THE PHAISTOS DISK CRACKED?

By Keith Massey and Kevin Massey

Chapter One: Introduction

"A journey of a thousand miles must begin with a single step."

- Chinese Proverb[1]

We intend in telling the story of how we researched the Phaistos Disk to be both interesting and entertaining. Our efforts were full of twists, turns, and wrong directions but arrived in the end at an exciting conclusion. We will here demonstrate that in the greatest likelihood the first chink in the Disk's armor has appeared.

Numerous attempts to crack the Disk have been published. Indeed, many readers, especially scholars, will react viscerally and negatively to our claim. We propose at the outset two questions through which to consider our work:

1) Is what we did based on reasonable methodology?

2) Is our finding possibly the result merely of chance?

We will show that the means whereby we arrived at our findings are that of a careful scientific method. More importantly, we will demonstrate that what we found in the Phaistos Disk is well beyond the random, presenting a pattern of cohesive and coherent data

[1] Chapter heading quotations are taken from Menahem Mansoor's *Wisdom From the Ancients: Proverbs, Maxims, and Quotations,* Madison, WI, 1994.

pointing toward the language underneath.

Our cracking of the Phaistos Disk revealed itself incrementally, often in avenues we ourselves did not favor. We must say clearly at the outset, it is not our work alone. Rather, other scholars contributed suggestions and expertise without which the Disk would not have been cracked. We will name these scholars as they enter the story in their particular way. However, it is a story that we have to tell. We will inform and educate on the necessary issues of orthography, historical linguistics, and ancient Aegean scholarship, but only to provide a useful background. It is the story of the cracking that we will chiefly tell, told so that the reader can experience as close to first-hand the excitement of the journey that led finally to this first credible decipherment of the Phaistos Disk.

This story began long before we first set eyes on the Disk. Our backgrounds and education made this work possible by giving us the tools of insight, imagination, and instinct. Therefore, all of our teachers deserve credit in this work. We especially credit our eventual drive toward decipherment to a speech given by Dr. Herbert Howe, professor emeritus at the University of Wisconsin. Howe was speaking to the high school Latin class in Madison Wisconsin in 1984. He gave an account of the decipherment of Linear B by Michael Ventris, and credited the contribution of his colleague at the UW, Dr. Emmett Bennett, in the decipherment. Bennett had published the complete texts of the material in his book, *The Pylos Tablets.*[2]

[2] Bennett, *The Pylos Tablets: A Preliminary Transcript.* Princeton, 1951.

Further, Bennett had remained in correspondence with Ventris, Chadwick, and Kober, the essential decipherers, during the decipherment. We were enraptured by the story of the decipherment, and by the fact that someone who had played a role in it was teaching at the University of Wisconsin.

We both decided that day to study languages, ancient and modern, and to one day accomplish a decipherment of our own. The coming years saw us study Latin, Greek, Hebrew, Arabic, Aramaic, and other Semitic languages. Our love for languages of all kinds led us further to study the many alphabets and writing systems of history. Languages are the windows to people's souls. We study them chiefly to learn of other cultures and peoples, and to provide hospitality and sociability to as many people as possible. An old Arabic proverb teaches, *lisaan jadeed, insaan jadeed.* "A new language is a new person." This goes both ways, a new language allows one to speak with new people, and learning a new language also transforms the learner, giving a fuller richer view of the world.

These interests led us to study, work, and explore the ancient world and its languages. Keith obtained a Ph.D. in Hebrew and Semitic Studies. Kevin studied and worked in the Middle East. Our passion in language and mystery led us to publish a flurry of articles in the field of Semitic linguistics each of which in some way displays a deep yearning to crack secret mysteries behind the words on the page.[3] However the greatest mystery of our lives, one that

[3] 1993 "Dialogue of Creeds" in *ISLAMOCHRISTIANA* by Keith Massey and Kevin Massey-Gillespie; 1994 "A new approach to Basic Hebrew Color Terms" in *Journal of Northwest Semitic Languages* by Kevin Massey-Gillespie; 1995 "Semitic Quadriliteral Animal Terms: An Explanation" in *Journal of Northwest*

will certainly consume and distract us unto our deathbeds was still waiting--the Phaistos Disk.

The Phaistos Disk

In 1908 a circular artifact dating to the Bronze Age was found by the Italian archaeologist Pernier at the site of ancient Phaistos in Crete. This find, dubbed the Phaistos Disk, was an enigma in many ways. The formation of the characters was done through stamping pre-made characters into clay. While this suggested mass production, the Phaistos Disk was then and still is the only artifact of its kind ever discovered[4]. The appearance of the disk has delighted thousands of observers. Numerous attempts have been made to decipher the information encoded on the disk. When no progress came quickly, classicists began to avoid any serious work on the disk.

Sadly, the disk slowly came under the domination of less than scientific attempts to crack the riddle, such that today few researchers dare to forward any new theories, lest they too be grouped with a discredited fringe.[5] Indeed, many scholars, when approached to

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Semitic Languages by Keith Massey and Kevin Massey-Gillespie; 1996 "Mystery Letters of the Quran" in *ARABICA* by Keith Massey;
2000 "AVM fraelse af illy: Authentic medieval elements in the Kensington Stone," forthcoming in *Epigraphic Society Occasional Publications* by Keith Massey and Kevin Massey-Gillespie;

[4] The short inscription on the artifact known as the Archelochori Axe could possibly be an example of a related script. Its short inscription however makes it of little comparative help in attempting decipherment of the Phaistos Disk.

[5] An example of the bizarre suggestions surrounding the disk is the theory proposed in a web site by Claire Watson which describes that the disk was created "by initiates into the Isis-Osiris mystery-myth sect. The images on the disk are a

comment on the Phaistos Disk react as though it were leprous. Thus, a legitimate artifact of obvious importance to the orthographic history of the Mediterranean has been largely abandoned. This development is completely unacceptable. The abandonment of the Phaistos Disk is clearly due to the simple fact that solving it has proven extremely difficult. In addition, the corpses of would-be decipherers which liter the path toward eventual success deter further scholars who seem more content with the safety of the underbrush. That a field of scholarship should avoid further attempts to solve an important problem is cowardly. This book defies the prevailing tendency to ignore the Phaistos Disk. To present the story of the decipherment as a scholarly inquiry, we will proceed describing the events and processes from a third person voice.

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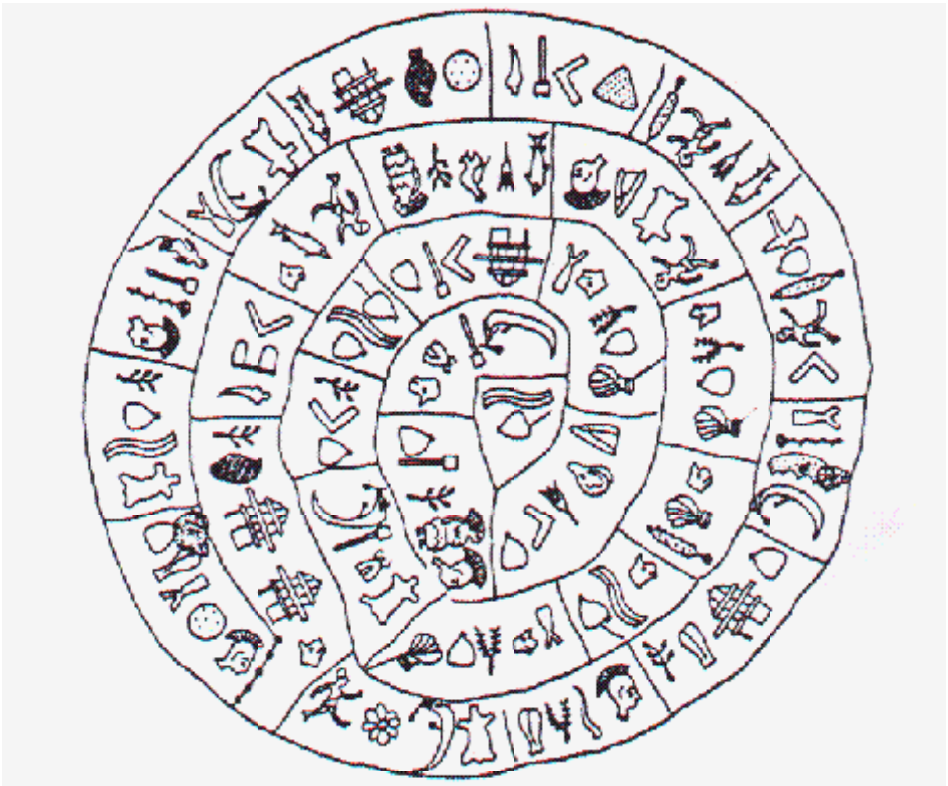
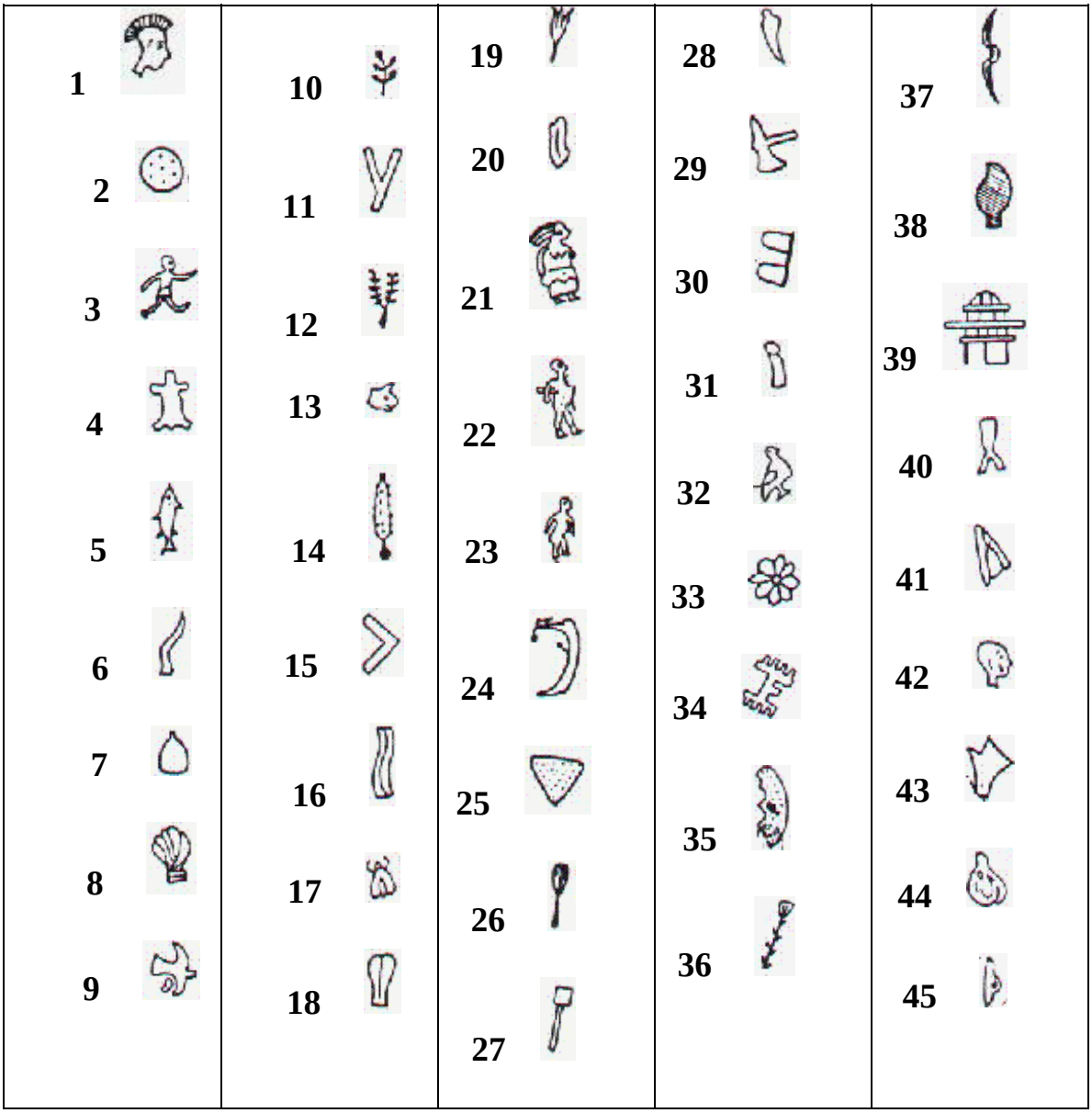
symbol language representing the various parts of the Isis-Osiris mystery-myth sect, in which good-doing Osiris is opposed by Typhon. The disk records the activities of the Isis-Osiris sect as the convened inside the Great Pyramid of Cheops and worked to establish their group consciousness using the tools of sacred geometry. They participated in higher levels of group activity at the astral level and beyond through interdimensional travel. This information is recorded on the disk." (http://www.danwinter.comiportaidis)

Side A or "Recto"



Side B or "Verso"

Chart of Phaistos Disk Characters



The Phaistos Disk is approximately six inches in diameter. It is made of clay, stamped on both sides in a spiral. In all, 45 different symbols appear on the disk, prompting the widely accepted theory that the script of the Phaistos disk is a syllabary, with a presumed inventory of characters totally around 60. An alphabet, which

represents only individual sounds, such as consonants and vowels, is able to employ fewer characters. A syllabary, however, which represents a consonant and a vowel, needs more. The characters on the Phaistos Disk are divided into what appear to be separate words, with 31 panels occurring on one side, 30 on the other. Another notable feature is the incidence of slashes accompanying several of the panels, about eight on each side, usually jutting from the bottom of the first character of a word (if one reads from the center). For example:

None of the numerous theories put forward attempting to decipher the disk has yet to gain any widespread acceptance. We will not specifically disparage any of the published attempts. We honor their courage and ingenuity and footnote for the reader as full an inventory of these attempts as we could compile.[6] Interestingly,

[6] Best, J and Woudhuizen, *Ancient Scripts of Crete and Cyprus*, E.J. Brill, Leiden, 1980.

Davis, S, *The Decipherment of the Minoan Linear A and the Pictographic Scripts*, Witwatersand University Press, Johannesburg, 1967.

Duhoux, Y. *Le Disque du Phaestos. Archeologie. Epigraphie. Edition Critique*, Louvian, 1977.

Fischer, S. *Evidence for the Hellenic Dialect in the Phaistos Disk*, Peter Lang, Berne, 1988.

Schwartz, B. "The Phaistos Disk" in *Journal of Near Eastern Studies* 18/1959, pp. 105-112.

while Linear B was deciphered, that is, without comparison to related scripts, few of the published attempts at decipherment follow this route. The majority of attempts, including this present study, largely attempt to farm phonetic values from other Aegean scripts, such as Linear B. Some have looked further afield**,** such as exploring Hittite, or even Indic comparisons. It has not been this stage of the methodology that fails to convince other scholars that this or that attempt may have succeeded. As we will argue later, such a comparative methodology is quite sound.

The reason previous attempts at decipherment have failed to convince lies in the nature of the disk itself. It is not difficult for a researcher to make a claim about a reading of part of the disk and proceed to offer a creative interpretation of parts that do not fit the theory. Any claims made about a small corpus of data like the Phaistos Disk are not refutable, therefore they are not compelling. Even where the applied values seem soundly derived from a presumably related script, the text produced is so small that any meaning in it could usually just as well be a creative reading of random letters. Presumably, it is possible to succeed in this manner, but the decipherer would have to count on a high degree of luck or likely even clairvoyance.

A decipherment needs to satisfy certain criteria to gain acceptance. Principally, the decipherment must demonstrate a consistency and a coherence that goes beyond that which mere chance would generate. So, for example, one could select a word on the Phaistos disk and hypothesize a word which it represents in some assumed target language. Theoretically, there would be no way to

refute the initial claim. However, since the values of the initially hypothesized word occur in other places on the disk, we could then apply them to the rest of the disk. If the extended values do not produce a consistent and coherent text in other places where they occur, then the initial hypothesis would not be compelling.

Perhaps the reader has attempted the cryptoquotes puzzles in the Newspapers. The task of the decipherer is quite similar. One looks for common words that can be established to provide clues for the rest of the puzzle. There are two three letter words that occur commonly in English, "the" and "and." While attempting a decipherment of a cryptoquote, one may hypothesize either of these for a three-letter word occurring frequently. If the clues provided by the guess produce parts of words that seem to reflect other words in the language, confidence in the initial guess begins to grow. However, if the guess produces ridiculous combinations, then one can conclude that the initial guess was incorrect. It was always a matter of probability and chance how accurate the guess would be. If continual hypotheses bear fruit into a clear and sensible text, the puzzle solver reaches a point in which the probability of an alternate reading of the text making as much sense as the one produced becomes completely negligible. It is this second stage of decipherment, producing a statistically compelling result, that all previous attempts on the Phaistos Disk have failed to achieve.

In the summer of 1996, Kevin first saw a picture of the Phaistos Disk in a tourist guidebook that a relative had taken back from a trip to Greece. He found the Disk aesthetically pleasing, and was intrigued by the simple caption under the photo in the guidebook, "never

confidently deciphered." Loving a puzzle, he decided to give it a try.

Kevin emptied his local library of manuals and books providing ancient scripts with which to compare this exciting challenge.

Chapter 2: The Aegean Scripts

"The power of imagination makes us infinite"

- John Muir (1838-1914)

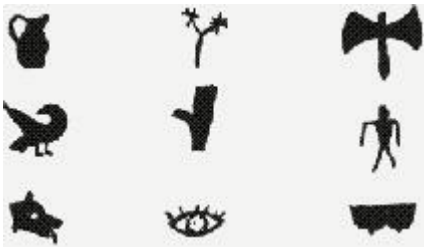
Kevin dumped onto his table numerous manuals of orthographic history and reference. Learning the scanty details of the disk's discovery and history, and acquainted with the basic historical and geographic topography, he decided to review his past study of the scripts of the Ancient Near East, especially those of the Aegean Sea, Greece and Crete. These included undeciphered Hieroglyphic writings, a linear form of writing, the undeciphered Linear A, Linear B, which was deciphered in a fascinating tale we will recount, and Cypriotic. A review and understanding of these scripts Kevin considered vital in deciphering the disk.

Cretan Hieroglyphics

The oldest orthographic system of Crete is an undeciphered old hieroglyphic. This form of writing was probably the parent of later orthographic systems. It was in use before the second millennium BCE and continued up to the period of Linear A and the Phaistos Disk. A few examples of these hieroglyphic forms are provided here.[7]

[7] For a fuller treatment of these hieroglyphs, see Arthur Evans, *The Palace of Minos* (London, 1921), 282.

Cretan Hieroglyphic Writing



It has easily recognizable animal and human figures, body parts, tools, and plants. Several of the Cretan hieroglyphic symbols have nearly identical counterparts on the Phaistos Disk, which suggests that the Phaistos Disk writing developed in some way from it.

Cypriotic

Into the Classical ancient period, the people of Cyprus used a writing system different from the prevailing alphabets of the eastern Mediterranean. This Linear system was an offspring as well from the earlier Cretan hieroglyphics, which we will see later were in currency outside Crete as well.

Inscriptions in this script became known in the mid 1800's, and scholars attempted unsuccessfully to decipher them. Finally a bilingual text, written in both Cypriotic and Phoenician became known. It was displayed and commented upon in 1872 by R.H. Lang in his *Phoenician and Cypriote bilingual inscription* [sic].[8] Just as Champollion would later use names of places and persons in a bilingual text to decipher Egyptian hieroglyphics, so Lang made

[8] Lang, self published work.

reference to which Cypriotic words were likely displaying the known Phoenician text. Lang studied the text assuming a right-to-left direction for the Cypriotic, as Phoenician is written right-to-left. This assumption would prove to be correct, though it would have been a more difficult guess had Linear B, which reads left-to-right, already been deciphered. Lang further identified the bilingual words that were likely portraying the word "King."

George Smith took the decipherment process, perhaps by luck or accident, a great distance when he suggested that two words that were the same except in ending were in fact the Greek word for "King," differing because of inflection.[9] The following line of Cypriotic, taken from the bilingual text, begins with this word.

The syllabic writing presents the word */pa-si-le-vo-se/*, akin to Greek *basileus* "king." From this word, and from the names on the inscription, Smith uncovered the phonetic values of many characters. Smith's own knowledge of Greek was too poor to allow him to proceed much further. The decipherment was completed by a number of scholars including Wilhelm Deecke and Justus Siegismund.[10]

Though Cypriotic was deciphered, later scholars attempting to

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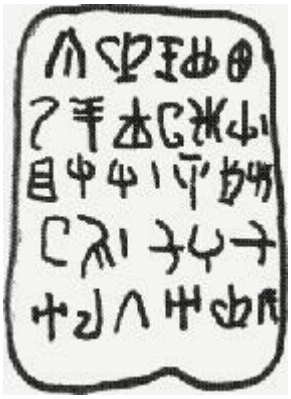
[9] Smith, *On the Reading of the Cypriote Inscriptions*, p. 129. London, 1872.

[10] Deecke and Siegismund, "Die Wichtigsten Kyprischen Inschriften umschrieben und Erlautert" *in Curtius' Studien*, pp. 217-264, 1874; Deecke, *Der Ursprung der Kyprischen Sylbenschrift.* Strassbourg, 1877.

decipher Linear B tried to avoid making comparisons with its shapes and values, a decision we will show probably delayed Linear B's decipherment substantially.

Linear A



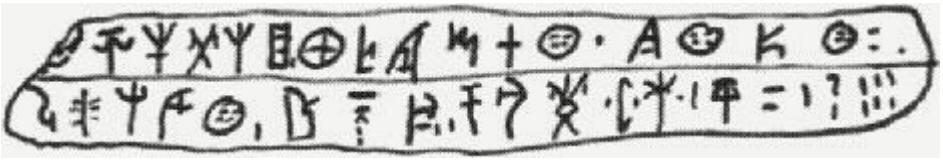
A Linear A Tablet

Excavations in Crete at the beginning of this century uncovered several different types of writing systems in use in the Ancient Aegean. Sir Arthur Evans was the leader in these excavations. In the course of the excavations, three distinct types of inscriptions were discovered. Evans gave the names to these types of writing. The names he gave, hieroglyphic, Linear type A, and Linear type B are still in use today.[11] The Linear A tablets remain undeciphered. This may be due to the relative scarcity of tablets bearing this script, compared to the number discovered for Linear B. Most scholars today believe further that the decipherment is hindered by the probability that the language recorded in Linear A is a pre-

[11] Evans, *Scripta Minoa*, p. 18, Oxford, 1909.

Greek non-Indo-European language. Even if the values of Linear A can be reconstructed based on other known scripts, still it could not be translated. In cases where an unknown language has been deciphered, it has usually been due to the discovery of some bilingual text, such as happened with Champollion's decipherment of Egyptian hieroglyphics from comparison to the Greek and Phoenician sections of the Rosetta Stone.

Linear B



A Linear B text

Perhaps no story has captivated the imaginations and admiration of scholarship in our century more than the story of the decipherment of Linear B. In the first half of this century, largely through the efforts of Evans, the Linear B tablets, discovered in Crete, and then in Greece as well, were the subject of intense study by a hive of busy scholars. The material was numerous enough to make an internal decipherment possible. Several different methods were attempted. Some, noting similarities between Linear B characters and those of the already deciphered Cypriotic, attempted to apply the Cypriotic values and read the texts. Most, however, avoided a comparative method assuming that even if the scripts were somehow related differences between the two would be more liability

than help. The possibility of decipherment was particularly aided by the publication of *The Pylos Tablets* in 1951 by Dr. Emmett Bennett. In this book, a useable catalogue of the tablets and their forms was provided for the would-be decipherers.

In the midst of the study of Linear B, no real progress presented itself, with one startling exception. In 1927, Cowley published an article in which he proposed a reading for two Linear B words.[12] Through either sheer luck or astounding insight, Cowley's guess on these two words would later be shown correct. Nevertheless, Cowley failed to advance in the decipherment effort.

As work proceeded consensus grew that the language represented by the Linear B tablets was inflected, possibly Indo-European. Alice Kober in particular noted several probable inflectional differences.[13] Nevertheless, real progress remained elusive. The real decipherment would wait several years for an exceptional scholar, and an amateur at that.

The breakthrough in deciphering Linear B was accomplished by Michael Ventris in the few years following the publication of Bennett's *The Pylos Tablets.* One may wonder what personal qualities and characteristics allowed Ventris to make this advancement. No finer description of Ventris can be found than that by his friend and co-decipherer, John Chadwick:

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[12] Cowley, "A Note on Minoan Writing," p. 6, *Essays in Aegean Archaeology presented to Sir Arthur Evans,* Oxford, 1927.

[13] Kober, "Evidence of Inflection in the 'Chariot' tablets from Knossos," p. 143-151 *American Journal of Archaeology,* 1945.

> If we ask what were the special qualities that made possible his achievement, we can point to his capacity for infinite pains, his powers of concentration, his meticulous accuracy, his beautiful draughtsmanship. All these were necessary; but there was much more that is hard to define. His brain worked with astonishing rapidity, so that he could think out all the implications of a suggestion almost before it was out of your mouth. Ventris was able to discern among the bewildering variety of the mysterious signs, patterns and regularities which betrayed the underlying structure. It is this quality, the power of seeing order in apparent confusion, that has marked the work of all great men."[14]

Using his developed analytical mind, Ventris created a grid in which he hypothesized, based on the order in which he observed the characters appearing, probable vowels for the Linear B script. Finally, just as one cracks a cryptoquote, he needed to test consonantal hypotheses by applying these guesses to the texts.

Kevin reviewed the scripts and texts of the Aegean Linear family as the first and likely best starting place for comparing the Phaistos Disk. He felt that a comparative methodology, applying values to the Phaistos Disk based on similarities to other known scripts, was a sensible approach. While this method had not been used to decipher Linear B, indeed had even been avoided because of the fear that it would produce a wrong result, a review of the Linear B system compared to Cypriotic shows that if the decipherers had assumed that even some of the similar characters had the same values, the decipherment would have been hastened. In keeping with the fears of those decipherers, there are characters which are attested

[14] Chadwick, *T'he Decipherment of Linear B,* p. 4. Cambridge, 1960.

in Linear B and a closely similar character in Cypriotic has a consonantal value different than what was concluded for Linear B. Nevertheless numerous characters point to some genetic relationship between the two scripts which could have helped the decipherment.

Kevin felt that owing to the small corpus of data attested for the Phaistos script, the only method that could produce an objective result was that of comparison to known scripts. He therefore searched for close connections between Phaistos characters and those of Linear B and Cypriotic. Kevin experimented with applying consonantal values to the Phaistos Disk based on some of the following comparisons:

Phaistos Disk	Linear B	Cypriotic
	 / $ra_{2/}$	 /zo/
	 ?	
	 /wi/	
	 /ku/	
	 /no/	 /ke/
	 /se/	 /se/
	 /pi/	
	 ?	
	 /ni/	
		 /i/
	 /qe/	 /ja/
	 /da/	 /ta/

Kevin noted that the Linear B and Cypriotic scripts are highly abstract. While certain recognizable objects can be seen, such as a hand or a branch, most of the characters have become symmetrical, possibly to aid *boulestepheron* reading, a method in which text is written both from right to left and then from left to right, alternating line by line. Kevin compared the Phaistos characters with the Linear B and Cypriotic and found that some close matches appear. In some cases, a comparison can be made with characters from both Cypriotic and Linear B, though sometimes the phonetic value is different between the two systems.

Without knowing the language that the disk could record, or even the direction in which the Disk should be read, Kevin attempted to understand the few words emerging from this preliminary assignment as Indo-European or Semitic, in both directions. He experimented with different possible phonetic values presented where Linear B and Cypriotic disagreed. Nothing of any certainty appeared. Imagination and ingenuity are capable of producing temporary results from any random group of letters. It was in this realization that Kevin sadly concluded that the Phaistos Disk, without some means whereby to obtain further values, could not be confidently deciphered. Even if every character in this preliminary attempt were correct, there would be no way to prove that the reading was right.

Kevin decided to pursue another direction of attack. He attempted the risky yet time-honored alphabetic principle of acrophony. This principle comes from the fact that Semitic scripts, in their oldest forms, employed simple pictograms of objects for which the first sound of the object was the sound of the pictogram. For

example the Semitic character  which represented an Ox, alpu, in Semitic, becomes the character for the sound 'a. This character was borrowed into the Greek alphabet to represent the letter a. Likewise, the character  which represented a house, bayt in Semitic becomes the character for the sound b, later borrowed into Greek for the letter b. Thus the alphabetic systems all originally come from this simple concept.

Deciding that this concept could be at work on the script of the Phaistos Disk, Kevin began closely examining the different characters to determine what they were trying to represent. Some of the images the characters represent are easy to identify, others are not. The next step after this would be to decide upon a language, whether Indo-European or Semitic, and assign sounds to the characters from the most basic words possible. For example, one Phaistos Disk character  is a head of a man. In the Semitic scripts, the character  was originally intended to represent a human head, *rosh*, in Hebrew for example. Therefore, this character carded the sound /r/. Likewise Kevin experimented with assigning the sound /r/ to the head character on the Phaistos Disk, if it were a Semitic language, and the sound k from Greek *kephala*, (as well Latin *Caput)* if it were an Indo-European language. Kevin was in the midst of this experiment when he decided to employ another risky yet time-honored principle, seeking collaboration.

Chapter 3: Byblic

"Truth and oil always come to the surface."

- Spanish Proverb

Kevin had examined the disk extensively, comparing the characters to the scripts which he supposed most closely matched it, Cypriotic and Linear B. Just as many characters between Linear B and Cypriotic seem to obviously compare, so also many forms of the Phaistos disk resembled the Aegean scripts. The basic comparative method, and the acrophonic principle had failed to produce any credible progress. Kevin decided to consult his twin brother, Dr. Keith A.J. Massey for help in determining what the various characters represented pictorially, to make a better attempt at the acrophonic principle.

For Kevin to collaborate with his brother Keith was finally inevitable, like dancing with your mad aunt at a wedding reception. The two brothers have always been deeply competitive, especially in their studies and scholarship. They prod each other on their knowledge of languages, Keith boasting a greater knowledge of Hebrew, Kevin claiming a deeper knowledge of Arabic. Kevin found revenge for this by publishing an article on Hebrew historical linguistics, Keith retaliated with an article on Quranic Arabic. They reached a kind of Lennon-McCartney agreement to do all future publications together. Therefore, Kevin sought Keith's assistance at this point in helping to establish the identity of the Phaistos Disk characters

Kevin showed his brother Keith the work he had done on the

Phaistos Disk.

While discussing a particular character,  Kevin told Keith that he supposed it to be a grain of corn. Keith disagreed, indicating that to him it seemed to be representing a human breast, but more importantly, that he had seen a different script with a character nearly identical to it. While pursuing his doctorate in Hebrew and Semitic Languages, Keith had studied the full range of cognate languages. During this time Keith had independently researched a syllabic script found at Byblos. Keith had concluded that it was deciphered, despite some disagreement amongst scholars of the field. The proximity and cultural connections between Byblos and the Aegean raised the tantalizing possibility that in some way this Byblic script was also a relative of Linear B, Cypriotic and, most excitingly, the Phaistos Disk. If this were true, the consideration of Byblic as a source for phonological values on the Phaistos Disk could shed more light on the disk than had previously been possible.

That there is a deep historical connection between Crete and Byblos can be seen by some surprising finds in Lebanon and Turkey. Specimens of the Cretan hieroglyphic system have been found in Byblos, as Victor Kenna has noted. "The orthographic systems of the Aegean area obviously enjoyed some currency in the Ancient Near East, possibly beginning with the Cretan hieroglyphics. This Cretan hieroglyphic system likely gave rise to the later syllabic scripts, Linear A, Linear B, Cypriotic, and the form which developed in Byblos. Even as these hieroglyphics are found in both Crete and Byblos, so too this other syllabic script, called Proto-Byblic seems to

have connections with Crete."[15] Gelb considered Proto-Byblic to have Aegean affinities:

> Another system which may very well belong to the Aegean group of syllabic writings was discovered recently in Syrian Byblos, where so many important archaeological discoveries have been made in the last few years. All these texts have now been published by Maurice Dunand. The writing has only recently been discussed by the distinguished French orientalist Edouard Dhorme.[16]

Dunand as well noted similarities between the Proto-Byblic and both the Phaistos Disk and Cretan scripts. [17] In order to analyze the Proto-Byblic script's relationship with the Aegean family, it is first necessary to provide a background of its discovery and decipherment.

Proto Byblic

Excavations in Lebanon earlier in this century uncovered this orthographic material at Byblos that predated by hundreds of years the later records using the alphabetic script. They consist of nine total samples which were given by Dunand letter designations, on copper and stone, ranging in size from texts of 41 lines (D) to quite small spatulae (BE,F,I). They were published in 1945 in *Byblia Grammata.*[18]

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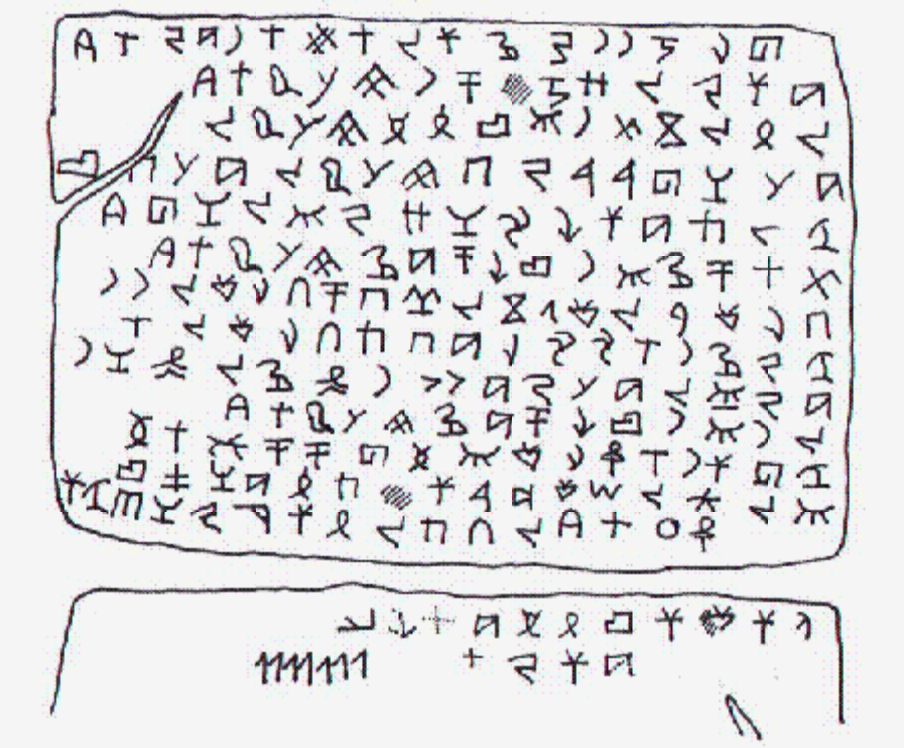
[15] Victor Kenna, "The Stamp Seal, Byblos 6593" in *KADMOS* 9 (1970) 93-96.

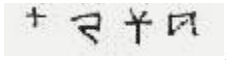
[16] J. Gelb, *A Story of Writing* (London: Routledge, 1952) 157-158.

[17] Maurice Dunand, *Byblia Grammata* (Beirut, 1945) 90.

[18] Dunand, *Byblia Grammata*, 123-126.

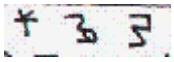
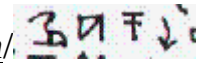


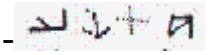
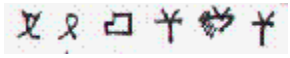
One of the larger texts, a copper tablet identified as Text C.[19]

A year later, Edouard Dhorme published a proposed decipherment of the texts.[20] He reported that his key to decipherment was a series of symbols repeated seven times at the end of Tablet C, which he took to be the numeral 7. Positing a Semitic language, he gave values to the characters which preceded the numeral,  , theorizing /*b-šnt*/, 'in the year.' Though the number of symbols in Byblic suggested a syllabary (76), he did not concern himself with determining vowels for his decipherment. From there, Dhorme supplied the values he theoretically obtained from his

[19] Dunand, *Byblia Grammata*, 71-139.

[20] "Déchiffrement des Inscriptions Pseudo-Hiéroglyphic de Byblos" in *Syria* XXV (1946), 1-35.

discovery throughout this text. He found, at the beginning of this copper tablet, a group /*n?š*/  . He guessed that the common Semitic word /*nḫš*/ could be represented here and thus uncovered a fourth value. With this new value he was able to find the word /*mzbḫ*/  'temple,' in the text.

Again, with mounting values, he concluded that the year designation was itself preceded by a month, /*btmz*/, -  'in the month of Tammuz.' With this he was able to complete the reading of the last two lines of the text by positing /*šdš ym*/,  'the sixth day.' By means of similar deductions, Dhorme completed the decipherment of the texts.

In 1985 George Mendenhall published a decipherment of the texts which he had been working on for thirty-seven years.[21] His decipherment was completely different from Dhorme's, using phonetic values which agreed with Dhorme's in only six cases.[22]

Mendenhall does not record the exact progression of his decipherment as Dhorme does (in fact, he inexcusably does not even mention the efforts of Dhorme), but he relies heavily upon comparison of the Byblic characters with Egyptian hieroglyphics and later Northwest Semitic alphabetic characters.[23]

To assess the comparative strengths of the two competing

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[21] George Mendenhall, *The Syllabic Inscriptions from Byblos* (Beirut: The American University, 1985).

[22] Mendenhall, *Syllabic Inscriptions*, 19.

[23] Mendenhall, *Syllabic Inscriptions*, 21-31.

"decipherments" we will examine each one's reading of Tablet C.

Mendenhall

Mendenhall views this tablet as a marriage contract. He sees the seven slashes at the end as marks left by seven witnesses to the marriage contract. Mendenhall failed to forward a definite translation for 7 of the 15 lines of this tablet, noting that "Translation is not yet possible."[24] He does offer a loose translation of even these, incorporating some possible meanings to even those seven lines:

> Habula, my offspring, is the legitimate betrothed of Thutun.
> Conscientiously you shall clothe her in perpetuity.
> I guarantee that there is no defect in her and
> with beautiful offspring [sic] she shall establish his house.
> Furthermore, when they have become numerous in progeny,
> (may?) well-being be assured them in perpetuity.
> Abundant mutual benefit will be beneficial to them.
> Furthermore, (??)...beloved, you shall benefit each other, and
> (building?) a pure house, they are 'shining' hereto.
> (?)...well-being between them perpetually.
> Furthermore, an act of corruption in ...(?);
> anyone who does violence to the young lady I will assail.
> I will destroy the one who acts corruptly (?)
> Furthermore, life is granted him, I will honor who
> [. . .] conscientiously. (Marks of 7 witnesses)[25]

[24] Eg., Mendenhall, *Syllabic Inscriptions*, 103.

[25] Mendenhall, *Syllabic Inscriptions*, 112.

Dhorme sees this text as a dedicatory tablet commemorating the contributions of various individuals toward the decoration of a temple:

> Thus said Lil: the copper (tablet) of Tophet I have laminated;
> with an iron point I carved
> these objects. The key of
> the house, Ikarrenou carved with signs and he wrote its name:
> Aton-yahaki.
> The golden top of the temple I carved.
> Lil did this work for the honor of his family.
> And the swarm of bees, they made it
> the son of Lahabat-Nabou [and] the brother of Hou-il.
> The crescents of the temple I carved
> and I succeeded in the tasks, one as well as another, to perfection.
> May the Great One grant them first place here.
> I made this during the time of governor Ipoush,
> the sixth day of Tammuz in the year 7.[26]

It is a difficult thing to judge that one or the other of these decipherments is valid. Inevitably, subjective judgments about what is sensible will enter into the verdict. The amount of time both men poured into this project is impressive, and such effort and devotion to illuminating this mystery of Semitic studies must be commended for both. But these decipherments are diametrically opposed to each other and cannot both be correct. To assess the relative strengths of them, we will examine the language underlying them for a representative

[26] Dhorme, "Déchiffrement," 6-12; English translation of Byblic material is our own.

series of lines in each.

Mendenhall is not confident about an interpretation of lines 7 through 14 of the text with his values. Dhorme's interpretation has a natural break after line 7, so we will examine each for the first seven lines.

Mendenhall

(1)	*ha-bu-la*	*ni-ni-ti*	*ru-hi-ma-tu*	*t̲u-tu-ni*	*ba-ti-mi-m*
	Habula	my daughter	beloved	of Thutun	in legitimacy

(2)	*ba-hi-ti-ma*	*ta-la-[bi]-sa-ni*	*ka-yi-na-tu+m*
	in fear	you will clothe her	in perpetuity

(3)	*ma-'i-ma*	*wi-t̲u+ni*	*bi+hu-'i*	*'a-ka-yi-na-ma*
	defect	existing	in her	I establish

(4)	*ba+yi-li*	*ha-ra-ra-ti*	*ta-ka-yi-na-ma*	*ba-yi-ta+hu*
	with offspring	desirable	she shall establish	his house

(5)	*pa+ma-ta*	*ba-hi-mu*	*hu-li-ta-ti*	*bi+ma-li-ha-m*
	and when	they are numerous	in progeny	in their fullness

(6)	*t̲u-tu-sa-ru*	*bi-ni+hu*	*sa-ba-ru*	*ka-yi-na-tu-m*
	is forwarded	among them	well being	in perpetuity

(7)	*'u-bu-du-wu+ma*	*du-ga-wi-ma*	*(?)ya-ta-sa-'u-bu-du-ma+ni-ni*
obedience with humility (?) beneficial		'be numerous'	benefit in abundance shall be to them (?)

Mendenhall's decipherment has failed to gain widespread acceptance. It has been noted that the decipherments "conform too closely to Mendenhall's idiosyncratic views of Levantine history."[27] Mendenhall's decipherment displays few common Semitic roots. For instance, the word /*ni-ni-ti*/ is based on a survival in a solitary idiom. Many of his words, such as /*wi-ṯu-ni*/ and /*'a-ka-yi-na-ma*/ have enclitics which he can not explain. Further, his identification of vocabulary items at times does not maintain a strict methodology. For example, he derives /*ba-hi-mu*/, 'they are numerous, from Arabic *fahuma*, 'be great',[28] ignoring the difference in voicing. His interpretation of /sa-ba-ru/ as 'well-being' makes use of tenuous arguments of conjecture.[29]

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[27] *The World's Writing Systems*, Daniels and Bright, eds. (Oxford: Oxford University Press, 1996), 30.

[28] Mendenhall, *Syllabic Inscriptions*, 100.

[29] "The translation 'well-being' is the reflection of a complex process of semantic as well as phonetic reconstruction that is necessary in order to identify the word here and its continuity into much later Semitic languages," Mendenhall, *Syllabic Inscriptions*, 102-103. He eventually derives it from either Arabic *spr*, 'to shine' or *sbr*, 'goodly form', theorizing additionally a semantic shift.

Dhorme

(1)	k_1	[*d*]b_1r	*ll*	*nhš*	*h-tpt*	$lbnty_2$
	thus	said	Lil	copper	of Topheth	I laminated
(2)	*b-šn*	*h-*p_1*rzl*	pt_1hty_2			
	with a point	of iron	I carved			
(3)	hm_3	*h'*$_1$*-klyy*$_1m_1$	$m_1pt_1h_1$			
	them	the implements	key			
(4)	*h-bt*	*'*$k_1r_1r_1nw$	pt_1h_1*-h*	*b-*t_1wy_2		
	the house	Ikarrenou	carved it	with signs		
(5)	w_1	k_2t_2b	*šmw*	*'*t_2*nyh'*k_1y_2		
	and	wrote	its name	Aton-yahaki		
(6)	*kt*	*zhyly*$_1$	*mzbh*	$pt_1h_1ty_2$		
	crown	of Zuhalu	temple	I carved		
(7)	*'*b_1d	l_2*-hdr*$_1$	*'*$_1hl_1w$	*z*	*'*b_1*d-h*	*ll*
	work	for the honor	of his family		this did it	Lil

Dhorme's decipherment has enjoyed a more enduring acceptance among some semitists. Gelb, writing a few years after the publication of Dhorme's work, tacitly accepts it in the main, but critiques a few discrepancies in the syllabic versus alphabetic nature of the script, which Dhorme at times seems unsure of.[30] In contrast to Mendenhall's work, Dhorme's decipherment relies on common and basic Semitic stock and presents a lucid text which discusses matters which would be expected in this medium.

Another line of reasoning that supports Dhorme's

[30] Gelb, *Story of Writing*, 158.

decipherment which has not been considered is the similarity of shape and phonetic value many of Dhorme's Proto-Byblic characters share with characters from the other deciphered Aegean scripts, Linear B and Cypriotic. The following chart shows some of these comparisons where Byblic and Aegean characters match in shape and phonetic value:

Dhorme's Byblic	Aegean	Dhorme's Byblic	Aegean
 /r/	 Cyp. /ra/	 /r/	 Cyp. /ra/
 /k/	 LB /ku/	 /r/	 LB /ra/
 /m/	 LB /mi/	 /t/	 LB /ti/
 /glottal stop/	 Cyp. /i/	 /š/	 /se/
 /p/	 /pa/	 /k/	 Cyp. /ki/

The significance of these comparisons is that Dhorme's work pre-dated the decipherment of Linear B. He could not have used Ventris/Chadwick's work as any guide, neither did Ventris/Chadwick use Dhorme's work in any way. The agreements found lend weight to the validity of Dhorme's decipherment.

A contextual piece of evidence for the validity of Dhorme's work lies in the line from the tablet provided above, "And the swarm of bees, they made it, the son of Lahabat-Nabou [and] the brother of

Hou-il." The text, according to Dhorme, is describing a list of temple decorations, among which are the "swarm of bees." Such a nonsensical phrase would surely cause a problem for a decipherer, yet Dhorme did not tinker with the phonetic values to produce a more satisfying reading, instead simply translating and interpreting the text that his decipherment had yielded. Yet, an oblique reference from the Hebrew Bible elucidates this curious phrase.

"So I went in and saw; and there, portrayed upon the wall round about, were all kinds of creeping things, and loathsome beasts, and all the idols of the house of Israel. Ezekiel 8: 1 0

Ezekiel reports a sight of pagan worship inside the temple, and among the decorations on the walls were "all kinds of creeping things." This implies that such things were known to him, but are certainly not generally known to scholars today. Thus, Dhorme's decipherment unwittingly satisfies an important criterion for validity, it produces a coherent text even against the understanding of the decipherer.

Given the ease with which Dhorme's work satisfies the criteria of a successful decipherment, one wonders why it has not been more generally accepted. A somewhat cynical yet probably defensible explanation is seen in the later competing decipherments. In order for a decipherment to gain widespread acceptance, it needs to give a reason to accept it. The Linear B decipherment offers continuing industry for philological and paleographical work. The tiny corpus of Proto-Byblic material did not leave room for any colleagues to join the field.

We have displayed the issues surrounding the Proto-Byblic

decipherments and finally one must choose whether either to accept Mendenhall's or Dhorme's decipherment or to reject both. We believe that Dhorme's decipherment is a clear success and therefore is used for comparison with possibly related scripts. For these reasons we undertook a detailed comparison of Byblic with the other Aegean scripts.

Keith and Kevin were both intrigued by the possibility that this additional member of the Aegean orthographic family could supply another witness, and thus a more nuanced and sophisticated comparative method. the two met to examine and compare the various scripts and see what new potential presented itself.

Chapter Four: The Aegean Orthographic Family

"The next best thing to knowing something is knowing where to find it."

- Samuel Johnson (1709-1784)

In looking at the interrelatedness of linguistic items, one observes that members of an established linguistic family can present sometimes inconsistent results. The relationships between scripts are the same for that of languages. Closely related languages, such as German, Norwegian, and English, will frequently share the same word for basic concepts. For example, the word for mother (English) is *mor* in Norwegian and *muder* in German. As well, the word *winter*, while pronounced differently, is spelled the same and means the same thing in all three languages. Nevertheless, some basic words found in all the languages have different meanings. This is the case for the word deer, which in English denotes a specific wild animal, yet in Norwegian *dyr*, refers generally to livestock, while for the Germans, a *tyr* is the word for any animal. In other cases, two of these closely related languages share a word while the third does not. For example, English "now" is matched by Norwegian *nå*, while the common German word for "now" is an unrelated word 'jetz'.

These kinds of agreements and disagreements occur among related scripts, including the scripts of the Ancient Aegean. The relatedness of Byblic, Linear B, and Cypriotic is proven by the existence of numerous characters that are nearly identical in form as well as phonological value. How these scripts developed out of a common ancestor has been demonstrated by scholars of the Aegean

hieroglyphic script.

As demonstrated briefly in the chart above, the other scripts of the ancient Aegean area compare with the Proto-Byblic in interesting ways. Certainly, whenever orthographic systems are compared, more than chance similarity between characters is required to constitute valid matches. Some deeper structural connection should be found. It is in the old Cretan hieroglyphic system that we find the basis for a reasonable comparison between the Linear Scripts and the Proto-Byblic. Detailed comparisons between the Cretan hieroglyphs and the linear scripts of Crete and Cyprus have been undertaken by both J. F. Daniel and Sir Arthur Evans. Several of the comparisons show that more than a chance similarity can be found between them.

Daniel displayed the development of one hieroglyphic character into the Linears in this way.

 became Linear A  and Linear B  and Cypriot  .[31]

The hieroglyphic character is identical to a Proto-Byblic character  /t_1/.The phonetic values of the compared Linear B and Cypriot characters are /da/ and /ta/ respectively. The general agreement of shape and phonetic value between the members of the orthographic family on this character suggests that Byblic is indeed related to the Linears.

Another hieroglyphic character that displays family wide agreement is that of the bird, in the hieroglyphic  . In Linear A

[31] Daniel, "Prolegomena to the Cypro-Minoan Script," p. 256 *American Journal of Archaeology*, 1941.

the character is  and in Linear B it appears as  . This Linear B character has the value /ku/, which corresponds nicely to Proto-Byblic  /k/.

Evans demonstrated that the following hieroglyphic character developed into Linear characters.

 became Linear A  and finally Linear B  .[32]

That final Linear B character, with the value /*mi*/, thus developed from a hieroglyphic fish character identical to the Phaistos Disk character  , which compares to the character in Proto-Byblic  , which Dhorme gave the value /m_3/. This confluence of shape and phonetic value is exciting as it hints at a deep connection between the systems. This hint is borne out by further comparisons.

Evans shows that a character for a human eye developed into Linear in the following way.

 became Linear A  and Linear B  .[33]

The Linear B character here with the value /*zu*/ comes from a character much like Proto-Byblic  with the value /$\check{s}_1$/ thus shows, while not an exact confluence, still a general similarity. Any

[32] Evans, *The Palace of Minos*, 643.

[33] Evans, *The Palace of Minos*, 643.

resonance between the two systems should be taken as further powerful vindication of Dhorme's work.

A hieroglyphic character in the shape of a hand  Daniel displayed as developing in this way.

Linear A  became Linear B  which compares to a Cyprio-Minoan character  and a Cypriot Syllabic character  .[34]

Here the comparisons show some dissonance. This Linear B character's value is /*no*/ while the Cypriot character's value is /*ke*/. But a favorable comparison can be made with the Proto-Byblic character  /*q*/ and the Cypriot  , but there is no Aegean wide agreement on the value of this shape. Another Byblic character  /k/ is probably abstractly portraying a human fist, a thought borne out by the fact that in the later semitic scripts which were influenced by Byblic, the letter /k/ is named kaf, which means "the palm of the hand." The acrophonic principle seems here to be at play, but one wonders why that shape would not then carry the sound /y/ for the basic word for hand *yad*. Indeed the letter for *lyl* in the Semitic scripts is named *yad* but that letter portrays not a hand but originally the head of a dog. Perhaps the acrophonic principle was in the distant past more mnemonic than acrophonic, that is finding ways to

[34] J. F. Daniel "Prolegomena to the Cypro-Minoan Script" in *American Journal of Archaeology* xiv (1941), 254.

remember the sounds carried by characters which it had received from other sources. At any rate, many circumstances could have led to this state of affairs of dissonance between these particular characters. Perhaps they do not derive from the same hieroglyphic character. Perhaps one or more of the systems has changed the value of this character. Another suggestion however has tremendous implications to the understanding of these scripts. Clearly Linear B has aggressively mutated out of its earlier pictographic forms. This aggressive mutation may well have been accompanied by an aggressive adjustment in the phonetic values behind the characters. The Cypriotic system, while also aggressively mutated, could nevertheless be more isolated than the Cretan Linear systems, and therefore, in a manner similar to how Icelandic preserves archaic Norse, preserves more conservative phonetic values. An examination of the scripts shows that another similarity can be found between Proto- Byblic and Cypriot that does not exist for Linear A and B.

Daniel noted that the following hieroglyphic form developed in this way.[35]

Hieroglyphic  became Linear A and B  and Cypriot  /*ro*/.[36]

That final Cypriot form is identical in shape and value to Proto-

[35] Daniel, "Prolegomena," 258.

[36] J. F. Daniel "Prolegomena to the Cypro-Minoan Script" in *American Journal of Archaeology* xiv (1941), 254.

Byblic  /r_3/. This all implies that a wider Aegean family comparison proves Proto-Byblic conservative in ways that the Linear Scripts are not.

The implications of this suggestion are important for how Linear A is currently understood. There is another character from Cretan hieroglyphics which Daniel displays developing in the following way.

 became Linear A  and Linear B  /*ni*/.

A Proto-Byblic symbol with the value of /r_2/ is found as  and  . It is interesting how identical the two Linear forms are to the two variations of this Proto-Byblic character. The difference in phonetic value however is significant. This difference perhaps points to a new direction in the study of Linear A. The phonetic values for the Linear A script have been assigned arbitrarily from the values of Linear B. Yet if the phonetic values of Proto-Byblic are perhaps more conservative than those of Linear B, experiment should be made with substituting Proto-Byblic values instead of Linear B values.

These comparisons, while not numerous, are intriguing for the affinity to which they point, that in some ancient and probably unrecoverable way, a bond existed between the Linear scripts of the Aegean and the Proto-Byblic. This bond probably came from a

common parent script, which may have been the Cretan hieroglyphic system. The scripts springing out of this parent developed and eventually diverged. One should suggest that the Linear scripts, which display a faster trend to abstraction than the Byblic, probably were more commonly used. More common use gave rise to more innovations. Therefore the Proto-Byblic may deserve the term "conservative" when compared to Linear B. The Proto-Byblic may thus be preserving the phonetic values and forms of that script more faithfully.

Another issue concerning the relationship of Proto-Byblic with the Aegean stems from its probable role in the development of later scripts. Some evidence can be seen of this in the oldest forms of the Classical Greek alphabet. The simplest version of this story is that it was borrowed from the Phoenicians. This must be on some level true, yet some elements in that oldest Greek alphabet show that our understanding of Phoenician writing may be lacking. An archaic letter of the ancient Greek alphabet is the digamma  . Its phonetic value was /*w*/. It survived into modern alphabets as the Latin letter F. Interestingly, it was found predominantly in the ancient Greek alphabet as used on Crete. It disappeared from use along with the vanishing of initial /*w*/ in Greek. Yet this letter cannot be found in any of the specimens of ancient Phoenician. It can be found in Proto-Byblic  /w_3/. Another letter of the Greek alphabet s sigma, similarly cannot be found in any written specimen of Phoenician. It is identical however in name and shape to Hebrew samekh s and must therefore be related to it. The Proto-Byblic  /$\check{s}_3$/ is also a close comparison

in shape and phonetic value.

Another Greek character which seems related to Proto-Byblic but not Phoenician as we know it is pi π. The Proto-Byblic  /p_1/ is a close comparison.

These three Greek characters show that our understanding of the genesis of the oldest Greek alphabet is inadequate. The best explanation of them is that scripts exhibit phenomena of linguistics that language itself exhibits, namely, register of contexts and dialect borrowings. Since Greek obviously borrowed these characters along with the rest of the alphabet, then these characters must have been part of that alphabet even if they are not attested in the inscriptions of Phoenicia. Probably they were part of a register of writing that employed them while another register did not. Register, here as a linguistic term, means a form of a language used in one context but not another. Simply explained, one uses a different register of speech when speaking to a child than one uses when speaking to the President. Elements from the two registers may be quite specific to one or the other register. Similarly then, Phoenician may have employed characters like the digamma and the sigma, but not when doing the type of inscriptions that have survived. In any case, one sees elements of Proto-Byblic lying behind later scripts. Several Phoenician letters seem derived from Proto-Byblic, including  /*r*/, and  /*t*/, and  /*d*/, each of which compare closely to Proto-Byblic characters of like phonetic value.

Probably even the idea of orthographic "borrowing" is simplistic. Perhaps scripts develop in ways that affect each other. Dialect borrowing may result in elements prevailing in one script while disappearing in another, only to re-emerge at a later time, perhaps preserved in a restricted register of writing. The close examination of Proto-Byblic with the later scripts of the ancient eastern Mediterranean thus suggests that more detailed study is needed to fully understand the complexities of the development of Phoenician and Greek, from which, in one way or another, came almost all writing used today.

Returning to the three scripts in question, in certain items they all share a common character with a similar phonological value:

Byblic	Linear B	Cypriotic
 /t/	 /da/	 /ta/
 /p/	 /pa/	 /pa/
 /š/	 /se/	 /se/

In other cases, Byblic compares either to a Linear B or Cypriotic character, but not to both.

Byblic	Aegean	Byblic	Aegean
 /k/	 Cyp. /ki/	 /t/	 LB /ti/
 /r/	 Cyp. /ra/	 /r/	 Cyp. /ra/
 /k/	 LB /ku/	 /glottal stop/	 Cyp. /i/
 /m/	 LB /mi/	 /r/	 LB /pi/
 /w/	 Cyp. /o/	 /r/	 LB /ra/

Again, such interrelatedness coupled with divergence indicates that the best model for considering the development of these scripts is that of descent from a common ancestor. That ancestor is likely the Cretan hieroglyphics. The question of applying the phonological values of these scripts to a previously undeciphered member, such as

the Phaistos Disk will require a great deal of sophistication and nuance. In cases where all three known and deciphered scripts share both a form and phonological values, we can have certain confidence in applying the same value if the Phaistos Disk presents a character of nearly identical shape. It is understood that this comparative method will only be valid if indeed the Phaistos Disk is somehow related to the common ancestor of the known scripts. However, if the Phaistos Disk is in some way related to the ancestor of the known scripts, a refusal to use a comparative method is foolish. If we had never known Syriac and discovered it only this year, it would be a great waste of time and effort to attempt to decipher it without first experimenting with values assumed on the basis of apparently related scripts such as Arabic or Hebrew. We do not feel there is any reason to seriously doubt that the Phaistos Disk is somehow related to the ancestor of the known scripts. The Phaistos Disk was discovered in a stratus that contained Linear A tablets. It does have characters nearly identical or very closely similar to those found in the known Aegean syllabaries.

One impetus to compare the characters of the Phaistos Disk with the Proto-Byblic script comes, as we noted above, from one of the script's earliest students, Maurice Dunand. Dunand wrote of one of the bird shaped Proto-Byblic characters in his 1945 Byblia Grammata that "Il est presque identique a celui du disque de Phaestos qu'Evans avait identifie avec une colombe." (It is almost identical to that from the Phaistos Disk which Evans identified with a dove.)

The comparative method, then, will give more confident

phonological assignments for Phaistos Disk characters which match characters that agree in shape and phonological value. It will give somewhat guarded phonological assignments where a Phaistos character is nearly identical to two of the syllabaries, especially Byblic where it and one of the other syllabaries agree on phonological value. It is entirely possible that a character on the Phaistos Disk which is similar or identical to only one member of the Aegean syllabary family nonetheless has the same phonological value as that one character of that member. However for an initial exploration of the Phaistos Disk through this comparative method, we could not include such tentative assignments.

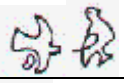
Armed with this methodology, we approached the Disk, eager to see if it would reveal its mysteries.

Chapter Five: The Application of the Values

"Even the wisest of the wise may err."

Aeschylus (525-456 BCE)

With their comparative method, Keith and Kevin decided upon a set of characters on the Phaistos Disk for which they were able to assign a phonological value based on similarity with Linear B, Cypriotic, and Byblic. These Phaistos characters, the value chosen, and the other Aegean scripts that justify that assignment are as follows. Most assignments involved at least two members of the family in agreement. In a few cases, assignment was made based on comparison solely to Byblic because of overwhelming similarity bolstered by reflecting on the potentially conservative nature of Byblic:

Phaistos Disk	Provisional Assignment	Byblic	Linear B	Cypriotic
	/m/	 /m/	 /mi/	
	/t/	 /t/	 /ti/	
	/r/	 /r/	 /ra/	 /zo/
	/k/	 /k/  /q/	 /no/	 /ke/
	/k/	 /k/  /kh	 /ku/	
	/w/	 /w/	 /wi/	
	/s/	 /s/	 /qe/	 /ja/
	/w/	 /w/		 /o/
	/r/	 /r/	 /ni/	
	/t/	 /t/	 /to/	 /ti/
	/p/	 /p/	 /pi/	
	/r/	/l/	/re/	
	vocalic	/ ' /		/i/ /a/
	/n/	/n/		
	/p/	/p/	/pu/	
	/s/	/š/	/se/	/se/

The decipherer must settle some issues at the outset when

attempting a project such as the Phaistos Disk. Foremost among these is to make a guess at the direction in which the disk is to be read.

The direction in which the Phaistos Disk should be read has been a topic of disagreement among students of the Disk for many years. Many of the published decipherment attempts have understood a right-to-left reading direction. There is one compelling reason to read the disk right-to-left, but this one reason fails in comparison to the evidence for a left-to-right reading direction.

Best and Fischer employ the right-to-left direction chiefly by comparing the Phaistos hieroglyphs to the conventions of Egyptian hieroglyphs. Egyptian hieroglyphs can be written in a variety of directions, with the rule-of-thumb for where to start reading being that the hieroglyphs face toward the beginning of the text.

Were this rule-of-thumb employed on the Phaistos Disk, one must read the disk from right-to-left, that is, from the outside of the disk toward the center. Arnold Bradshaw has written on the subject of the direction of the Phaistos Disk from the standpoint of examining the disk for physical signs such as overcuts. He judges the evidence to suggest a right to left direction. Another researcher, R.J. van Meerten[37] has examined the question as well but judges a left to right direction. Thus one can see that analyzing this data is highly subjective. We will examine Bradshaw's evidence however as we argue for a left to right reading direction.

Bradshaw has pointed to a set of characters that imply that the text of the disk was stamped from right-to-left, which would give

[37] R.J. van Meerten, "On the Printing Direction of the Phaistos Disk," *Statistical Methods in Linguistics*, 1975.

weight to that argument. The characters he shows are these.

He says of them, "The least disputable example of an overlap is to be found in Al 5 where the left hand hide overcuts the one to the right.[38]

In fact, a close examination of these characters shows that the left character does not in fact impress over the right character. Rather, the character on the right is impressed only partially, deepest on the lower right hand corner, and then less deeply extending toward the upper left where it fades to nothing.

This habit of the person who stamped the characters implies that he or she was more conscious of what was on the left than what was on the right, stamping to avoid a pre-existing character on the left. Therefore, a left-to-right direction is presumed.

Even in arguing for a right to left direction, Bradshaw quite gallantly supplies some of the better evidence for a left to right direction. He writes:

> In A28 as it now stands we have no clue to the order of stamping, but in A27 most observers state positively that the shield overlaps the prisoner, and the crested head overlaps the shield and is itself dented either by the

[38] Arnold Bradshaw, "The Overcuts on the Phaistos Disk," *KADMOS* XVI:2 1977 p 106

divider or by the bee in A28. There can be no doubt that in this sector the maker was proceeding from left to right. The question is: did he normally go that way or did a special problem induce him to reverse direction at this point?[39]

Another Phaistos word has been observed to display a mistake of spacing. The word shows itself bunched up on one end and two characters placed in an awkward manner.

Of this word Bradshaw gives the following explanation. "The maker's basic error was, in all probability, the omission of these two signs."[40]Indeed, Bradshaw's explanation is likely true, but it begs the question, to which end of a word is one more likely to make such a mistake? Is one likely to write a word and then suddenly observe that you forgot the first two characters of the word? Really such a thing is ridiculous. Much more likely is that the person stamping the characters came to a point where there was not going to be practical space to finish the word, or possibly even had forgotten an ending to the word, and then had to squeeze that in. The word A27 to which Bradshaw alluded shows this same phenomenon

[39] Bradshaw p 107

[40] Bradshaw p 106

In both these cases, it is clear that the element  was squeezed in either after the thought, or because space had run scare. All that points to a left to right reading direction.

Further evidence for a left-to-right direction comes from the presence of characters that do show a character on the right partially stamped over one on the left such as the instant in the graphic to which Bradshaw referred. This example of the circle symbol impressing over this human figure is clearest.

This evidence secures the direction of the writing as being most probably left-to- right. That alone does not prove that the reading also was done left-to-right, but few instances appear in epigraphical studies of writing going in a different direction than reading. There is a sense however that the spiral medium of the disk suggests that it be read from left-to-right, from inside toward the outside in that were one to begin writing a text from the outside in of a fixed size disk of clay, one would encounter hazards of spacing. The stamper of the disk could run out of space before the necessary information was completed. Were one writing from inside out, the size of the disk could be determined after the message was completed, and the edge of the disk trimmed off after both sides were inscribed.

One question that presents itself on reflection from the element  which concludes many of the "words" on the disk, is "What element in a language is likely to function in this way that could be included or omitted and not significantly affect the meaning of the text?" The answer is, either a conjunctive particle (and) or an article (the or a). Both Keith and Kevin suspected that the best candidate for such a commonly occurring particle, especially given their conviction that the disk be read from the inside out, was an enclitic conjunctive such as Latin *-que* or Greek Nevertheless, they did not allow this suspicion to affect their assignment of values to the Phaistos Disk. Their comparison with Byblic led them to assign a value of */s/* to the character  because there was no agreement inside the Aegean orthographic family about the shape, and Byblic was judged more conservative. This assignment would later be reconsidered.

Considering all of the above factors, they proceeded with a left-to-right reading direction. Other Phaistos Disk students have also assumed this direction, including Evans who wrote that the slash mark on the disk was "evidently engraved by a hand accustomed to write from left to right.[41]

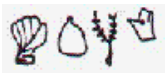
In what emerged, they believed they saw the first deciphered word:

 / t-r /

[41] Scripta Minoa p 288

Kevin had discovered the element TR occurring four times in slightly forms on the disk. He puzzled over this element, imagining the possible words that could lie behind these sounds. Finally he settled with Ocham's Razor and guessed that the word was trying to represent Indo-European "three" in Greek, *treis/tria*, Latin *tres*. This seemed confirmed by a curious internal structure. On each side of the disk there is a word which occurs three times:

On one side:


KTR?(?)

On the other:



WKS?

Kevin began to assume that the medium of the disk was magical, as in magic bowls for spells. Therefore he believed he could see in these repeated words, KTR, 'curse,' like Greek *katara*, and in WKS?, some word related to *ergo* cognate to English 'work', which in both languages is the idiomatic verb for "working magic." The archaic Greek form of this word had been pronounced /*wergo*/. Kevin shared these guesses with Keith, who was intrigued by them. The brothers scoured the rest of the disk for findings from these initial character assignments, but nothing much more compelling emerged. They continued studying the disk for months in this

fashion, but the trail had grown cold.

They faced the reality that the most conservative application of values based on their comparative method would never produce a decipherment that was substantial enough to impress anyone. Unless some further corroborative evidence confirmed the readings, the decipherment, even if true, would never be accepted. Since this did not seem forthcoming, the project had reached a natural and disappointing conclusion.

What they had found on the disk was interesting. They were still intrigued and excited about it. The problem: it was wrong.

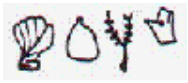
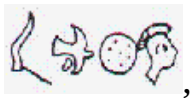
Chapter 6: The Breakthrough

"Any man can make mistakes, but only an idiot persists in his error."

- Cicero (106-43 BCE)

The Massey Twins had attempted an application of values from a nuanced comparative method based on the Aegean syllabaries to the Phaistos Disk. While they felt that the returns were suggestive of some progress, they were faced with the probability that any attempt to assert any meaning from the disk was never going to be compelling. It was, afterall, no different from the other numerous attempts. Recalling the two requirements of a successful decipherment, the application of values and interpretation is but the first stage. Proving that the result is statistically compelling is the stage at which countless attempts have met a sudden death. Their claim to make sense of part of the disk could not be verified or disproven. As such, it was not an important contribution to the decipherment of the Phaistos Disk, even if it was true. Their attempt to decipher the Phaistos Disk had, not surprisingly, run into the main deficiency of such attempts on the tiny corpus represented here. A correctly deciphered disk could still be unable to convince others of its rectitude because there would be no way to verify the results from another angle. Unless something unexpected happened, such as the discovery of many other artifacts using the script, it would not likely be able to gain widespread acceptance. Even more unexpected would be the possibility that some aspect of the one disk we do have could provide the verification sought by scholars. Nevertheless, with just some minor adjustments and the collaboration of another scholar, this

most unexpected possibility was about to present itself.

One addition the Masseys made as part of their ongoing attempt to decipher the disk was to analyze the endings of the Phaistos Disk words. It happens that 32 of the Phaistos Disk's 61 words end with one of only three characters the headdress head  , the cat or lion head  , or the hide  . This seemed simply too much of a phenomenon to be random. The likely conclusion is that these three symbols figure prominently into common endings of nouns or verbs. The Masseys decided to make some provisional assignments to these characters based on this assumption. Since the headdress head and the cat head occur the most frequently, and each terminates one of the thrice repeating words,  and  , the Masseys decided to understand these words for the time being as plural nouns, and assign both the head and the cat head with the value /*y*/ following the Greek plurals, masculine plural ending /*oi*/ and feminine plural ending /*ai*/. Also, the Masseys kept in mind that many Indo-European languages simply mark the plural with some form of /*s*/, therefore, that potential had to be kept close at hand. Nevertheless, even with these additions to the theory, nothing encouraging appeared in the attempt to decipher the disk.

Therefore, the Masseys sought collaboration from the world's scholars and students for their project. The Masseys shared their findings including these vocabulary items with several scholars from whom they desired responses. Among these was Dr. Emmett Bennett,

Professor Emeritus of the University of Wisconsin. Dr. Bennett has become of late a sort of collector of Phaistos Disk decipherments. He is probably among the world's foremost experts on the attempts made to decipher the disk.

Dr. Bennett, as noted earlier, secured his rank among the leading scholars of Aegean orthography by his publication of *The Pylos Tablets.* This book had put forth in graphic representation the various Linear B texts. This allowed scholars around the world to try their hands at deciphering that mysterious text. When Ventris was deciphering Linear B, it was with these texts. In later years Bennett was among the first proponents of the Linear B cracking and has contributed copiously to the literature of that field.

The Masseys explained their theory to Professor Bennett in the fall of 1996. He listened patiently, asked a few questions, but was not convinced. The twins did not expect more. They knew that Dr. Bennett does not endorse any of the attempts to decipher the Phaistos Disk. In particular, his reputation was once unceremoniously mistreated by Stephen Fischer when Fischer used private correspondence from Bennett, without his permission, as a foreword to his book *Evidence for Hellenic Dialect in the Phaistos Disk.* Bennett has since then, and will always, tread carefully with having his reputation linked with any attempt to decipher the disk. Bennett encouraged the Masseys in their work as an interesting exercise and admonished them to keep careful track of what they find, when, and how. Indeed, this book is the product of the log they kept about that progress, following Bennett's advice.

Even as they tried to elicit responses and feedback for their

theory, The Masseys themselves had a nagging doubt about whether it was producing anything substantive. They nevertheless published the theory on the World Wide Web, gaining a great deal of attention through that emerging medium. They placed the page in February of 1997. The Phaistos Disk page receives thousands of visits a year. They received hundreds of responses and suggestions because of the Web Site. Each of these they took seriously and some made interesting observations. They began sensing even more profoundly throughout the year that since no truly corroborating findings had been produced by any of the scholars working with the material had emerged, that perhaps they were missing something important about the Phaistos Disk.

Around this time, Keith and Kevin began to feel that their application of Byblic values to the disk, at the expense of some obvious linear b and Cypriotic parallels, was indefensible. They adjusted only two of their values, reading  as /q/, compared to the Linear B  /qwe/, and  as /t/, compared to Linear B  /ta/. The earlier Byblic comparisons lacked the internal detail shared by the linear characters. This realignment of values led them to a conclusion. The common cluster  , which occurs at the end of thirteen words, is too numerous to be a morphological marker. The character  they gave the linear b value of q. The character  had been given a value of /y/ from the internal decipherment effort of identifying words as plural marked. However, in retrospect, some tenuous comparative data could support this assignment as well.

Byblic presents a character  which is a /y/, and Cypriotic presents a character  which carries the value /ya/. This led them back to their initial suspicion that this common cluster was an enclitic conjunctive. Indeed the comparative method had suggested now phonological values that made this conjunctive particle match that which is known from Latin and earlier Greek sources. A comparison, then, with the enclitic qwe, 'and', was compelling. Byblic had shown a use of letters in a quasi Mater Lectionis manner with both w and y. They therefore removed the enclitic from the panels in which it occurred and considered the remaining characters as words in their own right.

They continued into the autumn of 1997 studying their findings, vainly trying to make progress, and responding to the various queries and suggestions that came to them. They never found any suggestions that pointed toward any useful direction, until October 10th, 1997, when a suggestion came from Miguel Carrasquer Vidal of Belgium, which directed them toward their final result.

Mr. Vidal is a computer programmer and gifted amateur Indo-European scholar. Mr. Vidal comments included the following.

He first comments in agreement with the
production of the word

"Step 3: read word B I as /t-r(i)/. I suppose there may be a connection between PB [proto- Byblic] and the PhD [Phaistos Disk], but I prefer to look for resemblances with the local Cretan scripts (hieroglyphic, Linear A, Linear B). In this case, the "hat" is Linear B

/ti/, and the "water" is Linear B /ra2/ (phonetically /ri/). So using my method, I get /ti-ri/ as well. Could it be Greek? Obviously. It might also be another IE [Indo-European) language of course."f[42]

With respect to /K-T-R-?/ with Greek "curse," Vidal gave the suggestion that changed the direction of the Massey twins' study.

"As to /ktrs/, following so closely on /try/, my first thought would have been of IE *kwet(w)ores "4". I see no indications that the Linear B q-series was used in the Phaistos disk, so "4" might have been written /ke-tu-re-sV/"

Earlier in the year, the Massey twins' theory as it then stood had been accepted to be presented in the Ugaritic and Northwest Semitic group of the Society of Biblical Literature at their Annual Meeting in San Francisco in late November 1997. In preparation for that presentation, the twins got together in late October. They worked over the course of a weekend to deliver speeches on the decipherment work, but instead worked following up on Vidal's suggestion. What resulted was the breakthrough in cracking the disk.

The various forms of the words, /T-R/ and /K-T-R/ on the disk are among the more numerous. They observed that, though there are so many occurrences of these words, each and every occurrence bears the mysterious "slash." Since there are 61 distinct words on the disk, and only 17 have the slash, then the fact that these two words occur repeatedly having the slash is obviously by design. Following are the words that have the slash, as they appeared at this point in the decipherment efforts:

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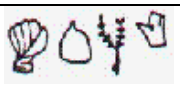
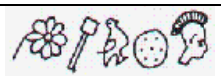
[42] Private Correspondence.

Recto Side Slashed Words	Provisional Assignment	Verso Side Slashed Words	Provisional Assignment
	?-?-T		T-R
	W-K-K-Y		K-T-R-Y-?
	Vowel-S		T-R-T
	W-K-K-Y		T-R-Y
	W-K-K-Y		K-T-R-Y
	Vowel-S		K-T-R-Y-?
	?-T-K-K-Y		T-W-T-?
	T-R-Y		Vowel-T-?-Y
	W-Vowel-N-K-Y		

Clearly something about these words requires the slash, the Masseys began to think. The two words T-R and K-T-R have in common only that they are both numbers. The twins decided then that it would be worth pursuing whether perhaps every word with the slash was a word for a numeral. The theory paid off instantly.

Mr. Vidal had sent a chart with Proto Indo-European (PIE) numbers and possible syllabic representation. Looking at this chart, and removing the enclitic conjunctive particle, K-Y, you can perhaps spot where the Twins found the other thrice occurring Phaistos Disk

word.

Vidal's chart

Poss. syllabic writing:

1. he:s (fem. mia) [PIE *sem-s, *smia:]	E-S
2. duo: [PIE *duo:]	D-W
3. treis [PIE *trei-es]	T-R-(Y)-(S)
4. kwettares, kwettur-es [PIE *kwetwores]	Q-T-R-(S)
5. penkwe [PIE *penkwe]	P-(N)-Q
6. (h)weks [PIE *swek-s]	W(K)-S
7. hepta [PIE *septm]	E-(P)-T
8. okto: [PIE *okto:]	O-(K)-T
9. ennewa [PIE *Hnewn]	E-N-W
10. deka [PIE *dekm]	D-K
11. hendeka [PIE *sem-dekm]	E-(N)-D-K
12. do:deka [PIE *dwo:-deka]	D-(W)-D-K
13. treis kai deka	T-R-(Y)-(S)-K-(Y)-D-K

The Linear B word for six is */wek-/,* and a form of this word is what ties behind the Phaistos Disk word /w-k-/. It occurs three times, each occurrence with the slash mark. This new interpretation of the old data was now beginning to display coherence beyond what could be expected randomly. The twins continued the hunt and found immediately the following words that could be matched with archaic Indo-European numbers.

 /T-R-Y/ akin to Greek tria "three"

 /W-K-(K-Y)/ akin to Linear B /wek/ "six"

 /K-T-R-Y/ like Proto-Indo-European /kwettor/ "four"

 /Vowel-S/ akin to Greek *eis* "one"

Keith and Kevin saw here a building body of evidence that the "slashed words are numbered words" theory was true. A small of amount of guess work and reconstruction was able to supply a few other words that could possibly be portraying numbers.

One of the slashed words lacks only its final character for a full reading.

 /T-W-T-?/

That final character, portraying a dagger, is nearly identical to a Linear B character for a dagger,  /ki/. Supplying the value /k/ to the Phaistos dagger, we have /T-W-T-K/ for this word, exactly what would be expected in syllabic writing for dwdeka "twelve."

These five number words account for 13 of the 17 slashed words, a formidable percentage for mere randomness to be at play. Yet another Phaistos slashed word can be reconstructed as a

recognizable Indo-European number, though not in a form clearly previously observed.

 /W-Vowel-N-(K-Y)/

The Indo-European word for "nine" is /ennewa/. This form seems to have developed into the various languages differently. The Classical Greek word was ennea. Latin "nine" was *novem*. It is not bizarre to imagine that some metathacized form developed like /wenna/. Thus we suggest that this word is representing "nine."

The other three slashed words cannot be as positively identified as numbers.

 /?-T-K-(K-Y)/

 /Vowel-T-?-Y/

 /?-?-T/

Of the three, the form //?-T-K-(K-Y)/ is the most promising. It contains the element T-K, for deka, "ten." Were the first character reconstructed as a vowel, it could be linked with the number "eleven," though a good question would be why the character from the word "one" wasn't used. The other forms could be trying to portray some

word akin to Greek okta for "eight," or archaic septa. In Linear B, consonant clusters like /kt/ and /pt/ are sometimes written only as /t/. That would leave a question of what the other characters are doing. It will not be finally necessary to explain each and every slashed word as a number now. It is enough that all but three of the 17 instances can be convincingly linked to recognizable numbers.

There is a parallel to the slash mark giving the key to cracking the disk in the history of decipherment. Champollion's decipherment of Ancient Egyptian Hieroglyphics was also made possible by a characteristic that set some words off from others. This is the cartouche, the stylized box that encloses names in hieroglyphics. Before Champollion made the guess that the cartouche was enclosing names, it was impossible to decipher the hieroglyphs, even with a multi-lingual text like the Rosetta Stone.

Champollion guessed that cartouches enclose names, and was able to guess from the multi-lingual references what those names were. The deciphering occurred fairly quickly after this observation for cartouche after cartouche was supplying new phonetic values for the different hieroglyphs.

The slash mark provides a similar key. The slash marks words that are numbers, they are a discrete corpus, small and manageable. One can be more confident about what the slashed words are and therefore phonetic values can be more confidently established for symbols that appear in slashed words.

A strange irony emerges now in the likely content of the Phaistos Disk. The various attempts to decipher the disk have usually

tended toward the fantastic. Indeed, the Masseys assumed a magical text at first as well, which affected their expectations toward finding vocabulary of magic. The reality of the disk may be much more mundane.

With the listing of number words the most likely conclusion is that the disk is something very much like most of the Linear B tablets, a record of mercantile exchange.

What may have happened in the world of the Phaistos Disk is that farmers and merchants brought commodities to a palace, temple, or treasury and deposited them in this central location. For this deposit, they would be given a record, somewhat like a receipt. This is what Linear B tablets tended to be, listings of commodities and goods. The Phaistos Disk is the same thing. The disk represents a possible attempt at efficiency in ushering through the depositors. Perhaps as a farmer would come before the clerk, the goods would be deposited, and the clerk would produce the record on a clay disk using the little stamps representing the syllables of the language. This would be faster than the Linear writing, deposits could be processed more quickly.

Perhaps the disk was made by someone depositing goods at a temple, from which the deposit would be understood to secure some religious favor. It is impossible to recreate the economic, political, or religious situation of the day, but this scenario of the creation of the disk is consistent with what is already known through the Linear B tablets.

Possibly, the exact type of deposit the Phaistos Disk represented differed from that of the Linear B tablets. The large

number of extant Linear B tablets suggests that they were meant to be permanent records, kept for future examination. If that is so, then they are receipts of payment for something like taxes. Perhaps the Phaistos Disk type deposit receipts were something else, deposits that remained under the control of the depositor, such as in a bank. When the depositor withdrew the commodities, the receipt, the disk, was meant to be destroyed. The clerk would take the disk, return the commodities, possibly with interest, and smash the receipt to finalize the arrangement. This would explain our lack of numerous Phaistos Disks in the archaeological record.

The Masseys shared these new findings with Dr. Bennett in early November 1997. In observing the new presentation, Dr. Bennett made an interesting observation about the number scheme. The reader should first quickly understand, Dr. Bennett's observation does not suggest in any way his endorsement of the theory. Dr. Bennett does not currently endorse this or any theory on the decipherment of the Phaistos Disk. Dr. Bennett made an observation that the Massey twins missed because he possesses a keen analytical mind, suited to puzzles such as the Phaistos Disk. Dr. Bennett noticed in the numbers Keith and Kevin claimed were on the disk a pattern that surprised them, but in retrospect makes a great deal of sense, especially given the probable genre of the disk.

Dr. Bennett noted that a clear pattern can be seen in the more frequently occurring numbers on the two sides of the disk. Dr. Bennett noted that the two chief numbers on the recto side, six and one, add up to seven. The two chief numbers on the verso side, four and three, also add up to seven. What this pattern points to is an

underlying duodecimal number system on the disk. The accounting of the disk goes by twelves rather than by tens.

Many ancient cultures employed a duodecimal system of accounting instead of the more modem decimal system. A duodecimal system has advantages over a decimal system in commodities exchange because twelve divides into all the chief fractions with round numbers. Half of twelve is six, a fourth of twelve is three, a third of twelve is four. Ten does not so neatly divide. Vestiges of older duodecimal systems can be seen in non-metric weights and measures, and in the sale of some commodities, like eggs.

The numbers that appear on the disk clearly point to a duodecimal system. The chiefly occurring numbers, four, three, and six are the basic fractions of twelve. Twelve itself occurs in the word /T-W-T-K/.

Bennett's observation hints that the numbers on the disk, which themselves already defy randomness, also portray a pattern which makes chance an ever more remote player in this study.

Authors' Epilogue

At the beginning of our tale, we asked the reader to assess our decipherment on the basis of two questions,

1) Is our methodology sound and objective?

2) Do the findings produced by the methodology defy that which mere chance could be expected to generate?

We employed a comparative method to arrive at phonological values for the Phaistos Disk. Dr. Emmett Bennett immediately criticized this approach on the grounds that internal decipherment alone is an acceptable method. We assert again that his position is untenable. A comparative method is invalid only if the scripts are unrelated. If they are related it is an obviously valuable approach.

One scholar criticized our comparative method on the grounds that the similarities of characters is a purely subjective matter. While clearly a certain amount of subjectivity could creep in at this point, nevertheless, we feel confident that our comparisons are not far fetched. But it is not a matter of mere opinion that the Phaistos characters and the corresponding Byblic, Linear B, and Cypriotic character are similar. Where and when there is agreement between two or more of the known scripts about the phonetic value of similar characters, a growing level of confidence comes with an assignment of phonetic value.

On the requirements of decipherment, Chadwick wrote the following:

> It may be difficult to assess the point at which ultimate scientific proof can be conceded. But a relative degree of certainty must be granted to the

theory when we try to estimate the odds against its results having been obtained by chance.[43]

Any decipherment is finally judged on the possibility that it is random. Consider this. Were your cat to play with your computer keyboard and produce 200 characters on your screen, how likely would it be that following seventeen instances of a dollar sign, you found the vocal names of the months in French?

Applying this absurdity to our study, the Phaistos Disk presents 17 words that are marked with a distinguishing characteristic. In all, eight different words have this mark. Six of them are the words for numbers in Greek that we confidently identify. However, these six constitute 14 of the 17 slashed words. Therefore, of the slashed words on the disk, 82% are easily read as Greek numbers.

Therefore, the results of this study satisfy the two questions posed at its beginning. Obviously, work must still be done on further deciphering the text. We continue to invite any and all students of the disk to review our progress in the hope that they can identify yet more words and phrases that may be lurking behind the syllables.

[43] Chadwick, *Decipherment*, p. 23.