THE THEBAN STIRRUP-JARS AND EAST CRETE. SOME REMARKS*

A few years ago, H. W. Catling and A. Millett published a detailed report on the analysis of the composition of clay samples from the inscribed stirrup jars found at Thebes in 1921, conducted with the purpose of establishing their provenance [1]. Some archeologists found the results surprising and there has been a certain amount of criticism [2] to which the two authors have answered [3] in a convincing and conclusive way. Moreover, recent excavations have since removed two difficulties which at the time had appeared as major objections to the acceptance of an East Cretan origin for some of the vases, namely, first, that it was improbable that Linear B was written in any other place but Knossos, and second, that it was unlikely, if the jars were later than Furumark thought (i.e. later than LH IIIA1), that the Cretans would have continued to use Linear B after the destruction of the palace of Knossos. The sherds inscribed in Linear B found at Chania by Tzedakis [4] answered the first objection, and these, together with the LM IIIB *wi-na-jo* amphora from the Unexplored Mansion at Knossos[5] removed the second. These new finds, as Catling and Millett

---

* I am grateful to Dr M. M. Sweeting and Dr K. Paterson for help and advice on geological matters. I am of course responsible for any remaining mistakes. I would also like to thank Dr H. W. Catling who read the first draft of this paper, and Professor A. Morpurgo-Davies who made helpful suggestions concerning the layout of the text.

1 H. W. Catling and A. Millett, «A Study of the Inscribed Stirrup-Jars from Thebes», *Archaeometry* 8, 1965, pp. 3-85.

2 V. Karageorghis, *Nouveaux documents pour l'étude du bronze récent à Chypre*, Paris 1965, p. 202, n. 2; J. Raison, *Les vases à inscriptions peintes de l'âge mycénien et leur contexte archéologique*. Rome 1968, p. 196, n. 21.

3 H. W. Catling and A. Millett, *Archaeometry* 9, 1966, pp. 92-7; *ib.*, *Archaeometry* 11, 1969, pp. 3-20.

4 J. Tzedakis, *Kadmos* 6, 1967, pp. 106-9; *ib.*, ΠΑΕ, 1969, pp. 133-8.

5 M. R. Popham, *Kadmos* 8, 1969, pp. 43-5.

note [6], eliminate also the uneasiness caused by the fact that no inscribed pots were known from Crete at the moment of the publication of their results. However, fresh criticism has appeared recently from another source. A Mycenaean epigraphist, Dr Godart, contested the East Cretan origin of some of the jars established by the clay analysis, on the basis of an internal analysis of the Co series of the Knossos tablets [7], analysis and study which involved the Knossian place-names *wa-to* and *o-du-ru-wo*, believed to indicate the same sites as *wa-to* and *o-du-ru-wi-jo* on the Theban jars.

He argues as follows: *wa-to* and *o-du-ru-wo* are associated with a certain amount of sheep and cattle in the Co series. Now, on the basis of the grouping of place-names in C 902 and V 145, he believes that two other place-names associated with sheep and cattle, *ka-ta-ra-i* and *si-ra-ro* are geographically adjacent to *o-du-ru-wo* and *wa-to*. Consequently, he continues, if we accept Catling and Millett's results, we should locate all four place-names in East Crete. On this he comments (p. 422): «Il est totalement impossible que du bétail en quantités aussi considérables puisse subsister dans la lande désolée de Palaikastro et de Zakro». He then quotes figures concerning sheep- and cattle-breeding in the Ardennes which would prove that the sheep and cattle associated with these four place-names would need vast areas of good pasture ground impossible to find in the easternmost part of Crete. He concludes (p. 423) that two alternatives are left: either accept the Catling-Millett analysis and postulate a transformation of the soil in East Crete since the Late Minoan period, alternative which he finds difficult to accept because no soil transformation can be detected in the western part of the island, or reconsider the results of the clay analysis and locate all the Co toponyms in the Chania region, which is the solution that Godart adopts. (He hastens to make clear that in suggesting a reconsideration of the analysis he does not intend

---

[6] *Archaeometry* 11, p. 19.

[7] L. Godart, «Les tablettes de la série Co de Cnossos», *Acta Mycenaea. Proceedings of the Fifth International Colloquium on Mycenaean Studies*, Salamanca 1972, II, pp. 418-24.

to deny the Cretan origin of some of the jars; however, the acceptance of a clay analysis method cannot be selective).

I have no doubts whatever about the correctness of Godart's internal study of the evidence of the tablets, or the figures he quotes. Nevertheless, I do not think that the results of this study need throw doubt on the results of the clay analysis which indicate an East Cretan origin for some of the jars [8]. And this for two reasons: firstly, Godart's first alternative explanation of the apparent contradiction, that of soil transformation, which he hastily rejects, is in fact worthy of serious consideration, and I shall be arguing here that soil erosion and consequent transformation of the soil are very likely to have occurred in the easternmost part of Crete; and second, the alternative solutions of the puzzle enunciated by Godart are not in fact, as he states, two (accept soil transformation or reject the clay analysis), but three, since there is also the possibility that although the place-names involved are identical, they indicate different places.

I am convinced that soil erosion provides the key to the apparent contradiction, and I shall be arguing this in the following paragraphs, but the third alternative shall also be briefly explored.

It is a geological fact that the soil of Crete has suffered transformation in the course of time. I am quoting from the *Geographical Handbook* of the British Naval Intelligence Division [9]:

«While the flora of Crete may be considered rich, the natural vegetation at the present time is poor, in the sense that most of it has been either destroyed or highly modified by man in the course of the long history of human occupation of the island. The natural climax vegetation (that is the general type of plant community which shows maximum stability under given climatic conditions) is, for most of the surface of Crete, moderately tall forest or tall brushwood. Once this natural cover of forest and tall brushwood has been destroyed, the Mediterranean climatic

---

8 It should be noted that Chadwick (*Minos* 10, 1969, p. 119) not only accepts the East Cretan provenance of the Theban jars, but also, on the basis of it, he puts forward the «tentative hypothesis» that the Mycenaean name of Zakro may have been Odrus, and of Palaikastro *wa-to*, «Wanthos or the like».

9 *Greece* vol. iii, 1954, p. 216.

conditions and the grazing activities of sheep and goats make regeneration difficult or impossible. Soil erosion quickly occurs on all slopes, and the forests are replaced by low brushwoods or open and impoverished communities growing on a rocky or stony substratum».

It is well established geologically that, given certain conditions, erosion can transform a fertile land into something worse than a desolate landscape, into desert environment.

In the above quoted passage it was made clear that in Crete the type of land use, and particularly the grazing of sheep and goats, were favourable to erosion. However, in order to assess the way in which the particular climatic and topographical conditions in East Crete were conducive to the development of accelerated erosion, it is necessary to consider briefly some general principles concerning the way in which erosion usually takes place.

There are two main types of erosion, wind-erosion and erosion by running water. The climatic conditions favourable to soil erosion are:

1. Extended periods of drought
2. Torrential rainfall
3. High incidence of strong winds.

All three can be said to be characteristic of the climatic regime of Eastern Crete. The eastern promontory of Sitia is distinctive from the rest of Crete in that it is drier and more exposed to storms. It has more torrential rainfalls than the western part of the island [10]. The plateau is particularly exposed to violent north winds [11].

With regard to wind erosion, Walter Russell [12] points out that in a ranching type of land use, a spell of dry years almost inevitably involves serious overgrazing of a range which may result in large areas being left almost bare. And it is obvious that bare land is subject to wind erosion when exposed, like East Crete,

---

10 *Geographical Handbook*, pp. 209, 211.

11 *Op. cit.*, p. 245.

12 E. Walter Russell, *Soil Conditions and Plant Growth*[9], London 1961, p. 624.

to violent winds. Such bare land is also unprotected against rainstorms [13], and therefore liable to serious soil-erosion caused by running water, in those parts of the world where rain-storms are frequent, as again, in East Crete. The erosive power of the water depends on the velocity of the flow, which in its turn depends on the difference of relief [14]. The considerable difference of relief and the steep slopes which are encountered in East Crete [15] are factors favourable to an increase in the velocity of the flow, and consequently, the erosive power of water. In Professor Platon's book on Zakro [16] we can find a brief description of the fall of torrential rains in the Zakro area in 1901 (August) which caused floodwaters to flood cultivated land, sweep away thousands of trees and carry down great masses of earth and stones.

The image that emerges from this brief study is that East Crete presents all conditions, climatic and other, which can lead to serious soil-erosion, and that, under these circumstances, the 'desolate' landscape of the present day cannot by any means constitute a criterion for judging the situation in the early 14th cent. B.C.

Consequently, there remains little doubt that the transformation of the East Cretan soil could account for the puzzle of having large numbers of sheep and cattle in places which the clay analysis located in an area which could not now support such animal population. (The 'desolate' character of the easternmost part of Crete should not, however, be overstressed; cf. Platon, *Zakros* [cf. n. 16], pp. 34-41).

However, we shall also explore briefly the third alternative explanation of the contradiction detected by Godart, at which we hinted above, that the places called *wa-to* and *o-du-ru-wi-jo* on the Theban jars may not be the same as the places indicated by the toponyms *wa-to* and *o-du-ru-wo/o-du-ru-wi-jo* in the Knossos tablets. These doubts as to the identity of places which have the same name spring from the existence of the widespread phenome-

---

[13] *Op. cit.*, p. 627.

[14] *Op. cit.*

[15] *Geographical Handbook*, pp. 245 ff.

[16] N. Platon, *Zakros. The Discovery of a Lost Palace of Ancient Crete*, New York 1971, p. 24.

non of the homonymy of place-names due to the so-called 'migration of toponyms'. This migration is particularly frequent in the Aegean area, where major and minor population movements —which one assumes are the cause of this phenomenon— are equally frequent in all periods. Consequently, we should exercise some caution in identifying homonym toponyms as indicating the same places, as a general rule, and particularly when a time-gap is involved, and especially if this time-gap includes a period of troubles, as, we shall now see, is the case here.

As regards the date of the Knossos tablets, Popham has conclusively shown [17] that the destruction of the palace took place in early LM IIIA2, while there has been some controversy over the date of the Theban inscribed jars [18]. Furumark [19] believed in a LH IIIA1 date, and dismissed as intrusive sherds which would be classified LH IIIA2 or IIIB; he was followed by some scholars. However, others soon expressed doubts as to whether the date should be put as early as that. In 1963 it was established that there were two palaces in Thebes, the first destroyed at the very end of LH IIIA2 or the very beginning of IIIB —probably in the transition from LH IIIA2 to IIIB— and the second destroyed when fully developed LH IIIB pottery was in use [20]. The date of the inscribed jars would of course depend on whether Keramopoullos' Kadmeion belonged to the first palace or not. Catling [21] was cautious about it, but Platon [22] in 1967 appeared to take it for

---

17 M. R. Popham, *The Destruction of the Palace at Knossos. Pottery of the Late Minoan III Period*, Göteborg 1970.

18 For bibliography on the controversy cf. Raison, *op. cit.*, pp. 6 n. 3 and 7 n. 7.

19 A. Furumark, *The Chronology of Mycenaean Pottery*, Lund 1942, p. 52; *OpArch* 6, 1950, p. 264 n. 4.

20 *ArchRep* for 1963-4, p. 13 and for 1964-5, p. 15; E. Touloupa, *Kadmos* 3, 1964, pp. 25-7; N. Platon, *Atti Roma*, pp. 18 f. Cf. Raison, *op. cit.*, p. 7 n. 7; R. Hope Simpson, *Gazeteer*, No 416; R. Hope Simpson and J. F. Lazenby, *The Catalogue of Ships in Homer's Iliad*, Oxford 1970, p. 36 n. 47. The new Linear B tablets from Thebes published in *AAA* 3, 1970, pp. 322-7 would appear to belong to the second destruction, of advanced LH IIIB date, while those found in 1964-5 and published by Chadwick (*Minos* 10, 1969, pp. 115-37) would come from the destruction in late LH IIIA2 or early IIIB.

21 *Archaeometry* 8, p. 13.

22 *Atti Roma*, pp. 18 f.

granted. Decisive arguments for this conclusion are the adjacency of the two buildings and, most important, the fact that they are on the same alignment—the second palace having a different orientation [23]. Raison argues [24] that the date of the small pots found together with the jars is consistent with the date of the first palace, and this cannot be disputed.

Under these circumstances we are justified in believing that there was a gap of at least one generation between the Knossos tablets and the Theban inscribed jars, a generation starting with the shattering event that was the fall of Knossos. Although this destruction was not accompanied by other destructions in the rest of the island, it did make a difference to the whole of Crete, where life continued after the fall of Knossos in a lower key [25]. We cannot be certain that the fall of Knossos was not followed by minor population movements inside the island, and therefore a minor migration of toponyms. One could obviously argue that the stirrup jars might have been preserved in the Theban palace from before the fall of Knossos. They might indeed, but this is no more than an unverifiable hypothesis which cannot be used to prove that the place-names on the jars are the same as their homonyms in the Knossos tablets, therefore any argument based on this identification remains speculative. In any case, the hypothesis of minor population movements followed by migration of toponyms was only discussed here in order to show that there is a third alternative solution of the apparent contradiction detected by Godart, an alternative which (like that of soil transformation) does not involve rejection or revision of the clay analysis. The main case argued in this paper is that soil-erosion can explain this contradiction in a satisfactory way, and that therefore the clay analysis is not open to criticism from this point of view.

Oxford CHRISTIANE SOURVINOU-INWOOD

St. Hugh's College

---

[23] *Arch Rep* for 1964-5, p. 15; *Archaeometry* 8, pp. 11, 12.

[24] *Op. cit.*, pp. 46-51.

[25] Cf. V. R. d' A. Desborough, *The Last Mycenaeans and their Successors*, Oxford 1964, p. 166; M. R. Popham, *op. cit.* (n. 17), p. 95.