COLLANA RAVENNA CAPITALE

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RAVENNA CAPITALE

FROM INTERNATIONAL TREATIES
TO THE BINDING NATURE OF CONTRACT.
A HISTORICAL AND COMPARATIVE STUDY



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Earth and water in the formularies of the *Albertini Tablets*

Paola Biavaschi (Università degli Studi dell'Insubria – Varese/Como)

Starting mainly from the period of the Principate, Roman Africa was one of the most economically and culturally prosperous places of the empire. Several historical and literary sources (from Victor Vitensis¹ to Procopius of Caesarea²) treat its dramatic fate during the 5th century AD, following its seizure by Gaiseric's army. Despite the fact that today it's asserted that the Vandal invasion didn't measure up to the fame that the word "Vandal" assumed over the centuries till the present day, it's difficult to believe that the conquest of such a thriving province by Gaiseric's army wasn't a violent traumatic event for the Romans who lived there and for those who lived in the big Mediterranean islands or in Italy. 5

¹ Vict. Vit., Hist. pers., 1.5; 1.13; 1.14; 1.15; 1.16; 1.21; 1.51.

² Proc., De bel. Vand., 2.4.

³ Many scholars have studied this historical period, but here we quote only the most useful ones for the present work: C. Bourgeois, Les Vandales, le vandalisme et l'Afrique, in AntAfr, 16, 1980, 213 ff.; F. Ausbüttel, Die Verträge zwischen den Vandalen und Römern, in RomBarb, 11, 1992, 1 ff.; V. Ajello, I Vandali nel Mediterraneo e la cura del limes, in L'Africa romana, vol. III, Ai confini dell'Impero: contatti, scambi, conflitti. Atti del XV convegno di studio, 11-15 dicembre 2002 (M. Khanoussi, P. Ruggeri, C. Vismara a cura di), Roma, 2004, 723 ff. = Ajello, I Vandali nel Mediterraneo e la cura del limes, in Diritto@Storia, 8, 2009; J. Spielvogel, Arianische Vandalen, katholische Römer: die reichspolitische und kulturelle Dimension des christlichen Glaubenskonflikts im spätantiken Nordafrika, in Klio, 87, 2007, 201 ff.; R. Arcuri, La regalità presso i Vandali: prospettive storiche ed etnografiche, in Fra Costantino e i Vandali, Bari, 2016, 545 ff.; Y. Le Bohec, La conquête de l'Afrique romaine par les Vandales (429-439 a. J.-C.) (L. De Salvo; E. Calili; M. Casella a cura di), in Gerion. Revista de Historia Antigua, 36, 2018, 109 ff.; Idem, Le visage de la guerre pour les civils dans l'Antiquitè. Victor de Vita e les Vandales, in RSA, 37, 153 ff.

⁴ Y. Moderan, L'établissement territorial des Vandales en Afrique, in Antiquité Tardive, 10, 2002, 87 ff.

⁵ A. Mosca, Aspetti della rotta Roma-Cartagine, in L'Africa romana. Lo spazio marittimo del Mediterraneo occidentale: geografia storica ed economia, vol. XIV, Roma, 2002, 481 ff.; M. Mazza, I Vandali, la Sicilia e il Mediterraneo nella Tarda Antichità, in Ruolo mediterraneo della Sicilia nella tarda antichità. Atti del IX Congresso internazionale di studi sulla Sicilia antica, Palermo 9-13 aprile 1997 = Kokalos, 43-44, 1997-98, 107 ff.; L. Di Paola, Immagini

Constantine's decision in 324 AD to assign the grain tax from Egypt to Constantinople deprived the city of Rome of a centuries-old source of cereal supply that was of fundamental importance. It was a particularly strong stance that definitively marked, not only politically but also economically, the rise of a new pole that was expected to be of the same importance as Rome. From that moment on the centrality of Africa in agricultural production was unavoidable and, in particular, it stood out for its massive exports of vegetable oil.

As it has been effectively demonstrated, the African economy would not suffer a collapse, but only a slow regression, which went in parallel with that of other areas of the pars Occidentis, but at a lower degree. However, this doesn't mean at all that the years of war, the events of the sieges, the settlement of a dominating people after many centuries of peace, the expropriation of large properties, the persecution of the Catholic clergy were not particularly traumatic. After this necessary premise, which attempts to re-establish a middle way between the image of the destructive and cruel dominating barbarians proposed by the Christian literature of that time and an indiscriminate recovery of the positive elements of the Vandal kingdom by the historians and archaeologists of the last seventy years, 6 my attention will be directed to a specific point in Africa Byzacena, on the border with Numidia, a place that could seem geographically marginal, but, on the contrary, is central considering the relevance of the documents that were found there in the mid-twentieth century:7 the so-called Albertini Tablets, which contain legal documents, written in cursive in ink on 45 cedar tablets, that providentially inform us about the use of private law formularies in Africa at the end of the 5th century AD.8

The long Vandal occupation, which lasted a century before the Justinian reconquest in 535 thanks to the victory of Belisarius's army, is actually characterized by a lack of documents in Vandalic language, as well as by a shortage of legal and economic documents in general. This is the reason why the archaeological discovery of the Tablets in that part of the empire has really been an extraordinary stroke

tardoantiche dell'Africa a confronto, in Diritto@Storia, 8, 2009 = L'Africa romana. Le ricchezze dell'Africa. Risorse, produzioni, scambi. Atti del XVII convegno di studio. Sevilla, 14-17 dicembre 2006 (J. González, P. Ruggeri, C. Vismara, R. Zucca a cura di), Roma, 2008, 1091 ff.; Y. Le Bohec, Le visage de la guerre pour les civils dans l'Antiquitè. Victor de Vita e les Vandales, in RSA, 37, 153 ff.; Id., La conquête de l'Afrique romaine par les Vandales (429-439 a. J.-C.), in Gerion. Revista de Historia Antigua, 36, 2018, 109 ff.

⁶ Starting from the works by C. Courtois, Les Vandales et l'Afrique, Paris, 1955.

⁷ H. J. DIESNER, *Grenzen und Grenzverteidigung des Vandalenreiches*, in *Studi in onore di E. Volterra*, vol. III, Milano, 1971, 481 ff.

⁸ The critical edition of the Tablets sees the light in the 1952: C. Courtois, L. Leschi, C. Perrat, C. Saumagne, *Tablettes Albertini, Actes privés de l'époque Vandale (Fin du Ve siècle)*, Paris, 1952; V. Arangio-Ruiz, *Fontes Iuris Romani Anteiustiniani. Negotia*, vol. III, n. 139, Firenze, 1943, 443 ff.; H. Wessel, *Das Recht der Tablettes Albertini*, Berlin, 2003, *passim*.

of luck, because it has provided us with a large amount of information, both from a legal point of view and from a linguistic, economic, numismatic and cultural point of view. As it always happens, especially when we find isolated *monumenta*, the Tablets have been studied and analyzed, but they leave a wide margin of doubt because much of the information they provide cannot be effectively compared with other sources.

Certainly, a researcher is generally amazed by the fact that the Vandals had so little interest in their linguistic tradition to the point of undergoing osmosis with Latin culture, that appears to be almost complete: ⁹ in fact, within a few decades, they appear perfectly integrated, almost – forgive my use of the term – in love with Roman customs and habits, ¹⁰ starting, as known, from the use of water both for the implementation of agricultural production through particularly well-kept irrigation systems and for the physical and psychological pleasure of the body through the thermal baths.

In fact, the poetic collection of the *Latin Anthology* contains several parts which are entirely dedicated to the Vandalic thermal euergetism, almost considered proof of the continuation of the Roman tradition.¹¹ It's well known, for example, that in the *pars Orientis* of the empire the interest in the personal care of the body and in water as a source of pleasure gradually faded, probably in an inversely proportional way to the use of water for religious purposes. Conversely, the Vandals, who were Aryans definitely hostile to Catholic orthodoxy, from this point of view became heirs to the Roman tradition and, after the first phase of the conquest, characterized by the violence of the war approach, the desire for assimilation of a culture that was necessarily very fascinating was remarkable.

Evidently, Gaiseric, who was a sovereign far from being inexperienced, became strongly conscious, first of all, of the Roman economic knowledge: Africa was absolutely indispensable for Rome and the whole of Italy because of the foodstuff supplies. Gaiseric was able to manage the situation shrewdly, going as far as he could with his pirate incursions, but also with the control of the islands in the western Mediterranean Sea, from Sicily to Sardinia, from Corsica to the Balearics, since he was well aware that the Roman complaints couldn't get to the point of breaking off trade relations.

⁹ N. Francovich Onesti, *I Vandali. Lingua e storia*, Roma, 2000; Eadem, *Goti e Vandali. Dieci saggi di lingua e cultura altomedievale*, Roma, 2013; E. Fazzini, *Eredità storico-linguistica germanica nel Nord Africa*, in *Culture del Mediterraneo. Radici, contatti, dinamiche* (E. Fazzini ed.), Milano, 2014, 38 ff.

¹⁰ J. Conant, Staying Roman: Conquest and Identity in Africa and the Mediterranean, 439-700 AD, Cambridge-New York, 2012, 130 ff.

¹¹ M. SECHI NUVOLE, Le Thermae di Alianae nell'Africa Proconsularis. Letteratura romano-barbarica e geografia, in Espacio y tiempo. Revista de Ciencias Humanas, 23, 2009, 233 ff.

It has also been supposed that the Vandal raids were intended to spoil the crops on the islands, especially in Sicily, to make the peninsula even more dependent on Carthage. All this was made possible because Valentinian III, during whose reign a sort of Rome-Carthage axis was founded and strengthened by marriages and treaties, could not do without supplies from Africa.

Latin permanence in land management

The discovery of the *Albertini Tablets* was also a reason for great amazement for legal historians: indeed, it became evident that the *lex Manciana* from the Flavian age was essentially still in use in its updated version, implemented by the *lex Hadriana*. It was a complex system of distribution and control of agricultural resources for which the landowner gave the management of the land to tenants, who actually had a sort of perpetual use of the land, since they could, in turn, even sell it or bequeath it, in exchange for a fee, based on the harvest percentage.¹²

These advantages for those who worked the land were not free of obligations: the tenant had to make the land yield and not leave it uncultivated for more than two years, otherwise the concession would be revoked regardless of the landowner's will. Nevertheless, it had a number of advantages: unlimited duration of the land use, exemption from the fee for five years (figs and vines) or ten years (olive trees) for newly planted trees.

These measures gave impetus to the African economy, also by motivating the tenants to make the best use of the land under management to the point that this method of land exploitation had an unusual duration over time, extending up to the Vandal era.

It's known, however, that in the Byzantine period¹³ the taxation system of the *pars Orientis* was particularly oppressive and was perceived, exactly as it happened in Italy, as unjust and demotivating to the point that many farmers left their

¹² F. DE MARTINO, Storia della costituzione romana, vol. V, Napoli, 1972, 153, underlines the important role of the agri Manciani for African rural economy: "in Africa vi sono poche tracce di schiavi rurali, sebbene le fonti siano abbondanti, mentre la sopravvivenza degli agri Manciani lascia piuttosto supporre che si continuava a seguire una politica rivolta a stimolare piccoli contadini liberi a coltivare le terre"; D. P. Коное, Law and the Rural Economics in the Roman Empire, Ann Arbor, 2007, 163 ff.; D. Vera, Enfiteusi, colonato e trasformazioni agrarie nell'Africa Proconsolare del Tardo Antico, in L'Africa Romana, vol. IV, 1987, 267 ff.

¹³ C.1,27,1-2. About these problems, M. CESA, *La politica di Giustiniano verso l'Occidente nel giudizio di Procopio*, in *Athenaeum*, 59, 1981, 389 ff.

land and migrated elsewhere¹⁴ (after about 150 years the Muslin expansion caused the Byzantine collapse).¹⁵

The permanence of the Roman administrative and economic organization is really remarkable. Similarly, conservatism is very strong from a linguistic point of view, since the Tablets are written in Latin, even if with large use of abbreviations and with morphological and phonological distortions due to the use of the vernacular or somehow to the use of spoken language. The technical, agricultural and hydraulic language is Latin, practically without any Vandal influences.

Even proper names and place names reveal either that most of the involved people were of Latin origin or that the Vandals had begun to use the Latin names that were probably in vogue in the African region; moreover, when we find names of Vandal origin, they have undergone the Latin treatment, thus revealing an adaptation with respect to the language of the subjugated population.

A particularly interesting fact, which emerged from the *Tablets*, is that the land buyers seem to be largely related to each other and to belong to the family of *Flavius Geminius Catullinus*, the ancient owner of the *Fundus Tuletianos*. A very fascinating hypothesis is that after the expropriations that took place during Gaiseric's rule the Romans gradually returned to their initial lands and that *Geminius*'s descendants little by little repurchased their ancient lands, trying to reconstitute the original acreage.

Olive growing in the Albertini Tablets

Although the production of cereals, figs and other products was considerable, the African specialization was oil production. While Sicily focused on wheat cultivation and Southern Italy on breeding and meat production, *Africa Zeugitana* and *Byzacena* offered a land that was suitable for olive growing. Furthermore, oil was also a particularly versatile product, since its transportation in the typical oil amphorae, unlike wine, didn't present any preservation problems both over time and in relation to the used means of transport, which were necessarily maritime.¹⁶

Certainly, the charge burdening the two regions had become particularly intense between the end of the 4th and the beginning of the 5th century AD, consid-

¹⁴ S. T. STEVENS, J. P. CONANT, North Africa under Byzantium and Early Islam, Washington D. C., 2016, 20 ff.

¹⁵ W. E. KAEGI, Muslim Expansion and Byzantine Collapse in North Africa, Cambridge, 2010, 12 ff.

¹⁶ F. VITRONE, Aspetti controversi e dati economico-sociali nelle tavolette Albertini, in Romabarb, 13, 1994-95, 235 ff.

ering that Tripolitania was exempted from the *annonaria* tax due to the increasingly precarious conditions of the soil, but the region managed to bear the burden. Indeed, we have to imagine an intensively worked, well organized and very productive land.¹⁷

Surely, the Vandal invasion gave a serious blow to the great properties that were expropriated in favour of Gaiseric's family and of the barbarian aristocracy, as well as a serious blow to the Catholic Church. However, the whole agricultural system remained substantially unaffected, in an amazing way, if we take into consideration what is present in the *Albertini Tablets*.

They were written in the last part of the 5th century AD, under the long reign of Gunthamund, and come from a rural area about 100 km from Theveste, from what is now the border between Tunisia and Algeria. Theveste was a prosperous city, located on the internal road between *Hadrumetum* and *Lambaesis*; ¹⁸ however, just at that time the Mauri raids were becoming continual and particularly annoying and, moreover, there had been internal difficulties due to the persecution of Christians, who followed Catholic orthodoxy.

As mentioned above, the tablets are 45 and mostly contain sale contracts for small or very small portions of land of what is called *fundus Tuletianos*, ¹⁹ which was once owned by the *flamen* (an administrative position that in late antiquity is no longer comparable to the role of a pagan priest) *Geminius Catullinus*. The majority of the notarial deeds, which were written by someone who, despite not having an extraordinary legal culture, nevertheless must have dabbled a bit in law, are those that set forth the sale of land destined for olive growing. What is surprising is that the portions of land are not described through the indication of an agricultural unit of measurement, but through the number of plants that grew there. This may mean both that for a type of arid soil such as the one of the inland *Byzacena* what mattered was the number of fruit trees and not the land itself, and, maybe, that this was a habit of that area, presumably because the dis-

¹⁷ Vera, Horrea e trasporti annonari in Africa e a Roma fra Costantino e Genserico: una complessa organizzazione integrata, in Entrepôts et circuits de distribution en Méditerranée antique, Atene, 2018, 61 ff.

¹⁸ Y. Thébert, L'évolution urbaine dans les provinces orientales de l'Afrique romaine tardive, in Opus, 2, 1983, 99 ff.; A. Leone, The End of the Pagan City. Religion, Economy and Urbanism in Late Antique North Africa, Oxford, 2013, 203 ff.

¹⁹ About the olive growing, R. Murphey, *The Decline of the North Africa since the Roman occupation: climatic or human?*, in *Annals of the Association of American Geographers*, 41, 1951,123 f., affirms: "In the region of the towns of *Sufetula*, *Cillium* and *Thelepte* at least 350 olive presses are known in an area of c. 1,500 km² (c. 1 per 4 km²). The density is somewhat less 60 km southwest of *Telepte* where the Tablets were found (though certain1y higher than the 1 per 50 km² cited by *TA* p. 192)".

tance between the trees was conventional and known to everybody; therefore, the indication of the number of plants corresponded to communicating the size of the land.²⁰

Here we present the *specimen* of one of the most interesting legal deeds of sale:

Tablets III, IV, V: Triptyque²¹

Date: 5 Avril 493 (?)

Anno nono D(o)m(i)n(i) Regis Guthabondi die nonas apriles] bendentibus iulius lepori et coia iugalis eius nec non etiam et Silbanianus et Uictorinus Germani Lepori subscripturis coram suscribentibus particel-5 las agrorum in dibersis locis cum bocabulis suis sub dominio Fl(au)i Gemini Catulini flaminis perpetui et infantes id (est) primo in aggarione locus qui adpellatur gemines tres in quos sunt olibe arb(ores) [no-] bi nobe pluminus cum lateretis aquaris uer-10 gentisque suis it(em) alio in loco s(u)p(ra)scripto caprifici arb(ores) uiii et fici arb(or) un alaxsandrina inter adfine[s] eiusdem agri ab oriemte Felix Fort[uni a]b occiden[te] Quintianus a coro Leporius be Indito Ir inter adfines eiusdem loci sup(ra)s[cripti] ab africo bia qui d[ucit ad] 15 magula a meridie et a marino Quintus a corolfatere-] tis et bergentisque suis it(em) alio in loco s(upra)s(cri)p(to) fici arbor u[na] qui coheret ad bia de buresa ab africo cum lateretis et aquaris bergentisque suis it(em) alio in loco locus qui dicitur pullatis in quo sunt olibe arb(ores) cinq[ue inter] 20 adfines eiusdem loci ab oriente quintianus a meridie quintianus ab africo et a coro Uictorinus Nug[ualis] it(em) alio in loco in pullatis locus abiente olibe arb(ores) cinque inter adfines eiusdem loci ab oriente processanus a meridie uictorinus ab occidente paternus 25 [iaderis a coro iannarius ques eosdem agros ss(u)p(ra)scri(ptos)

²⁰ R. B. HITCHNER, *Albertini Tablets and the Kasserine Survey*, in D. SMALL (ed.), *Methods in the Mediterranean: Historical and Archeological Views on the Text*, Leiden, 1995, 124 ff., speaks about the interesting relations between the *Tablettes Albertini* and the archeological site of Kasserine.

²¹ Saumagne, Courtois; Leschi; Perrat, *Tablettes Albertini*, *Actes privés de l'époque Vandale (Fin du Ve siècle)* ... 218 ff.

de quo agitur hac die emerut Geminius Cresconius et Cresconia iugalis eius a Iulio Leporio et co[ia] iugalis eius et etiam Silbanianus et Uictorinus auri solidum unum et l(ol)l(e)s [aur]e[os] obrediacos 30 pecunie singulares numero centu quem solidum unum et f(ol)l(es) centu in se susceperunt Iulius Leporius et Coia iugalis eius et Silbanianus et Uio torinus uenditores acceperunt a Geminio Cresconio et Crescon[ia] entores suos et nicil quesibi exs eo-35 dem pretio quiquam amplius deberi respondiderut ut h(a)b(eat) t(eneat) p(ossideat) utatur fruaturque ipse heredesbe eius in perpetuo et si quis de eosdem agros suu esse d[i]xse[rit u]el questionem facere boluerit thunc dabit pe[cuniam] tantam et alteram tantam bel qu[anti ea] 40 res eo tempore baluerit stipulati sunt Gem(inius) Cresconius et Cresconia emtores spopondideru[nt] b[endito-] res actum in f(un)d(o) tuletianos die*et anno ss(u)p(ra)s(cripti)s e[go mon-] tius petitus a lep[orio] et coia [iugali eius necnon] fet]i[am Silba]niano et Ui[ctorino uenditoribus] 45 qui litteras nescint pro [eis] signum sum facturi hunc istrumentum ab ipsis dictatum sicuti suppra bendiderunt consensemnt omnem pretium acceperunt et suscripserunt et a testibus suscribi petent signum X Lepori signum X Coia signum X Si-50 lb[aniani s]ignum Uictorini X Uictorini ego Quadratianus est iussione patris mei ianuari hunc strumentum pro eum suscribsi ego Paulinianus ad iussione pa-[tris] mei quinti qui literas nescit 55 tam pro me quam pro eum suscribsi ego Fortunatianus inte-[rfui et] pretium omnem supradictum ui[di eg]o Montius hunc istrumentum mea manu scribsi et subscripsi.

Usually, the conditions of olive trees are not described, nor the young or old age of the trees nor their fruitfulness: what is very evident, however, is the low value that these plots of land seem to have if compared, for example, to the price of wedding outfits mentioned in another tablet.

Even if this impression could be amplified by a bad interpretation of the numismatic data, as highlighted by Castrizio,²² still it remains the basis of comparison with the clothes, shoes and belts that are listed in the other tablet of the same series and whose price may be compared in a way that is compatible with the prices of the Byzantine area.

Therefore, it becomes evident that the value of the land, in any case, had collapsed and it's necessary to understand the reasons why.

First of all, we shall observe that the sold plots of land appear to be extremely limited in their size. In one of the tablets the sale concerns even just one single fig tree. This clearly indicates the fragmentation to which the *fundus Tuletianos* was subjected.

Secondly, it's necessary to evaluate carefully the contingent historical situation, that was particularly unstable in that period, since the Berber raids became more and more frequent and the Vandals were able to control those internal territories less and less effectively: the tablets are dated between 493 and 496 AD and just about thirty years later the already weak Vandal troops were definitively defeated by the Byzantines. A decisive role in this matter was played by the growing pressures of the indigenous populations which previously were relegated to the mountain areas, but now were becoming more and more aggressive. So, this particular area had to be not completely safe from a political point of view: investing in real estate had therefore to be less appealing.

Thirdly, an aspect I want to focus on is the climatic transformation of those years: in fact, starting from 450 AD, approximately, the climatic *optimum* of antiquity ended. It had been characterized by an ideal warmth and humidity for the Mediterranean basin. Now the so-called Dark Ages Cold Period began and would be even joined shortly thereafter, in the Justinian period, by the so-called LALIA (Late Antiquity Little Ice Age), probably caused by repeated disastrous volcanic eruptions. Temperatures dropped, even if this aspect probably affected the Maghreb less than, for example, the Cisalpine Gaul, but extreme climatic phenomena increased everywhere, especially drought, and this very likely gradually became a really serious problem for North Africa, that was already oppressed by a considerable political instability. The irrigation system, which is outlined in the *Albertini Tablets*, with its cisterns and canals, appeared to be particularly efficient, but it needed constant maintenance and, in an even less favourable climatic situ-

²² D. CASTRIZIO, *Per una rilettura del sistema monetale vandalo (note preliminari)*, in *L'Africa romana*, vol. XV, Roma, 41 ff., proposes a re-evaluation of the Vandals monetary system, which would lead to the value of land bought and sold, being considered a little higher; however, this model can only have to be compared, in the case of *Tablettes*, with the apparent proportion between the value of the funds in question and that of the objects described in other acts (act of dowry, f.i.).

ation, everything gradually became less convenient. It's not a coincidence that the lands in Tripolitania, but also in the Palestinian and Syriac regions, reveal a deterioration in their conditions that is being studied by paleoclimatologists and paleobotanists.²³

Fourthly, starting from 455 AD the demand from Italy decreased: the sack of Rome, its depopulation, the demographic collapse in Italy, the irrecoverable rift with the dying Western Empire, the growing hostility towards the Byzantines, who were considered (with good reason) as a constant and looming threat, undoubtedly reduced the commercial traffic which had been flourishing until then.

The overlapping of all the above at the same time inevitably led to a devaluation of what so far had been the authentic wealth of Africa: the lands used for olive growing.

Without any doubt, the *Albertini Tablets* offer a wealth of information which, however, to be interpreted correctly, must always be compared with historical, geographical, archaeological and numismatic data, but also with the ones that are offered by hard sciences such as botany and climatology: only this way the document can really speak to us and reveal some of its secrets.

²³ U. Büntgen, V. S.Myglan, F. Charpentier Ljungqvist, M. McCormick, N., M. Sigl, J. Jungclaus, S. Wagner, P. J. Krusic, J. Esper, J. O. Kaplan, M. A. C. de Vaan, J. Luterbacher, L. Wacker, W. Tegel, A. V. Kirdyanov, W. Marx, Cooling and societal change during the Late Antique Little Ice Age from 536 to around 660 AD, in Nature Geoscience, 9, February 2016, 231 ff.; R. Haunschild, L. Bornmann, Climate and the Decline and Fall of the Western Roman Empire: A Bibliometric View on an Interdisciplinary Approach to Answer a Most Classic Historical Question, in Climate, 6-90, November 2018.