

LATIN TERMS FOR DAMMING AND DIVERTING WATER

We begin with an examination of Frontinus' (35-104 A.D.) chapter in the *Stratagemata* : " On Diverting Streams and Contaminating Waters. " (written ca. 84-96 A.D.) In his five examples, Frontinus uses the verbs *avertere* and *immittere* to convey the action of diverting a waterway :¹

" *P. Servilius Isauram oppidum, flumine ex quo hostes aquabantur averso, ad deditionem siti compulit.* " ²

" *L. Metellus in Hispania citeriore in castra hostium humili loco posita fluvium ex superiore parte immisit...* " ³

Later authors began to use more frequently the verb *derivare*⁴, but often in the context of diverting water illegally :

" *Si quis de cetero vetiti furoris audacia florentissimae urbis commoda voluerit mutilare aquam ad suum fundum ex aquaeductu publico derivando, sciat eundem fundum fiscalis tituli proscriptione signatum privatis rebus nostris adgregandum.* " ⁵ (ca. 389 A.D.)

1. For further citations, see *Thesaurus linguae Latinae*, Teubner 1909- ; *avertere* vol. 1, p. 1319 ; *immittere* : vol. 7, p. 470.

2. "Publius Servilius diverted (*averso*) the stream from which the inhabitants of Isaura drew their water, and thus forced them to surrender in consequence of thirst." FRONTINUS, *Stratagemata*, III, 7. 1. [ed. and transl., C. E. Bennett and M. B. McElwain, *Loeb Classical Library*, London 1925, 1980, p. 226-227] ; See also III. 7. 2. ; III. 7. 5.

3. "Lucius Metellus, when fighting in Hither Spain, diverted (*immisit*) the course of a river and directed it from a higher level against the camp of the enemy, which was located on low ground..." » FRONTINUS, *Stratagemata*, III. 7. 3 [ed. and transl., Bennett and McElwain, p. 226-227].

4. See *Thesaurus linguae Latinae*, vol. 5, p. 636-637, *derivare* for further citations.

5. "If any man in the future with the audacity of forbidden madness should wish to injure the interests of this fair City by diverting (*derivando*) water from a public

“*Dicitur ergo commodi cura privati aquam formarum, quam summo deceret studio communiri, ad aquae molas exercendas vel hortos rigandos fuisse derivatam...*”⁶ (ca. 512 A.D.)

There is also a nominal derivation from this verb *derivare*, used as a *nomen actionis*:⁷

“*Adde ductus aquarum, derivationes fluminum, agrorum inrigationes, moles oppositas fluctibus, portus manu factos, quae unde sine hominum opere habere possemus?*”⁸ (46-43 B.C.)

By the late sixth century, however, the terminology becomes more specific. Rather than simply the general noun *derivatio* (“diversion”), a derivative of the verb *excludere* was sometimes used⁹, which expressed a more precise description of the nature of the diversion:

“*defixisque per flumen palis, adgregatis lapidum magnorum acervis, exclusas fecit atque aquam canale collegit, cuius impetu rotam fabricae in magna volubilitate vertere fecit... Hanc enim fabricam Silarius quidam Gothus, qui magno cum Alarico rege amore dilegebatur, aemulus monasterio concupiscit, dixitque abbati: ‘Dona mihi hunc molinum, ut sit sub ditioni meae, et quod volueris repensabo.’ Cui ille: ‘Cum grande,’ inquit, ‘labore hoc paupertas nostra statuit, et nunc non possumus eum donare, ne fratres mei fame pereant.’ Et ille: ‘Si vis’, inquit, ‘eum bona voluntate tribuere, gratias ago; sin aliud, vi eum auferam: aut certe faciam alium, cuius exclusis aqua retrorsum conversa, rotam tuam vertere amplius non permittam.’”¹⁰ (ca. 592 A.D.)*

aqueduct to his own farm, he shall know that said farm shall be designated by the prescription of a fiscal title and shall be added to Our privy purse.” *Codex Theodosianus* XV. 2. 4. [ed. and transl., C. Pharr, Princeton 1952, p. 430]; See also *Codex Justinianus* XI. 42. 10 (*fuert derivata*).

6. “It is said that through concern for private interests the water of the public conduits, which ought to be guarded with the utmost care, has been diverted (*fuisse derivatam*) for the working of watermills or the irrigation of gardens...” CASSIODORUS, *Variae*, III. 31. [ed., T. Mommsen, *MGH Auctores Antiquissimi*, vol. 12, Berlin 1894, 1961, p. 95].

7. See *Thesaurus linguae Latinae*, vol. 5, p. 634, *derivatio* for further citations.

8. “Think of the aqueducts, diversions of rivers (*derivationes fluminum*), irrigation works, breakwaters, artificial harbors; how should we have these without the work of man?” CICERO, *De officiis*, 2. 4. [ed., C. Atzert, Teubner 1958, p. 78].

9. See *Thesaurus linguae Latinae*, vol. 5, p. 1269, for citations of *excludere* used in the sense of “to block up”, esp. *Lex Visigothorum*, VIII. 4. 25., 29. See also J. F. Niermeyer, *Mediae latinitatis lexicon minus*, Leiden 1976, p. 388.

10. “Setting stakes across the river and heaping a pile of large stones, [St. Ursus] built sluices (*exclusas*), and gathered in a channel the water, whose force would turn the mill-wheel with great speed... But Silarius, a certain Goth who was held in high

Here, Gregory of Tours (ca. 540-594 A.D.) is quite specific about how both St. Ursus and Silarius meant to divert the river — by means of *exclusas*.¹¹ By using stakes and stones, the course of water was dammed, diverting the larger flow into smaller channels, thereby building water pressure and generating greater force. As several

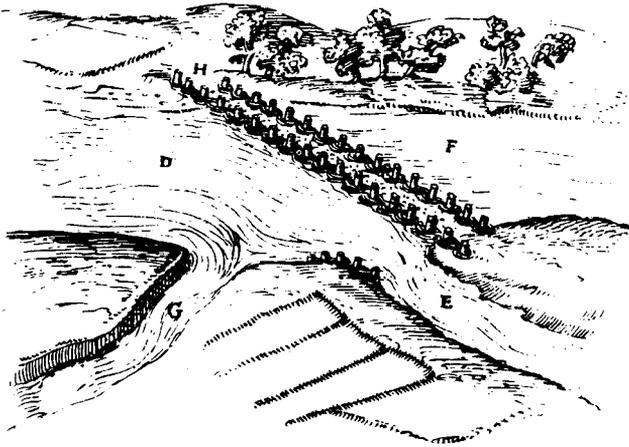


Illustration of a "Forest Weir" from the Turriano Codex, *saec. XVI*,¹² depicting a diversion analogous to Gregory's description.

esteem by King Alaric, was envious of the monastery and told the abbot, 'Give me this mill, so that it can be under my control, and I shall give you, in return, whatever you ask for.' Replied the abbot: 'Our poverty established this mill after great trouble; we cannot give it away now lest my brethren die of hunger.' Silarius retorted: 'If you wish to give it to me by your own free will, I shall thank you for it. Otherwise I will take it by force, or surely build another mill [further upstream], whose water will be diverted (*retrosum conversa*) by [my own] sluices (*exclusis*); [and in this way] I shall no longer permit your wheel to turn.' " GREGORY OF TOURS, *Liber vitae patrum*, 18. 2. [ed., B. Krusch, *MGH Scriptores rerum Merovingicarum*, vol. I, pt. II, Berlin 1885, 1969, p. 284-285]; cf. terminology in CAESAR, *De bello civili*, III. 49. 3., where a dam is raised in similar fashion, but without sluices.

11. M. BONNET, *Le Latin de Grégoire de Tours*, Paris 1890, p. 250-251; J. F. NIERMEYER, *Mediae latinitatis lexicon minus*, p. 388; See also *Lex Salica*, tit. XXII, addit. 2; *Edictum Rothari*, c. 150; *Lex Visigothorum*, VIII. 4. 29.

12. See J. A. GARCÍA-DIEGO, "The Chapter on Weirs in the Codex of Juanelo Turriano: A Question of Authorship", *Technology and Culture*, 17 (1976), p. 217-234, esp. 220-222.

authorities note, Gregory's passage is our first instance of a "sluice" — the modern terms "écluse", "Schleuse", "eclusa", and "sluice" all being derived from *exclusa*.¹³

Another way people of the early Middle Ages referred to a diversion in the course of a waterway was by a derivation of the verb *levare* :

"donamus...venerabilem monasterium sancti archangeli Michaelis...curtem quae vocatur Bagnolo¹⁴ cum capella sanctae Mariae et sancti Michaelis archangeli...una cum...usibus aquarum aquarumque decursibus...sicut terminata esse discernit de parte de contra caput silui et de contra Tribano per via antiqua que venit per palude maiore da puzo que dicitur Visignale justa prato de Grauneto veniente ipsa via usque in levata maiore que venit de caput silvis que vocatur Agna extendente prenominata via per transversu de prenominata levata..."¹⁵ (30 January, 954 A.D.)

Citing our passage above as the earliest instance of the noun *levata*, F. Blatt gives the following definition: "levée de terre pour retenir les eaux d'un canal, chaussée d'un moulin."¹⁶ J. F. Niermeyer offers an equivalent definition — "barrage - weir" — but supplies an incorrect reference for the term (mistakenly citing it to M. Heuwieser, *Die Traditionen des Hochstifts Passau*, Munich 1930).¹⁷ Like *derivatio* and *exclusa* before it, the noun *leva-*

13. W. v. WARTBURG, *Französisches Etymologisches Wörterbuch*, Basel 1950, vol. 3, p. 277-278; *Thesaurus linguae Latinae*, vol. 5, p. 1273: "exclusa".

14. J. G. GRAESSE, *Orbis Latinus*, Budapest 1972, vol. 1, p. 203, attributes this realm to "Bagnolo di Po, Pr. Rocigo (Veneto), Italien." For a map of this region, which depicts the villages of Tribano and Agna, the Roman roads of the region, and postulates the site of the Visignale marsh, see T. P. WISEMAN, "Viae Anniae", *Proceedings of the British School at Rome*, 32 (1964), p. 26, 28 n. 34.

15. "We give...to the monastery of the blessed archangel Michael...the realm which is called Bagnolo with the chapel of the blessed Mary and archangel Michael...together with...the use of the waters and streams of water...as it was determined by the boundary: from the part near the front of the forest and near Tribano along the old road which passes through the large swamp from the pond which is called Visignale near the meadow of Grauneto up until the road comes to the large levee which comes from the front of the forest which is called Agna, the above-mentioned road continuing by crossing the above-mentioned levee..." *Codice diplomatico Padovano*, ed. A. Gloria, I, Venezia 1877 (Monumenti storici pubblicati dalla Deputazione Veneta di storia patria II, ser. I, Documenti II), p. 62 (no. 42).

16. F. BLATT, *Novum glossarium mediae latinitatis*, Hafniae 1957, vol. "L", p. 99.

17. J. F. NIERMEYER, *Mediae latinitatis lexicon minus*, p. 600.

ta is derived from its corresponding verb (*levare*), reifying an action the verb expressed — namely, the blocking, consequent raising, and subsequent diverting of a course of water (and in turn, from *levata* comes the modern term “levée”).¹⁸ Yet while scholars agree upon this meaning of *levata*, the verb *levare* in this sense of “to divert” has so far gone unattested. I have, however, found such an example, occurring nearly 200 years earlier than the first appearance of *levata* :

“*ego, in Dei nomine, Hildebrand gloriosissimus dux ducatus Spoletani, donamus atque concedimus in monasterio Beati archangeli Michaelis, quod situm est foris ponte secus civitatem nostram Reatinem, et tibi, venerabili Guicperto aepiscopo, aquam de alveo fluvii Mellini,*¹⁹ *ubi molinum aedificare debeas, a quo capite ipsa aqua fuerit levata ex ipsa medietate aquae fluvii ; et usque ubi in ipsum medium fluvium discurrerit, in tua sit potestate ad aedificium ipsius molini faciendum.*”²⁰ (March, 778 A.D.)

If, as we have said, the noun *levata* presupposes the verb *levare* used in the sense of damming, raising, and diverting a course of water, then our understanding of the above passage becomes clear. The Velino river was dammed up and diverted into a side channel which probably ran parallel with the river for some distance before flowing back into it. Like the competing sluices of Ursus and Silarius, this diversion was undertaken for no small reason. Duke Hildebrand made this clear by mentioning his intentions *twice* in

18. W. v. WARTBURG, *Französisches Etymologisches Wörterbuch*, vol. 5, p. 269 ; W. MEYER-LÜBKE, *Romanisches Etymologisches Wörterbuch*, Heidelberg 1935, p. 406.

19. The Latin *fluvii Mellini* is of interest for its unusual orthography, as there can be no doubt that it refers to the modern day Velino river (see R. BRENTANO, *A New World in a Small Place*, Berkeley 1994, map 3, p. 21), though Brühl, the editor of our text, is uncertain [see *CDL*, Brühl, vol. 4.1, p. 127 where he notes “Mellinus fluvius” (*il fiume Velino ?*)]. J. G. GRAESSE, *Orbis Latinus*, vol. 3, p. 583, lists only “Velino fluvia.”

20. “I, Hildebrand, most glorious Lord Duke of Spoleto, in the name of God, give and grant to the monastery of the blessed archangel Michael, which is situated outside the bridge near our city Rieti, and to you Bishop Guicpertus, water from the bed of the Velino river, where you should build a mill, from the point in the river where the water was diverted (*fuerit levata*) from the middle of the river water to where it runs back into the middle river, [so that] it may be in your possession for the purpose of constructing the building of the mill itself.” *Codice diplomatico Longobardo*, ed. C. R. Brühl, vol. 4, pt. 1, (Rome 1981), p. 88-89 (no. 30).

the same sentence — that the diverted water was to be used to build and power a mill, a device valuable and important enough by the early Middle Ages to provoke disputes and elicit written contracts.²¹

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21. For a comprehensive history of the water wheel, with full bibliography and references, see T. S. REYNOLDS, *Stronger than a Hundred Men: A History of the Vertical Water Wheel*, Baltimore and London, 1983; See also W. HORN, "Water Power and the Plan of St. Gall", *Journal of Medieval History*, 1 (1975), p. 219-257; B. BLAINE, *The Application of Water Power to Industry during the Middle Ages*, (UCLA Dissertation 1966); P. AEBISCHER, "Les Dénominations du moulin dans les Chartes Italiennes du Moyen Âge", *Archivum latinitatis medii aevi* (Bulletin Du Cange), 7 (1932), p. 49-109, esp. 80-81.