

Metallic Documents of Antiquity

H. CURTIS WRIGHT*

While preparing the general exams for the Ph.D. at Case Western Reserve University I noticed recurring references to metallic documents in the literature that pertains, in one way or another, to ancient records and libraries. Most of the references were obscure and casual—like the merest mention of “various metals” in a discussion of ancient book materials,¹ or a sourceless seriation including “The Nicean creed[!], Chinese books with leaves of gold,” and the “Telugu plate” as exemplars of writing on metal.² Such references, while interesting enough in their own right, invariably pose a number of unanswered questions, especially if the reader is interested in the sensory data of written communications: Which metals have been used for the reception of writing in antiquity? What is the Telugu plate? How can descriptions of the metallic media of the Nicene Creed and specific gold-leaf manuscripts of Chinese books be located?

References to metallic documents are also found in ancient classical literature. Plutarch, for example, mentions a Lycian spring on the outskirts of the city of Xanthus which on one occasion boiled up of its own accord and overflowed in the presence of Alexander the Great, depositing a bronze writing tablet [*delton chalken*] at his feet. The tablet was inscribed with ancient writings indicating that the kingdom of the

*Associate professor of library and information sciences at Brigham Young University, Dr. Wright has published various pamphlets and articles and is author of the booklet *Ministry of Christ*. He is a specialist in the field of ancient librarianship.

¹Bruce M. Metzger, *The text of the New Testament; its transmission, corruption, and restoration* (2d ed.; New York: Oxford University Press, 1968), p. 3. There is, typically, no further mention of the subject in the entire book.

²F. Thelma Eaton, *The history of the book; an outline and a reading list* . . . (4th ed.; Champaign, Ill.: The Illini Bookstore, 1959), p. 12.

Persians would be overthrown by the Greeks. Alexander, therefore, encouraged by the metallic document, proceeded forthwith to reduce the coastal areas instead of then and there waging an all out war with Darius.³ There are similar notices elsewhere in Plutarch and in Pausanias,⁴ and they doubtless occur in other ancient authors.

Descriptions of metallic documents are relatively easy to locate if they are properly referenced in citations. An example of such referencing is the use by Friedrich Blass of the oldest Greek letter extant in order to illustrate certain linguistic phenomena in a discussion of the so-called epistolary aorist tense.⁵ The letter is identified as a leaden tablet from the 4th century B.C., and appropriate references are provided. Blass, of course, is more interested in the linguistic information provided by the document than in its material. His only concern is "der Aorist im Briefstil"—the fact that the aorist is inscribed in lead is unimportant. But his references nevertheless lead to important discussions of the tablet, including translations and photographic plates.⁶

Most published accounts of metallic documents, at least in classical sources, have been effectively removed from the layman's view by a simple convention of scholarship. The implications of this convention first came to my attention upon perusing a basic paleographical treatment of ancient writing materials.

Of the various materials which have been used . . . to receive writing, there are three, viz. papyrus, vellum and paper, which . . . have . . . displaced all others. But of the other materials several, including some which at first sight seem of a most unpromising character, have been largely used. If the ordinary material fail, they [the ancients] must extemporize a substitute. If something more durable is wanted, metal or stone may take the place of vellum or paper.

³Plutarch, *Life of Alexander* 17. 4-5.

⁴*De genio Socratis* 577E-F; Pausanias, *Descriptio Graecae* 4. 26, 6-8.

⁵Friedrich Blass, *Grammatik des neutestamentlichen Griechisch*, bearbeitet von Albert Debrunner (11. Aufl.; Göttingen: Vandenhoeck u. Ruprecht, 1961), 206.

⁶Adolf Deissmann, *Licht vom Osten; Das Neue Testament und die neuentdeckten Texte der hellenistisch-römischen Welt* (2. u. 3. verb. u. verm. Aufl.; Tübingen: J. C. B. Mohr [Paul Siebeck], 1909), pp. 103-104; also the English translation, *Light from the Ancient East . . .* (New York: George H. Doran, 1927), pp. 150-52. For discussion see S. Witkowski, *Epistulae privatae Graecae quae in papyris aetatis Lagidarum servantur* (Editio altera auctior; Lipsiae: 1911), appendix no. 1, and A. Wilhelm, "Der älteste griechische Brief," *Jahreshefte des Oesterr. Archaeol. Institut* 7 (1904), 94-105.

But with *inscriptions on these harder materials* we have, in the present work, but little to do. *Such inscriptions generally fall under the head of epigraphy.* Here we have chiefly to consider the *softer materials* on which *handwriting, as distinct from monumental engraving,* has been wont to be inscribed. Still . . . there are certain exceptions; and to some extent we shall have to inquire into the employment of metals, clay, potsherds, and wood, as well as of leaves, bark, linen, wax, papyrus, vellum, and paper as materials for writing.⁷

It had never really occurred to me, prior to reading the above, that scholarly distinctions between documents/monuments,⁸ palaeography/papyrology/epigraphy,⁹ etc., tend to relegate the study of specific aspects of writing to specific categories within the highly fragmented study of writing.¹⁰ Once the bibliographical implications of such conventions are understood, however, the investigation of this or that phase of writing is greatly simplified. For the student of metallic documents this means that all sorts of inscriptions on metal are conventionally regarded by classicists as archaeological monuments, and that scholars therefore tend to describe them in epigraphical, rather than palaeographical or papyrological, publications. Thus an inscribed piece of metal may have much more in common with a sheet of paper than, say, with the Athenian tribute lists; but both are treated as epigraphs solely because each of them is hard.

The bibliography accompanying this paper attempts to assemble some of the scholarly materials which deal with the metallic documents of antiquity. Beginning with a know-

⁷Edward Maunde Thompson, *An introduction to Greek and Latin palaeography* (Oxford: Clarendon, 1912), p. 8. Italics ours. *Ibid.*, pp. 8-43, for the entire discussion of ancient writing materials and implements.

⁸Discussed by John Howland Rowe, "Archaeology as a career," *Archaeology* 14 (1961), 45-55.

⁹For the distinctions between palaeography, papyrology and epigraphy, with copious bibliographical coverage of ancient Greek and Latin writing in general, see Martin R. P. McGuire, *Introduction to classical scholarship; a syllabus and bibliographical guide* (Washington, D.C.: Catholic University of America Press, 1961), pp. 86-107. "Papyrology is confined by convention to the investigation of Greek and Latin writing on papyrus. . . . It should be noted that handbooks of Greek paleography give a large amount of space to papyrology, since the great majority of the earliest extant Greek documents written on perishable materials are papyri. . . . The formal separation of paleography and papyrology from epigraphy, however, has been mutually disadvantageous to these three disciplines," *ibid.*, p. 96.

¹⁰On the fragmented study of writing see our *Metagraphy and graphic priority; a discursus for catalogers* (unpublished Ph.D. dissertation, Case Western Reserve University, 1969), pp. 30-32.

ledge of the golden laminae of Pyrgi,¹¹ the copper scroll from Qumran, and a nucleus of sources from the writings of Hugh Nibley,¹² I began searching the epigraphical publications of classical literature. The result is a preliminary list which shows less success in Near and Far Eastern studies than in Classics, but nevertheless attempts to document the existence of at least one exemplar from most geographical areas of major importance in antiquity.

HOW MANY ANCIENT METALLIC DOCUMENTS

Probably no one knows precisely how many ancient metallic documents exist today, but Nibley's estimate of one hundred examples is certainly low, since the number of Roman military diplomas alone had already exceeded that figure in 1924.¹³ The metallic document appears very early in the history of writing and may be found even after the invention of printing. Lead, for example, has been used for writing in late medieval and early modern times, as "leaden plates inscribed with historical and diplomatic records . . . are still in existence, which belong to the fourteenth and fifteenth centuries."¹⁴ It is known also that large collections of metal documents have existed in antiquity, and that they were frequently reserved for writings of considerable importance.

The use of bronze by the Greeks and Romans, as a material upon which to engrave votive inscriptions, laws, treaties, and other official documents, is established by various authorities. The famous "Laws of the Twelve Tables" were engraved upon bronze, and were suspended outside the Capitol at Rome. They most probably perished in the fire

¹¹The Pyrgi plates were a lively topic of conversation among classicists when I became Classics Librarian at the University of Cincinnati in 1965, as one of the professors had recently seen them on display at the Villa Giulia in Italy.

¹²See especially his *Lehi in the desert and the world of the Jaredites* (Salt Lake City: Bookcraft, 1952); and *Since Cumorah . . .* (Salt Lake City: Deseret Book Co., 1967).

¹³Nibley, *Since Cumorah*, p. 251. "These tablets, of which only a few over a hundred examples are known, record the grant of Roman citizenship and the right of legal marriage (*connubium*) to discharged veterans of foreign birth," Helen McClees, "Inscriptions in the classical collection," *Bulletin of the Metropolitan Museum of Art* 19 (1924), 167. An earthenware vessel containing more than 400 small leaden plates was also discovered near Styra of Boeotia in 1860, E. S. Roberts, *An introduction to Greek epigraphy. Part I: the archaic inscriptions and the Greek alphabet* (Cambridge: University Press, 1887), p. 197.

¹⁴Henry Guppy, "Human records: a survey of their history from the beginning," *Bulletin of the John Rylands Library* 27 (1942-43), 197. The plates are connected with Venice and Bologna.

which took place in the reign of the Emperor Vespasian, consuming the Capitol and destroying three thousand tablets of bronze or brass containing the laws, treaties, and other important documents of the Roman Empire.¹⁵

How much information has been preserved on ancient metallic epigraphs? It is too early to attempt definitive answers to this question, as we know of no ancient treatises on metallic epigraphy, and modern treatments of the subject are widely scattered, highly specialized, and often difficult to obtain. My own studies have thus far been more search than research, followed by immense frustration over the impossibility of consulting many of the pertinent documents once their existence is known.¹⁶ Some preliminary observations on the contents of metallic documents can be made, however, although the materials in the following bibliography must await the careful collation and evaluation of competent scholars in many fields.

Most of the epigraphs listed bear relatively short inscriptions,¹⁷ although there is some evidence to suggest that the ancients also prepared lengthy metallic texts of which the Qumran copper scroll is a good example.¹⁸ Pausanias also claims to have seen in Boeotia a leaden book [*molubdon*] inscribed with Hesiod's *Works and days*, a literary opus of some thirty Oxford pages.¹⁹ The seven bronze tablets discovered

¹⁵*Ibid.*

¹⁶The study of metallic epigraphy as a subject is further complicated by bibliographical problems arising from the archaeological nature of the evidence, since specialization in archaeology "is necessarily by [geographical] area, as in the humanities, rather than by subject matter, as in the natural sciences," Rowe, "Archaeology as a career," 55. Cf. Sterling Dow, "Archaeological indexes; a review article," *American Journal of Archaeology* 54 (1950), 41-57.

¹⁷Cf. the two brief lines of a golden plate discovered in southern Italy in 1951, Silvio Ferri, "San Vito di Luzzi (Cosenza). Frammenti di laminetta auree inscritte," *Notizie degli Scavi di Antichità*, Ser. 8^a, 11 (1957), fig. 1, p. 181; the three lines of Greek and two of Egyptian on a gold foundation plate, Marcus N. Tod, "A bilingual dedication from Alexandria," *Journal of Egyptian Archaeology* 28 (1942), plate VI facing p. 56; and the golden trilingual plate of Darius with twenty-five lines, Gilbert Highet, "The wondrous survival of records," *Horizon*, vol. 5, no. 2 (Nov. 1962), 79.

¹⁸See John Marco Allegro, *The treasure of the copper scroll . . .* (Garden City, N.Y.: Doubleday, 1960), passim, and Matthew Black, *The scrolls and Christian origins* (New York: C. Scribner's Sons, 1961), pp. 3-12, and consult the bibliography for additional sources.

¹⁹Pausanias 9. 31, 4: "kai moi molubdon edeiknusan, entha he pege, ta polla hupo tou chronou lelumasmenon eggegraptai de auto ta Erga." This passage is often discussed, e.g., by Guppy, "Human records," 196, L. H. Jeffery, *The local scripts of archaic Greece* (Oxford: Clarendon Press, 1961), p. 56, etc. "Lead was used in scroll form in the late Hittite empire, and this usage may possibly have spread to the Greeks. . . ," *ibid.* "For another example of books

in 1444 at Gubbio, Italy, the ancient Iguvium, seem to be larger than usual, ranging from 12x16 inches to 22x33 inches, and contain "the only extant records of any considerable extent in the Umbrian dialect; that is, in that language which, with Oscan, Latin, and several other dialects, makes up the Italic branch of the Indo-European family."²⁰ All of the tablets except III and IV are inscribed on both sides, and collectively contain more than 4,000 words, 54 long lines of which appear on the recto of tablet VII alone.²¹ These tablets deserve and receive close philological treatment in a full-blown scholarly monograph of 341 pages. Pausanias also informs us that the Thirty Years' Peace which terminated the so-called First Peloponnesian War was inscribed on a bronze monument [*stèle chalke*] and displayed at Elis.

In front of the image of Zeus there is a bronze stele containing the terms of a thirty years' peace between Lacedaemon and Athens. The Athenians made this treaty after they had subjugated Euboea for the second time. . . . The treaty specifically states that the Argives were not officially acknowledged as a party to the peace between Athens and Sparta, but that Athens and Argos might, if they desired, befriend one another in private. Such were the stipulations of the treaty.²²

A similar treaty on metal is known from ancient Anatolia.

It is worth recalling . . . , in this connection, that the contemporary Hittites of Asia Minor . . . had a certain predilection for inscriptions on metal. Not only are their inscribed signets often composed of bronze or precious metals, but the same usage was also applied to larger documents.

written on sheets of metal, see [Pausanias] 4. 26. 8. A good many inscribed rolls of lead have been found in tombs in Cyprus; but for the most part they contain either monetary accounts or else curses levelled at some enemy. See J. H. Middleton, *Illuminated manuscripts in classical and mediaeval times*, p. 2 sq., J. G. Frazer, *Pausanias' description of Greece, translated with a Commentary* (New York: Biblo and Tannen, 1965), 5:158.

²⁰James Whitney Poultney, *The bronze tablets of Iguvium* ("Philological monographs published by the American Philological Association," no. 18; n.p.: The American Philological Association, 1959), p. 1.

²¹*Ibid.*, p. 1 and plate VIIa following p. 333.

²²Pausanias 5. 23, 4. References to a bronze writing tablet [*pinakion chalkoun*] occur in at least two other contexts in Pausanias 5. 20, 7 and 5. 24, 11. Many accounts of the Thirty Years' Peace may be perused without the slightest hint that the treaty was ever inscribed on metal. The ancient accounts in Thucydides 1. 115 and Diodorus 12. 7 do not mention bronze at all, and modern commentators virtually never notice it. Why the silence? Could it be that metal was so commonly used for recording treaties and the like that it was seldom specified? Was "on metal" implied in statements like "the treaty was recorded," as "on paper" is in "the letter was written"?

Thus when the ambassadors of the great Hittite King Kheta-sira went to Egypt to make a treaty with Ramses II they bore with them a silver plate on which the Hittite text of the treaty was engraved in the native language and character.²³

The use of bronze for recording certain types of juristic literature was also popular in Italy during the Hellenistic period. "Exceptionally, *leges* and *senatusconsulta* were published on bronze tablets; *international treaties were always so published.*"²⁴ It should be observed that, whereas nineteenth century scholarship often boggled at these and similar metallic documents, a recent article has explained their peculiarities on the assumption that they were initially published in Rome and later taken to Italian and Greek towns where they were copied onto local tablets.²⁵ This meaty and important article fairly bristles with bibliographical information on the metallic juridical literature of Rome and deserves careful study. Mommsen and his contemporaries regarded the four bronze inscriptions from Tarentum, Veleia, Ateste and Heraclea as ingenious, poorly executed, and frequently unintelligible; some even declared them the products of bungling draftsmen who frequently altered the texts, etc.

The internal problems of these inscriptions are thus met by questioning their evidential value

In the following pages a fresh approach is ventured. . . . It seems better to start with the texts and the otherwise clear facts of Roman documentary processes; to consider how and by whom the bronzes were prepared; and thus to attempt, without circularity, to explain what has been rightly called their 'highly problematical form.'²⁶

Frederiksen breathes a new willingness to believe that Roman juristic literature was indeed published on metal and easily parries the objection that bronze archives and letter writing on bronze plates are simply unthinkable.

²³Arthur J. Evans, *Scripta Minoa; the written documents of Minoan Crete* . . . , Vol. 1 (Oxford: Clarendon, 1909), p. 107. Cf. William Wright, *The empire of the Hittites* . . . (London: James Nisbet, 1884), pp. 26-33, where the treaty in translation occupies over seven normal English pages and extends to 200 lines. See also Archibald H. Sayce, *The Hittites; the story of a forgotten empire* (London: Religious Tract Society, 1925), pp. 40-51, 117-18, 171.

²⁴Fritz Schulz, *History of Roman legal science* (Oxford: Clarendon Press, 1953), pp. 87-88. Italics ours, "*Edicta magistratuum* were published on wooden boards (*alba*), which were destroyed at the end of the magistrate's term of office," *ibid.*, p. 88.

²⁵M. W. Frederiksen, "The Republican municipal laws: errors and drafts," *Journal of Roman Studies* 55 (1965), 183-98.

²⁶*Ibid.*, p. 183.

From earliest times until the age of Augustus *bronze was the usual form of publication in Italy*. Unlike Greece, Italy had few kinds of stone suited to the inscription of long texts, until the heavy Augustan exploitation of the Luna quarries; she had, however, again unlike Greece, good supplies of bronze—a fact which more than any other explains the relative epigraphic paucity of Greek and Republican Italy.²⁷

Frederiksen's conclusion is that the extant bronze epigraphs of the Republican period, if not the copies actually displayed at Rome, "were the work of local scribes instructed by local magistrates."²⁸

As the treaty with Cibyra or the Pirate Law suggests, a city might allowably choose another medium, and wooden tablets were not only permitted but common. . . . Nor should it be forgotten that most of Rome's allies, in Italy as well as abroad, possessed public archives of a systematic kind. Since 225 B.C. we must suppose the existence of *formulae togatorum* and hence of *censoriae tabulae*, doubtless increasingly assimilated to Roman models. Such local machinery was, at very least, adequate to the demands that Rome might make of it, and it was not absurd for Roman legislators to rely upon allied initiative for the copying and preservation of laws that concerned them. Thus it was certainly with the municipal laws and charters of the Republic. We know them from the copies made in the towns themselves²⁹

A last example of extensive writing on metal cited here is a sophisticated document on four bronze plates bearing some of the laws regulating Roman mining operations in the provinces. Two of the plates were discovered at Aljustrel, Portugal, one in 1876, the other in 1907. Together their English translation requires three full pages of normal journal size [i.e., 8½x11 inches], an average of one such page per tablet side.³⁰ They were written by officials with firsthand experience at mining, "men who understood their subject thoroughly

²⁷*Ibid.*, p. 186. Italics ours. Cf. Theodor Mommsen, *Römisches Staatsrecht* ("Handbuch der Römischen Altertümer," Bd. 1; Graz: Akademische Druck- u. Verlagsanstalt, 1952-53), 1:256: "Bei dieser [internationalen] Publication wird wie bei jeder zu bleibendem Gedächtniss, das Document auf eine Kupfertafel geschrieben, wie bei transitorischer Publication auf eine Holztafel; Publication auf Stein ist der römischen Ordnung fremd."

²⁸Frederiksen, "Republican municipal laws," p. 187.

²⁹*Ibid.*

³⁰The three journal pages represent only three sides of the two tablets, since the first tablet bears the same inscription on both sides.

...³¹ The first tablet deals in a general way with provincial mining operations.

This is obviously not something put together by a local official to suit the place under his command, but something of a much wider application that had been developed over a long time and adapted to suit new conditions as they arose. It was a code leaving few loopholes, well understood and accepted by the parties concerned. It had been applied many times before and was just now being put into operation at Aljustrel and next year might well be initiated at a British mine.³²

The second tablet applies to a specific operation in a particular area and regulates, in addition to mining practices, the use of public baths, the cobbling of shoes, the cutting of hair, the fulling of cloth, and the exemption of schoolmasters from dues payable to the procurator.³³

RELIGIOUS METALLIC DOCUMENTS

Of the many religious documents on metal we notice here the Orphic plates of gold and the golden books of the Pyu. Eight small plates of gold discovered in Crete and Italy constitute "the main sources of evidence for the Orphic beliefs regarding the fate of the soul after death,"³⁴ and provide invaluable information on Orphic doctrine generally.

It comes from the side of epigraphy, since the information is contained in the writing found on some thin plates of gold which have been taken at different times from ancient graves. . . . These inscriptions have long been famous, and a whole literature has sprung up around them. The plates were found lying beside the skeleton, some near its hand, others folded up beside the skull. One (that at Petelia) had been rolled up and enclosed in a cylinder at-

³¹A. D. Cummings, W. R. Chalmers, and H. B. Mattingly, "A Roman mining document," *Mine and Quarry Engineering*, August 1956, p. 339.

³²*Ibid.*, p. 340.

³³*Ibid.*, pp. 341-42. It is interesting to note that women were charged twice as much as men for the baths and could use them only in the mornings while the men were occupied, probably because the baths did double duty as a laundry.

³⁴W. K. C. Guthrie, *Orpheus and Greek religion; a study of the Orphic movement* (New York: W. W. Norton, 1966), p. 182. The critical edition of the Orphic plates with Latin commentary and six drawings is Alexander Olivieri, *Lamellae aureae orphicae* (Bonn: A. Marcus and E. Weber's Verlag, 1915), passim. Also important is Jane Ellen Harrison, *Prolegomena to the study of Greek religion* (3d ed.; New York: Meridian Books, 1959), pp. 572-623, 659-73.

tached to a delicate gold chain, clearly in order that it might be worn as an amulet.³⁵

The inscriptions on the plates are extracts from a poem or book of poems which "must have been at least as early as the fifth century B.C."³⁶ That the customary use of such plates persisted for centuries may be inferred from the discovery of yet a ninth plate believed to have been found at Rome and belonging to the second or third century A.D.³⁷

The purpose of the plates is clear from their contents. The dead man is given those portions of his sacred literature which will instruct him how to behave when he finds himself on the road to the lower world. They tell him the way he is to go and the words he is to say. They also quote the favorable answer which he may expect from the powers of that world when he has duly reminded them of his claims on their benevolence.³⁸

Among the most important Pali inscriptions of the ancient Pyu are (1) two golden plates discovered at Maunggun, probably from the first centuries A.D., and (2) a gold-leaf book of twenty numbered pages found at Hmawza (Old Prome) in 1926 and dating from the fifth century A.D.³⁹ The Maunggun plates were found in a brick in 1898 by someone digging the foundation for a new pagoda.

Each of the two plates bears three lines of writing and is inscribed on one side only. The letters show through on the reverse. . . . The inscriptions consist of quotations from the Buddhist scriptures. They are in the Pali language and are written in characters which, it is believed, were in vogue in the first century A.D. when the kingdom of Prome (Siri-khettara) was in the zenith of its power. The alphabet corresponds to a large extent with that used in the inscriptions at Pagan of the fourth and fifth centuries. . . .⁴⁰

The gold-leaf book from Hmawza has been described as

³⁵Guthrie, *Orpheus and Greek religion*, 171 and plates 8-10.

³⁶*Ibid.*, pp. 171-72. The poem(s) may well be earlier than that, *ibid.*

³⁷*Ibid.*, p. 174.

³⁸*Ibid.*, p. 172. The plates are translated in *ibid.*, pp. 172-74, where their respective provenances are also given. "Many of the words on the plates are addressed to the dead man by people unknown to us, but whom the writers of the plates would know as they would be mentioned in the books from which they were quoting," *ibid.*, p. 176.

³⁹Discussed by G. H. Luce, "The ancient Pyu," *Journal of the Burma Research Society* 27 (1937), 247.

⁴⁰Maung Tun Nyein, "Maunggun gold plates," *Epigraphia Indica*, 5 (1898-99), 101.

"the most important record hitherto discovered of Pali Buddhism in Lower Burma."⁴¹ It is "a manuscript in every way similar to the palm-leaf manuscript so common in India and Burma but with leaves of gold, twenty in number, with writing incised on one side."⁴² The fact that the palm-leaf manuscript lies behind the form of this golden book is part of a familiar pattern, as ancient metallic documents often assume the forms of conventional documents. Wooden tablets, for example, served as models for the Idalion bronze plate from Cyprus and the metallic writings of The Hittites.⁴³ Excavators, of course, have little or no chance of retrieving such perishable inscriptions from antiquity, but they often hope to find metallic documents which reflect them.⁴⁴ It is not surprising, therefore, to discover in Burma "a book of twenty leaves of gold exactly of the nature of old palm-leaf manuscripts of India, each inscribed on one side, placed within two covers of the same metal."⁴⁵

These leaves, within their two gold covers, were found bound together by a thick gold wire with its end fastened to the covers by sealing wax and small glass beads. . . . There are two holes in each leaf and cover, through which the

⁴¹Nihar Ranjan Ray, *Journal of the Greater Indian Society* 7 (1939), 47, quoted in "The gold-leaf Pali manuscript of Old Prome," *Report of the Superintendent, Archaeological Survey of Burma*, 1938-39, 12. Cf. "Gold and silver plates with inscriptions," *Annual Report of the Archaeological Survey of India* 1926-27, 180: "From the paleographical point of view, this manuscript ranks among the most instructive finds yet made in Burma."

⁴²*Ibid.*, 179.

⁴³Helmuth T. Bossert, "Sie schrieben auf Holz," in *Minoica; Festschrift zum 80. Geburtstag von Johannes Sundwall*, hrsg. von Ernst Grumach ("Deutsche Akad. d. Wiss., Berlin. Schriften der Sektion für Altertumswiss.," 12; Berlin: Akademie-Verlag, 1958), 76-77: "Eine Holztafel diente auch der auf beiden Seiten beschriebenen Bronzetafel aus Idalion zum Vorbild. Sie enthält einen Vertrag und war im Athena-Tempel aufgehängt. . . . Ähnlich werden die Ausfertigungen auf Silber, Bronze oder Eisen der hethitischen Staatsverträge und anderer wichtiger historischer Texte ausgesehen haben. . . . Auch die Metalltafeln der Grossreichzeit waren Nachahmungen von Holztafeln, sofern sie zum Aufhängen in Tempeln oder Archiven bestimmt waren. Dass es im 2. Jahrtausend auch Metalltafeln ohne Aufhängevorrichtung gab, zeigen z.B. die Metallinschriften aus Byblos."

⁴⁴"Die Kreter scheinen ebenfalls schon früh Metalltafeln als Schreibstoff gekannt und benutzt zu haben. . . . Ist die Hoffnung auch recht gering, beschriftete Holztafeln in guter Erhaltung in Mesopotamien, Kleinasien oder im kretisch-mykenischen Raum zu finden, so kann uns doch das Ausgraberglück wie in Idalion and Byblos auch in anderen Bereichen beschriebene Metalltafeln beschern," *ibid.*, p. 79. Cf. Evans, *Scripta Minoa*: Although no inscribed tablets of metal have been as yet discovered among the Minoan remains of Crete, this negative phenomenon proves little when we bear in mind how carefully the great Palaces seem to have been ransacked for metal objects at the time of their desertion and destruction."

⁴⁵"The gold-leaf Pali manuscript of Old Prome," p. 12, note 41.

gold wire was passed, to keep the whole in position and proper order. It was necessary to cut this wire in order to free the leaves. Each leaf measures $6\frac{1}{2}$ " in length and about $1\frac{1}{4}$ " in breadth, and contains three lines of writing. . . . The manuscript is made up of short extracts in Pali from the *Abbidhamma* and *Vinaya pitakas* It is well known that, among the Buddhists, there are four classes of objects of worship, viz., (1) the Buddha's corporeal relics, (2) the objects he personally used . . . , (3) trees . . . and other objects or places which have been made holy by the presence of the Master, and (4) the Law or Dhamma Preached by the Buddha as preserved in the *Tripitakas*. This is the reason why, in some cases and in the absence of other relics, manuscripts are enshrined in pagodas. This custom is responsible for the discovery of our manuscript among the other objects, as embodying the Dhamma.⁴⁶

The twenty leaves contain altogether eight extracts from various books of the Pali pitakas and include the twelve Nidanas or Paticca Samuppada, the seven kinds of Vipassana nana (contemplative knowledge), the thirty-seven bodhipakkhiya dhammas or Elements of Enlightenment, the classification of Buddha's four confidences, the fourteen kinds of knowledge possessed by Buddha, the categories of best things propounded by Buddha, the missionary march of Buddha and the three Kassapa brothers into the Rajagaha city, and the well-known praise of the Buddha known as the mirror of truth.⁴⁷ The existence of other metallic documents in Burma may also be safely assumed from another discovery of "small gold and silver plates with Pyu inscriptions punched on them in relief. There are 16 of them, but many are only fragments."⁴⁸

Closely allied to the above religious literature on metals are the magical texts and curse tablets which, like the Orphic gold plates, have inspired a large scholarly literature.⁴⁹ The Greek papyri have disclosed a large number of incantations, magician's handbooks, etc., directed toward bending the super-

⁴⁶"Gold and silver plates with inscriptions," *loc. cit.*, p. 179-80.

⁴⁷Details in "The gold-leaf Pali manuscript of Old Prome," *loc. cit.*, p. 13.

⁴⁸"Gold and silver plates with inscriptions," *loc. cit.*, p. 180.

⁴⁹"One needs to remember that our knowledge of ancient religion and society owes to such authorities as Dietrich, Wünsch, Preisendanz, Hopfner, Delatte, Audollent, and others, in order to treat a new magical text with anything approaching respect," H. C. Youtie and Campbell Bonner, "Two curse tablets from Beisan," *Transactions and Proceedings of the American Philological Association* 68 (1937), 43.

natural powers to the service of individuals. Metallic inscriptions figure prominently in spells and the like, which sometimes smack of modern huckstering, as in the following example:

'A magic formula that restrains anger, secures goodwill, success in the lawcourts, works even with kings; there is absolutely nothing better. Take a silver plate, inscribe on it with a bronze pencil the figure drawn below and the names, carry it in the folds of your dress and you will win' (then follow the names [*nomina magica*] and the actual formula).⁵⁰

Whereas magic formulae invoking benefit and protection were normally inscribed on gold and silver, those employed for curses and black magic are usually found on lead or tin—the epigraphical equivalents, more or less, of voodoo dolls and other forms of sorcery.⁵¹ Tablets of the latter variety are found, often in great quantities, all over the Mediterranean basin. "Evidently the method of this magical school had established itself fairly uniformly wherever Greek was understood."⁵²

The curses used in tablets of this sort conform in a general way to a fairly definite type. The writer usually says that he is *binding down* . . . or *devoting* . . . some enemy to the infernal powers. Often he not only names his enemy, but also specifies the bodily parts or mental

⁵⁰C. H. Roberts, "The Greek papyri," in S. R. K. Glanville, ed., *The legacy of Egypt* (Oxford: Clarendon Press, 1942), 281. For three magical texts on silver and one on gold see Alphons Barb, "Griechische Zaubertexte vom Gräberfelde westlich des [Carnuntiner] Lagers," *Der Römische Limes in Österreich* 16 (1926), 53-68 and Tafel 1, where other finds of magical texts on metal are also discussed.

⁵¹"So wie bekanntlich für Verfluchungen und schwarze Magie Blei und Zinn das Hauptschreibmaterial bilden, so wird für den schützenden und wohltätigen Zauber neben Gold gerne Silber verwendet," *ibid.*, p. 55.

⁵²Youtie and Bonner, "Two curse tablets," p. 47. Though the maledictory tablets discussed here were found in Palestine, "Semitic elements figure in them to no larger extent than in the Graeco-Egyptian magical papyri, or in the curse tablets from other regions around the Mediterranean. . . . Our specimens, as far as their language, formulas, and the magical words are concerned, might have been written in Alexandria, Carthage, Rome or Marseilles as well as in Palestine," *ibid.* "It is probable that these non-Greek components of the curse tablets emanated from Alexandria and were carried to all parts of the Graeco-Roman world by practicing magicians," *ibid.*, p. 46. "The discovery of forty-five lead tablets in a well in the Athenian Agora was announced . . . in 1933. . . . Obviously the Athenians of the Roman period believed in the potency of the cryptic curse and used it extensively. The large number of the tablets may mean that the curse on lead originated in Attica, as Wunsch is inclined to believe," G. W. Elderkin, "An Athenian maledictory inscription on lead," *Hesperia* 5 (1936), 43.

faculties of his victim, which he wishes to cripple or make helpless. He may pray the deities whom he invokes to make his enemy powerless, to prevent further hostile action on his part, and to subject him to the will of the writer. This plan applies roughly to almost all the curse tablets that are known. Such variations as there are arise naturally from differences in the relations between the operator and his intended victim, according as their enmity proceeds from litigation, business quarrels, love, or sport—for many are directed against charioteers of the opposing circus faction.⁵³

Both curse tablets described by Youtie and Bonner involve squabbles over money. One is obscure and specifically mentions only a creditor and a law suit, but the other names Pancharia, the woman invoking the curse, who wants to render one man and two women powerless to harm her. She is afraid of them, probably because they may call her to account for some mismanaged stewardship or defraud her in some way. "Whether a loan, a partnership, or an inheritance is concerned does not appear."⁵⁴ The writer of another curse inscription consigns to the infernal powers some thief or thieves who stole something from him. He addresses the chthonians cautiously, fearing to annoy them but feeling that he must do so. He suspects the identity of the offender(s) who live(s) in a specific little house in town, and curses not only the actual perpetrator(s) of the deed, "but those as well, who, knowing something about the theft, deny that they have such knowledge."⁵⁵

Many of the lead tablets containing curses were rolled up and pierced with a nail; and it was a common practice to deposit them in graves, either as a convenient approach to the lower world, or, as sometimes happened, because the spirit of the dead person was adjured to serve as an agent of the operator. A considerable number have also been found in wells and cisterns which, like graves, were viewed as openings to the infernal regions, and were believed to be haunted by demons.⁵⁶

⁵³Youtie and Bonner, "Two curse tablets," p. 45.

⁵⁴*Ibid.*, p. 47.

⁵⁵G. W. Elderkin, "Two curse inscriptions," *Hesperia* 6 (1937), 392. "The thieves are to go down the dark ways as did the slaughtered suitors who fluttered like bats behind Hermes," *ibid.*, p. 394.

⁵⁶Youtie and Bonner, "Two curse tablets," p. 45. According to Homer's cosmology (*Iliad* 15. 187-193) the world was separated into three vertical tiers and apportioned to Zeus, Poseidon, and Hades, the three sons of Chronos and Rhea, who thus came respectively to have dominion above, upon, and beneath the surface of the earth. Poseidon's surface area, however, was restricted to

There are extant today more actual exemplars of ancient writing on metal than most people realize, and many of them go back to the very persons, places, times and events which they describe. Among the subjects not covered in this paper they comprise such things as military diplomas, dikasts' pinakia, intentionally sealed and buried documents, foundation deposits, letters, economic accounts, political propaganda, maps, dedications, enactments, prayers, and even mummy tickets—for all of which and more we respectfully request that the bibliography, limited as it is, be carefully studied. We hope to edit a substantial collection of writings on metallic epigraphy in the not-too-distant future. The subject is a fascinating one, and the metallic documents of antiquity may yet turn out to deserve more than a casual footnote in the history of written communications.

METALLIC EPIGRAPHY

A Working Bibliography

GENERAL.

Edward Maunde Thompson, *An introduction to Greek and Latin paleography* (Oxford: Clarendon, 1912), pp. 8, 11-13.

David Diringer, *The hand-produced book* (New York: Philosophical Library, 1953), pp. 42, 46, 48-51, 58, 62, 65, 72, 189, 343-344, 358, 375, 382-383, 399.

The alphabet; a key to the history of mankind. Completely revised with the assistance of Reinhold Regensburger (3d ed.; New York: Funk and Wagnalls, 1968), 1:19, 42, 48, 57, 68, 88, 113, 138-39, 153, 193, 199, 204, 212-13, 228, 237, 259, 263-64, 300, 307, 321-22, 328, 394, 398-99, 403. Many plates are also provided in Vol. 2 (e.g., 10.1; 14.12, 13, 20; 17.3; 18.8; 19.4; 20.3; conclusion 8, etc.).

Elmer D. Johnson, *A history of libraries in the Western world* (New York: Scarecrow Press, 1965), pp. 12, 16, 64, 72.

THE FAR EAST.

CHINA.

David Diringer, *The alphabet*, 1:68.

The hand-produced book, pp. 383, 399.

F. Thelma Eaton, *The history of the book; an outline and a reading*

the earth's waters, as Olympus and the world's lands remained the common property of the brother-gods. The Greeks believed, though, that the continents were afloat, and thus greatly feared Poseidon, who caused many an earthquake in Greece by stirring up the oceans with his trident. But they feared Hades even more, as *all* Greeks, good and bad alike, went down into his nether regions when they died. It is therefore understandable that graves, wells, cisterns, and the like were regarded as entrances to the infernal realms, that curse tablets were usually thrown "eis phrear achrematiston," Elderkin, *Hesperia* 5 (1936), 43, and that the early Attic curse tablets "invoke the infernal deities well known in classical literature," whereas later invocations "are transformed by an influence which is in the main Oriental with some Egyptian elements," Youtie and Bonner, "Two curse tablets."

list . . . (4th ed.; Champaign, Illinois: Illini Union Bookstore, 1959), p. 12.

Chin shib wên (Peking: 1926). A bibliography listing, according to Diringer, *The alphabet*, 1:68, some 800 epigraphical documents on metal and stone. The Chinese title means "inscriptions on metal and stone."

Tsuen-Hsuei Tsien, *Written on bamboo and silk; the beginnings of Chinese books and inscriptions* (Chicago: University of Chicago Press, 1962), pp. v, vii, 1, 4-6, 8, 38-41, 44, 47-48, 50-58, 90, 179-181.

Marco Polo, *The book of Ser Marco Polo the Venetian concerning the kingdoms and travels of the East*, translated and edited, with notes, by . . . Sir Henry Yule (3d ed. rev.; New York: C. Scribner's Sons, 1929), 1: prologue 15-16; 34-35, 350-351, note 2 pp. 351-352, 353-354, 431.

BURMA.

Maung Tun Nyein, "Maunggun gold plates," *Epigraphia Indica* 5 (1898-1899), 101-102.

———, "Gold and silver plates with inscriptions," *Annual report of the Archaeological Survey of India* 1926-27, 179-180.

G. H. Luce, "The ancient Pyu," *Journal of the Burma Research Society* 27 (1937), 239-253.

"The golf-leaf Pali manuscript of Old Prome," *Report of the Superintendent, Archaeological Survey of Burma*, 1938-1939, 12-22 and plates IV-VI.

David Diringer, *The alphabet*, 1:322-23, supplies additional bibliography on Burma.

INDIA.

David Diringer, *The alphabet*, 1:263-64.

E. B. Cross, "On the Karens," *Journal of the American Oriental Society* 4 (1854), 289-316.

"Proceedings at New Haven, October, 1866," *Journal of the American Oriental Society* 9 (1871), xi-xii.

Alonzo Bunker, "On a Karen inscription-plate," *Journal of the American Oriental Society* 10 (1880), 172-176.

F. E. Pargiter, "A copperplate discovered at Kasia, and Buddha's death-place," *Journal of the Royal Asiatic Society*, 1913, 151-153.

J. H. Marshall, "The date of Kanishka," *Journal of the Royal Asiatic Society*, 1914, 973-986. "Misc. communications," pp. 987-999, should also be read.

Sten Konow, "Kalawan copper-plate inscription of the year 134," *Journal of the Royal Asiatic Society*, 1932, 949-965.

G. Ramadas, "Kesaribeda copper plate grant of Maharaja Arthhapali Bhattaraka of the Nala family," *Journal of the Bihar Research Society* 34 (1948), 33-42.

THE NEAR EAST.

GENERAL.

Helmuth T. Bossert, "Sie schrieben auf Holz," in *Minoica; Festschrift zum 80. Geburtstag von Johannes Sundwall*, hrsg. von Ernst Grumach ("Deutsche Akad. d. Wiss., Berlin. Schriften der Sektion für Altertumswiss., 12; Berlin: Akademie-Verlag, 1958), pp. 75-79.

SUMER.

F. Thureau-Dangin, "Une tablette en or provenant d'Umma," *Revue d'Assyriologie et d'archéologie orientale* 34 (1937), 177-182.

BABYLONIA.

C. J. Gadd, "Babylonian foundation texts: 1. Limestone and copper tablets of a wife of Rim-Sin," *Journal of the Royal Asiatic Society*, 1926, 679-684.

ASSYRIA.

- Jean Bottéro, "Deux tablettes de fondation, en or et en argent, d'Assurnasirpal II," *Semitica*, 1 (1948), 25-32.
- Walter Andrae, *Hettitische Inschriften auf Bleistreifen aus Assur* ("Ausgrabungen der Deutschen Orient-Gesellschaft in Assur. E: Inschriften. VI Hettitische Blei-inschriften mitgeteilt von Walter Andrae; Leipzig: J. C. Hinrichs'sche Buchhandlung, 1924, 1-2, 7-8.
- Helmuth T. Bossert, "Zu den Bleibriefen aus Assur," *Orientalia* 20 n.s., 1951), 70-77.
- D. J. Wiseman, "Assyrian writing boards," *Iraq* 17 (1955), 3-13.
- Margaret Howard, "Technical description of the ivory writing-boards from Nimrud," *Iraq* 17 (1955), 14-20.

EGYPT.

- James Henry Breasted, *Ancient records of Egypt; historical documents from the earliest times to the Persian conquest, collected, edited and translated with commentary*, 5 vols. (Chicago: Univ. of Chicago Press, 1906-1907). Vol. 3, nos. 367-391 has most of the basic data pertaining to the Hittite treaty on the silver plates from Kheta. Vol. 4, nos. 151-412 is the invaluable and remarkable Papyrus Harris, the largest papyrus extant. For metallic documents see nos. 202, 231, 285, 317-318, 343.
- E. A. Wallis Budge, ed. and trans., *The papyrus of Ani; a reproduction in facsimile edited, with hieroglyphic transcript, translation and introduction: Book of the Dead* (New York: G. P. Putnam's Sons, 1913), pp. 14-15.
- Hermann Ranke, "Eine Bleitafel mit hieroglyphischer Inschrift," *Zeitschrift für Ägyptische Sprache und Altertumskunde* 74 (1938), 49-51.

ASIA MINOR.

- William Wright, *The empire of the Hittites* . . . London: James Nisbet, 1884), pp. 26-33, 65-66, 70-71.
- Archibald H. Sayce, *The Hittites; the story of a forgotten empire* (London: Religious Tract Society, 1925), pp. 40-51, 117-118, 170-171.
- Muhibbe Anstock-Darge, "Semitische Inschriften auf Silbertäfelchen aus dem 'Bertiz'-Tal (Umgebung von 'Maras')," *Jahrbuch für Kleinasienische Forschung*, 1 (1950), 199-200.

SYRIA-PALESTINE.

- H. C. Youtie and C. Bonner, "Two curse tablets from Beisan," *Transactions of the American Philological Association* 68 (1937), 43-77, 128.
- David Diringer, *The alphabet*, 1:113-16.
- William Foxwell Albright, "The ancient Near East at the Congress of Orientalists in Rome," *Bulletin of the American School of Oriental Research* 60 (Dec., 1935), 2-9.
- The archaeology of Palestine* (Hammondsworth, Middlesex: Penguin Books, 1949), p. 185.
- E. Dhorme, "Déchiffrement des inscriptions pseudo-hiéroglyphiques de Byblos," *Syria* 25 (1946-48), 1-35. Other basic sources on the metallic documents of Byblos are found in Ignace J. Gelb, *A study of writing* (Rev. ed.; Chicago: University of Chicago Press, 1965), p. 266.
- William Foxwell Albright, "A Hebrew letter from the twelfth century B.C.," *Bulletin of the American School of Oriental Research* 73 (Feb., 1939), 9-13.
- Julian Obermann, "An early Phoenician political document," *Journal of Biblical Literature* 58 (1939), 229-241.
- Douglas Jones, "The traditio of the oracles of Isaiah of Jerusalem," *Zeitschrift für die alttestamentliche Wissenschaft* 67 (1955), 226-246.
- D. Barthelemy and J. T. Milik, *Qumran Cave 1: "Discoveries in the Judaean Desert,"* 1 (Oxford: Clarendon Press, 1955), 4, 25.
- John Marco Allegro, *The treasure of the copper scroll; the opening and decipherment of the most mysterious of the Dead Sea Scrolls, a unique*

inventory of buried treasure (Garden City: Doubleday, 1960), pp. 24-30, 43, 47, 58, 60-62.

H. Wright Baker, "How the Dead Sea scrolls were opened," *Engineering* 181 (1956), 194-196.

"Unrolling the past," *Chemical and engineering news* 34 (1956), 4254-4259, 4330-4331. Includes remarks by W. F. Albright on "The significance of the Dead Sea scrolls."

Matthew Black, *The scrolls and Christian origins* (New York: C. Scribner's Sons, 1961), pp. 3-4, 12.

CYPRUS.

Helmuth T. Bossert, "Sie schrieben auf Holz," in *Minoica: Festschrift zum 80. Geburtstag von Johannes Sundwall*, hrsg. von Ernst Grumach ("Deutsche Akad. d. Wiss., Berlin, Schriften der Sektion für Altertumswiss., 12"; Berlin: Akademie-Verlag, 1958), 76-78.

PERSIA.

Ernst Herzfeld, "Eine neue Darius-Inschrift aus Hamadan," *Deutsche Literaturzeitung* 47 (1926), 2105-2108.

Sidney Smith, "Assyriological notes: Inscription of Darius on gold tablet," *Journal of the Royal Asiatic Society*, 1926, 433-436. See also *Journal of the Royal Asiatic Society*, 1927, 97-101; 1930, 452.

F. H. Weissbach, "Zu den Goldinschrift des Dareios I," *Zeitschrift für Assyriologie und verwandete Gebiete* 37 (1937), 291-294.

Ernst Schwentner, "Zu der neuen Darius-Inschrift aus Hamadan," *Zeitschrift für Indologie und Iranistik* 6 (1928), 171-173.

Carl Darling Buck, "A new Darius inscription," *Language* 3 (1927), 1-5.

Ernst Herzfeld, *A new inscription of Darius from Hamadan, Memoirs of the Archaeological Survey of India*, no. 34 (Calcutta: Central Publication Branch, Government of India, 1928), 1-2.

Ronald G. Kent, "The recently published Old Persian inscriptions," *Journal of the American Oriental Society* 51 (1931), 189-240.

John P. Barden, "Xerxes a doughty warrior until he met the Greeks, Orientalists find," *The University of Chicago Magazine*, Feb. 1936, 23-25.

Ernst Herzfeld, *Altpersische Inschriften, Erster Ergänzungsband zu den Archaeologischen Mitteilungen aus Iran* (Berlin: D. Reimer, 1938), Inschr. n. 6 and Tafel 6.

Sukumar Sen, *Old Persian inscriptions of the Achaemenian emperors* (Calcutta: Univ. of Calcutta), 1941.

Ronald G. Kent, "The oldest Old Persian inscriptions," *Journal of the American Oriental Society* 66 (1946) 206-212.

Arthur Upham Pope, "Recently found treasures of one of the world's first and greatest empires: Achaemenid gold objects," *Illustrated London News* 17 (July 1948), 58-59.

Ronald G. Kent, *Old Persian: grammar, texts, lexicon, American Oriental series*, vol. 33 (2nd ed.; New Haven, 1953), 9, 11-12, 107, 109, 111, 113-114, 116, 136f., 147, 155, 216.

Herbert H. Paper, "An Old Persian text of Darius II (D2Ha)," *Journal of the American Oriental Society* 72 (1952), 169-170.

Ethel S. Drower, *The Mandaean of Iraq and Iran; their cults, customs, magic, legends, and folklore* (Leiden: E. J. Brill, 1962), pp. 22-23, 132.

ARABIA.

David Diringer, *The alphabet*, 1:212-13.

THE WEST.

GREECE.

Pausanias, *Descriptio Graecae* 4. 26, 6-8.

Plutarchus, *Life of Alexander* 17. 4-5.

De genio Socratis 577 E-F.

- James Westfall Thompson, *Ancient Libraries* (Berkeley: Univ. of Calif. Press, 1940), pp. 51-52.
- L. H. Jeffery, *The local scripts of archaic Greece* (Oxford: Clarendon, 1961), pp. 6, 17, 50-58, 59, 62-65; and plates 3, 6, 11, 14, 15, 17, 22, 23, 26, 27, 31, 34, 36, 40, 41-46, 49-52, 54.
- Jenö Platthy, *Sources on the earliest Greek libraries; with the testimonia* (Amsterdam: Adolf M. Hakkert, 1968), pp. 76-79. Chapter 6, "Background of literacy: writing on metal, etc. Evidence of the language," pp. 76-93, should be read in its entirety.
- C. H. Roberts, "The Greek papyri," in S.R.K. Glanville, ed., *The legacy of Egypt* (Oxford: Clarendon Press, 1942), 281.
- E. S. Roberts, *An introduction to Greek epigraphy. Part I: The archaic inscriptions and the Greek alphabet* (Cambridge: Univ. Press, 1887), pp. 255-256, 357-360. Many metallic documents are cited herein.
- C. Brixhe, "Une tabletta de juge d'origine probablement pamphylienne," *Bulletin de Correspondence Hellénique* 90 (1966), 653-63.
- J. J. Clère, "Deux nouvelles plaques de fondation bilingues de Ptolémée IV Philopator," *Zeitschrift für ägyptische Sprache* 90 (1963), 16-22.
- J. Kroll, "Dikasts' pinakia from the Fauvel collection," *Bulletin de Correspondence Hellénique* 91 (1967), 379-96. Also his "The 'Paris forger' of dikasts' pinakia," *ibid.*, 397-400.
- R. Merkelbach, "Epigraphische Miscellen," *Zeitschrift für Papyrologie und Epigraphik* 1 (1967), 77-80. Pt. 1: "Der Weg nach rechts (Goldplättchen von Petelia)."
- Arthur J. Evans, *Scripta Minoa; the written documents of Minoan Crete* (Oxford: Clarendon, 1909), 1:106-108.
- Orpheus. Hymni. Lamellae avrea orphicae. Edidit commentario instruxit Alexander Olivieri. Bonn, A. Marcus und E. Weber's Verlag, 1915.
- J. S. Morrison, "Parmenides and Er," *Journal of Hellenic Studies* 75 (1955), 66.
- M. T. Rostovtzeff, *Mystic Italy* (New York: Holt, 1927), pp. 36-37, 34, 74.
- W. K. C. Guthrie, *Orpheus and Greek religion; a study of the Orphic movement* (London: Methuen, 1935), pp. 171-182.
- Jane Ellen Harrison, *Prolegomena to the study of Greek religion* (3rd ed; Cambridge, Univ. Press, 1922), chap. XI, "Orphic eschatology," and Gilbert Murray's "Critical appendix on the Orphic Tablets" at the end of the book. Also reprinted by Meridian Books, 1959.
- Helen McClees, "Inscriptions in the classical collection," *Bulletin of the Metropolitan Museum of Art* 19 (1924), 166-168.
- Leslie Shear, "The latter part of the agora campaign of 1933," *American Journal of Archaeology* 37 (1933), 540-548. Similar report in *Hesperia* 4 (1935), 325.
- Stanley Casson, "Early Greek inscriptions on metal: some notes," *American Journal of Archaeology* 39 (1935), 510-517.
- G. W. Elderkin, "An Athenian maledictory inscription on lead," *Hesperia* 5 (1936), 43-49.
- "Two curse inscriptions," *Hesperia* 6 (1937), 382-395.
- Eugene Vanderpool, "An Athenian dikast's ticket," *American Journal of Archaeology* 36 (1932), 293-294.
- Sterling Dow, "Dikasts' bronze pinakia," *Bulletin de Correspondance Hellénique* 87 (1963), 653-687.

ITALY.

- David Diringer, *The alphabet*, 1:386-87, 394.
- James Whitney Poultny, *The bronze tables of Iguvium*, philological monographs published by the American Philological Association, no. 18 (Baltimore: American Philological Association, 1959), *passim*, esp. pp. 1, 9-12, 22, 24.
- Ulrich Schmoll, "Die hebräische Inschrift des Goldplättchens von Comiso," *Zeitschrift der deutschen morgenländischen Gesellschaft* 113 (1963), 512-514.

- Ned Nabers, "Prayers or curses? Some lead tabellae from Morgantina," *American Journal of Archaeology* 69 (1965), 171-172.
- Helen McClees, "A military diploma of Trajan," *American Journal of Archaeology* 30 (1926), 418-421.
- D. Atkinson, "A new Roman governor of Provincia Britannia," *Classical Review* 42 (1928), 11-14.
- A. D. Cummings, W. R. Chalmers, and H. B. Mattingly, "A Roman Mining document," *Mine and quarry engineering*, August 1956, 339-342.
- E. C. Clark, *History of Roman private law, Part I: Sources* (Cambridge: Cambridge University Press, 1906), pp. 21, 24, 25.
- Rome. Laws, statutes, etc., *Roman laws and charters*, translated with introduction and notes by E. G. Hardy (Oxford: Clarendon, 1912), pp. 1, 35, 102, 104, 110-111, 136.
- Fritz Schultz, *History of Roman legal science* (Oxford: Clarendon, 1946), pp. 87-88.
- M. W. Frederiksen, "The Republican municipal laws: errors and drafts," *Journal of Roman Studies* 55 (1965), 183-198.
- Giovanni Colonna, "The sanctuary at Pyrgi in Etruria," *Archaeology* 19 (1966), 11-23.
- Massimo Pallottino, "New Etruscan texts on gold found at Pyrgi," *Illustrated London News*, 13 Feb. 1965, 22-25.
- A. J. Pfiffig, *Uni-Hera-Astarte. Studien zu den Goldblechen von S. Severa/Pyrgi mit etruskischer und punischer Inschrift*. ("Denkschriften d. Öst. Akad. d. Wiss." 88, 2; Wien: Böhlau, 1965), *passim*.
- J. Ruysschaert, "La lamelle de bronze apollinienne du Mediallier vatican (CIL VI 3721) et le chevalier Jérôme Odam (1681-1741), *Rendiconti della Pontificia Accademia di Archeologia* 37 (1964-65 [1966]), 325-36. Cf. M. Guarducci, "Sol invictus Augustus," *Rendiconti della Pontificia Accademia di Archeologia*, 1957-58 and 1958-59, 161-69.

MISCELLANEOUS.

- Karl Wessely, "Bericht über griechische papyri in Paris und London," *Wiener Studien* 8 (1886), 175-230.
- D. Comparetti, "Laminetta argentea iscritti di Aidone (Sicilia)," *Annuario della r. Scuola Archeologica di Atene e della missioni italiane in Oriente*, 1914, 113-118.
- "Tabelle testamentaire della colonie achee di Magna Grece," *Annuario della Scuola Archeologica di Atene e delle Missioni Italiane in Oriente*, 1916, 219-226.
- A. Oliverio, "Laminetta d'oro iscritta di Brindisi," *Rivista Indo-Greco-Italica di filologia, lingua, antichità*, 1923, 215-217.
- A. Zocco-Rosa, "La tavola di bronzo di Narbona," *Ann. Instit. stor. d. diritto rom.*, 1915, xiii-xiv.
- F. M. Abel, "Deux inscriptions latines militaires," *Revue Biblique*, 1924, 111-113.
- G. Libertini, "Laminetta plumbea iscritta da S. Giovanni Galermo (Catania)," *Rivista Indo-Greco-Italica di filologia, lingua, antichità*, 1927, no. 3-4, 105-109.
- L. P. Kirwan, "Some Roman mummy tickets," *Annales du Service des Antiquités de l'Égypte* 33 (1933), 54-58.
- R. Thouvenot, "Tablette de bronze découverte à Banasa," *Publ. Serv. des Antiquités du Maroc* I 1 (1935), 47-54.
- A. Piganiol, "La table de bronze de Falerio et la loi Mainilia Roscia Peducaea Alliena Fabia," *Comptes rendus de l'Académie des Inscriptions et Belles-Lettres*, 1939, 193-200.
- F. K. Doerner, "Eine neue Fluchtafel," *Wiener Jahreshefte* 32 (Beibl., 1940), 63-72.
- A. d'Ors Perez-Peix, "Los bronce de El Rubio," *Emerita* 9 (1941), 138-154.
- W. Seston, "La table de bronze de Magliano et la réforme électorale

- d'Auguste," *Comptes rendus de l'Académie des Inscriptions et Belles-Lettres*, 1950., 105-111. Also *Bulletin de la Société nationale des Antiquaires de France*, 1950-51, 80 & 122.
- F. de Visscher, "La table de bronze de Magliano," *Bulletin de la classe des Lettres de l'Académie royale de Belgique* 35 (1949), 190-199. Also *Comptes rendus de l'Académie des Inscriptions et Belles-Lettres*, 1951, 204-213; 1952, 262.
- R. Noll, "Zu den Silbervotiven aus dem Dolichenusfund von Mauer a.d. Url," *Jahreshefte des Oesterreichischen Archäologischen Instituts in Wien* 38 (Beibl., 1950), 125-146.
- A. d'Ors, "Sobre la lex metalli Vipascenis II," *Jura* 2 (1951), 127-133.
- A. Piganiol, "Sur la nouvelle table de bronze de Torente," *Comptes rendus de l'Académie des Inscriptions et Belles-Lettres*, 1951, 58-63.
- L. Robert, "Plaques de bronze bas empire en Tunisie et en Cilicie," *Hellenica* 3 (1946), 170-172.
- R. Etienne, "Une inscription sur bronze découverte à Volubilis (Maroc)," *Comptes rendus de l'Académie des Inscriptions et Belles-Lettres*, 1954, 126-129. Also *Latomus* 14 (1955), 241-261.
- S. Ferri, "San Vito di Luzzi (Cosenza). Frammenti di laminette auree iscritte," *Notizie degli Scavi di Antichità*, Ser. 8^a, 11 (1957), 181-183.
- T. Nagy, "The military diploma of Albertfalva," *Acta Archaeologica Academiae Scientiarum Hungaricae* 7 (1956), 17-71.
- H. Rolland, "Inscription sur bronze de Thoard (Basses-Alpes)," *Gallia* 18 (1960), 103-109.
- H. Nesselhauf, "Zwei Bronzekunden aus Munigua," *Mitteilungen des Deutschen Archäologischen Instituts (Abteilung Madrid)* 1 (1960), 142-154.
- T. N. Knipovic, "A propos d'une inscription sur plaque de plomb publiée par G. Klaffenbach," *Vestnik Dreunej Istorii* 83 (1963), 71-74.
- C. Vatin, "Le bronze Pappadakis, étude d'une loi coloniale," *Bull. de Corr. Hell.* 87 (1963), 1-19.
- G. Manganaro, "Tre tavole di bronzo con decreti di proxenia del Museo di Napoli e il problema dei proagore in Sicilia," *Kokalos* 9 (1963), 205-220.
- M. T. Couilloud, "Deux tablettes d'imprécation," *Bulletin de Correspondance Hellénique* 91 (1967), 513-17.
- Heikki Solin, *Eine neue Fluchtafel aus Ostia* (Helsinki: Societas Scientiarum Fennica, 1968), *passim*.
- A. Audollent, *Defixionum tabellae* . . . (Luteciae Parisiorum: A Fontemoing, 1904), *passim*.