, Barbara

Fig. 23: Election or appointment confirmation of three *presidenti* of the Gavello *consorzio* (1599)[163]

[162] ASVe, Provveditori sopra i beni inculti, 779.

[163] ASVe, Provveditori sopra i beni inculti, 779.

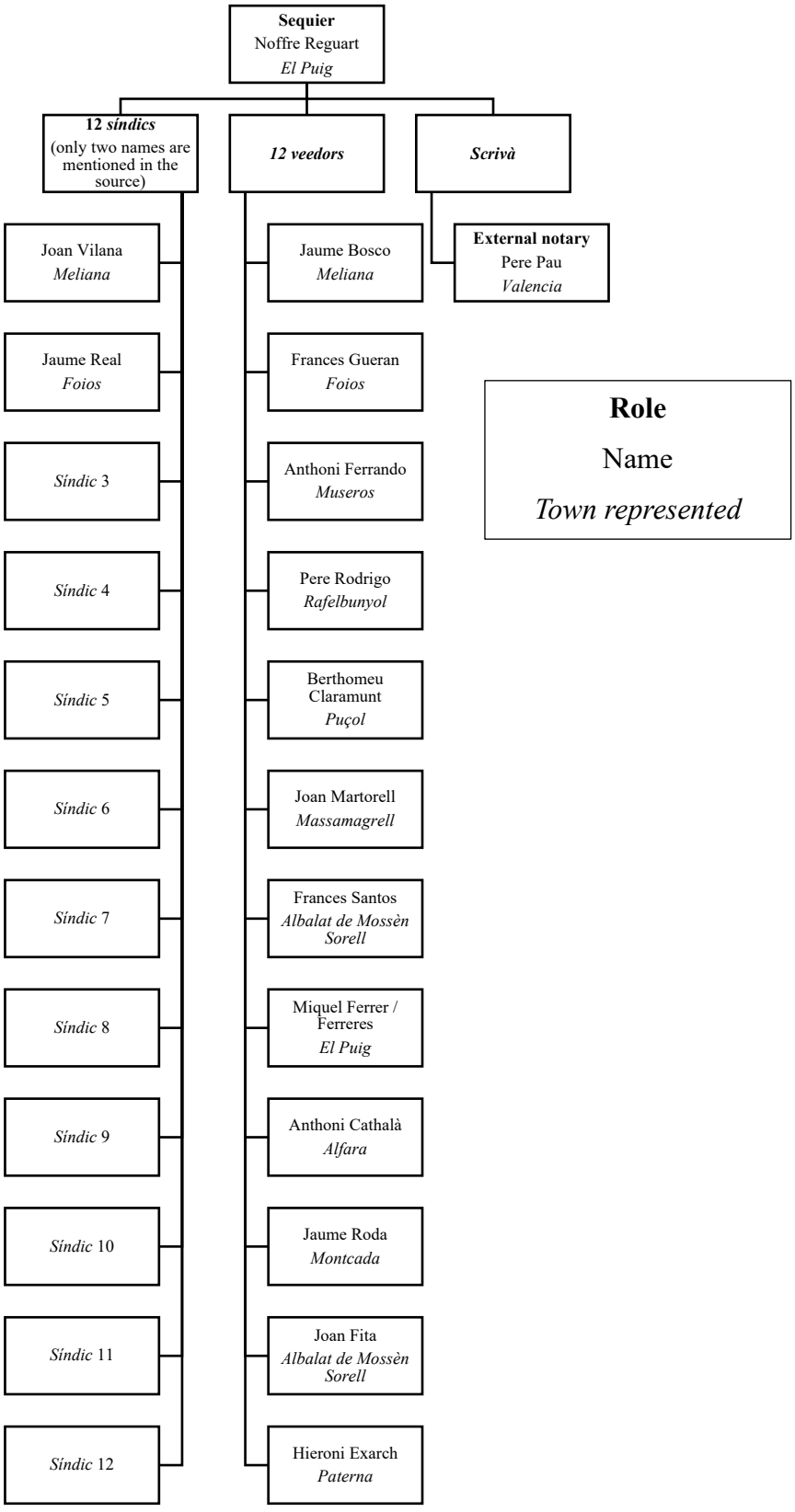


Fig. 24: Institutional structure of the Montcada irrigation canal board in 1553[164]

[164] ARV, Gobernación, 559.

Chapter 6 – Beyond Punishment: Political Violence and Illicit Water Use

In the same way that they include descriptions of penalties negotiated for illegal water use practices, legal sources on justice and arbitration in early modern Valencia and Veneto are full of verbal and physically violent incidents concerning water distribution. Most of them consisted of displays of violent demolitions of water structures, such as dykes, dams and wheels, with equally violent consequences on rival communities and landowners, either depriving them of water or, on the contrary, forcefully flooding their lands. Some of the consulted sources related to water conflicts, such as court cases in Valencia and petitions in Veneto, also contain narrations of physical aggression and even murder. All these testimonies called into question the notion of an irenic relationship between user communities and the forms of water justice imposed from the centres of power.

The aim of this chapter is to analyse the nature of the violence present in ordinary practices of waterway management, tracing causes not only related to impasses in water management systems, but also within concrete social relations and conflict. In other words, did violence respond strictly to matters concerning water management or was there an underlying utilisation of water distribution as a sort of political alibi for past strife? We will attempt to respond to this question, analysing different aspects of these violent incidents. We will first take a look at the existing literature on communitarian collective violence and situate the incidents contained in our sources within this theory. Then we will focus on the material impact of man-made infrastructure on waterways. Finally, we will tackle water violence as a window on the collective memory of past conflict and ongoing political tension.

1. Collective violence in water boards

a) Defining routinised political violence

While collective violence, along with its equally violent judiciary consequences, during dramatic episodes of Medieval and Early Modern revolt has been apprehended as political, ideological and religious *rites* or *ceremonies* by historians over the past five decades, the significations of subtler displays of violence during ordinary and local practices of governance, such water management, has not been emphasised as much[1]. In Veneto, quotidian violence has been related as either a perception of honour endemic to landed nobility influencing other social groups, or brief outbursts of proto-revolutionary sentiment among subaltern rural classes[2]. Yet glimpses of ordinary political effervescence are seen not only among peasants in the continental peripheries of the *Serenissima*, but also in urban contexts at the very doorstep of the city of Venice, such as Murano's "snowball revolt" in 1511[3]. Whether driven by aristocratic ideals or by underprivileged pursuit of social justice, violence in Veneto challenged the rooted depictions of Venetian republican peace that rulers intended to fabricate in contrast with other Italian states[4].

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[1] Natalie Zemon Davis, *Society and Culture in Early Modern France* (Stanford, CA: Stanford University Press, 1975), 152–87; Samuel Cohn, 'The "Modernity" of Medieval Popular Revolt', *History Compass* 10 (2012): 738.

[2] Claudio Povolo, *L'intrigo dell'Onore. Poteri e istituzioni nella Repubblica di Venezia tra Cinque e Seicento* (Verona: Cierre, 1997), 265–7 and 286–93; Guido Ruggiero, *Violence in Early Rennaissance Venice* (New Brunswick, NJ: Rutgers University Press, 1980), 67–8; Andrea Toffolon, *Montagne di sangue. Faide, violenza e giustizia a Belluno in età moderna* (Verona: QuiEdit, 2019), 75–9; Sante Bortolami, 'Lotta e protesta contadina nel Veneto dal medioevo alla prima età moderna: un bilancio', *Annali dell'Istituto Alcide Cervi* 16 (1994), 45–64.

[3] Claire Judde de Larivière, *La révolte des boules de neige. Murano face à Venise, 1511* (Paris: Fayard, 2014), 14–7.

[4] Crouzet-Pavan, *Venise triomphante*, 275–86; Claudio Povolo, 'The Creation of Venetian Historiography' in John Martin and Dennis Romano (eds.), *Venice reconsidered. The history and civilization of an Italian City-State 1297-1797* (Baltimore: JH University Press, 2000), 503.

Meanwhile, in the Iberian context, and specifically in the kingdom of Valencia, Early Modern violence has been conceived as political contention inherent to a system in which the nobility and the powerful urban councils and guilds were constantly competing for royal favour, giving rise to the Revolt of the Brotherhoods (1519–1523)[5]. Violence in south-eastern Iberia also touched on religious identity, specifically concerning the recently converted *Moriscos* who, in response to the abuses and forced conversions suffered at the hands of the insurgent "old" Christians from the cities, had also vehemently risen in predominantly mountainous areas, such as the Sierra de Espadán in Valencia (1522), or the Alpujarras in Granada (1568-1571), arousing paranoia among royal authorities in the 16th and 17th centuries, and giving rise to frequent disarmament raids of *Morisco* dwellings[6].

It may be argued that the violence that emerged in water-related disputes between *Morisco* communities and the authorities of the Valencian irrigation networks forms part of the broader social conflict that developed in the early 16th century. This conflict was shaped by forced conversions imposed by urban Christian population and by *Morisco* rebellions in the mountainous inland. These wider dynamics, rooted in collective memory and in previous episodes of inter-communitarian violence, should not be overlooked when analysing specific water disputes.

It remains true, nevertheless, that the management of irrigation water depended primarily on more immediate factors such as seasonal availability or the hydro-geographical context in which shared networks were situated. As recently demonstrated by Enric Guinot, the *Mudéjar* population, later termed *Moriscos* from the 16th century onwards in parallel with major waves of forced conversion, adapted after the Christian conquest of the late 13th century to new forms of settlement typical of the kingdom's inland

[5] Guiral-Hadziiossif, *Valencia*, 669–75.

[6] Ricardo García Cárcel, 'La revuelta morisca de Espadán', *Al-Andalus* 41/1 (1976), 121–146; Ana Díaz and José Javier Ruiz, 'Espacio, rebelión y religión en la Monarquía Hispánica del siglo XVI', *Europa Moderna. Revue d'histoire et d'iconologie* 1 (2010), 45–62; Jorge Catalá Sanz and Sergio Urzainqui Sánchez, 'Armas después del desarme. La posesión de armas prohibidas por los moriscos valencianos desde 1563 hasta su expulsión', *Saitabi* 60-61 (2010), 131–153.

mountains[7]. Excluded from the flat alluvial plains or *hortas*, the economy of these rural *Morisco* communities in areas such as the Sierra de Espadán and the Sierra Calderona relied on small networks derived from springs and wells. These networks were structurally separate from the large river-fed systems of the peri-coastal plains, which had been appropriated by the lords of the conquest. The result was a dual landscape in which the long and extensive *horta* systems managed by Christian municipal and intermunicipal irrigation communities coexisted with small mountainous networks managed by *Morisco* communities under feudal lordship. In this context, there is no evidence of a systematic pattern of water conflict between Christians and *Moriscos*, since each population generally managed distinct canals in separate geographical zones.

Even so, just as exceptions existed to the broader pattern of Christian *repartiment* and the displacement of the *Mudéjar* population to the mountains, there were also cases in which *Morisco* settlements persisted on the very threshold of the city of Valencia. One example is Soternes, to the west of the city (see Chapter 3, page 194). Likewise, there were places where the usual distinction between Morisco mountain networks and Christian plains networks did not hold. The conflicts over the Séquia Major de Morvedre between 1552 and 1554, examined in Chapter 4, arose precisely from the hydro-geographical particularities of what is now the lower Palància valley. The Morisco settlements of Estivella, Beselga, Albalat and Segart, although located in areas that can be described as mountainous, depended on irrigated lands on the valley floor, where the terrain opens towards the Camp de Morvedre. Consequently, these communities relied on a fluvial irrigation system typical of the plains, namely the Séquia Major de Morvedre. According to the interrogations conducted by the Real Audiencia, Morisco serfs from these villages participated in the management of those stretches of the canal that watered their orchards, despite the official oversight exercised by the *sequiers* elected by the Christian irrigation community under the municipal authority of Morvedre.

If these hydro-geographical circumstances are considered together with the heightened social tensions that followed the Revolt of the Brotherhoods and the subsequent Rebellion of the Sierra de Espadán in the early 16th century, a clearer pattern appears. The

[7] Guinot Rodríguez, 'Herencia y Ruptura En Los Espacios Irrigados de Las Poblaciones Mudéjares y Moriscas de Valencia (Siglos XIII-XVII)', 317–320.

management of irrigation water in these mixed zones could give rise to violent episodes that were not caused solely by the physical mechanics of water distribution. They also reflected moments in which communities articulated their intention to revive latent conflicts that originated in earlier phases of intense inter-communitarian violence.

This situation, in which water disputes occasionally acted as a channel through which older inter-communitarian tensions resurfaced, points to a broader pattern that is not exclusive to the kingdom of Valencia. Episodes of overt violence tended to emerge from socio-political contexts already marked by long-standing grievances, yet these moments were surrounded by longer periods in which conflict was expressed in more restrained, everyday forms. The Venetian mainland offers a comparable scenario, although shaped by different institutional and social conditions.

Thus, these moments of high intensity political violence emanated from a per se conflictive socio-political conjuncture in which there were long periods of subtler violence in non-eruptive quotidian contexts. As Stephen Bowd notes for the Terraferma after the war of the League of Cambrai (1508-1516) and the sackings of Padua, Monselice and Feltre (1509), violent incidents grew between frustrated returning soldiers and the region's inhabitants for decades[8]. However, the fact that violence was regular and of lesser intensity than in episodes of rebellion or war does not mean that it was not related to power dynamics.

As Domenico Cecere notes for 18th century Calabria, violent conflicts within rather parochial contexts do not necessarily indicate a popular response to *top-down* intrusion or systematic autochthonous intransigence to foreign influence, yet rather emanated from vernacular strife between local enforcers[9]. In line with Cecere's observations, what made this violence practised by the different water users a political phenomenon is not that it was explicitly rebellious against external impositions, but rather that it developed between different perceptions of daily local customs.

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[8] Stephen Bowd, 'Mass Murder in Sacks during the Italian Wars, 1494-1559' in Trevor Dean and Kate J. Lowe (eds.), *Murder in Renaissance Italy* (Cambridge: Cambridge University Press, 2017), 249–51.

[9] Domenico Cecere, *Le armi del popolo. Conflitti politici e strategie di resistenza nella Calabria del Settecento* (Bari: Edipuglia, 2013), 16.

Edward Palmer Thomspon asserted that the origin of custom was the "interface between law and agrarian practice", and the recurrence of collective violence during agricultural management, and specifically irrigation and drainage, was frequently legitimised by custom. Repetition of violent practices in water boards also suggests the origin of what Charles Tilly defines as a *repertoire of contention*, as a sort of "limited set of routines that are learned, shared, and acted out"[10].The routinisation of violence was therefore parallel to a routinisation of customs of water and agricultural control.

b) Harming a bailiff and killing a dam builder. Two cases of physical violence in 1553 and 1611 water management

On November 20th 1553, Francesc Caldori, a royal *alguazir*, thus a local bailiff or procurator fiscal representing the crown's authority, was sent to protect a private waterwheel in the outskirts of Burjassot, north of Valencia, in the Horta Nord subregion[11]. The structure's owner, Joan D'Arguedes, a merchant from Valencia, used the wooden *noria* to elevate water from the Royal Canal of Montcada and irrigate his property in Burjassot[12]. Worried about some past incidents with the authorities of the canal's

[10] Edward Palmer Thompson, *Customs in Common* (London: Merlin Press, 1991), 97; Charles Tilly, 'Contentious Repertoires in Great Britain, 1758-1834', *Social Science History* 17/2 (1993): 264.

[11] ARV, Gobernación, 559.

[12] I am grateful for the advice and help of Professor Ana Duarte Rodrigues, who pointed out that not all waterwheels were *norias*, and reminded me of the high regional morphological variability of the latter in the Iberian context. In this Valencian source, the terms *roda* (waterwheel) and *noria* are mentioned interchangeably, specifying that it was equipped with *cadufs* (*arcaduces* in Castilian) which were ceramic vessels that were tied to the structure, collecting, elevating, and pouring water into an adjacent pool or ditch. The most concise definition and illustration of Andalusian *noria con arcaduces* can be found at Roldán Cañas and Moreno Pérez, 'La ingeniería y la gestión del agua de riego en Al-Andalus'; For a classic ethnographic study of Iberian waterwheels, see: Caro Baroja, 'Norias, azudas, aceñas'; The question of the terminological differences between, firstly, generic elevation waterwheels, which can be both powered by water current and animal traction, generally used for agricultural, manufacturing and milling purposes, and, secondly Iberian-Andalusian waterwheels or *norias*, which were specifically water-powered and used essentially for irrigation, has been discussed in detail in the English-language historiography of recent decades, see: Thomas F. Glick, *From Muslim fortress to Christian* castle, 82–83; Ana Duarte Rodrigues and Magdalena Merlos Romero, 'Noras, Norias and Technology-of-Use', in Ib. and Carmen Toribio Marín

irrigation board, which menaced him with threats to dismantle the wheel, D'Arguedes had decided in 1551 to get a *ferma de dret,* a written royal warranty by which the viceroy's government authorised and legitimised his wheel, protecting it from other authorities' demolition. Alleging constant harassment, D'Arguedes also asked for an *alguazir* to oversee his waterwheel during the night. Bailiff Caldori was therefore bound to spend the night in front of the wooden structure, holding the document that contained the *ferma de dret*[13].

That evening, as the procurator fiscal was walking down the road from the southern gate of Burjassot towards Joan D'Arguedes' garden, twelve *veedors* or canal custodians representing twelve towns of the irrigation canal of Montcada, along with two *síndichs* or irrigation authorities and some youngsters (*moços*) armed with hoes, were already gathered around the merchant's wheel[14]. As some witnesses testified in front of the Royal Court of the *Gobernación*, Caldori's desperate cries were heard around Burjassot around dinner time, as he ran towards the wooden waterwheel, waving the piece of paper containing the *ferma de dret*, and trying to stop the men from chopping the *noria* down. Then, climbing on the wheel's axis and facing the crowd, Caldori spoke up and told those men that what they were doing was against the king's will[15]. Either out of fear of the

(eds.), *The History of Water Management in the Iberian Peninsula. Between the 16th and 19th Centuries* (Cham: Birkhäuser / Springer, 2020), 331–50.

[13] ARV, Gobernación, 559: '(…) dit Francisco Caldori que ando a la dita cequia que los vehedors staven en aquella e veu ell testimoni que lo dit Caldoni corregué a la dita cequia y possa damunt la roda de la noria que lo dit Johan Arguedes tenia en dita cequia e veu que intima als dits vehedors (…) dient a veus altres senyors aquesta ferma de dret de part sua del señor governador que no poguan tocar aquesta roda o noria sots les penes en aquella contengudes e aquells dits vehedors no volgueren obehir-lo et passaran avant e lo dit alguazir passa al altre cap de la noria.'

[14] Ib.: '(…) manaren a huns homens que portaven ab exades en sa companyia que rompessen e levassen lo dit embaràs de la dita cequia e axí ell confessant i testimoni e los altres vesedors a pasaren annant per la cequia e apres ha hoyt ell confessant e testimoni dir que los dits homens que portaven dites exades havien romput la dita noria e que ell confessant no sab les noms dels dits homens que portaven les exades'.

[15] Ib.: '(…) al dit regent de alguazir stant aquell de peus damunt dita noria e roda ab la ferma de dret en la ma (…) cridant totstemps lo dit Caldori ab veus altes dient que no volien obehir lo Rey e caminant-los lo incorreiximent de dites penes de dita ferma de dret e aquells totstemps perseverant en rompre e fer rompre la dita noria. E conegue ell testimoni que aquells eren venguts allí sobre consert e delliberadament per a rompre dita noria (…)'.

consequences, or genuine respect of the king's laws, some of the men bearing the hoes ceased from striking the structure. Yet one of the irrigation board men, whose name was not known, or intentionally not revealed by any of the inquired witnesses, encouraged them to continue contravening the *alguazir*, and exclaiming: 'Pega-li, cap de Déu, que la Comuna nos ne traurà!' – thus "For God's sake, hit it (the wheel), the (irrigation) commons will absolve us!"[16]. Additionally, Caldori told the court members that the hoe impacts where so strong that the main axis where he was standing cracked in half and fell into the canal, forcing him to do a perilous jump onto the opposite embankment to avoid falling into the water[17].

The fourteen men, twelve *veedors*, two *síndichs*, left the wheel lying on the dyke completely chopped to pieces, and headed for dinner to the town of Godella. Next to the wooden debris, an upset Caldori sat, as Miquel de Santamaria, a peasant from Aragon who lived next to Joan D'Arguedes' garden, tried to cheer him up, along with other farmers, noticing that the bailiff's voice was hoarse from screaming. Caldori asked Santamaria and the other neighbours to be his witnesses in court[18].

Months later, when called to court, the perpetrators of the wheel demolition and other inhabitants of the lands in the Horta Nord that were served by the Royal Canal of Montcada justified the acts by saying that structures or objects disturbing or impeding the canal's waterflow, such as unauthorised waterwheels, fish traps or dams, were to be

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[16] I am grateful for the help of Tomàs Peris Albentosa, who as a native speaker of the Valencian language confirmed to me that this phrase which is repeated throughout this judicial process of the *Gobernación* includes a possible local blasphemy (*Cap de Déu*) and that *traurà* is the future tense of the verb *treure*, meaning "to redeem", see Ib.: '(…) presenhint entre aquells concert y deliberació de derrocar dita noria no curaren de obehir los manaments que per lo dit lochtinent de alguazir de manament de vostra senyoria los foren fets, ans, en gran menyspreu de aquells e ab molt ultrage i ab paraules molt desacatades manaren a rescort quatre homens que portaven ab axades que derrocasen dita neoria dient entre les altres paraules "pegali cap de deu, que la comuna nos ne traura"'.

[17] Ib.: '(…) e sinó hagués saltat de dita noria lo hagueren lançat en dita cequia'.

[18] Ib.: '(…) penes y en menyspreu de aquells los dits vesedors e altres que allí estaven romperen la dita noria e tots junts s'en anaren a dinar a Godella los quals ell testimoni no conex de nom sinó de vista y que son de diversos lochs (…) costaria resta quasi ronch que no podia parlar e digue a ell testimoni e a Garcia y Jeroni Luesa qui allí eren presents que li feren testimoni del que allí havia passat'.

dismantled and removed by order of the *síndics*[19]. Furthermore, when defending the *síndics* and *veedors*, notary Pere Pau said that these men were ignorant of high law, and only knew about justice within their daily lives and farming[20].

Accusations of impeding water flow and the fear of stagnation as justifications for violence were not an element specific to the waterways of the Horta Nord. In the Republic of Venice, Bernardo Sagredo, a patrician and *savio alle acque* was interested in draining stagnant water from land he had previously purchased in the southern Terraferma. He was guided by a local *perito* or expert along the Adige in 1546, near the town of Castagnaro, currently in the southwestern end of the province of Verona. Along the way, he ordered the destruction of many dams they passed by, reinforcing drainage canals and river embankments with logs, canes and mud[21]. Either privately or publicly supported by Venetian magistrates, by the mid 1500s, *far scolare le aque* ("let the waters run/drain") was the major priority in the lands between the Colli Euganei and the northern bank of

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[19] In February 1554, Pere Pau, a notary in the defence of the *síndichs*, said that what happened was according to the internal written rules of the board, see ARV, Gobernación, 559: '(…) y qu'es hordena axí per capítols de dita sequia'; Martí Ferrer, a farmer from Massarrojos who had travelled that day to Burjassot and saw the scene, said that "they saw the wheel as a bother against their own will" – Ib.: '(…) vent que era impeditura al curs de la aygua de dita cequia y que stava contra voluntat de aquells segons aquells dihueren manaren als exadors que portaven que derrocasen dita noria de fets dits exaders ab exades la derrocaren y havent ya derrocat la mitat o mes de dita noria ven ell testimoni que vingue dit Francisco Caldori alguazir ab hun paper en les mans y que cridava grans crits ab los dits vehedors qui derrocaven dita noria'.

[20] Ib.: 'X[is]) Item dihuen ut suppra que los dits vehedors son lauradors, no son persones expertes ni perites en semblants fermes de dret y negocis majorment no sabent ni tenint notícia explecita dels plets tocants a la dita comuna (…) que si an resposte a dita comuna en coses de justícia se fan y acostumen fer ab lo síndich e procurador de la dita comuna e no ab los dits vehedors ni cequier major e axí es ver. (…) XII) Item dihuen ut suppra que la dita ferma de dret al temps que aquella's posa en la dita cequia y havia un altre cequier y no lo que huy es qual es huy hun laurador de la dita vila del Puig lo qual es persona molt poch instruhida en plets et signanter en los negocis de la dita comuna per hon ni pogue tenir ni tingue noticia de la dita ferma de dret per lo dit Johan Arguedes posada (…)'.

[21] ASPd, Acque, 176: '(…) iuxta le despositioni delli duoi periti presentate per il detto Nobile nostro signor Bernardo Sagredo faria fare alla bocca della Rotta di Castignaro quelle reparationi et provisioni di paradori, pallificate et roste che sono necessarie per far che l'acqua dell'Adice corri a suo curso per la Chirola et per la Rotta di Castignaro (…) et in el medexe tempo debba far nottare l'alveo della Chirola et remuovere da quella tutti gli impedimenti di Pallificante, roste et qualmente altri lavori (…)'

the lower course of the Adige[22]. Any other economic activity prior to lowland draining would gradually disappear, substituting fishing, vineyards and fruit trees with cereals. This caused discontent in some of the Paduan noblemen, such as Girolamo Polcastro, who profited from renting *valli di pesca* (shallow water fishing grounds) in these Paduan wetlands to local fishermen who then sold their fish in local markets in Padua and in smaller burghs, such as Montagnana, having done so since at least the central Middle Ages[23]. The economic impact of landscape transformation seems to have also caused some local emulations of Bernardo Sagredo's structure demolition and rebuilding practices, this time causing confrontations among neighbouring communities.

West from Castagnaro, where Sagredo was demolishing dams, landowner Antonio Tolomei of Montagnana, writing to the *Provveditori sopra i beni inculti* in the name of his fellow board members of the *consorzio* of the higher course of the Gorzon Canal, accused some men of building a dyke near the town of Megliadino in order to collect and deviate the waters of the Fiumesello stream (or sometimes also written *Fiumesino*) near the hamlet of Megliadino in March of 1611. The Fiumesello was a branch of the river Frassine that jutted out from the latter a few kilometres from the northern walls of Montagnana. It flowed west of a more rectilinear man-made drainage canal, the Vampador, serving as the defensive moat of the medieval burgh, and, as it meandered downstream to the southeast, powering some grain and hemp spinning mills owned by the municipality (*podesteria*) of Montagnana, later dumping into the Gorzon Canal[24]. In the central part of its course on the western flank of Megliadino, the Fiumesello flowed very close to another small drainage and irrigation canal, the Degora Comuna, which was

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[22] Ventura, 'Considerazioni'; Maratini and Vigato, *Uomini, terre ed acque*; Corrain (ed.), *Terra acque uomini*.

[23] ASM, Sezione Veneta, Statuti del commune, 1, 'De piscatoribus et vendictoribus cancrorum (…)'; AMCES, t.18 c. 69. Corrain, *Terra acque uomini*, 86; Bottaro, *Pesca di valle e commercio ittico*, 20.

[24] Before the Gorzon canal dig of 1557, the Fiumesello used to dump into a lake called Lago di Vighizzolo. The function of this stream is confirmed by the toponymy found in a 1633 copy of a 16th century map made by the Venetian cartographer Ercole Peretti to represent the region's hydrography, economic function of soil and water, and structure of property prior to the drainage campaign of the Gorzon canal in 1557. In this document, the Fiumesello of Montagnana is called 'Fiumesello de Molini' of Montagnana (the *creek of Montagnana's mills*): Hercole Peretti, *Carta del Rettrato del Gorzon. 20 Gienaro 1633 in Este*, conserved in AMCES.

built and maintained by a small *consorzio* of landowners from Este. It is possible that without this man-made dyke the bed of the Degora Comuna would have run dry in the summertime. Yet this was not a main concern of the *podesteria* of Montagnana or Tolomei, that rather prioritised having a required flow for powering the town's mills. The Degora Comuna was furthermore owned by farmers from the rival neighbour *podesteria*, although it ran it was in Montagnana's *contado*, under the jurisdiction of Montagnana's *podestà*, which favoured having water in the Fiumesello.

Tolomei, who had attempted to demolish the with the illicit destruction that the Degora Comuna *consozio* had done, reminded the authorities that, according to the Venetian Law, any unauthorised modification to waterflow was punished, depending on the socio-economic condition of the perpetrator, with either a considerable fine of five hundred *ducati*, or directly with forced labour in the galleys[25]. Yet, on the contrary, according to the members of the *consorzio* of the neighbouring Degora canal, who were asked by the Venetian magistrates after Tolomei's petition, this dyke had been unlawfully destroyed by those of Montagnana, and in their own words, 'violentamente'[26].

The incident peaked in the night of July 5th, when at least 14 armed men from Montagnana, led by a man by the name of Bortolamio Beccaro, whose nickname was "Rosso", assaulted the dyke's re-construction site with firearms, including blunderbusses, a weapon that was also used in other violent incidents in the region, notably by a band that frightened the town of Arquà Petrarca in the early 17th century[27]. They surprised some builders from Este who were sleeping under a table, and the fire hit and killed one of

[25] ASM, Sezione Veneta, Acque, 319: 'Se hanno gravemente doluto li signori presidenti della parte superior del Gorzon che alli giorni passati de facto et propria autorità é stata tagliata la intestadura fatta al Fiumesin de Montagnana da detti signori pressidenti con la quale vien confermata detto Fiumesino nel suo antiquo et natural alveo (…) pena alli contrafacenti de ducati conquecento aplicati alla fabrica delle pregioni, bando et gallera secondo la qualità delle persone (…)'

[26] ASM, Sezione Veneta, Acque, 322, f. 38: '(…) alcuni con prorpia autorità se hanno fatto lecitto di fabricar un sostegno di terra à traverso la Degora predetta impedendo il libero corso delle aque contra la forma delle terminationi et giudicii del Magistrato nostro laudate nell'eccelentissimo collegio in appelatione turbando con questa via violente et ingiuriosa il posesso e le raggioni di detti consorti ricerati di sufragio (…)'.

[27] Marco Rampin, 'Omicidio ad Arquà Petrarca. Il caso di Giulio Badoer (1608)', *Terra d'Este* 67 (2024): 140–41.

them, Antonio Grande[28]. These 14 men were accused of assault and murder, and were sent to the galleys. Among the condemned there was at least one mill manager, whose name is not mentioned in the court sentence but whose surname Garbin is, suggesting that the deviation dam built by the members of the Degora Comuna did provoke a loss of water power in the municipal mills of Montagnana downstream[29]. The Venetian *Cosiglio dei Dieci* (one of the highest government courts in the *Serenissima*) also ordered the *podestà* of Este to compensate the family of Antonio Grande for expense of the municipal arks of Este[30].

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[28] Ib.: '(…) Il Serenissimo principe fá sapere per delliberation del Eccelentissimo Consiglio dei X di 25 passato (…) si proclamano Borttolamio Beccaro ditto Rosso, Borttolamio Gaginella ditto Maneta, Zuanne Tenorin, Nicoló Omio ditto Chiusa, Gherardo Sandri, Garbin fattor di molini, Francesco Zuffo, Fiorino Fiori, Zuan Maria Onico, Borttolamio Grongo, Paulo Zuffo, Andrea cugnato di Grongo, Ananzeto di Ananzi ert Bego per essersi la sera di 5 luglio venendo i sei conferiti in setta approbatamente insieme con altri tutti concordati da detto Bortolamio Becaro per l'infrasctripto effetto, armati d'archibusi, et altre arme, con procusione di carrete et vittuosie al loco del Garzaro, dove da quelli de Este si costruia una chiavega, ritrovato sotto alcune tavole à dormire, 3 murari maestri e manuali li habbino asaliti con salcia di archebusate, restando morto M. Antonio Grande, (…) destrugendo parte delli muri, rompendo et asportando istrumenti che erano stati posti dalli operarii (…)'. The word *chiavega* has different uses and definitions, all related to each other, generally meaning an opening or interruption of a river or canal embankment. The Treccani encyclopedia defines *chiavica* in Italian as a sort of small sluice gate, thus a man-made opening in the river embankment, allowing its closure and regulation of water flow. It also relates the term to *cloaca*, thus Roman sewer, see: «Chiàvica - Significato ed etimologia - Vocabolario», Treccani, consultato 29 agosto 2024, https://www.treccani.it/vocabolario/chiavica/; Indeed, Alberto Guenzi and Carlo Poni note how in 14th century Bologna *chiavica* designated the capilar subterranean conduits that derived water from the river Reno to the city, powering silk mills, see: Guenzi and Poni, 'Sinergia di due innovazioni. Chiaviche e mulini da seta a Bologna'.

[29] The name of "Garbin"'s professional occupation is *fattor di molini*. The Boerio dictionary of Venetian dialects, translates the term *Fatòr* to Italian as *fattore, agente, castaldo*, meaning that Garbin could have been a sort of manager, technician and overseer of Montagnana's mills along the Fiumesello: Giuseppe Boerio, *Dizionario del dialetto veneziano* (Venezia: G. Cecchini, 1867), 263.

[30] Ib.: '(…) La prottecione degli heredi del detto muraro, et di proseguir l'offessa et ingiuria fatta ali spese (…) di essa comunità la qual per ciò s'intendende ch'habbi fatto presentar supplica et querella contra la comunità nostra avanti gli Illustrissimi capi dell'eccelentissimo conseglio di Pregadi del cui ordine essendo stato formato processo pare che il caso sia stato assonto nel detto Eccelentissimo Conseglio Havendo essa comunità di Este et gli agenti suoi et altri interessati procurato d'agravanze il detto caso con molte male qualità (…)'.

These aforementioned cases are the clearest and gravest examples of violence in water infrastructure demolishment in the name of public concerns related to waterflow and water use. Valencian sources include more detailed descriptions of concrete episodes of violent dismantling, whereas Venetian sources focus instead on the legal and pecuniary consequences for those who took part. Nonetheless, both spatial realities show similar recurrences in communitarian water management and control, and the assiduity of different forms of coercion, primarily justified by interpreting as unjust the modification of water flow. In other words, the main apparent cause of violence in ordinary water distribution in both spaces was a disagreement between two or more parties on how and where water flowed, and how they thought it should flow. This factor can allude to the existence of a specific form of conflict linked to waterway management, with mainly agrarian interests.

c) Did water management engender a certain form of political collective violence? Obedience, disobedience and remorse

Marc Ferri, in a microregional study of irrigation and social conflict in the 19th century Camp de Morvedre region, along the river Palància (known as 'Riu de Morvedre' in the Early modern period) and north of the city of Valencia, pointed out how at that time irrigation conflicts easily engendered violence between village farmers and large estate owners[31]. In the context of the mid-19th century agrarian reforms that happened during Isabel II's reign, Ferri applies the theoretical terminology of E.P. Thompson to the analysis of the frequent armed water robberies, gunfire exchanges and humiliating attacks on canal officers that happened along the municipal canals of Sagunto at that time, stating that they responded to planned acts of common village political resistance against state reforms[32].

Nonetheless, the political objectives of 16th century water transgressions were slightly different from those of the more recent ones described by Ferri. In fact, early modern Valencian court cases concerning water transgressions display large numbers of testimonies, each quite unique and personal when it comes to the description of the facts,

[31] Ferri Ramírez, *Terratinents, camperols i soldats*, 57.

[32] Ib., 81.

contrasting with the 19th century villager omertà that Ferri describes as direct opposition to modern state reforms. Witnesses in the 16th century seemed to have spoken frequently to local notaries and *alguazirs* in villages, also travelling directly to the court houses in Valencia and giving detailed descriptions of water uses and the direction of water courses, whereas 19th century irrigation transgressors and water thieves were said to hide in the hills while fellow villagers refused to respond to inquiries[33].

As an example of the multitudinous participation of witnesses in 16th century Valencian water legislation, after the destruction of the aforementioned water wheel in Burjassot in 1553, at least 35 people, some among the accused, and others taking sides with Joan D'Arguedes, participated in the interrogation, all responding to an average of 12 questions per person with more than a simple formula such as *e dix que no y sab res* – "and says that he knows nothing". Another example, with an overwhelmingly large number of witnesses, at least 250, is a case concerning the destruction of a stone drinking trough and a wooden bridge in the town of Massalavés over the Alzira canal in 1568; unfortunately, the state of preservation of the document does not allow a more accurate estimation of the number of participants in the inquiry and court sessions[34].

This doesn't mean that the individually expressed versions of each interrogated whiteness were not part of an underlying shared sentiment of justice and collective interest. When describing the destruction of Joan d'Arguedes' water wheel, Barthomeu Claramunt, a farmer from the town of Puçol and one of the members of the Royal Canal of Montcada waterboard that were present in Burjassot, insisted to the judge that he and his fellow canal authorities genuinely believed that the water wheel was built against the will and common interest of the communities along the irrigation canal, which they thought themselves to serve and represent. He also stated that the same structure had been dismantled various times during the preceding years, and that Johan d'Arguedes stubbornly kept rebuilding it in the same place, not respecting the irrigation board's authority[35]. Yet at the same time, Claramunt said that he did not agree with what he saw

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[33] Ib., 85.

[34] AMA, Acequia Real de Alcira, Pleitos, 067/3.

[35] ARV, Gobernación, 559: 'En Berthomeu Claramunt laurador del loch de Puçol vehedor de la cequia de Mocada confessant e testimoni qui jura (…) E dix que lo dit Joan d'Arguedes te una casa e ort en lo loch

that specific year of 1553, judging that the men bearing the hoes had been excessive in their force, and that he had told them to stop, "that it was enough"[36].

Accordingly, Jeroni Luesa of Burjassot, who lived near the water wheel destruction scene, witnessed how not all of the present Royal Canal of Montcada members agreed with the committed actions, remembering one in particular, Boeso from Meliana, whom he saw silently walking away from the other perpetrators, showing disapproval[37]. Certainly, when interrogated, Luesa only seemed to remember the name and origin of that single member of the board who supposedly disapproved of what happened. He was either being completely honest about his response, or omitting further information to the authorities, concealing the names of those who *no volien obehir lo Rey* ("did not want to obey the King")[38].

Remorse or fear of consequences is further hinted at as prevailing attitudes among those who destroyed the wheel. The day after the incident, Johan D'Arguedes was visited by the *sequier major*, Noffre Reguart, who was the elected president of the irrigation board that year, along with his notary. They apologised and sought to reassure the merchant, telling him that they had already given orders to rebuild the *noria* at the board's own expenses, added to the payment of 500 *florins*, which was the fine set by the royal warrantee that D'Arguedes had set in 1551 in case of infringement. D'Arguedes seems to

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de Burjasot e que te una noria en la cequia de Moncada de la qual rega lo dit ort per contra voluntat del comun de dita cequia e axí l'ayhan rompuda tots los anys passats'.

[36] Ib.: 'E dix que nega lo fit capítol segons esta posat esta emperò en veritat que lo dit dia ell dit confessant e testimoni per esser home vell venia mes atras que los altres vesedors e no veu ni hoy res del contengut en dit capítol sinó que passant ell confessant e testimoni per la dita cequia veu al dit Frances Caldori en lo ort del dit Arguedes però no sab per que eren allí lo dit Caldori y ven que uns homens ab exades estaven rompent la dita noria del dit Arguedes com altres anys son acostumats de levarla e rompre e dix as dits homens "baste, prou y no mes" per que no parexia be a ell dit confessant e testimoni lo que feyen (…)'

[37] Ib.: '(…) E los dits vehedors no s'en acorts de res del que aquell deya, derrocaren i romperen del tot la dita noria mostran que eran vinguts ab determinació de derrocar i romperen (…) però no conogue el testimoni de nom ningú dels dits vehedors sinó a Boeso de Meliana lo qual li par all testimoni que se aparia dels altres callat i mostrant que no li plaja que la dita noria se derrocas (…)'

[38] Ib.: '(…) e veu ell testimoni que tres e quatre homens ab exades pegaven en la dita roda e noria grans colps e romperen les posts de la dita noria derrocant aquella e lo bastiment dis la dita cequia, cridant totstemps lo dit Caldori ab veus altes dient que no volien obehir lo Rey'.

have accepted the extrajudicial offer, and travelled to Valencia with the president of the Montcada canal board and the fourteen accused *veedors* to the house of notary and lawyer *Micer* Aliaga, where they were to set the agreement[39]. There, the president of the board, scolded the *veedors* and urged them to rebuild the wheel and to ask for forgiveness, to which Jaume Real, one of the two implicated *síndics*, who did not agree with his president's orders, stormed down the staircase at Aliaga's house and left infuriated. Real's attitude caused the breaking of negotiations, as the deal had to be unanimously accepted by both parts, although Noffre Reguart continued to implore the merchant to withdraw the report of the attack he had sent to the royal prosecutors[40]. In fact, it seems as if Johan D'Arguedes did in fact withdraw the report after hearing the promises, as he does not appear as the plaintiff in court, simply in testimony. The plaintiffs who did take the case to the vice royal court for criminal law, that of the *Gobernación*, consisted of the royal bailiff Francesc Caldori and his fellow royal procurator fiscals. Caldori presented himself as a victim of physical aggression and contempt, and his colleagues as the ultimate *de facto* proprietors of the wheel since, according to its *ferma de dret* contract Johan D'Arguedes was only the emphyteutic proprietor and user of the structure.

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[39] The complete name of Aliaga is not mentioned in the court case, as *micer* is just a Catalan title, similar to *messer* in Venetian or *monsieur* in French, usually used to address men of law and literature. The mentioned Aliaga was probably Miquel Aliaga, a doctor in Law and notary present in many other court cases in the *Real Audiencia* and *Gobernación* courts in the decade of 1540-1550.

[40] ARV, Gobernación, 559: 'Et en lo dia de huy tornant en dita pratica en casa del dit micer Aliaga dient-los ell testimoni que era estat en Burjasot e que hauria vist la mala obra e insult que li havien fet e que no volia sinó prosseguir dit negoci si en continent lo li tornaven dita roda com estava. E lo dit síndich qu'es diu Jaume Real senyaladament mes en lo negoci que los altres ab gran passió amenassant a ell testimoni dix a ell testimoni que encara qu'eu pense hun o dos lo señor governador algú la pagarà y ell testimoni respongue al dit síndich vostra barba guardara la mia e lo dit Jaume Real ana ab molta colera volent-se davallar per la escala e lo dit micer Aliaga y Pere Pau notari feren tornar lo dit Real y pregaren a ell testimoni que no mogues cosa alguna ninguna fins al dilluns per que negociarien ab la comuna y farien que dita roda se tornas com estava, pregant-lo que fes tota la bona obra que pogues ab lo señor governador. (…) . E feta la dita relació ell testimoni dix que volia denunciar los dits cequier y vehedors qui havien fet dit insult e fonch aconsellat que no devia fer-ho per levarse de en mig per sabent que lo síndich y scrivá de dita cequia y Joan Vilana eren en casa del magnífich micer Aliaga, ana allí e fonch pregat per aquells que no denuncias ni passes avant dit negoci que ells farien que dita noria e roda se tornas com estava'.

In Venetian legal sources, it is the subtle silences that hint at the existence of violence in water infrastructure dismantling. Indeed, local *consorzi* archives in Veneto do not conserve such apparently direct testimony of conflict as in Valencian interrogations. Rather, as seen in previous chapters, the way local stakeholders in irrigation and drainage addressed power in case of conflict was via written petitions (*suppliche*) to the *Savi alle acque* in the 1500s to 1510s, *the Provveditori sopra l'Adige* or *sopra la Brenta*, in the 1510s to 1540s, and to the *Provveditori sopra i beni inculti* after 1556. In these *suppliche,* violent actions were described in a laconic way by the local authorities, such as *consorzi*, *capitani* and *podestà*, showing interest in playing down their water-related infringements, and defending themselves against ducal prosecution. For instance, the council of the *podestà* of Montagnana called the assassination of dam builder Antonio Grande in 1611 an *accidente*. Yet, at the same time, the same local town council decided to elect eight legal representatives to defend the inhabitants of Montagnana accused of killing the builder at the *Consiglio dei Dieci* in Venice, and pay for every expense during their time in Venice. It is apparent that the council was indeed concerned about the gravity of the charges against their 14 fellow villagers, accused of murder[41]. Showing remorse and fear

[41] ASM, Sezione Veneta, Acque, 322, f. 38*:* 'Tratta dal libro delle parti del Magnifico Consiglio della Terra di Montagnana (…) dall'accidente della morte di un certo muraro che ocorse li passati mesi (…) Gli ordini dell'Illustrissimo Magistrato della Avvogaria: Ha preso occasione la communità della Terra di Este di travagliare, quantumque indebitamente la comunità nostra con haver deliberato nel suo Conseglio di pigliar la prottecione degli Heredi del detto muraro, et di proseguir l'offesa et ingiuria fatta (…) Pero li spettabli massaro et deputati nostri tutti concordi mandano parte che per questo spectabile conseglio siano per ellettione elletti otto, quattro di quelli di dentro et quattro degli di fuori alli quali non possa in questa (…) essere impedimento qualsivoglia essersi over'ordine che facesse effetto contrario anco se si ritrovassero in attuale officio al presente; ma possimo liberamente esser'eletti et ballotati et quattro di quelli ch'averano più sufragii possando però la mità cioe due di dentro et doi di fuori siano et s'intendino rimasti nontii di questa comunità con auttorità et libertà di defender la comunità nostra, gli agenti suoi et altri interessati et le ragioni di essa comunità tutte l'occasioni di sopra narrate et (…) anco che da quelle potessero occorrere. Potendo essi nontii comparer à piedi di sua Serenità et delli illustrissimi et eccelentissimi signori capi del eccelentissimo conseglio di X et innanti ogn'altro Illustrissimo et eccenlentissimo collegio et magistrate dell'inclita Città di Venezia per dette cause (…) a spese della comunità nostra dovendo perció li detti nontii et li spectabili agenti di essa Massaro, deputati et sindico et altri interessati esser diffesi et solevati dalla illustrissima comunità nostra et per l'occasioni dette et anco per altre che occorrer potessero nel presente negocio come è giusto e honesto (…)'; Luca Rossetto has recently published a synthesis on the functions of the Consiglio dei Dieci in Late Medieval and Early Modern Venice: Luca Rossetto, 'Il Consiglio dei Dieci: una magistratura tra efficienza e legalità (secoli XIV-XVIII)', *Terra d'Este* 64 (2023): 127–37.

of consequences of the violent episode would therefore require a part of Montagnana's town budget.

Despite being described differently in different sources and levels of information, violent incidents are frequently described in 16th century sources related to water management in Veneto and Valencia. Still, it would be far-fetched to define a type of violence specific to water conflicts, as historians have concluded when studying other periods of time, notably the politically eruptive Spanish 19th century and its agrarian reforms. Violence in water management in the Early Modern period seems to respond directly to a broader political context of communitarian participation, most of which was peacefully restrained, although not always, as some 19th century idealists of Valencian irrigation believed.

Indeed, as Tomàs Peris Albentosa noted for irrigation in Valencia, a potential interpretive error in seeing irrigation politics as systematically well-functioning and immutable from the Muslim period to the 19th century still lingers due to credulous readings of normative sources[42]. There is a similar myth concerning the history of political contestation in the *Serenissima* or *Most Serene* Republic of Venice, painting it as a peaceful and immutable ancient government that was exemplarily far from the more *tumultuous* traditions of other northern and central Italian city-states, something that has been largely contested in literature for the last three decades of comparative historiography. Indeed, even the fathers of current historiography on pre-modern political violence and contention, Michel Mollat and Philippe Wolff, perpetuate this image of Venice as a peaceful anomaly in European cities (mainly when compared to Paris and Flemish and central-north Italian medieval communes)[43]. Similarly, the apparently *uneventful* stability and peace in the *longue durée* of water management in Valencia and Veneto is challenged by quantifying the number of small violent eruptions occurring in the ordinary routines of water management.

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[42] Peris Albentosa, 'Las huertas valencianas', 370–374.

[43] At the moment, I have been able to use a Spanish translation for this citation, see: Michel Mollat du Jourdin and Philippe Wolff, *Uñas azules, Jacques y Ciompi. Las revoluciones populares en Europa en los siglos XIV y XV*, trad. da Santiago Funes (Madrid. México DF. Buenos Aires: Siglo XXI editores, 1976), 237. The original French publication dates from 1970, see: Michel Mollat du Jourdin, Philippe Wolff, *Ongles bleus, Jacques et Ciompi: les révolutions populaires en Europe aux XIVe et XVe siècles*, Les grandes vagues révolutionnaires 7 (Paris: Calmann-Lévy, 1970), with a 1993 reedition: Michel Mollat du Jourdin, Philippe Wolff, *Les révolutions populaires en Europe aux XIVe et XVe siècles* (Paris: Flammarion, 1993).

It is precisely the definition of "collective violence" as essentially *eventful* in some social sciences that excludes smaller forms in the *ordinary* or *longue durée* rhythm from historiographic interest[44]. Already Mollat and Wolff, despite maintaining the *Serenissima* myth, warned that political practices of revolt would not always be deeply disruptive against a given form of ideological and governmental *status quo*, but were instead sometimes in the name of very rooted and prevailing ideologies of justice and state making, and also easily repressed or integrated and therefore forgotten by collective memory[45]. Yet, as Samuel Cohn has stated recently, contraposing *transformative* premeditated modern political protest with earlier *spontaneous* forms of medieval violent outbursts does not sufficiently satisfy the current analysis of political contestation in the past, judging it teleological. Cohn affirms that some medieval popular revolts and episodes of violence and persecution responded to well-planned and premeditated tactics and messages[46].

In the studied cases of violence in Burjassot (1553) and in Montagnana/Este (1611), the accusation emphasised the premeditation of the perpetrators, 'conspiring as in a sect' and 'with the joint approval of the others' ('conferiti in setta' and 'approbatamente inseme con altri')[47]. It could simply respond to the conception of a premeditated practice as a

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[44] Sidney Tarrow, 'The People's Two Rhythms: Charles Tilly and the Study of Contentious Politics. A Review Article', *Comparative Studies in Society and History* 38/3 (1996): 596.

[45] Mollat du Jourdin e Wolff, *Uñas azules, Jacques y Ciompi*, 8–10; These clichés, some of which are still repeated outside Medieval history about manifesting political discontent in pre-modern eras, were responded to by a generation of historians who studied the language of revolt, playing down the gap between pre-modern and modern forms of popular protest, and the apparent spontaneity of medieval practices, see: Jan Dumolyn, 'Political Communication and Political Power in the Middle Ages: A Conceptual Journey', *Edad Media* 13 (2012): 33–55; Justine Firnhaber-Baker and Dirk Schoenars (eds.), *The Routledge history handbook of medieval revolt*, The Routledge history handbooks (London: Routledge, 2017).

[46] Cohn, 'The "Modernity" of Medieval Popular Revolt': 736.

[47] ARV, Gobernación, 559: 'Ab clamosa insinuació veu i fama publica (…) Nofre Reguart de la vila real del lloch de Foyos síndichs y diputats de la sequia de Moncada, Frances Gueran del loch de Foyos, Jaume Boesso del loch de Meliana, Anthoni Ferrando del loch de Museros y Pere Rodrigo del loch de Rafelbunyol, Berthomeu Claramunt del loch de Puçol, Joan Marthorel del lloch de Masamagrell, Frances Santos del loch de Albalat de Mossen Sorell, Miquel Ferrer de la vila del Puig, Anthoni Cathalà del loch de Alfara, Jaume

much more punishable act than a sudden *spontaneous* outburst that ended in an *accidente*, as the city council of Montagnana put it in defence of its inhabitants. In the case of Burjassot, the defence notary who represented Joan d'Arguedes and the Royal procurator fiscals who had sent Caldori to oversee the structure, stated that the members of the Montcada canal board had premeditated the destruction of the wheel, as previous attempts had happened along the years. They therefore accused the board of having a long-term objective of getting rid of the wheel, perfecting their tactics every year during their annual routine of dredging, cleaning and clearing the canal bed and embankments of weeds and sediments (*escurar* and *herbejar*)[48]. These assertions suggest that the legal mentality in Valencian courts of justice linked premeditation of violence with higher stakes in collective interest. Given that *escurar* or the traditional duty of cleaning and clearing the canal bed took place after each board representative's yearly term ended, Valencian authorities could have also feared the recurrence of violent episodes in the name of waterflow every year. In this case, the destruction of Joan D'Arguedes' wheel responded to habit. *Repetition* and *tradition*, in Weberian terms, not only implied premeditation, but also that local actors in water management had underlying shared codes of justice.

Tilly's *réprtoire* seems a better fit for the violence perpetrated in the Valencian case, given that the merchant's decision to ask for royal protection and oversight of his wheel responded to his experienced fear of recurrent violent dismantlement during the routine cleaning of the canal[49]. The Valencian case was also justified in the name of *custom* and

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Rueda del loch de Moncada, Johan Fita del loch de Albalat, Hieroni Exarch del loch de Paterna, veadors en lo present any de la dita sequia de Moncada e (…) qualsevol altres complises, fautors e ajudadors en los crimis y delictes dessus scpecificats (…) los hereters i reguants de la dita séquia de Moncada e per la communa de dita séquia pretenien que la dita noria no podia estar en lo loch hon estava perço com pretenien-los causa periuhi e que comicaven fer derrocar la dita noria i inquietar i pertorbar aquell en la pocessió que pretenia tenir passifica de tenir la dita noria en la dita sequia y ab aquella reguar lo dit ort (…)'; ASM, Sezione Veneta, Acque, 322, f. 38: 'Per essersi la sera di 5 luglio venendo i sei conferiti in setta approbattamente insieme con altri, tutti convocati da detto Borttolamio Becaro per l'infrascripto effetto, armati di archibusi et altre arme (…)'

[48] Arxiu del Real Col·legi Seminari de Corpus Christi de Valencia, Registros Notariales Donación, MASQUEFA, Lluís (1492-1493), 18602, Protocolo 18602, *Llibre dels actes, provisiós e ajuts de la céquia de Favara*: 'c. IIII. De tenir en corrén la cequia (…) c. XXXX. De cavar tarquim'*;* Tomàs Peris Albentosa, *Enciclopèdia*, 283–89.

[49] Tilly, 'Contentious Repertoires in Great Britain': 264.

time immemorial by the users of the Montcada canal, pointing out that the clearing of the canal routine was customary and therefore legitimate. Yet what seemed to have happened in 1611 by the Fiumesello lacks the information on this aspect necessary to claim that it responded to a learned tradition, although it does include premeditation as an aspect highlighted by the legal accusation.

Summing up, violence responded to impasses in negotiation between customary practices and other forms of justice external to the local institutions, either between local hegemony and governmental representation, as in the case of the water wheel destruction in Burjassot, or vice versa, between dominant higher government policies and local dwellers, as when Sagredo performed dam destructions near Castagnaro, forcing fishermen to adapt to the times of intensive grain farming. In other words, violence was about reminding water transgressors of authority, either in comparatively remote hubs of governmental power as Venice or the vice-royal palace of Valencia, or in immediate localities, as the *podesteria* of Montagnana or the collective irrigation board of the towns along the Montcada Canal.

These acts were therefore linked to the assertion of power over a natural resource contained in rivers and canals, powering mills, feeding fishing grounds (*valli* in Veneto), and irrigating crops, among many other uses. Since the material elements harmed in these clashes of power were crucial for certain forms of water flow and communitarian interest, the question that arises for the next subsection is: how did material infrastructure represent different forms of water management, and why was it a potential target of violent destruction?

2. Material violence: dykes, dams and mills

a) Puncturing and modifying retaining structures

Water transgressions, as seen in previous chapters, were either linked to the notion of stealing water (*furt d'aygua*), mainly in the case of Valencian irrigation or the higher plains of Treviso, or, as predominantly in the case of southern and central Veneto, to the

idea of flooding or letting water stagnate (*non scolar le acque morte*). The large majority of these transgressions were punished by the payment of compensation fines that were usually established in loco after a routine practise of vigilance, and resolved extra-judicially by irrigation boards, *consorzi* and local municipal institutions such as *podesterie* (in Veneto) or municipal *jurats* (in Valencian Christian-founded burghs).

Transgressions that were not resolved by these means made it to the higher courts of justice, such as the *Real Audiencia* or the *Gobernación* in Valencia, or the water and agriculture-related magistrates in Venice, such as the *Savi alle acque* and the *Provveditori sopra i beni inculti*, and were usually resolved there via monetary compensation. Cases involving violence as the wheel destruction in Burjassot or the attack on the dam building site by the Fiumesello of Montagnana, also had also violent consequences, such as for those men from the upper course of the Gorzon canal whom Antonio Tolomei of Castagnaro accused of unlawfully building a dam in 1611, and who were asked to pay 200 *ducati* in order not to be sent to the galleys or forced labour[50].

Yet what united every type of water transgression was that they all implied human force in the alteration of a given water course by building, modifying and destroying infrastructure, sometimes displaying violence. Modifying retaining structures such as embankments and dykes was usually motivated by agrarian activities. Water theft and flooding neighbour lands implied that someone was irrigating or draining using illicitly built conduits. In Valencia, for instance, water theft happened frequently by puncturing or digging small conduits (*rolls*) in irrigation canal embankments (*caixers*)[51]. As an example, we could cite the case of Francesc Reyner, who was, as previously mentioned in other chapters, an apothecary from Valencia accused of taking water from the Favara Canal by digging two *rolls* on one of its embankments just outside the city walls, causing a loss of water power to a local mill downstream[52].

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[50] ASM, Sezione Veneta, Acque, 319.

[51] Peris Albentosa, *Enciclopèdia*, 191; Ib., 477–80.

[52] ARV, Real Audiencia, Procesos, I Parte, Letra F, 65: '(…) Frances Reyner apothecari de fet ha acupat y pres certa part de la rambla del riu de Guadalaviar de la present ciutat de Valencia per hon passava lo camí e solia haver camí publich per obs de regar aquell volent-lo cultivar e regar de fet ha obert lo caixer de la dita sequia de Favara prop la almocera appellada Morisca y ha fet hun roll o dos en lo dit quexer per a pendre aygua de la dita sequia de Favara e portar la dita aygua clandestinament a la dita rambla per a regar

Another Valencian type of water theft was carried out by building *parades* – literally translating as "stops"– which were small and easily removable dams that were made out of clay, loose gravel, mud, sediments, wood, and branches. They retained water on an irrigation canal, causing it to overflow into an illegitimate conduit, therefore leaving the licit embankments of the canal unpunctured[53]. For instance, Joseph Llorenç, from the town of Puçol, was accused in 1565 by the municipal authorities of Morvedre of nocturnally stealing water from the Gausa canal. This canal took waters from the left bank of the Riu de Morvedre (currently known as the river Palància) and was supposed to exclusively serve the municipal lands of the Morvedre township, excluding Puçol and other settlements that were attached instead to the waters of the Montcada Canal, which derived from the river Guadalaviar 40 kilometres south in the north-western hinterlands of the city of Valencia. Llorenç would have allegedly done so by building a *parada* on the southern embankment of the Gausa canal, deviating the water south, and irrigating his vineyard[54]. After being warned several times by the Gausa Canal authorities, Llorenç travelled to the town of Morvedre with his horse and others from the town of Puçol to the house of the municipal *sequier* or municipal irrigation canal overseer, Francesc Puig, telling him that he intended to maintain his dam despite the warnings[55]. Pere Berenguer,

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aquella e coltivarla e ferne hun camp particular en prejuhí dels dits suplicants e dels hereters de la dita cequia'.

[53] Arxiu del Real Col·legi Seminari de Corpus Christi de Valencia, Registros Notariales Donation, MASQUEFA, Lluís (1492-1493), 18602, Protocolo 18602, *Llibre dels actes, provisiós e ajuts de la céquia de Favara*: 'c. XXXI. De Parades: Item que algú no faça sobrepost dins la cequia (sic)viribles de staques ni de pedres ni de fanch ni d'altres coses se hu fará sia encorregut en pena de LX sous a caschuna vegada la qual pena sia posada per lo cequier (…)'; Peris Albentosa, *Enciclopèdia del Regadiu Històric Valencià*, 412.

[54] ARV, Real Audiencia, Procesos, III Parte, Apéndice, 6456: '(…) lo dit Josep Llorenç en lo dit capítol mencionat hauria furtat la aygua de la sequia de Gauza per a regar ab aquella certa heretat de aquell. (…) : Et dix ell dit responent que ans es la veritat que lo dit Joseph Llorenç rega la sua heretat de la dita partida de l'Ariff y no de aygua perduda sinó de aygua furtada y no obstant que ell dit responent li dix que desfés la parada que tenia feta non volgué aquell fer, ans ell dit responent lo troba ab la parada feta y que lo dit Joseph Llorenç estava regant h-una vinya de aquell contràriament al que ell responent li hauria manat'.

[55] Ib.: (…) que lo dit Joseph Llorenç parla en presencia del dit testimoni ab Frances Puig sequier de la dita vila de Morvedre a la porta de la casa de aquell huna vesprada y veu ell dit testimoni que aquell li dix al dit sequier tals o semblants paraules en effecte (…) lo dit Frances Puig li respongue que deffes la parada que

the *justícia* or municipal bailiff of Morvedre, after hearing about the winegrower's insolence, apprehended Llorenç and his horse, and locked them together in the municipal prison of Morvedre, in the central square, under the town hall[56]. During this time of municipal confinement, the *parada* that Llorenç had built was publicly dismantled by the municipal authorities in front of other fellow vineyard owners of Puçol, and the waters of the Gausa canal flowed back as intended, west to east. Then Joseph Llorenç's brother, Anthoni, took the case to the Real Audiencia, accusing the municipal authorities of Morvedre of acting excessively, as they had forcefully and unjustly locked his brother and his horse up for a week in the municipal jailhouse.

This practice of stealing water by retention and overflow was also quite common in the irrigated plains just north of Treviso on the Brentella canal, confronting upstream and downstream towns, such as upstream Camaló deviating a larger quantity of water of the Brentella than the one it had been given into its communal fields with a rudimentary damn built with rocks, branches and debris, and causing an alleged water shortage in the towns of Paderno and Merlengo, immediately downstream. Nonetheless, according to the reports made by the Ufficio alle Acque of Treviso, these small thefts did not end in incarceration and demolitions were not performed in front of the supposed water thieves[57].

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tenia feta si la tenia y que sinó la tenia feta que no la fes (…), lo dit Joseph Lorenç li dix que ell ja hauria fet (…) desfaria parada puix la aygua era perduda (…)'. Another testimony said that the name of the *sequier* was Martí Puig, and that he was insulted by Llorenç: 'Lo sequier de aquella qu'es deya Martí Puig de dita vila se quexa als jurats de que lo dit Joseph Llorenç era estat descortès y malcurat ab aquell'.

[56] Ib.: 'per lo Magnífich Mossen Pere Berenguer Justicia de aquella y fonch açó al parer de ell dit testimoni en lo primer o segon diumenge de quaresma del any proppassat de MDLXIIIIo lo qual fonch pres per lo dit Justicia en la plaça de la mateixa vila (…) y hoyt dir ell dit testimoni segons que fonch (sic) públich que aquell dit Joseph Llorenç fonch pers per que hauria pres la aygua de la sequia de Gauza sens licencia del sequier de aquella (…) y fonch posar en la presó de la dita vila de Morvedre y li fonch també pres lo rocí que aquell portava avant com aquell anava a demanar aygua al sequier avant també al mateix ell testimoni y molts altres del dit loch de Puçol qui eren Jaume Estheve menor, Guillem Fauri, Hierony Esteve y altres de Puçol'.

[57] The Archives of the Consorzio Piave, in Montebelluna (in the province of Treviso), conserve a large record of *denunce* or reports made by officers of the *Ufficio alle Acque* of Treviso between 1511 and 1688: ACP, Libri Denunce, 4E, f. 9v: 'Die 14 Martii 1551. Signor Andrea cavalcante ha accusato il commun di Camaló de quello che ha trovado al partidor esser stá rostado tutta tal parte dell'acqua va alle ville di

Conflict linked to the destruction, construction and maintenance of dams and dykes, causing floods in the Venetian Terraferma, goes back to at least to the 1300s. Indeed, as early as 1366 the authorities of Montagnana, as manifested in the medieval statutes of the town, were concerned with safeguarding farmland from floods along rivers Fiumicello and Frassine[58]. Yet despite the *podestà* and municipal council's preoccupations in reinforcing the riverbanks, the physical state of the embankments and the frequent modifications they suffered generated long disputes with communities in the lower lands to the northeast. For instance, in 1450 farmers from Montagnana dug an opening on the northern embankment of the river Frassine, flooding communal lands of the towns of Pojana and Noventa Vicentina, which were under the authority of the *podestà* of Vicenza, who protested to the doge of Venice[59]. The inhabitants of Montagnana were again exhorted in the 1460s by the *capitano* of Padua, Andrea Mocenigo, to take better care of the section that belonged to them along the river Frassine, cleaning it of tree trunks and debris, as well as reinforcing its embankments at their own expenses[60]. About a century later, in 1569, a similar incident took place in the same embankment, known as *Arzer della Banda del Vicentino* ("the levy on the side of the territory of Vicenza"), when inhabitants of Pojana accused their neighbours from Montagnana of opening too many

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Paderno et Merlengo con lote, sassi, rove, et similiter altre cose conducendola tutta in sua commodità et per poter aguazar li soi pradi come chiaramente si po vedere a grave danno di dette ville, et contra la forma (…)'.

[58] ASM, Sezione Veneta, Statuti del Comune, b. 1: 'De Flumicello quod labitur per Duciam Fraxinis versus Montagnanam. Uti bona aqua est utile et iocundum ideo ut habeatur copia Aquam quam labitur de flumine Fraxinis per Duciam eius versus Montagnanam per intus flumicellum statuimus quod per Comune Montagnanam fiat unus bonus Agger ubicumque fit necessarius à lateribus dicti Flumicelli incipiendo dictus Flumicellus cavari in fundo et argerari à lateribus in altitudine et latitudine, prout fuerit obtentum per Consilium'.

[59] ASM, Sezione Veneta, Acque, 319: '(…) In Christi nomine amen. Cum vertentur lis et controversia inter communitatem Vicentine et Montagnane in occasione quondam aquas habentium super territorium vicentii promptu quandam ruptam factam per eos de Montagnana in fluminem Frassinis tempore inundationis dictis fluminis a illi di Vicentia pro dicta rupta se gravaverunt ad Magnificus Ducis Dominis Veneti (…)'

[60] Ib.: 'Sententiamus, terminamus et declaramus quod dicta communitas Montagnane con tota potestaria tenetur ut debbeat et estritta sit suis expensis incidere, et facere ac evellere et eradicare omnes arbores, legnamina, fondes et ramos existentes in alveo fluminis Frascinis et removere ac ammovere facere omnem glaram, discohopertam existente in alveo dicti fluminis (…)'

and too large *bocchete* (apertures) on the Frassine, weakening the embankment and causing floods during the early March rains[61]. These incidents of destruction and intentional neglect of the northern embankment of the Frassine on behalf of the inhabitants of Montagnana indicate a substantial degree of indifference towards the inhabitants and agrarian produce of lower lands belonging to a different form of jurisdiction, as the towns of Pojana and Noventa depended from the territorial authorities of Vicenza, and not from a communal *podesteria* such as Montagnana. In this case, the last recorded incident, thus dating from 1569, indicates that by that time the Venetian authorities, in this case the *Provveditori sopra i beni inculti*, that received the *supplica* from the *podestà* of Vicenza, had a more effective role in arbitrating this conflict, putting into practice the Venetian formula stating that "any type of water is under Venetian jurisdiction"[62].

Yet conflicts over embankment destructions and consequent floods did not concern only agriculture but also other economic activities related to water. In 1468, a boundary dispute erupted between two noblemen in the Bassa Padovana, in the lands between Solesino, Pozzonovo and Vescovana. On one side, Venetian patrician Brothers Francesco and Zuane Pisani had large lands dedicated to wheat cropping and, on the other side, Sigismondo Polcastro, a nobleman from Padua, rented *valli* or fishing grounds to some fishermen. The spark was struck when Polcastro's fishermen were caught breaking dykes and flooding Pisani-owned land, making it impracticable for wheat[63]. The Pisani had bought land in the early 1400s, and therefore needed their estate to remain drained and

[61] Ib.: 'et havendo trovato essa rotta (…) con la forza molta il terzo di de Marzo di zobbia esso fiume per ditta rotta ha sboccato et havendo fatto una boca et apertura molto più grande et di grandeza de pertiche dieci in circa per essere el terreno del Vicentino et le possessioni di essi (…) molto più basse di quelledi Montagnana ove e stata fatta essa rotta tutte le aque di esso fiume'.

[62] The foundational text of the *Provveditori sopra I beni inculti*, read in the Venetian senate in 1556, begins by reminding that 'ogni sorta d'aque sono giurisdiction del Dominio', thus, that "every sort of water is under the jurisdiction of the Republic of Venice. See: ASVe, Provveditori sopra i beni inculti, 4.

[63] AMCES, t. 10, d. 101: 'MCCCCLXXI die primo Aprilis. Spectabili domino Gabrieli Venerio pottestati Montissicilis. Vertendo litte tra Misser Francesco e Misser Zuane Pisani per una parte et misser Maistro Sigismundo di Polcastri da Padua per l'altra de i confini de algune valle per meterli fine (…) e seguito che i suoi pescadori hanno rotto(…) contra el debito de iustitia'.

sufficiently dry. On the contrary, Polcastro preferred having his land flooded by the waters of the Fossa Lovara swamp, as he rented his property to fishermen[64].

In the case of the Pisani-Polcastro conflict between fishing activities and grain-related territorial transformations, the violent act of breaking the embankment made it to the court of the *capitano* of Padua, as both properties belonged to that jurisdiction. Yet in later examples from the 1500s, Venetian Magistrates made an entrance as the sole specialised arbitrator, after receiving local petitions of one or both of the involved litigants. The case of Montagana against its neighbours in the Vicenza territory follows this pattern of 16th century meddling of Venetian institutions in a recurring problem. We can trace two stages of conflict in this example: first, the inhabitants of Montagnana's indifference toward the maintenance of embankments in the mid-1400s in contrast with the statutory intention of the *podestà* of Montagnana to protect the river bed and municipal levees since 1366; and, second, in the 1560s, the ability of the inhabitants of the lowlands of Vicenza to take their concerns to the highest magistracy over water in the Republic of Venice. This example corroborates to a certain extent what some environmental historians' hypotheses, such that of Paul Warde, who stated that Early Modern states' control over natural resources of a given territory was not gained by violent coercion and preliminary use of force, but by "assertion", convincing local populations of their indispensability in conflict resolution[65]. Therefore, following Warde's theory of state formation, the *Provveditori sopra i beni inculti* would have exerted their power in 1568 as a mainly peaceful force that finally resolved ongoing violent contentions, *litte pendente*, between the two jurisdictions of Montagnana and Vicenza.

b) Bridges

Nonetheless, Venetian Early Modern justice in water conflicts was not always peacefully persuasive. In 1568, after the same late winter floods that fractured the embankment of the Frassine in Montagnana and flooded Pojana, the *Provveditori sopra beni inculti* ordered the vicar of Anguillara to read an announcement to the dwellers in

[64] Bottaro, *Pesca di valle e commercio ittico*, 14–35.

[65] Paul Warde, *Ecology, Economy and State Formation in Early Modern Germany* (Cambridge: Cambridge University Press, 2006), 23.

his territory. This message stated that they had allowed the building of only one bridge over the Gorzon canal in the town: the one between the lands of Domenego Solda and those of Francesco Talpo, who had asked for authorisation and had paid the licence to the *Provveditori*. This bridge had been recently destroyed during the floods, and they accused the local population of taking the wood and other materials from the authorised bridge and using them for building smaller illicit bridges around the town. The *Provveditori* told the vicar to investigate who had built these other bridges and guaranteed protection and anonymity to potential informers. The vicar was also ordered to announce that any furtive possessor of Solda and Talpo's reutilised bridge debris had three days to dismantle any fraudulent structures built with it and bring the pieces back to Solda's and Talpo's construction site. Lawbreakers would be sent to work in the galleys without pay for eighteen months if discovered keeping material from the bridge after the given time limit[66].

Bridges in Veneto were first conceived as potential physical impediments to waterflow. For example, during the 1563 Lozzo drainage canal project, northeast of the Gorzon and parallel to the Bisatto canal, the *Provveditori sopra i beni inculti* made sure that a new bridge was not to have more than eight *piedi* in width, and had to include on both sides two *scoladori* or water discharge conduits, so that it wouldn't impede waterflow[67]. The extent to which bridges impeded or modified water current was to be decided by the

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[66] ASVe, Provveditori sopra i beni inculti, 456: 'Al Vicario de l'Anguilara. Specialiter amico carissimo, Stante la concession per noi fatta a Messer Domenego Solda et Messer Francesco Talpo del tenir il passo al locho del ponte del taglio del Gorzon fino tanto che si facccia acconciar il ditto ponte giusto il suo momento però vi comenttemo che non permetiatte che alcun alttro siqual si voglia possa tenir passo mettendo penna della galea achaduno che operasse contra la forma delli ponti nostri, et mandato predicto mandando in notta all'ofitio nostro li inobedienti accioche contra de loro possamo administrar nella Justitia che si ricercha ipso farete far in proclama al'Anguilara et al locho del taglio del Gorzon che tutti quelli che se attrovano legnamo feramenti o altro ditto ponte ruinato dal acqua per la rotta fatta al ditto ponte debbano fra termine di zorni tre dapoi il proclama darli in notta et consegnarli al detto Domenego Solda sotto penna di lire cinquanta da esser datto al achusador qual sia tenuto secretto, et de esser mandate loro inobedienti per mesi dixotto a server nelle galee de condanati senza paga et che l'executione delli puniti con iure ne darette aviso che Idio vi guarda'.

[67] AE, 1-III-5: '(…) vi sia fatto un ponte canal de larghezza de piedi 8 in luce & in modo che non impedisca il corso dell'aque così di sopra come di sotto & siano fatti due scoladori di sopra al ponte canal predetto, che vadino dall'una & l'altra banda delle Valli intorno al Monte di Lovertino (…)'.

authorities, as bridges were a part of the political assertion and presence of the Venetian magistrates in the Bassa Padovana. The *Provveditori sopra i beni inculti* exerted their authority by deciding which bridges were legitimate, which were bound to stand, and which were to be torn down. A landowner wishing to build a bridge over the waters of the Gorzon was therefore obliged not only to pay for the material and workforce but also for the licence. Any bridge that did not meet these requirements was to be demolished by the authorities, and the builder pursued and punished[68].

As in most Early Modern states, bridges over these drainage canals were also a strategic fiscal post where land transportation and fluvial navigation were taxed. The *Provveditori sopra i beni inculti* sought to amass some income for the Gorzon Canal project by obliging every boat owner from Este to pay six *soldi* for each extra passenger they carried under a specific bridge, although they did not specify which was the average number of passengers[69]. Fluvial navigation had also a role in the illicit bridge destruction campaigns of the *Provveditori sopra i beni inculti*, though considered a peripheral interest when compared its centrality for the other water magistrate in Venice, the *Savi alle acque*. For instance, in 1556 the *Provveditori* wrote a letter to the presidents of the *consorzio del Gorzon inferiore*, the agrarian board for the lower sector of the Gorzon canal between Anguillara and Sottomarina, telling them to pay for their bridge building licence and, when these bridges were built, to make sure they did not impede navigation[70].

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[68] ASVe, Provveditori sopra i beni inculti, 782: '(…) Et se alcuno vorra far ponte canal sotto alcun fiume publico over particolar debba pagar il fondo modo ut supra ma sia assignato il loco e modo di detto ponte canal per l'officio nostro all'acque acciò non impediscano le navigation et il corso dell'acque et facendo in'alcun tempo impedizion alcuna siano rotti et disfatti over reconzi in modo che non faccino impedimento alcuno'.

[69] ASVe, Provveditori sopra i beni inculti, 4: 'et perche questa spesa si possa fare, sin data libertà alli burcuroli di Este (…) di levar una persona di più per viazo con condicione che paghino ogni fiara che passerano sopra il ponte canal del novo ritratto soldi sei per barca, overo burchio (…)'.

[70] ASVe, Provveditori sopra i beni inculti, 782: 'NNVV Pressidenti del Gorzon parte Inferiore (…) Et se alcuno vorra far ponte canal sotto alcun fiume publico over particolar debba pagar il fondo modo ut supra ma sia assignato il loco e modo di detto ponte canal per l'officio nostro all'acque acciò non impediscano le navigation et il corso dell'acque et facendo in'alcun tempo impedizion alcuna siano rotti et disfatti over reconzi in modo che non faccino impedimento alcuno'.

This assertion is interesting, as the agriculture-centred *Provveditori sopra i beni* had ordered the building of the Gorzon canal, which has therefore been generally thought of as an essentially drainage and run-off water canal. Yet this source also mentioned it as a navigable canal, presumably in its lower course from Anguillara to the west, although this is the only source in the consulted corpus that mentions its navigability. It is therefore erroneous to believe that this magistracy did not think about fluvial navigation. The *Provveditori sopra i beni inculti* also had in mind freshwater nautical traffic when they included in their foundational document of 1556 an obligation to notify the other water magistrates in Venice, the *Savi alle acque*, about the digging of any drainage perforations and capillary canals (*scoladori*) near busy rivers between the Brenta and the Piave, as they could potentially release too much water and affect the navigability of the main waterways linked to the Venetian Lagoon[71].

Yet bridges were also a source of conflict in not-navigable canals such as Valencian irrigation canals. The Common canal of Alzira, a large stretch of which would become in 18th century the Royal Canal of the river Xùquer, flowed in front of the southern gates of Massalavés, a fortified hamlet inhabited mainly by *Morisco* serfs as part of the fief of baron Don Pedro Alonso del Milà, a nobleman whose distant family had participated in the conquest of Valencia in 1247 and had received the lands in a royal concession dictated by James I the Conqueror[72]. In 1553 Don Pedro received royal protection or *ferma de dret* for a bridge over the Common canal of Alzira and a drinking trough for his serfs' livestock on the south-eastern end of the town, outside the walls and on the road from Alzira to Xàtiva, not far from where a 19th century public washing sink still stands nowadays[73].

In 1568, his son Don Joseph Alonso del Milà witnessed how municipal officials from Alzira and Ipólit Valero, *sequier* of the Common Canal of Alzira, demolished the bridge and harmed the conduit that fed the drinking trough. After receiving Del Milà's complaint,

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[71] Ib.: 'Quelli che vorranno far scoladori trà la Brenta, et la Piave debbano notizia alli Savi nostri all'Acque, dove reduti al numero di cinque vedino che non sia inferito alcun danno alla Laguna'.

[72] Ignacio Matoses Ortells, 'Masked defensive architecture. El portal de Massalavés', in Camilla Mileto et al., *Earthen Architecture: Past, Present and Future* (Boca Ratón: CRC Press, 2014), 175.

[73] AMA, Acequia Real de Alcira, Pleitos, 067/3: '(…) a hattentat en fer la demolició del dit pont en prejuhí de la ferma de dret qu'el any cinquanta tres fonch possada per Don Pedro Milá, tunc senyor de Maçalabess e provissió e sentencia en dita causa de ferma de dret publicada per lo noble senyor batle general (…)

the *Gobernación*'s court in Valencia sent bailiff Hieroni Nunyes to the site where the bridge stood to talk to both parties, interrogating townspeople on Del Milà's side as well as formal municipal *sequiers* of Alzira and others on the side of Valero[74]. Notary Miquel Hieroni Climent, in charge of Valero's defence, walked along the canal with Nunyes, explaining how the bridge was not as high as it was supposed to be, noting that years before there was another bridge by which "a man on a horse could ride under it", and that the bridge that had recently been demolished by Valero was instead so low that "an upright man could barely walk under it"[75]. Climent also stated that given the bridge's low height, dirt, shale, logs and weeds would accumulate under it, creating a sedimentary dam, retaining excessively, weakening the embankments, and depriving downstream irrigators from the agreed amount of distributed water in required irrigation time shifts[76]. Valero said that he had noticed that a *partidor* or distribution dam for a piece of irrigable land called Osteta, situated downstream and very close to the bridge, received a smaller quantity of water, presuming anomalous water retention. He then observed that the water was partially moving backwards as if it had encountered an impediment under the bridge

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[74] Ib.: (…) Lo molt magnifich micer Hieroni Nunyes assessor assumpt del molt noble Batle General de la ciutat y regne de Valencia en la present causa per executió de dos provisions conformes fetes per sa Senyoria (…) a fet del present mes de abril (…) accedi personalment al pont construhit en la sequia real de la Vila de Alcira davant la vila de Maçalorbes, e presents e Hoyts los dits noble don Joseph Alonso del. Milà, señor de la varonia de Maçalabes de una e lo honoranle e discret en Miquel Hieroni Climent notary en dit nom de procurador del magnífuch Mossen Ipòlit Valero, cavaller sequier de dita sequia real, e sindich de dicta sequia, e present aquel de altra e essent primerament constituhits en lo loch on está lo partidor nomenat de Osteta, lo qual dista del dit pont sequia Amunt per spay de veu reoculis subiecta (…)'.

[75] Ib.: '(…) davall lo dit pont perqué no a molts anys que un home a cavall podia passar per davall de dit pont sens tocar aquell e huy al temps qu'es diu lo dit pont fonch derocat apenes y pogera passar un home a peu y perço require que lo dit rastrell del dit pont sia descubert e reconegut la fondaria que te davall lo sol de dita sequia (…)'.

[76] Ib.: '(…)l'aygua per lo dit pont per que ve a sobre puxar a la volta del dit pont y avent de venir com ordinariament venen per la dita sequia fexos de canes, madera y molta brossa quant creix lo riu per estar lo dit pont tant stret se fan tan grans parades e impediments que la dita aygua no pot passar per lo dit pont en tal manera que si no fessen vores de terra a la part de Maçalabess a la dita sequia tota l'aygua de dita sequia entraría en la dita vila de Maçalabess ab perill de rompre los caixers de dita sequia real. Té peculiar offici de roconeger los impediments del discurs del aygua de dita sequia y destanyar la dita sequia, adobar los caxers e derocar qualsevol Ponts qu'estiguensobre la dita sequia y de reedificar aquells en benefici del descurs del aygua de dita sequia'.

– a phenomenon that they called *regolf*, which could translate as "backflow"[77]. Del Milà responded that, on the contrary, he did not observe *regolf* under his bridge or any lower quantity of water being distributed to the farmers downstream[78].

Yet the argument that sparked the bridge demolition in Massalavés had other reasons apart from water retention. Del Milà was accused of using the water that was retained under his bridge to feed the livestock trough. It was therefore an allegation not only of water retention but also of water theft, of using a bridge to form a *parada*[79]. Del Milà responded ambiguously, saying that he would not pay any restitution for *lost* water (*aygua perduda*), and that the allegedly "stolen water" was not stolen but "came from the rain". He later stated that his trough only received superficial excess rain water through small structures at the top of the embankments called *rastells*[80]. As noted by Peris Albentosa in his encyclopaedia of historical irrigation, this term had numerous meanings[81]. The definition

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[77] Peris Albentosa, *Enciclopèdia*, 471–72.

[78] AMA, Acequia Real de Alcira, Pleitos, 067/3: 'Don Alonso del Milà dix que per visura del dit partidor (…) que aquel se mostra (…) e se veu claramente que de mudarse lo pont de la manera que solia estar e de deferse de altra manera e forma e manera que se preten a edifficar per lo sindich de la sequia real se impediría lo curs que l'aygua de dita sequia solia e ha de tenir de tal manera que de molta e mont notable part no reculliria l'aygua que solia tener (…) de trescents anys e fins al dia que de facto fonch derrocat per lo Magnifich Mossen Ipòlit Valero pretès sequier. (…) cmparsant ut decet no proceheix de justicia ni en fet subsisteix axi per a que la distancia que y ha del pont super quo est questió no daona ni pot donar lloch a que lo pretés regolf qu'es poria causar per lo dit pont fasa dany ni perjuhí al l'aygua que que a d'entrar per la dita fessa o partidor'.

[79] Ib.: '(…) lo qual dit abeurador dista del dit pont cent sexanta pases poch mes o menys, lo dit magnífich asessesor re oculi subiecta (…) Et statim eodem contextu lo dit en Miquel Hieroni Climent (…) dix que la matexa visura feta en lo dit abeurador claramente se mostra e pren que lo dit noble Don Josseph Alonso del Milà no té ni pot tenir servitur alguna del aygua qu'es sobrix e falta per la vora del dit abeurador'.

[80] Ib.: '(…) l'aygua es estada restituida en dita sequia y seria estada restituhida axí perque no's puga ser feta visura axí dels rastells com de les fites de dita sequia (…) se mostra evidedentment qu'el aygua que es en dita sequia es de la pluja (…) que fentse visura dels rastells dels dits partidors y fesses se veiha que los dits rastells son estats alçats y que da vall los dits rastrells y a tarquim de dita sequia y aquells no estan construhits sobre terra nova y grava com an d'estar si aquelles estiguessen edifficats a principio sobre grava, penyes y terra nova'.

[81] It was precisely this filtering purpose that gave also the name *rastell* to later 18th century structures that "combed" and cleared the waters with fine-cut stones along the width of the canal, see: Peris Albentosa, *Enciclopèdia*, 456–57.

that fits best with the structure Del Milà owned was a series of parallel holes on the higher parts on the embankments that enabled levelling the agreed volume of water and releasing it when abundant. This structure was also known in Valencia as *dentell*, which is another word employed in this court case[82]. These holes alleviated the embankments of excessive weight and force and also allowed a better filtering of weeds and sediments on the sides of the canal instead of on the canal bed or, as in this concrete case, under bridges[83]. Yet, for Don Joseph Alonso del Milà, the water that overflowed the *rastell* by the bridge only did so when the Xúquer Canal was high, therefore filling the trough exclusively with excess water. This explanation did not convince his counterparts. In fact, the downstream dwellers urged Del Milà to resolve the problem and to be content with the canal authorities' decision, as the canal had been provisionally cut in order to inspect and clean the structures between the bridge and the Osteta dam, and being April – time to *cremar fulla* (seasonal stubble burning), there was a seasonal need to irrigate the newly planted crops, including wheat and rice[84].

Summing up, it can be said that bridges were conceived in both geographical contexts as potential impediments to water flow. This potentiality served as a pretext for the consolidation of authority, whether it be the Venetian *Provveditori sopra i beni inculti* in the Bassa Padovana, or the municipal authorities of the city of Alzira in the upstream seigneurial fiefs such as Massalavés. In this last case, as we will further develop, the performed demolition of the bridge and the drinking trough over the Xúquer canal

[82] Ib., 238–39.

[83] AMA, Acequia Real de Alcira, Pleitos, 067/3: '(…) Que per lo dit sindich será request apres que l'aygua vinga per dita sequia et etiam sia feta visura de la brosa, canya e canyes que al present están al en front el pretes abeurador de la dita vila de Maçalabess (…)'

[84] Ib.: '(…) Requerint lo dit Climent que attés que la haygua de la sequia real está tallada, e, que axí per esserse cremada la fulla com encara perque per a regar los forments y altres fruhyts y splets y senyaladament los planters dels arrossos y ha urgentissima necessitat que torne l'aygua en dita sequia y no tornant-se impromptu se seguixen notabilissims y inrreparables danys en tot lo terme de la dita vila y llochs circumvehins y de la contribución de aquella sia provehit que la dita aygua torne en dita sequia per a socorrer les dites necessitats, perque sien apres a sa señoria si parexera provehir que sia feta la visura requesta per lo dit noble don Josseph Alonso del Milà molt facilment se tornara a tallar l'aygua de dita sequia y fer-se la dita visura, e lo dit noble Don Josseph Alonso del Milà pretenent tot lo contrari y allegant que té dos provisions conformes que la dita visura sia feta, la qual se pot fer molt breument y en molt poch espay de temps (…).'

responded to explicit memory of past political violence, external to hydraulic technicalities and precise water rights.

c) Mills

Episodes of violence and destruction of infrastructure legitimised by an intention of keeping a constant waterflow do not appear in the consulted corpus of sources in connection with one of the most studied elements of medieval and early modern water management: mills[85]. Of course, there are numerous mentions of water mills in Venetian and Valencian sources describing water courses and how some would be considered sometimes impediments, mainly in the Venetian Terraferma.

Normative sources such as the medieval statutes of Montagnana stated the ideal width of *vampadori*, the conduits on the Frassine river embankment that fed the capillary canals powering the town's mills. It also exhorted mill owners to keep them wide open when lowlands were flooded after intense rains, permitting the water to drain[86]. In Valencia,

[85] Marc Bloch's early interest in the diffusion of the water mill in medieval Europe is considered a historiographical starting point, see: Marc Bloch, 'Avènement et Conquêtes Du Moulin a Eau', *Annales d'histoire Économique et Sociales* 7/36 (novembre 1935): 538–63; Medievalist Richard A. Holt renovated the political history of water-mills and its direct link to seigneurial England, see: Richard A. Holt, *The Mills of Medieval England* (Oxford: B. Blackwell, 1988); In Italy, we can note Alberto Guenzi and Carlo Poni's innovative study o of urban politics and the use of water power in pre-industrial Bologna, see: Guenzi e Poni, 'Sinergia'; Similarly, for the case of Lombardy, see: Luisa Chiappa Mauri, 'Acque e mulini nella Lombardia medievale. Alcune riflessioni', in Paola Galetti and Pierre Racine (eds.), *I mulini nell'Europa medievale*, (Bologna: Clueb, 2003), 233–68; For medieval Valencia and the development of "post-conquest feudalism", it was Thomas F. Glick and Enric Guinot to thoroughly study seignerual mills, see: Thomas F. Glick, Enric Guinot Rodríguez, and Luis Pablo Martínez Sanmartín (eds.), *Els molins hidràulics valencians: tecnologia, història i context social* (Valencia: Institució Alfons el Magnànim, 2000); Recently, concerning other territorial realities from Western and Mediterranean Europe, András Vadas has written a thesis about mill power in medieval Hungary, András Vadas, 'Who stole the water? The control and appropriation of water resources in medieval Hungary' (Budapest, Central European University Budapest, 2020).

[86] ASM, Sezione Veneta, Statuti del Comune, b. 1: 'De Bampatoriis Molendinorum. Debeat quilibet molinarius habere et tenere ad suam pestam molendinorum singulas bampaturas amplas per quattor pedes perticas ad minus et quandocunque aliqua superfluitas aquarum venerit, molendinarii (…) debeant ipsas Bampatorias aprire et tenere apertas, donec superfluitas aquarum durabit; et qui contrafecerit incidat in

some fragments of the 1497 *capìtols* of the irrigation board of the Rovella canal, the original version of which is no longer conserved, were mentioned in a much later court case (1696). These ordered that mills should be constructed assuring a constant waterflow, and avoiding *regolf* (backflow)[87].

It was precisely at the *assut* or derivation dam at the beginning of the Rovella canal, on the southern bank of the Guadalaviar, that some waters were diverged to power a municipal mill and a printing press in the 1500s. In that precise mill Flemish printer Juan Mey had the 1547 *Fueros* of Valencia printed, a legislative text which, coincidentally, also had a rubric on mills[88]. This rubric mentioned the sanctions that anyone in the kingdom of Valencia would encounter if they violently destroyed a mill[89]. Yet we have not been able to come across any case of violent dismantling of these structures in the

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poenam libras trium (…) et quilibet bona famam possit accusare cum sacramento, et credatur et habeat tertiam partem et in casu hujus statuti primo obligetur conduitor molendini deinde in subsidium dominis proprietatis'.

[87] ARV, Comunitat de Regants de la Séquia de Rovella, CAJA 1/2: 'Copia de los capítulos de las paradas de los molinos y del modo de regar los huertos en 1497 (…) De com se han de regar los Horts (…) XXIIII Ittem Que no faien regofador lo molin, XXXIIII Ittem qualsevulla moli que serà en la dita cequia així forma los murs com dins los murs fara regolfada sia encorregut en pena de cinch sous per cascuna vegada qu'en faran e la qual pena haja lo ters lo comú e l'altre tes lo cequier e l'altre ters l'acusador e aço a coneguda de syndich e vehedor'. It is interesting to note that the Rovella irrigation canal, northwest of Valencia, was, according to recent archaeological discoveries, the one that fed most of the *intra-muros* mills in the city, at least since the caliphal period (10th century), feeding a maximum number of mills in the late 1300s, and, much later powering important printing presses in 16th century. It also served as a ditch for disposing animal carcasses after their butchering, as well as small urban gardens and a convent: Beatriz Arnau Davó and Javier Martí Oltra, 'Aigua i desenvolupament urbà a Madinat Balansiya. L'excavació d'un molí hidráulic de l'època califal', in Thomas F. Glick, Enric Guinot Rodríguez, e Luis Pablo Martínez Sanmartín (eds.), *Els molins hidràulics valencians. Tecnologia, història i context social*, (Valencia: Institució Alfons el Magnànim, 2000), 165–192; Rosa María Gregori Roig, *La impressora Jerònima Galés*, 48; Esquilache Martí,'La distribución tradicional': 90–91.

[88] Fori Regni Valentiae (In ciuitate Valentia: arte ac industria Ioannis de Mey Flandri, 1547), Liber I, rubrica XXIII, 'De molins e de forns e de banys'.

[89] Ib.: 'Si algun trencara molins violentament sia tengut de reparar e de fer aquells entre vint diez e quando a tretat per perna al senyor del moli quant costara de adobar. E si entre los davant dits diez no'ls repara, do lo doble de la reparación que costaran los Molins d'adobar, e tot lo dan que haura soffert lo senyor dels molins'.

16th century on behalf of canal authorities, in contrast with the numerous aforementioned embankment, waterwheel and bridge destructions. The only hint to certain social tension created by mills in the consulted sources is the already mentioned case of apothecary Francesc Reyner. Yet the structure of the implicated olive oil mill was never threatened, as the millers were on the side of the irrigation board and accused the merchant of decreasing the canal's current.

The fact that we have not found cases of mill destructions in the records of higher courts of justice does not mean that these practices might not have been common in the kingdom of Valencia. Yet as historiography and archaeology have shown, water mills were a key structure in post-conquest Valencia, resulting in their royal protection. Going back to the conquest of Valencia, Muslim-built watermills became a precious good that the monarchy would distribute to noblemen in compensation for military aid, according to the *Llibre de repartiment*, an idea that matches Marc Bloch's hypothesis of feudal lordship, linking its territorial grasp to the control of watermills. Thomas F. Glick and more recent research has tended to play down this strictly seigneurial aspect of Valencian watermills, individuating private merchant-owned mills and communal village mills as well. Nonetheless, most water mills in Valencia in the 1500s did belong to feudal lords, which could explain the lack of incidents and furthermore the lords' frequent collaboration with irrigation boards in charge of the distribution of the water that also powered mills. Indeed, noble mill owners had an active participation in irrigation boards, such as the previously mentioned case of Hieroni Santangel, a knight of the order of Saint James of the Sword and owner of a mill along the Favara Canal, who was also a *síndic* of the homonymous irrigation board (see part two, chapter one). There is no written evidence in the court case stating that the violence displayed in Burjassot in 1553 was induced by economic stakes in milling activities. Nonetheless, the members of the Montcada canal irrigation community demolished the wheel in the middle of a section of the Montcada canal named the "stretch of the mills" (*tram Dels Molins*). This sector, between the towns of Paterna and Burjassot, had the steepest gradient in the entire itinerary and therefore the fastest flow. It is no coincidence, then, that some authors, supported by more recent inventories and archaeological excavations, claim that it was precisely this section that had the highest concentration of mills in the Valencian hinterland[90]. This pointed to a higher

[90] Guinot Rodíguez, *La Real Acequia de Moncada*, 31.

probability of conflict between the two socio-productive sectors. Both activities therefore were forced to share waterflow. Irrigators had to adapt and live with mills on their waterways, turning instead against other types of structures, such as *norias*, drinking troughs, fishing dams or low bridges, as well as against other sectors of economy, such as lumber transporters[91].

The link between seigneurial power and milling in Veneto is vaguer. We cannot define mill ownership in the Venetian Terraferma as a phenomenon essentially pertaining to local nobility, even less in later periods such as the second half of the 16th century. Property ownership of *opifici* was characterised by very high social variability, including municipalities and rural communitarian agglomerations (*podesterie*, *territori* and *magnifiche comunità*), local nobles, wealthy inhabitants of cities, families of the Venetian patriciate, and even religious confraternities. For instance, in another of Montagnana's "*Degore*", near Casale di Scodosia, the confraternity of the Church of Santa Maria dei Battuti in Padua was known to have rented a mill in order to partially finance the 'Ca' di Dio' or 'Domus Dei' hospital for orphans[92]. The violent destruction of the dam on the Degora canal was clearly influenced by Montagnana's interest in controlling mill production. In the central Middle Ages, the *podestà* had ordered the building of numerous mills along similar relatively steep canals that equally served irrigation. The town's mills were overseen, maintained and managed by municipal *offitiales* or *fattori* like Giovanni Garbin, convicted by the *Consiglio dei Dieci* for storming the dam construction site in

[91] For a drinking trough and a bridge demolished by irrigators, AMA, Acequia Real de Alcira, Pleitos, 067/3; On illicit dam construction, ARV, Real Audiencia, Procesos, Parte II, letra I/J, núm. 8 or, ARV, Real Audiencia, Procesos, 6456, 6294. On a bridge demolition by timber transporters, ARV, Real Audiencia, Sentencias, 724. On timber river transportation in Valencia, Luis Arciniega García, 'El abastecimiento fluvial de madera al Reino de Valencia', in Carmen Poyato Holgado and Josep Montesinos i Martínez (eds.), *La Cruz de los Tres Reinos. Espacio y tiempo en un territorio de frontera* (Cuenca: Universidad de Castilla-La Mancha, 2011), 108.

[92] Montagnana complained about this mill extracting too much water from one of its municipally controlled canals: ASM, Sezione Veneta, Acque, 322, f. 33: 'Comunità di Montagnana contro l'Ospitale di Padova in punto e il fittabile de suoi beni in Casale non possa erigere la chiavica sulla Degora di proprietà comunale'. On the Ca' di Dio: Francesco Bianchi, *La Ca' di Dio di Padova nel Quattrocento. Riforma e governo di un ospedale per l'infanzia abbandonata*, Memorie 109 (Venezia: Istituto veneto di scienze, lettere ed arti, 2005); Francesco Bianchi, 'La specializzazione della Ca' di Diodi Padova nell'assistenza all'infanzia abbandonata', *Padova e il suo territorio*, 129 (2007): 25–29.

1611. As for legislation, the medieval statutes of the city, still in force under Venetian rule in the modern era, stated the ideal width of the Vampadore, a "mill-canal" (*Bampatoriis molendinorum*), which powered the municipal mills, exhorting mill managers to keep them wide open in order to drain lowlands in times of intense rains[93]. Apart from those along the Vampadore, mills were also built along the Degora canal and the Fiumisello stream, which was named *Fiumesello di Molini di Montagnana* by Hercole Peretti, literally translating as "Montagnana's mill creek". All of these waterways powering the town's mills were very near the limits of Este's *contado*. According to Mauro Vigato, the Degora, or the ditch next to the road near the Degora, had served as a border between the *Magnifica Comunità* of Este and the *Podesteria* of Montagnana, since at least 1192. Medieval sources cited by Vigato also mention that this *fossa* powered a mill in Cavaizza (*molendinum Cavadiçe*), proving that there was a sufficient water flow for milling. This seems to have still been the case in 1611, motivating mill keeper Giovanni Garbin's dam rebuke. Still today this gutter is very near the town line between Borgo Veneto, a conglomerate of hamlets, such as Cavaizza and Garzara, that historically belonged to Montagnana's *contado*, and Ospedaletto, which was a dependent of Este until 1807[94]. The placename that Peretti gave it hints that the canal was part of the commons of the neighbouring hamlets of Saletto and Megliadino, loyal to Montagnana, as well as of the hamlet of Ponso, acquired by the *Magnifica Comunità* of Este in 1501[95].

Seigneurial property was not the only factor that stimulated state protection of mills. Also important was what they represented as a basic element of economy. In 18th century Valencia preserving mills with the municipal budget became a *raison d'état* and a priority for the city and kingdom, mainly in times of the devastating floods in the Guadalaviar, as noted by historian of natural catastrophes Armando Alberola Romá. The entire destruction of Valencian wheat mills along the river in the 1776 had calamitous economic consequences, such as the interruption of bread production for three days in the whole region[96].

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[93] ASM, Sezione Veneta, Statuti del Comune, b. 1.

[94] Mauro Vigato, «Ospedaletto Euganeo (PD)», in *ArcGIS StoryMaps*, 20 dicembre 2023: <https://storymaps.arcgis.com/stories/12638998c9824574a5464240bd6b31f9>

[95] Maratini and Vigato, *Uomini,* 81.

[96] Alberola Romá, *Catástrofe, economía y política*, 300.

This general cohesion between government and mills was not as strong in the Republic of Venice. Seen as an impediment to navigation, like bridges, the proliferation of small horizontal wheel-powered mills in both sides of the Piave preoccupated Treviso's communal *Ufficio alle acque* in the early 1400s. This situation stimulated their ordinance of building perpendicular capillary canals or *piaveselle* (small Piave) that could be cut off in case of not sufficient water running on the main river, prioritising wood barges and communication with the northern end of the Venetian Lagoon[97]. By the late 1400s and the construction of Brentella canal, the number of mills, and their capillary canals also decreased, as navigation in the low courses of the Sile, Piave and Livenza became a priority[98].

In the contrary, watermills in pre-Alpine regions survived these Venetian magistracies' watermill destruction campaigns, probably given that the higher courses of the rivers were not navigable, or also the difficulty that populations had of acceding to geographically broadly distributed mills mainly in winter[99]. For instance, Bortolamio Baldo of Gambugliano, currently in the province of Vicenza, asked the *Consiglio dei Dieci* if he could build a closer mill to his village, using a small wild brook that had still not been granted to anyone, as in winter, the inhabitants of the town had to uncomfortably travel through the snows and hills to get to the closest flour mill[100]. This was also the situation of the area in the Colli Berici and Colli Eugani, where mills were eliminated from medieval navigation canals as the Bisatto in the *Territorio* of Padua, or the Rosta Rosà,

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[97] Vergani, *Brentella*, 46.

[98] Canzian, 'Ambiente naturale'.

[99] Deborah Howard mentions how sawmills in the Pre-Alps often encountered problems with frost and ice, see: Howard, *Proto-Industrial Architecture*, 179.

[100] ASVe, Provveditori sopra i beni inculti, 57: 'Illustriussimi Eccelentissimi capi dell Eccelso Consiglio di X. Haver nel cortino di me Borthalamio Baldo habitante nella villa di Gambuglian territorio visentino una fontana dalla quale sorge una acquetta che fin'hora non è concissa ad alcuno sopra laquale ho giudicato se bene però con molta spessa che si possi cavare un molinetto di una sola ruoda, quali avviene dalli aque piovane per quattro mesi dell'anno potribbi lavorari con ruoda, cosa che torneribbi molto à beneficio di gli huomini habitanti in detta villa, percioche al tempo delli nevi sono cosi lontani da gli altri molini, et la strada è cosi ardua à costa di munti chi gli rendi non solamente difficile ma imposssibile l'andar ad essi molini lontani per miglie quattro et più (…)'.

in the *Territorio* of Bassano (today Bassano del Grappa, in the current province of Vicenza), whereas mills on brooks higher on the hillsides were maintained[101].

However, exceptions to this general pattern existed in the Veneto region, including in areas characterized by minimal topographic relief, intense fluvial traffic, and a heightened risk of water stagnation. In such contexts, a significant concentration of mills–often leased and protected by Venetian patricians and placed under the authority of the Serenissima–could also be observed linked to attractive economic activities. This was notably the case of the Degora Canal and the other canals of the *podesteria* of Montagnana and the lucrative hemp-spinning and hemp-soaking industries. According to David Celetti, all three municipal waterways in the *podesteria* of Montagnana, the Fiumesello, Vampador and Degora, had predominant roles in hemp manufacturing, either feeding soaking tanks (*maceratoi*) or powering spinning mills[102]. Montagnana had developed a century-long economy based on hemp crops and hemp-spinning mills, and had held the monopoly on rope exportation to the Venetian Arsenal along with other communities in the Bassa Padovana since the mid-1400s[103]. Hemp fields and hemp mills along the Fiumesello, Vampadore and Degora were property of the *podesteria* of Montagnana which, in exchange for Venetian protection and a constant source of income for the municipal arks, rented them out for long periods of time to potent members of the patriciate, such as the Mocenigo, who had invested in rope making since the late 1400s[104].

This explains why Venetian justice appeared seemingly benevolent to Montagnana, despite the gravity of the 1611 attack on the dam builders from Este. As noted by Lucien Faggion concerning other episodes of violence in Early Modern Veneto, the *Consiglio dei Dieci* was not the only court that tried homicides, as many cases of inter-communitarian violence did not go beyond the local courts, yet it was the preferred court for Venetian

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[101] Maratini and Vigato, *Uomini, terre ed acque*; Antonietta Curci, *Origine ed evoluzione della roggia Rosà* (Rosà: Consorzio di bonifica Brenta, 2015).

[102] David Celetti, *La canapa nella Repubblica Veneta : produzione nazionale e importazioni in eta moderna* (Venezia, Sommacampagna: Cierre, Istituto Veneto di Scienze Lettere ed Arti, 2007), 188.

[103] Celetti, 186–90; Galtarossa, 'Padova e le sue acque nella prima età moderna', 193; Alberto Faccio, 'La gestione delle acque nel padovano sud-occidentale in età moderna' (Padova: Università degli studi di Padova, 2022), 20.

[104] Celetti, *La canapa*, 190.

patricians like those present in Montagnana's *podesteria*[105]. In fact, this court considered the *podesteria* of Este the initial instigator of the conflict in 1611. According to the court sentence, the authorities of the *Magnifica Comunità* of Este had committed an imprudence by sending builders upstream into a territory that was not under their jurisdiction, not only decreasing water power for mills but also obstructing the Brancaglia canal *consorzio*'s agricultural investments in draining the area by constantly releasing water towards the south.

Venetian magistracies and local institutions' ordinances, as well as the petitions sent to them in matters concerning watermills, do not contain as many details on conflicts including illicit destructions or physical violence. This does not mean that social tensions might have not risen during the *mise en pratique* of anti-mill measures. Nonetheless, the main records concerning water management in Venice, thus the *Savi alle acque* and the *Provveditori sopra i beni inculti*, or the denouncements made to the *Ufficio alle acque* of Treviso do not conserve any record of mill destruction, in contrast with other likely obstructive elements on water ways.

3. Collective memory of violence in water management

Describing water ways and waterscapes was very often an exercise of memory. These descriptions appear precisely in our sources when there was a project that required the modification of the quantity of water, and if this provoked controversy between different sides over the direction water should flow. This also opened different interpretations or disparities of law and custom: who benefitted from the water before the changes? Who did not? Who had the custom and right to benefit from it and who didn't? When controversy arose in these matters, social actors were asked to remember. In fact, part of the legitimization vocabulary employed by opposing parts when accentuating rights and customs was evoking *time immemorial*.

[105] Lucien Faggion, 'Violence, Rites, and Social Regulation in Venetian Terra Firma in the 16th Century', in Jonathan Davies (ed.), *Aspects of Violence in Renaissance Europe* (Aldershot: Ashgate, 2013), 185–204; on local courts, Claudio Povolo, *Processo e difesa penale in età moderna. Venezia e il suo stato territoriale*, (Bologna: Il Mulino, 2007), 27–38.

a) Memories of the War of Cambrai in the Bassa Padovana

Many times, descriptions of bodies of water and their itineraries and economic uses also included valuable information about local social strife, political tensions and wars of the past. For instance, in 1566 Bastian Buratto from Pozzonovo, when asked by the aforesaid Girolamo Polcastro to describe the characteristics of the land between Monselice and Pozzonovo before the Gorzon canal drainage campaign of 1557, said that he remembered some swampy areas near the Bocca di Capra lake that served as a refuge for local dwellers in times of war. A man there by the name of Piero della Madalise even built an oven to make bread so as to feed the refugees without forcing them back to the occupied towns where they feared enemy soldiers[106]. Buratto was referring to the 1509–1515 war of Cambrai, in which the troops of Habsburg emperor Maximilian I had besieged the city of Padua and its territory in late 1509. The comfort and refuge the spot on the Bocca de Capra provided to the inhabitants was such that *contadini* still called that place 57 years after "Il Forno di Piero Della Madalise". Buratto's memory showed not only that the fishermen of Pozzonovo and Boara had a more detailed knowledge of Polcastro's properties than the owner of the lands himself, naming concrete places of the lot, but also that this ordinary *contadino* toponymy fed on elements of shared collective memory of adversity[107].

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[106] AMCES, t. 9, d. 296: '1566 Alli 6 Xbre. Si partissimo da Moncellese et andassimo nelle nostre valle di Pozzonovo in la contra de la Bocha Cavera dove havemo differentia de confine con li Pisani et havendo menatto con noi Bastian Buratto homo molto vechio et praticho in quelle valle lui ne disse che Piero della Madalize nel tempo delle guerre fatte in questi paesi dal 1509 fin 1515 tenia affitto la terza parte delle nostre valle che all'hora posedeva li Capi di Vacha nella qual terza parte s'inclueva questa valle chiamatta Bocha Cavera et ch'el ditto Piero haveva fabricatto uno forno in detto locho nell quale si riduseva molta gente del contado circonvicino per paura delli soldatti nimici perche in quell locho posto in meso de quelle valle heranno securi et che in ditto forno ni fu cotto grandissima quantità de pan da quelli che si salvavano in ditto locho et che tutti quelli che hanno ricordo di quelle guerre come selli dicesse menati dove hera il forno de Piero della Madalize mandarianoin quel locho di Bocha Cavera et lo mostreriano et che da questo quell locho e denominatto il forno di Piero della Madalize et appresso ne disse il ditto Bastian ch'el nostro confin andando all'insu a longo per Fossa Lovara vechia na fin alla fossa di Brufalli'. This episode is also mentioned in Bottaro, *Pesca di valle e commercio ittico a Padova nel Quattrocento*, 18.

[107] As noted by Francesco Bottaro, both the Buratto family of Pozzonovo and the Della Mandalise family of Boara to which Piero, the oven builder, belonged to, were known fishermen for the Polcastro noblemen

Even more present in the collective memory of the Cambrai war related to water was the frequent practice of dyke destruction, causing flooding in order to impede the advancement of enemy troops, something that also happened in the kingdom of Valencia, as recently studied by Tomàs Peris Albentosa in the context of the Revolt of the Brotherhoods, as treated in the next section[108]. This was very common south of the Adige, aiming to slow down the raids conducted by the Ferrarese from the other side of the Po. Some of the consulted sources, produced by the *Provveditori sopra l'Adige* and the *capitano* of Padua, mention similar uses of the Rotta Sabaddina designed by the notorious *inzegner* Cristoforo Sabbadino, as treated in part 1, chapter 2[109].

The memory of wartime forced flooding was many times used as an excuse for the failure of dykes during floods. In 1521, the members of the *consorzio* of the Brancaglia canal, a body of water that drained the waters of the river Frassine into the Gorzon near Este, complained to the *Savi alle acque* that their upstream neighbours along the Bacchiglione had been releasing too much water during a period of floods[110]. The *Savi alle acque* decided to conduct a *cavalcata* along the river Bacchiglione, and sought to meet the

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for various generations, and when the troops of the League of Cambrai entered the area they sent salted fish to Polcastro, who had taken refuge in Venice, as a sign of loyalty, see: Francesco *Bottaro, Pesca di valle e commercio ittico*, 50–52.

[108] Franco Cazzola, 'Il Po', in Michael Matheus et al. (eds.), *Le calamità ambientali nel tardo medioevo europeo: realtà, percezioni, reazioni. Atti del XII convegno del Centro di Studi sulla civiltà del tardo Medioevo S. Miniato, 31 maggio – 2 giugno 2008*, Collana di Studi e Ricerche 12 (Firenze: Firenze University Press, 2010), 200; Mauro Pitteri, 'Dalla Lessinia al Tartaro. Economia, società ed ambiente lungo il confine veronese della Repubblica di Venezia nel '700' (Verona, Università degli Studi di Verona, 2009), 124–125; Tomàs Peris Albentosa, 'La Guerra de Les Germanies i Les Infraestructures Hidràuliques', in Luis Arciniega García (ed.), *Germanías e Infraestructuras: Concomitancias*, (Valencia: Generalitat Valenciana, Conselleria de Política Territorial, Obres Públiques i Mobilitat, Cátedra Demetrio Ribes, 2022), 105–113.

[109] ASPd, Acque, 176.

[110] On the Brancaglia *consorzio* of Este : Maratini and Vigato, *Uomini, terre ed acque*, 84; Mauro Vigato has recently produced a very useful online Geohistorical study of the Bassa Padovana, with detailed historical explanations of digitalised cartography, including the Brancaglia canal: «Terra di cuori», ArcGIS StoryMaps, 9 dicembre 2024, https://storymaps.arcgis.com/stories/208f21f6d97547d89824ab0a6df8cfbe; «Collettore Brancaglia», ArcGIS StoryMaps, 13 febbraio 2024.

representatives or *ambasciatori* of each community along the river, together with some members of the municipal councils of Padua, Monselice, Este and Montagnana, to carry out inspections and decide which dams were useful for flood prevention and which were to be repaired.

In the town of Longare, northwest of Padua and southeast of Vicenza, the *Savi alle acque* travelled to the deviation dam (*obturazion*) called the Bocca de Longare, that was built on the Bacchiglione and gave origin to the Bisatto Canal. This dam divided the waters of the river between the canal that flowed south towards Este and Monselice, and the eastward continuation of the Bacchiglione flowing towards Padua. Venetian *savi* Polo Valaresso and Piero Boldù observed that the *obturazion* deviated twice the intended quantity southbound, and half of it eastward; in other words, two thirds of the river were supposed to go towards the east, and one third to the south, yet the encountered situation

showed the opposite[111]. They therefore ordered for it to be returned to the intended two thirds to Padua and one third south[112].

When inquiring in Longare for the causes of the partial destruction of this *obturazion*, the *consortes* of the Brancaglia responded that it had been the *inimici* ("enemies") that had broken the dykes along the Bacchiglione in order to flood the lands towards Este[113]. By *inimici*, they were probably making reference to the forces of the League of Cambrai that had besieged Padua in 1509, although given that the latter arrived from Ferrara and Este

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[111] ASM, Sezione Veneta, Acque, 319: '(…) come è il Bachiglion che vien da Vicenza, el qual inanzi la guerra di onze 24 d'acqua vinti ne scorreva a Padova e quatro a Este così al presente è al contrario perché l'inimici per tuor l'acqua a Padova drizzo il Bacchiglion verso Este dove li và assaissima acqua e più del solto non solum a danno et total rovina della Podestaria di Este, Monselice, Montagnana, Castelbaldo et altri luochi corconvicini, ma etiam cum non poca jactura della città di Padova, la qual per li nuoci cavamenti fatti attorno non ha l'acqua solita, che li bisogna per li livelli alios limitadi'. Note how Boldù and Valaresso measured the waters of the Bacchiglione in *oncie*. The total quantity of the river was 24 *onze*, 20 going to Padua and 4 to Este before the war of the League of Cambrai. If the Paduan *oncie* used to measure the flow of the Bacchiglione River at the Longare weir corresponded to the measurements of the same name studied by Enrico Roveda in the Ticino and Adda valleys, they would correspond to a total of 60,000 litres per minute (1 m^3/s), with 50,000 litres per minute (0.83 m^3/s) going to the city of Padua and 10,000 (0.16 m^3/s) to the city of Este, if these oncie corresponded to their measurement in Milan, or 31,766 litres per minute (0.53 m^3/s) in total, with 25,980 litres per minute (0.43 m^3/s) flowing to the city of Padua and 5,196 litres per minute (0.08 m^3/s) to the city of Este, if these measurements corresponded to the *oncia* of Lodi. Taking the necessary precautions given the great variability of the Bacchiglione currently recorded, and given all the interventions that may have modified, and in this case increased, the flow of this river from the modern age to the present day, it appears that the oncie used in the Padovano did not represent quantities such as those studied by Roveda, which, as we have seen in the previous chapter, were converted to numbers more similar to the current flow of the Piave and the derivative canals in Pederobba/Nervesa. In fact, the highest figure we have converted according to the data mentioned in that source for the Bacchiglione river in Longare would give us 1 m3/s, using the equivalences of the Milan ounce provided by Roveda, which contrasts sharply with the measurement taken in 2017 at Montegalda, several kilometres downstream from Longare, where an annual average of 9.90 m3/s is recorded, with peaks of up to 75.6 m3/s and a depression of 2.71 m3/s, see: Riccardo Guolo et al., 'Livelli e Portate Meedie Giornaliere Del Fiume Bacchiglione a Montegalda Negli Ani 2017-18', *ARPAV. Agenzia Regionale per La Prevenzione e Protezione Ambientale Del Veneto*, 2019, 9.

[112] Ib.: '(…) con le pietrepredette se sarà possibile, se non con palli grossi le qual siano per più di mezzo mio lontan una dall'altra (…)'

[113] Ib.: '(…) l'inimici tagliarono l'Arzere per drizzar le acque del Bachiglion verso Este'.

this was not very credible. If the water flow change from this demolition was in fact caused by troops, it was more likely that the Venetians had caused it prior to the Cambrai advance towards Padua. However, even without knowing who in fact had destroyed of the Bocca de Longare or who the members of the Brancaglia *consorzio* considered *inimici*, these systematic dyke destructions as a military strategy in the war of Cambrai can be seen as still present in collective memory and still with potential consequences five years after the signing of the peace treaty of the 1516 Treaty of Noyon, as they could have had in the 1521 floods.

b) The Memory of the Revolt of the Brotherhoods in the Ribera Alta

In the kingdom of Valencia, collective memory of war and violence appeared most distinctively in cases concerning the Ribera Alta region (*Fig. 13*, in chapter 3). During the interrogations conducted by bailiff Hieroni Nunyes after the 1568 destruction of the bridge over the Royal Canal of Alzira in Massalavés, both *sequier* Hipòlit Valero, who ordered the demolition, and nobleman Don Joseph Alonso del Milà, the baron of Massalavés, debated on the antiquity of the structure.

When Nunyes met both men by the demolition site on the south gate of Massalavés, Joseph Alonso del Milà pointed out the remains of the wall on the embankment which supported the bridge and contained the *capçals* or conducts that fed the contiguous drinking trough. Indeed, Del Milà was accused of having lowered these *capçals* in order to take "deeper" water from the canal, instead of feeding the tub with superficial overflow. Del Milà stated that the walls had supported an older bridge, the bridge of Paranget (*Pont de Paranget*), which had also been demolished[114]. He explained that "it could clearly be seen that it belonged to a very old construction", going back more than a "hundred or two hundred years" prior to the demolition. Del Milà justified this antiquity first by pointing out that the material –mortar– and building technique was so old that men of his time

[114] There used to be small hamlet within the barony of Massalavés named Paranget or Paranxet, south of the town of Montortal, and there is still nowadays a road and an irrigation canal called *séquia i camí del Palanchet*. See: Abel Soler Molina, *Massalavés: geografia, història, patrimoni* (Massalavés: Ajuntament de Massalavés, 2009).

"would not know how to build a similar bridge"[115]. He also explained that the Paranget bridge and the walls had been built at the same time that King James the Conqueror had ordered the building of the royal canal of Alzira, and that it had not affected water distribution as at that time, according to Milà, the towns had not distributed irrigation water by making *parades* or dams, but by simple shifts in which each town installed removable *norias* on the side of the canal[116]. The baron thus supported a quite unlikely theory, given that although it was very common in medieval *Al-Andalus* to feed small local irrigation networks with wheels that extracted underground water, Christian conquerors in the late 1200s found a proto-canal of Alzira that already fed mainly from deviation dams on the river Xúquer and not wells[117]. In other words, the predecessor of the Royal Canal of Alzira during the Muslim domination of Valencia was also built on a large-scale river system, and not domestic independent networks of water extracted from the underground.

Del Milà then said that it was not until 1488 that Alzira's canal authorities had decided to build distribution dams like the one downstream from the bridge, where Hipólit Valero had noticed a lower flow. He contrasted the later date of 1488 with the times of the conquest, in which his family had supposedly received a written royal right over the trough, which they had kept inside a cupboard in his family's castle[118]. He was therefore

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[115] AMA, Acequia Real de Alcira, Pleitos, 067/3: '(…) Es lo pont nomenat de Paranget, etiam per visura de la obra que huy resta en lo dit pont fu perquo est questió y argamasa de aquell se veu claramente e axí's veura com se fa vissura de aquell que es obra y argamasa y antiquissima e de pus de cent y dos cents anys y que de recort de homens nats no's acostuma de fer semblant manera de obra ni argamasa et ex premisis resta clar que la pretenció de la part altra no subsisteix (…)'

[116] Ib.: '(…) Al temps e quant lo sereníssim Rey en Jaume de indelible e inmortal recordació constituhi la cequia y lo pont segons la part altra preten que ha mes de trescents anys en la dita cequia no y havia feses ni partidors sino que tots los llochs, hortes y heretats regaven per tandes y ab certs caduffs e la dita part altra ne té noticia e sabiduría (…)'

[117] Peris Albentosa, *Regadío, producción y poder en la Ribera del Xúquer*, 31–34.

[118] Ib.: '(…) que en la dita vila de Maçalabess y en la vila de Alssira y en altres parts y llochs qu'es reguen de la dita çequia es publica vey y fama que lo dit abeurador y salt de aygua fonch concedit e ottorgat per lo sereníssim rey Don Jaume als señors y vassalls de la dita vila de Maçalabess (…) concedit un real privilegi per lo dit serenissim rey don Jaume lo qual privilegi estaba recondit e guardat ab molts altres privilegis e actes, processos y scriptures antigues en un armari que stava encajat en la paret de la segona sala del castell de Maçalabess e axí es ver e fama publica (…)'

blaming the backflow problem on the more recently built distribution dam, and not the older bridge, which would have cohabitated peacefully with irrigation activities along the royal canal since time immemorial[119].

In a nutshell, the baron of Massalavés aimed to demonstrate the old age of his bridge and trough and show that the accusations of disturbing waterflow made no sense, as the walls that supported both bridges were of the same height and nobody had complained for centuries. He also intended, by highlighting the ancientness of these demolished structures, that they had been there as part of the original royal project of the canal, and that they had the approval of the founding figure of the Christian kingdom of Valencia. On the other hand, Hipòlit Valero emphasized the "royal" aspect of his lineage as a royal *sequier*, the yearly elected administrator of a canal, when he said that he had received from the King complete power of deciding which stricture was rightfully built or not over the canal, without the need to ask for permission[120].

Insisting on the "royal" aspect of a bridge and tub or on tasks one believed to be royally compelled to perform was not just part of the general vocabulary of justice and legitimation in the kingdom. While it is true that the king and the 1238 conquest were frequently used as strong pleas in court cases, proving loyalty to the crown might have had an additional weight in the mid 1500s, especially in the hinterlands of the town of Alzira. In this sense, Hipólit Valero, after exposing how much the baron's bridge and trough altered the correct waterflow and distribution, admitted what had happened years earlier with the previous bridge, the Pont de Paranget, when the baron of Massalavés was Joseph's father, Pedro Alonso del Milà. Indeed, Valero's defence notary Hieroni Climent,

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[119] Ib.: '(…) que al temps en quant se feren e posaren los partidors en la dita cequia real que fonch en lo any mil quatrecents huitanta huit segons la part altra pretenja era fet y constituhit lo dit abeurador en la dita cequia real de la manera que hui esta perque aquell foncg fet quant se feu y constituhi la dita cequia y per dita rahó tenint consideració del aygua que ua llavors saltava y cahia per lo dit abeurador no donaren tanta aygua com hagueren donat a la dita vila y boronia de Maçalabess y lloch de Paranchet per los dos partidors que stan fets en la dita cequia dins lo terme de la dita baronia.'

[120] Ib.: '(…) Lo dit cereníssim Rey don Jaume lo conquistador e jatsia lo dit sequier tinga poder per a conservar y administrar la dita séquia (…) que estant lo pont de la manera que estaba construhit era impediment per la madera, canyes, e altres coses que venen e discorren per dita sequia'.

admitted to the prosecutor that the original bridge was torn down in times of the 'revolucions populars' ("popular revolutions")[121].

The *sequier* and his notary were referring to the 1519–1523 Revolt of the Brotherhoods or *Revolta de les Germanies* (J.H. Eliott translated *germanies* as "brotherhoods", from the word *germà*, thus "brother"), a conflict that started in late 1519, during the Plague and the Valencian nobility's flight to the countryside. Guilds in the city of Valencia formed armed militias– the so-called Brotherhoods–, believing that the nobility had too much influence in the government of city and kingdom[122]. Most of the rebellion was also fuelled by collective fear of *berberisco* (northern African pirates) raids on the coast[123]. After the *agermanats* –as the members, supporters or sympathisers of the rebellious Brotherhoods were called– were expulsed from the city of Valencia and their first leaders executed in November 1521, the rebellion fled and reorganised in other smaller cities of the kingdom[124]. The *agermanats* were victorious in the Battle of Gandía against royal forces, and the towns of Alzira and Xàtiva became the epicentre of the revolt in this central-southern region, resisting the longest before the rebellion was finally crushed in 1522[125].

Precisely it was in Alzira and Xàtiva that the conflict took a particularly millenarist view, with local charismatic leaders spreading the rumour of an imminent *berberisco* invasion of the kingdom, backed by the Ottoman sultan and the internal collaboration of the

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[121] Ib.: '(…) la necessitat que y avia (…) de referse lo dit pont y no's pot pretendre la pretessa possessió perqué lo any mil cinchcents vint y hú y vint y dos fonch lo temps de les revolucions populars del present regne lo dit pont fonch derocat (…)'.

[122] Ricardo García Cárcel, *La revolta de les Germanies*, Descobrim el País Valencià 3 (València: Institució Alfons el Magnànim, 1981); Ernest Belenguer and Àngel Casals, 'Las Germanías del Reino de Valencia', in Lorenzo Abad Casal et al. (eds.), *Historia del pueblo valenciano*, vol. 2 (Valencia: Levante, 1988), 373–92; Guiral-Hadziiossif, *Valencia: puerto mediterráneo en el siglo XV (1410-1525)*, 569–75. One of the most detailed recent works on the Germania based on a colossal and heterogeneous collection documents is Vicent Vallés Borrás, *La Germanía*, Arxius i documents 29 (València: Institució Alfons el Magnànim, 2000).

[123] John H. Elliott, *Imperial Spain. 1469–1716*, 9th ed. (London: Pelican Books, 1985), 156.

[124] Vicent Vallés Borrás, *La Germanía*, 16.

[125] Tomàs Peris Albentosa, *Història de la Ribera: de vespres de les Germanies fins a la crisi de l'Antic Règim (segles XVI-XVIII)* (Alzira: Bromera, 2001).

kingdom's *Morisco* population[126]. This, and the fact that the *Moriscos* of feudal manors such as Massalavés, as vassals of the nobility, also participated on the royalist side in Gandía, led to violent campaigns of forced conversion and baptism of Muslims, which the noblemen did not approve of, since converted *Moriscos* would no longer have to pay nobles the entire levy[127]. Anti-*Morisco* sentiment among the Christian population of the main cities in the kingdom of Valencia should not be underestimated in any inter-communitarian conflict between inland seigneurial manors and cities in these decades of the 16th century in Valencia, including water disputes, and this case of Massalavés in 1568 is not the only one in Valencia during the central decades of the 16th century in which water authorities employed terminology or practices typical of the earlier decades of the century, where the anti-seigneurial sentiment and the suspicion of a Moorish conspiracy typical of the Revolt of the Brotherhoods were articulated in everyday practices of quotidian water use punishment. For instance, in the case discussed previously in Chapter 4 concerning the metrological confusion on the *fila* as a unit of measurement or as fractional portion of the Riu de Morvedre between 1552 and 1554, and in which four inland seigneurial hamlets belonging to two lordships claimed to have the right to a *fila* of water from the Séquia Major de Morvedre, managed by the municipal authorities of the town of Morvedre, Gaspar Gallego, a ninety-year-old first generation converted *Morisco* serf from the town of Albalat, when interrogated by the Real Audiencia said that about ten years before 1554 he was caught irrigating after the allowed turn and that Morvedre's *sequier*, "a certain Beltrán", had fined him not with the payment of a monetary sum, but by directly storming into his house and seizing a crossbow Gallego possessed[128]. Having a municipal Christian authority such as the municipal *sequier*

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[126] Medievalist David Nirenberg went as far as to call it a "post-plague" revolt motivated by "crusade-ideology", see: David Nirenberg, *Communities of Violence* (Princeton, NJ: Princeton University Press, 1998), 16. A century later, when expelled, the *Morisco* population, according to syntheses of recent studies, was around one quarter of the population of the kingdom, see: Eugenio Císcar Pallarés, 'Los moriscos en Valencia', in Antonio Moliner Prada (ed.), *La expulsión de los moriscos* (Barcelona: Nabla, 2009), 152.

[127] Louis Cardillac, *Moriscos y cristianos. Un enfrentamiento polémico (1492–1640)* (Madrid. México DF. Buenos Aires: Fondo de Cultura económica, 1979), 109.

[128] ARV, Real Audiencia, Procesos, III Parte, Apéndice, 6294: 'En Gaspar Gallego nou convertit vassall vehí i habitador del loch de Albalat de Segart de edat segons aquell dix de novanta anys de present attrobat en lo dit loch de Stivella testimoni lo qual jura a nostre senyor Deu dir veritat (…) E dix que lo qu'ell dit testimoni sab es lo que segueix çoes qu'esta en veritat que de tot son record a esta part e tostemps ha vist

disarming a *morisco* serf seems to be in line with the practices carried out in the decades following the *morisco* rebellion in the Sierra de Espadán in 1525–1526, a dozen kilometres inland to the north of Albalat and Estivella[129]. This episode in which the *morisco* vassals took up arms in the inland mountains to the northwest of Morvedre, including the village where Gaspar Gallego lived, in response to the revolt of the Brotherhoods by social exponents of the Christian and urban context of the kingdom, stimulated the generalisation and almost systematic disarmament of the *morisco* population on behalf of both municipal – including water boards – and royal authorities in Valencia, a process that Jorge Antonio Catalá Sanz and Sergio Urzainqui Sánchez link to the final expulsion of the *morisco* population from the kingdom in 1609-1613[130].

Yet, while Gaspar Gallego, on one side, conscious of being a nonagenarian serf and first generation converted *morisco* when speaking to the representatives of the Crown's justice, only makes a laconic mention of the measure taken by the *sequier* years before 1554, while, on the other side, the terms used by the evidently more privileged *sequier* of Alzira and baron of Massalavés in 1568 revealed more information about the tense political and social context in which their water dispute was taking place. Thus, Don Joseph Alonso

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praticar que los cequiers de la cequia de Morvedre an acostumat de repartir l'aygua que discorre per la dita cequia la qual passa per lo terme del dit loch de Stivella de esta manera çoes donant un dia al dit loch de Stivella de sol a sol una fila d'aygua e lo dia apres seguent axí mateix de sol a sol la mateixa fila d'aygua a costum e pratica de partirla dita aygua en la forma d'amunt dita e es en recordant que essent cequier hun qu'es diu Beltran que hauria dis anys poch mes o menys trobat regant un dia a ell dit testimoni per que dix que lo sol ya era eixit lo executa en seçanta sols y la tragué una ballesta en penyora de casa haçò e no e de present quant lo penyora per dita rahó e dix que molts del dit loch de Albalat ho saben per haverlo ell dit testimoni publicat en dit loch'.

[129] After the violent forced conversions that some inhabitants of Morvedre had carried out on the Muslim *Morisco* serfs inland during the anti-seigneurial Revolt of the Brotherhoods in 1520–1523, King Charles I's (Charles V of the Holy Roman Empire) theologists had validated some of these conversions. At the town of Algar, where the Séquia Major de Morvedre irrigation canal started, a *Morisco* leader by the name of Carbau, who later presented himself with the more "caliphal" epithet of "Solim Almanzor", or "Surely Victorious", called to arms the region's *Moriscos*, who rebelled against the Christian authorities, denying their conversion and performing collective acts of apostasy: Baltasar Rull Villar, *La rebelión de los moriscos en la Sierra de Espadán y sus castillos* (Valencia: Sucesor de Vives Mora, 1960); García Cárcel, 'La revuelta morisca de Espadán'; Díaz Serrano and Javier Ruiz Ibáñez, 'Espacio, rebelión y religión en la Monarquía Hispánica del siglo XVI', 2010, 46–51.

[130] Catalá Sanz and Urzainqui Sánchez, 'Armas después del desarme'.

del Milà, baron of Massalavès, did not actually employ the same term as his counterpart *sequier* and his notary, who spoke of 'popular revolutions' ('revolucions populars'), when interrogated about the demolition of the previous bridge and drinking trough in 1521–1522. He instead named the conflict 'the treacherous brotherhood' ('la perfida Germania'), and defined its advocates as rebels and "rebellious and disobedient to his Majesty". He then reminded the prosecutor, Hieroni Nunyes, that it was known that Alzira, apart from a few rare "noblemen and men of good" who served the King, was populated with *agermanats*, as it was the last town in the kingdom to capitulate to the King's troops[131]. He then went on about the role that his father Pedro and his uncle Joan, together with their loyal vassals of Massalavés, had in defending the kings' cause, even ceding their houses to the royal army[132]. This would have caused the animosity of the rival neighbouring rebels of Alzira, who stormed the town of Massalavés twice after the

[131] AMA, Acequia Real de Alcira, Pleitos, 067/3: '(…) Y ab tota veritat lo dit noble don Joseph Alonso del Milà no folga ni repcontentació en que la dita aygua dexe de discórrer per la dita sequia perque ultra de planyerse de pesarli del dany que aquell y sos vassalls reben, se dol entranyablement del que pateixen los altres regants de dita sequia e si la part altra vol remediar lo dit dany en la sua ma esta tornant a reydificar lo dit pont en la forma qu'estava ans de demolir y derroquar aquell tant voluntàriament e nos vol olvidar aquesta part de satisfer al que últimament es estat derrocat en la Germania e après tornat a reydificar e que hultimament sea fet un peu per a que ab tota veritat tal cosa nos pota in eternum provar ans ultra de constar que lo pont qu'es derroca en la Germania era mes baix en dita sequia, a saber es lo pont nomenat de Paranget (…); Item diu ut supra que en lo temps de la Perfida Jermania lo poble de la dita vila de Algessira, exceptats los cavallers y homens de bé, los quals serviren fidelíssimament a sa Magestat ab ses persones y bens tots los demes foren ajermanats rebelles y dessobedients a sa Magestat (…) injuriam loquendo en tant que la darrera terra qu'es reduhí en lo present regne a ser vey de sa Magestat fonch la dita vila de Algessira e axí es ver e fama publica e la dita part altra sab, creu y té per cert lo que dit es per havero vist e hoyt dir moltes vegades. XXXXVII Item diu ut supra que en lo dit temps de la pèrfida Jermania lo noble Don Pedro Milà pare del dit propossant e lo noble don Joan del Milá, oncle paternal de aquell serviren molt be a sa Magestat com a cavallers de molta valor (…)'. '(…) En lo temps de la perfida Jermania, lo poble de la dita vila de Algessira, exceptats los cavallers y homens de bé los quals serviren fidelissimament a Sa Magestat ab ses persones y bens, tots los de més foren ajermanats rebelles y desobedients a Sa Magestat citra injuriam loquendo en tant que la darrera terra qu'es reduhi en lo present regne al servey de sa Magestat fonch la dita vila de Algessira (…)'

[132] Ib.: '(…) lo noble don Pedro Milà pare del dit propossant e lo noble don Joan del Milà oncle paternal de aquell serviren molt bé a sa Magestat com a cavallers de molta valor y honra ab les persones y bens e lo mateix seren los vasalls, vehins e habitadors de la dita vila e baronia de Maçalabess los quals serviren fidelissimament a Sa Magestat e tingueren aposentats en Maçalabess molta part del exercit Real que estava contra la vila de Algessira (…)'

royal army had left, bearing banners and striking drums. According to the nobleman, they plundered houses, stole livestock which were made to carry stolen grain and other belongings, after which the bridge of Paranget was torn down, along with the drinking trough by the royal road of Xàtiva and the royal canal of Alzira. These violent episodes, memories of Joseph Alonso del Milà, not only served in court as examples of long-lasting resentment between Alzira and his barony. Their recollection also served the baron as a fundamental explanatory detail for why he could not prove the royal privilege supposedly granted by James I to the bridge and trough. Indeed, he said that the Brotherhoods had burnt the castle, including the previously mentioned family archive cupboard, losing precious books, judiciary documents, royal privileges, and, importantly *cartes de censals*, thus letters proving the right to receive tithes[133].

Therefore, Hipòlit Valero's admission to Nunyes that the former bridge and tub had been demolished almost fifty years before, in *temps de les revolucions populars*, gave the baron of Massalavés an opportunity to scrupulously recite an episode he had not mentioned before in his first complaint. In other words, he first stuck to the strictly technical hydraulic circumstances of 1568 from his earlier account but soon proceeded to give a detailed account of social unrest, in which Valero's town represented those who had seditiously attacked royal and noble privilege. Along the way the baron mentioned a series of well-known pre-modern *repertoires of contention*: organising pillaging squadrons, beating drums, waving banners and burning feudal documents, especially those concerning tithe collection. He furthermore attempted to prove continuity in Alzira's antiroyal tendencies, as he described similar demeanours for the 1568 bridge demolition, stating that Valero and his fellow board members had arrived at the site armed

[133] Ib.: '(…) per dita rahó los ajermanats de la dita vila de Algessira conceberen tan mala voluntat al dit don Pedro e particulars de dita vila e baronia de Maçalabess que anant-sen de alli lo exercit real hixqueren dos vegades de Algessira ab esquadrons fets y hanaren ab banderes y ab tanbors ba exercit format al castell y vila de Maçalabess y cremaren per dos vegades lo dit castell y casa de señor y les cases dels vassalls y robaren y saquejaren tota la roba qu'ey havia y s'en portaren tots los anmals de la dita baronia carregats de roba y lo forment que estava per a batre en les heres, lo cremaren perque noss'en poguessen aprofitar los vasalls y servidors fidelissims de sa magestat (…) L. Item diu ut suppra que entre les altres coses que cremaren en lo castell de Maçalabess fonch lo dit armari en lo qual estava lo dit real privilegi recondit y guardat ab tots los altres actes, libres, processos, cartes de censals, privilegis, senténcies reals e altres actes tocants e pertanyents a la dita baronia de Maçalabess (…)'

with swords and other "offensive arms". According to the baron, they had also taken advantage of his absence that day, as he claimed to have been in Valencia, in order to demolish the bridge by taking matters into their own hands ('propria autoritat'), without having to ask the baron for permission, similarly to how the Brotherhoods of Alzira in 1521 had struck Massalavés and its population as soon as the royal armies had departed[134].

Yet was the destruction of the bridge and trough in 1568 also an attack on royal authority, as Del Milà stated after hearing about the fate of the previous bridge in 1521? Hipòlit Valero reminded the prosecutor that the kings of Aragon had given to the town of Alzira the privilege of voting annually a *sequier* for the royal canal, alternating each year between a nobleman and a citizen of Alzira[135]. Valero played down the baron's version of Alzira's endemic disloyalty to the monarch, highlighting the institutional links the town and its irrigation canal had with the Aragonese crown. He also minimised any possible anti-seigneurial affinity of the institution he represented, showing that his position had been held by both opposing social estates in the animosities of 1520-1522. It is well known that most Late medieval and Early Modern forms of anti-seigneurial subversion, millenarism or persecution claimed to be on the true "loyal" side of monarchs and, as noted by Vicent Borràs Vallés, the Revolt of the Brotherhoods sparked by a religious sermon in 1519 Valencia that ended with "long live the King, and death to injustice" (*viva el rey i muyra la mala justícia*)[136]. Both the baron of Massalavés and the royal *sequier* of Alzira believed to have the monarch on their side and saw the other as having subverted the king's will. Thus, in this case it is confirmed that in the arbitration of a conflict initially

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[134] Ib.: '(…) que lo magnífich Ypolit Valero e altres ab ses espasses y altres ab armes offencives y deffevcives di fet e per sa propria autoritat a dihuit del propassat mes de Febrer anaren a la dita vila de Maçalabess y no estant en aquella lo dit Don Joseph Alonso ni altra persona per a quell, derrocaren y desferen lo dit pont (…) de manera que de llavors no's pot pasar ni's pasa per dit pont (…) persones dignes de fe diràn e testificaran per esser axí la veritat que al temps e quant lo dit Ypolit Valero e los altres de la dita vila de Alzira derrocaren lo dit pont segons dit es dessus lo dit don Joseph Alonso estava en la present ciutat de Valencia'.

[135] Ib.: '(…) en la dita vila de Algezira cascun any se fa electió de un cequier real, lo un any de cavallers y lo altre de ciutadans, lo qual per privilegis particulars in corpore privilegiorum insertats, contendits e otorgats per los Serenissims Reys de Aragó (…)'

[136] Vicent Vallés Borràs, *La Germanía*, 71.

concerning water infrastructure, political terminology reflecting the political tensions of the period was employed. The state, in the case of Valencia the Crown, functioned as an element of ideological identification and legitimation for both parties. While the feudal lords of the interior and the cities of the coastal plains contended over who was more loyal to the institutions of the monarchy, the viceregal authorities presented themselves as the only possible representatives capable of mediating between lords and villains in their inter-communitarian water disputes.

c) Water transgressions a pretext for violence, or violence a pretext for water transgressions?

Shared reminiscences of the war of the League of Cambrai and the revolt of the Brotherhoods had therefore infused water-related conflicts in local communities, lingering decades after stately accorded peace. Both plaintiffs and accused would easily employ such terms as *inimici*, *perfida,* or *rebelles* to talk about the counterpart, evoking a context of disorder and social antagonism that a priori appeared separate from matters of water management. Yet the question remains whether in these cases water was being utilised as an incidental pretext for the resolution (or rekindling) of broader conflicts or, on the contrary, times of disorder and external strife were an opportunity to exert central interests in water management that lay dormant among local communities in times of peace.

Geoscientist David Kreamer, speaking about our present times, defines "water as an Instrument of Conflict", and concretely in the case of water scarcity, he states that it "can foment regional tension and conflict, encourage border disputes, and can be the focus of terrorism, local tribal and ethnic warfare, and political contention in the context of competing economic development"[137]. He also notes that "in the past decade, water disputes have not produced large-scale global war but regional fights and local wars have often have used water as a part of a stratagem to advance political goals", speaking about water conflict sparking in parallel with the division crisis in the early 2000s in Sudan[138].

[137] David K. Kreamer, 'The Past, Present, and Future of Water Conflict and International Security', *Journal of Contemporary Water Research & Education* 149/1 (2012): 88–89.

[138] Ib., 90.

In the case of the river Sénia, traditionally the northern border of the kingdom of Valencia and the southern limit of the Principality of Catalonia, currently between the provinces of Tarragona and Castellón, it has also been recently discovered how century-long stagnant conflicts between private millers from the Catalan side and the municipal authorities of Vinaròs over the control of the river's hydraulic power intensified during the Spanish War of Succession (1701–1713), peaking with the occupation of one mill by the inhabitants of Vinaròs with heavy artillery[139]. Similarly, in the 19th century Camp de Morvedre, it was common to encounter armed village militias assaulting distribution dams and burning irrigation board guard huts, a phenomenon that intensified during the first Carlist war (1833–1840) and a coup d'état in 1843 against the regent of the Spanish Crown, General Espartero[140].

The case of the Bocca di Longare between the Bisatto canal and the Bacchiglione was not of defined planned intentions to take advantage of conflicts to enforce local interests in water management. The local communities attributed the switch of canal currents between the two water bodies to the actions of an external foreign actor, the troops of the League of Cambrai. The *consorti* of the Brancaglia canal complained to the Venetian magistrates of a tactical modification made in times of disorder (flooding the Bassa Padovana and impeding navigation towards Padua in the Bacchiglione). The involved parties were therefore concerned exclusively with a water-related problem, the quantity of water of the Bacchiglione released into the Bisatto canal, and with the origins of the problem in the War of the League of Cambrai.

Unlike the latter, the dispute between the Baron of Massalavés and the authorities of the Royal Canal of Alzira points to a different situation. The question of water rights and royal protection of the canal and adjoining structures opened on a broader subaltern world of social confrontation, not only representing an irrigation conflict with the language of

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[139] Jordi Arasa Centelles, Toni Forcadell Vericat and Ivon Michavilla Sanz, 'Els litigis per l'us de l'aigua. El sistema hidràulic del riu de la Sénia a l'època moderna. El sistema hidràulic. Característiques generals', in Thomas F. Glick, Enric Guinot Rodríguez, and Luis Pablo Martínez Sanmartín (eds.), *Els molins hidràulics valencians. Tecnologia, història i context social* (València: Institució Alfons el Magnànim, 2000), 395.

[140] Ferri Ramírez, *Terratinents, camperols i soldats*, 85.

factionalism and war, but also signalling a material interest of Alzira in eliminating anything concerning the barony's privileges, targeting the castle's archive in times of revolt. Yet it certainly also responded to a concrete interest in removing these specific structures from the royal canal, taking advantage of the Revolt of the Brootherhoods to get rid of the first bridge of Paranget in 1521, and of the baron not possessing the document guaranteeing the royal protection for the second bridge in order to dismantle it in 1568. Strife between Massalavés and Alzira had two circuits that interacted, one the specific problem of water current, and, two, the general picture of municipal opposed to seigneurial interests.

Chapter conclusion

Water management in the Venetian Terraferma and the central kingdom of Valencia sometimes gave rise to acts of violence, from the rare cases of physical aggression to more common destruction of material structures. Dykes, dams, embankments and bridges were potentially seen as obstructive by those who opposed the interests they served. Whether under state or local authorities or simply by initiative of private individuals, the demolition of these obstructive elements was mainly justified by their having modified a supposedly correct flow of water. Builders or demolishers were accused of capricious appropriation of water against the common good. For instance, the majority of the *denunce* to the *equites* or *cavalcantes* (horse-back watchmen) of the *Ufficio alle acque* of Treviso employed this very rhetoric depicting an individual or group perpetrating a serious *danno* (harm) against the interests of the *ville e campi inferiori* – "the towns and the fields downstream"[141]. Similarly, irrigators in Valencia – *hereters* – would claim that modifications to their canal caused serious harm and detrimental damage (*dany i preiuhí*) against every inhabitant's interest and the *immemorial order* of the canal in question[142]. In judging these structures as obstructions to common interest, those who demolished them related their acts to a form of agrarian economic justice sometimes in conflict with the official stately legal corpuses. These contradictory perceptions of law and water use were the principal cause of the incidents. Opposing accusations of flooding or stealing water were common justifications for aggression and demolition, followed by inquiries into the ancientness of the destroyed, modified or built structures, as well as into the given customary right of water use.

It is in this memorial exercise of legitimising customs that other factors of conflict can be recognised. Violence conducted against water structures, and more rarely against rival waterway beneficiaries, cannot be conceived as linked to questions of agricultural production and water transgressions alone. Legal court cases indicate that underlying aspects pertaining to *a priori* distant matters of social and territorial tensions fuelled

[141] ACP, Libri Denunce, 1–5E.

[142] ARV, Real Audiencia, Procesos, II Parte, Letra S, 672: '(…) dita provisió feta aquella es estada u es feta contra los expressos capítols, stabliments, constitucions e orde inmemorial de la dita cequia y en gravíssim y molt evident dany y periuhí de tots los vehins e particulars (…)'.

violent water-related infractions. Debate over water management customs shifted between descriptions of specific bodies of water and external vocabulary linked to armed conflict. Political and social tensions among rival communities seem to have been more present in water litigations in the kingdom of Valencia, notably between noble estates and their serfs on one side and municipal authorities on the other. In the Venetian Terraferma, recollection of broader social violence did not taint legal sources of water disputes as often, evoking instead a general collective memory of unrest and foreign invasion. Still, violent incidents concerning water in these parallel geographical and chronological contexts had in common that issues of water current and its service to agricultural activities, and more rarely to transportation and navigation, intertwined with wider issues, such as foundational narratives of political loyalty to the state, be it the Spanish Crown of emperor Charles during the Revolt of the Brotherhoods or the *Serenissima* during the war of the League of Cambrai. In other words, local water boards served as political platforms in which communities attempted to resolve or rekindle political problems that belonged to a broader spectrum than that of the strict water-related conflict.

Conclusion

A history of water management for agricultural purposes is a political and social history. It is political not only because it requires an understanding of the functioning of both local and centralised institutions, their hierarchy, and their different responsibilities, but also because it involved plunging into the societies' conceptions of water and the infrastructures that contained it as assets that demanded constant interaction among diverse individuals and social groups. Communitarian institutions, organised around single shared canals, were perpetuated at a primary level as platforms for coordinating a particular model of water distribution, depending on which social or political group had established itself as manager, while also overseeing maintenance, surveillance, punishment, and the collection of financial contributions. At a second level, however, they served the communities as the most immediately accessible arena for the establishment of dialectical dynamics among different interest groups, factions, and other local combinations of power present in the territories, concerning not only water distribution but also social conflict in a broader sense. This situation was defined in two ways: on the one hand, by a conception of water in the strict sense as a resource to be controlled and distributed, and on the other, by the use of communitarian institutions as legitimate forums for the expression and development of social conflict.

These two circuits—on the one hand water management, and on the other arbitration between community members—provided fertile ground for the emergence of more centralised forms of government, which took advantage of their status as an external power alien to communities to establish themselves as the sole manager, arbiter, and judge. This shift became especially visible in the irrigated peri-coastal floodplains of the western Mediterranean, such as the central regions of the kingdom of Valencia between the Riu de Morvedre (currently the river Palància) and Xúquer, or in the coastal and lagoonal arc of the Venetian mainland between the Piave and the Po. From the central Middle Ages onwards, the construction, maintenance, and distribution of water canals in these areas had generally fallen under the responsibility of local institutions, the *consorzi* and the *comunitats*, which oversaw shared works and arbitrated disputes concerning the use of single canals, for each canal derived directly from a river typically constituted one *comunitat* or one *consorzio*. The sudden increase in 16th century documentation

concerning water conflicts, preserved in the archives of the main governmental and judicial bodies of the jurisdictional centres of the emerging modern states, indicates the growing interest of these authorities in matters previously handled at a primarily communitarian or municipal level. Unlike the itinerant medieval courts, these modern institutions were hierarchical, centralised, and established in fixed locations. Their concern was particularly evident in the complementary tasks of drainage and irrigation.

Although historiography has long examined the question of communitarian water management across diverse territories and contexts, the period at the beginning of the Early Modern age, between the 15th and 16th centuries contributes to its insertion and relation with ordinary state justice during the forging of central magistracies that grew present in territorial domains previously essentially governed by local nobility, municipal councils and rural communitarian councils. This is particularly true with regard to the intersection between governmental appropriation of pre-existing institutional structures and local political practices, and the dynamics of political and judicial domination that concentrated power within these modern centres. These were embodied in the courts and senates of the Terraferma, branches of the Republic of Venice, as well as in the royal courts of the kingdom of Valencia, a constituent entity of the Aragonese and later Hispanic Crown.

Two different, if not opposing, jurisdictional and proto-constitutional logics shaped the gradual intrusion of the state into the basic institutional units of irrigation and water management in the Venetian irrigated plains and in the *hortes* and *vegas* of Valencia. The viceregal authorities of Valencia, drawing on the Aragonese tradition of *pactismo* or contractual negotiated monarchy, appear in the normative sources as generously granting the *comunitats* full powers to manage the waters of the irrigation canals. This emulated what King James I the Conqueror had established centuries earlier, with King Ferdinand II renewing the privilege at the courts of Monzón in 1510. By contrast, the patrician senators of Venice conceived of themselves as the embodiment of dominion, ready to take formal possession of the inland territories under a logic in which the Republic became the guarantor of water management as a “universal good”, creating technical bodies charged with designing large infrastructures intended to “govern the waters”.

Yet in the daily practice of administering justice, procedures emerged that allow us to nuance the state narratives that had inspired various water policies. In reality, the royal and senatorial judicial logics projected by legislative and technical-administrative bodies of government—such as the *Savii alle acque*, the *Provveditori sopra i beni inculti*, the *Real Audiencia*, or the *Gobernación*—tended to adapt to local territorial, social, and political realities in different regions. At times they softened their imposing rhetoric, while at other times they asserted a stronger presence in the executive sphere of user communities, positioning themselves as agents of arbitrary and punitive authority. In other words, given the number of legal proceedings concerning water conflicts within irrigation communities in the 16th century dealt with by the *Real Audiencia* and the *Gobernación*—together with the long delays and abandonment of litigations between *consorzi* due to non-payment of the *campatico*, or to the demolition, modification, and infrequent maintenance of common water infrastructure—it becomes clear that neither the agents of the Spanish Crown consistently left the arbitration and sanctioning of water conflicts in the hands of local communities and authorities, nor did Venetian magistrates uniformly assume the role of sole guarantors of a form of "water governance" intended to produce "universal benefit."

Water management in these territorial and agro-productive contexts is therefore a history of the exercise of power that goes beyond the mere description of normative principles or communitarian practices of irrigation and justice in everyday life and ordinary time. Rather, it is within these routine gestures that one can discern the limits of the consolidation of modern states over the territories where they presented themselves as sovereigns, since the weight of micro-regional conditions obliged those dispatched from the centres of power to resolve infrastructural problems by adopting positions of constant negotiation.

The theoretical boundary drawn by Karl A. Wittfogel between *hydraulic* societies, which he regarded as the origin of strongly vertical and consolidated governments, and *hydro-agricultural* societies, where more horizontal and proto-democratic models of domestic water management would emerge, appears in the discussed comparative historical study

as a blurred and unstable line[1]. The attempt to control water justice developed in an interactive framework between these two spheres, in which top-down visions and ordinary local management coexisted and constantly interacted, producing a fragile balance between communitarian interests and wider models of territorial power represented either by mediators sent from the Venetian Senate to the irrigation and drainage canals or by procurator fiscals dispatched from the royal courts of justice in Valencia.

Thus Wittfogel's vision of water management as a political phenomenon of state-building, whereby large and complex works such as the *conterminazion* of the Lagoon or the reservoirs projected by Italian engineers in the service of Philip II in the southern regions of the kingdom of Valencia enhanced the ideological presence of centralised modern states, stands in contrast to his claim that smaller irrigation canals built anonymously by rural communities would in theory have generated proto-democratic and autonomous local governments[2]. This dichotomous interpretation of stately, bureaucratic, and hierarchical models as isolated from the local, oral and domestic circuit, is contested when studying the sources witnessing water conflict in the beginning of the Early Modern period, which mirrored heterogeneous political concerns on water management.

This mechanistic interpretation which separates top-down water concerns, represented by large state infrastructures, from local agricultural concerns, represented instead by small and simple infrastructure, derives from a preponderant reading of normative sources, whether customary or linked to early attempts to frame proto-constitutional legal codes, as well as from technical reports that generate an often excessively archaeological and qualitative view of infrastructure and landscape. In other words, large rivers, dams, and costly or technically complex works have at times inspired statist readings, while small infrastructures have been portrayed as remaining in an eternal and primitive state of

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[1] David H. Price, 'Wittfogel's Neglected Hydraulic/Hydroagricultural Distinction', *Journal of Anthropological Research* 50, no. 2 (1994): 187–204.

[2] On the technical, political and ideological perception of royal reservoirs in Alicante in the Early modern and contemporary periods: Armando Alberola Romá, 'Tibi, Una Presa Modélica de Fines Del Quinientos. La Visión de Cronistas, Viajeros e Ingeniros de Los Siglos XVII al XIX', in Ib. (ed.), *Cuatro Siglos de Técnica Hidráulica En Tierras Alicantinas* (Alicante: Diputación Provincial de Alicante. Instituto Alicantino de Cultura Juan Gil-Albert, 1995).

common and "stateless" management. Yet in the petitions addressed to the *Savi alle acque*, and still more frequently to the *Provveditori sopra i beni inculti*, in the complaints lodged by canal users, and in the trials and interrogations conducted along the Valencian irrigation canals in the *Real Audiencia* and in the *Gobernación*, in the administrative centre of the kingdom, hybrid forms of water justice emerged, with lengthy debates on the nature and condition of the infrastructures that reveal a fragile and heterogeneous conception of them, and a bargaining negotiation between centre and periphery involving users and stakeholders in agricultural exploitation across all types of infrastructural frameworks, whether in large projects such as the drainage of broad sectors of the Bassa Padovana through the Gorzon canal, or on the peripheries of the capillary irrigation ditches of the northern section of the Montcada canal, where they met the southern irrigation network of Morvedre, concretely the Gausa canal.

This limitation of viewing infrastructure merely in terms of size and structural complexity in relation to one form of government or another provoked lengthy debate among historians concerning Wittfogel's conclusions for both the regions crossed by the Po in northern Italy and the Spanish-Andalusian models of irrigation[3]. In the former case, he argued that despite the infrastructural complexity of medieval and modern hydraulic works in the Po Valley, there were no examples of hydraulic despotism, since they corresponded instead to small-scale *hydro-agricultural* interventions and interactions carried out by local communities. In the case of the eastern and southern Iberian Peninsula, by contrast, he maintained that it was a despotic system in which the caliphs, and later the Christian monarchs, were required to impose rules for the management of scarce common resources. Both of these postulates have been refuted, since although Wittfogel was not entirely mistaken in his intuition that in both the Terraferma and the plains of Valencia the management of water and agriculture reflected political dynamics that contributed to the consolidation of the state, his error lay rather in attributing to the state the role of a despotic architect of water infrastructure instead of recognising it as a mediator gradually intertwining itself in conflicts among subjects, as is revealed by the petitions and proceedings addressed to Venetian and Valencian magistrates.

[3] Wittfogel, *Oriental Despotism*, 12.

In the case of Venice, it is difficult to separate the city's major hydrogeological concerns from the water policies projected onto its mainland territories from the beginning of the 16th century. The debates between Cristoforo Sabbadino and Alvise Cornaro undoubtedly created an important governmental awareness among the patricians who composed the oligarchic structures of the Serenissima on issues of lagoon management, reflecting a genuine alarm within Venetian society about protecting the environment and safeguarding the fragile amphibious balance that characterised the lagoon habitat. This sense of alarm led to the creation in 1501 of the first hierarchical institution and technical authority serving the Republic, the *Savi alle acque*, whose task was to coordinate large infrastructural projects while punishing any misuse of the infrastructures that threatened two fundamental aspects of the lagoon city: the urban habitat and navigation. Yet it was the establishment of the *Provveditori sopra i beni inculti* in 1556, influenced by earlier thinkers interested in maximising agriculture such as Cornaro, that marked a departure from this essentially lagoon-oriented policy, shifting the emphasis towards land from the mid-16th century onwards. By then, Venetian water policy no longer centred primarily on the systematic defence of the Lagoon and was preparing to establish itself officially among the agrarian economic and institutional frameworks of the recently conquered Terraferma. However, this intention projected from the city already revealed in practice considerable limitations, as demonstrated in the first major project of the Gorzon canal. There, the heterogeneous dynamics between the state and local communities exposed, on the one hand, the limits of regulatory policies imposed upon the *consorzi* of the territory, particularly in fiscal matters, as local resistance hindered the attempts of the Venetian *Provveditori sopra i beni inculti* to persuade local actors to contribute. On the other hand, the petitions submitted to this office by regional stakeholders disclosed conflicting perspectives, as they questioned the usefulness of drainage and the sowing of cereals that the Venetian government sought to promote over crops cultivated prior to the rule of the Serenissima, thereby presenting heterodox conceptions of what was considered useful or useless, fertile or barren.

The Spanish-Aragonese rhetoric of territorial compromise also fostered exaggeratedly irenic visions of Valencian irrigation, first elaborated by scholars of the 18th and 19th centuries and later reinforced by studies of contemporary management following the reforms of the 19th century, in which the preponderance of feudal aristocratic actors and urban elites that is revealed in the arbitration records of the early modern period appears

largely unacknowledged. The presence of the lord of Catarroja or the lord of Dos Aguas as members of the *comunitat* of the Favara canal, or the membership of the nuns of Saint Clare in the *comunitat* of the Rovella canal, demonstrates a more fluid, interwoven, and malleable social identification of power structures within communitarian management that transcends the retrospective vision of the *comunitats* as platforms of essentially 'farmer' self-government. Another theoretical assumption that is contradicted by the circumstantial evidence of Valencian water conflicts is the idea that membership of the *comunitats* was strictly local and micro-regional, confined to well-established hydrographic networks, as members of irrigation boards also resided far from rural water networks in the main cities, often not knowing about, and thus not acknowledging, members who did live in parochial contexts, mainly in further and secondary branches of the network. This is illustrated by the case of the irrigators of the Arrif district, who were not recognised either by the institutional representatives of Montcada, belonging to the Guadalaviar system, or by the municipal authorities of Morvedre's Gausa canal, and whose authorities seemed equally confused about their existence and the jurisdiction they should have belonged to.

The categorisation of the social status of the members of the Venetian *consorzi* is also complex and cannot be conducted in an essentialist manner, for the ordinary management of the drainage and irrigation canals of the Terraferma, although predominantly in the hands of the Venetian patriciate, it was not of an exclusively aristocratic nature, as has sometimes been maintained in earlier interpretations[4]. Rather, the Venetian component of the *consorzi* was confronted with multiple jurisdictional realities with which they had to cope *inter-pares*, each with heterogeneous socio-economic interests, and varied institutional allegiance, which included the local pre-Venetian nobility, and the rural communities, such as those of the Alto Trevigiano, or those in scattered hamlets belonging to communal districts such as the *Magnifiche comunità* of Este, Adria, or Badia. At the same time, the *consorzi* operated as platforms for political dialogue between different social groups, often marked by conflicting interests, in contrast to the notion that was later projected upon 20th century *consorzi*, in which all members shared a rather unanimous will of covering collective expenses for a clearly defined common agrarian productive

[4] Ciriacono, 'Transfert Tecnologico'.

purpose[5]. Indeed, numerous examples of internal conflict can be found in the *consorzi* of the 15th and 16th centuries, in which members defended contrasting interests: thus the Pisani and Mocenigo families, members of the Lower course of the Gorzon *consorzio* and committed to cereal cultivation, clashed with the Paduan nobles of the Polcastro family, who also belonged to the same *consorzio* but were invested in lake fishing and therefore favoured the partial drainage of wetlands; or, in another case, when Niccolò Cicogna in the mid-16th century succeeded in forming a faction opposed to the elites of the municipality of Treviso within the Brentella canal *consorzio*, which had originally been created by the municipal council of that city in the early 15th century.

This socially and institutionally intertwined character of communitarian water management cannot, however, be entirely detached from a hegemonic framework in which the interests of the expanding state often coincided with those of members of the elite committed to maximising agricultural production. Numerous Venetian patricians, owning land that directly benefited from hydrological policies and simultaneously serving as executive members of the *Provveditori sopra i beni inculti*, collaborated in the creation of new *consorzi* aligned with these policies. In a similar way, the royal authorities of Valencia extended their protection over the Tram dels Molins of the Montcada canal, while feudal lords who possessed mills occupied institutional positions in *comunitats*, such as those of the Favara canal, aligning their own interests with the milling and urban supply policies of the municipality of Valencia.

Early attempts to impose more centralised models of territorial control in the 16th century upon this complex socio-institutional landscape of local water management communities were manifested above all in the attention that sources on water conflict and disputation devoted to the descriptions of the basic tasks and functions performed by the members of the local water boards, when addressing magistrates in petitions or court declarations. The most fundamental task that marked the presence of the authorities of the *consorzi* and the *comunitats* in matters of distribution was the surveying of the canals they claimed to represent, with the purpose of observing, describing, and measuring both the conditions of the flowing water and the state of the infrastructures. This activity generated vectors

[5] Elisabetta Novello, 'Polesine, Terra Di Bonifica', in Giorgietta Bonfiglio Dosio et al. (eds.), *Regolar l'acque*, 22–23.

of ordinary specialisation that placed users in dialogue with arbitrative powers and produced specialised figures such as the *periti*, the *pertegadori*, and the *livelladors*, all of whom acted as practical consultants who established networks of what Pietro Omodeo has called 'practical epistemology,' Solène Rivoal 'expertise profane,' and Vicent Terol i Reig together with Luis Pablo Martínez Sanmartín 'technoexperts.' Yet this expertise was not exclusively technical or infrastructural. It combined a broad spectrum of social knowledge that was indispensable for arbitration between users: the inspection of dykes, the observation of the direction and quantity of the flow at a given moment, and the assessment of the infrastructure were conducted in parallel with an evaluation of the users themselves, their practices, and their competing interests in the drained and irrigated landscape. What was at stake was the refinement of techniques for knowing and interpreting the social networks involved, with the consequence that in the Veneto many periti were also *avvocati*.

It was precisely the social determinants of water infrastructure management and observation –understood here as the material relationship established between a natural environment and the societies that inhabited it– that shaped the ways in which so-called "techno-expert" societies perceived water, while also transforming techniques of measurement and distribution[6]. From this emerged a metrological heterogeneity, with units devised less to establish modern immutable abstractions of fixed quantities than to adapt flexibly to specific circumstances: on the one hand to seasonal, environmental, and hydrological conditions, and on the other to different uses and collective economic concerns.

Furthermore, the routines of observing, describing, and measuring the infrastructures around which the *consorzi* and the *comunitats* were organised, especially in circumstances arising from questions of water justice–whether prompted by environmental or by social factors–were tasks that, although entrusted to specific individuals recognised as experts, often required the presence and collective participation of users. These users were also responsible for verifying observations and reaching agreements between opposing parties. It is precisely this participatory character of

[6] Michele Campopiano and Gerrit Jasper Schenk, (eds.), *Conflicts over Water Management and Water Rights from the End of Antiquity to Industrialisation* (Stuttgart: Franz Steiner Verlag, 2024), 8.

hydrological data collection, evident in the Valencian *interrogatoris* and *visures* or in the Venetian *cavalcate*, carried out not only by experts but also by *alguazirs* and *cavalcanti*, that calls into question the arbitrative authority and the degree of specialisation exercised by the technical-administrative and representative function within these communitarian institutions.

Observing the infrastructure and the interests of its users therefore led to routine surveillance and the punishment of potential offenders. These practices intensified when the infrastructure underwent periodic inspection, repair, and cleaning. This correlation between the observation of both the material framework and its social use consolidated not only expert authorities but also surveillance and enforcement roles that were often concentrated in the same individuals, who coordinated the maintenance and cleaning of the canals. Thus emerged the figure of the *sequier* or the *cavarzerano*, who possessed the ability to identify illicit uses and to punish financially those users judged to be the perpetrators, or, in cases where such offences were committed by individuals or entities outside the community, to report them to municipal, royal, or senatorial authorities beyond it. It is important to note, however, that in both the late Middle Ages and the early modern period these figures, doubly responsible for maintenance as well as for surveillance and punishment, were not rooted in a world of customary oral tradition, as some jurists claimed in their observations of contemporary oral courts. On the contrary, they were financially solvent individuals capable of advancing the common costs of their routine duties, and they also possessed experience in notarial functions. Thus, these authorities were not only recognised for their participation and visibility in the common tasks of maintaining the canals, but also had a certain familiarity with more legal practices.

Surveillance was therefore accompanied by penalisation, often immediate, for those who stole water, broke the dykes, diverted excess water into their neighbour's fields, placed fishing nets in the canals, failed to pay the cyclical contributions, or neglected to provide physical labour for such common tasks as reinforcing dykes and maintaining adjacent roads, among many other activities frequently judged and punished by the authorities of the water boards. The high incidence of such practices indicates that the internal framework of these institutions was highly conflictual and, at least in the early modern period, did not correspond to a model of mutual monitoring. The penalties imposed by

these officials were frequent, though generally low, and their very recurrence demonstrated the need for individuals in positions of authority who were accustomed to the regular imposition of sanctions in a more or less vertical manner. Yet this did not make them supreme and formal judges of water distribution, although the etymology of the term *giudice d'argine* might suggest otherwise. On the contrary, in the manner of Early modern practice of bargaining the application of justice, there was little consistency in the application of ordinances, *consuetudines*, and statutes, where the prescribed penalties were often severe, even death as in the mentioned case concerning the modification of Venetian embankments. In practice, immediate penalties for illicit uses or for failure to contribute were almost always monetary or took the form of seizure and expropriation of property, although imprisonments were also carried out, as in the case of the irrigators of Puçol confined in the municipal palace of Morvedre, which they furthermore easily evaded.

This punitive flexibility, always ready to negotiate and adapt to the specific conditions of the time and place where the alleged offences were identified, meant that those in charge of internal justice in each *comunitat* and *consorzio* were individuals on whom a certain convergence of the interests of all members could be projected. This should not be understood as proto-democratic, but rather as a phenomenon consistent with the ideological continuity of the political principles of the communitarian, corporative, and guild context of the late Middle Ages, where political representation of a community was achieved by being, first, a good-intentioned man, a *bonus homo*, and, second, a presumed outsider on whom the expectations of the community were placed. Herein lay a notable difference between certain Valencian *comunitats*, whose representatives had no possessions dependent upon the shared water infrastructure, and most Venetian *consorzi*, whose representatives were precisely those who held the greatest interests and lands subject to the jurisdiction of the *consorzio*. Although seemingly distinct, both arrangements derived from a similar normative principle, namely the obligation to perform common infrastructural tasks, to administer justice, and to collect monetary contributions from each of the members to the common budgets.

Thus, the procedures by which the *sequier* and his *síndics*, or the *presidenti* and *cavarzerani*, came to represent the *consorzi* and the *comunitats* both as internal justice enforcers and as external spokespersons on behalf of canal users varied considerably from

one region and institution to another and also depended on the decade in which they took place. Although rooted in traditions of collective assemblies in the late Middle Ages, the influence of the expanding state was evident in the central decades of the 16th century in the systematic introduction of mechanisms of political control directed from the centres of power. In Valencia this was manifested in the imposition and generalisation of government-controlled processes of drawing lots of names proposed by the Crown's agents, while in Venice it appeared in the establishment of biennial and triennial cycles together with the parallel requirement to register electoral records with the *Provveditori sopra i beni inculti*, even if this rule was frequently disregarded in the case of *consorzi* located further from the city, such as those of the Polesine. In short, practices of election, draw, and auction of technical, administrative, and representative functions were subject to the oversight of the highest courts. Thus, even if the internal tasks of inspecting infrastructures, monitoring usage, and imposing penalties were performed within each community in a closed and autonomous manner, when the *sequier* or the *presidente* represented their institution, they did so within the regulatory framework of state justice.

But what were the reasons why the new modern magistrates and judicial bodies from the centres of government were interested in controlling, albeit not completely, these functions of water measurement and distribution, maintenance, surveillance, punishment and political representation that were carried out within the local communities of users of the single shared canals in the coastal agricultural lowlands of Valencia and the Venetian mainland? Furthermore, why did the ordinary judicial bodies of these centres of territorial power want to position themselves as the final arbiters of water conflicts, when local councils and communitarian institutions capable of resolving water conflicts already existed in those territories? To understand this phenomenon, it is necessary to introduce a broader political context of central courts with the territories they claimed, and in which water management was inserted. Water as a resource per se clearly had its weight in this issue, as reflected in how states favoured certain user groups over others, as did the Valencian courts with cereal or vineyard owners in the central plains near the cities, or the Venetian magistrates with those local patricians and nobles who adhered to drainage policies in order to plant cereals, giving them priority over rural communities with more heterogeneous crops. However, this issue of prioritisation in the use of irrigation water or drainage canals was not the only factor that prompted the state justice system to gain a presence in the *consorzi* and *comunitats*. Indeed, violent practices against water

infrastructure or individuals, both representatives of *consorzi* and *comunitats* and perpetrators of illegal practices, as well as the recurrent deployment of issues pertaining to political tensions and conflicts of the recent past during petitions and proceedings related to water disputes, indicate that many of the social conflicts that had theoretically been settled and resolved at the state and government level persisted in society, and that society saw water conflicts as an opportunity to address these latent problems, and the *consorzi* and *comunitats* as legitimate political spaces in which to develop these disputes. Thus, given that Glick stated that the Valencian irrigation communities were the basic unit of irrigation society, we can also affirm that, in addition to being social entities, they constituted the most local political platform that allowed for the interaction of members belonging to different jurisdictions, given that the *consorzi* and *comunitats* were organised around running water canals that penetrated diverse jurisdictions, whether feudal, urban, rural vicinities, or even ecclesiastical[7]. In other words, although conflicts between different social groups in each different form of jurisdiction present in the territory with their particularities were linked from above by the growing modern states and their legal models, which stood as the final arbiter above each jurisdiction, the presence of a shared irrigation canal, represented by an administrative board, embodied the closest option for societies to exercise politics among their different groups and jurisdictions. Water canals were, therefore, channels of political communication between local territorial entities. For this reason, modern courts, senates and magistrates set their sights on controlling, appropriating, or at least obtaining certain information about the basic functions of these institutions.

Thus, both the practices of use, maintenance, surveillance, sanctioning, and arbitration of a common irrigation and drainage network, together with the repertoire of violent practices that could emerge from disputes involving one or more communitarian water boards, must be regarded as elements that reveal not only the history of water itself, but also the history of the societies that depended on it. In other words, the history of the building, upkeep, and distribution of a single shared canal was also the political history of a community.

[7] Glick, *Irrigation and Society in Medieval Valencia*, 31.

Although this study has focused on two states and their respective relationships with the water institutions that preceded them in the territories they sought to control, the hypotheses and conclusions advanced here are intended to lay the foundations for further analyses of communitarian and rural politics in other comparable areas, particularly in the alluvial plains of the western Mediterranean, and beyond. In these cases, the 'basic unit of irrigation' coincided with the basic political unit available to many inhabitants and actors involved in the transformation of such landscapes in the Venetian Terraferma and the plains of Valencia. It is therefore worth considering a methodology applicable to similar environments, whereby water conflicts are taken as a key entry point for understanding the wider political tensions of irrigated lowlands, and the positions and practices developed by local water institutions are subjected to systematic analysis. Community water and agricultural disputes can thus be read as a kind of seismograph of political impulses, where the focus is not only on the management of water, irrigation and drainage, but also on the broader social and political history of wet landscapes. Behind the more obvious institutional frameworks of royal courts and senatorial magistracies, equal attention must be given to the ordinary bodies that administered a primary resource of life such as water, since this sphere, although seemingly narrow, has the potential to reveal much about the dynamics of past communities and their forms of politics.

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