How Not to Decipher the Phaistos Disc: A Review

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LE DÉCHIFFREMENT DU DISQUE DE PHAISTOS: PREUVES ET CONSÉQUENCES, by *Jean Faucounau*. Pp. 192, figs. 45, indices 2. L'Harmattan, Paris 1999. FF 120. ISBN 2-7384-7703-8 (paper).

Faucounau's book is the latest of many attempts to decipher the Phaistos disc (see select bibliography at the end). The inscribed clay disc was found by the Italian archaeologist L. Pernier during his 1908 excavations in one of the dependencies of the Minoan palace at Phaistos, in south central Crete, and is now in Heraklion. The inscription runs on both sides of the disc and consists of 241 signs impressed (not incised) into fresh clay by means of applied stamps. It is not, as one often reads, the earliest example of printing but rather of a kind of typewriting. The inscription follows a spiral incised by a stylus. The object's archaeological context indicates that it was deposited at Phaistos sometime in MM II–IIIB (ca. 1850–1600 B.C.). The Minoan character of the disc, regularly debated in the past, is assured thanks to an impressive series of points in common with indisputably Minoan artifacts. Until now the script on the disc seems unique even if it typologically resembles that on the Arkalokhori ax.

Suggested decipherments are legion, and the propositions go in all possible and imaginary directions: Basque, Chinese (!), Dravidian, Greek, Hittite, Luwian, "Pelasgian," Semitic, Slavic, and Sumerian, to name a few. And several different decipherments propose the same language, especially ancient Greek. In one of his last writings, the late John Chadwick said he "should be grateful if those who produce their own solutions would kindly *not* send them" to him[1] (his italics). In any case, if one of these decipherments is correct, all the others are wrong.

It will be helpful if I begin by outlining a short list of basic, verifiable criteria on which any decipherment stands or falls: the rules of the game, as it were. If a tentative decipherment founders indubitably on a point that is agreed to be completely certain, it will have little chance of gaining acceptance on a point that is problematic and uncertain, the decipherment itself.

One first needs an established text.[2] A surprising number of would-be decipherers have relied on the drawing published by Evans in 1909, which is unfortunately wrong: Evans's draughtsman drew five dots at the start of face B but only four at the start of face A, even though Evans explicitly mentioned "a line showing five punctuations" on both sides of the disc.[3] This drawing has fooled many a good soul, even Alice Kober.[4] To "correct" an established text is impermissible and dooms any attempt at a credible decipherment (P. Faure, for example, deliberately introduces some signs in the text to make it read the way he wants).[5]

Equally important is the direction of writing. In the case of the Phaistos disc, a decipherment based on a reading from the interior to the exterior is wrong, since several peculiarities demonstrate that the disc was stamped from the exterior to the interior, with the exception of a few corrections made after impression. On this criterion alone, the attempts by numerous authors are suspect.[6] B. Schwartz presents a variant of this reading,[7] supposing that the disc was indeed stamped from the exterior to the interior, but the resulting inscription served as an intaglio to be read in the opposite direction. The idea that the disc could itself have functioned like a large signet is wonderfully bizarre.

The class of script must be established as well. The disc carries 45 signs that appear to be naturalistic representations of living beings or of objects, plus 2 other signs, an oblique line incised below certain final signs (conventionally represented here by +) and the five dots placed at the beginning of both faces. Most known scripts consist of two kinds of components, phonetic signs and ideograms. An ideogram (or pictogram or logogram or ideograph) is any sign used to convey an entire meaning (e.g., numbers [1, 2, 3, 4] and diacritical marks, such as punctuation signs). Phonetic signs (e.g., letters, such as a, b, c, d) do not signify meaning. Generally, one of these two elements is dominant in any given script—the script I am writing now is dominantly phonetic. How many different signs does a text of the same length as the disc contain? A Western alphabet like modern English should generally contain between 20 and 30 different signs, the Cypriot syllabary about 40, Linear B about 50, the Sumerian cuneiform syllabary about 60, and the Chinese ideographic system about 145.[8] It is clear that the approximately 40 different signs locate the Phaistos disc among dominantly phonetic syllabic scripts; therefore, any supposition that the disc is primarily or exclusively ideogrammatic raises problems.[9]

One should further expect the disc's syllabary to conform fairly well to that of securely deciphered parallel scripts. In Linear B and in the Cypriot syllabary, no sign stands for a lone consonant. Any grid that assigns a con-

[1] Chadwick 1999, 38.
[2] See Duhoux 1977; Godart 1993; Olivier 1975.
[3] Evans 1909, 274.
[4] Kober 1948, 87.
[5] Faure 1976.
[6] E.g., Ephron 1962; Faure 1976; Georgiev 1976; Gordon 1966; Ohlenroth 1996.
[7] Schwartz 1981, 784–5.
[8] Duhoux 1980, 1989.
[9] E.g., Pomerance 1976.

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sonantal value to signs has therefore an excellent chance of being wrong.[10]

The technique of decipherment must be sound. The acrophonic principle (e.g., a picture of a dog stands for the sound *d* or *do*) is an admirable means of arriving at a suspect decipherment. It often turns out that the interpretation of the object said to be depicted by the sign is arguable. S. Davis and C.H. Gordon both systematically use the acrophonic principle as a method of interpretation[11] and should therefore be used with caution. Another good way of engendering suspicion is to adopt readings based upon resemblances to different scripts: V. Georgiev bases his acrophonic readings on resemblances to signs in Luvian hieroglyphic *and* Linear B.[12]

The hypothetical language of the document should be reasonably chosen. While many possibilities are open, it is hardly reasonable to go a great distance from the Mediterranean in search of candidate languages, such as Chinese. Greek is probably the language most often proposed,[13] and I would be quite happy should the disc turn out to have been written in that language. But is it possible?

If one examines the text of the disc, one can see that it contains what look like grammatical elements, that is, "prefixes" and "suffixes" that occur before and after a "radical" (the part of a "word" that bears its lexical meaning). Here are three examples of several presumably grammatical variations that appear in the disc's text, with the "radical element" shown in bold.[14]

13-01
13-01-39-33
15-07-***13-01***-18
02-12-***13-01***
02-12-***13-01***-18+

45-07+
07-***45-07***+
27-***45-07***-12
27-***45-07***-35
29-***45-07***+

31-26-12
31-26-35
02-12-***31-26***+

An examination of all such variations in the disc shows that "prefixes" are more common than "suffixes" ("prefix":"suffix" = 15:8). If we examine Greek texts in Linear B of the same length as the disc, we see that "prefixes" there are rather rare ("prefix":"suffix" = 1–2:4–9); and if we examine a text in Linear A of the same length, we see the opposite ("prefix":"suffix" = 17:12). In addition, the text of the disc contains a similar proportion of doubled signs as does Linear A; Linear B contains a noticeably smaller proportion. These observations make us compare the language of the disc to Linear A and to distinguish it from Linear B.[15] Since the language of Linear A seems to have few comparisons with Greek (the word for "total" in Linear A reads KU-RO in Linear B values, while in Linear B it reads *to-so*), deciphering the Phaistos disc as Greek stands an excellent chance of being suspect. Hypothetically, however, if the language of the disc has not only a typological relationship (frequent use of "prefixes" and doubled signs) but also a genetic relationship with the language of Linear A, we might be able to use one corpus to illuminate the other.

A decipherment should be internally coherent, with few irregularities, and should make plausible sense. To argue (as some have done) that certain signs have a variable phonetic reading is suspect. S. Davis produced a text that is virtually gibberish,[16] and E. Bowden's work contains passages such as the following: "[S]ign 3 is a Hellene missionary priest to the less advanced horse pastoralists of west Anatolia."[17]

Finally, we need to ask if a text is long enough actually to support a decipherment. In cryptography, the closer the number of signs of a text coincides with the number given by the formula of "unicity distance," the less likely this script could be deciphered. E.J.W. Barber assumes a syllabary of 100 signs in the Phaistos disc,[18] getting a unicity distance of 225, not far from the number of signs impressed on the disc (241), and she presumes therefore that the text is too short. If, however, the syllabary consisted of about 60 signs (as I argue below), there should be a greater chance of decipherment.

This brings us to the book under review. Like other decipherers, Faucounau thinks he has found the key to the enigma. He is convinced by his evidence: his grid of phonetic values is *complete* and *definitive* (his italics), with the exception of one sign (63); and his decipherment is supported by some 30 proofs, most of which, he says, are decisive by themselves (12). In fact, this study commits enough serious errors of all sorts to warrant a secure place in the anthology of misguided decipherments of the Phaistos disc.

Small errors of fact raise red flags about the rest of his methodology before we even get to his decipherment. The disc's stratigraphic context, established by Pernier, is one of our few solid facts; Faucounau flatly declares (21) that it is the Linear A tablet found next to the disc that gives the date of the level (Linear A tablets, however, are not datable in themselves), and he presents this tablet as if it had been found a few centimeters to the north of the disc (the tablet was found to the southeast).

His notions about the origin of the disc raise another red flag. According to Faucounau, it comes from the Cyclades, or more precisely from the Syros culture (163). This theory plays a singular role in understanding Faucounau's essay because for him the language of the disc not only is Greek, but more precisely a proto-Ionian dia-

[10] E.g., Ephron 1962; Ohlenroth 1996.
[11] Davis 1970, 94–6; Gordon 1966, 40–2.
[12] Georgiev 1976, 7.
[13] Most recently Neuss 1998; Faucounau 1999.
[14] For more examples, see Duhoux 1983, 40–1.
[15] Duhoux 1983.
[16] Davis 1970, 100–1.
[17] Bowden 1992, 145.
[18] Barber 1974, 204–5.

lect. But the disc's written signs have clear affinities with the Minoan inscribed ax datable to ca. 1600 from the Arkalokhori cave in central Crete.[19] Faucounau rejects this important parallel for two reasons (23): the script on the disc was imprinted in clay while the script on the ax was incised in metal, and resemblance between the signs of the two texts is "only approximate." It is patently obvious that the first objection has no validity; the second objection mistakes a typological resemblance for an identity of signs.

Faucounau gives no edition of the disc of his own, but regrettably reproduces Evans's facsimile of 1909. He also presumes (150–4) that the disc's syllabary consists of about 88 or 95 signs, using two methods peculiar to him, with no details or formulas. Mackay's 1965 study, however, gives a demonstrable formula for estimating S_S, the approximate number of different signs in any given sample of script. His formula is: $(L^2 \div [L\text{-}S_L]) - L = S_S$, where L is the length of the text; S_L, the number of different signs in the text. Faucounau criticizes this formula because "it is very approximate in the case of scripts—this is the disc's case—one of whose characteristics is that the number of rare signs is very large" (150–2). He justifies this opinion by observing that nine signs are attested on the disc once each (hapax legomenon). On the Idalium bronze tablet, however, written in the classical Cypriot syllabary, there is a section of 243 signs of which nine are also hapax legomena, as on the disc. Mackay's formula when applied to the Cypriot tablet predicts about 51 signs for the Cypriot syllabary, underestimating the correct number, 56, by five. Applied to the script of the disc, Mackay's formula yields about 55 different signs. If this also underestimates the correct total by five, the script of the disc should total about 60 different signs (not Faucounau's 88 or 95).[20]

Another approach, purely experimental, comes to the same conclusion.[21] If we compare the total number of different signs in texts of the same length as the disc but written in Linear B, the Cypriot syllabary, and cuneiform, we observe that the disc, with 45 different signs, more closely approximates Cypriot, with 40–45 different signs (and a total syllabary of 56 signs), than Linear B, with 50–53 different signs (and a syllabary of 89 signs) or cuneiform, with 64 different signs (and a syllabary of several hundred signs). Such observable facts prove Faucounau wrong. Note, however, that if he were right, and if the script of the disc really did have a total of 88 or 95 different signs, this would result in a unicity distance that would make a decipherment of the disc theoretically difficult if not impossible.

Faucounau's syllabary (62) also merits attention since it consists not only of true syllabograms of the type V (vowel, e.g., a, e, i, etc.) or CV (consonant + vowel, e.g., ne, ni, etc.), but also some purely alphabetic consonants, such as *s* and *r*. A mix of this type is totally unknown in Aegean scripts actually deciphered, and this renders Faucounau's syllabary suspect. Moreover, he presents nine "complex" syllabograms (21% of the 43 syllabograms deciphered): *kri kro/u tmae ske? skae? ksi pro/u sto/u klae?*. This type of syllabogram is totally unknown in Linear B and virtually absent in the Cypriot syllabary (two signs of 56)—the structure of Faucounau's syllabary is thus aberrant. Faucounau uses these syllabograms to explain "the large number of hapax" on the disc (56), which in itself is an error, since the same length of Cypriot text on the Idalium bronze tablet yields exactly the same number of hapax as on the disc—and the Cypriot syllabary contains only two complex signs, *xa* and *xe*, denoting χα and χε.

Faucounau's thesis is that the text of the disc is written in a proto-Ionian dialect of Greek. As we have seen, the language of the Phaistos disc should correlate less with the language of Linear B, Greek, and more with the language of Linear A, which seems very different from Greek. From the point of view of linguistics, further major objections can be made against Faucounau's decipherment, but I present them in full elsewhere.[22] Here I am content to say that we observe errors, contradictions, and incoherences such that the Greek presented to us by Faucounau cannot be accepted.

One final and frustrating problem with unconvincing decipherments is the length of time and printed space it takes to refute them. To do so here in full is obviously impossible and fortunately not necessary. One will understand, I hope, that the attempts at decipherment examined above (among which is Faucounau's) do not inspire any confidence. It is nevertheless better, perhaps, to let each candidate enjoy his conviction that his decipherment presents the best solution. I would like, however, to conclude with a hopeful message: each correct decipherment eventually ends up being recognized for its true value. Consequently, decipherers should be completely confident that, if their decipherment is correct, it will triumph in the end over all competitors and critics.

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[19] Duhoux 1998, 14–6.
[20] Duhoux 1980, 117–9, 131.
[21] Duhoux 1980, 118; 1989, 114.
[22] Duhoux 2000.

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