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ETHIOPIAN SCIENCE & TECHNOLOGY

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###Ethio Science & Technology### is a column

presented to the Cleo community frequently. It covers various

issues in the science; in particular, those of more related to

Ethiopia. Your contribution is welcomed.

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Note from the Editor

\* This is the first issue of 'Ethio Science & Technology' for 1994.

\* Today, the column comes with an important document written

by Yitna and Daniel about the work they done in the area of

representing the Ethiopian script with Latin and key entry

scheme.

\* Their work is extremely invaluable and should not be taken

lightly. Those who are in Computer Science and in particular

typography will find it creative and educational.

\* The editor believes that if the reader has any questions and

comments, may forward them to Cleo in order to allow the

participation of wide audience. Those who would like just to talk

the authors can contact Yitna and Daniel off-line.

\* The editor would like to thank Yitna and Daniel for their

contribution to this column. Enjoy it!

Section 1/7

To The Reader:

The following is presented for your consideration as means of

representing Ethiopic script with Latin (or ASCII) letters. The

system presented has evolved extensively in the year that we have

used it for our personal correspondences through email. We

believe at this point the system is well developed but not in its

final form. Further refinements will only come after many have

had the chance to apply the system on their own. Any and all feed

back will be appreciated.

Our thanks,

danEl yaqob (Daniel Yacob)

yTna frdyweq (Yitna Firdyiwek)

Section 2/7

The Ethiopic Script in ASCII

1 2 3 4 5 6 7 8 9 10 11 12

gIz kaIb sals rabI hams sads sabI Dikala -->

1 he hu hi ha h' h ho

2 le lu li la l' l lo lWa

3 h2e h2u h2i h2a h2' h2 h2o

4 me mu mi ma m' m mo mWa

5 s2e s2u s2i s2a s2' s2 s2o

6 re ru ri ra r' r ro rWa

7 se su si sa s' s so sWa

8 xe xu xi xa x' x xo xWa

9 qe qu qi qa q' q qo qWe qWu qWi qWa qWe

10 Qe Qu Qi Qa Q' Q Qo QWe QWu QWi QWa QWe

11 be bu bi ba b' b bo bWa (Q is Tigrinia)

12 ve vu vi va v' v vo vWa

13 te tu ti ta t' t to tWa

14 ce cu ci ca c' c co cWa

15 h3e h3u h3i h3a h3' h3 h3o hWe hWu hWi hWa hWe

16 ne nu ni na n' n no nWa

17 Ne Nu Ni Na N' N No NWa

18 a u i ' e I o ` (` as in '`re!')

19 ke ku ki ka k' k ko kWe kWu kWi kWa kWe

20 He Hu Hi Ha H' H Ho HWe HWu HWi HWa HWe

21 we wu wi wa w' w wo (HW is Tigrinia)

22 a2 u2 i2 '2 e2 I2 o2

23 ze zu zi za z' z zo zWa

24 Ze Zu Zi Za Z' Z Zo ZWa

25 ye yu yi ya y' y yo

26 de du di da d' d do dWa

27 De Du Di Da D' D Do (D is Oromiffa)

28 je ju ji ja j' j jo

29 ge gu gi ga g' g go gWe gWu gWi gWa gWe

30 Ge Gu Gi Ga G' G Go (G is Chaha)

31 Te Tu Ti Ta T' T To TWa

32 Ce Cu Ci Ca C' C Co CWa

33 Pe Pu Pi Pa P' P Po

34 Se Su Si Sa S' S So SWa

35 S2e S2u S2i S2a S2' S2 S2o

36 fe fu fi fa f' f fo fWa

37 pe pu pi pa p' p po

(Letters will be referred to both by their ASCII spelling and

by their position on the above number matrix (e.g. 'he'

or 1/1). The columns are also known as 'forms' (e.g.,

first form, second form, etc..) or by their Ethiopic names: e.g.

gIz, kaIb, sals, . . .etc.)

Section 3/7

Part I. INTRODUCTION

A. Why does Ethiopic need ASCII?

The purpose of our proposal is to help in the creation of a

standard that will allow for the use of Ethiopic languages in

networked communications such as this one on Cleo. Even though

some attempts are made now and then to write in Amharic using

ASCII, the results (mostly salutations or short sayings) are not

always clear, consistent, or extended. We believe that a standard

might help encourage more online use of languages such as

Amharic, instead of being limited to English, even though the

text will be in ASCII form. In addition, two other areas of

development would be possible:

1) Word processor translation of e-mail: With such a standard

in place, word processors can be developed that can read e-mail

messages written using the ASCII/Ethiopic standard and translate

them into Ethiopic script. In reverse, the word processors can

translate text written in Ethiopic script into Ethiopic/ASCII for

uploading as an e-mail message.

2) Direct connection (e.g. X-windows): Developments in

creating Ethiopic fonts for client/server software could take

advantage of this standard and make direct synchronous

communication using Ethiopic script possible.

Software development in these areas have already been tried

out.

B. Considerations in Developing the Standard

We have taken the following two considerations in coming up

with our proposed standard:

1) The system must be easy to type on a 101 keyboard. This

entails:

-- finding the closest match between the Latin and Ethiopic

phonetic system (while being as systematic as possible with the inevitable exceptions),

-- limiting the number of keystrokes necessary for each

Ethiopic character to a minimum, and

-- placing the most frequently used keys as close as possible

to the 'home keys' row of the 101 keyboard

2) The system must also be easy for machine translation. In

this case, the systematicity of the mapping of Ethiopic to ASCII

is exploited to make the machine translation between ASCII and

Ethiopic script (in word processors, for example) as fast as

possible.

C. Terminology:

1) Alphabet vs Syllabary: Though the concepts behind

these two forms of writing are rather simple, they carry a

history of controversy regarding which is 'better,'

'simpler,' 'more useful,' etc. [1] Without

getting into justifications for preferring one over the other, we

would only point out for our own purposes that

'alphabet' refers to the Latin or ASCII set in which

consonants and vowels are independently manipulated, and

'syllabary' refers to the Ethiopic script in which each

character is defined by a consonant + vowel combination. (We use

Latin and ASCII interchangeably.)

2) Consonants and Vowels in the Ethiopic Syllabary: The

Ethiopic syllabary contains 37 rows by 12 columns [2].

Thirty-five of the 37 rows contain a consonant (sometimes called

a 'radical') which is transformed in a fairly

consistent manner as it is combined with the 7 standard vowel

forms plus the 5 labialized (W) forms. This constitutes the 12

columns.

The only exceptions in this 'consonant + vowel'

structure are row 18 (a) and row 22 (a2). In these two rows, the

Ethiopic syllabary contains 'independent' or 'pure

vowels' that can stand without a consonant. (This is

important to note because of the complications it creates when

Ethiopic interacts with the Latin alphabet.)

Section 4/7

Part II. DEVELOPMENT OF THE SYSTEM

It may first occur to one when attempting to write Ethiopic

script with Latin letters, to represent the 7 forms with numbers

as so:

Consonants:

h1 h2 h3 h4 h5 h6 h7

Independent Vowels:

a1 a2 a3 a4 a5 a6 a7

It is soon found in practice, however, that while this is a

very simple system for representing the Ethiopic characters, it

is not so simple to read or write in it (e.g.,

'T5n1y6s6T6l6N6', 'a1d5s6 a1b1b4'). This is

true largely because our minds are not trained to associate the

Latin script with Arabic numbers to form words. One will soon

wonder why not use the Latin vowel letters to denote the 7 forms

of the Ethiopic characters. This is where the trouble begins: How

do you represent the standard 7 Ethiopic forms (plus the

'W' forms) with only 5 Latin vowels?

The first step we took was to assign a punctuation mark (the

apostrophe ') and 'I' for the two extra Ethiopic vowels

(plus 'W' for forms 8-12). So, following phonetic guide

lines we came up with the following system:

Consonants:

h' hu hi ha he hI ho

Independent Vowels:

a' au ai aa ae aI ao

Again, after some trial use (e.g., 'Ten'yIsITIlINI',

'a'disI a'b'ba') we found that the writing can be made

more readable if we used only one character for the pure vowel

form. Then the system reduces to:

Consonants:

l' lu li la le lI lo

Independent Vowels:

' u i a e I o

and our sample text would look like: 'TenayIsITIlINI',

''disI 'b'ba' which becomes a little easier to read and

to type.

It is at this point that we began to notice two problems:

1) the 6th (or 'sadis') form of the Ethiopic

characters occurs more often than any other form (about twice as

often), and

2) the use of punctuation makes the 'look' of some

familiar words peculiar.

The quick solution:

1) stop using 'I' for the sadis (sixth form)

consonants, letting the consonants stand by themselves, and

2) switch the ASCII letters for the 1st and 4th forms of the

independent vowels.

Consonants:

l' lu li la le l lo

Independent Vowels:

a u i ' e I o

Examples:

Tena ysTlN

adis ab'ba

Ind'mn k'rmachWal

zare T'wat suq heje n'b'r

man'w smh? man'w smx?

Ambiguity Problem with The Independent Vowel

This system is easier to read and type, but there is still a

problem. If you have never before seen the word 'Tena'

how will you know if you are reading 2 Ethiopic characters or 4

-- 'Te-na' or 'T-e-n-a'? This problem of

ambiguity usually occurs because it is not clear whether a

consonant letter is a sadis (6th) form followed by an independent

vowel form, or a syllable made up of the consonant and following

vowel form. Of course, this is a problem only if the reader does

not know the language. An Amharic speaker would not make such a

mistake.

In another scenario, the name 'Gabriel' can be read

'g'-b-r-el' (correctly), or 'g'-b-re-l' (not

quite correct, but okay when speaking fast). Though the ambiguity

is there, whether you interpret the Latin as showing 5

(g'-b-r-e-l) characters or 4 (g'-b-re-l) makes almost no

difference.

These conditions may not always be true, however, and the

difference does become a big problem for word processors and

computer software for translation. It is better then to insure

that the characters are unmistakably represented. To accomplish

this, our decision was to use capital (uppercase) letters for

independent vowels that appear after a sadis (sixth form)

consonant. Thus, we can rewrite Gabriel as 'gabrEl' and

modify our system, which now includes a third category,

accordingly:

Consonants:

l' lu li la le l lo

Independent Vowels:

a u i ' e I o

Independent Vowels Following a 6th Form Consonant:

lA lU l|i l' lE lI lO

We believe, however, that this third form will not be used

very much since most of the words in which a sadis precedes an

independent vowel allow (sometimes even require) a glide to occur

in which the sadis changes to whatever the independent vowel

dictates. Again, the concern here is for possible problems with

machine translation and not for ambiguity in the way people would

use the system.

(You will note that the pipe, '|', symbol is used to

separate 'i' after the sadis consonant. This is

necessary because we have already chosen the capital

'I' to represent the sadis vowel. We anticipate the

need to use '|' will be extremely uncommon. As a

footnote, however, the 2 character representation of the sadis

consonant can be 'l|'. See Commonly Asked Questions #3

below.)

Section 5/7

III. FINAL TOUCHES AND CONCLUSION

This last system seen above developed through applied use over

the past year and has been successfully adapted to an

experimental version of a marketed Ethiopic word processor.

However, at the last minute, it was found that though easy to

write, reading the text remained visually challenging because of

the frequent occurrence of the punctuation mark used to represent

the first form consonants. We experimented with the system in

various ways to reduce the occurrences of punctuation without

straying too far from the phonetic norms we had already

established and came up with five experimental alternatives.

System 1:

l' lu li la le l lo

a u i ' e I o

lA lU l|i l' lE lI lO

System 2:

la lu li l' le l lo

a u i ' e I o

lA lU l|i l' lE lI lO

System 3:

la lu li la' le l lo

a u i a' e I o

lA lU l|i lA' lE lI lO

System 4:

le lu li la l' l lo

a u i e ' I o

lA lU l|i lE l' lI lO

System 5:

le lu li la l' l lo

a u i ' e I o

lA lU l|i l' lE lI lO

Using the five systems we produced a few paragraphs of Amharic

text and asked readers at soc.culture.africa to vote on which

system they found most readable. (See Appendix A for the

questionnaire and sample text we sent out.) The system most

favored was number five which we now represent in this proposal:

Consonants:

le lu li la l' l lo

Independent Vowels:

a u i ' e I o

Independent Vowel Following a 6th Form Consonant:

lA lU l|i l' lE lI lO

Our effort at representing the Ethiopic script with

Latin/ASCII has been a fairly straight forward matter. The reader

is now encouraged to review our proposal.

Notes:

[1] Syllabaries in general do not distinguish between vowels

and consonants. They do not have a regularity, symmetry, or any

kind of matrix. The ancient Cypriot syllabary, the newly invented

(1821?) Cherokee syllabary, and even the modern Japanese Katakana

system have very little regularity. The syllables are arbitrary

marks that contain the consonant and vowel in one symbol that

does not allow any disassembly into constituent phonetic parts.

This aspect of syllabaries is sometimes used to show that they

are a less developed form of writing system.

Fidel, the Ethiopic syllabary, on the other hand, is highly

regular and has a quite clearly defined set of vowel markings

which were \*added\* to a base consonant/radical. In fact, just

looking at the Fidel one can see a clearly outlined alphabetic

underpinning. It seems that what we have in the Ethiopic system

is not a sort of pre-alphabetic syllabary, but an outright

further development of an alphabet--the Sabean alphabet which,

like Hebrew and Arabic had no vowel representation. It is more

plausible to see in Ethiopic a move from the Sabean alphabet back

into a syllabic form, but with a standardization based on

awareness of the explicit relationship between consonants and

vowels. To dismiss Ethiopic as an undeveloped writing system is

to overlook an example (perhaps the only one) of post-alphabetic

development in writing systems.

[2] The traditional matrix of the Ethiopic script is in rows

of seven columns with the base 'W' form (here column

8), and the other 'W' forms (here column 9-12)

presented separately at end of the list as extensions to the core

set. We felt a 37 x 12 matrix would be a more natural arrangement

both because of the similarity of the characters as well as the

efficiency it provides for machine access and manipulation of the

characters.

Some Commonly Asked Questions not addressed above:

1. Why not use uppercase vowels at all times?

This could be done. It would require that a different

character be chosen for either the 3rd or 6th form vowel to

maintain the single character representation. The primary reason

not to use capitals at all times for the vowels is that it

requires of the typist an extra keystroke (the 'shift'

key). It is preferable to type with as little effort as possible.

2. What if I wish to show more sound for a sadis consonant?

It is not always accurate to say that the vowel component of

the sadis consonant is not spoken. For many words the vowel in

the 6th form consonant is clearly enounced. If you wish to write

in a more phonetic manner without loss of clarity; this may be

accomplished by writing the 2 character representation form of

the sadis consonant when it is needed. As you will recall we have

redefined the 2 character form of the 6th consonant as

'l|'. We can mix the two character and one character

forms together in the same word to show when the vowel portion is

voiced:

ysTlN = y|sT|l|N

tgrNa = tg|r|Na

alf'lgm = alf'l|g|m

Tre = T|re

Writing with both the one and two character representations of

the 6th form consonant together may be more laborious to the

typist but has the advantage of giving the reader a better

demonstration of the word's sound when spoken. The mixed

representation is not ambiguous and does not pose any problem for

machine translation when going from Latin to Ethiopic. If it

would become a common practice to mix the two systems, we may

wish to try alternate characters in place of the pipe ( '|' ).

3. Why Are Numbers Used With Letters?

A problem that occurs when trying to represent Ethiopic script

phonetically in Latin is the presence of Ethiopic letters that

are phonetic equivalents. These cases are encountered with the

two Ethiopic characters for 's' and 'S' and

the 4 characters for 'h'. Representing one of the 2nd

forms with an unused Latin character, say F, R, or V, would be a

digression from phonetic norms and adds a level of complication

to the reading. In the case of what would be h4 the uppercase

'H' is chosen for representation. This choice models

the husky 'kh' sound that the character has in Tigrinia

and other languages.

For the more common type of email exchanges omitting the

number 2 or 3 does not result in a loss of interpretation. The

use of the ordinals becomes more important later if the text is

to be read and translated into Ethiopic script by computer.

4. Why Does 's2' Come Before 's' ?

The '2' is only needed to distinguish the difference

between the two 's's in Ethiopic script. In modern

writing it is the newer 's' (the 2nd 's'

appearing in the fidel) that finds the most frequent use in the

spelling of words. The first 's' is represented as

's2' because it occurs less frequently in writing. Were

the 2nd 's' labeled as 's2' it would give the

typist more considerably finger more work to perform.

5. Why is The Capital 'W' Used For Dikala Forms?

The uppercase 'W' is used to remain phonetically

consistent with the sound of the dikala forms (forms 8 - 12). The

lower case 'w' is reserved exclusively for consonant 21

with the 'w' sound. Thus confusion and ambiguity is

avoided with use of the uppercase 'W'.

6. Why is 'hWa' used in place of 'h3Wa'?

This is a break in consistency from how forms 1 through 7 of

'h3' were represented. However, as 'h' and

'h2' do not have forms after the sabI (the 7th form)

there is no opportunity for confusion to arise from the omitted

'3' of 'h3W'. Hence 'hW' will be

uniquely identifiable as representing dikala forms of the h3

consonant. The advantage of dropping the '3' in the

dikala range, will be the keystroke saved for typists.

Section 6/7

APPENDIX A: Questionnaire and Sample Text

Greetings to Ethiopic Script Readers,

Following you will find a sample Amharic text (an article

fragment from Ethiopian Examiner) written in 5 systems of

representation. It is not the purpose of this document to discuss

the development of the systems or to debate the merits and faults

of each. I solicit your opinion with respect to where you find

the most comfort and ease of reading. Please return to me a

ranking of the various systems in your order of preference (e.g.

3,5,1,4,2; 3 is best, 2 worst). Any additional comments are

welcomed. Please pass this letter on to your friends and

colleagues. Results of the survey will be posted when available.

A discussion of the latin representation system, along with an

ascii fidel, will be presented at that time. Note that the

difference between some systems is subtle, you may wish to print

this article to aid your evaluation. Your help is much

appreciated.

Thank You,

danEl yaqob (System 1,5)

d'nEl y'qob (System 2)

da'nEl ya'qob (System 3)

dan'l yaqob (System 4)

yacob@apollo.aoe.vt.edu

System 1:

Consonants:

l' lu li la le l lo

Independent Vowels:

a u i ' e I o

Independent Vowel Following a 6th Form Consonant:

lA lU l|i l' lE lI lO

b'k'ft'Na gugut siT'b'q y'n'b'r'w y's'lamna y'Irq gubae,

k'tahsas 9-13 1986 '.m. b'adis ab'ba k't'ma bad'r'g'w y'amst q'n

sbs'ba, b'ihAdeg y'mim'raw gizeyawi m'ngst slTanun Indiyasr'kb

T'y'q'.

q'd'm blo paris lay sbs'baw Indid'r'g k'T'y'qut s'bat t'qawami

budnoc wsT, y'sastun abalat w'd' ag'rac'w sig'bu awroplan Tabiya

lay b'polis b'masyazna bmas'r m'ngst bzihu sbs'ba lay Indaysat'fa

adr'gWac'wal. y'tasrut abalat, ato abra y'man'ab, w'/rit g'n't

grma, ato m'sfn t'f'ra, ato almy'hu deresana ato g'n'n'w as'fa

(k'idehaq): ato s'yum z'n'b' (k'mdhn) Ina ato ibsa gut'ma

(k'on'g) nac'w.

System 2:

la lu li l' le l lo

a u i ' e I o

lA lU l|i l' lE lI lO

bakaftaN' gugut siTabaq yanabaraw yasal'mn' yaIrq gub'e,

kat'hs's 9-13 1986 '.m. baadis abab' katam' b'daragaw yaamst qan

sbsab', baihAdeg yamimar'w gizey'wi mangst slT'nun Indiy'srakb

Tayaqa.

qadam blo p'ris l'y sbsab'w Indidarag kaTayaqut sab't taq'w'mi

budnoc wsT, yas'stun ab'l't wada agar'caw sigabu awropl'n T'biy'

l'y bapolis bam'sy'zn' bm'sar mangst bzihu sbsab' l'y Ind'ys'taf'

adragWacaw'l. yat'srut ab'l't, ato abr' yam'naab, wa/rit ganat

grm', ato masfn tafar', ato almyahu deres'n' ato gananaw asaf'

(kaideh'q): ato sayum zanaba (kamdhn) In' ato ibs' gutam'

(kaonag) n'caw.

System 3:

la lu li la' le l lo

a u i a' e I o

lA lU l|i lA' lE lI lO

bakaftaNa' gugut siTabaq yanabaraw yasala'mna' yaIrq guba'e,

kata'hsa's 9-13 1986 a'.m. baadis ababa' katama' ba'daragaw

yaamst qan sbsaba', baihAdeg yamimara'w gizeya'wi mangst slTa'nun

Indiy'srakb Tayaqa.

qadam blo pa'ris la'y sbsaba'w Indidarag kaTayaqut saba't

taqa'wa'mi budnoc wsT, yasa'stun aba'la't wada agara'caw sigabu

awropla'n Ta'biya' la'y bapolis bama'sya'zna' bma'sar mangst

bzihu sbsaba' la'y Inda'ysa'tafa' adragWacawa'l. yata'srut

aba'la't, ato abra' yama'naab, wa/rit ganat grma', ato masfn

tafara', ato almyahu deresa'na' ato gananaw asafa' (kaideha'q):

ato sayum zanaba (kamdhn) Ina' ato ibsa' gutama' (kaonag) na'caw.

System 4:

le lu li la l' l lo

a u i e ' I o

lA lU l|i lE l' lI lO

bekefteNa gugut siTebeq yeneberew yeselamna yeIrq guba',

ketahsas 9-13 1986 e.m. beadis abeba ketema baderegew yeamst qen

sbseba, beihAd'g yemimeraw giz'yawi mengst slTanun Indiyasrekb

Teyeqe.

qedem blo paris lay sbsebaw Indidereg keTeyequt sebat teqawami

budnoc wsT, yesastun abalat wede ageracew sigebu awroplan Tabiya

lay bepolis bemasyazna bmaser mengst bzihu sbseba lay Indaysatefa

adregWacewal. yetasrut abalat, ato abra yemaneab, we/rit genet

grma, ato mesfn tefera, ato almyehu d'r'sana ato genenew asefa

(keid'haq): ato seyum zenebe (kemdhn) Ina ato ibsa gutema

(keoneg) nacew.

System 5:

le lu li la l' l lo

a u i ' e I o

lA lU l|i l' lE lI lO

bekefteNa gugut siTebeq yeneberew yeselamna yeIrq gubae,

ketahsas 9-13 1986 '.m. beadis abeba ketema baderegew yeamst qen

sbseba, beihAd'g yemimeraw giz'yawi mengst slTanun Indiyasrekb

Teyeqe.

qedem blo paris lay sbsebaw Indidereg keTeyequt sebat teqawami

budnoc wsT, yesastun abalat wede ageracew sigebu awroplan Tabiya

lay bepolis bemasyazna bmaser mengst bzihu sbseba lay Indaysatefa

adregWacewal. yetasrut abalat, ato abra yemaneab, we/rit genet

grma, ato mesfn tefera, ato almyehu d'r'sana ato genenew asefa

(keid'haq): ato seyum zenebe (kemdhn) Ina ato ibsa gutema

(keoneg) nacew.

Section 7/7

APPENDIX B : Full Sample Text in System 5 With Statistics

WORD COUNT : 170

CONSONANT COUNT

Form1 : 158 Form2 : 20 Form3 : 35 Form4 : 105

Form5 : 13 Form6 : 223 Form7 : 24 Form8 : 3

VOWEL COUNT

Form1 : 25 Form2 : 0 Form3 : 5 Form4 : 2

Form5 : 1 Form6 : 13 Form7 : 1

From the Ethiopian Examiner January 1994

yeslamna yeIrqu konferens giz'yawiw mengst keslTan Indiwerd

Teyeke

bekefateNa gugut siTebeq yeneberew yeselamna yeI2rq gubae,

ketahsas 9-13 1986 '2.m. beadis abeba ketema baderegew yeamst qen

sbseba, beih2Ad'g yemimeraw giz'yawi mengst slTanun Indiyasrekb

Teyeqe.

qedem blo paris lay sbsebaw Indidereg keTeyequt sebat teqawami

budnoc wsT, yesastun abalat wede ageracew sigebu awroplan Tabiya

lay bepolis bemasyazna bmaser mengst bzihu sbseba lay Indaysatefa

adregWacewal. yetasrut abalat, ato abra yemaneab, we/rit genet

grma, ato mesfn tefera, ato almyehu d'r'sana ato genenew asefa

(keid'h3aq): ato seyum zenebe (kemdh3n) Ina ato ibsa gutema

(keoneg) nacew.

mengst Inezihu sewoc lay yewesedew yeIsrat Irmja sewocn

beselamawi menged beageracew yepoletika hidet wesT Indaysatefa

slemiyaderg bzu sewocn aseqoTtWal. beadis abeba yemigeNu

diplomatocm yH'w yemengst Irmja yesbsebawn tesatafiwoc farhat lay

bmeTal sbsebaw mnm bego wT't IndayameTa yaderg yhonal bemalet

hesabacewn gelS2ewal.

yeityoPya giz'yawi mengst (ih2Ad'g) besbsebaw lay saysatef

qertWal. lezihum begiz'yawi pr'zid'ntu beato meles z'nawi

yeteseTew mknyt sbsebaw lepropaganda '2lama bca yemidereg kentu

sbseba nw yemil nw.