



Ethiopic – A Unicode Success story – Transforming Ethiopic/Amharic from an endangered script to a Thriving Dynamic User of Digitization

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Internationalization & Unicode Conference

September 12th, 2018

Santa Clara, California



Ethiopic/Ethiopian Quiz

- ***1- In which century was the first reading tradition of Ethiopian documented ? In which book was it documented ?***
- ***2- Which world famous book was discovered to have been written only in Ethiopic ?***
- ***3-What is Ethiopia's population size ranking ?***
- ***4- What is Ethiopia's ranking in terms of world economic growth ?***

Answers....

1st Century in the Bible

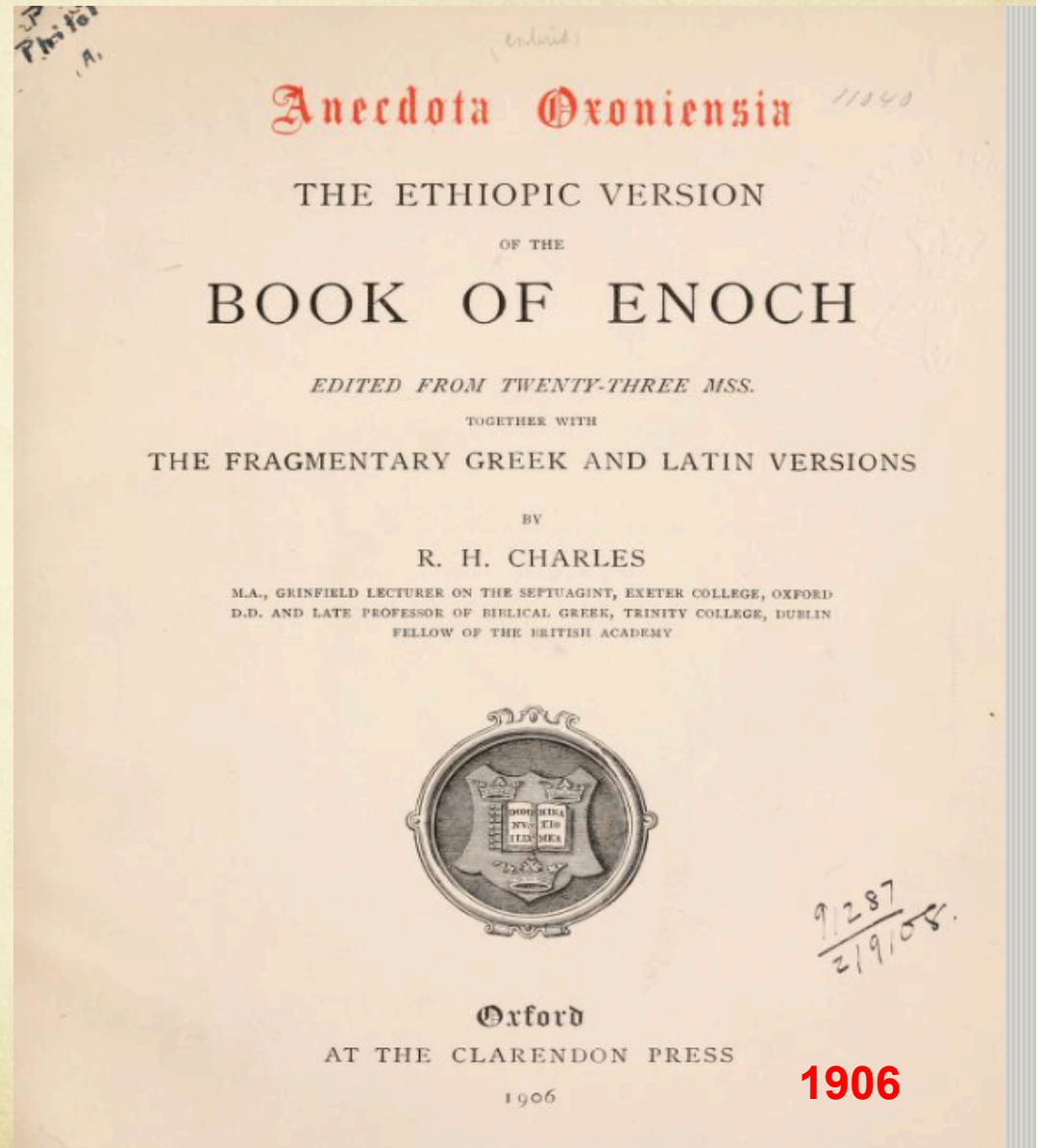
Biblical narrative. Philip the Evangelist was told by an angel to go to the road from Jerusalem to Gaza, and there he met the **Ethiopian** nobleman. He had been to Jerusalem to worship (Acts 8:27), and was returning home. The nobleman was sitting in his chariot **reading the Book of Isaiah**, and had come to Isaiah 53:7-8.



Answers....

“..... the book of Enoch resurfaced at the beginning of the 17th century when it was discovered in Ethiopia, **written in an Ethiopic language**. In fact, the book of Enoch is preserved in it's entirety in the Church at Ethiopia, and is included in their Bible. The Ethiopians claim it was divine scripture, and treat it as such to this day.....”

[Israel-a history-of.com](http://israel-a-history-of.com)



1906

Answers....

Ethiopia is
the 12th
most
populous
Country in
the world

Countries in the world by population

This list includes both **countries** and **dependent territories**. Data based on [World Population Review](#). Click on the name of the country or dependency for current estimates (live data). See also: [World Population](#)

#	Country (or dependency)	Population (2018)	Yearly Change	Net Change	Density (P/Km ²)
1	China	1,415,045,928	0.39 %	5,528,531	
2	India	1,354,051,854	1.11 %	14,871,727	
3	U.S.	326,766,748	0.71 %	2,307,285	
4	Indonesia	266,794,980	1.06 %	2,803,601	
5	Brazil	210,867,954	0.75 %	1,579,676	
6	Pakistan	200,813,818	1.93 %	3,797,863	
7	Nigeria	195,875,237	2.61 %	4,988,926	
8	Bangladesh	166,368,149	1.03 %	1,698,398	
9	Russia	143,964,709	-0.02 %	-25,045	
10	Mexico	130,759,074	1.24 %	1,595,798	
11	Japan	127,185,332	-0.23 %	-299,118	
12	Ethiopia	107,534,882	2.46 %	2,577,444	
13	Philippines	106,512,074	1.52 %	1,593,984	
14	Egypt	99,375,741	1.87 %	1,822,590	
15	Viet Nam	96,491,146	0.99 %	950,346	
16	DR Congo	84,004,989	3.28 %	2,665,001	
17	Germany	82,293,457	0.22 %	179,233	
18	Iran	82,011,735	1.05 %	848,947	

Answers....

The world's fastest growing economies

Forecast GDP growth, 2017



Objectives of presentation

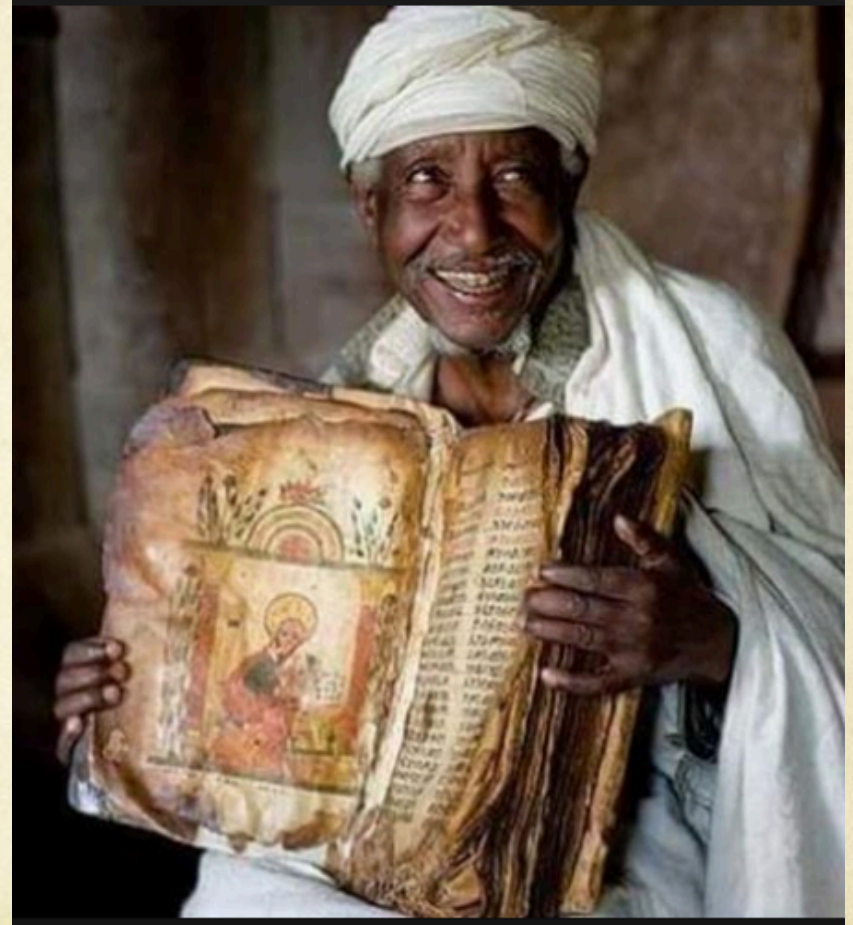
is to Briefly:

- Show how the unique nature and the history of Ethiopic and the cultural environment surrounding it
- Describe how the addition of Ethiopic to the Unicode has made a significant difference to the Ethiopian community and it has contributed to the survival and thriving of languages that use Ethiopic
- Discuss the unique aspects of Ethiopic and extended Ethiopic character set
- Give credit to those that have contributed to the addition of Ethiopic to the Unicode and continuously working to improve it .
- Show some of the Amharic/Ethiopic Applications that were possible because of the Unicode

A reading cultures for centuries



A reading cultures for centuries



Ethiopia

- A northeast African country
- The only African nation that has never been colonized
- Religious country (Jewish; Muslim & Christian)
- Ethiopia is one of the oldest Christian Country
 - Claim : around 45 AD ; Claim : 341 AD
- Ethiopia is the home of millions of Muslims
 - 622 AD Followers of Prophet Mohammed migrated to Ethiopia when subjected to persecution in the city of Mecca
- Ethiopian Jewry : Goes to at least 9th century

Unique Ethiopian Culture

- 13 months in a year
 - 12 months 30 days each + 1 month of 5 (6) days
- Calendar is 7.5 years behind Gregorian calendar
 - It is now 2011
- Ethiopian New starts on September 11
- **HAPPY NEW YEAR !**

SEPTEMBER 11, 2018 IS

1ST DAY OF YEAR 2011

IN ETHIOPIA



Ethiopic Alphabet

Ethiopia's ancient Ge'ez script, also known as "Ethiopic", is one of the oldest alphabets still in use in the world.

- Ethiopic is used to write : Amharic; Tigrinya ; Ge'ez language (liturgical) and more than 80 other Ethiopian dialects
- Phonetic based Alphabet : Each character is a constant plus vowel
 - ሻ =She ; ጃ =Joe የኒኮድ =Unicode;
- Semitic Origin but written left to write (unlike Hebrew & Arabic)

Ethiopic Alphabet Before used for Printing Before the Unicode

	a	u:	i:	a:	e:	(ə)	o:		a	u:	i:	a:	e:	(ə)	o:
h	ሀ	ሁ	ሂ	ሃ	ሄ	ህ	ሆ	k	ከ	ኩ	ኪ	ካ	ኬ	ክ	ኮ
l	ለ	ሉ	ሊ	ላ	ሌ	ል	ሎ	w	ወ	ዑ	ዒ	ዓ	ዔ	ዕ	ዖ
h	ሐ	ሑ	ሒ	ሓ	ሔ	ሕ	ሐ	ʼ	ዐ	ዑ	ዒ	ዓ	ዔ	ዕ	ዖ
m	መ	ሙ	ሚ	ማ	ሜ	ም	ሞ	z	ዘ	ዙ	ዚ	ዛ	ዞ	ዟ	ዠ
s	ሠ	ሡ	ሢ	ሣ	ሤ	ሥ	ሦ	y	የ	ዩ	ዪ	ያ	ዬ	ይ	ዮ
r	ረ	ሩ	ሪ	ራ	ሪ	ሪ	ሪ	d	ደ	ዱ	ዲ	ዳ	ዴ	ድ	ዶ
š	ሰ	ሱ	ሲ	ሳ	ሴ	ስ	ሶ	g	ገ	ገ	ገ	ገ	ገ	ገ	ገ
q	ቀ	ቁ	ቂ	ቃ	ቄ	ቅ	ቆ	ʼ	ጠ	ጡ	ጢ	ጣ	ጤ	ጥ	ጦ
b	በ	ቡ	ቢ	ባ	ቤ	ብ	ቦ	p	ጸ	ጹ	ጺ	ጻ	ጼ	ጽ	ጾ
t	ተ	ቱ	ቲ	ታ	ቲ	ቲ	ቲ	š	ሸ	ሹ	ሺ	ሻ	ሼ	ሽ	ሾ
h	ኀ	ኁ	ኂ	ኃ	ኄ	ኅ	ኆ	d	ፀ	ፁ	ፂ	ፃ	ፄ	ፅ	ፆ
n	ነ	ኑ	ኒ	ና	ኔ	ን	ኖ	f	ፈ	ፉ	ፊ	ፋ	ፅ	ፎ	ፇ
ʼ	አ	ኡ	ኢ	ኣ	ኤ	አ	ኦ	p	ፐ	ፑ	ፒ	ፓ	ፔ	ፕ	ፖ

	a	i:	a:	e:	(ə)
q ^w	ቈ	቉	ቊ	ቋ	ቌ
h ^w	ኀ	ኁ	ኂ	ኃ	ኄ

	a	i:	a:	e:	(ə)
k ^w	ከ	ኩ	ኪ	ካ	ኬ
g ^w	ገ	ገ	ገ	ገ	ገ

	a	u:	i:	a:	e:	(ə)	o:
š	ሸ	ሹ	ሺ	ሻ	ሼ	ሽ	ሾ
v	ሸ	ሹ	ሺ	ሻ	ሼ	ሽ	ሾ
č	ቸ	ቹ	ቺ	ቻ	ቼ	ች	ቾ
ñ	ኀ	ኁ	ኂ	ኃ	ኄ	ኅ	ኆ

	a	u:	i:	a:	e:	(ə)	o:
x	ኸ	ኹ	ኺ	ኻ	ኼ	ኽ	ኾ
ž	ዠ	ዡ	ዢ	ዣ	ዤ	ዥ	ዦ
j	ጀ	ጁ	ጂ	ጃ	ጄ	ጅ	ጆ
č	ጨ	ገጅ	ገጅ	ገጅ	ገጅ	ገጅ	ገጅ

Ethiopic Syllables Example

ፀ ሀ ሁ ሂ ሃ ሄ ህ ሆ

ፀ Hə; hu; hi; ha; he, h, ho

Ethiopic Alphabet

- Before Ethiopic was introduced to computers only about 268 characters were in use mainly due to difficulty in accommodating them in a typewriter
- It was a consideration to truncate the alphabet even below 268 during early Ethiopic computerization.
 - Elimination of similar sounding characters (70)
 - ሀ ሐ ጎ ጎ * ሠ ሰ * አ ቦ * ፀ ጸ
 - Elimination of Rarely used characters : (37 characters)
 - ኃ ቄ ን ኘ etc

Amharic Type Writer



Vowel Marks

Computerization Challenges in the 1980's

- Ethiopic was a very minor and “commercially unattractive” language. So none of the big or small companies were interested to invest resources in Ethiopic.
- Ethiopia as a country was experiencing its worst time in its history under a brutal military communist regime.
- The task of accommodating over 230 variable-width characters was not trivial in 8-bit & ASCII environment .

“...The ranking of the world’s Writing system in order of commercial importance as measured by total GNP of countries using each system..” Joe Becker 1988

Rank	Writing System	Languages	% of World GNP
1	Latin	English, German, French, Spanish, Italian, Portuguese, Indonesian/Malay, ...	68
2	CJK ideographs	Chinese, Japanese, (Korean)	14
3	Cyrillic	Russian, Ukrainian, ...	14
4	Arabic	Arabic, Persian, ...	3
5	Devanāgarī family	Hindi, Bengali, Punjabi, Marathi, ...	1
6	Korean (Hangul)	Korean	1
7	Dravidian family	Telugu, Tamil, ...	ε
8	Greek	Greek	ε
9	Khmer	Thai, Lao, Khmer	ε
10	Hebrew	Hebrew	ε

Ethiopic was less than insignificant

From the 1988 Article by Dr. Joseph D Becker entitled “UNICODE 88

Unicode to the Rescue !



Dr. Joe Becker



Fesseha Atlaw
Amharic computer demonstration



DASHEN ENGINEERING CO.
39120 ARGONAUT WAY, SUITE 161
FREMONT, CALIFORNIA 94538
415-791-1159 or 408-270-0636

*“....Joe Becker who has been working at Xerox to incorporate Many of the world’s languages — contacted **Fesseha Atlaw** of HP Engineer who later formed Dashen Engineering and had developed font sets to be used in a multilingual word processor ... Initial proposal and inclusion of Ethiopic to the Unicode standard was made by the efforts of **Joe Becker and Fesseha Atlaw ...**”*

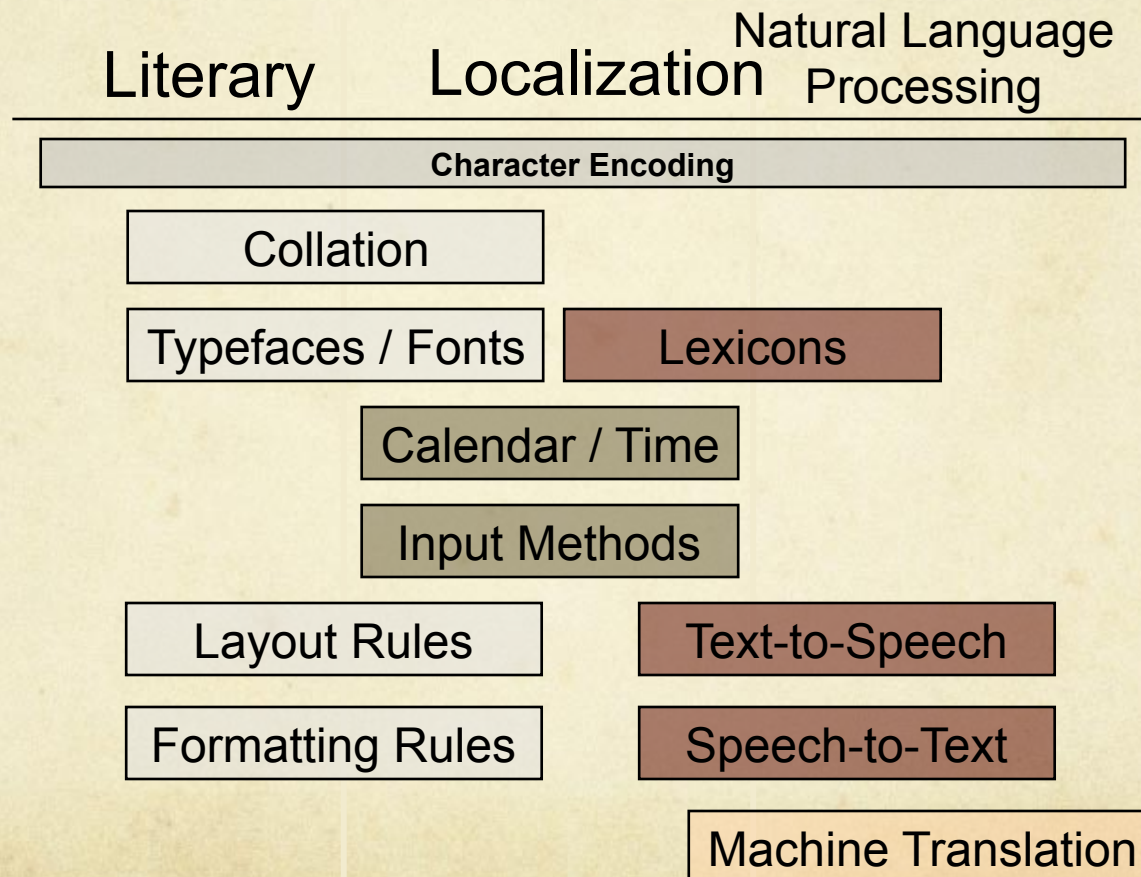
Ethiopian Computer News 1991

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Yonas Fisseha; Tsehay Demeke
Grum Ketema & more

Localization in the Ethiopic Ecosystem



Demonstration of Amharic on the Computer in 1987 Addis Ababa, Ethiopia



Looking Amharic Fonts on the computer screen for the first time was like **a MIRACLE**

Now

- Ethiopic in the Unicode is 380+ characters (U+1200 – U+137F)
 - Addition of non Amharic sounds
 - Extended Ethiopic
 - ጠ ጡ ጢ ጣ ጤ ጥ ጦ ጧ
 - Music (Zeima)Notations
 - Punctuation Marks
- All 80 dialects/languages in Ethiopian can use Ethiopic Unicode if they choose to.
- Amharic speakers who can't read & Understand English can now read The Washington Post or LA Times in Amharic daily

Computer Applications using Ethiopic Unicode

- Amharic translations (to and from any world language)
 - Google – Thank you !
- Amharic Dictionary & Spell checker
- Amharic Search engines
- Amharic OCR (Microsoft; Google and others)
- Speech to Text (Amharic Speech recognition)
- Text to speech applications
- Amharic Braille Encoding
- Ethionux Operating system in Amharic
- B4X IDE in Amharic & Other Amharic programming tools

Samples of Ethiopian Apps using Ethiopic Unicode

<http://zemaplatform.com>

A music platform in which users can download a smartphone app and listen to music with instant lyrics in Amharic/Ethiopic

<http://fanosbox.com>

A smart device that allows us to control other household electronics with multiple features. (Android app is fully made with Amharic/Ethiopic Unicode)

Vrider; ihelp; Fidel Utalk; and are smart phone apps using Ethiopic

<https://www.ethiocloud.com/>

<https://www.metaappz.com/>

Special

“Thank You !”

to all Unicode Technical
Committee Members &
and Other Contributors that
allowed Digital Ethiopic
to Thrive !