

INTRODUCTION

General remarks

Most of the 516 seals in the present Catalogue have been published before, or at least illustrated, by Sir Arthur Evans in various works from 1894 to 1935, by Kenna in CS or by Boardman in CCO or AntCret. For this reason and because the publications by Kenna and Boardman were still relatively recent, priority was given to CMS publication of less well known collections. A number of pieces, however, have not appeared before with full details in the Minoan and Mycenaean seal literature. Eleven are simply more recent acquisitions: soft-stone prisms **80–82**, a soft-stone loop signet (Petschaft) **135**, three ‘Talismanic’ stones **207, 215, 239**, a fragment with a Talismanic or Cut Style bird **271**, a jasper fragment with a hunting lion **371** and two soft stones with animal motifs **350** and **406**. Another eleven, including some of real interest, have been in the Ashmolean for many years but for one reason or another escaped Kenna’s attention: the metal signet with Hieroglyphic signs **126**, the little disc **158** resembling Mallia Workshop products but of an uncommon shape, two Talismanic stones **213** and **227**, a Talismanic or Cut Style bird **272**, two lentoids **282** and **326** with intriguing iconographic and technical features, an animal hunt **400** with some uncommon features, a sadly ruinous fine blue lentoid **416**, a late piece **506** with conical back and outlandish provenance and a rare soft-stone ring **431**. This stone ring and six other pieces overlooked or dismissed as fakes by Kenna have been illustrated and briefly discussed but only relatively recently: **31, 83, 158, 267, 400, 443**. Three pieces, **326, 416, 506**, have never been mentioned or illustrated at all. **126** and **282** did appear in publication, but in connexion with script matters. Three interesting pieces were published outside the Minoan and Mycenaean seal literature: the stamp cylinder **1** with Cycladic and Near Eastern collections, **22** as Geometric, the rare X-shaped **172** as a bead. A keen-eyed student won reappraisal and late acceptance for **Add. 2**.

The re-examination and ‘rehabilitation’ of pieces previously considered doubtful or fake has played a significant part in the preparation of this volume. Kenna’s long list of 42 Gemmae Dubitandae has been considerably reduced.¹ Now certainly genuine are the important rings, **278** (misnamed ‘Vaphio’) and **280**, both much discussed for their motifs, and the bull-leaper ring from Archanes **336**. The ‘Ring of Nestor’ **277** is also included, although certain troubling features continue to raise doubts. The steatite prism **31** belongs with Mallia products, the sepiolite prism **83** is significant for its material, **267** is now recognisable as Cut Style, the religious iconography of **284, 314** and **315** has impeccable parallels, **320** and **443** have Minoan engraving on re-worked beads. **326** presents some rather strange features and the green stone mystified a cataloguer in the hasty 1941 work on the Accessions Register, but both material and shape now look quite correct. **380**, an unquestionably Minoan composition and found in the ‘Dictaeon Cave’ excavation of 1896,

¹ Kenna, CS 154, pl. 20. Cf. H. Hughes-Brock in CMS Beih. 6, 107–21.

was recognised by Boardman (and its worth recognised by Evans, who mounted the cast in gold-edged paper: v. infra); Kenna's doubts were quite groundless.

A number of objects of various kinds are not included in the Catalogue but are listed below with brief descriptions (pp. 26–29).

Provenances which are only alleged rather than certain appear in other CMS volumes in inverted commas. This policy has not been easy to follow in this volume, where the great majority of the pieces were probably chance finds and sold directly or through a dealer. When Arthur Evans bought an object at a village, its find-place probably was nearby, though strictly speaking only hearsay. In the case of objects recorded as from Knossos or the Knossos district, it is hard to be certain. While Evans was on the spot, local people brought him genuinely local finds, but on the other hand, when he bought stones in Candia or Athens, dealers would have known that saying 'Knossos' would entice their customer. For the very numerous pieces with no provenance at all the Accessions Register, as is noted below, nearly always gives 'Crete' or '?Crete' or 'Crete etc.', simply on the assumption that Crete was the place of manufacture and probably of acquisition, although in fact some pieces probably came through dealers in Athens (like 425) or elsewhere. In the Catalogue entry the bracketed number preceding a place-name refers to the map printed at the end of each bound volume.

Comparanda sections do not normally repeat individual items from the lists of comparanda given in the works on particular subjects, principally the following: Yule, ECS; Sbonias, Frühkretische Siegel; Olivier – Godart, CHIC; Onassoglou, DtS; Younger, Middle Phase; Younger, Aegean Seals I–IV; Younger, Iconography; Dickers, SpätmykSiegel; Czernohaus, Delphindarstellungen; Danielidou, OA; Ruuskanen, Birds; Vanschoonwinkel, Les animaux; Wingerath, Darstellung; Evely, Crafts; various *Archaeologia Homerica* volumes; and the works on ships and (by I. Pini) on glass seals cited in the Catalogue entries. An effort has been made to provide as comparanda objects published more recently than these works. 'Motif' refers to what appears on the sealface, 'Subject' (*Bildthema*) to its wider context or interpretation.

The Bibliography sections are generally arranged in chronological order but this is often waived to some extent when *idem/eadem* and *ibid.* could be exploited both for the reader's convenience and to save space, a necessary consideration in this large volume. Minor references are often enclosed in parentheses. References relating to manufacture (mostly in Evely, Crafts) are usually placed at the end of the entry except in some cases where specific comparisons are treated.

History and sources of the collection

The first Aegean seal to enter the Ashmolean Museum was 346, purchased in 1873 as a 'Phoenician prism....Found in Egypt' but recognised by Furtwängler in 1900 as belonging to 'die mykenische Epoche'. It was purchased apparently from the Revd. Greville John Chester (1830–1892), an English clergyman who travelled widely in the eastern Mediterranean, Egypt and the Near and Middle East, became a very knowledgeable amateur and collector and made important contributions to a number of museums. Between 1871 and 1892 Chester gave or sold to the Ashmolean many stones collected during his travels and bought in Egypt, Athens, Smyrna, Beirut, Baghdad and elsewhere. The alleged provenances of these Chester pieces, and even the places of purchase,

have in some cases suffered from confusion of various kinds.² Ottoman dealers, moreover, handled things from a very wide area. Sometimes a place of purchase (and price) is recorded in Chester's notebooks, probably at, or soon after, the time of purchase (e.g. **335**, of which more below), but beyond that the sources given are best treated with reservation. **346**, for example, mentioned above, was purchased in Egypt on Chester's 1873 journey there but was registered as 'found in Egypt', a different matter! In 1889 the Ashmolean acquired from Chester several dozen Near Eastern pieces but at the same time also **291** (unmistakably Cretan) and **479** (rather puzzling) from a batch of objects bought at Smyrna with the alleged provenance Sardis, and the Talismanic **229** (also bought at Smyrna?) allegedly from Ephesus. Unusable though these provenances are, in the light of present and growing knowledge of the Minoan and Mycenaean presence on the East side of the Aegean one cannot rule out the possibility that they might indeed after all bear some relation to the truth.³ 'Baghdad', however, is not convincing for **506**, supposedly one of a batch of five seals bought in Baghdad. All five have a rather pointed back and were perhaps put together for that reason, but the other four have neo-Babylonian shapes and engraving. Both the particular shape and the engraving of **506** set it apart from those and must indicate Aegean origin.⁴ Most probably it was mixed with the Baghdad batch because of its shape or by accident and was really acquired during his stop in Athens, as were the other three Chester seals of 1889, **1**, **501** and **104**. **1** was certainly bought in Athens from Athanasios Rhousopoulos (as were some of Evans's seals: v. infra, n. 20 f.), but the lack of absolute certainty as to its find-place is particularly unfortunate, since parallels in the growing corpus of Near Eastern EBA seals now seem to increase the likelihood that both **1** and CMS V Suppl. 3,2 No. 380 are imports (see Catalogue entry). For **501** 'Athens' doubtless means only the place of purchase. 'Sparta' for **104** is altogether of more moment, for this Hieroglyphic prism is the stone which Evans maintained had first attracted his attention at the Ashmolean and awakened his curiosity about Crete. For its true, Cretan, provenance see below.

In 1890 came two more Chester seals, **22** and **39**. Chester's note accompanying **22** gives 1878, 'Marcosune, Attica'. This is perhaps an error for Markopoulo, near which EH II graves and stray Early Cycladic objects have been found.⁵ No. **39**, supposedly from the coast of Syria (which Chester visited in that year), is a Cretan prism and one might guess that it was bought in Athens, like pieces he had given the year before. The last Chester gift, **335**, was bought in Egypt and noted by Chester in a small notebook of his 1891-2 purchases. It was bought at Abu Tig in northern Upper Egypt (south of Asyut) in a batch of five objects costing together £13.50. Kenna placed it

² cf. I. Pini in Laffineur – Greco, *Emporia*, II, 778 n. 6. Similar source and provenance problems at the British Museum have been grappled with by O. Krzyszkowska (in CMS Beih. 6, 150 n. 3, 162 nn. 49, 50; for some background to **346** see 150 f. n. 5, a list of pre-1878 acquisitions in European museums). On Chester see Sherratt, *Cat-CycladicAshm I*, 2 f.; W. R. Dawson – E. P. Uphill, *Who was Who in Egyptology*³ (1995), 96 f.

³ Cf. Krzyszkowska, AS 307. The 'bull at the cistern' **181** was said, two owners before Evans, to be from Priene. Evans himself early noted that among the many seals found on the Syrian coast and in Asia Minor, 'this Mykænaean class is conspicuous by its absence' (JHS 13, 1892-3, 220).

⁴ B. Buchanan – P. R. S. Moorey, *Catalogue of Ancient Near Eastern Seals in the Ashmolean Museum* (1966-1988), III, 57, 61 f. nos. 398, 408-410. Our **506** quite rightly is not included there but nor was it used by Kenna in CS (1960). Buchanan and Kenna were in the museum at work on their catalogues at the same time but relations between them were not good and they did not consult each other. Kenna thus may well not have seen **506** (information from the late Dr. P. R. S. Moorey). Buchanan and Boardman, happily, did work together (Moorey, *ibid.* ix).

⁵ R. Hope Simpson – O. T. P. K. Dickinson, *A Gazetteer of Aegean Civilisation in the Bronze Age, I: The Mainland and Islands* (1979) 211. The two Attic mountain place-names 'Mavrovouni' seem less likely.

in his 'Peripheral' category with good reason, for in truth it barely looks Aegean except for its good lentoid shape.

Sound Cretan sources begin in 1893 with five seals presented by the young J. L. Myres (269, 413, 449, 484, 489), fruits of the trip to Crete which Myres had made in that year at Arthur Evans's urging. These five stones were the prelude to Evans's own gifts, which form by far the greatest part of the Ashmolean collection.

The exciting days of Evans's first Cretan trip in the spring of 1894, vividly recorded in his diary (published in 2001; here Brown – Bennett, *Travels*), produced many seals, some merely seen and sketched, others bought from the town dealers or directly from country people.⁶ Evans began presenting some of his acquisitions to the Ashmolean in the year 1894 itself, but the 31 objects given in that year and the eight given in 1895 include Minoan stone vases, figurines, later objects etc., but no seals. In the years 1896 to 1908 a new registering system was used, dividing objects into AE (Aegean), E (Egyptian), G (Greek) and so on. The 1894 and 1895 acquisitions were incorporated in this and assigned new AE numbers; they thus have two inventory numbers, but the AE number is the one in use.⁷

After 1908 the old accession-year system was reintroduced, but when in 1957 a card index was being compiled and some old objects were found unregistered, the AE system was revived for them, with numbers starting from AE 1500. These objects had been certainly given by Evans, most of them probably between 1896 and 1908, and seem to have been bypassed by him for various reasons. Among them are eight items from the Psychró Cave, viz., three fragments (332, 488, 495), a worn and nondescript steatite piece (509), two undistinguished Talismanic stones (188, 216) and two glass seals (387, *Add. 1*), which looked merely like badly decayed beads. (That Evans himself had not bothered about these, or about most of the pieces omitted from Kenna, CS can be seen from a glance at Boardman, CCO pl. XXIV: only the 'good' pieces are in his gold-edged mounts). 416 had probably been left aside because of its poor condition. 282, however, was given by Evans in 1938 and according to the Accessions Register was 'left unregistered because considered a fake', a judgement which improved knowledge of soft-stone seals shows now to have been mistaken. The bull-leaper ring from Archanes 336, also a 1938 gift, was probably unregistered for the same reason, tainted as it was by its inclusion in Evans's long article on the notoriously fake 'Thisbe' Treasure.⁸ In 1910 Evans gave the museum 20 seals, perhaps at a time when he was tidying up his collection (perhaps making and labelling impressions, e.g. of 45?).⁹

The greatest part of the collection, however, came as a gift from Evans in 1938. These bear the customary year number, but some of the 1910 acquisitions were re-registered at the same time and given a 1938 number too. The many pieces without provenance were generally assigned simply to 'Crete' in the Accessions Register, sometimes with the embellishment of a conscientious '(?)' or 'etc.'. The reader should note that although Crete is always the likeliest place of acquisition, some pieces were probably acquired in Athens or elsewhere. Secondly, when objects were registered twice this volume always uses the earlier and lower number, except in two cases where we

⁶ See also A. Brown in D. Huxley (ed.), *Cretan Quests: British Explorers, Excavators and Historians* (2000) 9–14.

⁷ Brown – Bennett, *Travels* 481; Boardman, CCO [xi].

⁸ Evans, JHS 45, 1925, 1–75.

⁹ For the fake gold ring from 'Boeotia' 1910.196 v. *infra*, p. 28, *Objects Not Included*. Evans had in the meantime sold some seals in 1905 to finance the Knossos excavations (Rollin and Feuardent sale catalogue, 'Collection d'un Archéologue Explorateur', 8 May 1905, Hôtel Drouot, Paris).

follow Kenna in using the higher number: No. **40** (1941.220, originally 1941.87) and No. **336** (AE 2237, originally AE 1804).

Finally, some 90 pieces arrived in 1941 as Evans's legacy. As in 1938, many could be registered only as from 'Crete'. Nos. **19** and **120**, with 1952 accession numbers, in fact belong to the 1941 legacy and perhaps had been left out because of the wartime haste and the unusual, perhaps perplexing, appearance of both of them; **120** could be an Egyptian button seal, and its engraving is certainly not typically Minoan (v. infra, pp. 14, 22).

Although the great majority of Evans's seals were acquired from local people in Crete or from dealers there and in Athens, a few came from other collectors. His earliest such purchase seems to have been **305**, bought from the large and distinguished collection of the Liverpool businessman Joseph Mayer at Sotheby's in 1887. This stone, recorded in 1831, has a long history for an Aegean gem and the longest of those in the Ashmolean, but my efforts to trace its movements between 1831 and 1879 ended in frustration.¹⁰

From Athanasios Rhusopoulos in Athens he purchased **462**. This, together with a black lentoid, a small white Egyptian scarab, two fibulae, a bronze vase and some other objects, had been sold to Rhusopoulos with the story that they had been found in two graves in Kleitoria in Arcadia, which he says he saw no reason to doubt. The fish, he further tells Evans, was called *χελίδων* by the ancients but *χελιδόψαρον* now; he has seen them flying over the sea on his travels.¹¹ The black lentoid (a Mainland Popular stone?) and the scarab he dismisses as 'wertlos' (neither is now identifiable). He may also have been the source of **400**, which has the monogram *AR* impressed in a modern restored patch (and is mounted on a swivel ring like CMS IX No. 127, sold by Evans in 1905). He certainly owned the terracotta impression CMS XI No. 166 now in Munich; this was taken from **343**, which Evans bought in Athens – from him?¹²

Evans obtained several seals from R. B. Seager's collection: **100**, **126**, **421** and perhaps **11** specifically by exchange in 1922 (when Seager visited him at Knossos), as well as **25**, **143** and OAM 1941.132 (a fake: see below, Objects Not Included, p. 29) perhaps in the same circumstances.¹³ Evans's '1922 Crete' notebook records some of the exchanges and conversation (cf. n. 19). Three

¹⁰ Tommaso Cades' sets of casts of gems in museums and private collections, 1831- (see Catalogue entry), were made up in *centurie*, bound volumes of 100 casts. The first four *centurie* were taken mostly from the collection of an Englishman living in Rome, the Revd. Dr. G. F. Nott. **305**, being Cades no. 76, was thus quite possibly Nott's. Perhaps it reached England when Nott's collection was sold in 1842 after his death, but the sale catalogue describes nothing which could be **305**. Some ex-Nott items appear in the collection of Bram Hertz, a German living in London, catalogued anonymously (in fact by Wilhelm Koner) in 1851. Hertz's collection was bought by Joseph Mayer in 1857 and over subsequent years, but again neither the Hertz catalogue nor the Hertz sale catalogues seem to include **305**. (The unfamiliar Minoan genius was hard to describe, of course, but attempts to do so should be recognisable.) Thus neither the Nott nor the Hertz sales provide evidence to fill the gap between Cades and Mayer. Mayer bought from elsewhere too, however. **305** was catalogued in his collection in 1879. I have not seen the Mayer sale catalogue of May 1887, with gems sold in lots of three to five stones, at which Evans purchased **305**. See C. W. King, *Antique Gems and Rings* (1872), 461; M. Henig in M. Gibson – S. M. Wright (eds.), *Joseph Mayer of Liverpool 1803–1886, Society of Antiquaries of London Occasional Papers* (N.S.) XI, 1988, 94–103, Appendix I, 227 f.; idem, *Classical Gems...in the Fitzwilliam Museum, Cambridge* (1994), xix f.

¹¹ Letters of A. Rhusopoulos to Evans, 12 and 18 November 1896, now in the Evans Archive.

¹² H. Hughes-Brock in CMS Beih. 6, 119 n. 37; for more on Rhusopoulos see Sherratt, *CatCycladicAshm I*, 2, 6, 25 f. Y. Galanakis in Kurtz et al., *Essays for Hatzivassiliou*; entry in the 'Μεγάλη Έλληνική Έγκυκλοπαιδεία'. Among Evans's impressions at the Ashmolean are one of CMS VII No. 71 bearing a fancy monogram 'AR' and one of CMS I No. 403 stuck onto part of a printed card bearing part of a name 'ΑΘΑΝΑΣ'. Rhusopoulos had also owned **1**, bought by Chester, and pieces now elsewhere (e.g. CMS XI Nos. 37, 38).

¹³ Cf. M. J. Becker – P. P. Betancourt, Richard Berry Seager, *Pioneer Archaeologist and Proper Gentleman* (1997), 160.

objects are bracketed as 'Seager' but the accompanying sketches were evidently not made with the objects before his eyes; the motifs are not sketched, and whereas **126** is unmistakable, **143** is called 'cornelian' and 'duck of alabaster (as *beads* [?] from Messará)' has the duck's head facing forward but the white colour and the perforation fit **11**. Evans's collection of red sealing wax impressions at the Ashmolean includes over 30 from Seager's collection, including CMS XII Nos. 198 and 204 (v. infra n. 22).

285 came by exchange from an unnamed American collection, apparently quite some years after Xanthoudides and Evans had first come to know of it. The previous owners of two other unusual pieces, **395** and the gold loop signet **137**, are also unnamed and Evans's wording about **137** seems rather curious.

Meanwhile the Ashmolean had made small purchases through connexions with the British School at Athens: **436** in 1920 from a very young student, A. W. Lawrence (later known for his work on Greek sculpture and architecture), and in 1925 15 stones, bought in Athens, from A. M. Woodward, then Director of the School. **377** was a single purchase from the Wyndham Cook Collection, presumably chosen for its pretty blue stone and dramatic action scene. **436** had been bought in Greece, all the rest specifically in Athens.

In 1953 the museum was given eight seals by the Revd. Victor Kenna. Kenna, like Chester a travelling clergyman, had travelled in the Eastern Mediterranean as a chaplain in the Royal Navy and had developed a love of seals in the process. During the next few years he put together his catalogue of the whole Ashmolean collection, Kenna, CS (1960). In it he assigned this 1953 batch to his 'Peripheral' section, noting that they were 'said to have been discovered on the coast of Palestine near Gaza'. Despite the existence of Gaza Minoa in ancient times, this supposed provenance should probably not be given much weight.¹⁴ It could be a dealer's story, or conceivably a dealer had obtained them from a Palestinian refugee resident in the Gaza area. Only **504** is problematical, with its flat profile and odd (unfinished?) motif.

In 1967 and 1968 the museum purchased 36 seals from the collection of R. M. Dawkins published in CMS VIII.¹⁵ These include a number of earlier conoids and prisms, nine 'Talismanic' stones and several soft-stone pieces as well as a signet with a cat's face (No. 34), an unusual obsidian disc (No. 39), a serpentine lentoid with Minoan genii flanking a column (No. 65) and an agate lentoid with two pairs of recumbent bulls (No. 90).

In 1971 seventeen seals once owned by Piet de Jong were presented by Dr. Anthony Hamerton, Piet and Effie de Jong's physician and a close friend in their old age.¹⁶ These were followed in 1991 by **350** after Dr. Hamerton's death. All had been given to Dr. Hamerton by Piet or Effie de Jong and had most probably been given earlier to the de Jongs by Evans. The gold-edged blue paper encasing the plaster cast of **350** matches the mounts (in paper of various colours) used on most of the Ashmolean casts (though, as noted above, a glance at Boardman, CCO pl. XXIV shows that some 'inferior' pieces did not receive this treatment). The same kind of mount appears

¹⁴ Stephani Byzantii quae supersunt, ed. A. Meinecke, 454. Cf. I. Pini in Laffineur – Greco, *Emporia* II 778 n. 6.

¹⁵ See Concordance. For further details of the dispersal of the Dawkins Collection see J. H. Betts, CMS X, 12 f.

¹⁶ Boardman in *AntCret*, nos. 2–18. No. 1, a banded agate lentoid with gold caps depicting a goat with head turned down, which had belonged to Effie de Jong, was still in Dr. Hamerton's possession. Its present whereabouts is unknown. On the de Jongs and Dr. Hamerton see Rachel Hood, *Faces of Archaeology in Greece: Caricatures by Piet de Jong* (1998) 263. Mrs. Hood and Dr. Hector Catling kindly supplied helpful information.

on the impression of CMS XIII No. 84, also once Evans's. It might be a useful clue in the search for still untraced pieces he once had.

1980 brought nine pieces bequeathed by Edith Eccles, probably acquired in Crete during archaeological work (e.g. with Pendlebury) in the 1930s or during relief work in 1944–45.

In 1989 the Ashmolean purchased in London 16 seals from the collection of Hans and Marie-Luise Erlenmeyer published in CMS X.¹⁷ These augmented the museum's small holdings of early ivory and 'white pieces' (Nos. 9, 10, 28, 37–39) and of late soft-stone seals (Nos. 184, 190, 191, 197, 203; also 188).¹⁸ Of the remaining four pieces purchased (Nos. 53, 58, 59, 136) the most interesting is the pyrite loop signet No. 53 (now OAM 1989.75; v. *infra*, p. 15).

Find-places and places of acquisition in Crete

The vast majority of the pieces in the Ashmolean are known to have been found in Crete or, even if purchased elsewhere, are clearly of Cretan manufacture. Evans's early explorations produced many from Central and Eastern Crete. He spent little time in the Messara. He seldom visited the western half of the island (and of the relatively few pieces from Rethymno and westwards a considerable proportion were acquired by others, e.g. the four pieces bought by Myres in 1893). The result is naturally a certain imbalance. Prepalatial stones and the white-coloured materials (bone, ivory, 'white pieces') are rather few, the generally MM II steatite prisms of the Mallia Workshop type abound, while the Mainland Popular style now well represented in the Arménoi graves is not especially well represented in the Ashmolean, although the fluorite seals associated with it account for no fewer than six pieces altogether (including a small chip: see below, p. 27, Objects Not Included), five of which were votives from the cave at Psychró.¹⁹

Where a find-place is merely alleged, it appears within inverted commas, although these are probably not the only cases where the find-place can only be taken on trust. When, for example, Evans assigns a piece simply to Central Crete, he is probably repeating the provenance given to him by a Candia dealer from whom he bought it, as **123** would clearly suggest. His early acquisitions, however, from his first journeys around the countryside (1894–1899), often have a find-place or place of purchase carefully noted in his diaries and notebooks. The source for these in the catalogue in Brown – Bennett, *Travels* is cited in the Bibliography of the Catalogue entry.

The lively first diary, that of 1894, contains the most detail. Extant diaries and notebooks from subsequent trips up to 1899 (i.e. until Evans began excavating at Knossos in 1900), though not always so detailed, still contain much information as to provenances and sources, sometimes supplemented in Evans's early articles. These primary documents occasionally contradict a provenance published many years later in *The Palace of Minos*. The Accessions Register sometimes

¹⁷ Christie's sale catalogue, *The Erlenmeyer Collection of Cretan Seals*, 5 June 1989. Text by J. H. Betts.

¹⁸ Respectively Dickers, SpätmykSiegel nos. 443, 447 (pl. 30:6, not 30:7), 448, 452, 455. CMS X No. 188 is not catalogued but is listed together with **507** and other rectangular blocks of Cretan provenance (*ibid.* 98 n. 638).

¹⁹ Compare the collection of R. B. Seager now in the Metropolitan Museum: see V. E. G. Kenna, CMS XII, ix-x. It is easy to see the overlap of our Map 1 with the distribution of 'Style de Malia' seals: J.-C. Poursat – E. Papatsaroucha in CMS Beih. 6, 260 f., fig. 1, to which can be added from the present volume Sykiá (for Praisos site, **44**), Tourlotí (**45**) and, allegedly, the vicinity of Herakleion (**52**). From conversation with Seager in 1922 Evans notes that CMS XII No. 84 was obtained at Polyrrhenia and 'S[eager] had got one other gem from same site. Otherwise gems as other Minoan remains almost unfindable in West. S[eager] thinks forests covered most of the country' (Evans, '1922 Crete' notebook; cf. n. 13 *supra*).

supplies a provenance, presumably from Evans's own information, perhaps from a note or label on an old mount. Kenna sometimes gives as his source one of these old labels. Regrettably, some can no longer be traced and the information can only be taken on trust. **448** is one such case. A more unfortunate case is **93**, for which Kenna (CS at no. 174) gives 'Lasithi district', not naming his source. Evans first published it in 1909 (SM I 153, 170) and, working at speed and at a decade's remove, contradicts himself somewhat as to its provenance, Central Crete or Knossos, and the date of its acquisition, 1898 or 1899. He did visit Lasithi in both those years and would most certainly have recorded and sketched what he later called 'this exquisite signet' (PM II 204), but the diary of 1898 is untraced and most of 1899 also. Perhaps he did acquire it in Lasithi and Kenna found 'Lasithi' on a label or box. In very many cases, however, no exact provenance information was to be found when the large 1938 gift and the 1941 legacy were registered; as was noted above, objects were then entered simply as from 'Crete' (or sometimes, more cautiously, '?Crete'), referring to the place of origin (though the place of acquisition or purchase may have been Athens or elsewhere). Provenances for a good many of these have now been established through the research in the Evans Archive undertaken for Brown – Bennett, Travels and the present volume.

The Catalogue includes 40 pieces from the cave at Psychró ('Dictaeon Cave'), where Evans acquired some objects in 1894 and proceeded to excavate a little in 1896. (As was noted above, some undistinguished-looking items which he ignored were registered only when the AE series was resumed at AE 1500 in 1957. Three or four others remained with Evans until 1938: **85**, **142**, **298**, probably **448**.) To the 39 catalogued as seals by Boardman in CCO the present volume adds two more, **387** and **Add. 1**, badly weathered pieces but now recognisable as not beads but glass seals, and the more interesting for being respectively purple and brown rather than the usual blue.²⁰ Boardman in CCO remarked that **85** might be one of the earliest votives in the Cave. Subsequent excavations have made it clear that **3** is an earlier object, Prepalatial and probably EM II (v. infra, Shapes), but this would put it well before other offerings. It is perhaps safest to consider it an 'antiquity' deposited when old.

The mould-formed glass seal **447** was an early purchase at Rethymnon, noted as 'blue glass' with a clear sketch of its conical back. This western provenance puts it neatly with the only other such pieces from Crete.

When describing a find-place Evans often makes a point of observing that it is at or near the site of one of the ancient cities (Lytos, Lato, Praisos and others) – naturally enough, since he knew of those places and was interested in seeing (and sometimes sketching) their ruins. The ancient names are therefore given alongside the modern ones on the map in this volume.

Where two (or more) villages bear the same name one source or another often makes it clear which is meant.²¹ The Arménoi where Evans got **225** is the southeastern village, not the Arménoi of the important cemetery south of Rethymno which has contributed richly to the volumes of CMS V. The Kaló Chorió of **125** and **461** is that by the Bay of Mirabello, described as near the

²⁰ Boardman, CCO nos. 284–322, 358, 365 (nos. 314 and 335 are not catalogued here: v. infra, p. 27). Only 18 appear in Kenna, CS: see H. Hughes-Brock in CMS Beih. 6, 121. On the Cave see P. Faure, *Fonctions des cavernes crétoises* 151–9; B. Rutkowski – K. Nowicki, *The Psychro Cave and Other Sacred Grottoes in Crete (Studies and Monographs in Mediterranean Archaeology and Civilization II/1, Warsaw 1996)* 7–19; L. V. Watrous, *The Cave Sanctuary of Zeus at Psychro, Aegaeum 15* (1996), 47–55.

²¹ Cf. I. Pini, CMS II,4, xix f. *re* Trypeté. There are probably like cases still unrecognised.

Palaia Minoa site or within two hours' ride of Kritsá.²² Karýdhi, however, is not so clear. The eastern village is in parts where Evans travelled in 1894, 1896 and 1898 and **253** is thus placed there in Brown – Bennett, *Travels* (no. 366), but Evans does not mention it. Another Karýdhi lies in the south, in the Eparchy of Hierapetra, inland from Myrtos. In 1896 and 1898 Evans visited this district too. The loose pages of seal sketches dated 1898 (no diary has been found, unfortunately) include **253**, annotated 'Karidhi', alongside seals from the Hierapetra Eparchy annotated 'Christós' (near to Karýdhi) and 'Kalamáfka' but also a large eastern batch from Palaikastro. It seems equally possible, then, that **253** came from the southern Karýdhi. There is no way of knowing, still less for **244**, which has only a bald entry in the Accessions Register. Therefore both places are indicated on the map.

Sphaka for **153** is a like case but with three places, all in the Eparchy of Siteia. One is near Tourloti, where Evans obtained **327** (in 1896) and **45**. Another Sphaka (sometimes 'Sphakía') is in the general area of Praisos, where he travelled several times. A third (also sometimes 'Sphakía'), which has Minoan remains, is near Epano and Kato Zakros and is mentioned by Evans in his account of 1896.²³ Evans mentions **153** only in 1935 and there is no way of knowing which Sphaka it came from, or was said to come from, nor when he got it. Again, all three are shown on the map.

No. **14**, said by Kenna to come from 'Phournoi' and bearing signs in the 'Archanes Script', will not have come from the now famous Phourní at Archanes, which when the excavations began there in 1964 was simply a spot in the countryside, to be described only as a 'θέση' and a hill.²⁴ In all likelihood it came from the village of Phourné (Φουρνή) near ancient Dreros, between Elounda and Neapolis, a region which Evans knew. He passed through 'the "polje" of Fournes' in 1894 but expressly says that he 'found nought' then. Perhaps he acquired the seal later. If Kenna saw 'Fournes' on an old note or label he may have the misread 'es' as 'oi' in Evans's small handwriting and thus created a form that looked familiar to him.²⁵

The number of pieces which Evans assigns to Archanes is seven altogether. Six stones are published in PM III and IV in terms which suggest (if one puts together his accounts of **180** and **422**) that they may have been bought together in one batch: **106, 117, 128, 180, 367, 422**. The purchase was made in Athens but the stones had been collected on the spot, we are told, by a native of Archanes. The gold bull-leaper ring **336** was a separate find. The Mainland Popular stone **478**, which would have stood apart from the other pieces, was assigned to Archanes by Kenna in error; it came from near Knossos.²⁶

²² At Kaló Chorió in 1894 Evans saw three stones but does not say that he acquired them and nowhere mentions them later (Brown – Bennett, *Travels* nos. 137–139). The two he sketched are identified by Brown with **156** and **249** but the sketches, usually so clear, do not match these pieces – Evans would hardly have described and sketched the dolphins of **249** as mere slim-bodied 'fishes'. Better matches would seem to be CMS XII Nos. 198 and 204; the third stone, noted as 'flying fish....pink cornelian', might be XII No. 146. These eventually were in Seager's collection. That Seager acquired them in some later year, perhaps from the very person(s) who had shown them to Evans, would seem a simpler hypothesis than that Evans had sketched them without his usual exactitude and that they figured, much later, in the two men's exchanges (v. supra n. 13).

²³ Brown – Bennett, *Travels* 226. On Minoan finds there see N. Schlager in *Kolloquium Mannheim* 75, 77.

²⁴ G. Sakellarakis, *ADelt* 20/1, 1965, 110; idem, *Prakt* 1966, 174.

²⁵ Brown – Bennett, *Travels* 176 f. Kenna does not name his source and later forgot it: see E. Grumach, *Kadmos* 5, 1966, 113 n. 16; idem, *Kadmos* 7, 1968, 10 f.

²⁶ Thus **478** should be subtracted from Sakellarakis' lists of pieces from Archanes (*ADelt* 20/1, 1965, 110; in *Pepragmena* 4, A'2, 512 n. 3; Archanes 672n.).

Finally, there is the interesting case of **104**, the prism with Hieroglyphic signs which, as was noted above, first aroused Evans's curiosity about Crete.²⁷ Publishing it in 1894 immediately after his first trip, he gives Chester's provenance, 'Sparta'. In the reprint of the following year, however, he corrects this and explains how he knew it was wrong: he had seen an impression in the hands of a previous owner in Candia, who had told him that the stone had been obtained in Crete although he could not give its exact find-place.²⁸ That find-place, I conjecture, was around the plain and villages called Lak(k)ónia which lie slightly north of seal-rich Goulás (ancient Lato) and were indeed the find-place alleged for another Hieroglyphic prism, CMS III No. 229. The accent on the Cretan place-name falls as in the English pronunciation of the name of the Peloponnesian province, which thus could easily have been transformed by Chester into the erroneous 'Sparta'.

Nine seals and some uncatalogued objects (v. infra, Objects Not Included) are said to have come from Hagia Pelagia, mostly from a chamber tomb in a cemetery there. A tomb alleged to be that known to Evans was shown to Dr. Athanasia Kanta.²⁹

Materials and Shapes

A preliminary word: geological exactitude has been impossible to achieve, needless to say. Some of the Material entries in the Catalogue will undoubtedly prove in the future to be wrong, and others not quite rightly worded. This is particularly true of steatite, serpentine and schist.³⁰ For these stones a truly accurate identification would require not only a specialist but also special (and expensive) equipment. In some cases we were saved from error when Dr. Walter Müller was visiting Oxford and was able to see the stone. In replacing the old default identification of Late Bronze Age soft stone as 'steatite' we ourselves had at least advanced as far as 'serpentine', but we are all too well aware how far the present volume falls short of the standard Müller has set now in CMS III. In particular we have not been able to make the distinction which he describes there in detail between mica schist (*Glimmerschiefer*, μαρμαρυγιακός σχιστόλιθος) and chlorite schist (*Chloritschiefer*, χλωριτικός σχιστόλιθος). In the end it has seemed simplest to use 'schist'. Some of our 'serpentines' will turn out to be schist and some of our 'schists' serpentine, and even with real steatite we are not always on firm ground. Index II (Shapes) tries to take this uncertainty into account but does not do so consistently. Ultimately, of course, what mattered to the ancients, and would be of great interest to us, was the sources of these materials, but tracing those is a task for future scholarship.

Cornelian is used for stones of all the red, orange, brownish and pale yellow-brown-greyish shades which this variety of cryptocrystalline quartz is found in. In keeping with present CMS policy, following J. H. Betts's practice, *sard* is not used and the colouring of each stone is described.³¹

²⁷ Evans, SM I 8–10.

²⁸ Evans, JHS 14, 1894, 275, 294; cf. 1895 reprint (Primitive Pictographs and Prae-Phoenician Script) 275 (= p. 6), 294 (= p. 25), printed and bound with Evans, Hagios Onouphrios, where see p. 137.

²⁹ Evans, PM I 299; A. Kanta, The LM III Period in Crete (SIMA LVIII, 1980) 18. Cf. I. Pini, Beiträge zur minoischen Gräberkunde (1968) 110, no. 87 on map.

³⁰ See J. H. Betts, CMS X, 19 f.; G. R. Rapp, Archaeomineralogy (2002) 117–123, 252–4; above all, W. Müller, CMS III, 1 pp. 17–20.

³¹ See J. H. Betts, CMS X, 18.

The green stone stamp cylinder **1** has already been published in two Ashmolean catalogues and is included in this one too. The fact reflects its still disputed origin. Its material has parallels with Island provenances. Whether it was made in the Cyclades or to the East (in Syria or Mesopotamia?), an Aegean connexion of some sort has been reinforced by the find in 1996 of a similar but less elaborately decorated stamp cylinder in the MH settlement near Haliartos in Boeotia, CMS V Suppl. 3,2 No. 380.

The Prepalatial stone stamps **2** and **3**, hard to date when first published, and the ring-shaped **4** now fit nicely with types from stratified contexts at such sites as Lebena and Mýrtos-Fournou Korifi. The rings made of stone like **4** remain well in the minority. Evans pointed out the relation to the rings from the Messara tombs, which he took to be ivory. As Krzyszkowska's work has shown, however, that shape in fact belongs *par excellence* to bone, while the material of the finely engraved **5** and **6** and enchantingly owl-shaped **7** is ivory from hippopotamus.³² Nos. **8–11** (and **12?**) have shapes characteristic of the 'white pieces' category, but that still challenging category seems to include materials of more than one composition and needs further analyses. A thought-provoking case is provided by the prism **83**. Its shape and motifs are of Mallia Workshop type, but its material puts it somehow alongside the 'white pieces', being some clay mineral such as sepiolite (an alteration product of serpentine). These occur here and there in southern Crete and it would seem perhaps curious that they were not exploited for seals more often, except perhaps in some connexion with the probably experimental and non-standardised production of 'white pieces'.³³ The other six pieces of these kinds in the Ashmolean came in 1989 from CMS X (Nos. 9, 10, 28, 37–39).

The conical **17**, which bears an uncanny resemblance to a LM 'conulus', may have had a long and eventful history, not now recoverable. The scalloped stamp **22** (like the simple stamp **3**) has been rescued from a Geometric dating. Its alleged Attic provenance, though it seems muddled, may bear some relation to the truth. Both the shape and the Kerbschnitt decoration relate it to EBA examples from Peloponnesian sites (Lerna, Asine, Midea) as well as from the Cyclades (Kea) and Crete (Lebena).³⁴

The motifs of **25** are at home with the Mallia Workshop pieces but its rectangular plate shape is represented there by only one complete seal, and otherwise only by 11 roughouts. Perhaps, as Poursat suggests, these were made to fulfil a particular order.³⁵ Seager's Mallia provenance for **25** is probably trustworthy and thus need not complicate the problem. In the long run of three-sided steatite prisms of Mallia Workshop type (**26–90**) an exception is **83**, mentioned above, the material of which relates it in some way to central southern Crete, while its shape and motifs put it with the stone prisms from Mallia and thereabouts. The large size range of the prisms is noticeable, from the big **71** to the small **49**.

The hard-stone prisms (**91–107**) include four which appear to have been unnaturally whitened, probably by burning. **94** and **99** are described as agate because of their bands. **101** and **106** were

³² Evans, PM I 113; Krzyszkowska, AS 63–68. Cf. CMS V Suppl. 3,1 Nos. 120–132.

³³ V. *infra*, Manufacture and Technology, pp. 18 f. Cf. H. Hughes-Brock in CMS Beih. 6, 111; I. Pini, CMS V Suppl. 3,1, p. 2. For 'white pieces' see references at **8**, Comparanda.

³⁴ See Sbonias, Frühkretische Siegel 79 f. Yule (ECS 85) saw the decoration as a 'centrally radiating motif' of a kind more commonly Protopalatial and thus thought that **22** might 'possibly' be post-MM IB, but the Protopalatial motifs he had in mind (from Phaistos etc.) are not carved in the Kerbschnitt way.

³⁵ Poursat, Quartier Mu III 109.

red, cornelian (v. infra, Manufacture and Technology).³⁶ The eight-sided **102** with its long Hieroglyphic inscription remains unparalleled. As a variant of the standard prism concept its only fellow is CMS II,1 No. 391, the remarkable fourteen-faced piece, three joined cubes with handle, from Archanes.

The duck shape of **11** is seen later in **139** and **140** and doubtless like them has a link with Egypt. The motif of **16** may (for want of any better idea) reflect some Egyptian inspiration, but its material is ordinary local green steatite and its shape unique and puzzling, making it impossible to date with any confidence. It gives a certain impression of being Minoan, however, and other objects which Evans found at the same place probably were too.³⁷

Evans was interested from the beginning in the connexions between Egyptian and Minoan ornament, having in the third week of his first trip in 1894 procured in the Messara **112** and **111**, of Egyptian-like button shape with designs resembling those on XIIth Dynasty scarabs.³⁸ He gave these two to the museum between 1896 and 1908, as is clear from their AE accession numbers. **109**, **110**, **113** and **114** were acquired at unknown times and remained in his collection until 1938 and 1941, reflecting a continuing interest. Four other buttons, however, **108**, **116**, **119** and **120**, were left unregistered until the 1950s. Either Evans or others had presumably seen their motifs as not conspicuously in the same category and perhaps had wondered whether to register them as Minoan or Egyptian. **120** is truly a hard case because of its un-Minoan style (v. infra). Registered at the same time (with the preceding 1952 number) was **19**, not another button but a good Cretan conoid: its motif, however, had been noted by Evans as an imitation of a XIIth Dynasty type and one can imagine that it had been kept separately for the same reason.³⁹ The rock crystal **117** is of button shape but has an unusual S-shaped groove along the top of the handle, reflecting the same general idea as the 'convoluted' or 'foliate' backs of **145–150**. The agate **118** is catalogued by shape in the button sequence but belongs by style in the Talismanic series, a rare combination (cf. pp. 22 f. infra).

The loop signet (Petschaft) **133**, on which the central device is of the same general Egyptian-like family as the buttons **111** and **112**, is notable for its all but unique material, yellow jasper.⁴⁰ This occurs in Egypt alongside red jasper (they can be found together on a single chunk) but seems not to have been used at all there before the XVIIIth Dynasty, and then only for sculpture, of which the most impressive example is the fragmentary face of Queen Tiy, made a good time after our signet. In jewellery it does not appear until the Roman period.⁴¹ That small pieces of yellow jasper were prized and exploited by seal-makers in Crete at a time when Egyptians were not using it is but one of many demonstrations of Minoan originality and adventurousness in the use of materials, especially for Petschafts. The only parallels for **133** are the Petschaft CMS XI No. 16 and the unpublished one Herakleion Mus. Inv. No. 2571 from Ioukhtas.

³⁶ See J. H. Betts, CMS X, 17 f.

³⁷ See Brown – Bennett, Travels 230.

³⁸ Evans, JHS 14, 1894, 326–8.

³⁹ Evans, JHS 17, 1897, 343.

⁴⁰ The Catalogue uses both names for the shape, Petschaft being Matz's convenient term, made common by Yule, for a signet with circular face and a shaped stalk perforated at the top.

⁴¹ B. G. Aston – J. A. Harrell – I. Shaw in P. T. Nicholson – I. Shaw (eds.), *Ancient Egyptian Materials and Technology* (2000) 30; A. P. Kozloff – B. M. Bryan, *Egypt's Dazzling Sun: Amenhotep III and his World* (1992) 177, pl. 15. Clearly **133** was a valued piece, being of fine workmanship and found associated with the Palace at Knossos.

Three other unusual signets demonstrate this point further. Gold, normally a ring material, is used exceptionally for **137**, which moreover is of an exceptional shape (lacking a stalk, thus not a Petschaft *sensu stricto*). The gold prism CMS III,1 No. 234 is more or less its contemporary. The silver signet **126** is paralleled only by that from Mochlos, CMS II,2 No. 252. The metallic-looking OAM 1989.75 (= CMS X No. 53), enigmatic to the non-specialist's naked eye, is so far unique. The investigation by XRF, SEM and PIXE analysis (see Appendix, Analysis Results) identifies it as pyrite, an iron disulphide (FeS₂), Mohs 6-6.5, which occurs very widely and in a variety of environments. When fresh, pyrite is a brassy yellow colour as seen at the break on this signet, but weathering (surface oxidation) darkens it. Although attractive, pyrite is both brittle and unstable. It reacts readily with water, cracking and crumbling where water is absorbed (in a dry but oxidizing environment it would survive in better condition). Perhaps other examples have simply not survived. For seals it was worth a fine engraver's experiment but it is not an ideal material.⁴² This signet and the silver **126**, together with **125** and **139**, also, as it happens, stand out somewhat for bearing Hieroglyphic signs, for which prisms are naturally the most favoured shape, having room for more writing.⁴³ Evans acquired no soft-stone signets; **135** and **136** came from other sources and make the shape better represented in the collection.⁴⁴

The Egyptian scarab **142** and scaraboid **147** reflect the fashion for amethyst during the Middle Kingdom and are early among amethyst seals. There is no way of knowing how much time may have elapsed between their manufacture and their undoubtedly Minoan engraving (MM II–III) with its tubular drill work.⁴⁵ **147** has a Minoan foliate back worked with more than usual elaboration. The steatite oval **151** is altogether rather strange and looks unfinished but in fact it can be associated with the Cretan-made scarabs of a small 'distinct and unified type group' identified by J. Phillips. It has four of the six features which define this group: local steatite material, groove around the side, deep and wide cuts on the back and large crosswise perforation. It should be the seventh member (or an 'associate member') of the group, for which the two examples from excavations indicate a date of MM II–III.⁴⁶ Thus it should probably be regarded as a Minoan's rather unsatisfactory attempt at a scarab.

Two unparalleled shapes are the cornelian hand **144**, which perhaps owes some inspiration to the predominantly cornelian Egyptian hand amulets, and the spiral shell **143**, which is cunningly designed so that its apex exactly hits a brown patch in the otherwise white agate. (CMS II,1 No. 475, earlier, was perhaps inspired by a spiral shell too, but by a different kind.)⁴⁷

Three nature studies on translucent discoids (**153**, **155**, **157**) have a horizontal perforation (that of **155** and particularly **157** tending somewhat towards the diagonal), predating the stabilising of the norm for vertical perforations on lentoids. Their profile and crosswise perforation show **165**

⁴² Cf. H. Hughes-Brock in CMS Beih. 5, 112; I. Pini, *Creta Antica* 6, 2005, 65 no. 27, 78, pl. III:3–4.

⁴³ Olivier – Godart, CHIC lists only nine or ten other Hieroglyphic signets, viz. nos. 180, 181, 183, 184, 185(?), 188–191, 197.

⁴⁴ CMS XIII No. 81, once Evans's, is of hard stone like the rest in his collection. Evans's collection, as Sakellarakis and Kenna observed, 'gives, because of its excellence, a slightly misleading account of Cretan Seal use... Sir Arthur... aimed at excellence, even for artistic value' (CMS IV, vii).

⁴⁵ O. Krzyszkowska in Bradfer-Burdet et al., *Κρής Τεχνίτης* 119–129. The most striking engraved scarab is CMS V Suppl. 3,2 No. 245 from the repatriated 'Aidonia Treasure'. The amethyst scarab Kenna, CS no. 145 is entirely Egyptian (v. infra, Objects Not Included). Scarabs in Egypt were often blank.

⁴⁶ J. Phillips in Bietak – Czerny, *Scarabs* 167 f., fig. 7. The excavated examples are CMS II,2 No. 384 from Mallia, Maison Theta, and HM 3266 from Poros Herakleiou (N. Dimopoulou in CMS Beih. 6, 32 no. 6, fig. 1:6).

⁴⁷ CMS II,8, 2, No. 597; cf. I. Pini, CMS II,8,1, p. 12. See also I. Pini, CMS II,3, xxxi.

and **254** to be ringstones. Of the few sealings which appear to be made from ringstones only CMS II,8 No. 597, poorly preserved, probably bears a 'tectonic' motif like **165**.⁴⁸

If the very worn device on **210** is a Talismanic 'Sproß', the perforation is horizontal – unusual, but not unparalleled.⁴⁹ The horizontal perforation of **247** is a peculiarity of Talismanic wild goats but the goat on this stone is not executed in strict Talismanic manner.⁵⁰

The X-shaped **172** seems to have only four companions, close in size and with generally similar engravings (straight cuts, drilled circles). Xenaki - Sakellariou publishes her two Cretan soft-stone pieces as seals. That from Kakovatos Tomb B ('aus grauem Stein') had the remains of a gold covering (like **182**: v. infra) and is called by K. Müller a *Kettenglied*. It could well be a Cretan import.⁵¹ CMS XII No. 119, once Seager's, is certainly Cretan (less close in shape; its profile suggests a lentoid 'salvaged' by a change of shape after the notoriously difficult obsidian had chipped at the edge). The shape would be rather awkward to handle for impressing, one might think, but it would be awkward for beads too, unless they were strung alternately with other beads, as indeed they are on a necklace depicted on a Thera fresco.⁵² It is altogether curious that **172** so much resembles the motif of **83c**.

The cushions account not only for some of the most imaginative motifs and fine engraving but also for some noteworthy materials: the early use of agate for **178**, the soft-stone **182** with its gold covering and the bronze **185** (which moreover has an unusual motif). On **178** the agrimi's body is placed neatly in the banded part of the stone, while its magnificent long horns and the tree occupy the plainer area. Why it has two perforations is mysterious. They could of course have served, as Kenna suggests, to accommodate two strings, as though the seal were a spacer-bead, but one might then expect them to be placed more symmetrically, straddling the middle. Its interesting technological feature is mentioned below. That **185** once had a gold covering like **182** would seem possible, if slightly curious. Bronze being valuable and needed for other important things, why cover it with gold, when soft stone like that of **182**, CMS III,1 No. 100, and the X-shaped piece from Kakovatos mentioned just above would be quite adequate? The workpiece **423** may illustrate the other side of this technique, if it was for forming a gold foil covering, as Younger suggests.⁵³ Among the cushions **250** is noteworthy, though not unique, for its small size. The fragmentary **239** was larger but still rather small for a cushion.

The ribbed backs of **236** and **245** are unusual features. Several three-sided prisms are engraved on two sides (the rather oval **193** and the amygdaloid **255** and **258**), others on all three (amygdaloid **207** and **256** and the small round-faced **490**, one of the few round-faced prisms with a

⁴⁸ See I. Pini, CMS V Suppl. 3,1, p. 12.

⁴⁹ Cf. Onassoglou, DtS 224 no. 19.

⁵⁰ See I. Pini, CMS V Suppl. 3,1, p. 5.

⁵¹ CMS III,1 Nos. 29 and 30; K. Müller, AM 34, 1909, 274, 276, pl. XIII:29. From Kakovatos the CMS has only CMS I Suppl. No. 34. A small lapis lazuli ornament from Mavrospelio is X-shaped but is clearly not related to seals (Effinger, Schmuck 210, KnM 2b).

⁵² C. Televantou, AEphem 1984, 24f., no. 42, fig. 6, 37 f. Parallels are few, scattered and not close: see *ibid.* 38 n. 2, also Xenaki - Sakellariou, *Oi Θαλαμωτοί Τάφοι τῶν Μυκηνῶν* 309 type 124 (some examples cited are not beads but platelets with sewing-holes).

⁵³ On these points see J. G. Younger, BSA 79, 1974, 258–268; I. Pini, CMS II,3, xxiv f., xxxiii n. 66; Sakellarakis in Cahn – Simon, *Tainia*. There are, to be sure, some cases of fine cast glass ornaments covered with gold (e.g. from the Menidi tholos tomb), but those were in mass-produced sets in which the gold-covered pieces were probably set beside the plain blue ones to create a colour scheme.

non-figurative motif).⁵⁴ Lentoids with two engravings, an uncommon occurrence, are **361** and **454**. The two sides of **454** are very unlike. Interestingly, the engraver(s?) exploited the markedly oval shape to advantage, using the wide side for the cow and calf and the tall side for the vertical motif of the long boar's head (which thus has the perforation horizontal). Among other irregular (oval) lentoids are **294** (tall) and **316** (very tall) and the wide stones **282, 360, 389, 392, 427, 446**. Most of these have motifs which one could not call everyday scenes, but that may be coincidental. The conical back of 'Mainland Popular' stones and cast glass seals, abundant in the profile tables of the CMS Supplements, is unexceptional on the glass **447** but very useful on **506** as the one clue to the Aegean origin of an otherwise nondescript object (v. supra, p. 5). For size **317** stands out with its maximum diameter of 3.53 cm.

The shape of some seals betrays or suggests origin as beads. Cornelian amygdaloid beads like **443**, sometimes quite large, obviously gave a tempting opportunity to seal makers.⁵⁵ **273** is unique in a purely Minoan shape otherwise used exclusively (and not often) for beads. The cornelian cylinder **246** may have been a barrel bead, as the agates CMS I No. 107 and XI No. 208 almost certainly were, and perhaps also the agate amygdaloid CMS I No. 205. **320, 345** and **426** are unusually shaped, are all of agate and all have agate parallels. **320** and CMS V Suppl. 1B No. 429 were made as beads of the multitubular shape not common in the Aegean and seen there most notably in the Mesopotamian glass 'Nuzi' beads in the Shaft Graves.⁵⁶

The amygdaloids **345** and CMS I No. 238 are very long and narrow, the width less than half the length (v. infra on their motifs). The strongly curved, almost hemispherical face of **345** might suggest a bead origin for at least **345**. Again, long agate beads are at home in Mesopotamia. The shape of **426** is unique but the fashion for cutting the stone to create an 'eye' (cf. CMS I No. 239) had a long history in Mesopotamia. Agate in the Aegean may occur more as seals than as beads. Mostly the seal workshops no doubt started with raw material, but in the case of such stones as these they may well have been reworking finished products imported from somewhere like Mari. However it had arrived, the material of these three stones was handed over to no mean engravers.⁵⁷

The descriptions of the soft stones could not be geologically exact (see the beginning of this section) but attention has been paid to the colours. The colours of the two sides of the disc **162** are markedly different – the motifs too, in a puzzling way. **163** is of an unfamiliar grey soft stone, not the usual steatite but akin to it. Three stones with 'tectonic' motifs, **173–175**, otherwise unexceptional, are among the many cases where firm identification of the material is needed. A 'tectonic' motif is suggested by the surviving straight lines on two worn soft stones **483** and **505** dated by their discoid shape; **504** may be similar. Although 'Talismanic' engravings are mostly on hard stones, **210** is of soft stone and may thus match a third or so of the stones bearing Onassoglou's 'Sproß' motif (see Commentary).

The strange shape and colouring of **214** are matched by CMS XI No. 46. Its surface is polished but a small damaged area reveals the interior, which is pure white and has the slightly 'sugary' (i.e.

⁵⁴ Cf. I. Pini, CMS II,3, xxvii.

⁵⁵ That the temptation affected modern forgers too is not demonstrated by CMS IX No. 15D, about which any doubt can now be abandoned. CMS XIII No. 3D may be another such case.

⁵⁶ E. H. Cline, *Sailing the Wine-Dark Sea*, BAR-IS 591 (1994) 137.

⁵⁷ Cf. N. Dimopoulou in Laffineur – Betancourt, Τέχνη II 436. H. Hughes-Brock in CMS Beih. 5, 112 f. (where 'CMS I No. 207' wrongly for No. 107).

crystalline, granular) texture of a limestone/marble, whereas CMS XI No. 46 has a smooth conchoidal fracture. The white surface and strongly coloured black and orange-red veins and spots are more likely to be natural than caused by heating. The highly unusual material does not by itself explain the unorthodox shape of the two stones. Their engravings, quite different, are presumably more or less contemporary: Talismanic sepia on **214**, spindly creatures of puzzling species in an animal attack scene on CMS XI No. 46.

Lapis lazuli is represented certainly only by **274**, one of the 18 in Krzyszkowska's list of seals in this material. The stone is of the highest quality, pure deep blue; its source might be Sar-i-Sang (Badakhshan province, Afghanistan) or Chaghai (Baluchistan province, Pakistan).⁵⁸ **416** could be taken for lapis lazuli of inferior quality. It is a fine-grained acid-igneous rock with a light-coloured matrix and with a shiny surface which in places looks glazed.⁵⁹

Several seals are made of stones which rather resemble jasper but are not (**318**, **397**, **458**, the unusually coloured **316** and two red stones **265** and **442**). Another unidentified hard stone resembles lapis lacedaemonius (**372**).⁶⁰ On **367** the fine engraving of a cat hunting waterfowl, a scene with Nilotic overtones, appears surprisingly on a soft stone, where one might have expected jasper, as **459**.

Fluorite is represented by **332**, **473**, **493–497** and a small chip (AE 1510; see p. 27, Objects Not Included). Their cracks and breaks well illustrate the octahedral cleavage which offsets the relative ease of working (hardness is only Mohs 4). **332** and **473** are probably the earliest. The rest belong together stylistically (**494** is of a greenish variety and is in better condition). All but one (unprovenanced) come from the Psychró Cave, the kind of peaceful environment in which this rather brittle stone can best survive. None is the sort of piece Evans would otherwise have bought individually for the sake of artistic quality or interesting motif.

Glass seals begin with **251** and **262**, both engraved in Cut Style. The other three engraved pieces, **387**, **492** and **Add. 1**, should belong to the same general period, when palatial glass production was at its best. **447** represents the later, and much larger, class of cast (mould-formed) glass, a Mainland speciality.

Manufacture and Technology

Much progress has been made in recent years in understanding the manufacture of seals. This is reflected in the Bibliography of the Catalogue entries and need not be repeated here. A number of 'white pieces' and metal objects (including forgeries and replicas) have undergone various kinds of analysis; see the Appendix, Analysis Results. The 'white pieces' **8–11** have been examined several times, most recently in 2005, when G. W. Grime used PIXE (proton-induced X-ray emission) for investigation of several tiny points on the surfaces of **8–11** and the probably related **12**. The results always point to a magnesium silicate component but the search for the 'white

⁵⁸ O. H. Krzyszkowska in Mountjoy, South House 201 n. 18. Sources kindly suggested by Michèle Casanova (pers. comm.). See M. Casanova in F. Tallon (ed.), *Les pierres précieuses de l'Orient ancien des Sumériens aux Sassanides*, *Les dossiers du Musée du Louvre* (1995) 15 f.

⁵⁹ Cf. I. Pini, CMS V Suppl. 1A, xix, on other unidentified blue stones and idem in Bradfer-Burdet et. al., *Κοιής Τεχνίτης* 205 n. 46.

⁶⁰ CMS V Suppl. 3,2 Nos. 33 (bull-leaper from Mallia, Quartier Nu) and 384 (from Thebes) now join the lapis lacedaemonius seals mentioned in the works cited at **298** etc.

pieces' recipe or recipes will remain frustrated as long as analysis is limited to the surfaces of unbroken objects. The very precise PIXE examination showed a marked variation in the amounts of iron and sulphur on the points examined, due either to surface contamination (in the microenvironment or by humans) or simply to the natural inhomogeneity of the distribution of impurities in steatite. The body of **12** appears to be grey steatite but its cream-coloured surface, well preserved in the hollows of the engraving, links it to the 'white pieces'. With all white 'pieces' there remains the unanswered question of an 'added surface', its nature and its relation to the body. Müller points out a somewhat similar puzzle regarding the Mallia steatite prisms (CMS III, 17 f.). The whitish-coloured soft sepiolite used for **83** would seem reminiscent of the 'white pieces' experiments, but this is intriguing, since its shape and motifs place it later, with Mallia products.

A high proportion of gold and a relatively small amount of copper were found in the signet **137** and the gold foil covering the cushion **182**. Other pieces of gold foil analysed at the same time gave similar results. The gold rings **277–281** and **336** contained an even higher proportion of gold but more copper and negligible silver.⁶¹ The composition of **364**, allegedly from Mycenae, is conspicuously different and it looks noticeably less yellow than the other rings. Technical details of the construction of the rings, and the significance of those details, are expounded in the studies cited in the Catalogue entries.

The silver signet **126** is of silver alloyed (naturally?) with some gold (ca. 2%?) and copper; hence its good condition, unusually good for silver.

Two bronze seals, **463** and **513**, have a misleading appearance, a silvery colour caused by their curiously high proportion of tin. Valuable tin was needed for weapons. Why 'waste' it on seals? The answer may lie in the chemical 'afterlife' of these seals. Copper is more active chemically than tin. It produces more corrosion products and these could easily come away from the surfaces, in the soil and/or through human handling, leaving the tin to manifest itself in a higher proportion in analyses by XRF (X-ray fluorescence) and, even more, by PIXE, non-destructive methods which touch only the outer surface.

The roughing-out of stone seals is seen in the two objects published by Evans as from the so-called 'Lapidary's Workshop', 1938.1088 and 1938.1089 (see below, p. 27, Objects Not Included). On the cushion **178** the two drill marks running along the top of the object suggest that drilling helped in the roughing-out.⁶² This particular illustration of the manufacturing process is unusual but there are numerous other instructive features on seals in the Ashmolean discussed and illustrated in Evely, *Crafts* (for which Evely based his seal research in Oxford). Poursat's subsequent publication of workshop material from the Atelier de Sceaux at Mallia (Poursat, Quartier Mu III) provides important supplement to Evely's examples.⁶³

Possible treatment of stone seals by heating or by chemical means is suggested by the colour and surface condition of a number of pieces. Four are hard-stone prisms which look unnaturally whitened, probably by burning: **94, 99, 101, 106**. The very uneven appearance of the four sides of

⁶¹ See E. Pernicka apud I. Pini, *Creta Antica* 6, 2005, 83–86. Cf. K. Lapatin, *Mysteries of the Snake Goddess: Art, Desire, and the Forging of History* (2002) 185 f., 226 n. 15. Note the very pure gold used for the forged 'Thisbe' Treasure seals and for one of the two replicas of the Ring of Minos (see Appendix, Analysis Results).

⁶² See J. G. Younger, *Expedition* 23/4, 1981, 34 f., figs. 10 f.; Younger, *Phylakopi Seals* 285, pl. 55:h-j.

⁶³ For further useful information on drills, drilling methods and abrasives see D. A. Stocks, *Experiments in Egyptian Archaeology: Stoneworking Technology in Ancient Egypt* (2003), including the interesting chapter on mass-production drilling of perforations, 203–224.

106 would suggest that the burning of that stone at least was accidental. The burnt amygdaloid 275 presents very dramatic colour effects. Heat-cracks are clear on 327 (an extreme example is the badly burnt cornelian CMS XI No. 159). The fragmentary 378 is also cracked, perhaps from the misadventures which left it broken. 129, 145, 230, 243 and 246 may have been unnaturally whitened. The surface damage to 257 may be due to acidic action of some kind. 149 has a blotchy light-coloured surface with a honey-coloured interior, like CMS XI No. 60, but this may be natural. The mottled surface of the face of 426 is curious. Microcrystalline quartzes lend themselves to colour treatment with alkali and heating, etc. Such techniques were used early in India on cornelian and also in Mesopotamia on cornelian and agate beads to whiten the surface or produce colour contrast on banded stones.⁶⁴ Similar effects, however, can apparently be produced sometimes by soil action. It is thus hard to be certain in a given case.

The six glass seals represent their material quite well. The best condition is seen in three engraved pieces: 492 is quite sturdy, 251 and 262 slightly pitted on the surface but not badly weathered, and all retain their strong blue colour. 387 and Add. 1 are much more weathered and could not be identified with certainty as seals rather than beads when first inventoried (v. supra) and published. Indeed, the motif on Add. 1 is not at all clear, but its lentoid shape is still quite clear and this is not a standard glass shape for beads. The last-named four were found at the same place, the cave at Psychró. Apart from the effects of environment and micro-environment on preservation, which may well play a part here in the different states of all five pieces, the poor state of 387 and Add. 1 may be due also to their different chemical compositions: Aegean glass is overwhelmingly blue, but 387 is distinctly purplish (as is also a bead, Boardman CCO no. 368) and Add. 1 a very rare brown, colours which can be produced respectively by manganese and iron, whether added intentionally or present as impurities.⁶⁵ All these pieces were engraved. 447 was cast. Its colour is paler and looks 'watered down'. The colorant was cobalt. The Scanning Electron Microscope revealed a quite different spectrum from the earlier, engraved seals 251 and 262. The impurities seen on the computer screen were so clear and so numerous that Dr. Andrew Shortland exclaimed spontaneously, 'It's full of junk!' This glass may well have been melted and reused, perhaps more than once. The distinction between engraved and cast (first made by Pini in 1981) and the excavated material from (above all) Medeon and Elateia date the piece not before LM/LH III, stylistically alongside the 'Mainland Popular Group'.⁶⁶ It was an early purchase at Rethymnon, noted as 'blue glass' with a clear sketch of its conical back. This western provenance matches those of the very few other mould-formed glass seals from Crete.

Several poorly preserved objects may also have been glass seals (v. infra, p. 27, Objects Not Included). These are allegedly from the Hagia Pelagia tomb (like 492). The lentoid shape of one of them suggests a seal, as in the case of Add. 1. The faceted-back amygdaloid shape of one or

⁶⁴ P. R. S. Moorey, *Ancient Mesopotamian Materials and Industries: The Archaeological Evidence* (1994) 93, 100, 171. On burnt cornelian pieces see W. Müller, CMS III, 14 f.; of eight examples in CMS III seven are Talismanic.

⁶⁵ On colorants and decolorants see A. J. Shortland, *Vitreous Materials at Amarna*, BAR - IS 827 (2000) 2, 46–52; cf. T. Rehren, *Archaeometry* 43, 2001, 483–9.

⁶⁶ H. Hughes-Brock in Jackson – Wager, *Vitreous Materials* 140. See generally I. Pini, *JbRGZM* 28, 1981, 48–81; idem in *Dakoronia*, PMK 331–7; idem, CMS V Suppl. 3,1, 23 f.; Dickers, *SpätmykSiegel* 99 f. (engraved), 77–86 (cast).

two others is known in glass.⁶⁷ One amygdaloid, AE 1237, was subjected to PIXE analysis, which revealed a significant proportion of iron, very little copper and a large amount of silicon. The surface looks encrusted and probably weathered and cannot be cleaned non-destructively by present methods. Analysis of surface points cannot add much information, but the high silicon content is compatible with a vitreous material. This would be in character for the period of the other pieces allegedly from the same tomb group (172, 255, 272, 370), when glass was still a prized novelty. There is too little copper for a blue colorant and too much iron oxide for the rare reddish-brown glass like **Add. 1** (iron oxide in a large amount would produce black), but the surface presence of both of those components may be simply irrelevant, a result of contamination. In some respects the results for this object seem to offer intriguing comparisons with those for the 'white pieces'.

Motifs, Iconography, Style

The two men facing each other on the cone **23** are the earliest depiction of humans in this collection and indeed are altogether an early example. On the soft-stone prisms of the kind made at Mallia the many human motifs, the gestures and activities and the interpretations and 'meanings' of them (subjects, *Bildthemen*) have received much attention, notably in Goodison, DWS and Wingerath, *Darstellung*; **34** provides cases in point. Other elements in these discussions include various quadrupeds and other creatures, animal heads and foreparts, hooked or rayed whirls, jars and jugs and the frequent but puzzling 'vessels on a pole'. The species of creatures depicted on the early prisms can be hard to determine, as on **71b**. Even lions are not always clear, but **81a** shows a definite mane and Yule is probably right in seeing a mane on **58a**.⁶⁸ On the disc **158** (which belongs with the prisms) the marks suggest a beetle or a spider as much as anything else. The birds include **78b**, one of the few early prisms to show a bird frontally, flying with wings spread.⁶⁹ On **84** the man and the C spirals seem not to be well paralleled. The ships have a large literature of their own for the early prisms and the later seals.⁷⁰ Only the bronze cushion **185** departs from the norms of ship iconography. Writing on the soft stones includes both 'Archaean Script' and versions of Hieroglyphic signs, e.g. on **28** and **Add. 2** (odd versions), **29** (combined with a man + jar motif typical of Mallia prisms), **30** (signs and animal heads in an unusual combination). Drill work appears now and then, as on **50**, **57**, **90**.

Hard stones begin with **91** and of course have plenty of drill work (although, interestingly, the engraver of **92** did not use a tubular drill for the eyes). **96** was placed by Yule in his Malia Workshop Subgroup, an 'offshoot' of his Malia Workshop Complex. In the view of Mallia scholars themselves, however, Yule's Subgroup, characterised by the use of hard stones and rotary tools, should not be distanced from the Workshop production, nor is it homogeneous.⁷¹ The new tools and techniques and the new hard materials, going hand in hand, were doubtless gaining ground in

⁶⁷ I. Pini, *JbRGZM* 28, 1981, 73 and nos. 11 (CMS I No. 146), 67 and particularly 68 (now CMS II,4 No. 149, cf. *ibid.* p. lxxvii).

⁶⁸ Cf. Yule, ECS 128 f.

⁶⁹ Onassoglou, *DtS* 146 n. 845 points out that CMS XIII No. 87c lacks the head and tail, but they are after all included in the idea of the motif and they may have been present on the apparently damaged area.

⁷⁰ HM 2646 can now be added (Poursat, *Quartier Mu III* 104, pl. 59). The meaning of the ship subject (and of the chariot, as on **285**), often interpreted as connected with the afterlife, figures in certain works cited in the Catalogue entries; see also C. Sourvinou-Inwood, 'Reading' Greek Death (1995) 41–49.

⁷¹ See J.-C. Poursat – E. Papatsaroucha in CMS *Beih.* 6, 264 f.

various workshops at various locations, and **96** can be seen as arising from this process, part of the developing 'technical revolution' of MM II–III (bow-driven wheels and drills, including the new tubular drill, and angled placing of the stone during work).⁷²

Delight in playing with the tubular drill is seen to an almost spectacular degree on **97a**, where the 'ridiculously attenuated antlers are produced from a brilliantly precocious riot of semi-circles cut by applying the seal at an angle to the tubular drill'.⁷³ It was these antlers which misled Evans to give the piece 'a date approaching 700', because he compared them to the antlers on a bronze patera from the Idaean Cave.⁷⁴ Not recognised as one of the early 'galopetras' he was in search of, this fine seal was ignored in Evans's diary. On **98** a less skillful engraver uses a number of drills for various purposes, including the modelling of animal torsos, but leaves his work showing. The engraver of **99** shows off his set of drills by creating different motifs on the three sides of the prism. (The state of the drill-head used on side a is plain to see in impression.) Drill and wheel work produce abstract ornament on **106**, but here the arcs and straight lines are used rather in the 'Talismanic' manner; on the fourth side they contribute instead to a lion who points to Cut Style work. The change to curved faces which eventually develops in the 'technical revolution' is strikingly illustrated in the almost hemispherical face of the rock crystal signet **134** and its close parallel from Mallia. These two have straightforwardly 'tectonic' motifs, while CMS XIII No. 73 moves forward, overlapping with Onassoglou's Talismanic 'Sproß' motif.⁷⁵ Otherwise the 'tectonic' motifs on hard stones are mostly (but not all) on discoids but **175** verges on the lentoid. The 'tectonic' motifs (**164–176**) include some exceptionally finely executed examples (executed perhaps with files as well as with wheels⁷⁶), but the soft-stone cushion **176** is less fine, and the similar stone **186** looks very much like a 'poor man's tectonic'. The motif of the jasper discoid **159** belongs with the centrally radiating, star-like patterns common on the Phaistos sealings and aptly shows why Boardman named this style 'Hoop and Line'.⁷⁷

The Egyptian connexions of the buttons, noted above, are closest in **111** and **112**. On others the tubular drill work, 'tectonic'-like motif or (especially on **113**) the resemblance to pottery decoration are clearly Cretan, as are the convex faces of **115**, **118**, **119**. Whether **120** is Minoan is a question. Its stiff and ungracefully positioned animal looks most un-Minoan but has not convinced an Egyptologist either. The grooves outlining the handle are reminiscent, perhaps, of the grooves outlining the faces of Minoan prisms but one cannot say more than that. We have included it, but without great conviction.⁷⁸

⁷² See W. Müller's experimental reconstruction (in CMS Beih. 6, 195–202) and Krzyszkowska's succinct account (AS 83–85, 92).

⁷³ J. H. Betts (supra n. 17) 31.

⁷⁴ Evans, Hagios Onouphrios 137. It occurred to me that the signet **131** might also reflect enthusiasm for the tubular drill: if the S formed by two arcs is a curly version of the Z-like sign Olivier – Godart, CHIC sign no. 061, we might have cat + X's + Z, a combination like that on Olivier – Godart, CHIC no. 196 (= **145**). Dr. J.-P. Olivier kindly considered this notion but was sceptical: seated cat, cat's head and S are regarded as ornament, not signs (pers. comm.; Olivier – Godart, CHIC 14 n. 37). Cf. Olivier – Godart, CHIC nos. 247, 257 (= **93**), 283 (= **100**), 293, 295, 309 (**131** is consequently not in CHIC). Why is the cat in particular chosen for ornament alongside signs?

⁷⁵ See Onassoglou, DtS 39 f.

⁷⁶ See Boardman, GGFR 43, 381; P. Yule – K. Schürmann in CMS Beih. 1, 274–6.

⁷⁷ Boardman, GGFR 32.

⁷⁸ J. Phillips pers. comm. It does not appear in her *Aegyptiaca* catalogue. One might compare the stiff quadruped on a button dated VIIth–VIIIth Dynasty: A. B. Wiese, *Die Anfänge der ägyptischen Stempelsiegel-Amulette: Eine typologische und religionsgeschichtliche Untersuchung zu den 'Knopfsiegeln' und verwandten Objekten der 6. bis frühen 12. Dynastie*, *Orbis Biblicus et Orientalis* 12 (1996) pls. 27, 82, no. 563.

Goats on hard-stone prisms and on discoids **98a**, **100d**, **152**, **153b** and **154** all appear in left profile reclining on neatly folded legs, facing forward. The stag with head turned back on **98b** belongs with them. Examples elsewhere include CMS II,3 No. 349 and XIII No. 19.

Outside the range of unexceptional birds **140** may conceivably have been a botched attempt at a bird with wings spread but looks more like a messily executed Talismanic ship. The bird on the little fist **144** is unusual, but its attitude and the drill-made fillers give it some similarity to CMS XI No. 12. The bird on **155** is rather curious (perhaps owing something to Nilotic scenes?), but then originality is a feature of every one of the naturalistic creatures and landscapes on the discoids, **152–157**. The bird pair on **248** is also original, both in the depiction of the birds and in the unusual (and quite successful) composition. On **162b** Kenna was probably over-imaginative in seeing a bird at all, even a non-Minoan one. The birds in various attitudes on **251**, **269(?)** and **271–275**, which have both Talismanic and Cut Style features, are in Pini's view better classed with the latter, since they lack the characteristic Talismanic drill work and fillers.⁷⁹ J.-P. Ruuskanen's attempts to identify the species depicted on 32 seals are cited in the Catalogue entries.

The Talismanic and related pieces (some six dozen, starting at **187**; also **118**) include one composed diagonally (**217**), two with the rather uncommon spider motif (**226**, **227**), four with indecipherable motifs of Onassoglou's 'Isoliet' class (**235**, **239**, **256**, **260**), 20% of the published stones with her 'Papyrus' motif (**211–213**⁸⁰), a cylinder (reworked bead?) with animal heads placed both horizontally and vertically (**246**) and one of only four hard-stone buttons (**118**). The horizontal perforation of **247** is typical for Talismanic goats but the engraving is not. **205** and **229** may have been found outside Crete and their motifs are a little 'non-standard'.⁸¹

On the oval ringstone **254** the composition with seaweed around the edge is somewhat reminiscent of the plants surrounding the goat on the oval bezel of the metal ring CMS XI No. 189. Peculiarities on **225**, **257b** and **259** suggest attempts to cover up mistakes. **253**, **257**, **258**, **276** and **486** share some features with Talismanic work in the execution and the choice of subjects.

Boardman's Cut Style is seen on **251**, **262–275** (and **387?**), sometimes in extreme versions (**263**, **268**; **263** is, unusually, of soft stone). The bull on **264** is not a 'mainstream' member of this group. The waterbird and griffin on **269** are a (so far) unique combination. Odd elements on **270** may be due to defects. Birds have been discussed above. The rare glass and lapis lazuli of **251**, **262** (and **387?**) and **274** reflect on the status of the workshops producing this style.

The pieces with certain or probable religious motifs and subjects (including the once doubted Πότνια Θηρῶν **314** and **315**), have naturally attracted much attention to questions of style and date as well as iconography. The iconography of **314** is certainly a departure from other treatments of the subject, if not a downright misunderstanding of it, since the forearms turn inwards as though touching the breasts rather than outwards supporting the 'snake-frame'. The iconography and

⁷⁹ I. Pini in Mattern, *Munus*, esp. 211–5; cf. I. Pini, CMS V Suppl. 1B xxxiii–iv; idem, CMS III, 7. The Cut Style bird and speared goat Brown–Bennett, *Travels* no. 187 (= Boardman, GGFR fig. 115) are taken by Pini (in Mattern, *Munus* 211 n. 12) to be on the same stone as no. 186, the preceding sketch, which looks 'tectonic' and is annotated 'rough'. From this Pini infers that no. 187 must be early Cut Style, not after LM I. The sketches, however, which are careful on the diary page, must be from two different stones, no. 187 being larger and not looking rough. The further evidence for this was not known to Pini at the time, viz. that hastier sketches made later show only the bird and goat with the prism shape of no. 187 (Brown – Bennett, *Travels* 399) and that the Ashmolean has old casts of only these two sides, labelled 'Chersonesos'. Unfortunately neither stone could be traced.

⁸⁰ Onassoglou, *DtS* 229–231 (12 stones, sealings from two others) plus CMS V Suppl. 1A Nos. 116, 193, 194.

⁸¹ Cf. I. Pini, CMS V Suppl. 1B xxxiii.

style of the gold rings **277–281**, **336** and **364** have been treated abundantly in the literature and **278–280** and **336** cleared of previous suspicions. **279** and **336** show that gold ring production was sometimes entrusted to inferior craftsmen (like the Aidonia ring CMS V Suppl. 1B No. 115, a more extreme illustration!). The ‘Ring of Nestor’ **277** has not been unanimously accepted. The most detailed arguments against it, put forward by its chief opponent, the late Agne Xenaki-Sakellariou, appeared unfortunately in an article not widely accessible but they are usefully summarised in a rejoinder by Pini (see Catalogue entry, Commentary). **364** stands apart, with its different alloy and Mycenae provenance, but wherever it was made, the lions flanking a column and the ‘sacral knots’ in the field are of course ultimately Minoan subjects and the antithetic composition had been long at home in Crete (cf. e.g. **157**).

Iconographical problems concerning **282–284** have now been largely resolved with the help of subsequent finds and studies, although **282** is certainly unconventional, in technique and style as well as iconography. The small rectangular structure resembles that from which a tree often springs, as on another crudely worked green steatite lentoid, CMS XII No. 264, but on **282** we see a double axe.

The ‘bird-lady’ motif (**294–297**) has received careful study by Pini.⁸² The half-human Mischwesen on **298–303** are notable for their variety of style, ‘species’ and fillers. Only **298** (a Mainland product?) and **299** are straightforward Minotaurs. **301** has two bull foreparts, thus requiring a different compositional scheme, antithetical rather than circular. The circular scheme of **302** neatly accommodates two creatures, the second being half-lion. **300** is half-goat. **303** is a mess: perhaps a Minotaur was planned but the motif not correctly planned in the space, and the other elements, whatever they are, put in to fill excessive empty space and make the best of a bad job. The fillers on **298** and **299** – figure-of-eight shield, impaled triangle, ‘star’ – are known fillers for Minotaurs (and bulls).⁸³ The fillers with the two-headed Minotaur on **301** are rendered rather unusually and resemble the fillers with bulls on CMS V Suppl. 3 No. 217: they must be plants (as with the Minotaur on e.g. CMS IX No. 127) and a rather strangely rendered figure-of-eight shield, two blobs joined by a long double line, worked to match the equally peculiar frontal bull heads. The goat-man on **300** has the usual, by now ancient, goat accompaniment of a branch or tree, but the goat-man can share features with the Minotaur: figure-of-eight shield (e.g. CMS V Suppl. 3 No. 113), both figure-of-eight shield and ‘star’ (CMS IX No. 128), two foreparts (as on CMS II,8 No. 202, a more lively and interesting composition than **301**).

The scenes of bull-leaping involving hounds (**340**, **341**) are somewhat curious in their apparent combination of bull-leaping attitude with a hunting subject (possibly, of course, relating to the preliminary capture of the bull before the bull game; cf. the netted bull, **408**). Both are on lentoids of lapis lacedaemonius but perhaps engraved in Crete. The subject of an armed man hurling himself at a huge agrimi has good parallels for the lentoid **344** but on **345** is adapted to suit the abnormally long shape (v. supra p. 17). On a similar very long agate CMS I No. 238 the long space is quite filled, three animals being given generous room and not crowded together as they must be on a lentoid; on **345**, however, the motif, even as a specially recomposed version, leaves blank

⁸² I. Pini, CMS II,4, xlii–xlv.

⁸³ The ‘star’ is likened to the rosette on bull’s-head rhyta by N. Dimopoulou in publishing a stone where the motif appears above the frontal head of a bull in the presence of a male worshipper (HM 3661; see N. Dimopoulou in CMS Beih. 6, 34 no. 15, fig. 2).

space at the ends.⁸⁴ **343** is the original of the terracotta impression in Munich CMS XI No. 166, a poor impression (and perforated differently). Its other peculiarity is that the two animals are not engaged with each other either in an activity or in the composition.⁸⁵

Two motifs of a single animal plus plant/branch/tree stand out because the animal is not the usual goat and because **361**, with a lion, is engraved on both sides and **362** has one of the relatively few depictions of the 'Minoan dragon'. Various creatures have been treated in Pini's detailed discussion in 1985 of motifs, style, composition and date principally of soft-stone pieces: cattle, goats, lions, deer, waterfowl, humans, bird-ladies and griffins (CMS II,4, xl-lviii; see Catalogue entries, **287–461** passim). Further material can be added, especially from CMS II,8. As regards composition **369**, **372** and **378** are interesting. On **371**, **372**, **381**, **399** the hunting animal (lion or hound) holds its prey aloft as on e.g. CMS IV No. 285, V No. 428, XI No. 296, with details varying in the treatments of the subject.⁸⁶ The attack scenes on **395** and **402** have puzzling additions to the subject, that on **395** somewhat resembling a Linear B sign. The rendering of the calf's eye in the very naturalistic study on **404** is somewhat like that on **421**, where the unusual motif of the calf's head is accompanied by three unexplained blobs and what appear to be traces of a sketch for the layout of a composition; the attachment of the ear and some small marks around the muzzle are curious too and contribute to an impression that the motif we see now was perhaps not that originally intended.

435 and **436** offer intriguing snapshots of the problems and shortcomings of engravers. The close relationship of **435** to CMS II,3 No. 55 remains curious.⁸⁷ On **436** the beast's hindquarter and legs are carefully and competently rendered but other aspects of the work are far inferior, with the forelegs badly placed and several strange features. The various aspects of seals with waterfowl motif (**457–461**) and the scenes with hunting cats **367**, **368**) have been treated by Pini.⁸⁸

The bronze ring **472**, probably once gilded, is unusual for its variously interpreted motifs of 'sacral ivy' and papyrus or lily, motifs used more often on pottery, frescos and relief-beads and probably bearing some degree of symbolic meaning. On seals 'sacral ivy' appears mostly as Onassoglou's Talismanic 'Herzform'. CMS II,3 No. 183 (four arranged as a pattern) and II,8 No. 139 (fragmentary) are among its rare occurrences otherwise. In nature it must go back to the cordiform leaf of a real plant, possibly one valued for medical reasons by women in Egypt (e.g. birthwort, *Aristolochia clematidis* L.) and adopted as an Egyptian motif in Crete.⁸⁹ The element above the 'ivy leaf' on **472** has been interpreted as either papyrus or lily, its top resembling the fan-like top of the conventional stylised papyrus but also looking like upright lily stamens, the spirals looking like conventional down-curved lily petals but the swelling midribbed element more like papyrus.⁹⁰ Neither plant is used often on seals as a free-standing motif. They usually occur as growing plants in the background of a scene (the fresco-like papyrus clump standing alone on the

⁸⁴ Cf. CMS II,3 No. 14 and Pini's remark p. xlix.

⁸⁵ V. supra, p. 7. I. Pini, CMS XI, xxvi.

⁸⁶ See further I. Pini in Darcque – Poursat, L'Iconographie minoenne 153–166.

⁸⁷ See Pini's detailed discussion CMS II,4, l–li, published in 1985. He is now sure it is genuine.

⁸⁸ CMS II,4, xlv–vi. See CMS II,8 for further examples.

⁸⁹ Onassoglou, DtS 44–48; H. Hughes-Brock, OxfJA 18, 1999, 288. B. Otto's study of the symbolic value of 'ivy' does not mention the Talismanic 'Herzform' (B. Otto in AttiCongMic II, ii, 815–831).

⁹⁰ CMS II,8,1 No. 137 has a papyrus head springing from the heart-shaped element. A similar scheme on CMS II,7 No. 104 has the head filled in the other direction like a conventional 'flower' on pottery.

silver ring bezel CMS V Suppl. 1A No. 46 is an exception). On **359** papyrus plants accompany the waterbirds. On the fragmentary CMS II,6 No. 34 they should indicate the marshy environment of the ‘Minoan dragons’; one can speculate that there was a wavy ‘water’ groundline on that stone, as with the dragons on **362** and CMS V Suppl. 1B No. 76 as well as on CMS II,6 No. 62 (where the background plants are not clearly papyrus but they could be; the ‘dragon’ on **277**, however, must be on dry ground). On CMS V Suppl. 3,2 No. 480 the plants grow in the field of an equally imaginary scene, a fight of lion and griffin (but griffins more often are associated with palms). Both papyrus and lilies appear with women in cult scenes, either growing in the field or held by women or both.⁹¹ In these examples the plants are either entire or cut with some stalk. Abbreviated, stemless versions of ‘ivy’, papyrus and lily are used for relief-beads and are among the commonest forms in that repertoire.⁹² Like ‘ivy’, papyrus has a Talismanic version (which uses the head with a short stalk, the stalk, like the ‘eyes’, probably going back to the palm tree). The lily flower, however, is not chosen for the Talismanic repertoire. On earlier seals it does seem to have a place, in the fleur-de-lys device which appears alongside Hieroglyphic signs, but is not treated as a sign in Olivier – Godart, CHIC.⁹³ One may reason that this indeed represents a lily, since it sometimes appears joined to S-curves (CMS II,2 No. 316a; II,6 No. 186; II,8 No. 83; CMS IX No. 29) in much the same way as are the two detailed lily flowers on CMS V Suppl. 3,1 No. 41, which are unmistakable. Why the Talismanic engravers chose ‘sacral ivy’ and papyrus but not the lily flower, and why these two motifs were chosen for a metal ring (not worked in Talismanic mode, of course) must reflect something about Minoan attitudes, but what? In relief-bead form on necklaces and headbands they quite probably served not as mere ornament but as insignia of some kind. Was our ring therefore made for a particular individual entitled to wear these motifs?

The frankly incomprehensible engravings on **479**, **481** and **508** are tantalising, because they seem to be attempts at real engraving, not mere ‘doodles’. The sorry scratchings on **476**, **502**, **503**, **510–512**, whether or not reworkings, have no such aspirations.

Objects not included in the Catalogue

These are listed below in three sections.

I. Unfinished seals, probable or possible, and objects of seal shape and material but either left unengraved or now impossible to see clearly because of their poor condition.

AE 312g Chalcedony cushion, shaped and perforated but not engraved. Allegedly from a chamber tomb by Kará (now Kareas) on the western foothills of Hymettus investigated by A. Rhusopoulos. Entered the museum in 1893. J. H. Crouwel, BABesch 48, 1973, 98, fig. 8:2; Y.

⁹¹ E.g. CMS I No. 279; CMS II,3 No. 51; CMS V Suppl. 1B No. 113; CMS V Suppl. 3,2 No. 243; CMS XI No. 20a. Cf. Onassoglou, DtS 55 f. The silver ring bezel from the H. Charalambos Cave with free-standing papyrus clump, CMS I Suppl. 1A No. 46, will date nearer the time when papyrus, as plant or motif, arrived in Crete, the main deposition having ended at MM IIB (P. P. Betancourt in Laffineur – Greco, Emporia II 451; Krzyszkowska, AS 126 n. 27). The plants where acrobats perform on **184** are not unmistakably lilies.

⁹² Effinger, Schmuck 31–35.

⁹³ E.g. **145**, CMS II,2 Nos. 256a, 316a; II,8 Nos. 62, 74, 90; also **94a**, where, interestingly, it is joined to a cordiform ‘ivy’-like element. More comparanda at CMS V Suppl. 3,1 No. 41. Cf. CMS II,2 No. 153, a four-sided Mallia prism. Cf. H. Hughes-Brock in CMS Beih. 6, 110 f.

Galanakis in Kurtz et. al., *Essays for Hatzivassilou*; H. Hughes-Brock in Jackson – Wager, *Vitreous Materials* 138. Probably intended for engraving because the shape and material are typical of seals, not of beads.

AE 714 Cornelian lentoid, well shaped but not engraved, probably because the ends of the perforation barely meet. From the Psychró Cave. Boardman, CCO 73 no. 335, fig. 32.

AE 1510 Fluorite, a small chip with no motif discernible. From the Psychró Cave. Boardman, CCO 71 no. 314, pl. XXIV (wrongly captioned '315').

1938.1088 and 1089. Lentoid rough-outs from the so-called 'Lapidary's Workshop' at Knossos. Evans, PM IV 595, fig. 589; Kenna, CS 77, fig. 168; I. A. Sakellarakis, AE 1972, 238 f., pl. 89 γ ; J. G. Younger, BSA 74, 1979, 261 f., pl. 33; idem, Expedition 23/4, 1981, 33 f., figs. 12–13. See 423.

Possible seals in a group of seals and beads allegedly from a chamber tomb at H. Pelagia (as 172, 255, 272, 370, 492; v. supra, pp. 20 f., and Appendix, Analysis Results. AE 1237: an amygdaloid with concave-faceted back, vitreous material (?), weathered and apparently encrusted, impossible to clean; traces of a quadruped???. AE 1239: another amygdaloid (larger than AE 1237; same material?) and a pitted and iridescent glass lentoid, both ruinous. AE 1238: lentoid, light orange-brown stone with dark brown patch, diam. 1.05, unengraved; unfinished seal.

II. Objects catalogued in Kenna, CS under the following numbers.

15 (1938.779) 7th century. See J. Boardman – M.-L. Vollenweider, *Catalogue of the Engraved Gems and Finger Rings in the Ashmolean Museum, I: Greek and Etruscan* (1978) 4 f., nos. 16–17, pls. III f.; I. Pini, CMS V Suppl. 3,2, pp. 20 no. C15, 23 (erroneously 'C18').

63 (1941.1129) Egyptian? Somewhat reminiscent of Egyptian squatting monkey motif? Boardman, IG 143 n. 1 ('almost impossible to date'); I. Pini in CMS Beih. 1, 157 n. 107; Evely, *Crafts* 154.

114 (1938.949) For good arguments against it see P. Yule, AA 1977, 141–9.

116 (1889.600) Probably Near Eastern. Urartian?? 1st millennium? Bought by Chester in Beirut. I. Pini in *Pepragmena* 3, 225 n. 9; idem, CMS II,3 xxv; idem in CMS Beih. 1, 157 n. 107; idem, CMS V Suppl. 3,2, pp. 20 no. C14, 22 f. (erroneously 'C17'); idem, *Creta Antica* 6, 2005, 74, 81 no. A4, pl. VII: 12–13.

124 (1938.1102) Egyptian trussed duck or goose amulet. Evans in G. F. Hill (ed.), *Corolla Numismatica: Essays in Honour of Barclay V. Head* (1906) 352 no. 31 ('from Palaikastro'); Phillips, *Aegyptiaca* no. 437.

130 (1941.213) Egyptian? Included in a string of beads of which some certainly look Egyptian. Boardman, GGFR 390 = 408. I. Pini in CMS Beih. 1, 157 n. 107.

134 (1933.415) Egyptian baboon amulet, probably 1st millennium (J. Phillips, pers. comm.). I. Pini in *Pepragmena* 3, 225 n. 9; CMS III,1 at No. 19. Bequest of the Oxford Assyriologist A. H. Sayce.

145 (1931.475) Egyptian amethyst scarab inscribed with the known personal name 'Imn-m- $\dot{\text{i}}$ pt; late New Kingdom or Third Intermediate Period, probably XXIInd Dynasty (R. Giveon, J. Phillips, pers. comm.). Given by Evans in 1931 together with two Egyptian scarabs. 'Said to have been found in Crete' (Acc. Reg.).

298 = CMS II,3 No. 344.

7P = CMS II,3 No. 40.

49P (1889.302) Island stone with motif suggesting Minoan inspiration. From Chester, 1889, with prov. 'Melos', which may be correct. Boardman, *IG* 20, 70 f., no. 300; J. Boardman – M.-L. Vollenweider, *Catalogue of the Engraved Gems and Finger Rings in the Ashmolean Museum, I: Greek and Etruscan* (1978) 8 no. 43, pl. VIII.

III. Objects not catalogued in Kenna, CS ranging from genuine but irrelevant objects to obvious fakes. Many appear in Kenna's list of *Gemmae Dubitandae*, CS 154, together with his reasons for doubting them. The most noteworthy is the well-known 'ivory half-cylinder' supposedly from the Knossos excavations with scenes of 'betrothal' etc. (1938.790); it bears some suspicious resemblances to details on **178**.

AE 1803 GD list, Kenna, CS 154. White stone with light green veins; bull games. Same forger as 1941.154 *infra*?

AE 1813 Black stone with 'signs'. Bought by Evans in Athens. Evans, *PM I* 639 f., fig. 475; J. H. Betts – J. T. Hooker, *SMEA* 17, 1976, 11–13 (where other references).

1910.196 GD list, Kenna, CS 154. Gold ring; duelling warriors. From 'Boeotia', given by R. C. Bosanquet. Evans, *JHS* 32, 1912, 290; *idem*, *JHS* 45, 1925, 26, fig. 30; Biesantz, *KMS* 108 f. (same style as *Thisbe Treasure* but sold independently).

1938.758 Boardman, *IG* 131: either later or not ancient. Cream and grey steatite, flat-faced oval, both sides engraved; three men in a boat, linear devices.

1938.790 GD list, Kenna, CS 154. Bone D-plaque; man, woman in flounced skirt, hounds, jars, archer hunting. H. Hughes-Brock in *CMS Beih.* 3, 84; Krzyszkowska *ibid.* 118. The abundant literature on this object is on record in the CMS Archive. It continues to be used in discussions of iconographic elements but not by authors well acquainted with it. Krzyszkowska, *AS* 331 f., no. 620.

1938.1033 Badly shaped shiny black stone; cow and calf.

1938.1034 GD list, Kenna, CS 154. Agate lentoid; cow and calf, odd stiff engraving.

1938. 1113–1125 GD list, Kenna, CS 154. 'Thisbe' Treasure of gold bead-seals, rings etc. allegedly from *Thisbe* in Boeotia: Evans, *JHS* 45, 1925, 1–42; K. Lapatin (*supra* n. 61), 157 f., fig. 7.3; Krzyszkowska, *AS* 332. Literature on record in the CMS Archive. See Appendix, Analysis Results.

1938.1155 GD list, Kenna, CS 154. White opaque lentoid; man attacking a griffin.

1938.1156 Black steatite conulus; lion and goat. Close to Betts's Sangiorgi group of fakes; cf. J. H. Betts in *CMS Beih.* 1, 17–35.

1941.111 GD list, Kenna, CS 154. White stone, face flat, upper side convex; agrimi. Brown – Bennett, *Travels* 117 no. 108: acquired by Evans at Epano Zakros in 1894. Seal-hunters were already active, as Myres had found in 1993 (*ibid.* 141 n. 140), and were doubtless encouraging forgers, who had been active since at least 1880 (*ibid.* 297). This piece had got to Zakros in time for Evans's visit – perhaps not by accident!

1941.114 GD list, Kenna, CS 154. Cornelian; hind kneeling. Archaic, in a small 6th-century group defined by Pini. See I. Pini, *MarbWPr* 1975, 1–10; *idem*, *CMS XI* xxii n. 35; *idem*, *CMS V Suppl.* 1B xxxiii.

1941.132 GD list, Kenna, CS 154. Bought in Candia by Seager, says Evans's note on the mount (*v. supra*, p. 7). Black and orange stamp: woman, altar, horns of consecration, bucranium.

1941.154 GD list, Kenna, CS 154. Agate lentoid; two bulls. Perf. badly misshapen. Same forger as AE 1803 supra?

1941.1244 GD list, Kenna, CS 154. Brown – Bennett, *Travels* 468 no. 363: noted by Evans 'haematite, Goulas' 1898. Cube, perhaps strung with other objects. Iron Age?

1941.1245 GD list, Kenna, CS 154. Hard red stone three-sided prism; inept attempt at Mallia Workshop style.

1952.107 GD list, Kenna, CS 154. Ex Coll. A. B. Cook. A. B. Cook, *Zeus III* (1940) 845, fig. 659; Sotheby's sale catalogue 15 January 1952, p. 4 no. 13; C. Hopkins, *Berytus* 14, 1961, 32. Not Minoan.

1968.1836–1842, 1844 and 1970.586–587. White-coloured materials, various shapes, geometric motifs. Boardman, *GGFR* 387 = 405; H. Hughes-Brock in *CMS Beih.* 3, 79–89 *passim*, fig. 1; Krzyszkowska, *AS* 331 f.

1968.1843 Burnished clay stamp, unperforated; quartered circle with dots. H. Hughes-Brock in *CMS Beih.* 3 85 f., fig. 1. Almost certainly ancient, but from where? Southeastern Europe? Italy?

Unregistered Evans gift. Green stone, eight sides, each with one device (man, bird, fish, spider etc.). 'From the booklender's property, Knôsos', bought by Evans 1896. Brown – Bennett, *Travels*, 250 f., 460 f., no. 323. Some inspiration from an old piece such as *CMS IX* No. 17?

Unregistered 1970. Given by H. Cahn. Agate, shape resembling cushion with contoured back; boar with plant or branch. Some inspiration from *CMS V* No. 314?