ÉGYPTE CHRÉTIENNE

Dating by the moon in Nubian inscriptions[1]

1. INTRODUCTION

Among the Christian inscriptions of medieval Nubia are a dozen which contain, along with the familiar month and day in the Egyptian calendar, a date by the moon, $\sigma\varepsilon\lambda\dot{\eta}\nu\eta$ (in various spellings) or ⲟⲩⲛⲛⲁ (the Old Nubian word for moon) [2], followed by a number. It has generally been agreed that these indications refer to the lunar months. Now most of these inscriptions have also a date to the Era of the Martyrs (i.e. from Diocletian, year 1 = 284/5) [3], and a few have also the indiction or the day of the week. A few, however, have no such year date, or the year numerals are lost or damaged. In such cases, modern scholars have sought to use the lunar date, in combination with the other data like month and day, day of the week, and indiction, to find a date which uniquely fits the available indications in combination. For example, V. Grumel sought to date *Lef.* 663 (no. 10 in the table below) to A.D. 943 or 1122 on the basis of a coincidence of Phamenoth 11, Tuesday, and the 20th day of the moon [4]. As we pointed out before [5], Grumel failed to recognize that this text also has a date by the fifth indiction, and neither of these years is compatible with a fifth indiction. We went on to remark, « of Grumel's attempts ... to use [lunar dates] to date otherwise undatable texts, three fail completely to provide any solution, and two others succeed only by circular reasoning or choosing a calendar to fit the answer [6]. » We have attempted to apply an

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(2) On which see F. L. GRIFFITH, *PBA* 14 (1928) 127.

(3) On this era, see R. S. BAGNALL and K. A. WORP, *Chronological Systems of Byzantine Egypt* (Stud. Amst. 8, Zutphen 1978) 43-49 ; hereafter cited as *CSBE*.

(4) *Byzantion* 35 (1965) 83-85. This note is part of an article treating several such problems (cf. *infra*, p. 354). Grumel ignores the (to be sure, unsatisfactory) treatment of the subject by M. CHAINE, *Chronologie des temps chrétiens* 190-191 and *JSOR* 10 (1926) 295.

(5) *BASP* 17 (1980) 18.

(6) *Ibid.*, 18 n. 10.

approach with fewer preconceptions to this problem in the observations which follow.

The present article aims, however, at something broader ; we have collected the known examples of dates by the moon, aiming to study them critically, to see how accurately the current hypothesis describes their behavior, and to assess their usefulness for the dating of problematic texts.

2. THE EVIDENCE

The table below lists all « selene » texts known to us. The first part of the table gives the bibliographic history of each text, the second the pertinent chronological data : the year by the era of Diocletian ; the julian equivalent of that ; then the Egyptian month and day and their julian equivalent ; the day of the week (if given ; 1 is Sunday) ; the « selene » number ; the indiction ; the overall julian date indicated ; the lunar cycle years in effect ; [1] and the date of the most appropriate new moon as one calculates it from the inscription, as it appears in the tables for the Alexandrian and hegira calendars [2], and the day on which a recent computer-derived table indicates that the new moon actually fell [3].

Publication of Nubian inscriptions has been a rather disorderly affair ; for this reason, we have used our own reference numbers in the tables below and in our text. The concordance shows where each of these inscriptions has been published or discussed. In it we use the following abbreviations :

Lef. = G. LEFEBVRE, *Recueil des inscriptions grecques-chrétiennes* (Cairo 1907).
SB = *Sammelbuch griechischer Urkunden aus Aegypten.*
MdV = U. MONNERET DE VILLARD, *La Nubia medioevale* I-II (Cairo 1935).
Faras IV = J. KUBIŃSKA, *Faras* IV : *Inscriptions grecques chrétiennes* Warszawa 1974). Cf. *Bull. épigr.* 1974, 708 ; *BiOr* 33 (1976) 182-85.

(1) V. GRUMEL, *La chronologie* (Traité d'études byzantines 2, Paris 1958) 303.
(2) GRUMEL (*supra*, n. 1) 266-77 (Alexandrian), 280-96 (Hegira).
(3) H. H. GOLDSTINE, *New and Full Moons, 1001 B.C. to A.D. 1651* (MemAm-PhilosSoc 94, Philadelphia 1973).

CONCORDANCE

No.	Lef.	SB	MdV	Faras IV	Tibiletti	Oates	Kush 2	Grumel	Other
1				p. 34, #6*					
2		IV 7432	p. 218		14	4		85 #3	JEA 13 (1927) 230-31, Pl. 57*
3									PBA 14 (1928) 123*
4			p. 218/9			7	27*		
5							31*		
6				p. 42, #9*					Cf. BiOr 33 (1976) 185
7	666	I 5716		p. 51, II*	15	9		85 #2	
8			p. 196	p. 45, #11	7	10		86 #4	LAAA 13 (1926) 84-85, Pl. 63*
9		III 6035, V 8765		p. 53, III	16	11		87 #5	CRAI 1913, 153 ff.*
10	663							83 #1	Cf. BASP 17 (1980) 18
11	664				12	13		cf. 88 #6	I. Froehner I 81*
12									PBA 14 (1928) 137*

* Indicates that the edition so marked contains a photographic plate or a drawing of the inscription in question.

Tibiletti = M. TIBILETTI BRUNO, *Iscrizioni nubiane* (Pavia 1964). Cf. *Bull. épigr.* 1965, 463 ; cf. also her « Di alcune caratteristiche epigrafi funerarie cristiane della Nubia, » *Rendiconti Ist. Lomb.*, Cl. Lett. 97 (1963) 491-538.

Oates = John F. OATES, « A Christian Inscription in Greek from Armenna in Nubia, » *JEA* 49 (1963) 161-71 (at 162-63, list only).

Kush 2 = J. W. B. BARNS, « Christian Monuments from Nubia, » *Kush* 2 (1954) 27-32 (texts not reprinted in *SB* or *SEG*).

Grumel = V. GRUMEL, « Notations chronologiques de plusieurs inscriptions chrétiennes d'Égypte et de Nubie », *Byzantion* 35 (1965) 83-96 (discussions only).

I. Froehner = L. ROBERT, *Collection Froehner* I: *Les inscriptions grecques* (Paris 1936).

The most comprehensive collection is that of Tibiletti Bruno, though now two decades old. But it omits not only some known Greek inscriptions (as our table shows) but Coptic and Nubian texts ; for Coptic texts, see Togo MINA's *Inscriptions coptes et grecques de Nubie* (Cairo 1942), which despite the title is not intended to be comprehensive. *Faras* IV also appeared after Tibiletti Bruno ; it includes both new texts and republications of old ones. It is rather uneven in quality ; cf. the review by D. HAGEDORN in *BiOr* cited above. Some of the texts in this volume were also published in K. MICHALOWSKI, *Faras* III, by S. Jakobielski.

3. REMARKS ON INDIVIDUAL INSCRIPTIONS

No. 1. In this inscription one finds in line 16 $\sigma\varepsilon\lambda\acute{\eta}\nu(\eta)$ a, but the connection of this item with the series of dating elements in lines 5-7 is not quite certain. There we find Epeiph 20, Friday, year of creation of the world 6418, period 566, indiction 14, year of Christ 918, year of Diocletian 642, or 14.vii.926 (cf. *BiOr* 33 [1976] 184). In fact, we find that in A.D. 926, or Hegira 314, there was a new moon on 15.vii (cf. GRUMEL, *Chronologie* 285). The divergence from 14.vii is certainly unimportant. It should also be remarked that the editor of the inscription has not understood one point in line 16 of the text, where she prints $\dot{\varepsilon}\nu\varepsilon\pi\alpha\varkappa\tau(\acute{o}\nu) : \bar{\delta}$; this should be corrected to $\dot{\varepsilon}\nu$ $\dot{\varepsilon}\pi\alpha\varkappa\tau(\alpha\tilde{\iota}\varsigma) : \bar{\delta}$. (For the epacts cf. GRUMEL, *Chronologie* 185 ; his tables, p. 267, show that in A.D. 394 [a year in which the same calendrical situation obtained as in 926, cf. p. 277], there was a 4th day of the epacts according to the Alexandrian era).

CHRONOLOGICAL DATA

| No. | Diocl. | jul. | Eg. mo. | jul. mo. | day | Sel. | Ind. | jul. date | Lun. cycle | Date of New Moon | | | |
										Inser.	Alex.	Hegira	Computer
1	642	925/6	Epeiph 20	14.vii	6	1	14	14.vii.926	15=12	14.vii	15.vii	15.vii	12.vii
2	800	1083/4	Pachon 6	1.v		13		1.v.1084	2=18	19.iv	10.iv	10.iv	8.iv
3	874	1157/8	Thoth 20	17.ix	2	14		17.ix.1157	18=15	4.ix	9.ix	8.ix	5.ix
4	878	1161/2	Thoth 18	15.ix		8		15.ix.1161	3=19	8.ix	25.viii	24.viii	21.ix
5	879?	1162/3	Pauni 8	2.vi		3		2.vi.1163	5=2	31.v	5.vi	5.vi	3.vi
6	—	ca 1169	Pauni 10	4.vi		4		4.vi.1169?	11=8	1.vi	31.v	29.v	28.v
7	889	1172/3	Pham. 25	21.iii		26		21.iii.1173	15=12	24.ii	17.ii	16.ii	14.ii
8	897	1180/1	Tybi 23	18.i		16		18.i.1181	4=1	3.i	21.xii	21.xii	17.i
9	898	1181/2	Choiak 1	27.xi		18		27.xi.1181	4=1	10.xi	11.xi	10.xi	8.xi
10	—	1216/7?	Pham. 11	7.iii	3	26	5	7.iii.1217?	2=18	10.ii	10.ii	9.ii	7.ii
11	960	1243/4	Choiak 1	27.xi		19		27.xi.1243	9=6	9.xi	16.xi	16.xi	13.xi
12	1038	1321/2	Pharm. 12	7.iv		21		7.iv.1322	12=9	18.iii	22.iii	20.iii	18.iii

N.B.: Points of detail are explained in Section 3, infra. The dates of new moons are calculated, for the inscriptions by reckoning back from the selene date in the text, for the cycles by finding the *nearest* new moon, whether before or after the inscription.

No. 6, though a Greek text, uses the Old Nubian word ⲟⲩⲛⲛⲁ for moon in place of « selene ». The deceased in this inscription, Bishop Jesus of Faras, died on Pauni 10, selene 4. The editor dates to 1169 without explanation. D. HAGEDORN, *BiOr* 33 (1976) 185, explains that it is an approximate date, provided by reckoning the reigns of previous bishops from the last known fixed point.

No. 7 may, instead of *Φαμανὸς κε̄* (ed.), read *Φαμ(ενὼθ) μονὸς* (= *μηνὸς*) *κε̄*, or even *Φαρμ(οῦθι) κτλ*. The latter would not help : date 20.iv, new moon 27.iii vs. 19.iii (Alex.) or 15.iii (computer).

No. 8 : the year is given by Grumel as 8[.]7, following Tibiletti Bruno, and he computes a neat match in 847 (= 1131). But a check of the drawing in the original edition shows that 897 is certain (as also given by Monneret de Villard and Oates). Cf. D. HAGEDORN, *BiOr* 32 (1976) 185 on the total confusion in *I. Faras*.

No. 10 is dated to Phamenoth 11, day 3 (Tuesday), Selene 26, 5th indiction (cf. *BASP* 17 [1980] 18). Grumel's attempt (not taking account of the indiction) to date this text to 943 or 1122 has been mentioned above. A more realistic application of calculations of possible years along the same lines is as follows :

a. Phamenoth 11 = 7.iii.

b. The 26th day of a lunar month on a Tuesday, 7.iii, indicates a New Moon on Friday, 10.ii in normal years (on 11.ii in leap years) (cf. GRUMEL, *Byzantion loc. cit.*, 84).

c. For a New Moon on 10.ii cf. GRUMEL, *Chronologie* 303. This date occurs in Year II of the « cycle occidental » = Year XVIII of the « cycle byzantin » ; there is no New Moon on 11.ii, so one may discard the possibility of a leap year.

d. 10.ii of an indiction 5 yields the following possibilities : 902, 917, 932, 947, 962, 977, 992, 1007, 1022, 1037, 1052, 1067, 1082, 1097, 1112, 1127, 1142, 1157, 1172, 1187, 1202, 1217, 1232, 1247, 1262, 1277, 1292, 1307, 1322, 1337. We may exclude earlier and later years for the inscription, given the range of dates in our chart.

e. 10.ii on a Friday can be calculated with the use of the chart in GRUMEL, *Chronologie* 316. Going through the various years in these centuries one finds three years in which a 10.ii on a Friday also matches

with the second half of a 5th indiction in the list above. These years are 1172, 1217, and 1262.

f. These years must then be matched up with years II = XVIII of the lunar cycles with the table in GRUMEL, *Chronologie* 266 ff. Grumel does not list all of these years individually, but looking under the previous cycle (by subtracting 532 from each date) we find that only 685 + 532 = 1217 belongs to the desired cycle.

By this reasoning, therefore, the inscription can be dated to 7.iii.1217 (which was indeed a Tuesday). Two caveats, however, must be entered, and they help to prepare for the discussion in part 4 : (1) the new moon date arrived at by astronomical calculation by Goldstine is not 10.ii but 7.ii and (2) the discussion below will show that *exact* coincidence of dates arrived at by the use of a combination of several criteria may be of a specious value.

No. 11 is *I. Froehner* 81, which poses a peculiar problem discussed by us in *Chronological Systems* 49 n. 24. The year date consists of what we analyze as a large theta inside a circle, followed by a xi. We suggested that this circled theta could represent 900. The year would then be 960, or A.D. 1243/4 ([1]). We thought then that this would make the inscription the latest use of the era of the martyrs in Nubian inscriptions, but that was because we were unaware of our no. 12, which is three-quarters of a century later. No. 12 also provides an important parallel, for we see in *PBA* 14 (1928) 117-46 pl. IV, a sketch in which the numeral 1,000 is represented by an alpha with a half circle to the left : (A. To be sure, alpha is (with a stroke) the proper numeral for 1,000, while theta is not for 900, but the encircling is parallel and suggests the method.

Moreover, we must reckon with another case. In *Faras* IV 44, no. 10, the long-known funerary stele of the Bishop Tamer, at the end occurs the date $Φαρ(μοῦθι) : δ : ἀπὸ μαρτύ(ρω)ν$. Kubińska's text thus provides no numeral for the year of the martyrs in which Tamer died. Her comment is, « On mettait en doute la date ainsi que la personne à laquelle était dédiée la pierre... D'après les suggestions fort convaincantes de S. Jakobielski il faudrait placer la stèle de l'évêque Tamer en 1193

(1) This date was not a new suggestion on our part. As Oates remarks, it had previously been suggested on quite other grounds, without recognition of the numeral ; cf. his p. 165.

juste à la fin du XIIᵉ siècle. » Her text, however, does not reflect the reading and arguments of Jakobielski (*Faras* III, 166-67), who reads ἀπὸ μαρτύ(ρων) : .θ. After lengthy discussion, Jakobielski concludes that the sign before theta was probably Υ, about which he says, « Is this then not a symbol for designating 900, » citing various forms for that numeral. He thus obtains a date of A.M. 909 (A.D. 1193).

If we examine Kubinska's plate (p. 43, pl. 11), however, we find that the stone has μαρˇτυ : ⊖, or simply a large theta with part of a circle around it. We believe that this must again be a numeral 900. A.M. 900 would be 1183/4, Pharmouthi 4 being 30.iii.1184.

Hagedorn called attention (*BiOr* 33 [1976] 185) to the fact that the inscription seems to indicate that Tamer lived on earth for 70 days, rather than years. But we suppose that the word ἡμέρα has simply been misplaced by the stonecutter, and that instead of the text's τὰ ἤτη τῆς : ζωῆς ἐπὶ τῆς γῆς ἡμέρα : ō, we should understand τὰ ἤτη (= ἔτη) τῆς : ζωῆς ἐπὶ τῆς γῆς : ο ἀνάπαυσον. Φαρ(μοῦθι) ἡμέρᾳ : δ : ἀπὸ μαρτύ(ρω)ν : Θ.

No. 12 has, after the selene date, αψαρ : Griffith resoved this as ἀπ(ὸ) Σαρ(ακήνων), i.e. a Saracene or Hegira year. Such datings are found in other Nubian inscriptions, cf. e.g. V. GRUMEL, *Byzantion* 35 (1965) 88-90 and TOGO MINA, *Inscriptions* 313-315, 320. We are uneasy with resolving αψαρ in this fashion, however, since we know of no parallel for such a collapse together of the words, and, as Griffith noted, no numeral was written after these letters.

We have excluded from our lists the inscription from Armenna published by J. F. OATES in *JEA* 49 (1963) 166, where in lines 21-22 we find Παηνη ιζ ἀπὸ μαρτηρονα ψμη κς ειρηνις αμην. The editor surmises, « It seems likely that the ειρηνις in our inscription is meant for σελήνης. Day 26 of the lunar month would have been 9.vi ; Pauni 17 was 11.vi (¹). This aberration would not be unusual (cf. below), but formulas like ἐν εἰρήνῃ are so common in these texts that we are reluctant to emend. GRUMEL, *Byzantion* 35 (1965) 88, proposes κὲ (= καί) in place of κς. The ς of κς looks on the plate like an anomalous 4-branch sigma : an ill-made epsilon?

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(1) See GRUMEL 269 and 303 for the tables in which these dates may be found.

4. ANALYSIS

In the course of making his argument for taking ειρηνις as an error for σελήνης, Oates issued the one comprehensive statement of skepticism found in the discussion of these dates :

> Unfortunately, we lack the necessary evidence to prove that the 17th day of Payni in 1032 was the 26th day of the moon. If the Egyptian month names used in these inscriptions are evidence that the Nubians used the traditional Egyptian calendar, then Payni 17 ought to be June 10 [error for 11]. However, the last previous new moon was on May 12 (reckoned according to the tables of SCHOCH, *The Venus Tablets of Ammizaduga* and those of P. V. NEUGEBAUER, *Tafeln zur astronomischen Chronologie* II, *Sonne Planeten und Mond*) and the next following on June 11. Equivalent divergencies are found in all the other inscriptions where this dating is found. While small errors are always possible in the tables, there is no possibility here of correcting the error if Payni 17 should equal June 10 and if this really is the 26th day of the moon. Nor is there any hope of solving the problem on the data provided by the inscriptions alone.

Let us see if our collected material offers us any basis for responding to this agnostic position. Two of the inscriptions listed above give a day of the week as well as an unequivocal date. In the case of no. 3, the inscription says that 17.ix.1157 was a Monday ; it was actually a Tuesday (this and other equivalencies are derived from Grumel's tables). No. 1 says that 14.vii.926 was a Friday ; it was, assuming that the years in the era of the Martyrs started in Thoth (rather than, with the Byzantine indictional year in Egypt centuries before, starting in May or July ; cf. *CSBE*, Chapter VII). On the other hand, the Coptic stele translated in *Faras* IV, 56, on the same basis indicates that 20.vii.999 was a Wednesday ; it was actually a Thursday. *Faras* IV, 27 no. 4 would indicate that 23.i.802 was a Sunday ; that is correct.

Discrepancies are thus not rare. But they are all small, and it must be recalled that Grumel's table assumes that people involved kept good track of leap years. They may not have, and even (for example) the use of a leap year in one extra year each century would have messed up the count more than enough to produce these results. And, on the other hand, it is highly unlikely that if the Nubian calendar used the Egyptian month names but not their calendar, the degree of coincidence would be this close. All of the discrepancies, moreover, point in the direction of being a bit behind. This evidence, to our mind, points to the conclusion

that the calendar in use *was* the Egyptian one. Indeed, why should it have been otherwise?

When we come to look at the selene dates, the situation is more complex. The table below tabulates the discrepancies between the new moon dates indicated by the inscriptions and those furnished by the Alexandrian and Hegira cycles and the computer-derived astronomical data. We omit nos. 5, 6, and 10, where the date depends on calculation or agreement, to avoid circular argument.

DIVERGENCE OF IMPLIED NEW MOON DATES IN SELENE INSCRIPTIONS FROM ESTABLISHED NEW MOON DATES

Number of days discrepancy	*from Alexandrian*	*from Hegira*	*from Computer*
0		1 (#9)	1 (#12)
1	2 (## 1,9)	1 (#1)	1 (#3)
2		1 (#12)	2 (##1,9)
3			
4	1 (#12)	1 (#3)	1 (#11)
5	1 (#3)		
6			
7	2 (##7,11)	1 (#11)	
8		1 (#7)	
9	1 (#2)	1 (#2)	
10			1 (#7)
11			1 (#2)
12			
13	1 (#8)	1 (#8)	1 (#4)
14	1 (#4)		1 (#8)
15		1 (#4)	
Mean	6.78	6.56	6.33
% within 4 days	33	44	55
Mean without no. 4	5.88	5.5	5.38

The degree of coincidence is not very good. Chance seems excluded as the source of the clustering of dates *near* the correct one, a clustering highest in the case of the astronomical dates derived by computer calculation. On the other hand, the divergences do not all go in the same direction, unlike days of the week. These two facts offer no support for the view that the Nubians were using with any consistency a known,

precalculated cycle of lunar months, such as one of the tables in Grumel. It is true, of course, that the inscriptions are not strong in orthography, and one might therefore suspect also the precision of calculation. But there is no particular logical connection there.

Another possibility is that they reckoned new moons by observation each month ; weather could have interfered with observation at times, and individual memories may not have been too good. (One wonders if the errors which are a half-cycle or so off result from a confusion between new and full moon.) But the astronomically derived dates are not so very much closer to the data in the inscriptions that this conclusion can be pushed very far.

At all events, it can be seen that the chances that a newly-discovered inscription will offer a precise coincidence of the date for new moon in one of the cyclical tables, or even the astronomical tables, with the number indicated by the inscription, are rather poor. All arguments based on such exact coincidence are thus open to grave doubt. At the same time, however, the meaning of these lunar dates seems generally confirmed.

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