A COMPUTER PROJECT FOR THE CODICES TOGETHER WITH SOME OBSERVATIONS ON CODICES MADRID AND PARIS

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I

A Computer Project for the Codices

I have been working with a certain aspect of the Maya hieroglyphic codices. My method seems to hold promise as an analytical tool. This paper is an attempt to describe my results to date and to estimate the potential of the method.

For this discussion, pages 2-23 of Dresden are considered, although I have applied the same technique to other parts of Dresden, the Madrid and even Codex Laud as an explanatory measure. Munroe Edmonson has translated a number of the eighteenth century divinatory almanacs, which I shall tabulate as soon as it is received, with my project, in order to examine this material for possible correlations. The first step was to work out fully each divinatory almanac, writing out all days that reach each glyphic group or block and rectifying the numerous errors. Some time has been spent in trying to perceive a purpose or pattern behind the errors, but to date I can only say, rather feebly, that slightly over half of all the errors studied show up in the next to last positions. This work has been aided by two very simple tables which I constructed. (See tables I and II.)

Using table I, if one wishes to add 28, to LAMAT, one reaches CIB. The other table is similar; however, it is used to determine the day number. If the coefficient of LAMAT was 6, adding 28 would give one 8, CIB. The numerical coefficients are easily worked in one's head, but the tables save errors as well as work.

Working with the first 53 almanacs produced a number of minor discoveries, only one of which seems worthy of mention at this time. In his excellent work, *Maya Hieroglyphic Writing* (1950), J. Eric

Estudios de Cultura Maya. Vol. VII, 1968
Facultad de Filosofía y Letras, UNAM
http://www.iifilologicas.unam.mx/estculmaya/

TABLE I

No. of Days Added to Reach Day Name

The spelling of Chuchan and Etz'nab have been elided to fit the table

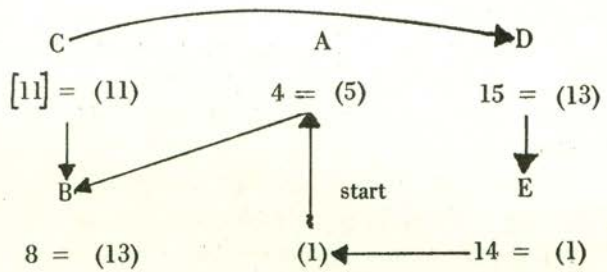
20 +	21 1	22 2	23 3	24 4	25 5	26 6	27 7	(28) 8	29 9	30 10	31 11	32 12	33 13	34 14	35 15	36 16	37 17	38 18	39 19
IMIX	IK	AKBAL	KAN	CHICC	CIMI	MANIK	LAMAT	MULUC	OC	CHUEN	EB	BEN	IX	MEN	CIB	CABAN	EZNAB	CAUAC	AHAU
IK	AKBAL	KAN	CHICC	CIMI	MANIK	LAMAT	MULUC	OC	CHUEN	EB	BEN	IX	MEN	CIB	CABAN	EZNAB	CAUAC	AHAU	IMIX
AKBAL	KAN	CHICC	CIMI	MANIK	LAMAT	MULUC	OC	CHUEN	EB	BEN	IX	MEN	CIB	CABAN	EZNAB	CAUAC	AHAU	IMIX	IK
KAN	CHICC	CIMI	MANIK	LAMAT	MULUC	OC	CHUEN	EB	BEN	IX	MEN	CIB	CABAN	EZNAB	CAUAC	AHAU	IMIX	IK	AKBAL
CHICC	CIMI	MANIK	LAMAT	MULUC	OC	CHUEN	EB	BEN	IX	MEN	CIB	CABAN	EZNAB	CAUAC	AHAU	IMIX	IK	AKBAL	KAN
CIMI	MANIK	LAMAT	MULUC	OC	CHUEN	EB	BEN	IX	MEN	CIB	CABAN	EZNAB	CAUAC	AHAU	IMIX	IK	AKBAL	KAN	CHICC
MANIK	LAMAT	MULUC	OC	CHUEN	EB	BEN	IX	MEN	CIB	CABAN	EZNAB	CAUAC	AHAU	IMIX	IK	AKBAL	KAN	CHICC	CIMI
(LAMAT)	MULUC	OC	CHUEN	EB	BEN	IX	MEN	(CIB)	CABAN	EZNAB	CAUAC	AHAU	IMIX	IK	AKBAL	KAN	CHICC	CIMI	MANIK
MULUC	OC	CHUEN	EB	BEN	IX	MEN	CIB	CABAN	EZNAB	CAUAC	AHAU	IMIX	IK	AKBAL	KAN	CHICC	CIMI	MANIK	LAMAT
OC	CHUEN	EB	BEN	IX	MEN	CIB	CABAN	EZNAB	CAUAC	AHAU	IMIX	IK	AKBAL	KAN	CHICC	CIMI	MANIK	LAMAT	MULUC
CHUEN	EB	BEN	IX	MEN	CIB	CABAN	EZNAB	CAUAC	AHAU	IMIX	IK	AKBAL	KAN	CHICC	CIMI	MANIK	LAMAT	MULUC	OC
EB	BEN	IX	MEN	CIB	CABAN	EZNAB	CAUAC	AHAU	IMIX	IK	AKBAL	KAN	CHICC	CIMI	MANIK	LAMAT	MULUC	OC	CHUEN
BEN	IX	MEN	CIB	CABAN	EZNAB	CAUAC	AHAU	IMIX	IK	AKBAL	KAN	CHICC	CIMI	MANIK	LAMAT	MULUC	OC	CHUEN	EB
IX	MEN	CIB	CABAN	EZNAB	CAUAC	AHAU	IMIX	IK	AKBAL	KAN	CHICC	CIMI	MANIK	LAMAT	MULUC	OC	CHUEN	EB	BEN
MEN	CIB	CABAN	EZNAB	CAUAC	AHAU	IMIX	IK	AKBAL	KAN	CHICC	CIMI	MANIK	LAMAT	MULUC	OC	CHUEN	EB	BEN	IX
CIB	CABAN	EZNAB	CAUAC	AHAU	IMIX	IK	AKBAL	KAN	CHICC	CIMI	MANIK	LAMAT	MULUC	OC	CHUEN	EB	BEN	IX	MEN
CABAN	EZNAB	CAUAC	AHAU	IMIX	IK	AKBAL	KAN	CHICC	CIMI	MANIK	LAMAT	MULUC	OC	CHUEN	EB	BEN	IX	MEN	CIB
EZNAB	CAUAC	AHAU	IMIX	IK	AKBAL	KAN	CHICC	CIMI	MANIK	LAMAT	MULUC	OC	CHUEN	EB	BEN	IX	MEN	CIB	CABAN
CAUAC	AHAU	IMIX	IK	AKBAL	KAN	CHICC	CIMI	MANIK	LAMAT	MULUC	OC	CHUEN	EB	BEN	IX	MEN	CIB	CABAN	EZNAB
AHAU	IMIX	IK	AKBAL	KAN	CHICC	CIMI	MANIK	LAMAT	MULUC	OC	CHUEN	EB	BEN	IX	MEN	CIB	CABAN	EZNAB	CAUAC

TABLE II

No. of Days Added to Reach Day No.

39	27	(28)	29	30	31	32	33	34	35	36	37	38
26	14	15	16	17	18	19	20	21	22	23	24	25
13	1	2	3	4	5	6	7	8	9	10	11	12
1	2	3	4	5	6	7	8	9	10	11	12	13
2	3	4	5	6	7	8	9	10	11	12	13	1
3	4	5	6	7	8	9	10	11	12	13	1	2
4	5	6	7	8	9	10	11	12	13	1	2	3
5	6	7	8	9	10	11	12	13	1	2	3	4
(6)	7	(8)	9	10	11	12	13	1	2	3	4	5
7	8	9	10	11	12	13	1	2	3	4	5	6
8	9	10	11	12	13	1	2	3	4	5	6	7
9	10	11	12	13	1	2	3	4	5	6	7	8
10	11	12	13	1	2	3	4	5	6	7	8	9
11	12	13	1	2	3	4	5	6	7	8	9	10
12	13	1	2	3	4	5	6	7	8	9	10	11
13	1	2	3	4	5	6	7	8	9	10	11	12

TABLE III



[ ] = Reconstructed
( ) = Red Number

AHAU
EB
KAN
CIB
LAMAT

(1)+4 = (5)+8 = (13)+[11] = (11)+15 = (13)+14=(1)

1-AHAU	5-KAN	13-EB	11-AKBAL	13-ETZNAB	1-EB
1-EB	5-CIB	13-KAN	11-MEN	13-OC	1-KAN
1-KAN	5-LAMAT	13-CIB	11-MANIK	13-IK	1-CIB
1-CIB	5-AHAU	13-LAMAT	11-CAUAC	13-IX	1-LAMAT
1-LAMAT	5-EB	13-AHAU	11-CHUEN	13-CIMI	1-AHAU

Thompson says on page 24 in his description of Codex Dresden, pp. 2-23: "...divinatory almanacs in all sections except for a scene of human sacrifice on page 2..." I found the scene of human sacrifice to be an almanac also. In a personal communication Thompson, after looking into the matter, noted that Gates and Gann had also observed that page 3 was an almanac. The schematic table III shows this almanac.

The next step was to list all of the glyphic groups reached by each group of days. Since each group of days was preceded by the same number, the 20 days under the heading of each of the 13 numbers was listed. Before going into this further, the reader is referred to my notation. (See table IV.) This notation was introduced not to cloud the issue, but because it is more concise: Example: 2A = la-e, that is, the almanac on page 2A shall be called nº 3 and has 5 glyphic groups reading from left to right, a through e. 3c is the third glyph on page 2A.

Table V is a list of all glyphic groups reached by days with a 1 prefix in pages 2-23 of Dresden.

Standard groupings such as: IK, CIMI, OC, IX and ETZNAB, are separated by 52 days and constitute over 7/8 of the almanac, while the 65-day interval groups introduce a random element, as 31A, C and D (my notation.)

After I had finished summing up the ritual calendar according to the same number prefixes, table V, this tabulation was then recopied in order of their occurrence in the ritual calendar. Table VI shows a part of this tabulation.

Of the 260 days, only 4, all with a 13 prefix, reach no glyphic group, and one day reached 16 glyphic blocks or groups.

In table VII, I have drawn out the glyphic groups for 2 LAMAT. This day has a fairly high degree of homogeneity; other days are quite heterogeneous. It seems to me that easily applied parameters could be established on the level of main glyph, infix, postfix, superfix and subfix. A statistical study could be done, productive of valuable results.

My method consists then in tearing the Codices apart and reassembling them, not in terms of the subject of each almanac but with the view of achieving a kind of profile or biography of each day. I believe that, when it is completed, this rather simple and basic study will have value in comparing the Codices, year bearer shift, etc., comparison of the glyphic biographies of certain days with their known and imagined roles, luck, etc., and other fruitful studies.

TABLE IV

Page Nº	*My Nº*	Page Nº	*My Nº*
1B	= 1a-b [1]	13B-14B	= 27a-f
1C	= 2a-b [1]	13C-14C	= 28a-d
2A	= 3a-e [2]	14A-15A	= 29a-d
2B	= 4a-b [3]	15A	= 30a-b
2C	= 5a-c	15B-16B	= 31a-d
2D	= 6a-b	15C	= 32a-b [5]
3A	= 7a-e	16AI	= 33a-b [5]
4A-10A	= 8a-t	16AII-17A	= 34a-d [5, 6]
4B-5B	= 9a-g	16B-17B	= 35a-c [5]
4C-5C	= 10a-d	16C-17C	= 36a-f [5]
5B-6B	= 11a-d	17B-18B	= 37a-f [5]
5C-6C	= 12a-d	17C-18C	= 38a-c
6B-7B	= 13a-d	18A-19A	= 39a-e
6C-7C	= 14a-d	18C-19C	= 40a-b
8B	= 15a-b	19A-21A	= 41a-e
8C	= 16a-b	19BI	= 42a-b
9B	= 17a-b	19BII-20B	= 43a-b
9C	= 18a-b	19C-20C	= 44a-e
10A-12A	= 19a-e	20B	= 45a-c
10B1	= 20a-b [4]	21A-22A	= 46a-f
10BII-11B	= 21a-e	21B	= 47a-d
10C-11C	= 22a-f	21C-22C	= 48a-d [3]
12A	= 23a-b	22A-23A	= 49a-e
12B	= 24a-c	22B	= 50a-d
12C	= 25a-c	22C	= 51a-f
13A	= 26a-b	23B	= 52a-f

[1] The almanacs of page 1B and 1C are too badly damaged to be included in the study.

[2] No day Nº coefficient.

[3] Questionable coefficient.

[4] There are too many errors in this table for me to correctly reconstruct it with certainty.

[5] In these ritual almanacs with no day Nº coefficients, their range has been studied, that is, by substituting all Nos. 1-13 those days of the total of 260 have been noted but not tabulated with the definite almanacs.

[6] Zimmermann has shown me that 16AII-17A is one table.

TABLE V

GLYPHIC GROUPS ASSOCIATED WITH DAY NAMES PRECEDED BY[1]

IMIX	9B	18A	22F	24B	47A				
IK	8F	24C	31D						
AKBAL	3C	5B	11D	13D	18A	22A	24A	47A	
KAN	7E	8P	31C						
CHICCHAN	9B	18A	22F	24B	31A	47A			
CIMI	8F	24C							
MANIK	3C	5B	11D	13D	18A	22A	24A	31D	47A
LAMAT	7E	8P							
MULUC	9B	18A	22F	24B	31C	47A			
OC	8F	24C	31A						
CHUEN	3C	5B	11D	13D	18A	22A	24A	47A	
EB	7E	8P	31D						
BEN	9B	18A	22F	24B	47A				
IX	8F	24C	31C						
MEN	3C	5B	11D	18A	22A	24A	31A	47A	
CIB	7E	8P							
CABAN	9B	18A	22F	24B	31D	47A			
ETZ'NAB	8F	24C							
CAUAC	3C	5B	11D	13D	18A	22A	24A	31C	47A
AHAU	7F	8P	31A						

3C is questionable.

31A, C, and D have a different interval than the other glyphic groups in this table.

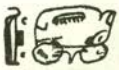
TABLE VI

Day	*Associated Glyphic Groups*								
1 IMIX	9B	12A	22F	24B	47A				
2 IK	12A	22A	27B	28C	32A	45B	49E	51F	
3 AKBAL	8B	18B	21A	22D	49A	50D			
4 KAN	3A	19C	38C	49A					
5 CHICCHAN	9C	52C							
6 CIMI	8C	18A	39B	31B	40C	49C			
7 MANIK	22B								
8 LAMAT	8D	9C	18B	22B	29D	43A	47B		
9 MULUC	10A	16A	23A	27C					
10 OC	5A	13B	42B						
11 CHUEN	7C	14B	18A	41C	44A				
12 EB	8E	9D	19D	21B	49B	51A			
13 BEN	12B	25B							
1 IX	8F	24C	31C						
2 MEN	9D	18B	28D	39C	45C	46D	47C	49E	
3 CIB	3B	8G	16B	27D	31B	49D	50A		
4 CABAN	14C	22C	49A	52D					
5 ETZ'NAB	22E	46E							
6 CAUAC	18A	38A	49C						
7 AHAU	8H	18B	46F	47D	52A				
8 IMIX	9E	15A	21C	29A					
9 IK	8I	28A	44B						
10 AKBAL	13C	27E	46A						
11 KAN	8J	9E	19E	51B	41C				
12 CHICCHAN	11C	16A	28B	39D	46B	49B			
13 CIMI	7D	8K	22F	25A	29A				
1 MANIK	3C	5B	11D	14D	18A	22A	24A	31D	47A
2. LAMAT	*6A*	*9F*	*28C*	*32A*	*49E*				
3 MULUC	17B	18B	49D	50B	52E				

TABLE VII

Zimmermann numbers of groups reached by 2 Lamat

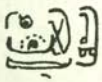
Group 6A



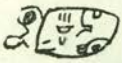
1.166:75

1.1350:61

Group 9F



706.60:81

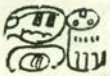


15.109

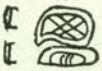
74.1310/161.87

80.148

Group 28C

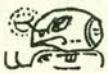


1352:80-1361?



74.1350:80

80.1320:80



13.146b:79

1310/161.87:63

III.1330:76

Group 32A

166:75.76

1341a.62:82

Group 49E
100i-1320a:706**
169.61**

707a*.32

80.148

10.152:63

12a.*131

*There seems to be significant variation here, thus the designation a.
**Dr. Günter Zimmermann has suggested these reconstructions for the partially destroyed glyphs in this group.

I will now discuss my current project by using table VII. The Zimmermann numbers are summed and a ration between unique and multiple occurrence is formed. Using our 2 LAMAT examples, these results are tabulated on table VIII.

Thus we establish the heterogeneity-homogeneity ratio 23/29 for 2 LAMAT. I intend to use this type of ratio to help determine whether those errors in the tables which are of the class additive are purposive. When errors occur they reach a new set of days by summing the heterogeneity-homogeneity ratios formed on the assumption that the errors are purposive and the ratios formed by connecting the errors, we then have an indication of which hypothesis is correct. To speed up this process, this work will be done by computer. The program has not been completed but will be evolved from the following:

$$\Sigma \frac{\text{singular}}{\text{multiple}}$$

N = total number of glyphs
s = number of singles
n = number of multiples

compute: $\sum_{n=1}^{z} \cdot \frac{s}{n}$

where $\frac{s_1}{n_1} + \frac{s_2}{n_2} \ldots \frac{s_z}{n_z}$

and z = total number of considered cases
and N = $n \pm s$

Where populations containing purposive and reconstructed tables are compared, double summation would be used.

$$\sum_{i=1}^{13} \sum_{j=1}^{20} R\ (i, j)$$

With the program being of this type:

```
DO (i = 1, 13, j = 1, 20)
SUM = 0
SUM = SUM — R (i, j)
PRINT SUM
```

TABLE VIII

Zimmermann Nº Single occurrence	Group	Zimmermann Nº Multiple occurrence and Nº of repetitions	Groups
1**	6A	2-166	6A, 32A
15	6A	2-75	6A, 32A
109	6A	2-1350	6A, 28C
60	9F	2-61	6A, 49E
81	9F	2-74	6A, 28C
1352	28C	2-1310	6A, 28C
1361	28C	2-161	6A, 28C
13	28C	2-87	6A, 28C
146b	28C	2-706	9F, 49E
79	28C	3-80*, **	9F, 28C, 32A
III	28C	2-148	9F, 32A
1330	28C	2-1320	28C, 49E
1341a	32A	2-63	28C, 32A
62	32A	2-76	28C, 32A
82	32A	Total = 29	
10	32A		
152	32A		
1001i	49E		
169	49E		
707a	49E		
32	49E		
12a	49E		
131	49E		
Total = 2[illegible]			

* There is some skewing here due to reduplication, but this general, and as yet unresolved problem, is ignored in this example.

** Multiple occurrence within one group is counted as a single occurrence.

It is to be noted that the set of IBM cards could be used for a variety of other studies when they are completed. I hope to utilize the deck which has been prepared at the *Centro de Cálculo Electrónico* — UNAM.

One example of this would be a print out which would be a complete concordance of glyphic elements of the almanacs using the above-mentioned deck, such a project would be trivial. Since the writing of the codices was presumably separated by some centuries and since the occurrence of errors is much more frequent in the Madrid, the codices will be kept separate. It has not yet been decided whether to include in the study glyphs associated with specific days but not from almanacs.

Another question which I hope my study will resolve may best be posited by quoting Thompson's article of 1959, "Systems of Hieroglyphic Writing in Middle America and Methods of Deciphering Them" (*American Antiquity*, vol. xxiv, nº 4, part 1, p. 357.) He states the usual position on the use of the almanacs. "The evidence is overwhelming that the 260 day almanacs in the two codices (they number about 300) give the luck of the day for such matters as hunting, planting, beekeeping and disease. Decipherments of associated glyphs most conform to that pattern." Zimmerman has suggested in conversation that the ritual almanacs or tzolkin give the luck of the intervals between the starting days and each set of days reached. This position, then, is in direct opposition to Thompson's. This alternative hypothesis, it would seem, could be tested by correlating all the intervals or periods of the legible almanacs with the 260 day calendar and by inspecting the associated glyphic groups to see the degree of homogeneity which emerges. The pervasive emphasis on world directions throughout the Madrid as well as Zimmermann's concept of positive and negative groups should prove useful in making a valid judgment or determination concerning this problem.

One refinement that I have been seriously considering is an intermediate translation deck so that the print out would be in verbal terms, thus Z75, would be down-balls prefix. This verbalized print out would aid the researcher in working with the material as the verbal symbol is more easily fixed in terms of recognition than the numerical value. I have drawn freely upon the time and knowledge of Dr. Andrew C. Stedry of Carnegie Institute of Technology. Rolland Silver of the MITER Project at M.I.T. and Peter Sterling and Dr. Herbert Barry III of the University of Pittsburgh have made suggestions relating to the foregoing program development which were indispensable as my computer background was only in ALTRAN.

II

Observations on Codex Madrid and Paris

The pagination of the Madrid is a very complex subject which I shall try to present in an orderly manner before my discussion about specific pages of the codex. The following with interpolations, is from John Glass (personal communication.) (Villacorta sees the pages read in the following way):

"Reverse:	Madrid 57 → 76 (77 ← Madrid 78) 79 → 112	
	(LXXVII) (LXXVIII)	
	Right side up	
	Cortes. 23 → 42, 22 Troano (1st) XXXIV* → I*	
Obverse:	Madrid 1 → 21	Madrid 22 → 56
	Cortes. 1 → 21	Troano XXXV → I

Villacorta reproduces the plates on the reverse in this order: 57-76, 78, 77, 79-112 (Since 77, 78 are upside down, they reverse when printed right side up). Knorozov in his edition seems to do the same (going by the numeration of his plates). Since he calls Villacorta's 77 and 78 as his 78 and 77."

Again, with some modification, I present in table IX a tabulation by John Glass of the Madrid pagination. The pages I shall discuss are indicated. I have used Villacorta's Madrid numeration in the discussion.

While examining the Madrid Codex, I noticed that page LXXVII one of the much discussed two upside down pages, seemed to be doubled over. Close inspection convinced me that this was indeed the case. I pointed this out to Srta. Maria Luisa, the Secretary of the Museo, and she and Doña Pilar, the Director, decided that I seemed to be correct and that the codex should be directly examined. On the morning of June 3, the case was opened, a rather tedious process which required an hour. The page was indeed found to be double or folded.

It was impossible to determine if the page was folded over or was separate. The edge of the end of the Codex was abraded and separate through most of its length but seemed to be connected at either end as if it were one piece folded over. The opposite edge of the page, the one I had first noticed, had a ragged or torn appearance and did not seem to match up with the end of the end of Troano, but perhaps careful examination of photo micrographs of the edges would decide

the matter since fibers are exposed at either end and the fiber patterns could be studied. The interior was examined through the opening in the edge of the end. It had been limed like the rest of the Codex as if prepared for writing, however, there is no writing on the interior page surfaces. Let us consider the implication of this situation. In Diagram I the possibility that a full page lap was employed to join two parts of the Codex is shown. In the codices made of leather, this technique is universal and the lime is used as cement. Microscopic examination of the end edge at the top and bottom would show whether pages XXI obverse and LXXVII reverse are integral or if this full page lap joint was the case. The lime coatings on the backs of page XXI and LXXVII are discrete-coatings which mitigates against this possibility. However, the continuity implicit on pages XXI-XXIIa and d where ritual almanacs are continued, would mean that any of the other solutions besides that shown in diagram I would have the Madrid pages more scrambled than they are at present with LXXVII and LXXVIII upside down and backwards.

The alternative possibility is that the pages XXI and LXXVII were originally opened out with their interior surfaces making two blank pages of the Codex. If I have read Spinden's checklist correctly, this would be like the blank pages of the Dresden. This would also make page LXXVII right side up, obverse and consecutive with page XXI (see diagrama II.)

The first page of Troano is not folded nor could I see evidence that other pages were doubled. However, I noticed during my examination of Cortesianus there are places where the amatl paper which was built up by felting together thin layers has become unfelted. I very hesitatingly suggest that it might be possible to remove a sufficient amount of loose inner material without damaging the integrity of the Codex for a radiocarbon dating of the work.

I have wondered if Thompson's suggestion of a dating of late fifteenth century is not too late and if a provincial origin and earlier date are not as possible. In that its concerns have such a profoundly rural preoccupation, I feel that it is possible that it was copied by a priest at a small center far from the large centers. Such a person would presumably be low in the priestly hierarchy and somewhat unlettered, which would account for the crudeness and simplifications of the glyphs. Landa's day signs and 'alphabet' seem further than late fifteenth century from the Madrid, the comparative crudity of the glyphs notwithstanding.

The question now remains to be determined, assuming the folded hypothesis is correct, whether page LXXVII is followed by LXXVIII

TABLE IX

CODEX MADRID

Reverse

57	58	Knorozov-Madrid	74	75	76	78	77			Knorozov-Madrid		
LVII	LVIII	Villacorta-Madrid	LXXIV	LXXV	LXXVI	LXXVII	LXXVIII	LXXIX	LXXX	Villacorta-Madrid	CXI	CXII
23	28	Villacorta-Cortess	40	41	42	22	[1]	34*	33*	Villacorta-Troano	2*	1*
		Rosny-Cortesianus		(unnumbered)			[1]	34*	33*	Brasseur-Troano	2*	1*

Obverse

1	2	Rosny-Cortesianus	18	19	20	21	35	34	33	Brasseur-Troano	2	1
1	2	Villacorta-Cortess	18	19	20	21	35	34	33	Villacorta-Troano	2	1
I	II	Villacorta-Madrid	XVIII	XIX	XX	XXI	XXII	XXIII	XXIV	Villacorta-Madrid	LV	LVI

or XXII (diagram III and IV respectively). One would assume, however that pages LXXVII and LXXVIII were side by side because of their contiguous nature. Thompson's explanation for the two upside down pages would not, in this case, hold, for only page LXXVIII would be upside down. These considerations seem to indicate that the full-page lapping hypothesis is the correct one, should microscopic examination show that pages XXI and LXXVII are integral; and, assuming that LXXVII and LXXVIII are contiguous (diagram IV), we see that the assumed relationship of codex Troano and Cortesianus has been reversed and that the obverse of Troano would be associated with the reverse of Cortesianus.

A physical examination of Troano to determine the original direction of folding should also help resolve the matter.

A second observation about the Madrid will be a matter of interest and concern to Maya scholars. Page LVI has been almost totally obliterated. I noticed this on May 23 during the course of a systematic examination of the Madrid. In the early 1930 copy done in Madrid, the page is presented in its present state, in Brasseur de Bourbourg's 1869-1870 copy and in Gates' copies of 1911 and 1933 it is intact. The 1933 edition is a second edition of the 1911. When the obliteration had occurred is difficult to guess. The museum personnel were not aware of the obliteration. I assume that when the codex is folded, page LVI forms the outside page and careless handling must have been the cause. It should be noted that the few remaining fragments of writing on the page cannot be correlated with the 1869-1870 Brasseur de Bourbourg copy. The remnants of a red frame line around the page is not reproduced in the 1869-1870 copy. Also, across the bottom of the page at the present time is a strip of paper with what appears to be seventeenth century Spanish writing (undecipherable) which was superadded on European paper. If a piece of paper had adherred to the surface of the page, its removal, except for the present remnant, could have accounted for the damage. This paper also is not dcpicted in Brasseur de Bourbourg. I am at the present time pursuing this matter in detail and hope to be able in the near future to present a coherent discussion of this. It does seem curious that I have to date not yet found mention of the obliteration in the literature.

I wish to make one final observation about the physical condition of the Madrid. On numerous occasions when the museum opened, I found that moisture had condensed on the glass covering the Codex during the night and would strongly recommend that the room in which it is kept have a humidity control installed. A simple portable dehumidifier would be an inexpensive remedial measure.

DIAGRAM I

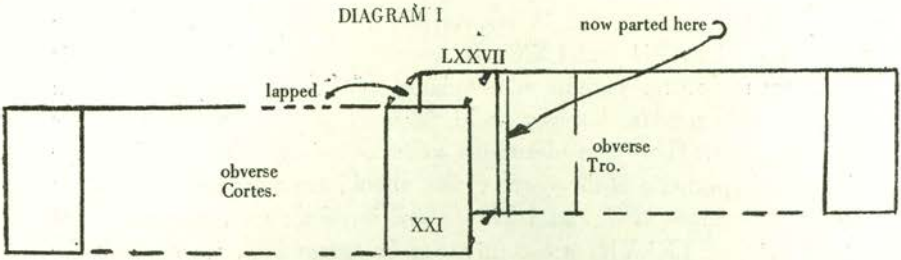


DIAGRAM II

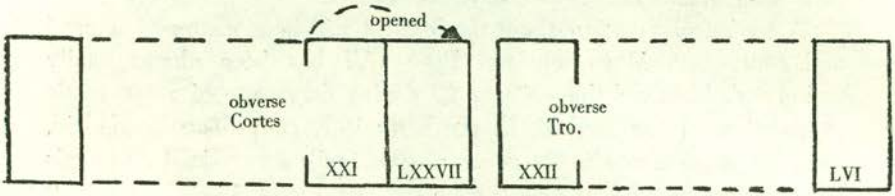


DIAGRAM III

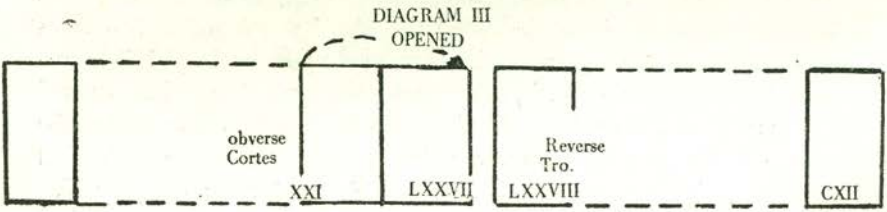
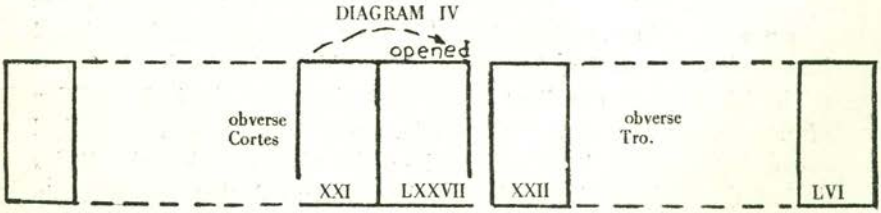


DIAGRAM IV



For those who have not seen the Codex Paris recently, the Codex has been sealed in a box with a glass top through which only two pages may be viewed. They are surrounded by a pasteboard mat, which is miter cut. The sharp edge of this mat pushes directly on the Codex and along the right edge it has ruptured the lime coating because of the excessive pressure from beneath. A dozen or so small flakes of material are detached and are between the Codex and the glass. It seems unfortunate and unnecessary that the Paris should sustain further damage at this time. It also seems unfortunate that the Codex is not displayed in its entirety for the benefit of scholars. A simple sealed glass sandwich with perhaps a slip case seems to be an appropriate and accesible housing for this great treasure of the Bibliothèque Nationale.

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http://www.iifilologicas.unam.mx/estculmaya/