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## Roman Law and Waters: How Local Hydrography Framed Regulation

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**ABSTRACT:** Is there a relationship between the conceptualisation of water and its regulation? There is no simple or obvious answer to this question. This paper contends that the Roman regulatory framework mirrored the fragmented conceptualisation of water that was dominant in pre-modern times. The paper aims to show that water regulation is sensitive to the particular conceptualisation of water that a society adopts, which in turn reflects the specific historical period in which it is embedded. It also aims to show that there may be a way to deal with local hydrography differently from the paradigm currently promoted by the integrated water resource management framework. These considerations are not moot in today's discussions on water resource management.

**KEYWORDS:** Water law, Roman law, water conceptualisation, ownership categories, water history

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### INTRODUCTION

There is currently a tendency to conceptualise water as a single resource. This modern understanding of water seems to have emerged as recently as the 18th and 19th centuries (Linton, 2010). Pre-modern societies did not subscribe to a uniform, essentialist concept of water; rather, they dealt with water in terms of its particular location, nature and usage. It is mostly in the modern era that water has come to be conceptualised as a monolithic compound that is invariable in time and space.

Researchers of political geography and environmental studies have extensively discussed this shift in the conceptualisation of water (Hamlin, 2000; Linton, 2010); however, no legal study has considered the relationship between conceptualisations of water and its regulation, even though it is reasonable to assume that particular understandings of water could shape its regulation. Law does not, after all, develop in a vacuum; it emerges in response to social and historical events (Mather, 2011: 290). This paper thus aims to investigate whether the dominant conceptualisation of water in a given society is reflected in its regulation. To address this issue, it takes as an example the regulatory framework of water resources in ancient Rome.

The remainder of the paper is structured as follows. Section 2 describes the pre-modern understanding of water in the Greco-Roman world, illustrating the meaning and consequences of this ancient and fragmented view of water. Section 3 expands on this theme by considering the legal provisions concerning water in Roman law; in other words, it describes if and how Roman law reflected the mutability of water as it was conceptualised in Roman society. Section 4 concludes by discussing the potential implications of these findings for certain contemporary discussions of water management.

### THE PRE-MODERN UNDERSTANDING OF WATER IN THE GRECO-ROMAN WORLD

Social science shows that the relationship between water and humankind has always been multifaceted (Molle et al., 2008). Although humans have striven to get to know all the properties of water, the multiplicity of meanings attached to water and its key role in civilisation made this substance difficult to understand (Tempelhoff et al., 2009). Historically, individuals' relationships with water were direct and

unscientific; they encountered it in its various physical forms, the variability and mutability of which contributed to a non-unitary understanding. Its actual appearance was understood to depend on specific circumstances such as its origin and composition (Tanner, 1987), with water from a specific natural spring, for instance, being regarded as having different qualities than water from a particular river.<sup>1</sup> Until relatively recently, water was not understood to be a single monolithic chemical compound.

The pre-modern understanding of water embodied an empirical approach. Hippocrates, widely regarded as the father of medicine, provides a clear example of this. He believed that persons suffered certain diseases depending on the environment in which they lived. He identified specific diseases that stemmed from the intake of particular waters; drinking swampy water, for instance, would result in an enlarged spleen and dullness to percussion (Adams, 1886). He claimed, on the other hand, that drinking the right kind of water could improve the health of diseased persons and that each type of water possessed specific organoleptic properties and hygienic qualities. Water was therefore not a homogeneous substance – there were multiple kinds and each had its separate and distinct function.

The work carried out by Hippocrates, importantly, not only distinguished medicine from religion and theurgy, it also discriminated between different types of water, a tendency that was shared by other ancient authors such as Vitruvius and Pliny the Elder (Bostock, 1855: 471-3; Morgan, 1914: 244-50; Hine, 1996: 80-1). Water was perceived as a complex resource with various ramifications; its conceptualisation encompassed a wide range of substances, each of which possessed specific, context-dependent features. The plural form was thus often used to refer to it; one need only think of the title of the work attributed to Hippocrates himself, *Airs, Waters, and Places*. It can be presumed that for pre-modern individuals this plural form seemed more suitable for capturing the complex and multiple conceptualisations and characteristics of different 'waters'.

It was indeed possible to refer to water; even then, however, the definition was loose enough to embrace a wide range of substances. Ancient Greek natural philosophy, for example, identifies water – one of the four classic elements according to Aristotle (Linton, 2010: 113) – as having coldness and wetness as its main properties; according to this theory, all substances possessing the qualities of coldness and wetness were water. 'Water', in other words, was an umbrella concept that included substances that came in contact with it and, in the process, acquired the properties of 'coldness' and 'wetness'. Mud, for instance, encountering water, turns into *muddy water*; that is to say, what is in modern terms conceived as a substance *in* water – mud – became, in the past, a specific *type of* water (Hamlin, 2000: 317).

The Greco-Roman world thus tended to view water not as an homogeneous substance, but rather as a heterogeneous entity with variable physical properties. Water's various naturally occurring features led to a pluralistic conceptualisation of 'waters' with unique and identifiable characteristics and qualities. Religion and folklore reinforced this tendency to differentiate among types of water. Some 'water cults' in early Western history granted an aura of sacrality to waters that were bound to a specific place (Strang, 2004: 83). Apollo and the Muses, for example, granted poetic inspiration to an individual who drank from the Castalian spring in Delphi, and certain specific mineral springs were thought to have different effects in the treatment of particular diseases. Ancient Greeks and Romans thus tended to favour a fragmented conceptualisation of water, a view which, it is argued, made it easier to accommodate all the contextual factors of water, allowing it to prevail over the unitary view (Malt, 1994).

## THE PRE-MODERN UNDERSTANDING OF WATER IN ROMAN LAW

### Water and Roman times

The previous section discussed the pre-modern understanding of water in the Greco-Roman world. Despite being one of the four classical elements, water was never understood as having a singular abstract and essentialist identity; rather, public discourse emphasised its various context-dependent

features, thus favouring a more fragmented conceptualisation. Scientific literature illustrates this aspect by following two main research avenues. First, it investigates the role of water in spiritual beliefs and philosophy (Hamlin, 2000; Linton, 2010). Due to the propensity of ancient Rome to adopt Greek spiritual beliefs and philosophy, this avenue of research mostly focuses on the ancient Greek experience; it is still valuable, however, in building knowledge on the matter. A second research avenue, in an attempt to complement the analysis of the fragmented conceptualisation of water in ancient Greece, analyses Roman hydrology (Tanner, 1987; Rogers, 2018).

Water and its mastery were a central element in the development of Roman society (Malissard, 1994). Water was, for instance, a central element of Roman thermal baths, which were the hub of political life (Medri, 2019). The *aquae et igni interdiction* is another example of the centrality of water to the political and social structure of Rome. This was a punitive measure whereby a citizen was forbidden the use of water and fire; it entailed, in effect, the loss of citizenship and thus of all civil rights.

Roman hydrology served a twofold purpose; it fulfilled human needs, including the provision of water for public toilets and baths, and it represented tangible proof of the might of Rome (Purcell, 1996). As Frontinus stresses, the Roman mastery of water was remarkable compared to the "superfluous" pyramids in Egypt and the "useless" monuments of Greece (Rodgers, 2004: 75). Romans built many aqueducts over the years, some of which are still in use today; the Aqua Virgo, for example, built in 10 BC, still functions and, to this day, supplies Rome's Trevi Fountain. Aqueducts had to ensure a stable water supply and their construction thus required considerable expertise in civil engineering.

The study of Roman hydrology provided interesting findings. Part of the literature advances the idea that Roman hydrology embodied a pre-modern view of water. When collecting water from different, yet adjacent sources, ancient Romans built multiple aqueducts, one for each source. This perceived need for separate aqueducts – which was confirmed by Frontinus (Rodgers, 2004: 99) – appears to have persisted over the whole period of the Roman Republic and Empire despite pressure to meet the growing demand for water. In the view of scholars, the existence of multiple waterworks ensured that each aqueduct was carrying only a single type of water, thus protecting its particular properties (Tanner, 1987; Hodge, 2000).

The existing literature tends to overlook Roman law, an equally important determinant of the relationship between water and Roman society. The regulatory framework of a given society has always been a direct expression of its shared values and beliefs (Byers, 1987); an analysis of Roman law is thus directly relevant to a study of its hydrology and may also help in drawing a comparison with modern legal systems. Roman law represents the set of norms that provided the foundations of most Western legal systems. As Nicholas (1962: 2) put it, Roman law "gave to almost the whole of Europe a common stock of legal ideas, a common grammar of legal thought and, to a varying but considerable extent, a common mass of legal rules".

The following subsections contextualise the Roman experience of water and discuss the relevant regulatory framework, with the aim of investigating whether Roman law favoured an approach that was particularly attentive to water as a heterogeneous entity. This analysis yielded observations that are potentially interesting inputs into contemporary discussions about water management. It is worth noting in advance, however, that it is naïve to expect to find legal provisions that expressly refer to a perception that water is not a homogeneous substance, though an exegesis of Roman law may enable one to argue that the regulatory framework of that time tended to distinguish waters by their context. This tendency indirectly reveals a conceptualisation of water that is more fragmented than that suggested by the rational regulatory choices made by most contemporary civil law systems.

### **The ownership categories of water in Roman law**

In ancient Rome there were many types of waterscapes, and Romans thus entered into contact with fresh water in multiple ways including as water for irrigating crops, as navigable bodies of water, as a substance that quenched human or animal thirst, and for bathing and washing. Its mutability reverberated against

its various social conceptions. As previously outlined, water's context-dependent features played a primary role in the pre-modern view, allowing for the differentiation of water resources. But can this fragmented understanding of water be reflected in the law? At first glance, one may be tempted to argue that it cannot, since the law, at least as it is known today, tends to use general principles and abstract concepts to describe physical and social phenomena (Langdell, 1871; Grey, 1983).

The methodological approach of Roman law, however, tended to be different from more modern regulatory initiatives, especially with regard to civil law: it did not begin with the problem of definition and it was mostly focused on litigation (Orestano, 1987: 148). Roman law consisted largely of case law, since the actual laws that were passed by people's assemblies (until 98 CE) or those later given by the emperor only formed a small part of the legal framework. Javolenus, an eminent Roman jurist, gives a full account of this approach in saying that, "*omnis definitio in jure civili periculosa est: parum est enim, ut non subverti possit* (providing any legal definition is dangerous due to the risk of subversion)" (Watson, 1998: Digest 50.17.202). In other words, any legal definition can be subverted because slightly different facts may make it impossible to apply.<sup>1</sup> For this reason a paucity of definitions characterised Roman law, and fresh water was no exception. In the case of water regulation, this approach seems to have had two major consequences. First, it favoured greater attention to contextual factors; that is, in the absence of a pre-existing binding legal definition of water, Roman jurisprudence had to assign water to specific ownership categories based on where it was found or located. As the following subsection will address in greater detail, this was particularly important – even essential – for establishing the applicable legal rights and available remedies. The second, and related, consequence of this approach was that the legal remedies provided by Roman law were inextricably linked to contextual factors, ultimately reinforcing the concept of 'different' waters.

This subsection focuses on the first aspect; it describes the system of ownership categories that were applicable to water in Roman law. The analysis aims at showing how contextual factors determined the categorisation of water. This approach is not so pervasive in the present day; in modern regulatory systems, the relevance of context in categorising water may apply only partially, mostly as 'historical dependency'. A case in point would be the Canal du Midi in France pursuant to Article L.2111-11 of the General Code on Public Property; this still refers to the initial fief granted to Riquet and the limits set later, in 1772. Modern civil law systems tend to subsume *ex ante* water under a single ownership category (that is, public waters) and in only a few instances do they assign water bodies – in a residual manner – to another ownership category (private waters).<sup>2</sup> Notable examples of this regulatory approach can be found in the national legislations of Spain, Portugal and Italy since 1889, 1919 and 1933, respectively.<sup>3</sup> Almost 100 years later, Spanish Law No. 29/1985 of August 2 granted to the state the ownership of almost all waters; this was then amended by Law No. 46/1999 of December 13 to include water resulting from sea desalination once it left the production plant and was incorporated into other water bodies. Portuguese Law No. 54/2005 of 15 November similarly broadened the public hydraulic domain. According to the Italian legal system, all waters are publicly owned regardless of whether or not they are of public interest; this was recently confirmed by Judgment No. 18215 of 17 September 2015 of the Italian Court of Cassation.

Roman law provided for a relatively large number of ownership categories. The most basic distinction (*summa rerum divisio*) was between religious goods (*res divini iuris*) and the goods that were governed

<sup>1</sup> See Quintavalla and Yalnazov (2021) for a concrete example of this claim in the application of European Union law in the field of environmental protection.

<sup>2</sup> The modern regulatory approach of qualifying water as publicly owned has different degrees of strength depending on the specific legal system being considered. France, for example, has adopted a more nuanced approach than other civil law systems in that water can only be subject to public and private use rights, since all water resources are a common heritage of the nation by Law No. 92-3 of 3 January 1992 (Caponera, 2007).

<sup>3</sup> The reference here is to the 1889 Spanish Civil Code (Articles 407 and 408), Portuguese Decree No. 5787-III of 10 May 1919, and Italian Royal Decree No. 1775 of 2 December 1933.

by human law (*res humani iuris*) (Gaius, *Institutiones* II, 3-8). While most bodies of water were classified as goods that were governed by human law, there were also some instances in which the regulatory treatment of water was akin to that of a religious good (Bannon, 2017). In other words, Romans qualified most of the waters as *res humani iuris* but a few of them fell under the category *res divini iuris* due to their specific location. One example of the latter is the water in the Spring of Juturna in Rome.

The distinction between religious goods and human goods was merely the first step in the differential categorisation of waters. The category of human goods entailed different ownership (sub)categories. In this regard, Marcianus, a Roman jurist, introduced a typology of goods that was included under Title 8 of the first book of the Digest. This provision established a closed number of ownership categories within *res humani iuris* and expressly included running water (*aqua profluens*) under the legal qualification of things common to everyone (*res communes omnium*). This specific ownership category will be further addressed in this section; for the moment, it should suffice to note that running water – together with air, sea, and the seashores – fell under a category that was different from public ownership (*res publicae*), ownership of corporate public bodies (*res universitatis*), private ownership (*res privatae*), and non-ownership (*res nullius*):

Some things belong in common to all men by jus naturale, some to a community corporately, some to no one, but most belong to individuals severally, being ascribed to someone on one of various grounds. 1. And indeed by natural law the following belong in common to all men: air, flowing water, and the sea, and therewith the shores of the sea (Watson, 1998: Dig. 1.8.2)

From this excerpt,<sup>4</sup> water seems bound to the specific (sub)category of things common to everyone (*res communes omnium*) and consequently to the associated legal treatment. A closer review of the passages authored by Roman jurists, however, makes it clear that classifying water under one category of ownership would not prevent its inclusion in another category. Water could, in fact, fall under different ownership categories.

Rivers (*flumina*) are a case in point since they could potentially be ascribed to two distinct ownership categories. While they could fall under the category of private ownership (*res privatae*), most of the time they were considered to be publicly owned (*res publicae*). As Marcianus himself indicates, "But almost all rivers and harbors are public property" [emphasis added] (Watson, 1998: Dig. 1.8.4.1).<sup>5</sup> The use of the term "almost" in this passage is not the only evidence that a few rivers were considered to be privately owned under Roman law. That there could be privately owned rivers can be inferred not only from several other passages of the Digest,<sup>6</sup> but also because land surveyors (*gromatici*) documented that watercourses of a certain size (*flumina non mediocria*) were included in the assigning of lands to private individuals (Frontinus, ed. Lachmann 1844). Rivers were not, however, the only bodies of waters that could be categorised under two different types of ownership; such was also the case for streams (*rivi*), torrential rivers (*torrentes*), lakes (*lacus*), ponds (*stagni*), canals (*fossae*) and springs (*fontes*).<sup>7</sup> By acknowledging that waters could be public, Roman jurists implied that these waters could also fall under the category of private ownership.

The fact that all these types of water bodies could fall under either private and public ownership should not come as a surprise. Some modern legal systems have established a similar bifurcation, stating that water can be either publicly or privately owned. What seems distinctive in Roman law is that there

<sup>4</sup> As will be discussed below, the idea that running water belongs to everyone can be found in literary works as well. A good example is Ovid's *Metamorphoses* (Book 6, 349-351).

<sup>5</sup> There is a corresponding fragment in the Justinian's *Institutes* 2.1.2; it states that, "*Flumina autem omnia et portus publica sunt* (all rivers and harbours are public)". It follows that there was an interpolation in one of the two passages, most likely this latter one.

<sup>6</sup> See, for example, Dig. 43.12.1.4, 6, 7, 10, 11; Dig. 43.13; Dig. 43.14.

<sup>7</sup> See, respectively, Dig. 10.1.6; Dig. 43.12.1.3; Dig. 43.14.1.4-6; Dig. 43.24.11.pr.

was no presumption of the public character of certain types of water and that public waters could fall under different ownership (sub)categories, each with distinctive legal remedies depending on the specific context. This is not the case for modern regulation, where the vast majority of civil law countries tend *a priori* to assign most waters as public, unless they are specifically listed otherwise. In this regard, an example may be the Spanish experience, particularly the above-mentioned Law No. 29/1985. Transient Provisions 2 and 3 of that law provide for the maintenance of formerly private waters *only if* such rights are exercised within a certain time limit.<sup>8</sup> After the set time limit has passed, all waters are considered to be public. Likewise, Article 664(2) of the Swiss Civil Code sets out that waters cannot be subject to private ownership unless proven otherwise.

Ancient Rome tended, however, to treat public waters differently; for example, the law classified rivers under an ownership category that was different from other public waters, that is, as *res publicae iuris gentium* a subcategory under *res publicae in usu publico* (public ownership for public usage). This specific nomenclature stemmed from the fact that the categorisation of rivers as being under public ownership depended on natural morphological characteristics; as found in the Digest and translated by Watson (1998), "Some rivers are public, some not. Cassius defined a public river as a perennial one; this opinion of Cassius, which Celsus also approves, is held to be acceptable" (Dig. 43.12.1.3).

In other words, the condition for rivers to be public was the existence of a perennial (year-round) flow, which should not be confused with the navigability of the watercourse (Digest 43.12.1.12 and 43.13.1.2). Perennial flow, however, was not the criterion by which all waters were classified as public.<sup>9</sup> Waters other than rivers were classified as being under public ownership only if they were already being used by the public, if there was legitimate title, or if there was a presumption that they had been public for a very long time – since *vetustas* (antiquity). The fact that lakes had perennial waters, for example, did not mean that they were under public ownership; it was only determinative as to whether they were labelled as lakes and not as ponds (Digest 43.13.1.3-4).

Roman law thus attributed significant relevance to contextual factors in the categorisation of waters other than rivers. The classification of each water body could not be presumed *a priori* based on its natural morphological characteristics. Legitimate title and, especially, public use, which would cause a lake or a canal to be considered public ownership, depended on context-specific interests. These bodies of water did not fall under the same ownership category as rivers (*res publicae iuris gentium*); that is, unlike rivers, their classification as being under public ownership did not depend on their natural morphological characteristics. All other (public) waters could be qualified as either public ownership for public usage (*res publicae in usu publico*) or fiscal property (*res publicae in patrimonio fisci*). These water bodies would then be classified depending on the specific circumstances and would, accordingly, be subject to the associated legal treatment (Digest 18.1.6.pr and 50.16.17.pr).

The above categorisation framework for public waters shows that Roman law lacked a comprehensive category of public waters (Grosso, 2001: 46). Various qualifications existed, depending on the particular material of water, specifically: (1) public ownership *iuris gentium* (*res publicae iuris gentium*); (2) public ownership for public usage (*res in usu publico*); and (3) fiscal property (*res publicae in patrimonio fisci*). Springs are a case in point. In principle, they followed the same regime as most public waters, that is, they were categorised as 'public' based on their use by the public, their legitimate title, or on the basis of the presumption that they had been public for a very long time (*vetustas*). It has been argued, however, that the river springs had to be considered *res publicae iuris gentium* – that is, in the same category as rivers – due to their intrinsic connection with the rivers themselves (Grosso, 2001: 46). (Public) springs could thus, in principle, be subject to the regulatory treatment of either rivers (*res publicae iuris gentium*) or of all other public waters, depending on the specific context (*res in usu publico* or *res publicae in*

<sup>8</sup> For a more comprehensive overview of this evolution, please see Embid (2002).

<sup>9</sup> Only in Renaissance Europe did the navigability of a river establish it as being publicly owned; other watercourses, even if perennial, were considered to be the common property of their riparian landowners (Barraqué, 2021: 487-9).

*patrimonio fisci*). This regulatory approach tends not to be applicable in modern regulation, where springs are classified as belonging to the public hydraulic domain and, in a residual manner, to private ownership (see, for example, Article 52 and Transient Provision 2 of Spanish Law No. 29/1985).

Another hybrid position, though of a different nature, was the one of water in civic aqueducts. Ancient Romans defined civic aqueducts as *aqua publica* to stress that the infrastructures of the aqueducts followed the same regulatory scheme as conveyed water, being legally incorporated into the latter. The consequence was that not only water but also all other (natural and artificial) infrastructures for water distribution, such as distribution tanks (*castella*) or public fountains (*salientes*), were categorised as being under public ownership (*res publicae*). It is possible, however, that after the Republican era both public and private concessions existed, thus granting public aqueducts a sort of special legal status (Maganzani, 2012: 87). Because of this, special (public) laws, which could range from statutes passed in popular assemblies (*leges publicae*) to imperial edicts, regulated civic aqueducts as well as the entire water distribution system. Unlike public rivers, for example, access to water was only possible once it had arrived at its ultimate destination (such as a public fountain);<sup>10</sup> until then it was under the ownership of the responsible authority and therefore could not be used (Bruun, 2012). Likewise, it was not possible to have *aquae ductus* (servitude, or the right to conduct water over another's land) or *aquae haustus* (the right to draw water from a spring, well or stream on another's land) without official permission (Digest 43.20.1.40-42; Fiorentini, 2003a: 57). As this demonstrates, ancient Romans considered the water in public aqueducts to be markedly different from all other public waters (Grosso, 2001: 46). This is not the case today in Italy, where the same rules and laws apply to water in aqueducts as to any other water. The aqueduct itself, however, may occupy a different ownership category, tending to be considered within the public domain (Articles 822 and 824 of the Italian Civil Code). A similar position can be found in Spanish legislation (Article 47 of Law No. 29/1985).

Roman law, then, categorised and, accordingly, regulated water in its individuality (Grosso, 2001: 46). This regulatory approach is markedly distinct from that of most civil law systems which, as mentioned above, tend *a priori* to subsume most – if not all – water under public ownership. Roman law, instead, provided for several different ownership categories depending on the material form of the water and its context, and it lacked a single category of public water per se (Schiavon, 2011: 129). Water in a river was regulated as a river, not as any other public water and the same principle applied to all the various instances of water such as lakes, streams, wells, and springs. This regulatory approach helps place emphasis on water's context-dependent features and, in turn, reflects a fragmented conceptualisation of water. This interpretation may also provide an interesting reading key to a long-standing issue within Roman law and water. This subsection concludes with a brief reference to that debate.

Previously in this section, it was said that Marcianus included *aqua profluens* (running or flowing water) under the legal qualification of *res communes omnium* (things common to everyone). This category of running/flowing water has sparked considerable debate among experts of Roman law. The existence of (mainly) two ownership categories for water in the realm of public law, (that is, *res publicae* and *res communes omnium*) seems to have created some confusion in the modern legal mind. Considering water as a substance that may rapidly change its ownership category in public law (moving, that is, from *res publicae* to *res communes omnium* and vice versa) was challenged. Scholarly criticism focused on the existence of the *res communes omnium* category (Perozzi, 1928: 596; Arangio-Ruiz, 1927: 155; Robbe, 1979: 212). Ancient Roman law – so the argument runs – did not foresee such a category, the concept being more philosophical and literary than practical (Bonfante, 1926: 60). Indeed, according to (modern) legal theory, running water cannot provide a justification for a legitimate economic interest and, accordingly, establish rights *in rem* (ibid).

<sup>10</sup> According to Pomponius, it was possible to take water for private use in public rivers, unless they were navigable. See Digest 43.12.2.

Although this interpretation has come to dominate the field, certain authors stress that water could in principle come under two distinct legal categories (Grosso, 2001: 36). Specifically, Scherillo (1945: 86) claimed that running water could belong to a different ownership category (i.e.; *res communes omnium*) than the riverbed and other public waters (i.e.; *res publicae*) due to ontological differences. Schiavon (2011: 179) likewise suggests that running water was put in a different ownership category because, unlike water in public rivers, it could not directly belong to the Roman *civitas* (citizenry). This position is further corroborated by the fact that the category *res communes omnium* already appears in the writings of more ancient jurists such as Ulpian (Digest 41.1.14; Digest 43.8.3; Digest 47.10.13.7). Whatever the true answer, this analysis shows that the fragmented conceptualisation of water that ancient Romans seemed to possess could allow for a separate ownership category for running water.

### The remedies of Roman water law

The previous subsection discussed the ownership categories of Roman law regarding water. It showed that contextual factors were key to their legal classification. One might now expect a discussion of subjective rights over fresh water, as that approach would reflect a modern legal *Weltanschauung* (worldview). The Roman regulatory framework, however, always prioritised remedies over rights, the latter being subsumed by the former (Provera, 1983). It therefore seems more sensible to discuss the remedies that were applicable to water and to show how they were only limited to particular kinds of water, implicitly suggesting that the view of water had to be heterogeneous. Although the differentiation between types of water in terms of legal remedies is not a unique trait of Roman law, this regulatory approach is not pervasive in modern jurisdictions.

The legal remedy that was most intimately concerned with water was the so-called 'interdicts'; these were binding injunctions issued by the Roman *praetors* (magistrates), which were aimed at settling potential legal disputes (Capogrossi Colognesi, 1971: 901; Fiorentini, 2003b). The interdict's original purpose was to complement the ordinary remedies of private law (that is, actions). In the absence of any other legal remedy, interdicts provided legal protection for some factual positions relating to things under public ownership (*res publicae*). This also meant that interdicts were the only legal remedy for individual factual positions arising from waters falling under the ownership category of *res publicae*. The structure of interdicts was thus sufficiently flexible to protect various factual positions (as possession) arising from different ownership categories, including the multiple forms of water.

The connection between interdicts and ownership category, however, was not completely severed, with the availability of remedies hinging on categorisation (Talamanca, 1990: 382; Di Porto, 1994: 510). The interdicts could not be applied indiscriminately to all things irrespective of their ownership category (Dig. 43.1.1.pr); in other words, specific interdicts were reserved for goods falling under specific ownership categories. Interdicts aimed at, for example, protecting a collective interest (*publicae utilitatis causa*) would only protect those public goods (*res publicae*) that fell under the subcategory of public ownership for public usage (*res in usu publico*) and not public goods that were classified as fiscal property (*res in patrimonio fisci*) (Di Porto, 2013: 35). This unveils a point that is particularly salient to this paper, that is, that water was protected by a particular interdict only if it fell under a specific ownership category. There was no single legal protection of water as such and everything depended on ownership categories, which in the case of water was referenced to the context it was found. The interdicts *publicae utilitatis causa*, for example, did not protect the possibility of use of all public waters, but only the use of public waters that were qualified as being under public ownership for public usage (*res in usu publico*) such as rivers (Digest 43.12.1.1-4; Digest 43.12.1.20).<sup>11</sup>

<sup>11</sup> Note that, as previously mentioned, rivers did not only belong to the category of public ownership for public usage (*res publicae in usu publico*) but also to the subcategory of *res publicae iuris gentium*.



Thus, the connection between a legal remedy and a particular ownership category indirectly led to the labelling and institutionalisation of various types of water. In the case of *flumen* (rivers), for example, the features that made water a river had to be identified in order to trigger the interdicts *publicae utilitatis causa*, which were aimed at protecting the navigability of rivers (De Marco, 2004: 89). Roman jurisprudence did in fact provide a solution to the issue. In this context, Ulpian states that,

A river is distinguished from a stream by size, or by the opinion of the surrounding inhabitants. 2. Some rivers are perennial, some torrential. Perennial is what is always flowing, "ever-running" in Greek; torrential is "winter-flowing". But if some rivers should dry up in summer which normally flow perennially, they are nonetheless perennial. 3. Some rivers are public, some not. Cassius defined a public river as a perennial one; this opinion of Cassius, which Celsus also approves, is held to be acceptable (Watson, 1998: Dig. 43.12.1.1-3).

According to this Roman jurist, the use of the term *flumen* (river) – and accordingly of its applicable interdicts – is limited to those watercourses that have a minimum dimension as well as being recognised by society as rivers. Criteria are rather specific, although they allow for some flexibility (Grosso, 2001: 45). The criterion of social recognition not only invoked the context-specific interest of a given community, as many scholars have pointed out (Vassalli, 1960: 28), it also allowed for an actual territorialisation of water; in other words, a watercourse was regarded as a river whenever that specific society deemed it to be one.<sup>12</sup> As a result, the relevant regulatory framework was not narrowly applied to any watercourse, but rather was mostly dependent upon contextual factors. Certain navigable rivers, as for instance the Cremera and the Allia, were categorised as brooks, thus not enjoying the legal protection provided by certain remedies (Bonfante, 1926: 91).

There are also other passages which show that the legal remedies offered by Roman law were restricted to particular kinds of water. A case in point is the interdicts for *de aqua cottidiana et aestiva* (daily and summer water), which were originally aimed at protecting the right to divert water (Digest 43.20.1.27). These interdicts distinguished between the two different kinds of water (for daily waters, see Digest 43.20.1.2; for summer waters, see Digest 43.21.3-6). The above-cited passage from Ulpian helps clarify this distinction, further corroborating an 'ontological' criterion. Summer waters were distinct, as were, for example, summer pastures and summer clothes (Digest 43.20.1.3). Despite this ontological distinction, these two interdicts aimed to protect the same factual position, that, "[d]aily water differs from summer water in use not law" (Digest 43.20.1.3). Choice of the appropriate legal remedy depended on the kind of water under consideration.

This should not come as a surprise. Indeed, a differentiation between daily and summer waters has also been transposed into certain legislations; for example, Article 1080 and Article 1085 of the Italian Civil Code, respectively, provide for servitudes (rights to channel water across another's land) for daily and summer waters. What should instead be reflected upon is the limited scope of the interdicts for daily and summer water. Ulpian argues that these interdicts only protect perennial waters (*aqua viva*) that can be drawn from a source:

The praetor in this edict speaks of only such water as is perennial. For no water can be drawn off other than what is perennial. 6. Although we have said that this interdict applies to perennial waters, it applies to such perennial waters as can be drawn off. There are others which though perennial cannot be drawn off, such as well waters and underground waters which could not flow above ground and be of use. But a servitude may be imposed for raising waters of this kind which cannot be drawn off (Watson, 1998: Dig. 43.20.1.5-6).

In other words, the scope of applicability of these interdicts was limited to certain types of water. First, the two interdicts excluded still waters (for example, water in cisterns) since they were not perennial;

<sup>12</sup> This is in stark contrast with the current EU regulatory approach, according to which rivers are defined exclusively on the basis of morphology (Article 2[4] of the Water Framework Directive).

second, they excluded perennial waters that cannot be drawn from a source, such as groundwater, well water, and water from karst springs (Digest 43.20.1.8; Fiorentini, 2003a: 64). These same limitations cannot be found in the Italian Civil Code; on the contrary, in its Judgment No. 1315 of 29 January 2003, the Italian Court of Cassation repeatedly specifies that the limitations of Roman law do not operate in the current legal system. In other words, the equivalent Italian legal remedies are applicable to any type of water regardless of whether the waters are perennial.

The interdicts for daily and summer water are not an exception in Roman law; that is to say, limiting the applicability of a legal remedy to specific types of water was the norm. Unlike contemporary equivalents (see, for example, Article 704 of the Swiss Civil Code), the interdict for spring water usage (*de fonte*) was also limited to perennial waters:

This interdict is provided for someone who is prevented from using the water of a spring. For servitudes are normally not only for drawing water but also for raising it; and just as servitudes for drawing and raising water are distinct, so the interdicts are granted separately (Watson, 1998: Dig. 43.22.1.1).

Another example besides that of interdicts is the action to ward off rainwater (*actio aquae pluviae arcendae*); this was already present in the form of the Twelve Tables (450 BC), which were aimed at protecting landowners from damaging runoff. As the name indicates, this action was only available if rainwater (*aqua pluvia*) was involved. This requirement was essential, with an extensive body of interpretation developing over time. It was possible, for instance, to start a legal action if there was a mixture of rainwater and other types of water (*aqua mixta*) (Digest 39.3.1pr),<sup>13</sup> however, the relation with rainwater must always exist (Monaco, 2012). According to Trebatius, the action was admissible in the case of polluted water from *fullonicae* (fulleries, where wool was processed into cloth) only if the contaminated water had been collected in a single water conduit, because this would in principle ensure that the polluted water blended with rainwater:

It is recorded in Trebatius that someone who had a spring on his land established a fuller's shop at it and began to cause the water there to flow onto his neighbor's property. Trebatius says that he is not liable to an action to ward off rainwater. However, many authorities accept that if he channeled the water into one stream or introduced any dirt into it, he can be restrained (Watson, 1998: Dig. 39.3.3pr).

Ulpian, likewise, denied the applicability of the action to thermal water, the latter surely not being connected with rainwater (Digest 39.3.3.1). It is indeed the constant and meticulous attention to the existence of such relations that distinguishes the Roman approach from today's legal framework. The applicability of the legal remedy *had* to be centred on a particular type of water, namely rainwater. Again, referring to the equivalent of this remedy in current civil law systems, it may be observed that the concerned legal provisions merely refer to water in general terms. This does not mean that the legal provisions are applicable to every type of water but, rather, that for modern legal systems the distinguishing criterion is not type of water but human intervention. Indeed, this is the case in Article 913 of the Italian Civil Code, Article 552 (and Article 45 of Law No. 29/1985) of the Spanish Civil Code, Article 640 of the French Civil Code, Article 689 of the Swiss Civil Code, and Article 1351 of the Portuguese Civil Code. Clearly, modern legislators do not pay as much attention to types of water as Roman law did.

In short, the legal remedies offered by Roman law were conceived to protect only certain types of water; however, the relationships between legal remedies and water type have almost never been severed. Modern civil law systems do not demand the existence of a close relationship between *equivalent* legal remedies and a given water type; instead, they tend to broaden the applicability of the remedies in question to all water types. It thus seems that the context-dependent features of water were of considerably more regulatory and legal importance in ancient Rome.

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<sup>13</sup> For a practical example of a legal dispute involving *aqua mixta*, see Digest 39.3.23.2.

## ROMAN LAW AND CONTEMPORARY DISCUSSIONS IN WATER MANAGEMENT: FINAL CONSIDERATIONS

Efforts to identify regulatory approaches in Roman law often have the aim of transposing elements of them into a modern legal system;<sup>14</sup> however, that was not the aim of this analysis. The intention was not to extrapolate general rules from Roman law nor to provide a complete overview of the legal provisions that governed water in ancient Rome; rather, it was to examine whether the dominant conceptualisation of water in Roman times could have been reflected in its regulation. It seems that Roman regulatory practice could accommodate a fragmented conceptualisation of water; a single legal definition of water was absent and, as such, water fell under several ownership categories with different legal remedies for each. Overall, Roman law lacked comprehensive water legislation; it can thus be argued that water was viewed and regulated only according to its individual characteristics (Grosso, 2001: 46). Although it is still possible to witness some traces of this approach in the modern legal treatment of water, the current regulatory framework has undergone a process of rationalisation and has thus become more integrated.

These findings can provide food for thought. They supply useful insights into two topical discussions on water research and policy-making. The first discussion point relates to the possibility of an alternative approach that emphasises local hydrography and sociocultural factors in water regulation. The current conventional approach is, in fact, contained within the paradigm for integrated water resource management (IWRM), which has strongly characterised the water management discourse at multiple levels of governance in the last decades. According to the IWRM paradigm, the sectoral regulation of different waters should be replaced by an integrated regulatory framework that would also shift the management of local hydrography to the level of river basins (Cullet, 2011). The adoption of the EU Water Framework Directive (WFD) is a testament to that approach (EU 2000). Aiming to balance holistic management of water resources with respect for local specificities, the WFD has established river basin authorities to administer various river basin districts (see, for example, Articles 3 and 5). In other words, the WFD decided to establish river basins as the natural unit for ensuring water management that was both effective and also carefully considered contextual factors. River basin planning and management has thus progressively become the cornerstone of any IWRM approach (Molle, 2009).

Against this background, only a few scholars embrace an alternative way of thinking with regard to how to promote contextual factors in water management. While Linton (2014: 118) simply warns that implementing the IWRM paradigm may risk overlooking sociocultural perceptions of water and the associated contextual factors, Feitelson (2017) suggests that we should categorise water into various types, each corresponding to a different regulatory approach. The recent growing interest in 'multiple waters' in the literature tends to lend further support to the idea that we should be dealing with a relatively broad spectrum of water's materiality (Vogt and Walsh, 2021). Admittedly, this and similar claims are sometimes viewed as too ambitious from a regulatory viewpoint. It has not seemed practical to develop heterogeneous water regulation that would place considerable emphasis on water's specificities and on its associated sociocultural perceptions; indeed, the decision-making process for the adoption of the WFD has been deliberately limited to consultations with environmental NGOs (Zurita et al., 2015: 173).

Although a definitive response to these considerations cannot be offered here, this paper reveals that water regulation that is more attentive to the various types of water and, accordingly, more inclined to differing sociocultural perceptions is, in principle, feasible. In other words, this analysis of Roman law shows that it is possible to devise a generally applicable regulatory framework that can accommodate contextual factors and local specificities without explicitly requiring an integrated river basin level of planning and management. This should not, however, be considered as a critique of IWRM and the river basin approach itself; rather, it is an acknowledgment that there could be alternative or complementary ways to respect local hydrography and promote context-specific features within a regulatory framework.

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<sup>14</sup> See Fiorentini (2003b) and Schiavon (2011), both of whom bring the example of Wescoat (1997).

A second discussion point is also well worth mentioning. From the preceding analysis, it may be argued that water regulation can mirror a society's predominant conceptualisation of water. This finding has become particularly interesting considering the felt need for change in how practitioners and legal scholars approach water regulation; while the call for publicly owned water has been particularly pressing since the 1980s and early 1990s (Mitchell, 2012: 84), a different perspective on the matter is beginning to emerge. The following paragraphs attempt to outline that development in more detail, as well as clarify how the analysis of Roman law can become relevant to this specific debate.

Since the Napoleonic Code, civil law countries have tended to advance a process of rationalisation by categorising most water as being under either public or private ownership. Ownership categories in water management assume further relevance in discussions on water services; for instance, in different places around the world the failure of private water providers to manage water effectively has led to a call for a shift in its ownership and a reformulation of water services (Bakker, 2007). According to those who advocate for the restoration of public water management, treating water as a private good in principle forecloses any possibility of it having 'special' status.

This debate has been engaged in enthusiastically by all sides, but it has also been characterised by polarisation and social tension. Most importantly for the aim of this paper, however, the debate seems to have highlighted the question of whether shaping an effective water regulation framework can dispense with the need to define what type of ownership category water should be assigned to (Carapezza Figlia, 2008). Indeed, the main issue that should be discussed is not whether water should be publicly owned, but rather how public authorities can be entrusted with sufficient powers to ensure a water management capable of addressing main societal concerns (Boscolo, 2021). This development has been exemplified by the approach held by the EU, which has always remained silent on water ownership. A similar case occurred at a supranational level, whereby the United Nations Committee on Economic, Social and Cultural Rights has explicitly acknowledged (while discussing the human right to water) that water can be provided either publicly or privately (General Comment No 15, para. 27).<sup>15</sup>

These developments thus call for a recalibration of the relationship between water and ownership categories. In this context, some argue for the move from ownership categories to a non-appropriative framework by considering water under the principle of the common heritage of humankind (Cullet, 2011). Others argue for the introduction in our legal texts of concepts such as 'common pool resources' – which should not, however, be confused with the term *res communes omnium* (Boscolo, 2021; Lucarelli, 2011; Fiorentini, 2010)! In this regard, Roman law may teach us that we should not be afraid of disconnecting how to devise effective water management policies from the ownership categories model. According to the preceding analysis, water can fall under several ownership categories without it necessarily affecting the regulatory framework's ability to offer effective legal remedies based on individual rights of access to, and use of, water. A regulatory approach of this kind may even facilitate a water resources management that is more attentive to local hydrography and that could be pre-empted by more political discourses.

In view of the foregoing, it must be said that the prior analysis is merely tentative. This tentativeness is due to the two types of challenges presented by the study of Roman law: the purpose of the analysis and the availability of legal sources. For a better contextualisation of the previously conducted examination, we now present these challenges.

Two antithetical purposes may emerge from any study of Roman law. One purpose, dear to von Savigny and the German Pandectists, is to actualise Roman law (von Savigny, 1850: 472), in other words, to make use of Roman law for present times. The other purpose for studying Roman law is to try to create

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<sup>15</sup> For a somewhat different position – one that highlights the risk of private water provision – see the report by Léo Heller, the Special Rapporteur on the human rights to safe drinking water and sanitation. On this, also see Hey and Quintavalla (2021).

a historical re-enactment of the phenomenon of the Roman legal system (Orestano, 1987: 348-68). In the latter case, the task of the researcher is to provide a detailed overview without pigeonholing Roman laws into modern legal categories. At this point, one may ask which of the two approaches was applied to the current work. The response is far from clear. As Betti (1929)<sup>16</sup> notes, it seems inconceivable to embrace one single approach without being influenced by the other. More concretely, every time we approach the study of Roman law we do so from the context of our own legal culture and mentality (De Francisci and Betti, 1997: 29). It may thus well be the case that one's own 21st century legal culture skews the analysis of a legal system that operated two millennia ago.

The second challenge (the availability of legal sources) further exacerbates the tentative nature of the observations advanced in this paper. The study of Roman law is based on the sources that have come down to us, which form only part of what was once available. This means that certain legal sources that are considered to be local might instead have been applicable across the entire Roman Empire; for example, although a set of regulations for an irrigation community in Spain (*lex rivi Hiberiensis*) limits its geographical area of application to the Ebro Valley, it could well have been inspired by general rules. Likewise, other sources, such as the Codex Theodosianus (438 CE) may be limited to very general and broad legal provisions without discussing the more local ones. This hypothesis is not overly unrealistic. Suffice it to say that the Code of Justinian, adopted about a century later (534 CE), bans local legal provisions and prohibits imperial constitutions not contained in it from being used in court. It seems, in other words, that the regulatory framework in place before Justinian was unduly fragmented.

This consideration of the availability of legal sources may also apply to time and legal fields. A certain legal provision may have been enforced in the Roman Republic and then later repealed during the imperial period.<sup>17</sup> Moreover, the largest part of the *Corpus Iuris Civilis* (the major legal source at our disposal) tends to limit the main discussion to private law. In the specific case of water, the scant references to public law are in the Code of Justinian (11.43 *De aquaeductu*) and in a few titles of the Digest such as the interdict preventing flow-altering construction on or near a public river (*Ne quid in flumine publico fiat, quo aliter aqua fluat*) (Digest 43.13).<sup>18</sup> Many regulations that concern water in a public-law context are thus missing. Almost all extant mentions of water in that context, found in literary works (Frontinus) or in inscriptions such as the Edict of Augustus on the aqueduct at Venafrum (17-11 BC), are limited to reports of legislative text (Rodgers, 2004: 63-119). In other words, there is a shortage of commentaries that contextualise and provide legal reasoning, which leaves legal scholars with little to work with.<sup>19</sup> Last, but also relevant, the interpolation (additions or changes) of ancient manuscripts may have altered their original meaning.

It follows that the incomplete and limited nature of legal sources forces researchers to adopt theoretical (and practical) assumptions that cannot be fully tested and may ultimately prove incorrect. Taking again the *lex rivi Hiberiensis* as an example, it may be tempting to argue that the discovery of a local law shows that Roman water legislation did not adopt a one-size-fits-all approach; previous literature has indeed argued for the existence of various special laws to the detriment of a harmonised Roman water law (Wilson, 2012: 4). Although this claim could be convenient for the sake of the argument advanced in this paper, the paucity of the sources that have reached us forecloses the possibility of making such bold assertions. That being said, it is hopefully clear why our examination did not purport to provide the 'correct' interpretation, but instead drew only tentative conclusions.

This paper can be read from two perspectives which constitute a kind of trade-off. It can be interpreted as an historical overview of how the Greco-Roman experience with water differed from that

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<sup>16</sup> The book referred to here, *Questioni di metodo. Diritto romano e dogmatica odierna*, features essays dating back to around fifty years ago by De Francisci and Betti regarding an academic debate between the two authors.

<sup>17</sup> This risk does not however apply to the *Corpus Iuris Civilis* and the other late-antiquity legal texts.

<sup>18</sup> This interdict was applied to all public rivers, navigable or not, to prevent them from drying up.

<sup>19</sup> There have also been attempts by Maganzani (2004) to explore the inscriptions from a more legal perspective.

of today, or it can be viewed as an effort to avail ourselves of lessons from past experiences in water regulation. This dichotomy is very similar to the purposes of the analysis of Roman law discussed above (that is, historical re-enactment or actualisation of Roman law). While the current work took no side in that trade-off, for the purpose of this paper the latter option would be preferred. Our findings suggest not only that the historical context does matter for water regulation but also that there could be alternative (*or* complementary) means of managing contextual factors in water management.

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