SOME LOCAL DIFFERENCES IN THE LINEAR B SCRIPT

THE question was once raised whether the newly-found inscriptions at Pylos might not have been brought there, even by a piratical raid, from Knossos. There prevailed a well-established doubt that the Mycenaean inhabitants of the Peloponnese could have been literate. The prehistoric scripts of the Aegean were obviously products of Minoan civilization, and the art of writing might well have been jealously reserved to the officers of the Cretan chancery. At any rate, no other Mycenaean palace had provided the least parallel to the extensive archives on clay for which the palace of Minos at Knossos was so justly famous. The few painted vase-inscriptions of Thebes, Orchomenos, Eleusis, and Mycenae were not comparable documents, and really seemed to be either unskillful copies or Cretan imports. However, the suggested Knossian origin of texts found at Pylos was quickly ruled out, and the new distinction of the Neleid line was acknowledged. Other arguments were surely more compelling, but the one appropriately remembered here depended on the comparison of the writing of the inscribed tablets found at the two sites. Even when it was only the Pylos finds of 1939 [1] and a severely limited selection of Knossian texts to be considered, there appeared to be convincing evidence of their separate origins. Differences could be pointed out in the shapes of signs, as well as in the disparate frequencies of use of the less common syllabic signs, and especially in the absence of some Knossian signs at Pylos, and of some Pylian signs at Knossos. But once the point seemed to be established, there was little occasion to investigate more precisely the extent of the differences in the two local varieties of the Linear B script which could now be recognized.

Very nearly the same question might still be raised, though the Mycenaean Peloponnese and even Central Greece have long since been assured of literacy in Linear B. But today it assumes the forms of, how nearly contemporary can the texts from Crete and the Mainland be?, and what is the maximum interval of years possible between the two bodies of texts? What brings up these questions, aside from the familiar historical and archaeological problems which have been around since the first discovery of Minos' palace, is the observation that the Linear B script is remarkably uniform, whether it is read in tablets from Knossos, or Pylos, or Mycenae, or Thebes. The texts recorded are similar in content and disposition. While personal names are not always the same, the vocabulary is shared in part, and the language is clearly identical. The same repertory of signs is used, now with fewer known excep-

[1] For his generosity in turning me loose upon the Pylos tablets, for his sound and restraining guidance, and for his continuing encouragement, I owe and gladly acknowledge an unmeasured debt of gratitude to Professor Blegen.

tions, which could readily be attributed to accidents of preservation. And finally, the shapes of many signs, or of most, are markedly similar at the two principal sites. If, it has been suggested, the Linear B script is very nearly the same in the tablets fired in the parallel destructions of the palaces of Knossos and of Pylos, then probably no great distance of time can have separated those momentous events.

For an impressionistic comparison of Linear B on the Mainland and in Crete all that is needed is an attentive familiarity with the texts. But that comparison is not easily communicated, and the differences it discovers are not easily measured. If, as evidence is needed for argument on different problems, such a comparison of the forms of Linear B signs may lead at one time to the strong impression of difference, and at another to the equally strong conviction of similarity, it is unwise to suppose that any study of the script could provide conclusive evidence for the chronological relationship of Pylos and Knossos. But a more systematic comparison may perhaps still be useful, if it can furnish a fairly objective record of what is like and what is different in the repertory of signs. What follows is therefore a sketch for the comparison of the forms of Linear B syllabic signs at Knossos and Pylos, approaching objectivity, if at all, in the tables with which it is illustrated.

The Linear B texts we have (which within each palace we assume to be contemporary and of local origin) were written by a number of writers, who differed in status, age, temperament, and skill. They also may have been taught to read and write in different places, either in different Mycenaean cities, or in different schools, or, as is likely, apprenticed to different clerks. At any rate, this handwriting is not uniform. It has been possible to assemble the surviving texts written by individual scribes, and to examine closely the characteristics of their hands. It is also possible, and easier, to gather examples of distinctly different shapes and ways of drawing many of the more complex signs. Some of these varieties are in general use, others are used by no more than one or two scribes, or preserved in only one or two texts. On the basis of such collections of examples, kept separate for Knossos and Pylos, the comparison of local differences must be carried out. We would like to be able, in the collection of sign-shapes used by Knossian scribes, for example, to recognize a characteristic range of variant shapes of the several signs. Even better would be to reduce this characteristic of a local script to a statistical measure, by calculating the number of scribes at Knossos, and the different number at Pylos who used particular variants. But the material is insufficient (the standard excuse or complaint in Linear B studies), and we can do little more than list the principal variants of each sign, with minimal reference to the scribes who employed them.

We may start, nevertheless, with the script of just one scribe at Knossos, the one who wrote the great bulk of the " sheep " tablets, of the D series. He is chosen somewhat arbitrarily, but largely because we have examples from his hand of very nearly the whole repertory of syllabic signs, and because they are almost always care-

fully drawn. In Table I examples of each sign occurring in tablets assigned to his hand are traced from photographs.[2] The forms chosen and drawn as typical of this scribe may also be typical of Knossos, if only in the sense that they do occur there. Many of them are used by one or several other Knossian scribes. Among the other shapes which appear at Knossos, some may be found more frequently, or have been used by more scribes. This wider variety of forms will be shown in Table III, and must be considered when we compare the forms from Pylos. But, and it is another reason for starting with this hand, there is a considerable variety of shapes even among the examples drawn by this one scribe, and easily noticeable among the forms traced in Table I.

Some insignificant differences are illustrated there, where large and small instances of the same sign (e.g. 42 a, b), differing only in proportions, are shown side by side, or, as in sign 73, where two examples (a, b) of the same size appear to be of different volumes, but are otherwise indistinguishable. Once these variations and others of accidental origin are accounted for or discounted, there remain in this hand, and we may expect them similarly in other hands, examples of other sorts of variation, marked for the most part by the addition and omission of lines or strokes, as in signs 04 and 40, or of more complex elements, as in signs 46 and 74. The format used by this scribe for most of his tablets calls for the introductory and most important word to be written in a larger size than the rest of the text. It might be permissible to call the signs in these introductory words " majuscules," simply from their greater size. But the more complex shapes in Table I are oftener represented among these larger than among the smaller signs, and sometimes the same sign occurs in both sizes on the same tablet, with the smaller in the simple, the larger in a more complex form. Of course, there are contrary examples as well, where a simple form is used in both large and small sizes, or when both are complex. Nevertheless, we may be sure that if this scribe had drawn up a copy-book of his handwriting, the fuller, more formal shapes would appear in it. The scribe, then, had a number of alternate ways of writing some signs, formal and informal, from which those appropriate to any text could be chosen. Or perhaps instead he knew a single standard form for each sign, which he might simplify or elaborate as he desired. These two interpretations come to about the same thing, for modifications of shape must follow rules. Some elements of a sign might easily be dispensed with, others are essential for avoiding ambiguity.

[2] These have been reduced to about 5/6 actual size, and are no more accurate than the varying qualities of photographs of unevenly preserved tablets and the eyesight and judgment of the tracer permit. I must express thanks for the opportunity of examining the tablets in the Iraklion and Ashmolean Museums on several occasions since 1950, and to J. Chadwick and J.-P. Olivier for the use of many photographs. The hand is identified as number 117 by Olivier in his excellent study of the scribes of Knossos, shortly to be published in the series *Incunabula Graeca.* I must thank him particularly for the opportunity of seeing it, and for more direct assistance.

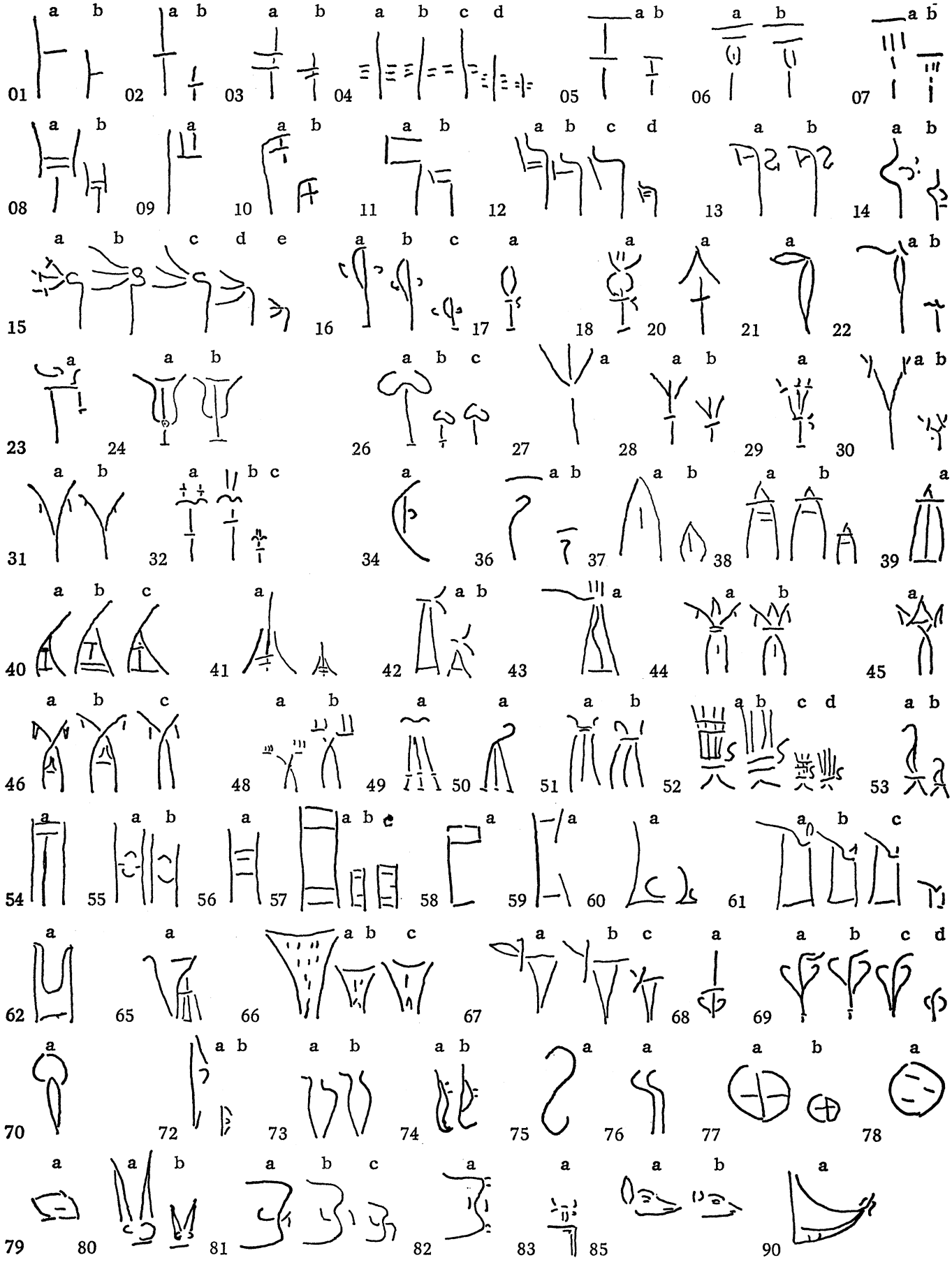

TABLE I. Forms of Linear B Syllabic Signs used by One Scribe at Knossos.

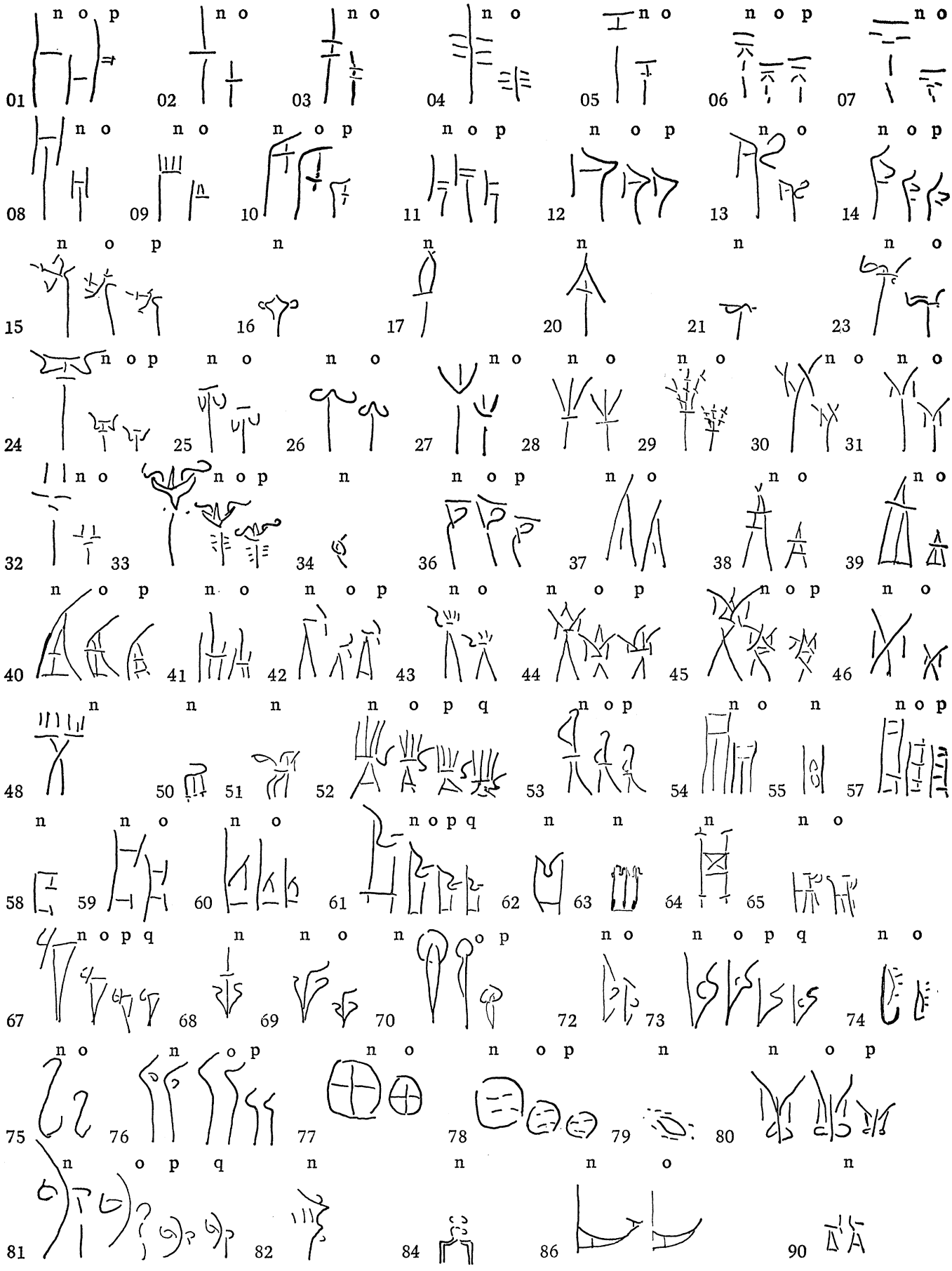

TABLE II. Forms of Linear B Syllabic Signs used by One Scribe at Pylos.

It will be helpful to describe separately the types of modification by which one scribe might produce variant forms, since it is the cumulative effect of such limited innovations as these which will have transformed the script as a whole over a period of generations. The most obvious changes are the omission or addition of lines, strokes, or other elements, next are substitutions of one element for another, and the distortion or reshaping of lines. Omission, or even addition, of an element may sometimes be the result of careless haste in drawing. That is the best account of the signs 04(b) and 57(c) with five horizontal strokes. Generally, however, elements are omitted through a deliberate simplification of a complex sign. While one could hardly simplify signs 01 and 02, most Linear B signs could be simplified, or so those now learning the repertory seem to feel. Such simplification may be seen, e.g., in the signs 12(b, c) and 04(c). In 04, what we may call the normal form at Pylos (n, o) and Knossos (a, d) and in all hands has three pairs of horizontal strokes (never three lines crossing the vertical). The reduction to two pairs is rarely found except where the sign is very small. We may suppose that this scribe's free use of the two-pair variant (c) comes from taking as an optional equivalent one originally permitted only when the sign was crowded into such a small space that three strokes could not be written distinctly.

A second type of variation is offered by various elaborations. In the sign 38(a) the lower, and in sign 40(a, b) the two horizontal strokes are occasionally doubled. Since this feature, in 38 at least, has not been seen in other hands, and is here found only in " majuscule " signs, we may count this as a genuine elaboration, and need not suppose that the undoubled type is a simplification of an originally doubled version. We may, on the other hand, suppose that the possibility of alternating originally doubled with optionally single strokes in signs like 12 was extended by analogy where a single and original stroke might now alternate with decoratively doubled strokes.

In several other signs in the repertory of this scribe there is similar variety in the addition or omission of more complex elements, such as the central circle of 24(a), the stamen-crosses of 32(a), the handle-loop of 67(a), the knuckle-creases of 52 (a, c), or the bracing triangle and pennons of 46 (a, b). In most of these instances we must see simplifications, unless we can find explanations for the appropriateness of particular kinds of elaboration to special signs. We can have no instinctive feeling to distinguish for us the essential from the redundant elements of Linear B signs. Only if we can learn this from the practice of the scribes will we be able to distinguish in some of these new and old patterns.

Beside these processes, there is another theoretically possible source of variation in the shapes of signs, i.e. imitation, not the imitation of a teacher's exemplar, nor of a colleague's text, about which there can be no question, but imitation of real objects. This is clearly important for some of the non-syllabic signs, as for instance in the three- and four-lugged tripods. Others might argue that it ought to play a large part

in the syllabic signs, too. It is obvious that the sign 69 is simply a stylized drawing of a plant leaf, and that 85 is an animal's head. If—a large if [3]—the scribe is often conscious of the object a sign might originally have represented, he might at times find the stylized pattern he normally writes somehow lacking, and add a bit of realism from a fresh observation or recollection of the object. Nevertheless, modification of shapes to conform to a real model seems unusual among the syllabic signs. Certainly sign 85 is everywhere about as naturalistic a boar (supposing that it does exactly correspond to sign **108*, which we conventionally transcribe SUS) as Pogo's Albert is an alligator.[4] In considering the variety of shapes of Linear B signs it will be better to find its origin in the imitation, and modification by simplification and elaboration, of traditional and conventional designs, rather than in observation of a traditional set of real models. The chances are that this scribe has taken over without change a larger repertory of copy-book and abbreviated shapes from his teacher, and that he himself has made few innovations.[5]

Before turning to the forms used by other Knossian scribes it will be proper to compare a hand from Pylos with this one from Knossos. In Table II are traced forms used by the scribe of many of the Aa, Na, and E tablets. Here there is perhaps a little less variation practiced in the forms of the signs, and hardly anything to suggest the use of " majuscules " in important places. As always, some negligible vari-

[3] Some of those who seek to decipher ancient scripts (decipherable, undecipherable, and already deciphered alike), convinced of the wide prevalence of the so-called " acrophonic principle," will deny that there is any question. They can regularly recognize the objects represented, and thus discover their names, and from these learn their symbolic and phonetic values. A fortiori, the Mycenaean scribe knew the values of the signs, and the objects represented by them, and their names. Now that the phonetic values of Linear B signs are pretty well known, less is heard of Linear B " acrophony," which still thrives in attacks upon Linear A, Minoan Pictography, and the Phaistos Disk.

[4] In most signs we have some trouble in agreeing on what was to be imitated. The elaborate version of 74(a) might be a naturalistic drawing, but not of a natural object. Among cultural objects we are likely to call it a saw. A craftsman as skillful as this scribe could do a better imitation than this saw, which won't cut. It is probably, however, a very good imitation of the way the scribe's teacher drew this sign.

[5] Here, to call attention to the types of variation possible within a scribe's handwriting, we may add a summary indication of the variable elements shown in Table I, omitting signs whose only variation is in proportions. Sign 04(b): careless omission, (c): omission. 06(b): omission. 12 (b, c): more and more omission. 13(b): serif omitted. 14(b): dots omitted. 15(a): original knots retained, (b): top of standard elaborated, (d, e): stem simplified. 16(b): foot omitted. 22(b): standard unified. 24(b): central element omitted. 32(a): stamen-crosses retained. 38(a): doubling. 40(a, b): doubling. 44(a): doubling. 46(a): pennons retained, (c): triangle omitted. 48(b): fingers omitted. 51(a): doubling. 52(a, c): knuckles added, (a, b): wrist doubled. 55(b): omission. 57(c): careless addition. 61(a): rounded, (c): single flame, (d): base omitted. 66(b, c): fewer and fewer dots. 67(a): full handle retained. 69(a): stem doubled, (c): base omitted. 74(a): extra curve retained at base. 81(a): 2-stroke head, (c): elongated beak. If we had more texts written by this scribe (but we have no reason to complain of one who wrote more than 500 tablets), a fuller catalogue of variants could undoubtedly be made. Other scribes exercised more or less the same freedom of variation.

ation in sizes and proportions is found within the hand.[6] The forms used by these two scribes for some signs are not at all different. The differences which are perhaps most obvious are mostly of the sort which distinguish two contemporary and neighboring scribes—the preference for single or double strokes in the set of signs 38, 39, 40, or the preference for single or double strokes in the set 08, 12, 42, and the like. But we may look for other and possibly significant differences, and see whether they give any useful indications of the history of the script.

Whether the two scribes used the same or different shapes for a sign, we may expect that there was a common prototype. At some time, probably remote and certainly before the destruction of the first of the two palaces, there must have been a single scribal tradition from which our scribes equally derive, and in which those common prototypes were present. When the two use different shapes we may try to distinguish the innovation from the inherited form. When an innovating shape is found only at one site there is some minute possibility that it was introduced into the tradition after the destruction of the other palace. But against the temptation of gathering such innovations in Tables I and II and concluding that one scribe's writing derives from the other, we may be reminded that the scribes from neither palace survived to become the teachers, or teachers' teachers, of the other.

In the possible catalogue of differences between these two hands (let us call them K—for Table I, and P—for Table II), there is not much which seems indicative of their relative places in the history of the script.[7] Instead we get a clearer idea of the development of some individual signs; we can recognize more forms as innovations, and more nearly approximate, through the inherited forms, their prototypes. For instance, in 24 (a, n, o) the presence of a central element in P and K shows that K's central circle (a) is not an arbitrary embellishment, but that its absence (b) is a simplifying innovation.[8] At the same time, since it is represented on K's side by the more complex circle (a), we may imagine that the straight line (n, o) on P's side is a simplification [9] of a more complex element. Thus we can trace innovation on

[6] For Table II the excellent photographs of Alison Frantz and Mabel Lang have been most valuable. I must also express thanks for many opportunities of examining the tablets in the National Museum in Athens. This hand has been identified as number 1. The variation in the hand may be seen in the following signs: 06(p) : omission. 09(o) : omission. 12(p) : careless omission. 15(o) : inflection of standard simplified, perhaps carelessly. 24(p) : careless omission. 33(n) : dotless standard. 42(p) : base retained. 57(p) : careless addition. 73(n) : eye retained. 76(n) : eyes retained. 78(p) : careless omission. 81(p, q) : omission or coalescence of beak. 86(o) : figure-head omitted.

[7] The catalogue of differences, if we omit minor ones, would begin like this. Sign 04: P does not share the 2-pair form (c). 05: P uses 4 strokes, K uses 3. 06: P's central element is angular, K's rounded; they share the alternation of 1 or 2 lower strokes (b, p :: a, n, o). 07: K has 3 vertical, parallel strokes, P 3 horizontal staggered strokes. 08: P has 1 stroke, K 2 strokes; the points of intersection of the horizontal and the upper elements may differ significantly. . . .

[8] I.e., made by K or some predecessor.

[9] I.e., made by P or some predecessor.

one side or the other, or on both. In signs 81 and 82 K shows the same complex curve for the wings, and the swallow and the bat are distinguished by their accessories. In P the winglines differ, and the more frequently used sign shows the simple curve instead. The complex curve is a bit changed, but essentially complex. For K's side to have replaced a simple curve in 81 on the analogy of the rare 82 seems less likely than that P's side replaced a complex by a simple curve, and thus added to the distinctiveness of 81 and 82. And for a last example there is sign 90 with no difference in the shapes used by P and K, but even so giving evidence of a minor innovation—in sign 42. The sign 90 ('dwo') ought to have its origin in a double 42 ('*double-wo*'—which ought to mean that only an Indo-European can have invented that sign), and 42 does differ in part between P and K. Where P regularly (at least one exception, p) omits a base stroke in 42, he might be expected to omit them also in 90, if he made the sign 90 fresh each time from two 42's. But if he treats the bases in 90 as essential and that in 42 as dispensible, perhaps he had no general awareness of what we think was the origin of sign 90. Thus we may conclude that the base was in the prototype of 42 when the sign 90 was devised.

By the examination of variant forms within one hand, and by the comparison of forms between two hands, a very few identifications may be made of innovating and inherited shapes. But as long as one hand cannot be the ancestor of the other, we cannot fix their chronological distance, or even set them in their proper sequence. Even if, e.g., the single-stroke sign 12 (b, n, o) is an innovation known to P's and K's common teachers, we cannot be sure that the innovation seen in P, i.e. discarding the two-stroke form (a, d) is one made by P himself, or by his peculiar teachers, and we certainly cannot say that it must be more recent than K. In sign 15, if the unknotting of the whip (b-e) is a simplifying innovation, we cannot safely attribute it to K himself or to his peculiar teachers, or assert that it was introduced later than the time of P. The comparison of two hands is bound to be inconclusive. We may go on, therefore, to compare all the forms found at Pylos and Knossos.

Table III shows forms of signs taken from the work of the other scribes at Knossos, omitting those already represented in the shapes used by K. Table IV does the same thing for Pylos. In each case an arbitrary choice has been made of examples for tracing, with the intention of finding large, clear, and distinctive varieties, and of ignoring minor differences. There is no way here to discover the relative frequency of each variety, or their popularity among the scribes, or the range of varieties used by any one scribe. Taken together, Tables I and III represent the script of Knossos, and II and IV that of Pylos.[10]

[10] The potential length of note 7 was nothing compared to the threat of separate catalogues of the peculiarities of the script of Knossos (Tables I and III) and of Pylos (Tables II and IV), and of their differences. With this wider variety of shapes it should be possible to distinguish between further instances of conservative and innovating forms. Since these can be distinguished only by inspection (unless we are influenced by a preconception of the history of the script), they are left

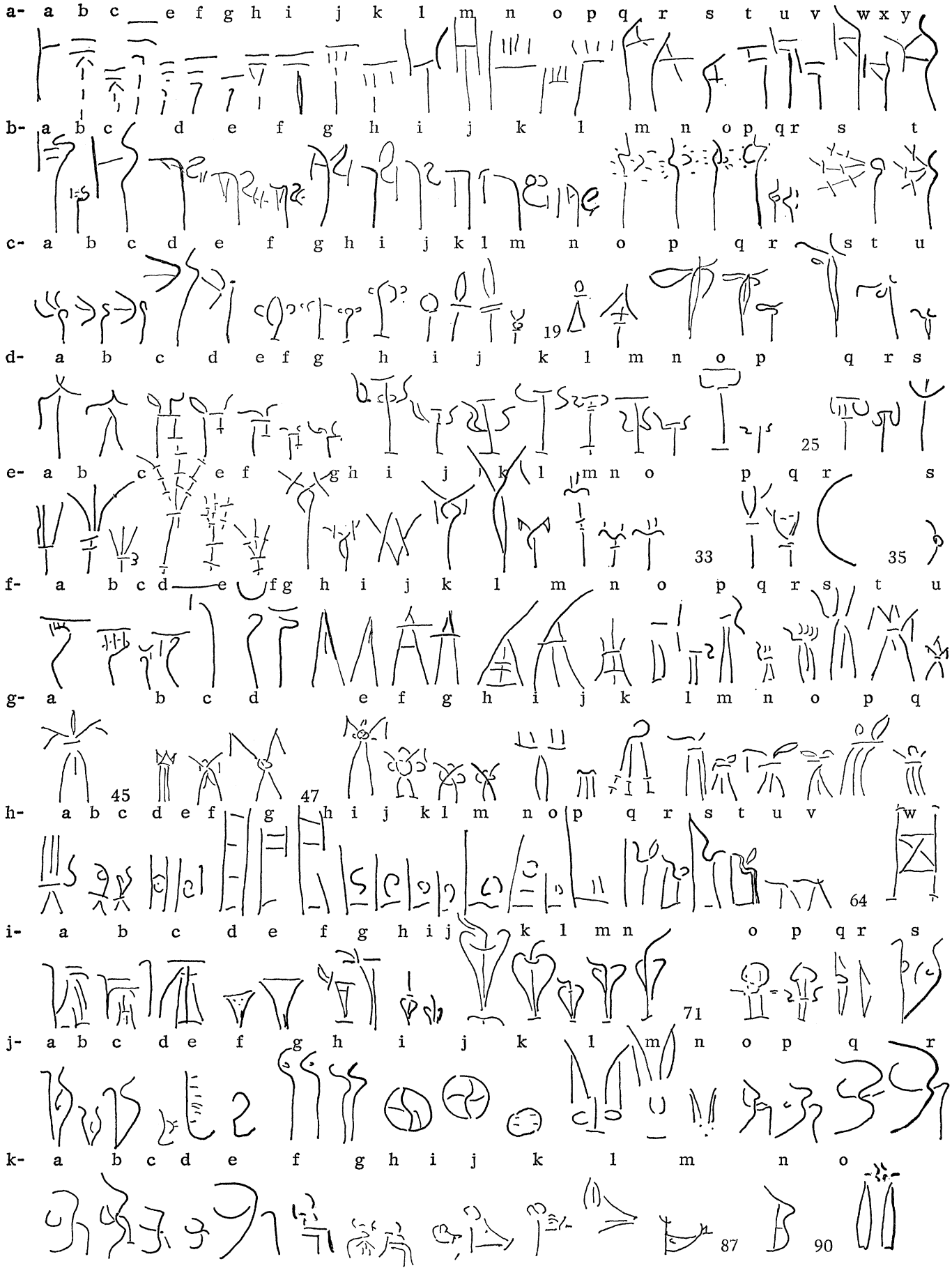

TABLE III. Additional Forms of Linear B Syllabic Signs used at Knossos.

TABLE IV. Additional Forms of Linear B Syllabic Signs used at Pylos.

Whatever range of shapes can be seen in one or two hands is overshadowed by the variation evident if all the forms of one place are taken together. The cause of this variety is simply our possession of the work of many scribes. But when we examine all four tables at once, to see the whole variation of Linear B shapes, we will not find many more than can be found at either site. It will be necessary to consider the causes of this phenomenon, and in them to find our conclusion.

If we may omit description of the varieties shown, and not try to characterize the script of each place, let us see what would result from a comparison of the variants sign by sign. The canonical three classes might then be distinguished. First there are such signs as 02 and 75, showing no variation, neither within one set of scribes, nor in the whole corpus. Such forms are timeless and universal, and were used unchanged from beginning to end of Mycenaean writing. Second, there are such signs as 24 and 44, with a considerable range of shapes, but with almost every form at Pylos found also at Knossos. In 24 there is alternation between symmetrical and the original lopsided varieties (with single or double left elements) and a division among circular, straight, and absent central elements. There are also lesser distinctions in the absence of a base, or the lopping off of the top of the vertical stroke. Examples with most of the same combinations of these variable elements occur in both places. A third group of signs, including 81 and 15, shows some of the same overlapping as do 24 and 44, but shows in addition clusters of forms peculiar to one, or at least rare at the other place. In 81 the tail can be of one, two, or three strokes at either place, and the head and beak can be made in several ways of one or more strokes. More important, however, the wings can appear either as the original complex curve, or as a simplified open curve. But the open shape is found in only one of the many shapes at Knossos, and the complex in only one at Pylos.

The signs which show no variation are dismissed as useless, and those with parallel variants may be taken up first. There are perhaps two possible interpretations of the parallel variation of shapes of signs, or two accounts of how it came about. If, for one, this parallelism is understood as an indication of the near contemporaneity of the tablets from Knossos and Pylos, then we might find the origin of different forms in the growth of distinct local characteristics among the scribes of Knossos, Pylos, Mycenae, and Thebes, and we might attribute the sharing of all these forms at each place to their frequent correspondence and to the more effective exchange of personnel. But with that sort of arrangement, the development of local peculiarities will be hard to manage. Signs like 81, though there may not be many of them, do show local variation. We could hardly explain why the forms of many signs like 24 freely travel while the few signs like 81 are apparently immune to communication.

unidentified, in the confident expectation that any two who examine the tables will agree in their classification. It should be admitted here that certain marks or signs, whose identification as syllabic signs remains very doubtful, have been omitted. In Table IV the forms uc, ud should have been drawn at the end, as xc, xd, since they are now identified as sign 91.

It is better to interpret the parallel variation of these forms without chronological implications. On the evidence of the tablets from Pylos and Knossos we may assume that in any Mycenaean palace at any one time, once the Linear B script was well established, there were many scribes, with nearly as many different ways of writing. We have no way now to compare the writing of a single palace at two different times, say a generation apart. But it seems reasonable that in the second generation, although one or two scribes may have been imported from another palace, the majority will have been trained where they later worked, and rather as apprentices to the scribes of the first generation than all in one schoolroom, and certainly learning to write by imitation of their own teachers. On this account, the writing of the second generation should be remarkably like that of the first generation, as full of variety, and with very nearly the same variety. Innovations made by the new generation and the imitation of foreign patterns should account for the few differences.

The transmission of Linear B writing from generation to generation has a better analogy in the manufacture of a cable, with new fibres constantly incorporated into each of the cable's separate strands, than in the branching of a tree. Each new scribe learns and hands on the tradition of his own teacher. Many different traditions are propagated simultaneously, all mutually legible (the apprentice has to write one way, but must read all ways), and only gradually modified. If the same shapes of some signs were at Pylos and Knossos when they were destroyed, there was also a time when the palaces were intact and in communication, when also the scribes at each place employed the same variety of forms, and taught them to the following generations. This parallel variation is simply an indication of the strength of the conservative tradition of writing, and where it is found it cannot indicate nearness of time. Though the signs 24 and 44 are more complex than 02 and 75, the original forms may just as well still be in use, side by side with newer and simplified forms, which could in fact be only a generation less ancient in the tradition of the script.

Any indication of the isolation of one palace from the other must be found in the presence or predominance of a significant innovation, and in the significant rarity or absence of inherited traits. If these conditions are found in both sets of inscriptions we may assume that both palaces were destroyed some generations later than the breaking of communications between them. If they are found in only one, we may assume it survived some generations after the break, and that the other fell while still in communication with other Mycenaeans. If they are found in neither, there should have been no long interval between the loss of contact and their destructions—or else the tradition is even more conservative than we have supposed.

A significant variation must be defined. It is not to be found in K's 24(a) with lowered waist, or in P's 58(n), which simply add to an undiminished variety of forms one other. Suppose the palaces still standing, and that these forms were first used by scribes of the previous generation, one at Knossos, one at Pylos. Since they were

as good as other shapes, but not much better, they were passed on to the few scribes taught by their inventors. In time, and if contact was maintained, they might have been spread to all the Mycenaean world by correspondence and travel. But until this was done, quickly or after generations, they remained the local characteristics of possibly contemporary scribes. Or suppose that there were twelve generations between the writing of the two sets of texts. At the older palace one of these innovations had been introduced a generation before, and had not spread to the other palaces. The other innovation, however, might have been introduced either as early as the same generation in one of the other palaces, or as late as the penultimate generation of the younger palace. The one-sided addition of an innovating shape to an otherwise uniform variety is of no use as chronological evidence.

The kind of difference we see in sign 81 has a better chance of being significant, along with a chance of being found significant only because it is the last chance. In that sign the same variation of the tailpiece and about the same variation of the head and beak are found. The original tail must in both places have been of three or two strokes, the head of two or three, but the simpler forms of these elements must have been adopted early, and spread widely among Mycenaean centers. As for the wing, the two kinds are there, but at Pylos there is only one instance (i.e. at least one scribe, wa) of the complex wing, while Knossos has only a single example of the simple wing (ke). At the same time the several combinations of beak and tail which appear at Knossos with the complex wing are used at Pylos with the simple wing. The complex surely belongs to the prototype, and is conserved in both places. In the single example from Pylos (wa) it is combined with an unusual and complex tail. At Knossos the simple wing (ke) is used by at least one scribe, one who thoroughly simplified both head and tail, as well as other signs in general. From its rarity we might suspect that it was of recent introduction. For the simple wing to appear as it does at Pylos we can imagine that the simple wing was adopted by many scribes who nevertheless found no reason to abandon their different ways of drawing head and tail. The spread of this innovation and its success in supplanting the inherited form must have taken some time, and one may be sure that it was not a recent innovation at Pylos. If there are many other examples at Pylos of signs with the sort of variation this sign shows, we must consider them all as evidence that Pylos, alone or together with other Mycenaean palaces, had for several generations been cut off from communications with Knossos. If there were many similar examples for Knossos, we should have to allow it, too, a long period of isolation from Pylos. There are few examples in any case, so few that they may safely be put into a long footnote,[11] but it is noticeably harder to find suitable ones at Knossos.

[11] At Knossos we may start to look for indications of a long isolation in the following forms. Sign 15(d, e), with a standard simple and only bending to the left at the top, together with the general absence of knots (b-e, ca-ce). 36(a, b, ff, fg), for the frequent omission of the connection

Further examination of the signs which appear in the tables ought to confirm a fact we know already, that they belong to two geographically separated Mycenaean palaces. It may be possible to draw no other conclusion without prejudice, and it would be much more satisfactory to have an archaeological determination of the dates of the falls of Knossos and Pylos. It may not be irreverent to notice here that the generations between the excavations of Knossos and Pylos were quite as important as the generations between their destructions. But if we had archaeological authority to support us, we might adopt with confidence the one of these two conclusions which best fitted the situation. The first is that the differences in the script of Pylos and Knossos give some evidence of a period of several generations of little communication or exchange of personnel before their nearly contemporary destructions. The second, probably the present favorite in the competition, is that Knossos, while still in fairly close communication with the rest of the Mycenaean world, was cut off several generations before the same disaster was seen at Pylos.

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between top and bottom elements, accompanied, however, by the frequent retention of a multiple connection (fa, fb). It is tempting, however, to allow no real significance to 04(c), 06(ai), 12(c), 13(bi, bj), 14(bq, br), 23(de), 24(a, b), 30(eg), 31(ej), 45(gb), 52(hc), 60(a, hn), and 80(jm), even if all of them qualify as innovating forms.

At Pylos it may be possible to find significant differences in some of these. Sign 07(n), to be taken together with 32(n), with notice of the spread of the innovating elements in both signs in the same hands. 14(n), with the standard reshaped as a mirror image of the standard developed in 12(n) and also seen in sign 16(n), together with the general abandonment (14, n, o, nw, oa-oc) of the halo of dots (nv). In 15, the general adoption of a 2-stroke whip (n, od, of-oh) instead of the 3-stroke (oe), together with the normal use of the knots (n, oe, of). 36(n, ql-qn), standardizing the 1-vertical variety. In 43 the base is normally that of 44, with 2 legs (43n, rm, rn: 44n, rr) or 3 legs (43ro-rq: 44rs-ru). The originally different base of 43(a) is still to be recognized, however, in the occasional addition of a serif to either 2- or 3-legged bases (rn, rq). In 52, the normal addition of a base to the wrist (n, so, sq). In 65, perhaps the development of two very simplified variants (tz, tzz), beside one form fairly close to the Knossian form (a), may be more than a local difference. In 80, the general use of the central stem (n, vn-vr) rather than the base (vn-vp) as the first complement of cheeks and ears (vq-vr: a, km, kn). In 82, beside examples which show the same shift in wing-form as in 81 (wl, wm), the creation of an additional distinction by using two different developments (81n, 82n), out of the original wing-form (81a; 82a, n).