

EVIDENCE OF TRADE FROM BRONZE AGE SHIPWRECKS.

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A report on the 1960 excavation of a Late Bronze Age shipwreck off Cape Gelidonya, Turkey, was published in 1967 (CG), followed by a supplementary publication (Bass 1973) and a popular summary of conclusions (Bass 1975, 49-59). Some of the theories of Bronze Age trade proposed in those publications were refuted by one or more scholars, whereas others were less controversial. All may now be examined in the light of subsequent discoveries made both on land and under water. New discoveries include artifacts, now being studied for publication, found in brief return visits to Cape Gelidonya in the summers of 1987 through 1989; finds made on an earlier Late Bronze Age shipwreck, still being excavated at Ulu Burun, Turkey; and results of new techniques of laboratory analysis.

Listed below are conclusions from my Cape Gelidonya publications. In each case I try to show how later discoveries have either reinforced or weakened my original theories. The first discussions will be limited to the site, followed by more general discussions of Bronze Age trade:

THE CAPE GELIDONYA SHIP.

1. "Nationality" of the Ship.

Based on what seemed to be the personal possessions of her crew, I believed that the ship lost at Cape Gelidonya had "sailed with a Syrian merchant from a Syro-Palestinian port" (CG, 164), and that "her last major port of call had been in Cyprus, where the crew had loaded on a ton of metal cargo" (CG, 163); I also referred to the ship as being "early Phoenician" (CG, 165). Later (Bass 1973, 37), I agreed with those scholars (McCann 1970, 106; Basch 1972, 51-52)

who felt that I had overlooked the possibility of a Cypriot origin for the ship, but added that if it had been Cypriot, that only emphasized the strong Semitic influences I felt existed on Late Bronze Age Cyprus, "making Cypriot and Syrian merchantmen indistinguishable" (Bass 1973, 36). Åström (1969, 77) sensibly suggested a mixed Phoenician-Cypriot crew, and Merrillees (1974, 8) saw a crew "as varied as the merchandise" the ship carried.

The similarity of the Cape Gelidonya copper ingots, agricultural tools, craftsmen's tools, and weapons to those listed as part of the cargo of a ship of Alasia, as described in UT 2056 (Linder 1972, 163), could strengthen the possibility of a Cypriot origin for the ship - if Alasia was Cyprus. The picture is not changed by additional scrap bronze located on or near the wreck site in the late 1980s, which includes a sword of Catling's Group I (Catling 1964, 114), plowshare fragments, a spit, and a lugged adze, all of which (except for a bull protome, which resembles those dated to the later Iron Age by Matthäus 1985, cf No. 719, pl. 110), would be as much at home in Late Bronze Age Cypriot hoards as was the scrap found at Cape Gelidonya in 1960.

To Muhly's contention that the wreck at Cape Gelidonya represented a Mycenaean rather than Near Eastern trading venture (Muhly 1970, 36 n. 130, 43 n. 180), I have responded (Bass 1973, 35-36), later stating that "among a ton of material, there was not one object which pointed to a Mycenaean home port" (Bass 1975, 58). Our recent explorations at Cape Gelidonya, however, have brought to light two stirrup jars not far

from the main cargo, and surely originating from it; one is illustrated under water in the "Geographica" section of the July 1989 *National Geographic*. Although one jar being analyzed by neutron activation at the University of Manchester was made of neither mainland Greek nor Cretan clay (V.J. Robinson, personal communication, 12 February 1990), both jars are certainly Aegean types. In my opinion, however, they do not change the overwhelming evidence of other shipboard artifacts for a Near Eastern origin of the vessel.

The vague term "Near Eastern" is used here with care. Zaccagnini (1971, 168-169) objected to my too free interchange, in *Cape Gelidonya*, of the words "Syrian," "Canaanite," and "Phoenician"; de Vaux (1970, 298) similarly objected to my use of the term "Phoenician" to describe events and people in the Bronze Age. I stand guilty as charged. My intentional mixing of the terms was to capture the attention of classical archaeologists and classicists (CG, 166-167), to show that Homer's Phoenician seafarers and smiths would not be anachronistic in the Bronze Age. I further wanted to emphasize that areas of later Phoenician and Greek trade and colonisation in the Mediterranean were often the same as those that had earlier fallen into the economic spheres of Bronze Age Phoenician (Canaanite) and Bronze Age Greek (Mycenaean) influence (Professor Renfrew, in summarizing the results of this conference, stated that more effort should be given to making this connection, but 25 years ago my effort was not accepted by most reviewers). Incidentally, in his review of *Cape Gelidonya*, Linder (1969, 64) compromised by saying that the ship and its merchants were of "Syro-Phoenician origin," and Schaeffer, in writing about the wreck, speaks of "Protophenicie" (Schaeffer 1971, 555).

If I were writing *Cape Gelidonya* today, I

do not know if I would use throughout the word "Syrian" or the word "Canaanite," the latter in the sense that Muhly uses it to designate "the Late Bronze inhabitants of the entire Levant, not just of the land of Canaan" (Muhly 1980, 155), even though we both know that it lacks precision (it does not, for instance, properly include the people of Ugarit, a likely port of origin for our ship [Rainey 1963, 45; Rainey 1964, 101]).

Some scholars feel that attempts to assign nationalities or home ports to ships wrecked in antiquity are futile (Basch 1972, 50; Muhly, Wheeler & Maddin 1977, 353; Merrillees 1974, 8). Of course there are problems. At this moment, for example, a ship built in Japan but flying a Panamanian flag with a Portuguese captain and Filipino crew may be carrying Swedish automobiles and French wine to Brazil. What would we make of its remains, we have been asked, if it sank with no written materials on board? I believe that careful excavation would reveal almost all the details listed above except the ship's destination. Of course there are serious problems to overcome in determining the origin of any ship: the wood (or metal) of its hull may have been imported from far away; geological identifications of its stone ballast layers may be misleading because ballast often comprised mixtures of stones unloaded from several ships over a period of time at the same careenages; its anchors may be replacements purchased at ports far from home; and its crew members did not necessarily eat from tablewares manufactured in their own lands.

Other colleagues feel that attempts to assign home ports to excavated ships are not only futile but pointless. I disagree, believing that we should make every attempt to discern at least the cultural origins of the wrecks we excavate. Is it not worth trying to learn if different shipbuilding traditions of, say, Mycenaeans and Canaanites, led to the

various traditions of shipbuilding in later antiquity, when some Mediterranean hulls were sewn and others were mortise-and-tenon joined? At this time we know too little to judge the nationality of any ancient ship simply by examining its construction, but the day may come when that is possible.

2. Nature of the Cargo.

The Gelidonya ship's modest cargo of scrap bronze from Cyprus, copper ingots from Cyprus, and tin ingots from an unknown source or sources was detailed in the excavation report (CG).

The Cypriot nature of the scrap has been questioned only by Muhly, who doubts that bronze tools carried any "ethnic identity," preferring to see "a koine of metalwork throughout the eastern Mediterranean, especially in terms of tools, implements and weapons" (Muhly 1982, 256).

Recent lead-isotope analyses, published by N. Gale and Z. Stos-Gale elsewhere in these proceedings, show that at least the four-handled copper ingots were cast of ore mined on Cyprus. Maddin's (1989, 101) analyses suggested, but did not prove, the same source, one I have never doubted.

Close examination of the four-handled copper ingots from Cape Gelidonya (CG, 69-72) originally led me to the conclusion that they were simply ingots, lending support to Buchholz's theories that the handles of this typical Late Bronze Age type were cast simply for ease of transport (Buchholz 1959, 2 and 4), rather than in imitation of the legs of dried ox-hides in some pre-monetary form of currency, as previously believed. Recent discoveries on the earlier Late Bronze Age shipwreck at Ulu Burun provide even more evidence that Buchholz was correct: some of the copper ingots found there were cast with only two handles (Bass 1989, 310; Pulak & Haldane 1988, 4 with fig. 4), and it is

doubtful that they were shaped to imitate the skins of two-legged cows! Further, the discovery at Ulu Burun (Pulak 1988, 8-10) of nearly identical four-handled ingots of tin proves what I surmised in **Cape Gelidonya** (CG, 70-71) on the basis of Egyptian representations of ingots of various metals: because tin and copper had different values in the Bronze Age (Heltzer 1977, 204-205), it was not likely that a tin "ox-hide" ingot and a copper "ox-hide" ingot each equalled an ox in value. Although I now prefer to call "ox-hide" ingots simply "four-handled" ingots, in this paper I will occasionally use the term "ox-hide" because of its familiarity.

The discovery of the tin ingots on the earlier Ulu Burun shipwreck makes less relevant the doubts about whether tin ingots actually existed at Cape Gelidonya (Muhly 1979, 96, 309; Muhly 1985, 120), although I have never had reason to question their presence there (Bass 1986, 272 n. 9).

3. Date of the Wreck.

From the beginning I dated the Cape Gelidonya wreck to the 13th century B.C., or very early 12th (CG: 165), whereas others dated it fully in the 12th century (Catling 1964, 292-294; Catling 1969, 85; Catling 1975, 215). Giveon's reassessment of the Cape Gelidonya scarabs (Giveon 1985) supports Catling's 12th-century date (Catling 1986b, 68-71). Weinstein, however, has countered Giveon's conclusions (Weinstein 1989, 21 n. 100). Further, although we now know that transport jars in later antiquity were often used for many years on ships (van Doorninck 1989, 247-257), the apparent IIIB date of the two stirrup-jars recently discovered at Cape Gelidonya weighs in favour of a 13th century date for the wreck, a date with which Muhly (1980, 159), Linder (1969, 64) and others have long agreed.

I did not believe that the forms of the copper ingots at Cape Gelidonya were helpful in

dating the wreck, except in general terms, for I did not entirely accept Buchholz's thesis (Buchholz 1958, 93-96; Buchholz 1959, 4-7) that "ox-hide" ingots could be chronologically separated on the basis of shape (CG: 69). Nor did I accept Catling's thesis that Cypriot "ox-hide" ingots like those on the wreck represented Mycenaean products that could be dated no earlier than the 12th century (Catling 1964, 270, 302; Catling 1975, 215). The 13th century mould for "ox-hide" ingots discovered at Ras Ibn Hani in Syria (Lagarce, Lagarce, Bounni & Saliby 1983, 277-290; Lagarce *et al.* 1987, 4, with fig. 8 on p. 11), and the Late Bronze Age wreck at Ulu Burun, with ingots of all of Buchholz's basic types stowed together in the 14th or early 13th century, strengthen my doubts about both theses, although there is still reason to believe that Type I ingots were more common in the 15th century than in the 14th and 13th centuries, and that Types II and III developed slightly later than did Type I. I continue to doubt that the manufacture of ox-hide ingots continued far into the 12th century on Cyprus, if at all. The strongest evidence cited against my position by one critic (De Vaux 1970: 299) is the Enkomi Ingot God, first published (Schaeffer 1966) when *Cape Gelidonya* was already in press (CG: 164 n. 15) and originally dated to the 12th century; its date, however, has been pushed back into the 13th century by a number of scholars (Muhly 1980, 159; Hulin 1989, 137).

No one has yet offered a point-by-point refutation of my dating of most of the bronze implements on the Cape Gelidonya wreck and in Cypriot founders' hoards to the 13th rather than to the 12th century, although a decade after the publication of *Cape Gelidonya*, the *Cambridge Ancient History* continued to date them all to the 12th century (Catling 1975, 215). If, as Muhly states, Catling's "most important chronological evidence [for his lower dating of the hoards]

was his own dating of the Cape Gelidonya shipwreck" (Muhly 1980: 156 citing Catling 1964, 287-288), and if the recently discovered LH IIIB stirrup jars now point to a 13th century date for the shipwreck, then the balance has swung far in favour of my original dating of both the wreck and the hoards, with consequent historical conclusions. Desborough (1965) had questioned the date of Cypriot bronzework being as late as 1200 B.C. even before I had.

Reviewers of *Cape Gelidonya* who wished to lower my 13th century dating of the wreck thought I was trying to date the wreck before 1200 B.C. in order to validate preconceived ideas of events on Cyprus at the time of the Sea Peoples (De Vaux 1970, 299) or Aegean refugees (Catling 1969, 85). I hope I have put such erroneous notions to rest by stressing my lack of any preconceived ideas (Bass 1973, 34-35; Bass 1975, 54-59); as a naive graduate student in the early 1960s, I was not even aware of the scholarly debates in which some critics thought I was involved!

There remains only the pottery, which some critics have cited in trying to lower my date for the Cape Gelidonya voyage. In this case, it is *possible* that preconceived theories did play a part. I asked Joan du Plat Taylor, assistant director of the Cape Gelidonya excavation, to undertake the publication of our "pauvre" catalogue (De Vaux 1970, 297) of pottery for the excavation report. My reading of her co-authored chapter on the ceramics (CG: 122-125) suggests that the pottery could have been dated to either the late 13th or early 12th century, for the authors found it "difficult to assign a definite date" to it (CG: 125). Because du Plat Taylor had constantly urged me during the course of the excavation to have Hector Catling publish all of the copper and bronze from the wreck, suggesting that only he could do them justice, I assume that she accepted his views on 12th century Cypriot copper and bronze

production, and thus might have been swayed in selecting a later date for the pottery, if all possibilities were equal. The pottery was the only thing on the wreck that seemed, in Cape Gelidonya, to date after 1200.

4. The Nature of the Voyage.

The cargo of raw and scrap metals, and the shipboard metalworking tools, suggested to me the possibility that the Cape Gelidonya ship carried a tinker. I suppose I implied that he travelled as part of a private merchant venture, but I did not speculate on whether or not he or the ship was royal (we may now say that his cargo, in size, value, and type [Knapp, Muhly & Muhly 1988, 237], was not in the same class as that lost at Ulu Burun). Thus, only intuitively, I guessed that it was a private venture, agreeing on that point with Merrillees (1974, 8) and Maddin, Wheeler and Muhly (1977, 361-362).

In sum, no developments during the quarter century since **Cape Gelidonya** was written have altered my original views that a private Levantine merchant venture ended at Cape Gelidonya in the late 13th century BC, especially if Cyprus is considered part of the Levant. Recent archaeological discoveries, in fact, seem to strengthen those views.

The conclusions listed above were based on a study of the artifacts found at Cape Gelidonya, and relate only to the single ship sunk there. Nowhere have I ever claimed that one ship was particularly meaningful in our overall understanding of Late Bronze Age maritime commerce. My study of artifacts from the site, however, led me to re-examine Egyptian tomb paintings, Cypriot and Minoan seals, and Mycenaean art and tablets, as well as to make a fresh study of Cypriot bronze artifacts and their prototypes. Those studies led to more general conclusions about trade in the Late Bronze Age:

MARITIME COMMERCE IN THE 13th AND 14th CENTURIES B.C.

1. Nationalities of Bronze Age Merchant Seafarers.

There was a greater Semitic presence in Eastern Mediterranean and Aegean maritime commerce than was supposed by most scholars before the publication of the Cape Gelidonya wreck (CG, 165 n. 16, and 167 n. 41), and by many even afterwards (e.g., Cadogan 1969, 188; Muhly 1970, 44). In their 14th and 13th century art, for example, Egyptians associated the copper trade exclusively with Syrians. The above-mentioned discovery in a Ugaritic palace at Ras Ibn Hani of a stone mold for casting four-handled copper ingots, with traces of copper in the mold, does not prove that all such ingots were of Syrian manufacture, or even made under Syrian control, but until such a mold is found in the Aegean world, or even on Cyprus, the discovery weighs in favour of my proposed Semitic influence on the manufacture of and trade in Cypriot copper ingots and bronze utensils. I continue to believe that Syrians were the major force in the metals trade in the Mediterranean, and that ox-hide ingots were symbolic of this trade.

Stieglitz (1970) regretted, in reviewing **Cape Gelidonya**, that I had not taken into account pertinent Ugaritic texts. Had I done so, it would have supported my ideas of Semitic seafaring, as shown by Sasson (1966) and Linder (1970).

The theory of a Mycenaean monopoly on maritime commerce had never made economic sense when based strictly on the finds of Mycenaean pottery throughout the Levant, Cyprus and Egypt. Non-perishable Mycenaean pottery in those lands proved only that it reached the coasts of the eastern Mediterranean, but said nothing about the nationalities of the hulls in which it was carried. Nor did pottery tell us anything

about the return trade, although we may be sure that the Mycenaean pottery in the East was not distributed *gratis*. When it was said that there was no evidence of Near Eastern traders in the Aegean because their goods are seldom found there (Muhly 1970, 21-22, 36), I countered with the premise that the Near Eastern goods exchanged for Mycenaean pottery and its contents were raw materials, whose "recognizable shapes perish as soon as they are used" (Bass 1973, 35); earlier I had suggested that these included copper, tin, ivory, gold, cloth and spices (CG: 165). In the same year I made that suggestion in my 1964 Ph.D. dissertation, on which *Cape Gelidonya* is based, Vermeule (1964, 255-257) independently listed bronze, tin, wine, ivory, spices, gold, faience and cloth among probable return goods from the East. Other scholars who supported the concept of return goods that left "no recognisable traces" were cited by Merrillees (1974, 7 n. 43), who agreed, but noted that the premise was "difficult to substantiate."

Current excavations of the shipwreck at Ulu Burun (Bass 1986; Bass 1987; Pulak 1988; Bass & Pulak 1989) have more than borne out hypothesized shipments of raw materials. On board were six tons of copper, a substantial amount of tin, dozens of ingots of cobalt-blue glass, logs of Egyptian ebony (*Dalbergia melanoxylon*), perhaps a ton of terebinth resin (Mills & White 1989; Hairfield & Hairfield 1990), more than half a dozen hippopotamus teeth, part of an elephant tusk, tortoise shells, a jar of orpiment (trisulphide of arsenic), ostrich eggshells, murex opercula, and spices and foodstuffs including coriander, safflower, figs, grapes, sumac, almonds, a pithos of whole pomegranates, and amphoras of olives (Haldane 1990). Some of these raw materials had never been found on land excavations, but unless the Ulu Burun shipwreck was (improbably) unique, we must

believe that such materials were traded extensively and in great quantity.

A determination of the nationality of the Ulu Burun ship is clearly worth seeking, even though the nationality of a single ship is insignificant in the overall picture of Late Bronze Age trade. The occurrence of Mycenaean, Cypriot, Egyptian, Babylonian (re-cut by an Assyrian), and Kassite seals (Colon 1989), and goods from areas as distant as northern Europe (Baltic amber) and tropical Africa (Egyptian ebony) present a confusing picture of Assyrians, Canaanites, Cypriots, Egyptians, Kassites, Mycenaeans, and Nubians. K.A. Yener has just informed me that lead isotope analyses of Ulu Burun fishnet sinkers link them to ores in the Bolkardag region of the Taurus Mountains (personal communication, 6 March 1990), thereby adding another region to the overall geographical spread.

Co-director Cemal Pulak believes that the preponderance of Mycenaean eating and drinking wares and personal possessions on board point to a Mycenaean home port (Pulak 1988, 37). I, on the other hand, think that the 23 stone anchors, of types common to the Near East and Cyprus, but not the Aegean¹, point more firmly to a Levantine or Cypriot origin, in spite of the disclaimer above based on replacement anchors. Would all 23 anchors at Ulu Burun be replacements!? The Ulu Burun stone anchors were probably made either in the Levant or Cyprus, but because there is actual evidence of the manufacture of such anchors at Late Bronze Age Tel Nami (personal communication M. Artzy, December 1989) and Tell Abu Hawam (pers. comm. J. Balensi, December 1989), I slightly favour the Levant. The ship's boxwood diptych, although its origin cannot be proven, at least suggests a Near Easterner on board (Wiseman 1955; Symington, forthcoming), although whether as an officer or foreign

merchant we cannot guess. I make no claim for a complete absence of Mycenaean merchants in the Near East, although Yannai has argued against their presence there (Yannai 1983).

In sum, the Ulu Burun shipwreck, regardless of its nationality, supports the hypothesis that there was a large but archaeologically invisible trade in raw materials that surely represent the "non-existent" Near Eastern goods missing for so long in the Aegean. In addition, Cypriot and "Canaanite" pottery is now turning up from Minoan Kommos (Shaw 1986, 268) to Libyan Marsa Matruh (White 1986, 76-78) and Sardinia (Vagnetti, elsewhere in these proceedings). And one of only two Late Bronze Age finds known to me from the sea around Sicily is the bronze statuette of a Canaanite deity, said to be of the 14th century BC (Purpura 1981; *Archeologia subacquea* 3, 153 and 155). The discovery of the wreck which yielded it to a fisherman's net off the southwest coast near Selinunte would be important, but our attempts to locate the site in 1976 were unsuccessful. The other find is the fragment of a stirrup jar recovered off Cape Graziano on the Aeolian island of Filicudi (*Archeologia subacquea* 2, 83).²

2. Cyprus and Metallurgy in the Late Bronze Age.

The bronze-tool industry on Cyprus was more the result of Syrian than Mycenaean influences. In Cape Gelidonya I demonstrated that Cypriot bronzes in the Late Bronze Age were largely derived from Near Eastern prototypes, and that the major hoards of such bronzes on Cyprus dated to the end of the 13th century (or the very early 12th century), as does the Cape Gelidonya shipwreck. In other words, any Mycenaean colonisation of Cyprus in the 12th century more probably ended rather than introduced the production of bronze implements of typical 13th century types and four-handled

copper ingots of the types usually associated with Syrians. Catling, once the major proponent of the role of Mycenaean colonists in Late Bronze Age Cypriot metallurgy, now sees greater Near Eastern and Egyptian elements in it (Catling 1986a, 91 and 99; Catling 1989, 20). I, on the other hand, may have implied too strongly a physical control of Cypriot metallurgy by Semites (Knapp, Muhly & Muhly 1988, 239). Although they borrowed bronze implement types from the Levant, the actual metalworkers on Cyprus were doubtless Cypriot, as reinforced by recent excavations at Kalavassos-Ayios Dhimitrios (South 1984, 16). Even so, I continue to believe that the four-handled ingots of the 14th and 13th centuries were cast in a shape desired by Syrian merchants, their "control" being economic rather than political. Whatever the exact situation, the Cape Gelidonya and Ulu Burun cargoes together show an undeniable continuum in Cypriot metalworking and the metals trade throughout the 14th and 13th centuries that argues against cultural change.

3. Alasia was not necessarily Cyprus.

Because the shipment of ca. 200 talents of copper found at Ulu Burun may well match a shipment of 200 talents (Moran 1987, 197 n. 5) of copper sent by the King of Alasia to the Egyptian pharaoh (EA 33), very possibly on a royal Alasian ship (like that mentioned in EA 40), we might presume that our vessel was a royal vessel of Alasia. If the Ulu Burun ship was Alasian, that would be strong evidence against the unproven identification of Alasia as Cyprus (CG, 77-78), for there is no reason to believe that the ship was Cypriot, although much of its cargo was Cypriot: six tons of four-handled copper ingots (whose Cypriot origin is published elsewhere in these proceedings by N. Gale and Z. Stos-Gale), and several pithoi filled with unused Cypriot pottery (including Base Ring II Ware, White Shaved Ware, White Slip Ware, Bucchero Ware, unused lamps,

and "wall brackets"). After six summers of excavation, we have not found a single certain Cypriot artifact intended for use during the voyage, except for the possibly Cypriot anchors that are slightly more likely to have been made in the Near East; it must be emphasized, however, that the coarse wares from the wreck have not yet been studied.

For those who continue to argue that Alasia must have been Cyprus simply because there is no room for it elsewhere on the map, I am reminded that the Halikarnassos Peninsula of Turkey, believed in the 1960's to have been totally uninhabited in preclassical times, has since yielded the largest collection of Mycenaean pottery outside mainland Greece (Bass 1963, 353-357; Boysal 1969), from a cemetery in a relatively small area that has yet to reveal signs of the large community with which it must have been connected. Troy also reminds us that a major kingdom need not leave widespread remains.

4. The Nature of Bronze Age Trade.

The Cape Gelidonya wreck may have been of a private trader, but at least some overseas shipments in the Bronze Age were royal exchanges of gifts between kings. Can the Ulu Burun ship tell us anything about the mechanics of such trade? It is tempting to assume that, because of the similarity of its cargoes to those of royal Alasian cargoes of copper (EA 33, EA 34, EA 35) or royal Tyrian shipments of glass (EA 148; Oppenheim 1973, 260-261) described in the el-Amarna tablets, that the Ulu Burun ship was a royal ship on a royal mission, rather than a private tramp. The problem is one of route. Would not a royal shipment have been sent by the most direct route from one king to another? The Ulu Burun ship, in that case, had already sailed much farther west than was necessary to take a cargo of Near Eastern and Cypriot goods to Egypt. Its route suggests instead that the ship was sailing in a

counterclockwise pattern that would have taken it to a place such as Kommos on Crete, where it would have traded some of its goods, and then either westward to Sardinia, or southward with the prevailing wind to a place such as Marsa Matruh, where it might have continued trading. Eventually it would have reached the Nile, but its voyage to that point would have resembled that of a tramp.

But surely the caprice of archaeological preservation and discovery have clouded my thoughts on this matter. Have I assumed too hastily, for example, that the ultimate destination of the Ulu Burun ship was Egypt because only in the Nile Valley do we have evidence, in painted scenes of storerooms, of hundreds of copper ingots as compared to fewer surviving examples of actual four-handled ingots found elsewhere on land? If there were no paintings and reliefs in Egypt we would not have the slightest idea that a single ox-hide ingot ever reached there, whereas in Greece, where the restricted subject matter of art precluded the recording of such stores, we at least have a few surviving examples of actual four-handled ingots. And, as Peter Warren has rightly reminded me, hundreds of palace smiths are recorded on Linear B tables at Pylos alone (Iakovidis 1982, 226), although no examples of the copper ingots they must have worked have been found there. Similarly, have I too hastily assumed Egypt to be the ship's destination because, if Victor Loret (1949) is correct in his translation of *sntr*, tons of terebinth resin were imported for incense by the pharaohs? Can we be sure that terebinth resin was not also burned in Greece and Crete? Still further, Robert Brill of the Corning Museum of Glass has demonstrated that the Ulu Burun glass ingots are chemically identical not only to 18th Dynasty Egyptian blue glass, but to Mycenaean blue glass as well. Thus Greece must remain a possible destination for the Ulu Burun ship, even if it was on a royal mission.

5. Sardinia as a source of copper for "ox-hide" ingots.

In *Cape Gelidonya* (pp. 77, 167) I suggested that copper "ox-hide" ingots found on Sardinia were probably made from local Sardinian ores, because Sardinia was a source for copper in later, Roman times. My theory has been proven wrong by lead isotope and trace element analyses of Sardinian four-handled copper ingots, published by N. Gale and Z. Stos-Gale (1987, and elsewhere in these proceedings); their results show that they were made of Cypriot copper. Cypriot pottery recently found on Sardinia (Vagnetti, elsewhere in these proceedings) is thus of great interest.

The Nature of the Study of Late Bronze Age Trade.

After excavating the Cape Gelidonya shipwreck in 1960, I almost completely left the field of Bronze Age archaeology until I commenced excavations at Ulu Burun in 1984. With the exception of an article for the *Cyrus Gordon festschrift* (Bass 1973), I published nothing about the Late Bronze Age between 1967 (*Cape Gelidonya*) and 1986. During the intervening years, I devoted myself to the excavation and publication of three Byzantine-period wrecks. Thus, it has been fascinating trying to catch up on almost two decades of research on Late Bronze Age trade, metallurgy and the role of Cyprus. These are some of the points I noted:

As I did my undergraduate and M.A. work in Near Eastern studies, and my doctoral work in classical archaeology, I had no particular axe to grind in publishing the Cape Gelidonya shipwreck. Thus I am struck by how two sets of trained scholars examined the evidence I presented and came to diametrically opposed views. As far as I know, every Near Eastern scholar who has mentioned the Cape Gelidonya wreck in print accepted its Levantine origin and its place in a tradition of Near Eastern maritime activity.

Without exception, I believe, archaeologists who work in Greece and Cyprus disagreed with or dismissed my primary conclusions about either the nationality of the ship or my dating of its sinking.

To this day no opposing scholar has refuted my conclusions point by point. Rather, my carefully constructed arguments have been dismissed in a sentence or two, and the brief dismissals have assumed equal weight in the eyes of those who have not examined the issue closely. In recent years, indeed, it has seemed more convenient for those who do not agree with my conclusions simply to ignore them. I have been disheartened by scholars who have written about the ox-hide ingot trade, or metallurgy on Cyprus around 1200 BC, or even about the Cape Gelidonya shipwreck itself, without once citing *Cape Gelidonya* in their otherwise extensive footnotes, instead referring to secondary and often erroneous works on the site.

Until I read "Black Athena Denied" (Bernal 1986), I was so naive that I was simply puzzled by the number of years it took archaeologists working in classical lands to treat seriously theories of Near Eastern traders in the Aegean. Now the omission of any reference to *Cape Gelidonya* in seemingly serious papers about subjects on which the book has much to say reminds me of the similar dismissal of *Black Athena* (Bernal 1987) discussed by Levine (1989, 14), probably for the same reason that Cyrus Gordon and Michael Astour "were treated with studied neglect and frequent omission even from otherwise complete bibliographies" (Bernal 1989, 18) when they proposed Semitic influences in the Bronze Age Aegean.

I have now read through the various thick *Acts* produced over the years since I wrote *Cape Gelidonya* by international congresses held on the subjects of Late Bronze Age

metallurgy or Late Bronze Age Cyprus or Late Bronze Age trade, and agree in dismay with Alessandra Nibbi's statement that "all too often, closed colloquia are organized at which only people with accepted or acceptable ideas are invited" (Nibbi 1987, 6). Where at those international congresses were the scholars who held views similar to mine - views now shown to be plausible by recent discoveries at Ulu Burun and Cape Gelidonya? For too long it was fashionable among archaeologists working in the Aegean to deny significant Near Eastern influences in Bronze Age Cyprus and Greece. This conference is refreshing for providing a more balanced exchange of ideas.³

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FOOTNOTES

¹Rare stone anchors on Crete (Frost 1963: pl.8, and van Effenterre 1980: 77 fig. 104; Shaw and Blitzer 1983) are not, in my opinion, good parallels for those at Ulu Burun.

²I thank Çemal Pulak for these latest references to the finds near Sicily, and for bringing to my attention the 1988 RDAC before its arrival at our library.

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ABBREVIATIONS:

CG BASS, G.F. 1967: **Cape Gelidonya: A Bronze Age Shipwreck**. Transactions of the American Philosophical Society 57, Part 8. Philadelphia.

Archeologia subacquea 2. 1985. Suppl. to BdA 29.

Archeologia subacquea 3. 1986. Suppl. to BdA 37-38.

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