

WATER TREATMENT: DISCHARGES
IN ANCIENT ROME AND THEIR IMPACT ON CITIES*
(ENGLISH LANGUAGE)

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Abstract: Over the centuries, the state and health of water for human supply has been a reason for debate and concern, due to its treatment by states and companies. In this work, we will study about the discharges, which occurred in our seas since the time of the Roman Empire and their impact on modern practices.

Keywords: Waters; discharges; companies; fullonicae; urbs; contamination.

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FACTORS THAT CONTRIBUTED TO THE REGULATION OF POLLUTING ACTIVITIES IN ROME

The protection and protection of the environment is a concern of the states at present, pending the evolution of climate change and the possible adverse effects that these can produce. Although it seems like a current problem, since ancient times, there has been a real concern for the protection of the environment in which they lived¹. The impact of cities on rivers and seas, as a result of industry and human activity, has not only produced a condition in the ecosystem itself, but has also adversely altered human health. New diseases have entered our health landscape, currently such as the pandemic² that plagues us like Covid-19. In its beginnings, the regulations were created for private or partisan purposes, and did not contemplate the damage that these practices would have for future generations. In the absence of specific legislation at the beginning of the construction of the law, this matter was protected by administrative law³. In a very brief way, we can establish that already in the "Code of Hammurabi"⁴, provisions were created to preserve the health of the streets, their inhabitants and even the livestock. The shepherd "*due to negligence, allowed scabies or any infection to spread in the herd, he had to restore the lost cattle*"⁵, it was one of the measures to protect health among others. This is not

¹ According to the right words of Professor FERNÁNDEZ DE BUJÁN, A. Roman public law. 15.^a ed. Madrid, Civitas, 2016, p. 239 ss.; vine. also FERNÁNDEZ DE BUJÁN, A. Institutions, facts and administrative activity in the Roman legal experience. – In: Derecho administrativo histórico (Historical Administrative Law), Santiago de Compostela, 2005, p. 119-158, "*Roman Law constitutes the precedent... and we consider it relevant for jurists in the creation of Modern Law*" so our study tries to make this relevance manifest in European legislation.

² Although this fact is not a new situation, in the past there have already been pandemics that spread very quickly throughout our continent. See for example the plague antonina, in an approximation of RUIZ-PATIÑO, A. La plaga Antonina. – In: Medicina, 42 (2020), p. 175 tells us "*Pergamum, would narrate in his stay in Rome the cases of a rash disease associated with diarrhea and fever that would take the lives of millions of citizens of the Roman Empire.*"

³ ZAMORA MANZANO, J.L. Roman precedents on environmental law. Water pollution, sewage channeling and illegal logging. Madrid, Edisofer, 2003, p. 16 ss.

⁴ JOHNS, C. H. W. The Code of Hammurabi. – In: The Expository Times 14(6) (1903), p. 257–258 <<https://doi.org/10.1177/001452460301400604>>.

⁵ ZAMBRANA MORAL, P. La protección de las aguas frente a la contaminación y otros aspectos medio-ambientales en el Derecho romano y en el Derecho castellano medieval (Water Protection Against Pollution and Other Environmental Aspects in the Roman Law and in the Medieval Castilian Law. – In: Revista de derecho, 37 (2011), p. 597–650 <<https://doi.org/10.4067/s0718-68512011000200016>>. (Date of consultation: 08/16/2020).

an obstacle, so that, with the passage of time, a society ahead of its time does not regulate the individual actions of citizens that endanger the environment. This problem was exacerbated in the cities, since the high concentration of citizens, in the *insulae*, made it even more difficult to control the waste that they discarded in the streets. In these types of buildings, they used to be occupied by *pater* families who held vulgar trades, which, in most cases, lacked hygiene measures, along with the appearance of parasites in domestic animals. Picking up Cicerón opinion on *off. I*, 150 when describing what kinds of trades generated innumerable waste in the streets:

*"Quibus autem artibus aut prudentia maior inest aut non mediocris utilitas quaeritur, ut medicine, ut architecture, ut doctrine rerum honestarum, eae sunt iis, quorum ordine conveniunt, honestae. Mercatura autem, si tenuis est, sordida putanda est; sin magna et copiosa, fine undique apportans multisque sine vanitate inperitens, non est admodum vituperanda; atque etiam si satiata quaestu vel contenta potius, ut saepe ex alto in portum, ex ipso se portu in agros possessionesque contulit, videtur iure optimal posse laudari. Omnium autem rerum, ex quibus aliquid acquiritur, nihil est agriculture melius, nihil uberius, nihil dulcius, nihil homine, nihil libero dignius"*⁶

The overcrowding in these primitive buildings generated innumerable waste, which had to be managed in different ways, depending on the type in question. In some cases, the practice of dumping on public roads was regulated. In relation to domestic waste, the praetor had to issue an edict, *effusis vel deiectis*⁷ in which *quasi-delicto* behaviors that affected the passer-by were

⁶ Cic., *Off. I*, 150; "Now, in regards to the trades and other means of vulgar, sustenance occupations, which should be considered suitable for a gentleman and which are vulgar, we have been taught, in general, the following. In the first place, those means of subsistence that provoke the ill will of the people, such as those of tax collectors and usurers, are rejected as undesirable. Also unfit for a gentleman and vulgar are the livelihoods of all hired workers whom we pay for mere manual labor, not for their artistic ability; because in their case, the salary they receive is a pledge of their slavery. Vulgar we must also consider those who buy from wholesalers to retailers immediately; because they wouldn't make a profit without a lot of lies; and in truth, there is no action more petty than misrepresentation. And all mechanics engage in vulgar trades; Well, no workshop can be liberal at all. The least respectable of all are the trades that deal with sensual pleasures: fishmongers, butchers, cooks and polleros."

⁷ Ulpiano 23 ad ed, D.9.3.1.pr. "Praetor ait de his, qui deiecerint vel effuderint: "Unde in eum locum, quo volgo iter fiet vel in quo consistentur, deiectum vel effusum quid erit, quantum ex ea re damnum datum factumve erit, in eum, qui ibi habitaverit, in duplum iudicium dabo. Si eo ictu homo liber perisse dicetur, quinquaginta aureorum iudicium dabo. Si vivet nocitumque ei esse dicetur, quantum ob eam rem aequum iudici videbitur eum cum quo agetur condemnari, tanti iudicium dabo.: aut noxam dedere".

typified⁸, given the situation of the narrow and narrow streets in the city of Rome⁹ that it required such intervention, and that, in addition, it affected their health, although there was no direct regulation dedicated to the environment but to the safety of the roads. Due to the abuse that occurs with natural resources, an ecological awareness begins to be created and aspects of it are started to regulate to ensure health in them¹⁰ and its vigilance. This concern to keep the waters clean is reflected in the words of the lawyer Paul 5 sent. in D. 47. 11. 1. 1;

*"Fit iniuria against mores bonds, veluti if I wanted corrupt fimo aliquem perfuderit, caeno muto oblinierit, aquas spurcaverit, fistulas lacus quidve aliud ad iniuriam publicam contaminaverit: in quos graviter animadverti solet."*¹¹

From the text it is inferred how the behaviors related to water pollution, being circumscribed¹² to the crime *iniuriam publicam*, when an uncivil behavior is exercised, either in a private way or by being the regent of a textile industry. Derived from this concern, praetorian norms and remedies were established as injunctions¹³ to avoid this type of practice in pipes and conduits.¹⁴ Although, from

⁸ The specific regulation aimed at punishing the *habitor* of a house from which liquids or solids are thrown, affecting the safety of the passer-by and indirectly the health of the *urbe* itself. The reasons given in the *laudatio* of the edictal clause, evidently point to the public utility that guarantees a safe transit of the inhabitants, Ulpiano 23 ad ed., D.9.3.1.1: "*Summa cum utilitate id praetorem edixisse nemo est qui neget: Publice enim utile est sine metu et periculo per itinera commeari*".

⁹ In popular neighborhoods, it was customary for waste to be thrown from buildings onto the street, given the precarious health conditions in which the city was with its enormous vertical development that maximized space, as an illustration we can cite the well-known passage of Juvenal in his Satires in which he alludes to the dangers of walking at night, Sat.III.268: "*Respice nunc alia ac diverse pericula noctis: / quod spatium tectis sublimibus unde cerebrum / testa ferit, quotiens rimosa et curta fenestris / vasa cadant, quanto percussum pondere signent / et laedant silicem. possis ignavus haberi / et subiti casus improvidus, ad cenam si / intestatus eas: adeo tot fata, quot illa / nocte patent vigiles te praetereunte fenestrae / ergo optes votumque feras miserabile tecum, / ut sint contentae patulas defundere pelves*".

¹⁰ In the words of the philosopher Seneca, collected in Ep. ad Luc.11.86.10, explains that they were in charge of ensuring the health and hygiene conditions in relation to the use of public goods: "*Sed, di boni, quam iuvat il / a balinea intrare obscura et grega / i tectorio inducta, quae scires Catonem tibi aedilem aut Fabium Maximum aut ex Corneliis aliquem manu sua temperasse! Nam hoc quoque nobilissimi aediles fungebantur officio intrandi ea loca quae populum receptabant requirinique munditias et utilem ac salubrem temperature*".

¹¹ D. 47.11.1.1 (Paul. 5 sent). "*An injury is done against good customs, for example, if someone had soiled another with corrupted manure, he would have stained him with silt, or with mud, he had clogged up waters, pipes, or lakes, or had contaminated something else to the public's injury.; who are often severely punished.*"

¹² ZAMORA MANZANO, J.L. Roman precedents on environmental law, p. 20.

¹³ MARTÍNEZ ALMIRA, M.M. Water, right of use and utility in traditional Andalusian irrigation in the Kingdom of Valencia. – In: GLOSSAE, 12 (2015), p. 483-520.

¹⁴ MARTÍNEZ ALMIRA, M. M. Water Law. Misuse and contamination in Andalusian law. – In: AHDE, 76 (2006), p. 369; "That in the case of old contaminated drains, it would

our point of view, we consider that it was an embryonic form of guardianship and that it forced the creation of a street cleaning service to try. When dealing with professions, where what predominated was the treatment of waste of animal origin, the lack of food safety in its handling and disposal in adjacent rivers, among others, favored the appearance of polluting agents and harmful to health in rivers and lakes, affecting the health of the waters. Thus, we can illustrate protection by bringing up *Tabulae Heracleensis*; in L. 32-45¹⁵, where in one of its passages it tells us the obligation of vigilance on the part of the mayor of the unhealthy deposits that may contain some stagnant waters within a civil process. A significant fact is the work of the councilors, since in the passage it is not very clear, if in addition to the work of monitoring these waters, they should carry out the cleaning of them, through *purgatio*¹⁶. It is important, the study of a part of the *Tabulae Heracleensis* seems to be in tune with this interpretation;

L. 20-23: *“Quae viae in urbem Rom (am) propiusue u (rbem) R (omam) p (assus) M ubei continent habitatur sunt erunt, quous ante aedificium earum quae viae erunt, is eam uiam arbitrato eius aed (ilis), quoi ea pars urbis h (ac) I (ege) obuenerit, tueatur; isque aed (dilis) curato uti quorum ante aedificium erit*

be advisable to divert the waters so that they do not get dirty, and fix the damages (a company that is the responsibility of the person through whose land the aforementioned waters pass). Try not to deviate its course and favor that it is straight or straight.”

¹⁵ L. 32-45 *“Quemquomque before suun aedificium uiam publicam h (ac) I (ege) has given oportebit, quei eorum eam uiam arbitrato aed (ilis), quois oportuerit, non tuebitur, eam uiam aed (ilis), quonius arbitrato eam tuerei oportuerit, tuendam locato; isque aed (ilis) diebus ne minus X antequam locet aput forum before the court suom propositum habeto, quam uiam tuendam et quo die locaturus sit and quorum ante aedificium ea uia sit; eisque quorum ante aedificium ea via erit procuratoribusue eorum domun denuntietur facito, se eam uiam locaturum et quo die locaturus sit; eamque locationem palam in forum per q (aestioem) urb (anum) eumue quei aerario praerit facito. quanta pecunia eam uiam locauerit, tamtae pecuniae eum eos [q] ue, quorum ante aedificium ea uia erit, pro portioni quantum quousque ante aedificium uiae in longitude and in latitudine erit, q (uaestor) urb (anus) queiue aerario praeteri in tabula publicas pecuniae factae referendum cuato. Ei ul eam tuendam redemerit, tamtae pecuniae eum eosue adtributio sine d (olo) m (alo). Sei is quei adtributus erit eam pecuniam diebus XXX proxum is, quibus ipse aut procurator eius sciet adtributionem erit, non soluerit neque satis fecerit, is, quamtae pecuniae adtributus erit, tamtam pecuniam et eius dimidium ei, quoi adtributio ei, quoi adtributione must erit rm is, quoquomque de ea re aditum erit, iudicem iudicimue ita dato, uti de pecunia credita iudicium [q] ue dari oportet.”*

¹⁶ RENDO RODRIGUEZ, C. L. Public services in the Tabula Heracleensis. – In: Revista Jurídica Da FA7, 1 (2017), p. 503: *“Perhaps the precedent of this obligation that the Tabula Heracleensis imposes on neighboring owners is found in the Pergamon law, which in terms of conservation and cleaning provided that citizens should be that they had their real estate located along the roads in each neighborhood, who had to keep them clean and passable, and who had to contribute as a community to the payment of the repairs that were necessary to make.”*

quamque uiam h (ac) I (ege) quemque nuti oportebit, ei omnes eam uiam arbitrato eius tueantur, neue eo loco aua consistat, quo minus conmode populus ea uia utatur”.

Due to this fact, together with the textile industry and the deposits to house the sewage of the cities, high doses of polluting agents were generated in the city's supply. In this study, we will only briefly address some of the most relevant sources of pollution in the Roman Empire, which led to the regulation of these practices. Perhaps at the beginning, it was about protecting real rights based on neighborhood relations, property or the delimitation of the use and enjoyment of the riverbanks belonging to *res publica*¹⁷. But this fact is not without an intrinsic aim of sustainability and preservation of the environment.

SOME ACTIVITIES DETRIMENTAL TO THE WATER IN THE INSTALLATION OF THE *FULLONICAES* AND THE NEED FOR EFFICIENT SEWERS

We cannot doubt that the human being has been one of the determining factors in the pollution and degradation of the habitat. The urban centers were the epicenter of this deterioration, which in many cases continues to this day.¹⁸ However, a whole set of norms emerged that would make up Roman Administrative Law, as a paradigmatic order and whose principles are analyzed by Professor Antonio Fernandez Buján¹⁹, and which contemplated that environmental law not organized as such until now. Environmental crime in Rome is not classified as such, but there was an "environmental" regulation, which penalized this type of harmful practices as a crime of *iniuriam publicam contaminaverit*. Advancing in our reasoning, we can show that there are two types

¹⁷ RODRIGUEZ NEILA, J. Aqua publica and Roman municipal politics. – In: Gerión, 6 (1988), p. 226 tells us in the use of the *res publica*: "This body established in which cases public pipes could also be used by individuals, both to supply their bathrooms and their laundries... It could also grant free use permits to an honorary citizen, a detail that confirms the high cost that the supplies from public conduits."

¹⁸ ALMEIDA, C.A., S. QUINTAR, P. GONZALEZ, M. A. MALLEA. Influence of urbanization and tourist activities on the water quality of the Potrero de los Funes River (San Luis – Argentina). – In: Environmental Monitoring and Assessment, 133 (2007), p. 459.

¹⁹ FERNÁNDEZ DE BUJÁN, A. Roman public law. 15th ed. Madrid, Civitas, 2016, p. 33. In the same sense ALBURQUERQUE, J. M. The protection or defense of the collective use of things in the public domain: Special reference to the interdicts of *publicis locis (loca, itinere, viae, flumina, ripae)*. Madrid, Dykinson, 2002, (reprint 2010), p. 22.

of discharges that were produced in the cities, the major pollutants of the time. The first of the most common discharges on water are those produced by the *fullonicae*, whose activity affected not only public roads, but also private homes²⁰ that were close to these shops²¹. This was a source of contamination spread throughout the vast empire²². According to the Jurisconsult Ulpiano in D. 43. 24. 15. 11 (71 ad ed.), not only those in which there is an intentionality are contemplated, but also negligent actions;

"Culpam quoque in hoc interdicto venire erit probandum: quae tamen arbitrio iudicis aestimanda erit."

From the text it is inferred the application of the *interdict quod vi aut clam* against any action of dumping polluting agents. Among the activities that produced waste in the waters we find the *fullonicae*. We can define *fullonicae*²³ as the industry in charge of dyeing garments and cleaning them for the highest social class of the time. They were also in charge of "*elaboration, dyeing and degreasing of the shorn wool*"²⁴ using the *creta fullonica technique*²⁵. It should be noted the importance of this industry²⁶, since it was one of the main

²⁰ D. 39.3.3.0 (Ulp. 53 ad ed.) "Apud Trebatium relatum est eum, in cuius fundo aqua oritur, fullonicae circa fontem instituisse et ex his aquam in fundum vicini immittere coepisse: ait ergo non teneri eum aquae pluviae arcendae actione. si tamen aquam conrivat vel si spurcam quer immittat, posse eum impedi plerisque placuit."

²¹ According to RUIZ-PINO, S. Some historical precedents for the protection or defense of natural resources and sanitation in Rome. Towards a Roman environmental administrative law. – In: Digital Magazine of Administrative Law, 17 (2017), p. 102 "*providing serious penalties for a possible case of what today we would call an environmental crime in the event that someone had "empuerced waters, pipes or lakes or had contaminated something else to the injury of the public"*. Professor GEREZ KRAEMER, G. M. The law of waters in Rome. Madrid, Dykinson, 2008, p. 269 highlights the difference between water of fluvial origin and that which comes from a source. The condition will be different depending on the flow passage, since, if it comes from the course immersed in a city.

²² ZAMORA MANZANO, J.L. Roman precedents on environmental law, p. 30.

²³ USCATESCU, A. Fullonicae and tinctoriae in the Roman world., Barcelona, 1994, p. 15.

²⁴ BRAVO BOSCH, M. J. The protection of the environment in ancient Rome. – In: INDEX, 42, 2014, p. 503, where the procedure by which garments were degreased by means of these liquids with a high sulfur content is indicated.

²⁵ Technique with which clays or sandy materials were used to remove grease from clothing or cloths intended for cleaning.

²⁶ PAOLI, U. Urbs, life in ancient Rome. Iberia, Barcelona, 1973, p. 220 "*Great development among Roman industrialists also had the ancient art of dyers (dyers, infectors), especially after transplanted to Italy the purple industry, which for a long time flourished in Phenicia (the first center of that industry, and the most renowned also in Roman and medieval times), in Laconia (Greece) and on the island Meninx (North Africa); in Western Europe renowned dry cleaners arose in Gaul, in Spain and in many cities in Italy (Ancona, Aquino, Pozzuoli, Taranto, Syracuse)."*

engines of financial activity among the middle class. The technique used on many occasions to clean²⁷ these clothes, it was urine²⁸ in which it was collected in large amphoras. The high ammonia content of the urine was the reason why it is given disinfectant qualities, which is not an obstacle to the bad smell that these garments gave off when passing through the degreasing treatment with the urine. Purple color²⁹, gave the distinction of social status, so the aroma³⁰ that these garments emanated, strange as it may seem in our culture, were shed by the most valued citizens of Roman society, such as magistrates or senators. The process took place between the public thoroughfare³¹, due to the space that was needed for washing a multitude of garments. This increased the risk of groundwater contamination. If we take into account the extension of the empire where the cities were concentrated, and the demographic pressure of these streets, the amount of vessels and amphorae they would need to cover the needs of the citizens they required, must have been considerable. In addition to this source of pollution, human waste, not only that emanated by individuals residing in innumerable islands, but also by those used by the industry for degreasing and

²⁷ In particular in Plinio Nat. Hist. IX.64.138 states "*with respect to shell-dyed clothing it is all the same, but without whelk, and except that the liquid. It is mixed with water and human urine in equal parts – The tinctures are also incorporated in half. This is how you get that appreciated pale tone due to the lack of saturation and all the more faded the less the fleeces suck. In conchyliata veste cetera eadem sine bucino, praeterque ius temperature aqua et pro indiviso humani potus excrement. dimidia et medicamina adduntur. sic gignitur laudatus ille pallor saturitate fraudata as much as dilutor, quanto magis vellera esuriunt. Pretia medicament sunt quidem pro fertilitate litorum viliora, non tamen usquam pelagii hundreds pounds quinquagenos nummos excedere et bucini centenos sciunt qui ista mercantur immense.*"

²⁸ PAOLI, U. *Urbs, life in ancient Rome*, p. 221: "*The lighter colors were obtained by diluting the juice in water and urine.*"

²⁹ Regarding the value of purple ink, Plinio in his Natural History accurately describes the process and its cost in his book IX.63.136-137; 64.138: "*Purpurae usum Romae semper fuisse video, sed Romulo in trabea. nam toga praetexta et latiore nail Tullum Hostilium e regibus primum usum Etruscis devictis satis constat. Nepos Cornelius, qui Divi Augusti principatu obiit: Me, inquit, iuvene violacea purpura vivabat, cuius libra denariis centum venibat, nec multo post rubra Tarentina. huic successit dibapha Tyria, quae in pounds denariis mille non poterat emi. hac P. Lentulus Spinther aedilis curulis primus in praetexta usus inprobabatur. qua purple quis non iam, inquit, triclinaria facit? Spinther aedilis fuit urbis conditae anno DCXCI Cicerone consule. dibapha tunc dicebatur quae bis tincta esset, veluti magnificent inpendio, qualiter nunc omnes paene commodiores purpurae tinguuntur.*"

³⁰ PAOLI, U. *Urbs, life in ancient Rome*, p. 222: "*This procedure, which can justify the possible gesture of disgust by those who read this, explains the bad smell of purple-dyed dresses... Smelly and beautiful, with changing reflections. purple in Rome was also a sign of dignity.*"

³¹ BRAVO BOSCH, M J. The protection of the environment in ancient Rome. – In: INDEX, 42, 2014, p. 504: "*To carry out this work... they used the landfill of the public road, called intervallum.*"

cleaning fabrics on public roads, we have the hydraulic systems of canalization of the fullonicae themselves. Although Rome was famous for its channeling³² of water through the design of canals and aqueducts, which were the sources from which the town was supplied with water and safeguarded its health. We believe it is necessary to mention the fragment of Ulpiano 53 ad edict, collected in D. 39.3.3.pr;

“Apud Trebatium relatum est eum, in cuius fundo aqua oritur, fullonicas circa fontem instituisse et ex his aquam in fundum vicini immittere coepisse: ait ergo non teneri eum aquae pluviae arcendae actione. si tamen aquam conrivat vel si spurcam quis immittat, posse eum impedi plerisque placui. ”

From this passage it is worth mentioning the words *fullonicas circa fontem*, or waters that emanate from waters or sources. This allows us to conclude that the protection of the waters, in terms of the control of discharges, was not only limited to rivers and pipelines.³³, but any spring, fountain or large

³² The importance of the salubrity of the waters becomes palpable with the work of Vitruvio, the edition that we handle is that of VITRUVII POLLIONIS, M. De Architectura. Opus in Libris Decem. Alianza Forma, Amsterdam, 1995, VIII.4.1 and 2, under the heading "Tests to check the health of the water" gives an explanation of how to control the purity and cleanliness of the waters; *“Experts autem et probationes eorum sic sunt providendae. If they were profluent and open, antequam duci incipientur, aspiciantur animoque advertantur, qua membratura sin qui circa eos fontes habitant homines; et si erunt corporibus valentibus, coloribus nitidis, cruribus non vitiosis, non lippis oculis, erunt probatissimi. Item if fons novos fossus fuerit, et in vas corinthium sive alterius generis, quod erit ex aere bono, ea aqua sparsa maculam non fecerit, optimal est. Itemque in aeneo if it is aqua defervefacta et post requieta et defusa fuerit, neque in eius aenei founded harena aut limus invenietur, ea aqua erit item probata. [2] Item if legume in vas cum ea aqua coiecta ad ignem posita celeriter percocta Fuerza, indicabunt aquam esse bonam et salubrem. Non etiam minus ipsa aqua, quae erit in fonte, si fuerit limpida et perlucida, quoque pervenerit aut profluxerit, muscus non nascetur neque iuncus, neque inquinatus ab aliquo inquinamento is locus fuerit, sed puram habuerit speciem, innuitur his signis ese tenuis et in summa salubritate. ”* “The following experiences and tests must be carried out to detect the quality of the water. If it is running water and in the open, before you start driving, be carefully observed and examined the constitution of the members of the people who live in their surroundings; if they have robust bodies, fresh skin color, flawless legs, and clean eyes, the water will be of the highest quality. Similarly, if the spring comes from new wells, your water will be excellent if it leaves no trace when you pour it into a good quality Corinthian or bronze vase. If we boil the water in a bronze container, let it rest and then pour it out, it will be a water of proven quality if it does not leave grit or mud at the bottom of the container. If we boil legumes in a container with this water and observe that it cooks quickly, it is an unequivocal sign of the quality and wholesomeness of the water. If the water flows clean and transparent, If moss or reeds do not grow in the places where it passes or spills and if the place does not offer any dirt, but rather has a clean appearance, it is a very clear sign that the wáter is soft and perfectly healthy.”

³³ According to the work of RODRÍGUEZ NEILA, J. F. Public water and Roman municipal politics. – In: Cerión, 6 (1988), p. 223, highlights *“The water from the public pipes supplied, primarily, the public buildings, hot springs, monumental fountains*

container from which water could be drawn. This fact denoted concern for the water heritage.

These hydraulic works had a high investment and economic cost on the part of the empire, which made the control over these works greater. This fact met with the obstacle of demographic pressure and an even greater source of inoculation of pollutants, the sewers³⁴ and the concern for the maintenance of drains and pipes. For the regulation of sewers³⁵, and therefore, we must analyze *de cloacis* injunction, which tried to control the problems caused by the sewer system in terms of containing human waste or *aqua purcam*. The problem increased, when there were floods or floods occurred, this caused the sewers to reach their maximum capacity and overflow. Cleaning³⁶ of the sewers, was a primary task for the sewer network. This fact was demonstrated, even having the right to private property³⁷, if it occurred if any polluting agents were generated

(*nymphaea*) and a whole network of sources distributed throughout the cities, which was where most of the population took it from for domestic uses."

³⁴ D. 43.23.1.4. and D.43.23.1.6. describe the substances that pass through the sewers as "certain filth" according to the interpretation of RUIZ-PINO, S. Some historical precedents for the protection or defense of natural resources and sanitation in Rome. Towards a Roman environmental administrative law. – In: Digital Magazine of Administrative Law, 17 (2017), p. 99. "*Cloaca autem est locus cavus, per quem colluvies quaedam fluat.*" "*Cloacae appellatione et tubus et fistula continetur.*"

³⁵ HEUMANN-SECKEL, V. *cloaca*, Heumanns Handlexikon zu den Quellen des Römischen Rechts. German Edition. 1926, S. 73 : "*Autem est locus cavus, per quem colluvies quaedam fluat.*" Translation of from the interpretation of D. 43.23. *de cloacis*.

³⁶ ZAMBRANA MORAL, P. La protección de las aguas frente a la contaminación y otros aspectos medio-ambientales en el Derecho romano y en el Derecho castellano medieval (Water Protection Against Pollution and Other Environmental Aspects in the Roman Law and in the Medieval Castilian Law. – In: Revista de derecho, 37 (2011), p. 601 tells us "*Both the cleaning and the restoration of the sources and of the water conduction systems would be essential to guarantee the health of the same.*" something that was novel in this era focused on war battles and the conquest of territories.

³⁷ For this control, on which individuals could carry out in the public network and go to the sewers, the provisions of D. 43.23.1.15 by Ulpiano 71 ad edictum were established. "*Deinde ait praetor: "Quod in cloaca publica factum sive ea immissum habes, quo usus eius deteriorate sit fiat, restituas. Item ne quid fiat immittaturve, interdicaam "*. "You will restore what you have done or put in a public sewer to the detriment of the use of it. Likewise, I will give an injunction so that nothing is done or put into it. "

that could damage the infrastructures³⁸ public, he could not assert his right³⁹. It seems clear that the cleaning of these sewers was the responsibility of public entities, according to D.43.23.1.7 by Ulpiano 71 ad edictum: “

“Quia autem cloacarum refectio et purgatio ad publicam utilitatem spectare videtur, idcirco placuit non esse in interdicto addendum, quod non vi non clam non precario ab illo usus, tu, eatiamsi quis talem usum habuerit, tamen non prohibeatur volens cloacam reficere vel purse”

From the text it is inferred the obligatory nature of the *purgatio* of the sewers *by interdict addendum*, establishing a clause for individuals. In it it is described for the individual, that even though the public entities are responsible, it does not *prevent volens cloacam reficere vel purgare* if the need exists. All these wastes and discharges, both those emanating from the textile factories and those of biological origin deposited in the sewers, passed through the hydraulic works that ran through the territory, such as the innumerable channels and aqueducts. These works came to have great relevance throughout the empire, which even led to protection and conservation through some provisions.

CANALIZATION AND PROTECTION OF AQUEDUCTS

Another aspect to take into account is the concern to keep the population supplied with enough water through pipelines and hydraulic works unprecedented so far.⁴⁰ Extending the application of this precept, in imperial

³⁸ According to SANCHEZ LÓPEZ, E., GOZALBES CRAVIOTO, E. The uses of water in Roman Hispania. – In: Vínculos de Historia, 1 (2012), p. 13, in the use of these drains and the use of sewers: “*The explanation for this exhaustive control in the use of surplus water can be found in the De Aquaeductus Urbis Romae de Frontino, which reproduces the imperial order in which the need for part of the“ water to overflow from the tanks was specified, because It is not only convenient for the health of our City but also to clean the sewers ”(Frontino CXI); And it is that one of the uses of the water transported to the cities by aqueducts, beyond supplying the population and certain activities and facilities for whose operation it was essential, was the cleaning of public spaces.*”

³⁹ This idea was contemplated in D. 39.1.5.11, where these very personal rights could not be exercised and there was no right to reply. We collect the opinion of the lawyer Ulpiano. 52 ad edictum: “*If you want sewers velit reficere vel purgare, operis novi nuntiatio merito prohibetur, cum publicae salutis et securitatis intersit et sewers et rivos purgari*”. “*If someone wants to repair or clean canals or sewers, it will rightly be prohibited to report new construction, because it is important to public health and safety that the sewers and canals be cleaned.*”

⁴⁰ RODRIGUEZ NEILA, J. Aqua publica and Roman municipal politics. – In: Gerión, 6 (1988), p. 224, follows the opinion of ROMANELLI, R. La politica romana delle acque in Tripolitania. – In: Africa e a Roma. Rome, 1991, p. 49, where the importance of

regulations promulgated by Emperor Constantine addressed to the consular of the waters, Maximilian in the year 330 AD in C.11.43.1⁴¹ Under the title “de aqueductu”, an attempt was made to protect the buildings from the damage that could be caused by these spills.

The indications for this care are as follows;

“Possessores per quorum fines formaum meatus transeunt, ab extraordinariis oneribus volumus esse immunes, ut eorum opera aquarum ductus sordibus oppleti mundetur; nec ad aliud superdictae rei onus iisdem possessoribus attinendis, ne circa res alias occupati repurgium formaum facere non curent. Quod si neglexerint, amissiones possessionum mulctabuntur; nam fiscus praedium eius obtinebit, cuius negligentia perniciem formae congesserit. Praetera scire eos oportet, per quorum praedia aqueductus com meat, ut dextra laevaue de ipsis formis quindecim pedibus intermisis arbores habeant; observant officio iudicis ut, si quo tempore pullulaverint, excidantur, ne earum radices fabricam formae corrumpant. ”

The description of the wastes, as *extraordinariis oneribus volumus esse immunes*, gives us a clue of the wastes carried by the streams that ended up in the *praedia aqueductus*. Their care was so important that there were specific instructions for their care, such as, for example, owners of land adjacent to aqueducts “*must have the trees to the right and left of the aqueducts measuring fifteen feet; taking care of the judge's ministry that they are cut off, if at some time they spread, so that their roots do not damage the aqueduct factory*”⁴². Engineering was making its way into the protection of these aqueducts and the efficiency of buildings, in order to produce an improvement in the quality of the works and better maintenance.

irrigation to adjacent populations, especially those located on the African continent, due to their high temperatures and dryness in the territory. Furthermore, “*the water from public pipes supplied, primarily, public buildings, hot springs, fountains monumental (nymphaea) and a whole network of sources distributed by the cities, which was where most of the population took it from for domestic uses*” according to Ibidem, p. 227.

⁴¹ The emperor Constantine arranged in this imperial disposition for the protection of the aqueducts on Frontino's recommendation the following: “*We want the owners, through whose terms the aqueduct currents pass, to be immune from extraordinary charges, so that by their work the aqueducts full of filth are cleaned, without the owners themselves having to be subject to another load of superimposed thing, so that occupied in other things do not neglect to clean the aqueducts.* ”

⁴² C.11.43.1 to Maximiliano, *Consular of the waters*.

SANITATION MEASURES AND PROTECTION OF
THE ENVIRONMENT. PARALLELISM
OF THE ROMAN LEGAL TRADITION

The emergence of an environmental norm does not stop increasing and so it is that in the national panorama, with regard to discharges into water and its protection against human activity, in Spain⁴³, there are different legislative provisions⁴⁴ about⁴⁵. As happens in the incipient environmental provisions in Roman legislation, actions that substantially affect the prejudice of nature are classified as crimes, as included in D.47.11.1.1, *by Paul. 5 sent.*⁴⁶. Without falling into presentism, there is already a concern regarding the contamination of the waters. But beyond the national regulations, we will focus on the European Directives regarding discharges into the waters of the member countries, which is the central axis of our study. The first provision under study will be Directive 2008/99 / EC⁴⁷: protection of the environment through criminal law. In this European standard, countries are urged to "*introduce effective, proportionate and dissuasive sanctions for these types of crimes when they are committed intentionally or as a result of gross negligence*"⁴⁸. The crimes covered by this rule

⁴³ In the Spanish penal code, article 325 describes the environmental crime under the title; "*Of crimes against natural resources and the environment*", States: "*who, in contravention of the laws or other provisions of a general protective nature of the environment, causes or directly or indirectly carries out emissions, spills, radiation, extractions or excavations, landings, noise, vibrations, injections or deposits, in the atmosphere, soil, subsoil or terrestrial, subterranean or maritime waters, including the high seas, with incidence even in transboundary spaces, as well as the catchments of waters that, by themselves or jointly with others, causes or may cause substantial damage to air, soil or water quality, or to animals or plants.*"

⁴⁴ The most significant regulations regarding discharges are among others; Royal Legislative Decree 1/2001, of July 20, approving the revised text of the Water Law, Royal Decree 817/2015, of September 11, which establishes the criteria for monitoring and evaluating the state of surface water and environmental quality standards, Royal Decree-Law 11/1995, of December 28, which establishes the standards applicable to the treatment of urban wastewater, Integrated Pollution Prevention and Control (IPPC), Royal Decree 1620/2007, of December 7, which establishes the legal regime for the reuse of treated water or Order AAA/2056/2014, of October 27, approving the official models authorization request and discharge declaration,

⁴⁵ MARTÍNEZ GONZALEZ, A. J. Approach to the historical evolution of environmental crime in codification. – In: Studies and Writings in Tribute to Professor Gómez del Castillo, Liber discipulorum et amicorum. Sevilla, 2016, p. 196.

⁴⁶ D.47.11.1.1, *by Paul. 5 sent.*

⁴⁷ Directive 2008/99/EC of the European Parliament and of the Council, of November 19, 2008, on the protection of the environment through criminal law (OJ L 328, 6.12.2008, p. 28-37).

⁴⁸ Eur-Lex, Access to European Union law. <https://eur-lex.europa.eu/legal-content/ES/TXT/> (website visited: 09/21/2020).

are those included in article 3. Among the serious or fraudulent actions those referred to "*the discharge... the quality of the soil or the quantity of the water or animals or plants.*" It is palpable, the agreement with what was collected. D. 43, 24, 15, 11 by Ulp. 71 ad ed., not only actions that contaminate water with a component of intent or fraud are contemplated. We can make a similarity with section b, of article 3 where the following is established about this type of crime; "*The elimination of waste, including the monitoring of these procedures, as well as the subsequent repair of disposal facilities, and including operations carried out by traders or intermediaries (use of waste).*" It is inferred, as in the imperial precept, the duty to protect these facilities from harmful agents that may carry the waters. The concern about the transit of waters in poor condition had two aspects. The first of them, and it is the one that is consistent today, it is to provide the people through these channels with clean and uncontaminated water, and that this would produce "*that cause or may cause death or serious injury to people*" as the European standard itself explains. The following of the slopes is to keep the facilities in charge of channeling the waters in an optimal state. Entering into another European directive, Directive 2008/98 / CE on waste establishes: "*for the first time, it includes the regulation of hazardous waste and repeals the other specific Directives and includes*" *hazardous waste of domestic origin* "(art. 20) and establish the separate collection of the hazardous waste fractions of domestic origin to guarantee its treatment in accordance with arts. 4 and 13 and that they do not contaminate other municipal waste streams " and that this would produce "*that cause or may cause death or serious injury to people*" as the European standard itself explains⁴⁹. Within these "residues" we can include those of particular origin generated by the *fullonicae*⁵⁰, to which the *actio aquae pluviae arcendae* was applied⁵¹, which is a provision that tries to return things to their original state. An example of this is found in the river beds that carried dirt or remains of the materials used in the textile industry and caused damage to an adjacent property. Well, by safeguarding distances, in this Directive, it is a

⁴⁹ Directive 2008/98/CE of the European Parliament and of the Council, of November 19, 2008, on waste and by which certain Directives are repealed.

⁵⁰ PONTE, V. Legal regime of public roads in Roman Law. Madrid, Dykinson, 2007, p. 240.

⁵¹ SITZIA, F. Ricerche in tema di "*actio aquae pluviae arcendae*". Dalle XII Tavole all'epoca Classica. Milano, Giuffrè, 1977, p. 156–163.

question of protecting from the possible pollution generated by these harmful agents emanating from homes and factories. Moving to the latest European guidelines, we must highlight Directive 2018/850⁵². This, being one of the last decisions of the union in the matter of discharges, tries to define aspects that are in accordance with the controls of ancient Rome. This rule reflects in its article 6 that you must have; "*A greater restriction of the deposit of waste in landfills, starting with waste streams subject to separate collection, such as plastics, metals, glass, paper and bio-waste, would bring obvious environmental, economic and social benefits.*" Stable to the councilors, in charge of monitoring the lixiaviates⁵³ of these landfills, entrusting the authorities of the time with the surveillance of these. Something similar is happening today, the European Union urges member countries to monitor their lakes and seas against possible contamination, especially with regard to possible leaks from their facilities.

Well, establishing a brief final reflection, we come to the conclusion that, in a multitude of provisions in the incipient administrative law dedicated to the sanitation of waters, they are in great agreement with Directives that try to protect the environment of the Union. An example of this fact can be found in the vigilance and the warning of a fine for fraudulent and reckless actions in the contamination of water, as established by Directive 2008/99 / CE, and the provision of collection D. 43. 24. 15. 11 by Ulp. 71 ad ed. Another aspect is the regulation of discharges, such as those produced by the *fullonicaes*, in D. 39, 3, 3, 0, in relation to Directive 2018/850, which regulates the quantity and quality of discharges, both those produced by private households such as companies with drains in rivers or lakes. So, The concern for the state and wholesomeness of the waters that citizens would supply for centuries is not alien to the time of the Roman Empire, on the contrary, provisions were established, without falling into the present, which may be the germ of environmental policy of the European Union. Nothing prevents us from daring to point out that the present parallels are also a concern of the past,

⁵² Directive (EU) 2018/850 of the European Parliament and of the Council of May 30, 2018 amending Directive 1999/31 / EC on the dumping of waste.

⁵³ As ZAMORA MANZANO, J. L. points out in La administración romana ante la gestión de residuos y tutela del habitat (The Roman administration in the face of waste management and habitat protection). – In: Revista Digital de Derecho Administrativo (Digital Magazine of Administrative Law), 17 (2017), p. 75, <https://www.redalyc.org/jatsRepo/5038/503857532006/html/index.html> (website visited: 09/21/2020) leachates are "*liquids that are formed as a result of passing or percolating through a solid, carrying different potentially polluting particles.*"

although in Rome the legal tradition only provides embryonic forms of protection in relation to the environment.