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Irrigation Communities in the Roman World Through Epigraphic Sources and Justinian's Digest

Summary

This paper deals with local irrigation systems organized by villages and communities that existed in the Roman world. It will examine some epigraphic and literary texts and relevant jurisprudential sources belonging to Justinian's Digest on this topic. In all these cases, the need for joint water use led to the development of at least initial forms of 'associations' among so called *rivales*. These 'associations' dealt with different matters such as: a) the distribution of water; b) the regulation of the hydraulic work, such as digging and maintenance; and c) the arbitration of possible disputes between users. For their part, the juridical texts provide a good insight into the 'legal status' of these communities, namely how internal relationships between *rivales* were considered.

Keywords: water; irrigation; communities; epigraphic sources; Justinian's Digest

Dieser Aufsatz präsentiert Beispiele lokaler Bewässerungssysteme und Dorfgemeinschaften aus Römischer Zeit. Untersucht werden zu diesem Thema sowohl epigraphische und schriftliche als auch relevante juristische Quellen, die zu *Justinian's Digesten* gehören. In allen untersuchten Fällen entwickelte sich aus dem gemeinschaftlichen Wasserverbrauch Formen der Gerichtsbarkeit zwischen den Gemeinschaftsmitgliedern, in Bezug auf a) Wasserzuteilung, b) Wartung, etwa durch Kanalarbeiten oder Instandhaltungsmaßnahmen und c) Schlichtung von Streitfragen zwischen Nutzerinnen und Nutzern. Die juristischen Quellen geben einen guten Einblick in den ‚Rechtsstatus‘ dieser Gemeinschaften und beschreiben, wie interne Beziehungen zwischen *rivales* gehandhabt wurden.

Keywords: Bewässerung; Dorfgemeinschaften; epigraphische Quellen; Justinianische Rechtsprechung

English translation by Francesca Scotti.

I Introduction

Today, as in the past, water resources play a key role both in the organization and occupation of territory and in the economic and social structuring of groups. A fundamental distinction can be made between general irrigation systems, as in the Nile Valley or Mesopotamia, and local irrigation systems.¹ In this paper I will cover local irrigation systems, organized by villages and communities, with particular reference to the Roman world (but also with a look to our most recent past).

The topic of irrigation communities in the Roman world has only become a matter of interest for classical scholars in recent times, in particular after the publication of the 2006 edition of the so-called *Lex rivi Hiberiensis* by Francisco Beltrán Lloris.²

After this edition, other inscriptions that have already been edited (for example the famous Tabula of Lamasba, the plans of Aventine and Tivoli, and so on) and some literary texts concerning these types of communities have been re-evaluated.³ Through this work, it has become clear that these forms of communities were quite widespread in the Roman world.⁴

In all these cases the common element was the provision of rules regarding the rights of the various water *rivales*, as well as the associated obligations (like cleaning and maintaining the channel, etc.). The distribution of the water used to take place at different times and in different quantities depending on the size of the ground to be irrigated. There were also measures to prevent or solve the frequent disputes between beneficiaries that would arise. Those disputes were so frequent that the Italian word ‘rivali’, derived from the Latin *rivales*, refers to individuals who argue and contradict each other.

It is also notable that some material relating to the existence and organization of these local communities for the joint exploitation of canals for irrigation still exists in various parts of the world. For example, they are widely present in South Tyrol, Vingschau (Fig. 1), and in the Swiss Alps, where you can still find kilometers of canals for the irrigation of the Alpine region. They are also widely present in Spain, in the Valencia region. Here, from time immemorial, there was also a special water court used to solve disputes between beneficiaries. Even in these cases, rules are usually given to the community for all its members and every individual has to provide for the maintenance and cleaning of the channel, without which, the flow of water would inevitably

1 Oleson 2000, 184–215; Bédoucha 2009, 476–478.

2 Beltrán Lloris 2006, 147–197.

3 Maganzani 2014b; Maganzani 2012a, 103–119; Maganzani 2012d, 121–124; Maganzani 2012b, 171–

185; Maganzani 2012e, 195–213; Leone 2012; Ronin 2012; Beltrán Lloris 2010; Debidour 2009; Bannon 2009.

4 Bernigaud et al. 2014.



Fig. 1 Archaeological findings of water channels used between the Bronze Age and AD 50 (hill of Ganglegg above Schludern, Vingschau).

be interrupted. In addition, it is often possible to find measures to prevent or solve the frequent disputes between beneficiaries.⁵

Antiquarians have generally taken no interest in such material remains, considering them a medieval legacy rather than a Roman one.⁶ In light of new epigraphic evidence, which I will speak about in a moment, it cannot be excluded that there might be a continuity between the organization of such communities in the Roman period and those communities whose remains are still visible on the ground; for example, Francisco Beltrán Lloris and Anna Willi recently demonstrated this for the Valencia region.⁷ Even in the Alpine region, we could be surprised by the similarity between some archaeological findings of water channels used between the Bronze Age and AD 50 (for example, those found in Vingschau above Schludern on the hill of Ganglegg; Fig. 1), and channels built at least at the end of the 18th century, like the one in Val d'Ultimo near Merano (Fig. 2).⁸

All these new data invite me to investigate this topic with a special regard towards Roman law and Roman classical jurisprudence. In recent years, following the publication of the *Lex rivi Hiberiensis* by Francisco Beltrán Lloris in 2006, the theme of irrigation communities has become a subject of interest for the Roman Law doctrine.⁹ However, as far as I know, this topic is still alien to Roman private law scholars:¹⁰ in fact, they have largely studied water servitudes on the basis of the fragments of Justinian's *Corpus*

5 Beltrán Lloris 2011; Bodini 2002.

6 Beltrán Lloris 2011.

7 Beltrán Lloris 2011.

8 Bodini 2002, 11–12.

9 Nörr 2008, 108–187; Capogrossi Colognesi 2014, 75–91; Capogrossi Colognesi 2012, 151–160; Buzzacchi 2015; Buzzacchi and Maganzani 2014; Buzzacchi 2013; Platschek 2014; Torrent Ruiz 2014; Torrent

Ruiz 2013a; Torrent Ruiz 2013b; Torrent Ruiz 2012; Maganzani 2014b; Maganzani 2014a; Maganzani 2012a, 103–119; Maganzani 2012d, 121–124; Maganzani 2012b, 171–185; Maganzani 2012e, 195–213; Mentxaka Elexpe 2009, 1–46.

10 But see Capogrossi's remarks in Capogrossi Colognesi 2012, 151–158 and Capogrossi Colognesi 2014.

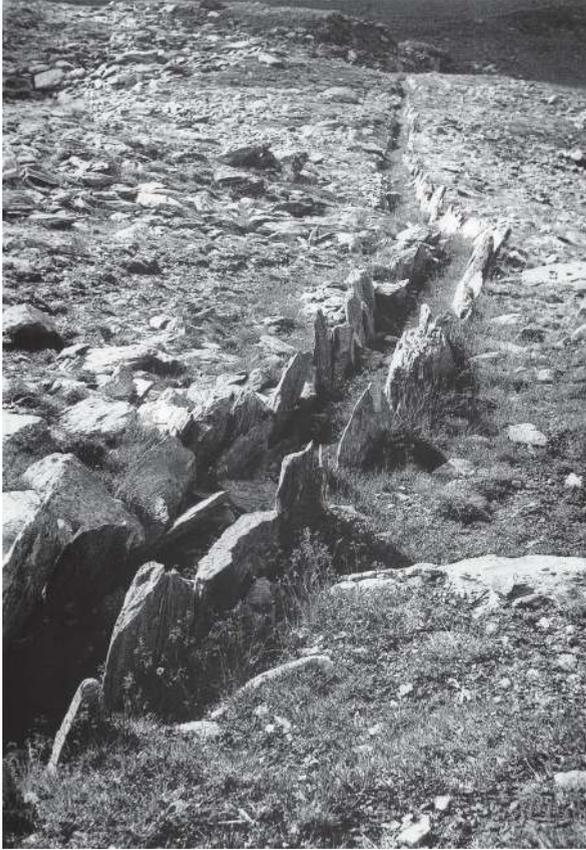


Fig. 2 Channel built at least at the end of the 18th century, Val d'Ultimo near Merano.

Juris Civilis dealing with these easements,¹¹ but they have rarely connected this research to the archaeological and epigraphic findings on irrigation communities. Now that the knowledge on this topic has expanded, thanks to recent discoveries, it is my opinion that even indirect references to Justinian's sources become clearer and show that Roman jurists did not ignore the legal issues related to the community's use of water *ad irrigandos agros* at all. On the other hand, I think that these juridical texts can be better understood not only in the light of the inscriptions, but also with regard to the material remains available today that can help us better understand the problems discussed by the jurists in their concrete contexts.

This is the reason why in this paper I am going to study not only the most important epigraphic and literary texts on this subject, but also some jurisprudential sources

11 Gardini 2013; Vallocchia 2012, 17–33; Basile 2012; Möller 2010, 78–90; Tuccillo 2009; Fiorentini 2003,

51–197; Cursi 1999; Capogrossi Colognesi 1966. See also Bannon 2001, 34–52; Bannon 2009.

belonging to Justinian's Digest and in my opinion connected to the topic of irrigation communities.

2 Some epigraphic, literary, and juridical sources on irrigation communities in the Roman world

Epigraphic remains of Roman irrigation communities come from different parts of the Roman Empire, such as Spain, Africa, and Italy.¹²

The inscription of the Hadrian era, known as Agon bronze or *Lex rivi Hiberiensis*, is particularly significant (Fig. 3).¹³ It was discovered in 1993 in the town of Agon, about 50 km from Zaragoza, and since then it has been kept in the city's archaeological museum. It concerns an irrigation community that includes three villages located on the right bank of the Ebro River: the *pagi Gallorum* and *Segardenensis* belonging to the colony of *Caesaraugusta* (Zaragoza) and the *pagus Belsoninensis* belonging to the Latin *municipium Cascantum*. This inscription contains the regulation of the individual duties of the community members. They exploited a long artificial canal diverted from the river Ebro and obtained water for their farms through locks placed along the canal. That is why they had to provide for the periodic maintenance and cleaning of the canal and the locks. The *magistri pagi*, who used to hold this office for one year starting from the calends of June, were liable for the good administration of the *rivus*. For this purpose, they were authorized to impose fines and seize the *rivales* assets. Moreover, in the five days following their appointment, they had to convene an assembly to accomplish the annual operation of emptying and cleaning out the channel with the community members. If the landowners did not perform these works, the *magistri pagi* could delegate the local publicans to carry them out instead.

Another significant example is offered by the Lamasba Table,¹⁴ an inscription of the time of Elagabalus (AD 218–222) from Roman Africa.¹⁵ It is a regulation partially preserved on the table drawn up by an arbitration committee (of which a certain Valentinus

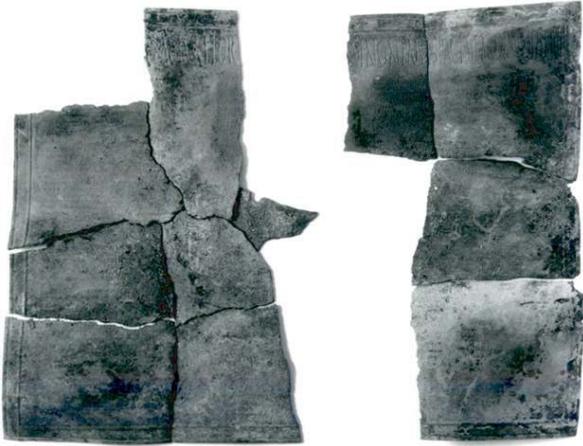
12 Maganzani 2014b, 225–231.

13 *Editio princeps*: Beltrán Lloris 2006; cfr. *L'année épigraphique* 1993, 1043; Beltrán Lloris 2006, 676; Beltrán Lloris 2010, 634. – See also Crawford and Beltrán Lloris 2013, 233; Maganzani and Buzzacchi 2014 (texts of Beltrán Lloris, Capogrossi Colognesi, Hermon, Lagóstena Barrios, Torrent, Platschek, Maganzani, Buzzacchi); Buzzacchi 2015, 49–66; Buzzacchi 2013; Tarpin 2014, 265–272; Torrent Ruiz 2013a; Torrent Ruiz 2013b; Torrent Ruiz 2012; Ronin 2012; Beltrán Lloris 2011; Nörr 2008, 108–187; Le Roux 2009, 19–44; Mentxaka Elexpe 2009, 1–46; Castillo

García 2009; Castillo García 2008; other bibliography in Maganzani 2012b, 184–185; Beltrán Lloris 2010, 33–34.

14 *Corpus inscriptionum Latinarum* VIII.4440e. 956; VIII.18587e. 1780–1782; *Ephemeris Epigraphica* V.1279; VII.788; *Inscriptiones Latinae selectae* 5793; Pachtere 1908, 373–405; Maganzani 2012e, 195–213.

15 Leone 2012; Maganzani 2012a, 103–119; Maganzani 2012e, 195–213; Ronin 2012; Debidour 2009; Meuret 1996; Trouset 1986; Shaw 1982; Shaw 1984; Pavis d'Escurac 1980.

Fig. 3 *Lex rivi Hiberiensis*.

is a member). The commission was established on the basis of a decree enacted by the *ordo decurionum* and the residents of Lamasba. The table shows the resolution of a conflict between members of the community regarding the distribution of the water that was coming from a perennial source or from an aqueduct (called *Aqua Claudiana*).

This is an arid region, with irregular precipitation that usually falls from October to April. These winter rains, however, could also be delayed until January, which would irreparably ruin the harvest. To avoid the catastrophic consequences of a possible winter drought, the farmers of Lamasba created a system of irrigation which would begin on September the 25th and perhaps end in late March. These rules, surely common to other agricultural areas, were probably passed down orally, at least in the arid parts of the empire. In this case, the regulation was written down as a result of a dispute that arose between community members.

The land to be irrigated was worked into *scalae*, i.e. terraces. The water had to be carried through small channels, which started from a larger horizontal channel, called *matrix*. This main channel ran along each terrace and was fed by a catchment basin or a tank, connected to the perennial source cited above, called *Aqua Claudiana*.

The available text, divided into columns, contains a list of the water recipients and indicates the name of each of them, the duration and the date of irrigation and the amount of the water attributed, expressed in K, a unit of uncertain meaning. On the basis of the number of K to which he was entitled, every owner would obtain the water for a specified period of time, measured in hours and half hours.

Speaking of Italy, I would like to mention in particular the so-called Priorate or Aventine Plan, belonging to the Augustan Age.¹⁶ It concerns a *distributio aquaria* for the

¹⁶ Corpus inscriptionum Latinarum VI.1261;

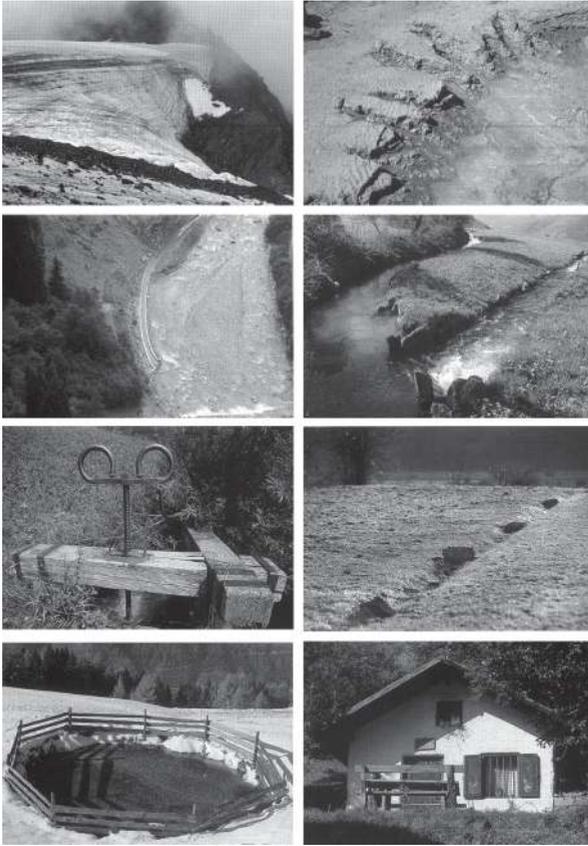


Fig. 4 An irrigation channel in Vinschgau from the beginning to the end: it starts from the mouth of the Glacier then proceeds with deviations and locks passing by both the catchment basins and the lodge of the person assigned to control the channel.

irrigation of an area of land in the vicinity of Rome. It is probably the deviation from a city aqueduct made through a channel with small bridges and tanks. The original text has gone missing. Here we see a reproduction of a work by Raphael Fabretti (1680), entitled *De aquis et aquaeductibus*. The plan shows two arms of a channel or an aqueduct on whose sides there are both the names of the water beneficiaries and the irrigation timetable.

The so-called Plan of Tivoli is very similar to the one just discussed and equally interesting.¹⁷ It is a marble table divided into two sections. Each part describes the irrigation system of land, whose owner is indicated by name: the *fundus Domitianus* belonging to a certain *M. Salluius* or *Saluius* and *Fundus Sosianus* belonging to a certain *Primus*.

VIII.4440.448; Maganzani 2012c; Rodríguez-Almeida 2002, 23–27.

VIII.4440.448; Maganzani 2012c; Rodríguez-Almeida 2002, 23–27.

17 *Corpus inscriptionum Latinarum* XIV.3676;

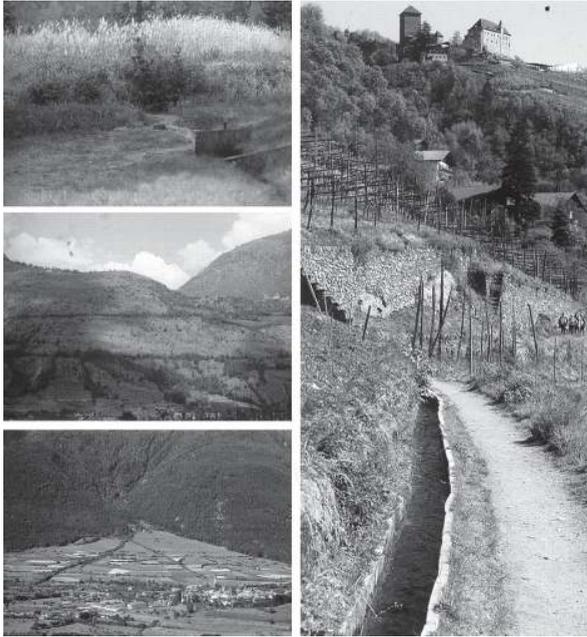


Fig. 5 One can see the water overflowing a wheat field. Then, the presence of irrigation channels is noticeable in the bushy landscape in the form of soft almost horizontal lines that finally reach the valley floor near the vineyards. Here, a service trail is clearly visible and it is also used as a comfortable biking trail.

Another example is the *Tabula aquaria* of *Amiternum* in L'Aquila.¹⁸ It is an inscription dating back to the first century BC that deals with the course of the local water. It shows the *castella*, i.e. the water reserves, and the distances between them indicated in feet. At the end of the text, there is the full extent of the path, 8670 feet, about 2564 meters. Inside the title, the first letters have gone missing: if the integration 'Purgatio' is correct it should refer to the works necessary to clear the path of the aqueduct.

The existence of irrigation communities in the Roman world is confirmed by other sources (both legal and literary). Frontinus speaks about the existence of a secondary channel of the *Aqua Iulia*, called *Aqua Crabra*, excavated by Agrippa in favor of the *Tusculani possessores*, and says: "It is the water that all villas in the area receive in turn, with a distribution according to shifts and established quantities."¹⁹ Cicero refers to the same *aqua Crabra*, stating also that there was an obligation to pay a vectigal to the city of *Tusculum* for this service.²⁰

Another example is offered by the Plinian description of the oasis of Tacape, corresponding to the modern Gabes (NH 18188–18189) that even today is irrigated by a

18 *Corpus inscriptionum Latinarum* I².1853; I² Add. III. 1049; Suppl. It. N.S. 9.50; Maganzani 2012d, 121–124; Segenni 2005, 603–618.

19 Frontin. *Aqu.* 9.5.

20 Cic. *Fam.* 16.18.3; *Leg. Agr.* 3.2.9.

source embedded in the rock: according to the author, this is a striking example of multiple cropping, as grain, legumes, and forage crops follow one after the other under date palms and shrubs all year long. The reason for the extraordinary fertility of the soil is precisely the abundance of water distributed to each of the inhabitants for a specified number of hours.

The final legal source to be mentioned here is a constitution of the emperors Marcus Aurelius and Lucius Verus, reported by jurist Papirius Iustus, that regulates the division of water for irrigation between neighboring owners.²¹ The water had to be apportioned according to the width of the land to be irrigated unless someone proved to have a greater right.

3 The ‘legal status’ of irrigation communities in the Roman world: preliminary clarification

It is interesting to think about what the ‘legal status’ of these communities might have been, that is, how they were structured and how internal relationships between *rivales* were considered. I think that it is possible to find some information about this in the texts of Justinian’s Digest. However, this survey requires some preliminary clarifications.

From a legal point of view, we must first distinguish between the derivation of water from a river or a public channel by the holder of a riparian plot of land and the conduction of water derived from the same river or canal in favor of one or several private terrains bordering the riparian one. Furthermore, in this second case, we must distinguish further between water that traverses public land and water that traverses on private land. In fact, the derivation of water from the river – which was usually carried out through the barrage of its course with so-called *saepta* and the creation of an *incile*, which is an inlet – was generally free. Ulpian, a jurist of the 2nd century AD, expressly says so in two texts of Justinian’s Digest.²² Only when a common citizen (*a quivis de populo*) asserted before the ‘praetor’ that the water derivation was detrimental to the public interest or that of the neighbors could the ‘praetor’ intervene, using his authority with the so-called ‘interdicta’ in order to prohibit or order something. For example, when it

21 Papirius Iustus D.8.3.17 (1 *De Const.*).

22 D.43.12.1.12 (Ulp. 68 ad ed.): *Non autem omne, quod in flumine publico ripave fit, coerces praetor, sed si quid fiat, quo deterior statio et navigatio fiat* (“The praetor does not absolutely prohibit any work being done in a public river, or on the bank of the same”, translation by L. M.); D.8.3.3.3 (Ulp. 17 ad ed.): *ad flumen autem publicum idem Neratius eodem libro scribit iter*

debere cedi, haustum non oportere et si quis tantum haustum cesserit, nihil eum agere (“In the case of a public stream Neratius states in the same book that the right of passage to it must be granted, but the right to draw the water is not necessary and where anyone grants only the right to draw water the grant will be void”, translation by L. M.). See Fiorentini 2003, 59–157.

was claimed that the derivation of the river prevented navigation and the use of public banks, or that it damaged neighbors by altering the course of the river making it dry, etc., the *praetor*, after a brief examination of the matter, could prohibit the derivation and order the removal of the respective works.²³

On the other hand, those who had a plot of land far from the river and wanted the water to reach their plot through a canal had two options, depending on whether the land on which the *rivus* was to be placed was public or private. In the first case, a public grant had to be claimed by asking the *princeps* – Paul says in D.8.1.14.2 (15ad Sab.): *ut per viam publicam aquam ducere sine incommodo publico liceat*, namely, “to conduct water across a highway in such a manner as to cause no inconvenience to the public.” In the second case, an easement of aqueduct (*servitus aquaeductus*) had to be constituted on the riparian plot of land starting from the so-called *caput aquae*.

If we try to relate this information to the concrete world described by the *Lex rivi Hiberiensis* and the other sources mentioned above, we can understand that the mechanism described above, while simple in theory, in practice often had to be integrated into complex systems. For example, in Agón, there was a big public irrigation channel deriving from the river Ebro, from where the water entered smaller private channels through locks. From here – as Capogrossi Colognesi recently argued²⁴ – the water had to be further distributed to the surrounding farms through a scheme of praedial servitudes; this could take place either through a single private channel connected to the perennial source (that was common to the various owners to whom it brought water) or through a channel from which the water flowed into a basin (*lacus*). From this basin, many other private channels set off to bring water to each landowner. While the *Lex rivi Hiberiensis* does not explicitly say this, both the legal texts and the many examples still present on the ground (in South Tyrol, Switzerland, Valencia, etc.) allow us to make this assumption (Figs. 4–5).

All of this means that public and private channels, public and private regulation, public grants to run water, and praedial servitudes probably coexisted within a single large community irrigation system (like the one of Agón).

Inscriptions – considering their purpose and their recipients – usually inform us about the public law aspects of irrigation communities; however, the texts of Roman jurists in particular deal with issues related to relationships between private individuals. In the next sections, I will make some references to these jurisprudential discussions.

23 See for example D.43.12.1*pr.*, 8, 12, 15, 19; D.43.13.1 *pr.*-1; Signorini 2014; Basile 2012; Möller 2010, 86–90; Fiorentini 2003, 159–275.

24 Capogrossi Colognesi 2012, 151–160; Capogrossi Colognesi 2014.

4 Legal relationships between rivaies

First of all, Roman jurists specify that it often happened that several neighboring owners in need of water obtained the right to conduct it from a perennial source located on the servant farm.²⁵

As we can see in the inscriptions (for example, in the *Lex rivi Hiberiensis*), community members usually reached an agreement about the cleaning and maintenance of artifacts, such as *fistulae* put in the channel, so that each individual had to carry out the maintenance and cleaning needed in his own section of the channel.

The Roman *praetor* also protected anyone who was prevented from repairing or cleaning an aqueduct, canal, or reservoir, with a specific interdict whose words are reported by the jurist Ulpian: *Praetor ait: rivos specus septa reficere purgare aquae ducendae causa quo minus liceat illi, dum ne aliter aquam ducat, quam uti priore aestate non vi non clam non precario a te duxit, vim fieri veto.*²⁶ This, as Ulpian says in *Dig.* 43.21.3.3 (70 *ad ed.*), was granted for the cleaning of a basin from which the water was conducted to several beneficiaries.²⁷

Through this common channel, each owner could use water at the same time or, if this was not enough, the use of water could be divided into days or hours – *diversis diebus et horis*²⁸ or by measurement (*mensuris*).²⁹

At this point, I am mainly interested in showing through some examples from Justinian's Digest: (a) how jurists qualify the legal relationships between the irrigation community members and the servant farm owner, (b) how Roman jurists consider relationships among the irrigation community members who at least partially use the same channel, and (c) if there was any special provision about private irrigation communities in the edict of the Roman Praetor.

(a) On the first issue, a useful indication can be drawn from a text of Proculus, a jurist of the Augustan Era. The following describes the case:

25 Arg. ex D.8.3.35 (Paul. 15 *ad Plaut.*).

26 Ulp. *Dig.* 43.21.1 *pr.* (70 *ad ed.*). "I forbid force to be employed against anyone to prevent him from repairing or cleaning any aqueduct, canal, or reservoir, which he has a right to use for the purpose of conducting water, provided he does not conduct it otherwise than he has done during the preceding summer without the employment of violence, or clandestinely or under a precarious title" (translation by L. M.).

27 Masuelli 2009, 149–183.

28 D.8.3.2.1–2 (IV reg.): 1. *Aquae ductus et haustus aquae per eundem locum ut ducatur, etiam pluribus concedi potest: potest etiam, ut diversis diebus vel horis ducatur.* 2.

Si aquae ductus vel haustus aquae sufficiens est, potest et pluribus per eundem locum concedi, ut et isdem diebus vel horis ducatur ("1. The right to conduct or draw water over the same place can also be granted to several persons; and this can be done on different days, or at different hours. 2. Where the water-course or the supply of water to be drawn is sufficient, the right may be granted to several people to conduct the water over the same place, on the same days, or during the same hours"; translation by L. M.).

29 Ronin 2015; Ronin 2012, 219–242; Cursi 2014, 55–57; Zuccotti 2004; Zuccotti 1994; Fiorentini 2003, 140–140; Cursi 1999, 157–202.

*Aquam quae oriebatur in fundo vicini, plures per eundem rivum iure ducere soliti sunt, ita ut suo quisque die a capite duceret, primo per eundem rivum eumque communem, deinde ut quisque inferior erat, suo quisque proprio rivo.*³⁰

Therefore, an irrigation community was organized with a first channel of common property, followed by a series of minor channels belonging to individual landowners placed on their respective farms. This was probably a very common situation, and perhaps it took place in Agón as well. The jurist continues, *Unus statuto tempore, quo servitus amittitur, non duxit.*³¹ This raises the problem of whether the other *rivales* acquired the right that he had lost, namely, if they were entitled to receive water on the days and times allocated to him or whether that right was lost for all *rivales* and the water intended for him ‘returned’ to the servant farm holder. Proculus provides this answer: *Existimo eum ius ducendae aquae amisisse nec per ceteros qui duxerunt eius ius usurpatum esse: proprium enim cuiusque eorum ius fuit neque per alium usurpari potuit.*³²

The jurist continues, *Si plurium fundo iter aquae debitum esset.*³³ He says, *per unum eorum omnibus his, inter quos is fundus communis fuisset, usurpari potuisset.*³⁴

In the case examined, however, there is a common channel used by several landowners: therefore, several different water easements. The jurist repeats:

*Item si quis eorum, quibus aquae ductus servitus debebatur et per eundem rivum aquam ducebant, ius aquae ducendae non ducendo eam amisit, nihil iuris eo nomine ceteris, qui rivo utebantur, adcrevit idque commodum eius est, per cuius fundum id iter aquae, quod non utendo pro parte unius amissum est: libertate enim huius partis servitutis fruitur.*³⁵

Then, on the basis of this text, we can state that in a private irrigation community each member had his own water servitude, even if the water channel was totally or partially

30 Proculus D.8.6.16 (1 epist.). “A number of men were accustomed, as of right, to channel water, which had its source on a neighbor’s estate, along the same watercourse. The arrangement was that each man, on his appointed day, channelled the water from its source, first of all along the afore said watercourse, which they used in common, and then, according to the distance of his land from the head of the course, along a channel of his own” (translation by L. M.).

31 “In this context one of the men failed to channel any water throughout the prescribed period, the lapse of which results in the loss of a servitude” (translation by L. M.).

32 “My opinion is that the rivalis has lost his right to channel water and the other *rivales* cannot encroach on it. The fact is that the right belongs to each one

of them as his own and neither of the *rivales* can encroach on it” (translation by L. M.).

33 “It would have been different if the right to the watercourse had been attached to an estate owned by several men” (translation by L. M.).

34 “In this case the servitude would have been the same for all co-owners and the portion of water not used by one of them could have been taken by the others” (translation by L. M.).

35 “Here if one member of the private irrigation community loses his right by failure of exploiting it, no right will accrue to the others; instead, the benefit of the right lost by a non-user will belong to the landowner from whose farm water comes: the landowner will enjoy freedom from this part of the servitude” (translation by L. M.).

common. This means that each servitude holder was protected by the *praetor* against anyone who prevented him from conducting water. This protection was offered by an interdict (D. 43. 20) and on the other hand by a civil action called *vindicatio servitutis*. At the request of a servitude holder, the *praetor* could promulgate an interdict by which he administratively and urgently prevented a third party from exercising the servitude, and in the case of a dispute between two *rivales*, Ulpian adds that the *praetor* would give a mutual interdict.³⁶ This means each *rivalis* could ask for the protection offered by the *praetor* against each other. The action, however, was later brought by the servitude holder to affirm the existence of his right and to condemn those who had hampered the exercise of the servitude to pay damages.

(b) The second problem concerns the legal classification of the relationships among *rivales*. One particular jurisprudential text can provide some information on this matter. This is a text of Julianus, a jurist of Hadrian's age, who presents the following case:

*Tria praedia continua trium dominorum adiecta erant: imi praedii dominus ex summo fundo imo fundo servitutem aquae quaesierat et per medium fundum domino concedente in suum agrum ducebat.*³⁷

I would like to draw attention to the Latin expression *domino concedente*, translated into English with the words, "with the consent of its owner". The jurist continues:

*Postea idem summum fundum emit: deinde imum fundum, in quem aquam induxerat, vendidit. quaesitum est 'numimus fundus id ius aquae amisisset, quia, cum utraque praedia eiusdem domini facta essent, ipsa sibi servire non potuissent.'*³⁸

And this was the answer:

[...] *negavit amisisse servitutem, quia praedium, per quod aqua ducebatur, alterius fuisset et quemadmodum servitus summo fundo, ut in imum fundum aqua veniret, imponi aliter non potuisset, quam ut per medium quoque fundum duceretur, sic eadem servitus eiusdem fundi amitti aliter non posset, nisi eodem tempore etiam per medium fundum aqua duci desisset aut omnium tria simul praedia unius domini facta essent.*³⁹

36 Ulp. Dig. 43.20.1.26 (70 ad ed.).

37 Julianus D.8.3.31 (Iul. II ex Minic.). "Three estates which were the property of three owners respectively were situated next to one another. The owner of the lowest estate acquired a servitude giving the right to take water for it from the highest estate and, with the consent of its owner, he channelled water across the middle estate to his own land" (translation by L. M.).

38 "Later the owner of the lowest land purchased the

highest estate and then he sold the lowest estate on which he had channelled the water. The question asked is: had the lowest estate lost its right to take water? In fact, as each of the two estates had become the property of the same man, there could be no servitude between two such estates" (translation by L. M.).

39 "[...] It was held that the servitude was not lost, because the intervening estate, through which the

From this text, therefore, we can draw the solution adopted by the jurist – or at least by Pomponius and his predecessor Minicius whose work the former comments upon – about relationships among *rivales*. Each *rivalis* constituted a separate easement on the farm where the perennial source of water was located (river, public channel, etc.): in fact, it was possible to constitute an easement of aqueduct only from a *caput aquae*.⁴⁰ Instead, the owner of the lower estate could let the water flow on the lands above through a common channel only after reaching an agreement with the owners of the land above, which probably had the form of a *pactio* or *stipulatio*.

(c) Finally, I consider if there was any special provision about private irrigation communities in the edict of the Roman Praetor.

I would like to point out that in the edict of the Roman Praetor, there was a title called *De aqua et aquae pluviae arcendae*. We learn about it through the commentaries of the Roman jurists on the praetor's edict reported in the Digest. This title was split into two parts, the first generically concerning *aqua*, the second regarding *actio aquae pluviae arcendae*. The content of this second part is well known and has been extensively studied: it deals with an action that can be brought by a landowner against a neighboring landowner when the first suffers or is afraid of suffering a damage to his farm caused by rain, due to a new construction or a new work carried out by the neighbor that changes the state of the area. However, it has never been very clear what the part of the title *De aqua* was specifically referring to. Otto Lenel, who reconstructed the content of the Perpetual Edict (last edition Leipzig, 1927), considered that this part of the title was referring to the servitude of water dealt with in this section, close to *actio aquae pluviae arcendae*, because of the common theme represented by water. However, some texts concerning *servitutes aquarum* are also found in the titles of the Edict expressly dedicated to servitudes.

Both the reading of the epigraphic texts on irrigation communities and the existence on the ground of the material remains of these communities, lead me to believe that in this part of the title the *praetor* (and the commentaries of the jurists) would not deal with water servitudes as such – a theme already dealt with in the proper title – but would address those situations in which water servitudes had been set up between various members of an irrigation community. The texts, as we shall see, seem to confirm this. They also allow us to believe that proper water servitudes were created between the members of the community, considering that those members used a *rivus* in common.

water was channelled, belonged to someone else, just as a servitude giving the right to channel water to the lowest estate could only be imposed on the highest estate if the water was also channelled over the intervening estate, so the same servitude, once attached to the lowest estate, could only be lost if,

at the same time, the water ceased to be channelled over the intervening estate as well or if all three of the estates became the property of the one owner" (translation by L. M.).

⁴⁰ See e.g. D.8.3.36 (Paul. II *resp.*); D.8.4.7 (Paul. V *ad Sab.*).

Essentially, the first part of the title would deal with the problem of water administration between several individuals; the second would concern itself with any damage caused by the water itself to one of the neighbors, in the case of a new work carried out by one of them.

The problems discussed by jurists in this context are various: for example, one wonders if it is possible to derive water from a public river to the advantage of more than one person. Ulpian, in D.39.3.10.2, citing Labeo, says that, if a river is navigable, the *praetor* must not let any water run from it that may make it less navigable, and the same goes if another navigable river arises from the water run.

From this, we can draw the conclusion that the establishment of a water servitude from a public river, also in favor of more people together in community, used to require a prior authorization of the *praetor*, who had to make sure that the change would not bring harm to the public.

Regarding the relationships between community members, it is frequently emphasized that, whenever an irrigation community wants to receive a new member, it is essential that all members agree because – as Ulpian writes in D.39.3.8 – when the right of the members is decreased, it is essential to investigate whether they agree to such a decrease.

I could say more about these and other rules, and this matter is certainly worthy of further investigation, which I hope to carry out in the future. For the moment, however, I hope I have succeeded in highlighting once again how inter-disciplinary research can be of great help to ancient world studies.

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1 Bodini 2002, n. 9. 2 Bodini 2002, n. 10.
3 Beltrán Lloris 2006, n. 1. 4 Bodini 2002,

27.1–8. 5 Bodini 2002, 27.9–12.

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