

Title: Proposal for encoding the Medefaidrin (Oberi Okaime) script in the SMP of the UCS
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The preliminary proposal was described in L2/15-117. The present version to a major extent incorporates the preliminary version, with some details on character shapes clarified according to the recommendations from the UTC.

Minor revisions include rearrangement of symbols for 10–19 and addition of one symbol to the chart.

1. Introduction. The Medefaidrin script was created for an artificial language *Medefaidrin* used by members of an indigenous Christian church Oberi Okaime (Oberi Ọkaime, ‘Church freely given’), which was active in the Nigerian province of Calabar in the 1930s near Itu on the Western bank of Cross-River. The authors are, most probably, Michael Ukpɔn and Akpan Udɔfia. A natural language for them is Ibibio-Efik, which belongs to the Atlantic family of the Niger-Congo languages [Hau 1961; Gibbon et al 2010; Rovenchak & Glavy 2011]. The Medefaidrin script shows a strong influence of the English orthography, in particular, the use of capital and small letters, a special sign for a pronoun “I”.

The community tradition is that the language is a ‘spirit language’ (of which there are other examples in West Africa) revealed to one of the founders of the community in 1927 by divine inspiration: “[...] Bishop Aikeld Ukpɔng (alias Michael Ukpɔng) on a ‘spiritual board’ visible only to the initiated, after having been taken into seclusion by the Holy Spirit, known as the ‘Seminant’ in Medefaidrin. Since Bishop Aikeld Ukpɔng was not literate, it fell on the Secretary of the group, Prophet Jakeld Udofia to transcribe the spiritual writings revealed in a vision to Bishop Ukpɔng.” [Gibbon et al. 2010]. According to other sources, the actual date the Holy Spirit descended was 1927, but the language was revealed or impacted in 1932 [Moses Ekpenyong, interview with a consultant from the community, 2015].

Presently, the religious community counts about 4 000 members. The Medefaidrin language is used in teaching the Sunday School lessons, it is critically threatened and mainly used for saying prayers or meditation of the scriptures. Currently there are less than 20 adult speakers of Medefaidrin. Only five persons are very fluent the language and can master the script.

A digitization project to document the Medefaidrin language and script is known [cf. Ekpeyong et al. 2011].

2. Structure. Medefaidrin is written left to right.

3. Collating order. Collation order is that in the code chart. It is based on the traditional arrangement of letters found in the Medefaidrin instruction materials [Adams 1947; Hau 1961; Abasiattai 1989]. As the character table (Figure 1) from [Adams 1947] is incomplete, we suggest to rely on tables given by Hau [1961] and Abasiattai [1989] with respect to letter shapes and order. For a modern sample, see Fig. 9. Small letters are coded with a shift of 32 (hexadecimal 20), similarly to, e.g., Latin or Cyrillic alphabets.

<i>m</i>	<i>s</i>	<i>v</i>	<i>w</i>	<i>atiu</i>	<i>z</i>	<i>kp</i>	<i>p</i>
<i>t</i>	<i>g</i>	<i>f</i>	<i>i</i>	<i>k</i>	<i>a</i>	<i>j</i>	<i>e</i>
<i>b</i>	<i>c</i>	<i>u</i>	<i>yu</i>	<i>l</i>	<i>q</i>	<i>h</i>	<i>ñ</i>
<i>x</i>	<i>d</i>	<i>ö</i>	<i>n</i>	<i>r</i>	<i>o</i>	<i>ai</i>	<i>y</i>

4. Character names. The usual UCS conventions are used, with NY representing ñ and OE representing ö. Script-specific ideographs for the first-person singular pronoun (*atiu*, with some distinction in meaning for upper and lower case forms) has the name ATIU.

5. Linebreaking. Letters and digits behave as do the letters and numbers in Latin.

6. Punctuation and digits. In Medefaidrin, a vigesimal (base-20) number system is used, so it requires 20 digits [Hau 1961; Chrisomalis 2010; Rovenchak 2012]. Script-specific punctuation marks are comma and period. Some other marks are given by Adams [1947], including the symbol for ‘or’ (Medefaidrin *aiva*) and the vocative mark ʘ, see Figure 1. These two symbols are proposed for encoding; examples of the usage of *aiva* from Adams [1947] are shown in Figure 2.















Digits 0–19 are as follows:

⊖	ʘ	4	ʘ	∇	ʘ	ʘ	↓	↑	∕	7	ʘ	ʘ	ʘ	ʘ	ʘ	ʘ	ʘ	ʘ	ʘ
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19

Simplified shapes of digits 1, 2, and 3 are used for compound numerals (above 19), cf. Figure 3. Note, however, that Hau [1961] provides such numbers with ordinary shapes, see Figures 4–5. Based on the script sample obtained from the community (see Fig. 10), one can conclude that the simplified shapes are not obligatory.

According to the information obtained from the active speakers of the Medefaidrin language, some variations with the shape of zero (cf. Figure 3) are due to the style of writing. The correct writing is zero with a full crossbar (i.e., like *theta* ‘θ’).

Numbers 20 and above are formed by a standard positional principle taking into account the vigesimal (base 20) system. In the chart below, 16E94 DIGIT ONE ALTERNATE FORM, 16E95 DIGIT TWO ALTERNATE FORM, and 16E96 DIGIT THREE ALTERNATE FORM are used to build up numbers as shown below:

$20 = 1 \times 20^1 + 0 \times 20^0$	 16E94 16E80	 16E81 16E80	$60 = 3 \times 20^1 + 0 \times 20^0$	 16E96 16E80
$40 = 2 \times 20^1 + 0 \times 20^0$	 16E95 16E80	 16E82 16E80	$80 = 4 \times 20^1 + 0 \times 20^0$	 16E84 16E80
$41 = 2 \times 20^1 + 1 \times 20^0$	 16E95 16E81		$90 = 4 \times 20^1 + 10 \times 20^0$	 16E84 16E8A
$42 = 2 \times 20^1 + 2 \times 20^0$	 16E95 16E82		$100 = 5 \times 20^1 + 0 \times 20^0$	 16E85 16E80
$50 = 2 \times 20^1 + 10 \times 20^0$	 16E95 16E8A		$200 = 10 \times 20^1 + 0 \times 20^0$	 16E8A 16E80
$55 = 2 \times 20^1 + 15 \times 20^0$	 16E95 16E8F		$400 = 1 \times 20^2 + 0 \times 20^1 + 0 \times 20^0$	 16E94 16E80 16E80

According to the recommendations from the UTC given in [L2/15-149](#), symbols for digits 10 through 19 are renamed NUMBER in the current proposal version. Typologically, this might be incorrect as in a vigesimal (base 20) positional system all the members of the whole set of 0–19 should be treated uniformly.

7. Unicode Character Properties.

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16E40;MEDEFAIDRIN CAPITAL LETTER M;Lu;0;L;;;;;N;;;16E60;
16E41;MEDEFAIDRIN CAPITAL LETTER S;Lu;0;L;;;;;N;;;16E61;
16E42;MEDEFAIDRIN CAPITAL LETTER V;Lu;0;L;;;;;N;;;16E62;
16E43;MEDEFAIDRIN CAPITAL LETTER W;Lu;0;L;;;;;N;;;16E63;
16E44;MEDEFAIDRIN CAPITAL LETTER ATIU;Lo;0;L;;;;;N;;;16E64;
16E45;MEDEFAIDRIN CAPITAL LETTER Z;Lu;0;L;;;;;N;;;16E65;
16E46;MEDEFAIDRIN CAPITAL LETTER KP;Lu;0;L;;;;;N;;;16E66;
16E47;MEDEFAIDRIN CAPITAL LETTER P;Lu;0;L;;;;;N;;;16E67;
16E48;MEDEFAIDRIN CAPITAL LETTER T;Lu;0;L;;;;;N;;;16E68;
16E49;MEDEFAIDRIN CAPITAL LETTER G;Lu;0;L;;;;;N;;;16E69;
16E4A;MEDEFAIDRIN CAPITAL LETTER F;Lu;0;L;;;;;N;;;16E6A;
16E4B;MEDEFAIDRIN CAPITAL LETTER I;Lu;0;L;;;;;N;;;16E6B;
16E4C;MEDEFAIDRIN CAPITAL LETTER K;Lu;0;L;;;;;N;;;16E6C;
16E4D;MEDEFAIDRIN CAPITAL LETTER A;Lu;0;L;;;;;N;;;16E6D;
16E4E;MEDEFAIDRIN CAPITAL LETTER J;Lu;0;L;;;;;N;;;16E6E;
16E4F;MEDEFAIDRIN CAPITAL LETTER E;Lu;0;L;;;;;N;;;16E6F;
16E50;MEDEFAIDRIN CAPITAL LETTER B;Lu;0;L;;;;;N;;;16E70;
16E51;MEDEFAIDRIN CAPITAL LETTER C;Lu;0;L;;;;;N;;;16E71;
16E52;MEDEFAIDRIN CAPITAL LETTER U;Lu;0;L;;;;;N;;;16E72;
16E53;MEDEFAIDRIN CAPITAL LETTER YU;Lu;0;L;;;;;N;;;16E73;
16E54;MEDEFAIDRIN CAPITAL LETTER L;Lu;0;L;;;;;N;;;16E74;
16E55;MEDEFAIDRIN CAPITAL LETTER Q;Lu;0;L;;;;;N;;;16E75;
16E56;MEDEFAIDRIN CAPITAL LETTER HP;Lu;0;L;;;;;N;;;16E76;
16E57;MEDEFAIDRIN CAPITAL LETTER NY;Lu;0;L;;;;;N;;;16E77;
16E58;MEDEFAIDRIN CAPITAL LETTER X;Lu;0;L;;;;;N;;;16E78;
16E59;MEDEFAIDRIN CAPITAL LETTER D;Lu;0;L;;;;;N;;;16E79;
16E5A;MEDEFAIDRIN CAPITAL LETTER OE;Lu;0;L;;;;;N;;;16E7A;
16E5B;MEDEFAIDRIN CAPITAL LETTER N;Lu;0;L;;;;;N;;;16E7B;
16E5C;MEDEFAIDRIN CAPITAL LETTER R;Lu;0;L;;;;;N;;;16E7C;
16E5D;MEDEFAIDRIN CAPITAL LETTER O;Lu;0;L;;;;;N;;;16E7D;
16E5E;MEDEFAIDRIN CAPITAL LETTER AI;Lu;0;L;;;;;N;;;16E7E;
16E5F;MEDEFAIDRIN CAPITAL LETTER Y;Lu;0;L;;;;;N;;;16E7F;
16E60;MEDEFAIDRIN SMALL LETTER M;Ll;0;L;;;;;N;;;16E40;;16E40
16E61;MEDEFAIDRIN SMALL LETTER S;Ll;0;L;;;;;N;;;16E41;;16E41
16E62;MEDEFAIDRIN SMALL LETTER V;Ll;0;L;;;;;N;;;16E42;;16E42
16E63;MEDEFAIDRIN SMALL LETTER W;Ll;0;L;;;;;N;;;16E43;;16E43
16E64;MEDEFAIDRIN SMALL LETTER ATIU;Lo;0;L;;;;;N;;;16E44;;16E44
16E65;MEDEFAIDRIN SMALL LETTER Z;Ll;0;L;;;;;N;;;16E45;;16E45
16E66;MEDEFAIDRIN SMALL LETTER KP;Ll;0;L;;;;;N;;;16E46;;16E46
16E67;MEDEFAIDRIN SMALL LETTER P;Ll;0;L;;;;;N;;;16E47;;16E47
16E68;MEDEFAIDRIN SMALL LETTER T;Ll;0;L;;;;;N;;;16E48;;16E48
16E69;MEDEFAIDRIN SMALL LETTER G;Ll;0;L;;;;;N;;;16E49;;16E49
16E6A;MEDEFAIDRIN SMALL LETTER F;Ll;0;L;;;;;N;;;16E4A;;16E4A
16E6B;MEDEFAIDRIN SMALL LETTER I;Ll;0;L;;;;;N;;;16E4B;;16E4B
16E6C;MEDEFAIDRIN SMALL LETTER K;Ll;0;L;;;;;N;;;16E4C;;16E4C
16E6D;MEDEFAIDRIN SMALL LETTER A;Ll;0;L;;;;;N;;;16E4D;;16E4D
16E6E;MEDEFAIDRIN SMALL LETTER J;Ll;0;L;;;;;N;;;16E4E;;16E4E
16E6F;MEDEFAIDRIN SMALL LETTER E;Ll;0;L;;;;;N;;;16E4F;;16E4F
16E70;MEDEFAIDRIN SMALL LETTER B;Ll;0;L;;;;;N;;;16E50;16E50
16E71;MEDEFAIDRIN SMALL LETTER C;Ll;0;L;;;;;N;;;16E51;16E51
16E72;MEDEFAIDRIN SMALL LETTER U;Ll;0;L;;;;;N;;;16E52;16E52
16E73;MEDEFAIDRIN SMALL LETTER YU;Ll;0;L;;;;;N;;;16E53;16E53
16E74;MEDEFAIDRIN SMALL LETTER L;Ll;0;L;;;;;N;;;16E54;16E54
16E75;MEDEFAIDRIN SMALL LETTER Q;Ll;0;L;;;;;N;;;16E55;16E55
16E76;MEDEFAIDRIN SMALL LETTER HP;Ll;0;L;;;;;N;;;16E56;16E56
16E77;MEDEFAIDRIN SMALL LETTER NY;Ll;0;L;;;;;N;;;16E57;16E57
16E78;MEDEFAIDRIN SMALL LETTER X;Ll;0;L;;;;;N;;;16E58;16E58
16E79;MEDEFAIDRIN SMALL LETTER D;Ll;0;L;;;;;N;;;16E59;16E59
16E7A;MEDEFAIDRIN SMALL LETTER OE;Ll;0;L;;;;;N;;;16E5A;16E5A
16E7B;MEDEFAIDRIN SMALL LETTER N;Ll;0;L;;;;;N;;;16E5B;16E5B
16E7C;MEDEFAIDRIN SMALL LETTER R;Ll;0;L;;;;;N;;;16E5C;16E5C
16E7D;MEDEFAIDRIN SMALL LETTER O;Ll;0;L;;;;;N;;;16E5D;16E5D
16E7E;MEDEFAIDRIN SMALL LETTER AI;Ll;0;L;;;;;N;;;16E5E;16E5E
16E7F;MEDEFAIDRIN SMALL LETTER Y;Ll;0;L;;;;;N;;;16E5F;16E5F
16E80;MEDEFAIDRIN DIGIT ZERO;No;0;L;;;;;N;;;;;
16E81;MEDEFAIDRIN DIGIT ONE;No;0;L;;;;;N;;;;;
16E82;MEDEFAIDRIN DIGIT TWO;No;0;L;;;;;N;;;;;
16E83;MEDEFAIDRIN DIGIT THREE;No;0;L;;;;;N;;;;;
16E84;MEDEFAIDRIN DIGIT FOUR;No;0;L;;;;;N;;;;;
16E85;MEDEFAIDRIN DIGIT FIVE;No;0;L;;;;;N;;;;;
16E86;MEDEFAIDRIN DIGIT SIX;No;0;L;;;;;N;;;;;
16E87;MEDEFAIDRIN DIGIT SEVEN;No;0;L;;;;;N;;;;;
16E88;MEDEFAIDRIN DIGIT EIGHT;No;0;L;;;;;N;;;;;
16E89;MEDEFAIDRIN DIGIT NINE;No;0;L;;;;;N;;;;;

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16E8A;MEDEFAIDRIN NUMBER TEN;No;0;L;;;;N;;;;;
 16E8B;MEDEFAIDRIN NUMBER ELEVEN;No;0;L;;;;N;;;;;
 16E8C;MEDEFAIDRIN NUMBER TWELVE;No;0;L;;;;N;;;;;
 16E8D;MEDEFAIDRIN NUMBER THIRTEEN;No;0;L;;;;N;;;;;
 16E8E;MEDEFAIDRIN NUMBER FOURTEEN;No;0;L;;;;N;;;;;
 16E8F;MEDEFAIDRIN NUMBER FIFTEEN;No;0;L;;;;N;;;;;
 16E90;MEDEFAIDRIN NUMBER SIXTEEN;No;0;L;;;;N;;;;;
 16E91;MEDEFAIDRIN NUMBER SEVENTEEN;No;0;L;;;;N;;;;;
 16E92;MEDEFAIDRIN NUMBER EIGHTEEN;No;0;L;;;;N;;;;;
 16E93;MEDEFAIDRIN NUMBER NINETEEN;No;0;L;;;;N;;;;;
 16E94;MEDEFAIDRIN DIGIT ONE ALTERNATE FORM;No;0;L;;;;N;;;;;
 16E95;MEDEFAIDRIN DIGIT TWO ALTERNATE FORM;No;0;L;;;;N;;;;;
 16E96;MEDEFAIDRIN DIGIT THREE ALTERNATE FORM;No;0;L;;;;N;;;;;
 16E97;MEDEFAIDRIN COMMA;Po;0;L;;;;N;;;;;
 16E98;MEDEFAIDRIN FULL STOP;Po;0;L;;;;N;;;;;
 16E99;MEDEFAIDRIN SYMBOL AIVA;Po;0;L;;;;N;;;;;
 16E9A;MEDEFAIDRIN EXCLAMATION OH;Po;0;L;;;;N;;;;;

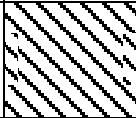



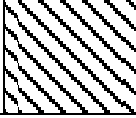
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8. Acknowledgement

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9. Bibliography

- Abasiattai, Monday B. 1989. The Oberi Okaime Christian mission: Towards a history of an Ibibio independent church. *Africa: Journal of the International African Institute*, 59(4): 496–516.
- Adams, R. F. G. 1947. Oberi Okaime: A new African language and script. *Africa: Journal of the International African Institute*, 17(1): 24–34.
- Chrisomalis, Stephen. 2010. *Numerical Notation: A Comparative History*. Cambridge University Press.
- Ekpenyong, Moses E., Eno-Abasi E. Urua, Victor J. Ekong, Okure U. Obot and Imelda I. Udoh. 2011. Unifying Speech Resources for Tone Languages: A Computational Perspective. *International Journal of Computing & Information Sciences*, 9(1):47–60.
- Gibbon, Dafydd, Moses Ekpenyong, and Eno-Abasi Urua. 2010. “Medefaidrin: Resources documenting the birth and death language life-cycle”, in *Proceedings of the Seventh International Conference on Language Resources and Evaluation (LREC’10)*, edited by Nicoletta Calzolari et al. Valetta, Malta: European Language Resources Association, 2702–2708.
- Hau, Kathleen. 1961. Oberi Okaime script, text, and counting system. *Bulletin del’IFAN*, 23(1–2): 291–308.
- Rovenchak, Andrij. 2012. Numerical Notation in Africa. *Afrikanistik online*, 9: Available from: <<http://www.afrikanistik-aegyptologie-online.de/archive/2012/3553>>.
- Rovenchak, Andrij and Jason Glavy. 2011. “Oberi Okaime”, in *African Writing Systems of the Modern Age: The Sub-Saharan Region*. New Haven, Buena Park, New Rochelle, London, Lviv, Abidjan: Athinkra, 79–82. ISBN 978-0-9818294-1-8

	16E4	16E5	16E6	16E7	16E8	16E9
0	𐌲	𐌳	𐌴	𐌵	𐌶	𐌷
1	𐌸	𐌹	𐌺	𐌻	𐌼	𐌽
2	𐌾	𐌿	𐍀	𐍁	𐍂	𐍃
3	𐍄	𐍅	𐍆	𐍇	𐍈	𐍉
4	𐍊	𐍋	𐍌	𐍍	𐍎	𐍏
5	𐍐	𐍑	𐍒	𐍓	𐍔	𐍕
6	𐍖	𐍗	𐍘	𐍙	𐍚	𐍛
7	𐍜	𐍝	𐍞	𐍟	𐍠	𐍡
8	𐍢	𐍣	𐍤	𐍥	𐍦	𐍧
9	𐍨	𐍩	𐍪	𐍫	𐍬	𐍭
A	𐍮	𐍯	𐍰	𐍱	𐍲	𐍳
B	𐍴	𐍵	𐍶	𐍷	𐍸	
C	𐍺	𐍻	𐍼	𐍽	𐍾	
D	𐍿	𐎀	𐎁	𐎂	𐎃	
E	𐎄	𐎅	𐎆	𐎇	𐎈	
F	𐎉	𐎊	𐎋	𐎌	𐎍	

⌘	1	airi	A	15	tingo	⌘Δ	29	edipikn
⌘	2	greid	⌘	16	tietō	⌘7	30	edipa:riid
⌘	3	se:ta:	⌘	17	liget	⌘H	31	editrita
▽	4	aidū	⌘	18	kisani	⌘H	32	edikanapt
⌘	5	dzitō	⌘	19	si:trik	⌘H	33	edifaigi
⌘	6	tarisi	⌘	20	edi:tis	⌘X	34	edifudipt
↓	7	fuda	⌘	21	ediari	⌘A	35	edifingō
↑	8	etia	⌘	22	edigreid	⌘⌘	36	editietō
Δ	9	pikn	⌘	23	edisē:ta:	⌘f	37	edidiget
7	10	pa:riid	▽	24	ediaidu	⌘⌘	38	edikisa:ni
H	11	trita:	⌘	25	edidzito	⌘⌘	39	edisi:trik
H	12	kanapt	⌘	26	editarisi	⌘⌘	40	kreido
H	13	faigi	⌘	27	edifuda	⌘⌘	60	setado
X	14	fudipt	⌘	28	editia	▽⌘	80	aidudo
			⌘⌘	100	dzitōdo			

Figure 3: The Medefaidrin numerals from [Adams 1947].

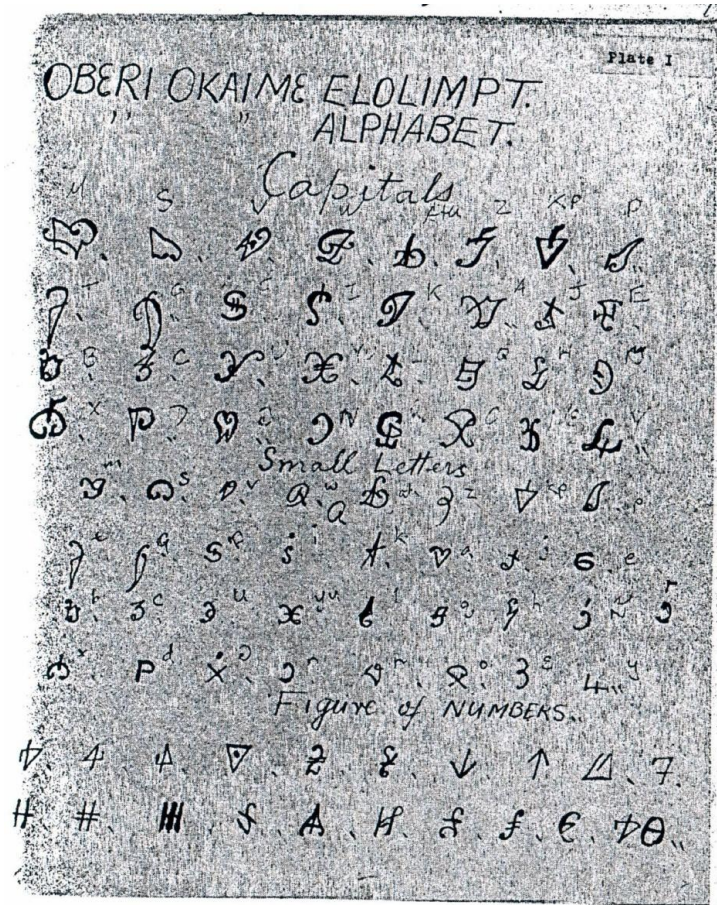


PLATE I. — Script and numeral symbols.

Figure 4: The Medefaidrin (Oberi Okaime) alphabet and numerals from [Hau 1961].

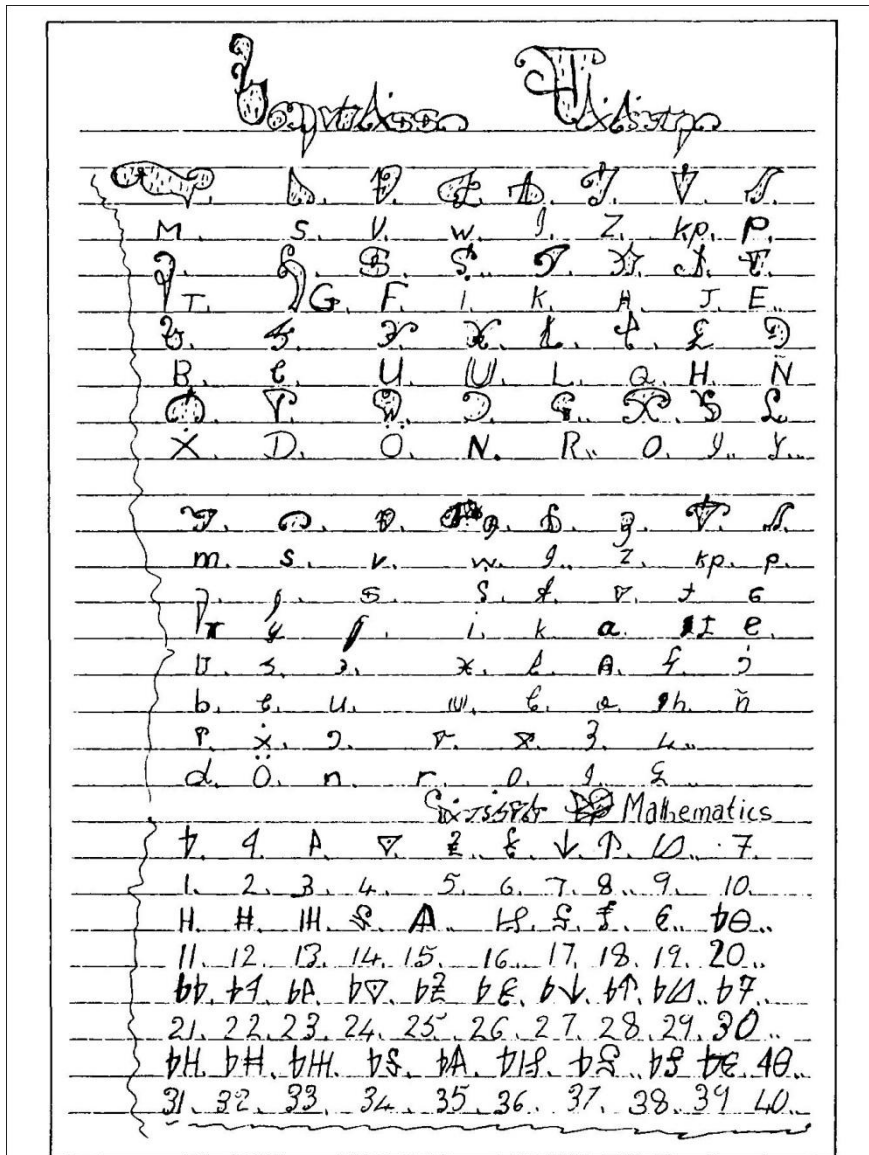


FIG. 2 The Oberi Okaime alphabet and numerals (by Makreta Abony, 14 October 1986)

Figure 5: The Medefaidrin (Oberi Okaime) alphabet and numerals from [Abasiattai 1989].

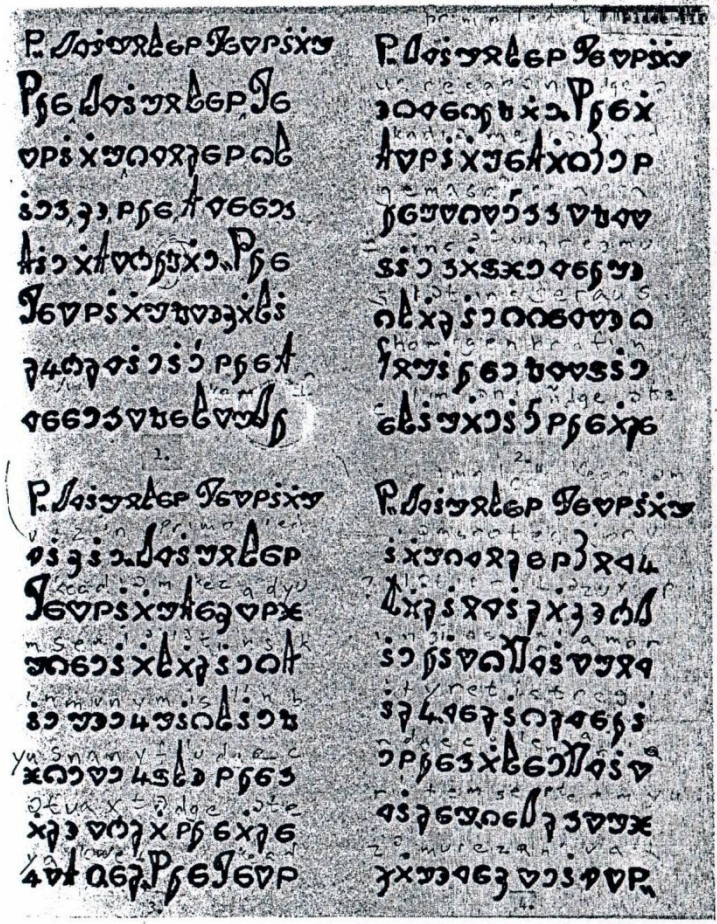


PLATE III.

Dge Primoled Keadlom : The Beloved Father from Dge Gibreant Tökkizan.

Figure 7: The Medefaidrin sample from [Hau 1961].

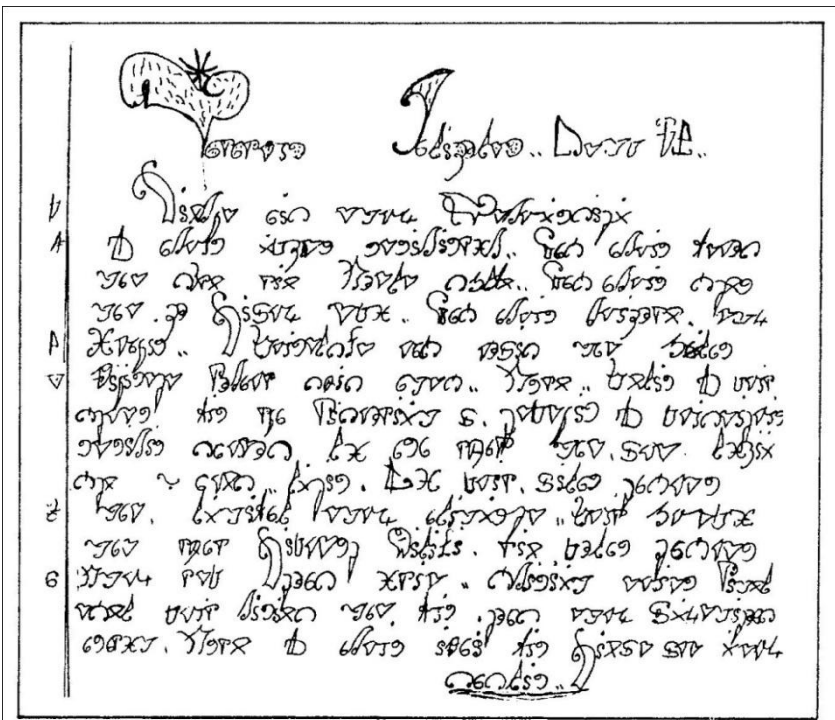


FIG. 1 The Twenty-third Psalm in the Oberi Okaim language and alphabet (by Makreta Abony, 14 October 1986)

Figure 8: The Medefaidrin sample from [Abasiattai 1989].

ELOLIMS (ALPHABETS)







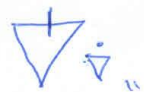






















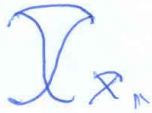


 M m	 S s	 V v	 W w	 Atiu (lam)	 Z z
 KP kp	 P p	 T t	 G g	 F f	 I i
 K k	 A a	 J j	 E e	 B b	 C c
 U u	 YU yu	 L l	 Q q	 H h	 D d
 X x	 Dd	 O o	 N n	 R r	 O o
 AI ai	 Y y				

Figure 9: Medefaidrin letters, sample by Reverend Richmael Ekit (2016).

DROMIKAL (MATHEMATICS)

1. † - Airi
2. 4 - Kred
3. † - Seta
4. ∇ - Aider
5. $\frac{2}{-}$ - Gito
6. † - Tarisi
7. † - Fudg
8. † - Ettia
9. Δ - Bikin
10. 7 - Parid
11. H - Trita
12. # - Kanspt
13. H - Vaiki
14. † - fudip
15. A - Vinko
16. H - Tieto
17. † - Riket
18. † - Kisainy
19. † - Sitrik
20. † - Editi

Figure 10: Numerals in Medefaidrin, sample by Reverend Richmael Ekit (2016).