ENEOLITHIC BLADES FROM BUCCINO (SALERNO)

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The present article illustrates four bronze blades found in 1969 during the Brown University excavations of an Eneolithic necropolis at Buccino (Salerno) under the directorship of Professor R. Ross Holloway. These blades were associated with pottery and flints of the Gaudo Culture (Holloway, 1968, 1969, forthcoming). Three of the blades were found in Tombs 1 - 2 (hereafter referred to as T. 1 - 2), with a C_{14} date (half-life 5570), obtained by Dr. Lars Engstrand of the Radioactive Rating Laboratory of Stockholm, of 2580 B. C. The fourth blade is from Tomb 3 (T. 3) with a C_{14} date of 2370 B. C. [1].

The first piece, T. 1 - 2, no. 1 (length 18.5 cm., maximum width 4.1 cm., maximum thickness 6 mm.) is a triangular blade with slightly convex sides, three rivets of square cross-section set in the ovoid base, and a fairly broad, low midrib. Analysis carried out under the supervision of Professor D. H. Avery of the Division of Engineering of Brown University showed that it is over 90% copper, with the balance silicate slag. Most probably the blade was cast in a horizontal two-piece stone mould and finished while still hot by light hammering.

The second, T. 1 - 2, no. 2 (length 26.5 cm., maximum width 9 cm., maximum thickness 0,22 mm.) is a flat blade of triangular shape with straight sides, broad square shoulders, and short rectangular tang with a single rivet in the center. It contains over 5% arsenic and is thus considerably harder than the midrib blade. It was probably cut from a cast sheet and the annealed metal

(1) I wish to thank Professor Holloway for permission to study these blades and for his generous assistance in the course of my research.

worked into shape while still hot. After cooling the edges were first work-hardened and then ground to make a cutting edge.

The next two pieces are similar thin, flat blades of heavily worked arsenical bronze, shaped rather like an isosceles triangle but with a blunt tip, very narrow shoulders, and a short rectangular tang. The shorter blade, T. 3, no. 1 (length 14.8 cm, maximum width 1.7 cm, maximum thickness 0,1 mm) has two round rivet holes placed longitudinally in the tang. The tip of the point and the end of the tang of the longer blade, T. 1-2, no. 3, (length 26.8 cm, maximum width 1.7 cm, maximum thickness 0,1 mm.) are broken off but it may also have been rivetted. Both of these pieces were apparently hot-worked into shape. The blade from Tomb 3 was subsequently cold-worked and the edges bevelled.

A typological study of the Buccino blades is of particular interest because one of the most problematic issues of the Eneolithic Period in Italy is the origin of its metallurgy. It has generally been assumed that the appearance of metal objects in Italy is a clear sign of outside influence. K. Branigan, for example, believes that the sudden emergence of the Eneolithic cultures of peninsular and northern Italy is probably due to the extension of Aegean maritime trade into the eastern Mediterranean and Adriatic toward the end of the third millenium, a period when the demand for tin necessitated extensive trade between the eastern and western Mediterranean (Branigan, 1966, pp. 97-108). The question of the Aegean originis of metallurgy has important chronological implications. If the search for tin provided the impetus, as Branigan claims, then the Remedello, Rinaldone, Gaudo and related cultures on the Italian peninsula must be contemporary with the Early Minoan III Period, i. e. 2200-2000 B. C. However, from none of these areas do we have clear evidence of alloying with tin until the succeeding true Bronze Age. We have, instead, a high proportion of arsenical alloys characteristic of an earlier period of metallurgy on Crete itself and especially in the Cyclades. Certainly this is true of the Buccino blades, three of which contain 4-6% arsenic. The recognition of arsenical bronzes as a definite technological stage in the Early Bronze

Fig. 13
Eneolithic blades from Buccino (Salerno), tomb 1-2. From left to right no. 3, no. 1 and no. 2.

Age (Charles, 1967, pp. 22-26) demands a re-examination of the evidence. Although an exhaustive survey is beyond the scope of this paper, representative examples of Aegean/Anatolian features will be cited in order to set within their contexts blades discovered in the necropolis at Buccino. At the same time some attention will be given to signs of Aegean/Anatolian features and forms present elsewhere on the Italian peninsula.

T. 1 - 2, No. 1

Triangular mid ribbed blade

Almost identical blades were found at Gaudo itself in Tomb M (Sestieri, 1946-58, pp. 251-308; Napoli, d'Agostino, Voza, 1962, p. 57, fig. 9) and in the grave of the 'capo-tribù' at Mirabella Eclano (Onorato, 1960, Pl. XX). Long triangular blades, though with straight heels, also appear in northern Italy in the tombs of the Remedello culture and in central Italy in those of the Rinaldone culture. In the cave at Monte Bradoni, for example, a flat blade with three rivets in an ovoid heel was found along with a longer blade of the same general proportions (approx. 4 : 1) but with a single row of four rivets in a straight base and strengthened by a triangular section (Minto, 1930, pl. 1). In general the Remedello blades are distinguished by their straight sides, high midribs, and long, slim proportions in contrast to the more shield-like shapes of the Gaudo culture.

Long, slim blades with wide heels and two or four rivets symmetrically placed are the most common type in the Aegean; often these have high midribs resulting from their rhomboidal section. This type was very popular

Fig. 14
Cycladic daggers from Renfrew's Type IV a, from Amorgos. From left to right: length cm 21,4; 12,2; 15,4.

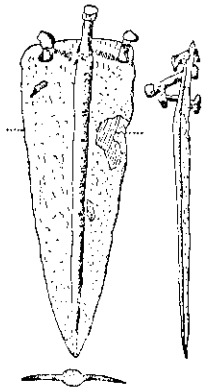

Fig. 15
Dagger from Gaudo, Tomb M. Gaudo culture.

in the Cyclades from the EB II Period onward (Renfrew, 1967, p. 11). It appeared simultaneously in mainland Greece, for example, at Zygouries, Lerna, and Levkas (Renfrew, 1967, p. 11). It seems to be somewhat later on Crete (Branigan, 1968, p. 19).

The Aegean type of long dagger is well-illustrated by the Cycladic blades collected by C. Renfrew (1967, pls. 5, 7, 8, 9). Renfrew's Type IVa, the straight-butt dagger, can be compared with the Italian blades. One example of this type from Amorgos is a long blade with four rivets and a slight medial ridge (Renfrew, 1967, Pl. 9, pp. 61 - 62). Although the Italian group is alike in the manufacture of both flat and ribbed blades, a comparison with the daggers from Amorgos makes it clear that the resemblance of the Buccino blades to Aegean forms is only general. Aside from variations in the rivetting system, the Cycladic blades have much wider heels and concave, rather than convex or straight, cutting edges.

Perhaps the closest parallels for the Italian blades are provided by two silver daggers found in Tomb Gamma at Koumasa on Crete, two of three silver daggers found in association with clay and stone vessels dated between EM I - EM II (Xanthoudides, 1924, pp. 34-36, pl. XXIX 212, 213). These have convex sides, pronounced triangular midribs, and a high ratio of width to length (approx. 1 : 3). In size, shape, and proportion they are very similar to the blades of the Gaudo culture. They differ only in the arrangement of the rivets and the means of strengthening the blade. Two other daggers in Crete may also be compared with the Italian blades. One is from the Agios Onouphrios deposit, which is not closely dated. This has convex sides, a low triangular midrib and two surviving of four symmetrically placed rivets (Branigan, 1966, 105-6). The second is from tomb XIX at Mochlos, from a deposit used until the end of EM II. This is a smaller blade of flat section with three rivets in an ovoid base, similar to the smaller dagger from the cave at Monte Bradoni (Branigan, 1966, p. 106-7).

All of these blades are distinguished from other Minoan daggers by their squat proportions and their low triangular mid-ribs, both characteristic features of the Italian blades. Moreover, the daggers from Koumasa are made

of silver, a material rare on Crete, where gold is more common. In addition, the third silver dagger from Tomb Gamma (Xanthoudides, 1924, pl. XXIX, no. 214), although it may be classified with a group of Minoan daggers distinguished by their round heels and midridges (Branigan's Type VI, 1968, p. 14), has one characteristic not found on any Aegean dagger of this type. On this dagger there is no smooth transition between the heel and the cutting edge of the blade; rather, they are joined at a sharp angle. This is precisely the feature present on some round-heeled blades found in the Rinaldone culture of central Italy, for example at Chiusa d'Ermini (Grosseto), Val di Chiana (Terni), and at Spedaletto (Siena) (Rittatore, 1951, p. 10, fig. 5; Neppi Modona, 1925, p. 64, pl. 5; Not. Sc. 1934, p. 42, fig. 1,3).

The silver daggers from Koumasa have long been considered to be of Italian origin (Branigan, 1966, pp. 103-7 and note 41). If these blades were made in Italy, as their shape and material indicate, their presence in a tomb deposit dated between EM I and EM II has important chronological implications for the appearance of the long midribbed dagger in Italy. The pottery in Tomb Gamma provides only a terminus post quem. Clearly two distinctive styles of dagger had developed on the Italian peninsula at least before the end of EM II. Although Branigan argues for a later date for the tomb deposit because of the presence of a razor which he assigns to EM III, there is little stratigraphic evidence to support his typological dating of the Minoan razor types (Branigan, 1966, p. 104; 1968, pp. 38 - 44). The original dating of the tomb deposit is supported by the only other Cretan dagger of this group for which we have a date, the blade from Mochlos. Moreover, the existence of local variation, i. e. the angular blades of the Remedello province and the shield-like shapes of Gaudo, presumably point to a considerable period of development.

The presence of a long midribbed blade in the necropolis at Buccino suggests contacts with the Aegean, contacts which are further documented by the presence of Italian daggers on Crete, but the working out of the type seems to have proceeded autonomously within the Gaudo province.

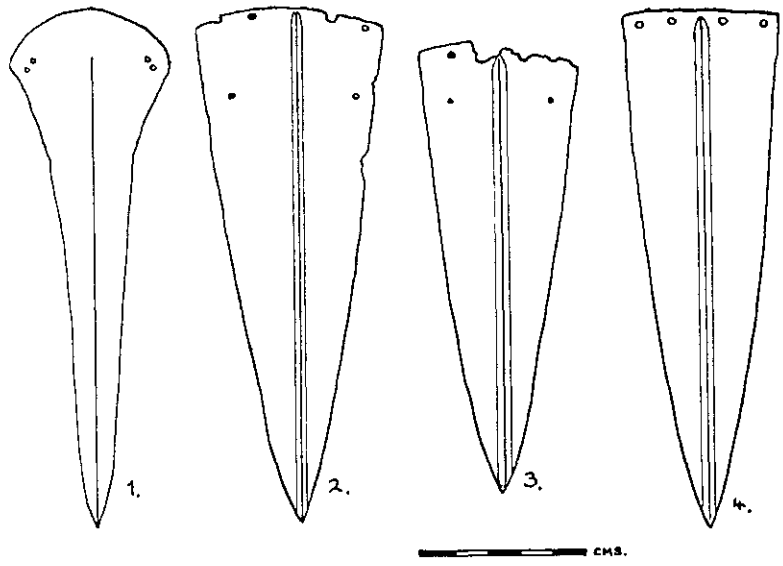

Fig. 16
Three silver daggers from Tomb Gamma at Koumasa (Crete) and a copper blade from the Monte Bradoni Cave, near Volterra. (After Branigan, 1966).

T. 1 - 2, no. 2 Flat, triangular blade with straight edges and a single rivet in the short rectangular tang.

A similar tanged blade, but with a slight midrib, was found in the grave of the ' capo-tribù ' at Mirabella Eclano (Onorato, 1960, pl. XX). Outside of the Gaudo province, straight-sided tanged daggers strengthened with a triangular midrib appear in northern Italy in association with Remedello material. Two such blades were found in the cave at Monte Bradoni (Minto, 1930, Pl. 1), which can be assigned to the Rinaldone culture.

Tanged daggers were not in much favour in the Aegean. One possible source of this type are the short-tanged daggers of the EB - MB at Byblos (Branigan, 1966, p. 102). These have narrow shoulders, square or sloping, and a variety of rivet arrangements (from none to four) in the short, square tang. They occur in both flat and ribbed forms (Dunand, 1937-8, Byblos I, pl. XCV, 6569, Pl. XCIX, 1562; Byblos II, Pl. LXII, 9164, Pl. LXXVIII, 10831). In general the chief point of difference is that the Byblite daggers have blunt, convexly curved cutting edges in contrast to the straight sides of the more pointed Italian blade. It has been suggested (Branigan, 1966, p. 102) that the straight-edged Italian blade represents an adaptation transmitted to Italy via Crete, where a modified Byblite form appears. The Minoan tradition is represented by

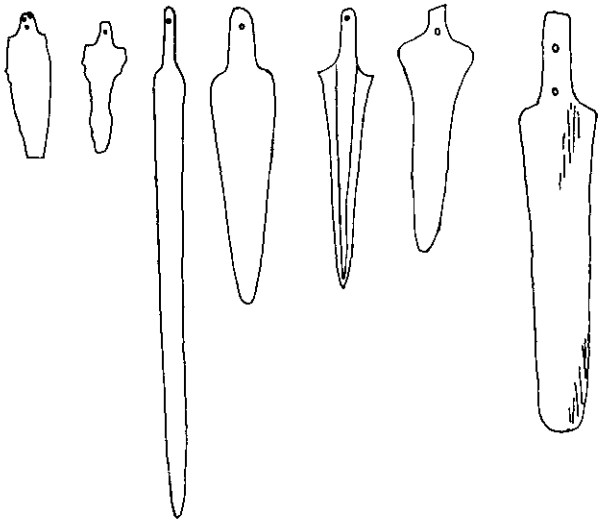

Fig. 17
Anatolian daggers of Stronach's Type II.

straight-sided blades such as the one found at Koumasa in a context dated EM II a - MM I a; this has trapezoidal shoulders and four rivets arranged in a diamond pattern (Xanthoudides, 1924, Pl. XXIV b, No. 1191). While this is of course possible, one should note that a variety of daggers of this general form were popular somewhat earlier, in Anatolia. Stronach's Type II (1957, pp. 92-96, fig. 2), with straight edges, square or sloping shoulders, raised central flange and a rectangular tang, usually with a small central rivet, provides several combinations of features present on the Italian blades. Early examples with a curved section appear on the Anatolian coast before 2500. The outstanding feature of the more developed types is the broad raised flange running down the center of the blade. This probably originated in Central Anatolia about 2400 B. C., spreading first to Cilicia and later to other parts of the Near East. The small square tang (although combined with sloping shoulders) seems to have arisen in northwestern Anatolia during the Troy II Period. The Anatolian series is perhaps the better source of inspiration, first because of the many varieties of form and, secondly, because unlike the Byblite daggers which have several rivet arrangements, these rarely have more than a single rivet.

Perhaps the original source of inspiration, then, was Anatolian, but we find no close parallels for T. 1 - 2, No. 2

in the Anatolian series. The forms we see at Buccino, as at Monte Bradoni, are distinctly Italian.

T. 1 - 2, no. 3 and T. 3, no. 1

Flat tanged blades shaped like an elongated isosceles triangle.

Almost identical blades were found at Gaudo itself in Tomb U and at Mirabella Eclano (Napoli, 1962, p. 57, fig. 9; Onorato, 1960, pl. 20). There are slight variations in the form of the shoulders and in the number of rivets. The blade from Tomb 3 at Buccino, for example, has the most sophisticated design, with double-angled shoulders and two rivets. The other from Buccino, T. 1 - 2, no. 3 has a more elongated and rectangular appearance, as does the one from the grave of the 'capo-tribù' at Mirabella Eclano. The blade from Tomb U at Gaudo has a barbed shoulder and no rivet.

For parallels for the tanged blade we must look toward Anatolia rather than the Aegean. Maxwell-Hyslop's Type 7 provides a roughly similar shape (1946, pp. 10-11, pl. 1). This is essentially a spatula with a blunt rounded blade, wide shoulders, and a narrow tang with one, two or three rivets. An example from Ur in the British Museum dates from about 2700-2400 B. C. It has, however, only a vague resemblance to the Italian form and it is not likely that the Gaudo blades were ever used as tools as Type 7 seems to have been. While the two blades from Buccino have excellent hardness for bronzes and would be adequate for slicing, they are much too thin for their length and would buckle under stress. As this form appears nowhere else on the Italian peninsula and as any Anatolian connections are distant at best, these blades are presumably a local development of the Gaudo culture.

Conclusions

Two principal conclusions arise from this study. The first point is to establish the contemporaneity of the Eneolithic Period in Italy, at least in its later stages, with the Early Bronze II cultures of the Aegean whose duration was probably from 2600 to 2200 B. C. While the broad parallels with Aegean and Anatolian features and forms are too broad to provide definite chronological limits, the presence of Italian dagger types in Tomb Gamma at Koumasa makes this relationship clear. The

composition of the Buccino blades alone suggests a date well before EM III. The second point is to document the essential autonomy of the Italian early metal age. This is not to deny that Crete and the Cyclades formed an important center for the distribution of Aegean daggers as middlemen in the trade between east and west. But what impresses us most in our incomplete knowledge of this period is the speed of the spread and practice of metallurgy. After an initial impetus, which our ignorance of the late Neolithic and early Eneolithic periods does not permit us to document, whether its origins were in Mesopotamia or Southern Anatolia or in Hungary, Italy developed in its own way with its own metal types. Despite extensive trading, and certainly this is indicated by the presence of metal in the Gaudo tombs cut in a limestone shelf barren of important metals, each local region had its own culture. The distinctive forms of T. 1-2, no. 2 and T. 3, no. 1, show that there was some regionalism even in metallurgy. The idea of metal working may have been brought to Italy from outside (although Renfrew [1969, p. 35] argues that metallurgy, like agriculture, was not one but a series of separate inventions); nevertheless, the manner of its adoption was very much a local affair.

RIASSUNTO

L'autore descrive le lame in bronzo arsenicale provenienti dagli scavi di Buccino (Salerno) e procede ad uno studio tipologico, tecnologico, e comparativo con il materiale eneolitico già conosciuto in Italia, prendendo anche in considerazione i tipi di lame contemporanee e caratteristiche della zona Egeo-Anatolica. La datazione C 14 di 2580 e 2370 a. C. (con semiperiodo Libby e senza correzione dendrocronologica) va perfettamente d'accordo con la ricostruzione dei rapporti Egeo-Italici basata sullo studio tipologico. Malgrado la documentazione di tali rapporti commerciali, è altrettanto chiara l'attività di un centro metallurgico situato nell'ambito della cultura del Gaudo e in pieno sviluppo già prima del 2200 a. C.

RESUMÉ

L'auteur decrit les lames en bronze arsenical provenant de Buccino (Salerno) et montre comment, quant au type et au materiel, elles sont representatives de la Periode Enéolithique en Italie. Il les compare aux types de lames contemporaires qui sont communes dans la region de l'Égée et de l'Anatolie. Les dates C 14 (2580 et 2370 a.J.C., « half life » Libby, sans correction dendrochronologique) s'accordent avec la reconstruction des rapports Égéens-Anatoliens. Malgré les indications d'une commerce extensif données par ces paralleles, les lames suggerent aussi l'existence d'un centre metallurgique dans la culture de Gaudo bien avant 2200 a.J.C.

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