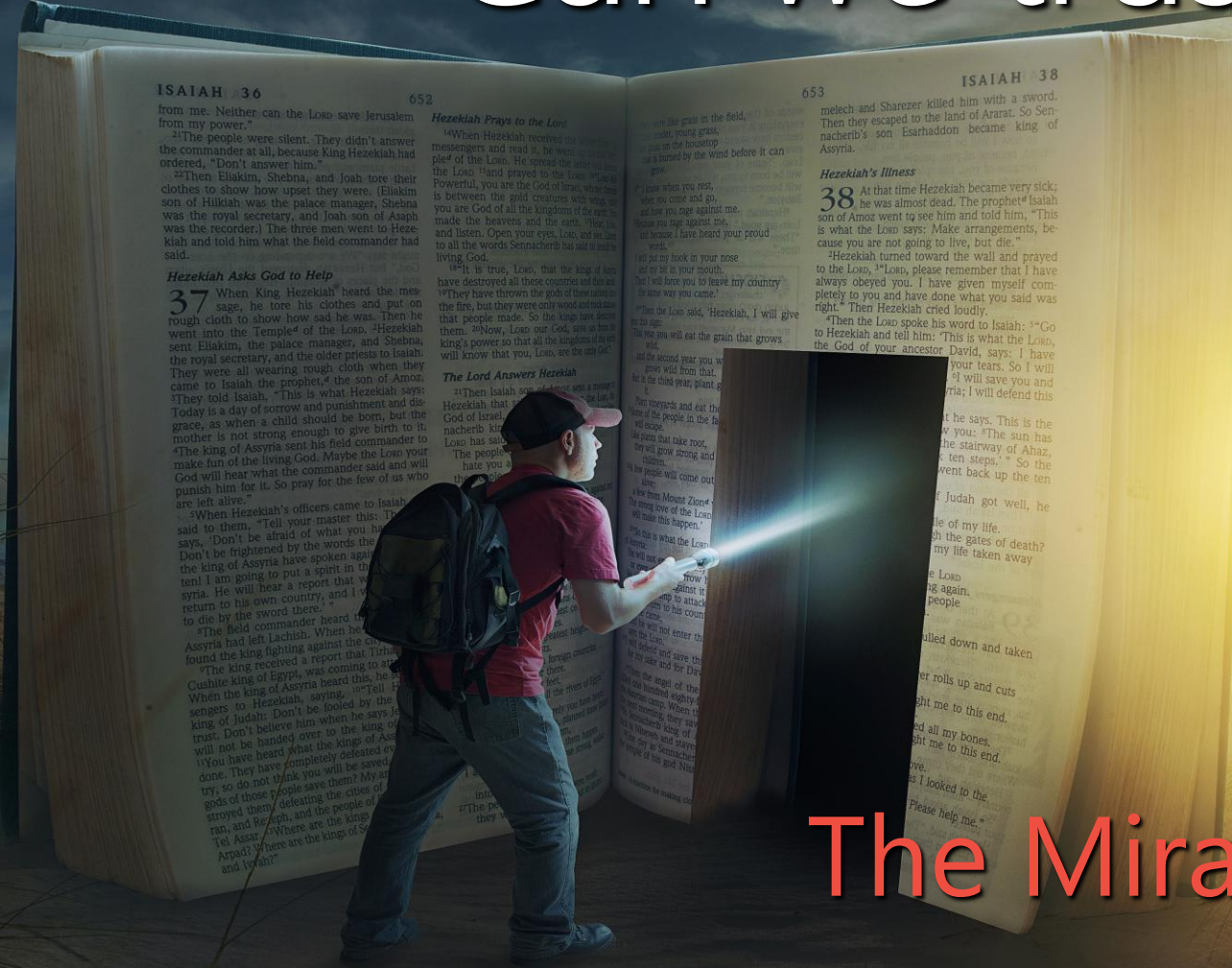


Can we trust the Bible?



Lesson Zero The Miracle of the Bible

Only pre-conceived Notions and Cigars were delightfully harmed in this Exercise.

[\(4255\) Plagues of Egypt – YouTube](#)

Subscribe to Isaac Blancas' [\(4268\) Spiritual Speculations - YouTube](#)

Lesson 0	16 Mar	Introduction	The Miracle of the Bible
Lesson 1	23 Mar	Old Testament	Aleph – Tav 7,300 instances, Manuscripts, Prophecy, 430 Silent Years, In the Beginning...
Lesson 2	30 Mar	Dr. Todd Pickle	History of writing, language, OT nations & Hebrew scriptures and a little bit of the canon
Lesson 3	6 Apr	New Testament	Historic Jesus of Matt, Mark, Luke, & John
Lesson 4	13 Apr	Dr. Todd Pickle	Roman era, contemporary languages, writing materials & methods such as papyrus and then a quick view of how our modern English Bible came to be, also including some comments on the canon
	20 Apr: - Easter		
Lesson 5	27 Apr	Conclusion	What do you Believe?

Instructors

Doctor Todd Pickle

- Married to Lean nearly 24 Years
- Dental Surgeon
- My grandad was a Christian minister for over 60 years and showed me how to study the Word.
- I took a college course at ACU from Neil Lightfoot, PhD on 'How We Got the Bible' and have been interested in the subject ever since.
- I enjoy finding the 'Truths' of the Bible as they cross our secular history in frequently 'miraculous' ways.
- Had cigars with Dennis Prager

Jay Inman

- Married to Jan 42 Years
- Retired Army
- Microsoft Architect for nearly 15 years
- Around 8th grade, my Grandpa taught me to love the Old Testament – As a result, God's Word became a lifelong obsession
- In Iraq sitting by the Euphrates River one afternoon in 2006...
- Had Cigars with Dennis Prager

We are no longer well-adjusted students of the Bible as we wander out of Sunday School coloring books, away from the standard thoughts and doctrines of men

Be Bereans

- Acts 17:10 Then the brethren immediately sent Paul and Silas away by night to Berea. When they arrived, they went into the synagogue of the Jews.
- Acts 17:11 These were more fair-minded than those in Thessalonica, in that they received the word with all readiness, and searched the Scriptures daily to find out whether these things were so.

Basic Caveat:

Don't believe anything we tell you. Check it out for yourself!

Lesson Overview



Before... Before...
Before...



Prophetic
Probabilities (not a
math Lesson)



Reality



First Look at Text –
The Bible



Eet – Aleph Tau



Manuscripts



Quotes from
Washington,
Napoleon, et all

Before... Before... Before...

Blood Tipped Ear

- **Exo 29:20** “Then you shall kill the ram, and take some of its blood and put it on the tip of the right ear of Aaron and on the tip of the right ear of his sons, on the thumb of their right hand and on the big toe of their right foot, and sprinkle the blood all around on the altar.
- **Lev 14:14** “The priest shall take some of the blood of the trespass offering, and the priest shall put it on the tip of the right ear of him who is to be cleansed, on the thumb of his right hand, and on the big toe of his right foot.
- Righteous Ear that HEARS
- **Butler PA?**

Gaza

- Netanyahu / Trump press conf
- Take over Gaza
- Remove The Palestinians?
 - Art of the Deal? (Maybe)

Zep 2:4

For Gaza shall be forsaken,
And Ashkelon desolate;
They shall drive out Ashdod at noonday,
And Ekron shall be uprooted.

Zep 2:7

The coast shall be for the remnant of the house of Judah;
They shall feed their flocks there;
In the houses of Ashkelon they shall lie down at evening.
For the LORD their God will intervene for them,
And return their captives.

■ **Synch of Information Science**

- 2,000+ Years of Writing
- 66 Books
- 40+ Authors
- Name Data Bases Associated with centuries and locations
- Authentication
- Prophecy
- In 6,000 years, NO other text like it, not even:
 - Quran
 - Rubaiyat of Omar Khayam
 - Book of Mormon
 - Gnostic Gospels

Why is this Important?

■ **Love Letter**

- Begins with a wedding in Gen Chapter 3
- Boaz, Naomi, & Ruth linked by redeeming a title deed and resulting in a Gentile Bride
- Christ's ministry begins with a wedding in John 3
- Crucifixion for the Cosmos
- Kingdom of God assembles for a Wedding in Rev 19

Begins in Genesis with first Miracle: *In the Beginning, God Created the Heavens and the Earth*

The Principal Discovery

Job
Genesis, Exodus, Leviticus, Numbers, Deuteronomy
Joshua
Judges, 1 & 2 Samuel,
1 & 2 Kings
1 & 2 Chronicles, Ezra, Nehemiah
Esther
Psalms
Proverbs, Ecclesiastes
Isaiah
Jeremiah, Lamentations
Ezekiel
Daniel
Minor Prophets
Matthew
Luke
John, 1,2, 3 John, Revelation
Mark, 1, 2 Peter
14 epistles
James
Jude

66 books

?
Moses
?
Samuel
?
Ezra
?
David +
Solomon +
Isaiah
Jeremiah
Ezekiel
Daniel
The 12
Matthew
Luke
John
Peter
Paul
James
Jude

40 +

~2000 years



The Central Theme

- The OT is an account of a Nation.
- The NT is the account of a Man.
- The Creator became that Man. His appearance is the Central Event of all history.
- He died to purchase us and is alive now.
- The most exalted privilege is to know Him. That's what the Bible is all about.

Not a Math Lesson...

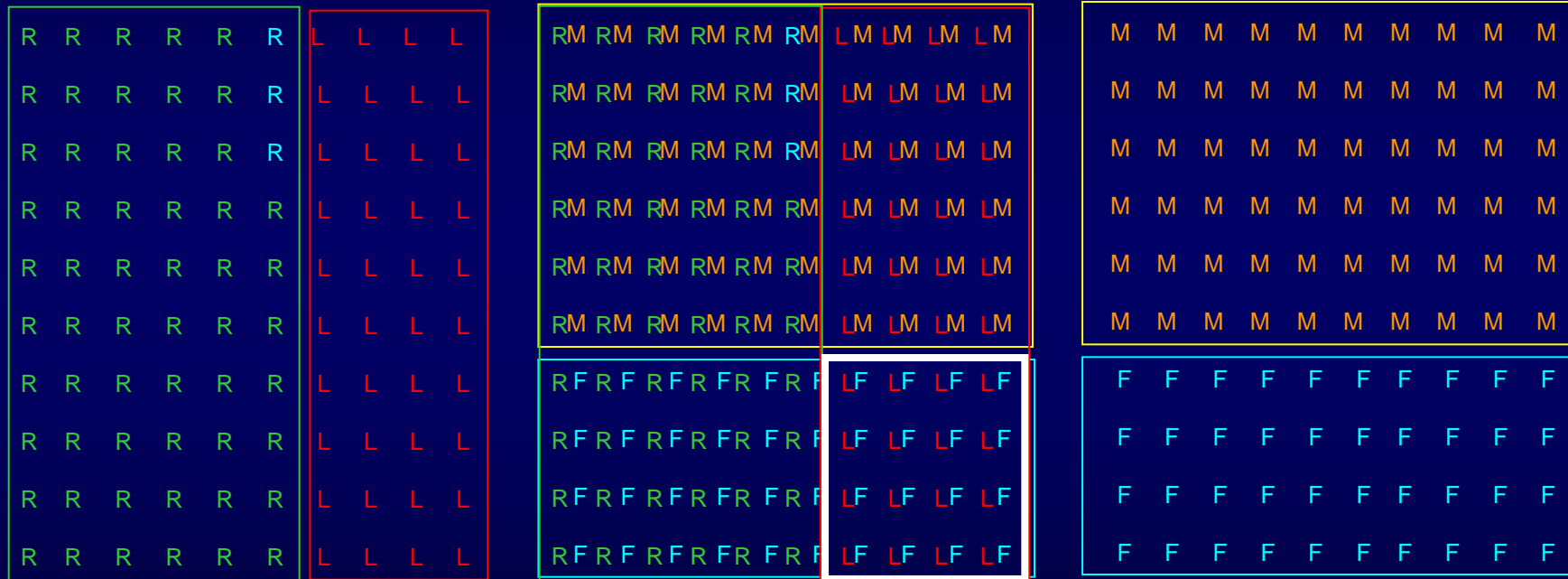
PROPHETIC PROBABILITIES

Prophetic Scriptures

- 8,362 predictive verses
 - Genesis 41:15-16 Pharaoh said to Joseph, “I have had a dream, but no one can interpret it; and I have heard it said about you, that when you hear a dream you can interpret it.” Joseph then answered Pharaoh, saying, “It is not in me; God will give Pharaoh a favorable answer.”
- 1,817 predictions
 - Dan 9:24 “Seventy weeks are determined
 - For your people and for your holy city,
 - To finish the transgression,
 - To make an end of sins,
 - To make reconciliation for iniquity,
 - To bring in everlasting righteousness,
 - To seal up vision and prophecy,
 - And to anoint the Most Holy.
- 737 separate matters
 - John 15:5 “I am the vine; you are the branches. If you remain in me and I in you, you will bear much fruit; apart from me you can do nothing.”

Composite Probabilities

What is the probability of selecting a **left-handed female**?



$$P = 0.4$$

$$P = 0.4 \times 0.4 = .16$$

$$P = 0.4$$

8 Prophecies

Micah 5:2	Bethlehem	1:100,000
Zechariah 9:9	King on Donkey	1:100
Zechariah 11:12	30 pieces of Silver	1:1,000
Zechariah 11:13	Temple, Potter, etc.	1:100,000
Zechariah 13:6	Wounds in hands	1:1,000
Isaiah 53:7	No defense; innocent	1:1,000
Isaiah 53:9	Died with wicked Grave with rich	1:1,000
Psalms 22:16	Crucified	<u>1:10,000</u>
		1:10²⁸

8 Prophecies Combined

- Total population < 100 billion (10^{11})
- Combined probabilities:

$$10^{28}/10^{11} = 10^{17}$$

16 Prophecies Combined

- Over 300 to choose from;
- Assuming no *decrease* in likelihoods:
 $10^{28} \times 10^{28} = 10^{56}$
- $10^{56}/10^{11} = 10^{45}$
- ...and we've dealt with only 16 of over 300 prophecies!

The State of Texas, 2 ft. deep

10^{45} Silver Dollars would
fill Texas two Feet Deep

Toss in one Gold coin and
Pick it on your first attempt

Those are the odds that
Jesus was an accident



The Most Amazing Ones

- His detailed genealogy
- Old Testament Messianic Prophecies
- The prediction of the precise day that He would present Himself as King to Jerusalem

Major Prophetic Themes

- Israel
- Jerusalem
- Temple
- Babylon
- Russia (Magog)
 - Only modern nation mentioned in Old Testament Prophecy
- Rise of China
- European Super State
- Ecumenical Religion
- Global Government
- Rise of the Occult

Is it Real?

REALITY

The Ultimate Issue – Is it REAL?

- We are in possession of a message of extraterrestrial origin.
- It portrays us as objects of an unseen warfare.
- Our eternal destiny depends upon our relationship with the ultimate victor in this cosmic conflict.
- Where do *you* stand with respect to *Him*?

Some Preliminaries

- Shedding the baggage of our misconceptions
- 20th century science (not fake science) has vindicated the Biblical perspectives of reality
 - The Finite Universe
 - The Discovery of the nature of Time
 - The realization of Hyperspaces

Boundaries of Reality

- Two Mathematical Conceptions that go beyond our physical reality:
 - Infinity
 - Finite Universe: Cosmos *not* infinite
 - Finite Universe: Quantum Physics
 - Length, Mass, Time = *Quantized* (digital)
 - Randomness
 - Chaos Theory
 - Mandelbrot Diagrams

A Few Caveats

- The Word of God is *Inexhaustible*.
 - 24 years would be insufficient...
- The truth is in the details.
 - Every detail is connected to every other.
- Our Goal: A Strategic Grasp of the Total
 - A conceptual grounding in the major truths
 - A navigational awareness to fit it all together
 - Trust

Two Critical Discoveries

- 1) We have in our possession
an *Integrated* Message System
 - 66 separate books
 - Penned by 40 different individuals
 - Over thousands of years
- 2) Which provably has its origin from
outside our time domain.

One Integrated Design

The New Testament

is in the Old Testament concealed;

The Old Testament

is in the New Testament revealed.

The Bible



 **CREATION**

FALL 



ADAM & EVE

BIBLE TIMELINE

**THE
CHURCH**

**JESUS' DEATH
& RESURRECTION**



PENTECOST
THE 12 APOSTLES

GENTILE MISSION
THE APOSTLE PAUL

FLOOD



NOAH

PATRIARCHS

ABRAHAM
ISAAC
JACOB

EXODUS
MOSES

**PROMISED
LAND**

JUDGES

KINGS

SAUL
DAVID
SOLOMON

TEMPLE

**JERUSALEM
DESTROYED**



400 YEARS OF SILENCE
BETWEEN THE OLD AND NEW TESTAMENTS

SOUTHERN KINGDOM: JUDAH
EXILE TO BABYLON

EXILE TO ASSYRIA

NORTHERN KINGDOM: ISRAEL

EXILE TO ASSYRIA

**SAMARIA
DESTROYED**

KINGDOM DIVIDED



Wesley Huff
Teach . Reach . Encourage . Equip

ONE LITTLE WORD IN OT THAT IS NEVER TRANSLATED...

Aleph Taw – pronounced 'Eet'

Paleo Hebrew

hēt	zayin	wāw	hē	dālet	gīml	bēt	ʾālep
ḥ	z	w	h	d	g	b	ʾ
[ħ]	[z]	[w]	[h]	[d]	[g]	[b]	[ʔ]
ʿayin	sāmek	nūn	mēm	lāmed	kāp	yōd	ṭēt
ʿ	s	n	m	l	k	y	ṭ
[ʕ]	[s]	[n]	[m]	[l]	[k]	[j]	[tʰ]
		tāw	šīn	rēš	qōp	ṣādē	pē
		t	š	r	q	ṣ	p
		[t]	[ʃ]	[r]	[q]	[sʰ]	[p]

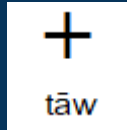
ʾālep

tāw

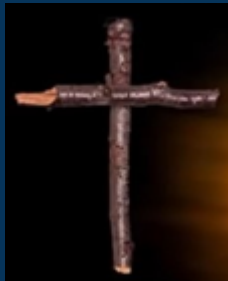
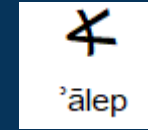
Aleph / Tav – Hidden Hologram



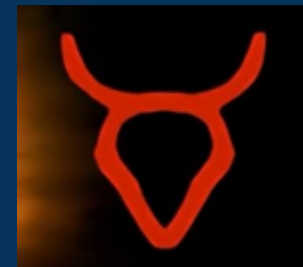
Modern square Hebrew letter



Paleo Hebrew letter and meaning



Covenant/Mark/Sign



Leader/Strength/Ox

First and Last

- Aleph / Tav occurs 7,300 times in Hebrew OT in Strong's Concordance... Never Translated
- Isa 44:6

“Thus says the LORD, the King of Israel,

And his Redeemer, the LORD of hosts:

‘I am the **First** and I am the **Last**;

Besides Me there is no God.

Gen 1:1

בראשית ברא את אלהים
the earth and the Heaven
haa'aarets w'eet hashamayim 'eet
God
Elohiym
created
baaraa'
In the beginning
bree'shiyt

- In the West – translated and analyzed as plural for Father, Son, Holy Spirit
- But...
 - **Psa 82:1** *A Psalm of Asaph.*
 - *God stands in the congregation of the mighty; He judges among the gods.*
 - **Psa 82:2** *How long will you judge unjustly, And show partiality to the wicked? Selah*
 - **Psa 82:3** *Defend the poor and fatherless; Do justice to the afflicted and needy.*
 - **Psa 82:4** *Deliver the poor and needy; Free them from the hand of the wicked.*
 - **Psa 82:5** *They do not know, nor do they understand; They walk about in darkness; All the foundations of the earth are unstable.*
 - **Psa 82:6** *I said, “You are gods, And all of you are children of the Most High.*
 - **Psa 82:7** *But you shall die like men, And fall like one of the princes.”*
 - **Psa 82:8** *Arise, O God, judge the earth; For You shall inherit all nations.*

The Point...



- Elohim is an address where spiritual beings exist... Sometimes called Elohim or sons of God, *'B'nai Elohim'*
- The point is that in Genesis 1: 1, if we translate Aleph Tav properly, It should read...
“In the Beginning, Elohiym, the first and the last, created the heavens and the earth.”

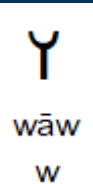
There is only one, singular, Elohim who is the First and the Last.

Second Instance

Gen 1:1

בראשית ברא אלֹהִים אֶת הַשָּׁמַיִם וְאֶת הָאָרֶץ
In the beginning created God the Heaven and the earth
bree'shiyt baaraa' Elohiym hashaamayim 'eet haa'aarets

- ~ When used with Aleph / Tav – translated as 'and'
- ~ In Paleo Hebrew, the Vav symbolized a Nail...
- ~ The Aleph / Tav joined Heaven and earth together on the cross



Across the Hologram Structure of the Bible He told us what Aleph / Tav meant

Revelation 1:8

“I am the Alpha and the Omega,” says the Lord God,
“who is, and who was, and who is to come, the
Almighty.”



Ex 3:14 and Rev 1:4

Rev 1: 4 ...Him which is, and who was, and is to come (G3801)

G3801 also occurs in
Rev 1: 8, 4: 8, and 11: 17

*Exodus 3: 14 God said to Moses,
"I AM WHO I AM." And He said,
"Thus you shall say to the children
of Israel, 'I AM has sent me to you.' "*

G3801 in Strongs – Had to create new number for this term because it is a **grammatical error**

- G3801 – Eternal past, present, future
- Contains G1501, G2064, G2532 twice
 - G1510 – first person present
 - G2065 – To come or go
 - G2532 – cumulative force
 - G3588 – Masc, fem, neuter combo

In the Greek Septuagint;

- Contains G1501, G2532, and rolls up G3588
 - G1510 – First person present
 - G2532 – Cumulative force
 - G3588 – Masc, fem and neuter combo

How's that for a 'Grammatical Error' to emphasize the point from OT to Rev?

Revelation is in code: every code is explained in Scripture... Virtually every other book of the Bible is required!



Tav



Covenant / Mark / Sign



Leader / Strength / Ox / God



Aleph

Imagine if... Like a hologram, elements, attributes, and individuals unfold in ways that defy our Greek / Western cultural attempts to make things 'neat' along specific timelines or doctrinal agendas?



READING THROUGH THE OLD TESTAMENT

THE OLD TESTAMENT (IN THE ORIGINAL HEBREW) HAS:

**TIME IT SHOULD TAKE
YOU TO FINISH IT IN
ONE SITTING:**



187 chapters

5 852
verses



79 847 words



13 hours,
46 minutes



The longest chapter in the Bible is Psalm 119, and the middle and shortest chapter is Psalm 117.



The middle chapter of the Old Testament is Job 29.



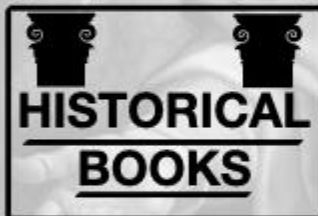
Psalm 119 is an acrostic Psalm with 22 sections with eight lines. Each of the eight lines in each section starts with a Hebrew letter in the alphabet. The entire Hebrew alphabet outlines the chapter.



There are a total of 304 901 Hebrew & Aramaic words in the Old Testament. 166 739 more words than there are Greek words in the New Testament.



268 of the over 300k words in the Hebrew Bible are Aramaic. These Aramaic sections come from Ezra (67 verses), Daniel (200 verses), and Jeremiah (1 verse).



239 chapters

6 851
verses



16 hours,
41 minutes



243 chapters

4 848
verses



9 hours



1074 chapters

27 570
verses



15 hours,
35 minutes

[illegible]

The 2021 Dead Sea Scroll Discoveries

Dating



These documents have been tentatively dated to the 1st century BCE



These new fragments are most likely part of a previously discovered scroll, known as 8HevXIIgr, which is a minor prophet scroll from cave 8 of Nahal Hever.

The "Cave of Horrors" was originally excavated in 1953-1955. The cave got its name from numerous human skeletons of women, children, and infants (as well as coins, pottery, letters, and biblical scrolls) that were found in the original archaeological investigation. The bodies came from the second Jewish uprising against Rome, known as the Bar Kokhbah revolt (132-135 CE). The cave however, contained artifacts thousands of years older than the Bar Kokhbah period. Along with the recent discovery, a mummified child from 4000 BCE and an intact woven basket from 8 500 BCE was also found.



In March of 2021 the Israel Antiquities Authority (IAA) announced the discovery of new biblical fragments of the Dead Sea Scrolls.

1st

Dead Sea Scrolls discovered in

50 years

Contents



Zechariah 8:16-17

Nahum 1:5-6

οὗτοι οἱ λόγοι οὓς ποιήσατε
λαλεῖτε ἀλήθειαν ἕκαστος πρὸς
τὸν πλησίον αὐτοῦ καὶ κρίμα
εἰρηνικὸν κρίνατε ἐν ταῖς πύλαις
ὑμῶν καὶ ἕκαστος τὴν κακίαν
τοῦ πλησίον αὐτοῦ μὴ λογίζεσθε
ἐν ταῖς καρδίαις ὑμῶν καὶ ὀρκον
ψευδῆ μὴ ἀγαπάτε διότι ταῦτα
πάντα ἐμίσησα λέγει ὁ
παντοκράτωρ

יהוה

The words of the new fragments are in Greek, except for the single divine name of YHVH, conventionally referred to as the Tetragrammaton, which is written in Paleo-Hebrew script.



The manuscript fragments discovered are tiny. The biggest ones are not much bigger than the size of a thumbnail.

LXX

The Greek Old Testament, known as the *Septuagint* (often abbreviated in the Roman numerals *LXX*), is the earliest surviving Greek translation of books from the Hebrew Bible and a number of inter-testamental books of the biblical apocrypha. This collection is believed to have been translated somewhere between the 3rd and 2nd centuries BCE.

M

The *Masoretic Text* is the authoritative text of the Hebrew Tanakh (Old Testament). The *Masoretic Text* contains the later added vocalization and accentuation. It was primarily copied, edited, and disseminated by the Jewish Masorete scribes between the 7th and 10th centuries CE.

The discovery was made in a cave hundreds of meters high known as the "Cave of Horrors," in the southern end of the dry river bed called Nahal Hever.

Nahal Hever
Bar Kokhba's Caves



Dead Sea

The Dead Sea Scrolls

Dating

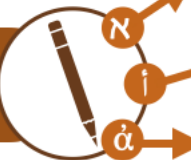


These documents were penned between
3rd century BCE — 1st century CE

75%

of the scrolls were
written in Hebrew

Languages
used



Hebrew
Aramaic
Greek

Contents



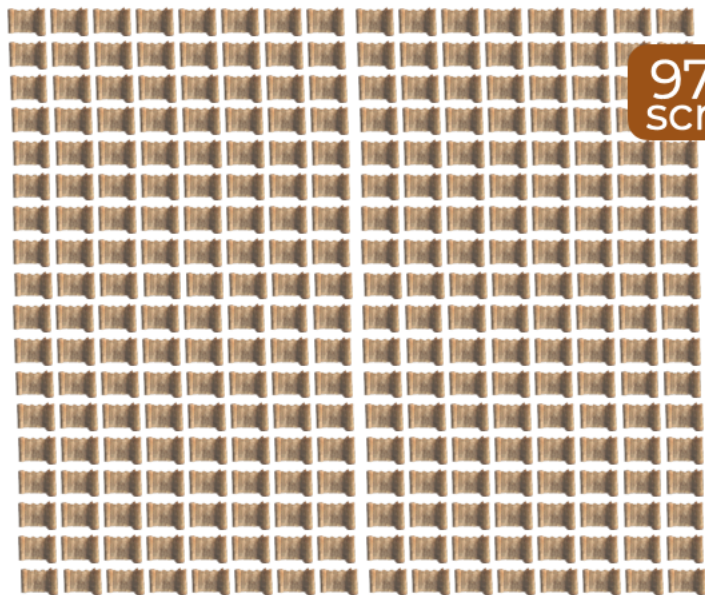
The scrolls contain copies all of the
Hebrew canon (Old Testament)
except for Esther

Other books included:

Book of Enoch The War Scroll
Book of Jubilees The Rule of Blessing
Book of Tobit Community Rules
Wisdom of Sirach

Over 970 scrolls assembled from more than
10 000 fragments make up the collection we
call the Dead Sea Scrolls.

970+
scrolls



39 copies of
Psalms



33 copies of
Deuteronomy



24 copies of
Genesis



The longest is
29 feet long

We are not entirely sure who wrote,
copied, and stored all of the Dead Sea
Scrolls. It is thought that most of
them are the product of the Jewish
sect known as the Essenes. However,
scholars also believe that a good
number may be the work of the
Sadducees or potentially other less
well known Jewish groups living in
the deserts around the Dead Sea.



The smallest
is no bigger
than 3 inches

24 feet
long



The Isaiah scroll was 1 000 years older than any
previously discovered copy of that book. It is one of the
only scrolls that contains the entire book start to finish.

Although most of the scrolls are
parchment with some being
papyrus, one is made of copper.
Known as the "Copper Scroll," it lists
64 locations - 63 of which are said to
be caches of silver and gold. None of
these treasures have been found.



Jericho
Cave 11
Cave 1
Qumran
Cave 4
Murabba'at
Bar Kokhba's Caves
Ein Gedi
Nahal Hever
Bar Kokhba's Caves
Masada

Dead
Sea

George Washington:

No person's education is complete if they do not know their Bible.

“It is impossible to rightly govern the world without God and the Bible.”

Abe Lincoln:

“I believe the Bible is the best gift
God has ever given to man.
All the good from the Savior of the
world is communicated to us
through this book.”

Patrick Henry:

“The Bible is worth all the other books which have ever been printed.”

Napoleon:

“The Bible is no mere book,
but it is a Living Creature,
with a power that conquers all that
oppose it.”

Since 1963:

- Divorce Rates
- Breakup of family units
- Acceptance of homosexuality
- Teen-age Pregnancies
- Murder of inconvenient babies
- Crime Rates

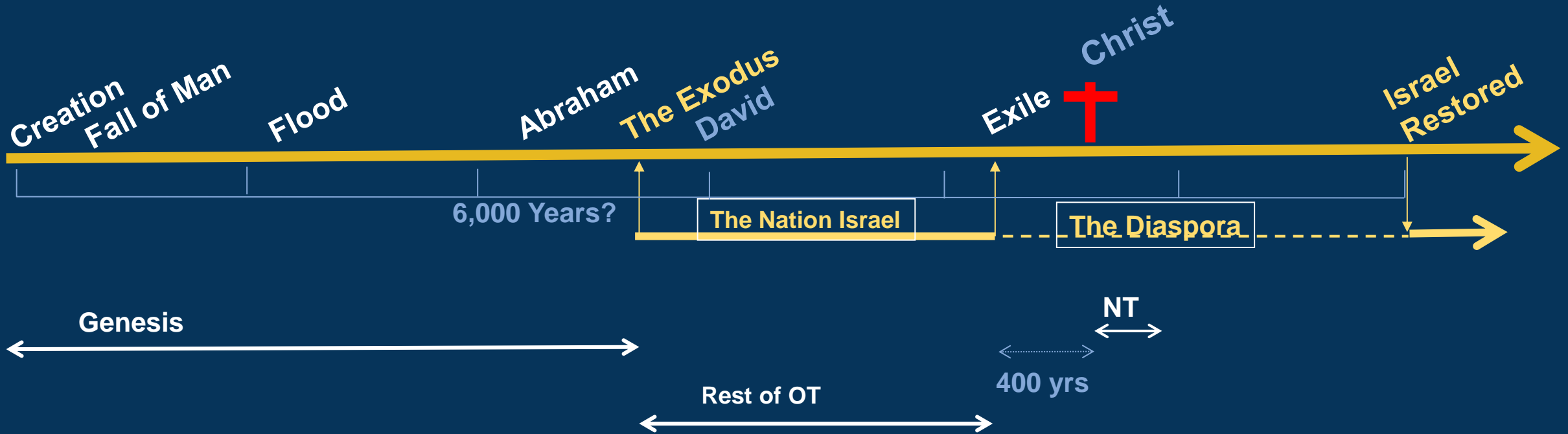
...what happened that year?

We outlawed prayer and the Bible from our schools!

What's Ahead:

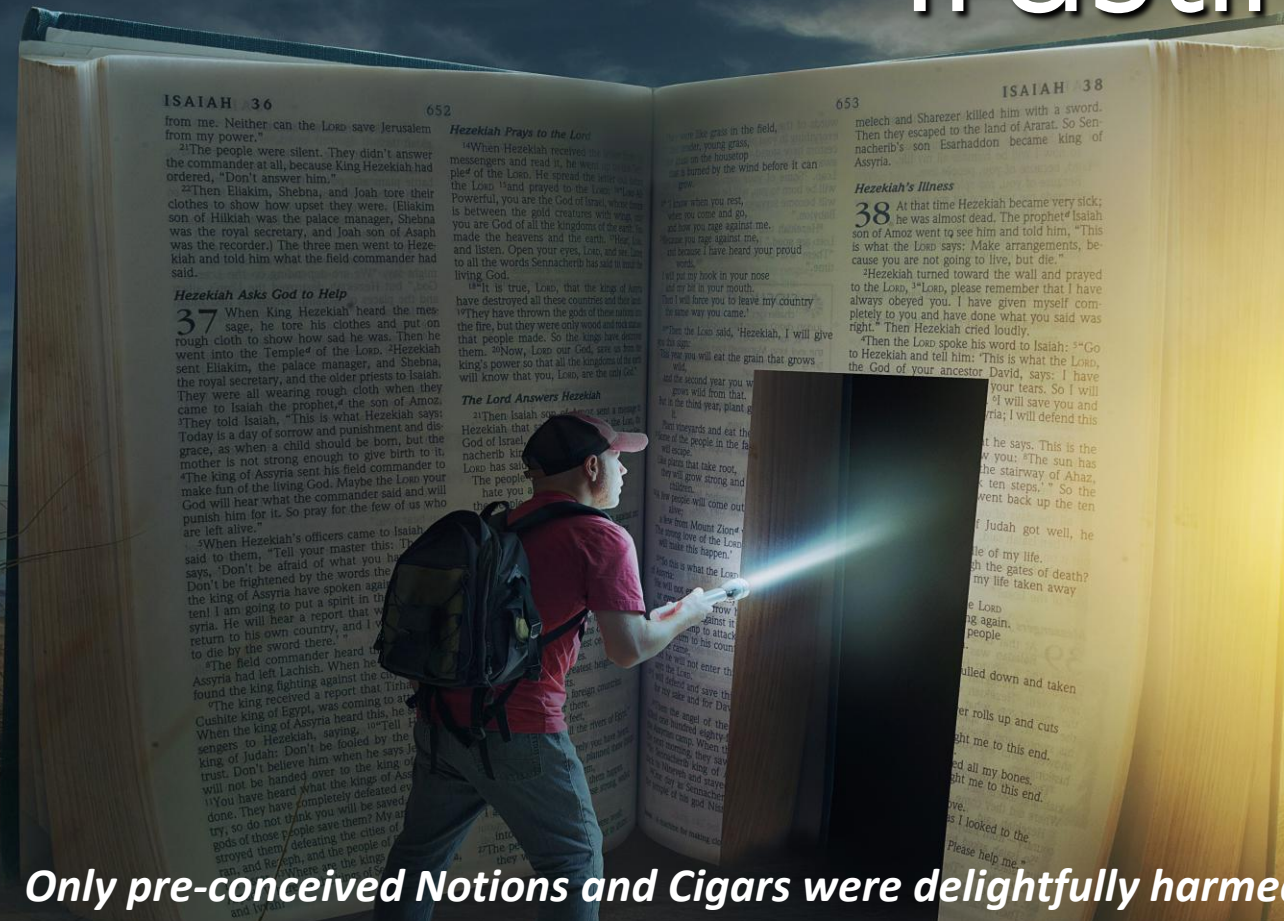
- The Ultimate Literary Adventure
 - The Greatest Drama of all time
 - The Greatest Evils
 - The Greatest Good
 - The Greatest Romance
 - The Greatest Mysteries
 - The Biography of a real Superman
- The Cosmic War
 - Extraterrestrial Sources
 - Trans-dimensional Episodes
 - The Pawns and the Prizes
 - The Cosmic Questions
- The Ultimate Personal Adventure
 - The Miracle of our Origin
 - The Mystery of our Destiny
 - The Urgency of Participation

We live between Sleep and Awake... Between Genesis and Revelation



Imagine if... Like a hologram, elements, attributes, and individuals unfold in ways that defy our Greek / Western cultural attempts to make things 'neat' along specific timelines or doctrinal agendas?

Trusting the Bible

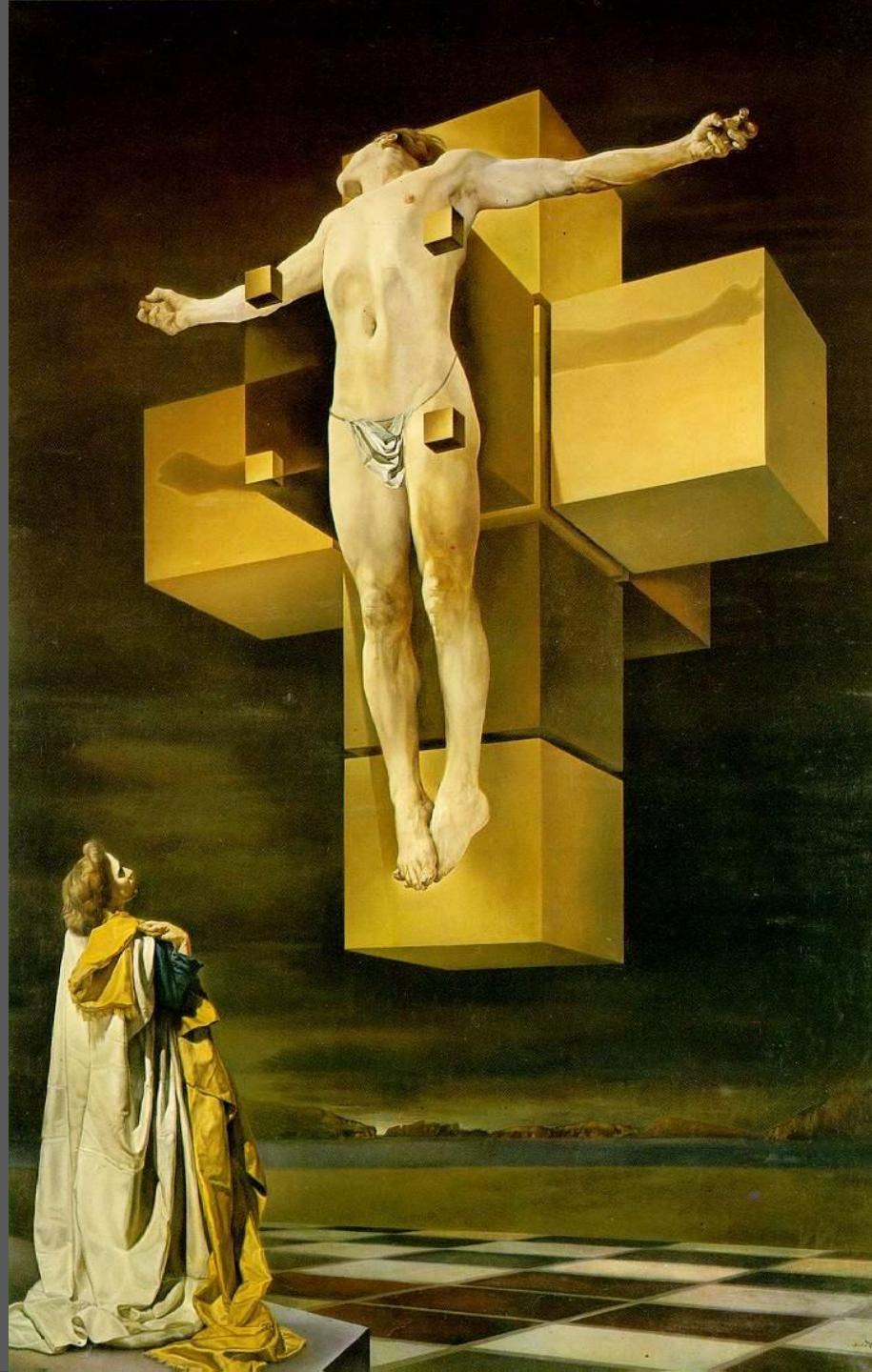


Only pre-conceived Notions and Cigars were delightfully harmed in this Exercise.

Flies of Fury: When Egypt's Pride Turned to Decay

Subscribe to Isaac Blancas' (4268) Spiritual Speculations - YouTube

QUESTIONS?



Additional Slides for study

8 Prophecies

Micah 5:2	Bethlehem	1:100,000
Zechariah 9:9	King on Donkey	1:100
Zechariah 11:12	30 pieces of Silver	1:1,000
Zechariah 11:13	Temple, Potter, etc.	1:100,000
Zechariah 13:6	Wounds in hands	1:1,000
Isaiah 53:7	No defense; innocent	1:1,000
Isaiah 53:9	Died with wicked Grave with rich	1:1,000
Psalms 22:16	Crucified	<u>1:10,000</u>
		?

Henry Van Dyke:

“Born in the East and clothed in Oriental form
and imagery,
the Bible walks the ways of the world with familiar feet
and enters land after land to find its own everywhere.
It has learned to speak in hundreds of languages
to the heart of man.
Children listen to its stories with wonder and delight,
and wise men ponder them as parables of life.
The wicked and the proud tremble at its warnings,
but to the wounded and penitent
it has a mother’s voice.”

Misquote of Ben Franklin

~~“Jack of all trades, master of none”~~

“Jack of all trades, master of One.”

A cultured person is one who knows

Something about everything

Everything about something.

*A Christian's specialization must be
the Bible.*

Daniel Webster:

“If we abide by the principles taught in the Bible, our country will go on prospering and to prosper; but if we and our posterity neglect its instructions and authority, no man can tell how sudden a catastrophe may overwhelm us and bury all our glory in profound obscurity.”

Keeping Things in Perspective

- **Psa 2:1** *Why do the nations rage, And the people plot a vain thing?*
- **Psa 2:2** *The kings of the earth set themselves, And the rulers take counsel together, Against the LORD and against His Anointed, saying,*
- **Psa 2:3** *“Let us break Their bonds in pieces And cast away Their cords from us.”*
- **Psa 2:4** *He who sits in the heavens shall laugh; The Lord shall hold them in derision.*
- **Psa 2:5** *Then He shall speak to them in His wrath, And distress them in His deep displeasure:*
- **Psa 2:6** *“Yet I have set My King On My holy hill of Zion.”*
- **Psa 2:7** *“I will declare the decree: The LORD has said to Me, ‘You are My Son, Today I have begotten You.*
- **Psa 2:8** *Ask of Me, and I will give You The nations for Your inheritance, And the ends of the earth for Your possession.*
- **Psa 2:9** *You shall break them with a rod of iron; You shall dash them to pieces like a potter’s vessel.’ ”*
- **Psa 2:10** *Now therefore, be wise, O kings; Be instructed, you judges of the earth.*
- **Psa 2:11** *Serve the LORD with fear, And rejoice with trembling.*
- **Psa 2:12** *Kiss the Son, lest He be angry, And you perish in the way, When His wrath is kindled but a little. Blessed are all those who put their trust in Him.*

Composite Probabilities

- If a population has 60% male and 40% female, what is the probability that one taken at random is female?

40%, or $p = 0.4$

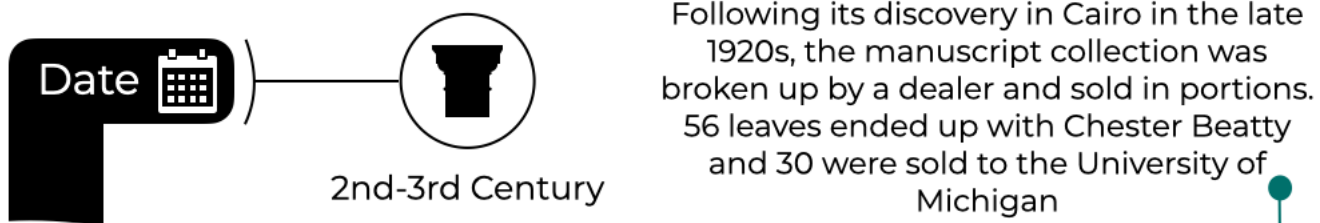
[illegible]

Composite Probabilities

R	R	R	R	R	R	R	L	L	L	L
R	R	R	R	R	R	R	L	L	L	L
R	R	R	R	R	R	R	L	L	L	L
R	R	R	R	R	R	R	L	L	L	L
R	R	R	R	R	R	R	L	L	L	L
R	R	R	R	R	R	R	L	L	L	L
R	R	R	R	R	R	R	L	L	L	L
R	R	R	R	R	R	R	L	L	L	L
R	R	R	R	R	R	R	L	L	L	L
R	R	R	R	R	R	R	L	L	L	L

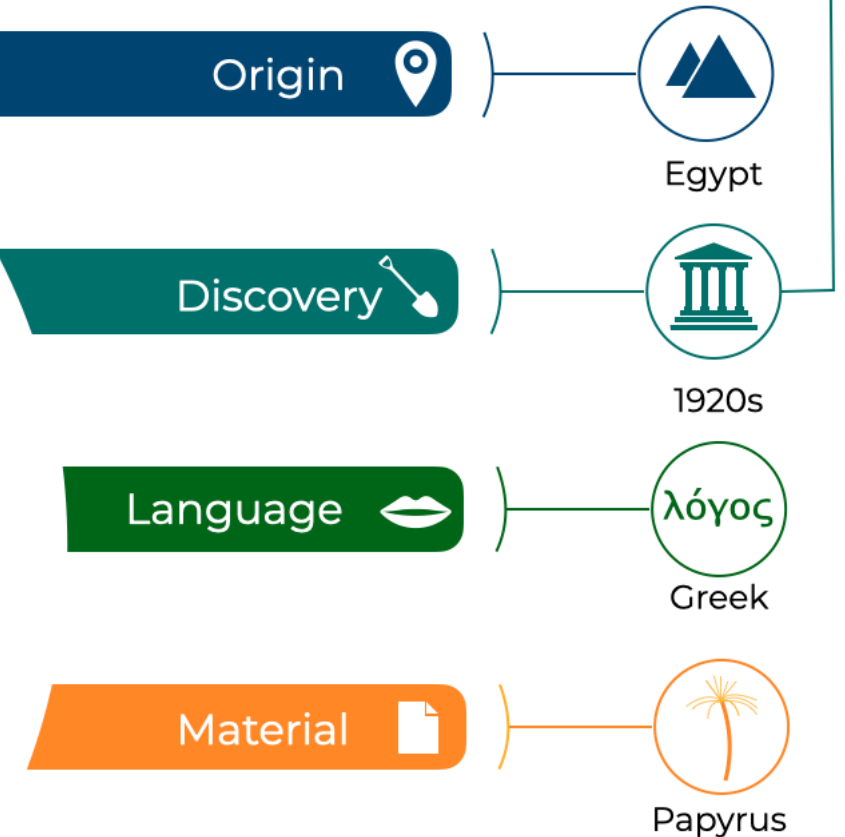
If a population is 60% right-handed and 40% left-handed, what is the probability that someone taken at random is **left-handed**?

40%, or $p = 0.4$



P⁴⁶
P. Chester Beatty II

Single column of text averaging 11.5cm (4.5") with 26-32 lines of text per page.

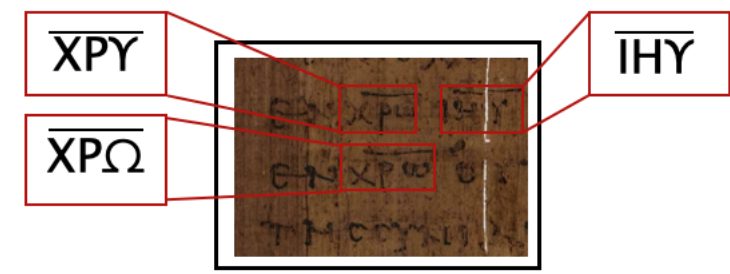


P46 is one of our earliest collections of manuscripts. The majority of the New Testament circulated as independent books, P45 was a clear and purposeful collection of the Pauline letters.

P46 includes the letter of Hebrews, and while the majority of modern scholars do not believe Paul wrote Hebrews, the collector of P46 seems to have.

Contents

Sections of Romans, Hebrews, 1 & 2 Corinthians, Galatians, Philippians, Colossians, 1 Thessalonians



There was a tendency in religious scribal practice, particularly although not exclusively Christian texts, to write *nomina sacra* (latin for "sacred names"). This scribal pattern abbreviated several frequently occurring words, names, and titles within Greek manuscripts; among the most common were religious words such as God (ΘΣ/ΘΥ), Lord (ΚΣ/ΚΥ), Jesus (ΙΣ/ΙΥ), and Christ (ΧΣ/ΧΥ). However, there are occasions where words such as human being/man (ΑΝΟΣ/ΑΝΟΥ), Jerusalem (ΙΛΗΜ), cross (ΣΤΣ/ΣΤΥ) and blood (ΑΜΑ) were abbreviated as a *nomina sacra*. Typically *nomina sacra* used the first two (or three depending on the length of the word) letters of the word to create a sort of contraction. The reason for these abbreviations, whether for space, religious reverence, piety, or otherwise, is highly debated. P46 includes multiple examples of the most common *nomina sacra* used throughout Christian manuscripts.

P46 has stichoi notations at the end of a number of books. Stichoi were used by professional scribes to note how many lines had been copied for commensurate pay. This points to P46 being professionally produced.

ΘΥ

Date



2nd-3rd Century

There is much debate about the approximate date of P52. Although it has been dated as early as 100 CE and as late as 300 CE the consensus is that it sits somewhere within the 2nd century.

P⁵²

JOHN RYLANDS 457

Origin



Egypt*

The recto side preserve the top left corner of a right-hand page; the verso preserves the top right corner of a left-hand page.

Discovery



John Rylands Library | 1934



Text is rounded and elaborate. The style indicates the book hand of a non-professional scribe. Nonetheless, the seeming effort in how the text appears to have been written indicates an individual who was educated and writes in a careful imitation calligraphic hand.

Language



λόγος

Greek

Material



Papyrus

Contents



Recto: John 18:31-33
Verso: John 18:37-38

114 legible letters are visible on the two sides of the fragment.

8.9 cm - 3.5"

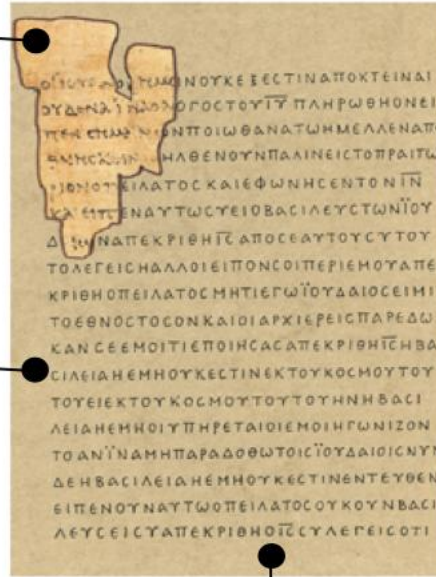


Verso

Recto

6cm - 2.4"

The P52 papyrus is written on both sides which indicates it originally came from a codex and not a scroll



If the codex from which P52 originates contained the entire text of the Gospel of John, it would have constituted a single quire book of around 130 pages (33 large folded papyrus sheets written on both sides); measuring approximately 21 by 16 cm when closed. This could have been as many as 576 pages in total.

*Egypt, and maybe even Oxyrhynchus, Egypt, is the speculated original location but it could have realistically been produced anywhere in the Mediterranean at that time.

Date



2nd - 4th Century



P66 was originally dated to the 2nd century but in recent decades, due to the palaeographical and papyrological analysis, hypothesized dates as early the early 2nd and as late as the mid 4th centuries have been tabled. The consensus amid this disparity however, remains late 2nd or early 3d century.

P⁶⁶

The Bodmer Papyri

Origin



Egypt*

Discovery



1952

Language



λόγος

Greek

Material



Papyrus

Contents



Gospel of John

Single column, with an average of 25 lines per column

16.2 cm - 6.3"

14.2 - 5.5"

Contains 75 identifiable papyrus folios and numerous fragments.

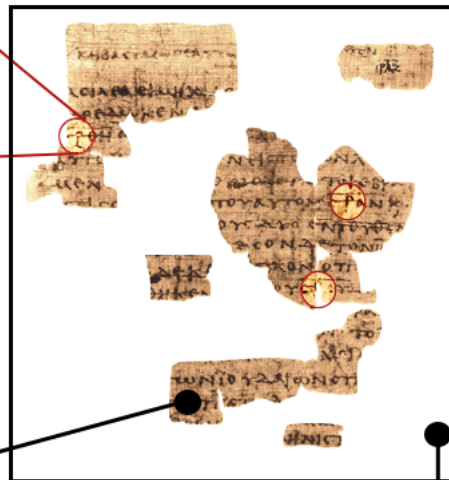
The large majuscule single-column text may indicate that it was meant to be read in public.

P66 is our earliest near complete copy of the Gospel of John. About 2/3 of the original document remains.

There are three hands present in the production of the manuscript. This has led some to believe there were three scribes involved, others that the original scribe is the one who made the subsequent corrections.

Several of the verses in Ch.13 were marked heavily with breathing marks, indicating a lectionary purpose.

The *staurogram* symbol was used by early New Testament scribes when writing about Christ's death, often substituting *staurograms* in place of the words "cross" and "crucifixion." This was done by taking the Greek letter *tau* (τ), and the letter (ρ), combining them to create the final pictogram. In the above picture you can see a number of *staurograms* taken from the text of John 19:15-20 of P66. There are 10 *staurograms* within P66.



*Egypt is the speculated original location but it could have realistically been produced anywhere in the Mediterranean at that time.

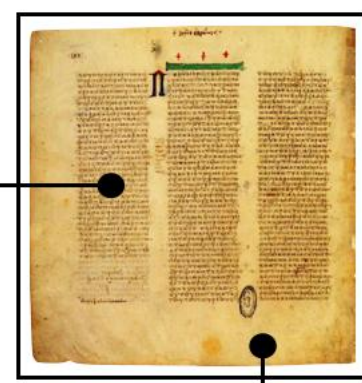
Date



2nd-3rd Century

Some have dated P75 to the 4th century but the rationale for this dating has less to do with the palaeographical evidence and more to do with its relationship with **B**.

P75 conspicuously lacks the text of Christ's agony in Gethsemane (Luke 22:43-44) and the Pericope Adulterae (John 7:53-8:11).



Average line length is 29-32 lines per page.

P⁷⁵

Papyrus Bodmer XIV-XV

Origin



Egypt*

There is a surprising connection between the text of P75 and the 4th century Codex Vaticanus (aka **B**), sharing 85% agreement with one another. Although it is unlikely that the scribes who produced **B** used P75 as an exemplar (and if P75 is indeed an earlier text) it was the sort used in formulating the later 4th century codex.

Discovery



1950s

The discovery of P75 (and its close connection with **B**) changed the consensus view regarding the fluidity and flexibility of the text of the New Testament within the first 3 centuries. It also caused scholars to reevaluate how they viewed **B**. Previous to P75 many viewed **B** as somewhat of a scholarly resection, resulting from editorial selection across the various textual histories. If one takes an earlier date, then P75 as an early example sheds light on **B** as a potential codex copy (with some modifications) of a manuscript much like P75, and not a 4th century recension.

Language



λόγος

Greek

Material



Papyrus

Contents



Sections of Gospels of Luke & John

Ευαγγέλιον
Κάτα
Λούκαν

Ευαγγέλιον
Κάτα
Γιάννης



26 cm - 10.2"

13cm - 5.1"

Text is neat tight vertical majuscule script that is angular and resembles other examples of professional scribal hands in the 2nd and 3rd centuries. This is sometimes referred to as "severe style" or "Formal Mixed" in the scholarly literature.

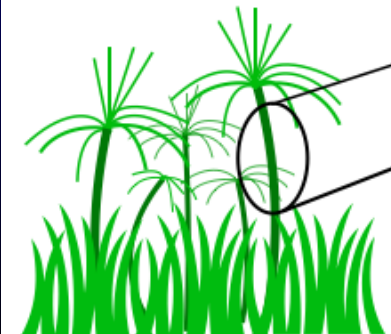
P75 is unusual as a manuscript from this era due to its inclusion of the ending of Luke and the beginning of John on the same page. Usually a new page would be used to start a new book.



THE BIBLICAL CODEX & SCROLL (papyrus)

A CODEX (CODICES IN THE PLURAL) IS THE HISTORICAL PREDECESSOR OF THE MODERN PUBLISHED BOOK. THROUGHOUT ANTIQUITY THE CODEX WAS THE ALTERNATIVE TO THE SCROLL, WHICH WAS THE DOMINANT MEDIUM OF WRITTEN DOCUMENTATION IN THE ANCIENT WORLD.

Papyrus was the writing material used by the ancient Egyptians, Greeks, and Romans the was made from the piths of the stem of the water reed.



About 30cm (12") of the stem of the papyrus plant is cut to make approximately a 61cm (24") long page.

A knife is then used to slide down the length of the plant until the entire outer layer is removed.

The second layer of strips is placed in the same way on top of the first but oriented at a right angle to the first layer of strips. These two layers are pressed together and dried.

Sometimes it was covered with a cloth and beaten with a mallet

The outer portion (pith) of the stalk is cut into thin strips, soaked, and a stone is placed on top where they are then dried on a flat surface.

The two sides of the resulting surface, a *kollema*, have papyrus fibres running at a perpendicular angle. Several *kollemata* (the plural of *kollema*) constructed in this way, usually 20-25cm wide (9-10") would be pasted together to form long rolls.

Before the 3rd century, and the increased popularity of the codex, works of literature would usually just be copied on

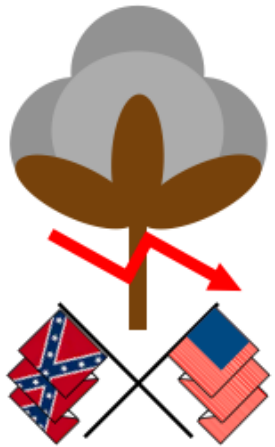
to one more rolls. The roll was therefore a simple production relative to the more complicated codex. The standard roll was inscribed on the horizontal fibres because it is easier to write along the horizontal fibres rather than against the vertical fibres and because the written surface, being on the inside of the roll, was protected.

Rolls that are inscribed on both sides (i.e. a work which would continue to be copied on the back side, that is, the vertical fibres) is called an *opisthograph*.

When codices came to be produced, the sheets were usually cut from blank rolls, as we can see from the recent presence of *kollesis* on leaves of codices. It seems that only in exceptional cases were papyrus sheets not cut from a roll but made solely for codex use.

WHY HAVE SO MANY BIBLICAL MANUSCRIPTS BEEN DISCOVERED IN EGYPT IN THE LAST 150 YEARS?

1 DURING THE CIVIL WAR COTTON EXPORTS PLUNGED.



2 CAUSING COTTON PRODUCTION IN EGYPT TO EXPLODE

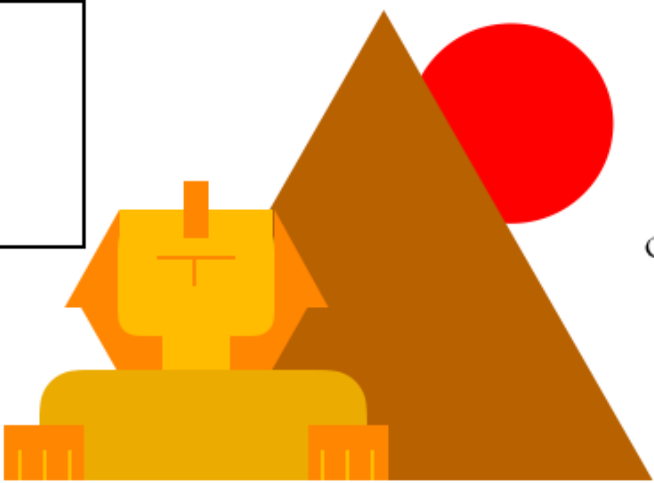


3 DIGGING FOR FERTILIZER IN THE DESERT SANDS WAS A COMMON PRACTICE IN EGYPT.

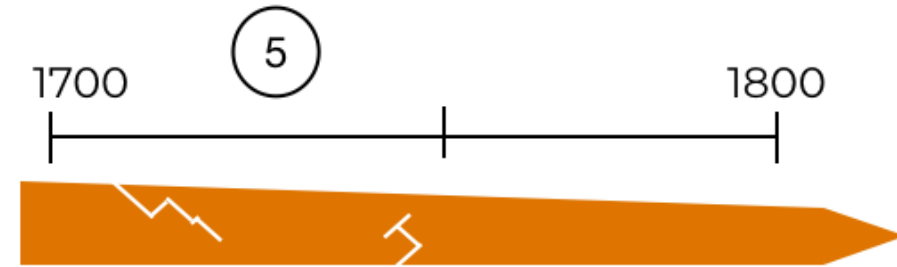


DEMAND FOR CULTIVATABLE LAND IN EGYPT INCREASED AND SO DID NEED FOR FERTILIZER.

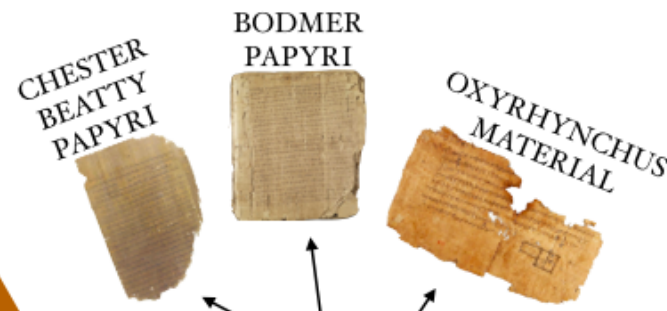
4 A NATURAL FERTILIZER IN EGYPT IS **SEBAKH**.
CONSISTS OF THE REMAINS OF ANCIENT BUILDINGS COMPOSED OF MUD-BRICK ALONG WITH CENTURIES' WORTH OF PLANT AND ANIMAL REFUSE THAT ACCUMULATED IN MOUNDS OUTSIDE OF ANCIENT CITIES.



ALTHOUGH EGYPT EXPORTED ITS WRITING MATERIAL TO OTHER PARTS OF THE ANCIENT WORLD, FEW PAPYRI FROM OUTSIDE EGYPT SURVIVE. ONLY THE CLIMATE OF EGYPT AND CERTAIN PARTS OF MESOPOTAMIA FAVOURS THE PRESERVATION OF PAPYRI IN THE DEBRIS OF ANCIENT TOWNS AND CEMETERIES.



THE SECOND HALF OF THE NINETEENTH CENTURY THUS SAW THE LARGE-SCALE DESTRUCTION OF MANY ANCIENT SITES IN EGYPT AS GROUPS OF LOCAL WORKERS KNOWN AS **SABAKHIM** DUG OUT ANCIENT SITES AND TRANSPORTED THE **SABAKH** TO BE SPREAD ON NEAR BY FIELDS.



MANY OF THE GREAT MANUSCRIPT DISCOVERIES FROM EGYPT OF THE PREVIOUS 150 YEARS NO DOUBT WERE ACCIDENTALLY DISCOVERED WHILE PEOPLE WERE DIGGING FOR **SABAKH** (OUTSIDE OF COURSE THE OBVIOUS ILLEGAL LOOTING OF ANCIENT SITES).

Date



4th Century



Along with Codex Vaticanus, **ⲁ** is considered one of the most valuable Greek manuscripts of the Bible in existence.

Origin



Rome?

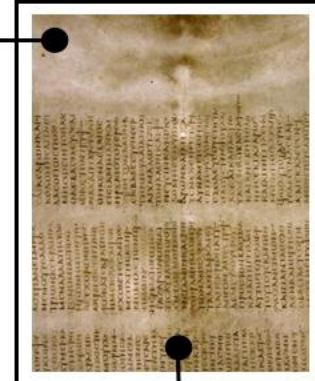


Egypt?

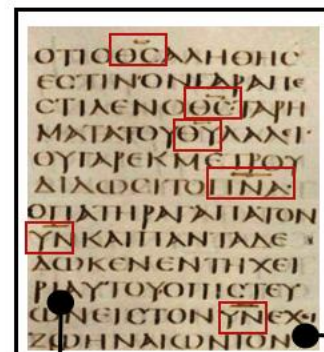


Caesarea?

Quality parchment relies on the selection of good skins unblemished by flaws. The colour of the wool also reflects the final surface of the parchment. White sheep or calves and goats will tend to produce white parchment, whereas animals with darker coats will produce parchment showing shadowy or brown patterns.



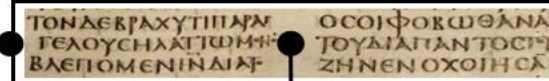
Detail here reveals a skeletal parchment feature on Quire 41, folio 4 recto. The image is rotated 90 degrees to the right.



ⲁ carries on patterns of textual features of earlier Christian manuscripts. *Nomina Sacra*, ekthesis, titles, paragraphoi, etc. are all present in **ⲁ** and manuscripts from centuries earlier.

Even though the text of **ⲁ** is Alexandrian, the first 8 chapters of John's Gospel in it are Western in their text type*.

ⲁ exemplifies a unique column format and a clear script like that of high quality book rolls of the Roman Imperial peak. Below you can see a section of the text of Hebrews from **ⲁ** on the top and Hawara Homer (2nd century) on the bottom.



CODEX SINAITICUS

(**ⲁ**)

Discovery



St. Catherine's Monastery | 1844

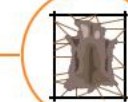
Language



λόγος

Greek

Material



Parchment

Contents



Half of the OT LXX + Deuterocanonical Books, all of the NT + The Shepherd of Hermes & Epistle of Barnabas

Large sections of the beginning books of the OT are missing. However, it is very confidently assumed that the codex originally contained them.

Parts of **ⲁ** are scattered across four libraries in the world, however, the majority of the extant manuscript is held in the British Library in London, where it is on public display.

There appears to be at least 2 (debatably 3) scribes and as many as 7 possible correctors involved in the state of **ⲁ**, as we have it today. Text is Alexandrian and written in *scripta continua* majuscule.

38 cm - 15"

34cm - 13.3"



*The concept of text-types has been almost completely done away with in modern textual criticism. "Alexandrian" and "Western," as descriptions of textual traditions may prove useful in some circumstances but the concept is somewhat anachronistic.

Date



4th Century



The name *Codex Vaticanus* comes from the Vatican Library where it has been conserved since the 15th century.

Origin



Rome?



S. Italy?



Caesarea?



Egypt?

Location



Vatican Library



Language



λόγος

Greek

Material



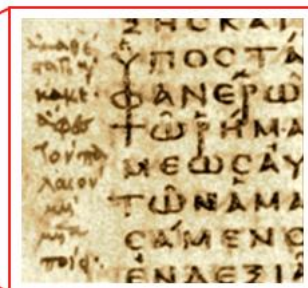
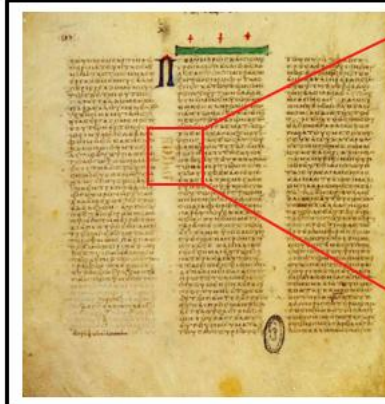
Parchment

Contents



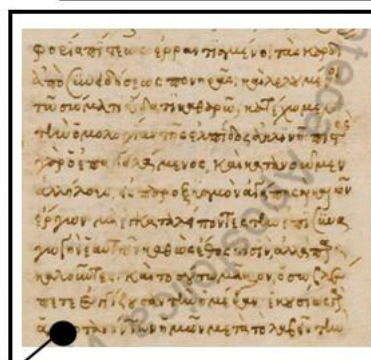
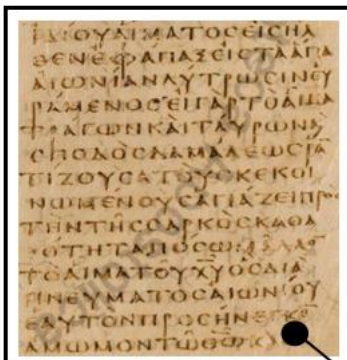
There appear to be at least 3 scribes, 2 of whom appear to have written the Old Testament portion and 1 writing the entirety of the New Testament. 2 corrector hands in subsequent centuries are also present.

Nearly complete OT (LXX) + a number of Deuterocanonical books, the 4 Gospels, Acts, General Epistles, Pauline Epistles, Hebrews (up to 9:14), and Revelation.



B's text at Hebrews 1:3 has a reading that has been erased and corrected by a re-inker in the medieval period. A third scribe's hand erased the correction, rewrote the original text, and wrote a marginal note that reads: "Fool and idiot, leave the old reading and stop changing things!"

The text of Hebrews in **B**, abruptly stops midway through 9:14 at the end of the page, the text of Revelation is present, but it is written in a hand that appears to be from the 1400s, and thus represents a different manuscript form than the ancient portion. This supplement text is also listed separately from **B**, known as GA 1957.



The script between folio 1518 and 1519 (**B's** text of Hebrews) is drastically different. 1518 is a clear 4th century *scripta continua* majuscule script whereas 1519 is in a minuscule calligraphic hand which probably comes from the 10th or 11th century.

CODEX VATICANUS

(B)



27cm - 10.6"

27 cm - 10.6"

B could have been as many as 830 parchment leaves originally. It is believed that approximately 71 leaves have been lost from the original folio. **B's** text of the Old Testament contains 617 sheets and the New Testament 142 sheets.

The codex contains 3 columns per page with 40-44 lines per page and 16-18 letters per line. Some sections of the Old Testament break the pattern with 2 columns instead of 3.

The Nature of Reality

A Glimpse of Hyperspaces

From Outside Time

*For thus saith the high and lofty One that
inhabiteth eternity...*

Isaiah 57:15

Authentication

*Declaring the end from the beginning,
and from ancient times
the things that are not yet done...*

Isaiah 46:10

*“People like us, who believe in physics,
know that the distinction between
the past, the present, and the future,
is only a stubbornly persistent illusion.”*

Albert Einstein

Dimensions of “Reality”

- Nachmonides, (12th Century)

- 10 dimensions

- only 4 are “knowable”

Commentary on Genesis, 1263

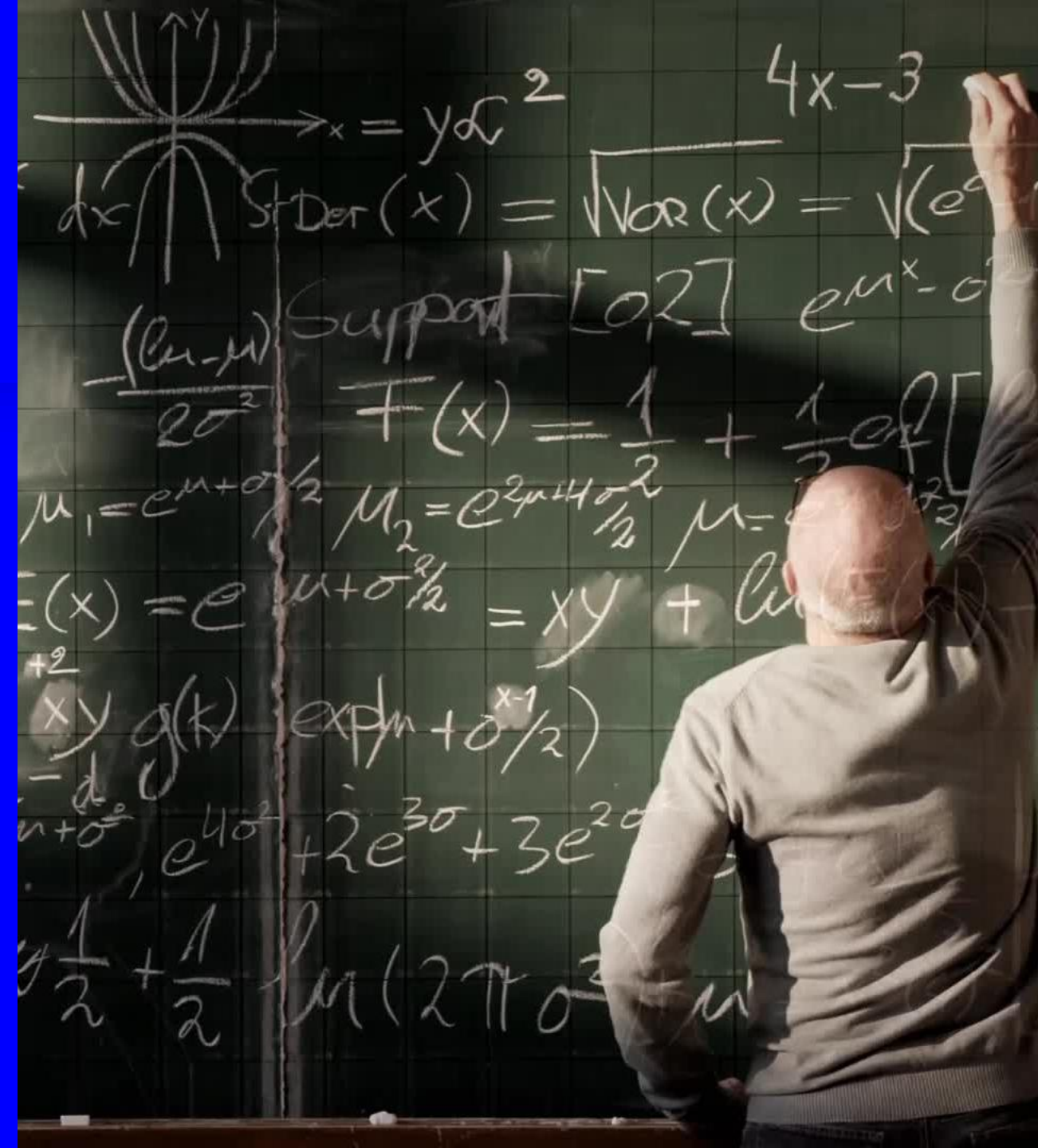
- Particle Physicists, (20th Century)

- 10 dimensions

- 4 are directly measurable: (3 spatial + time);
 - 6 are “curled” into less than 10^{-33} cm, and thus inferable only by indirect means

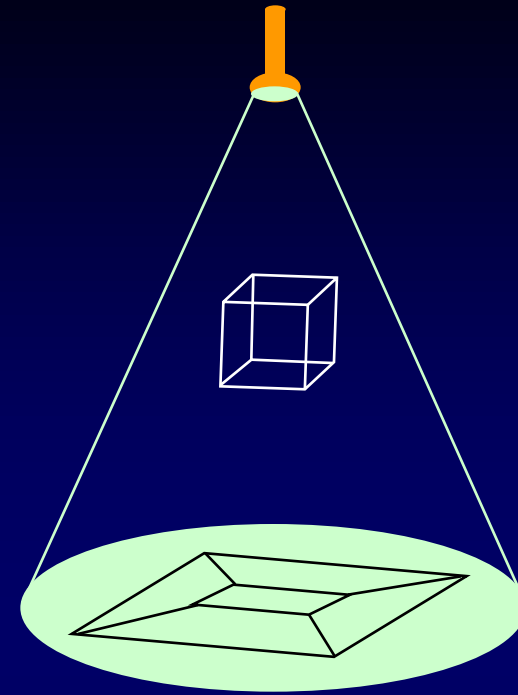
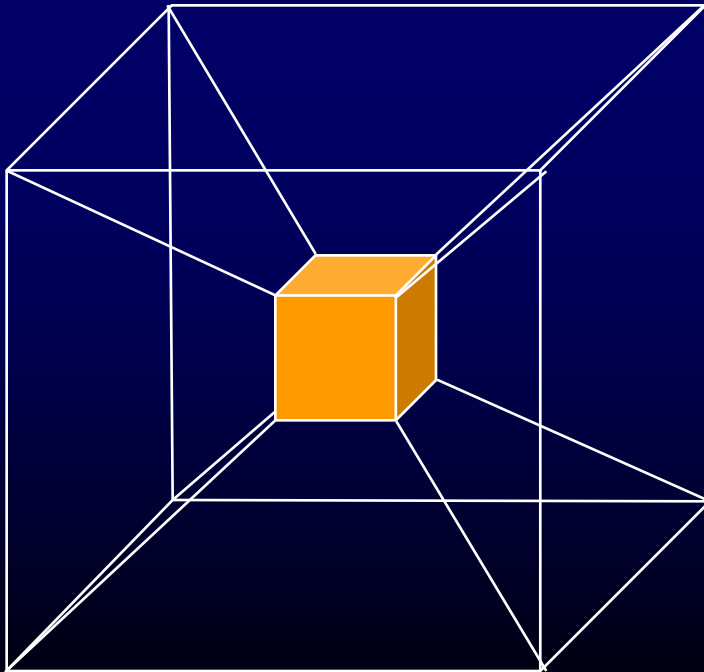
Hyperspaces (Spaces of more than 3 dimensions)

- Only two kinds of people seem able to deal with hyperspaces:
 Mathematicians with special training
 Small children
- But we can gain some useful insights by examining a 2-dimensional universe...



How would you communicate
a 3-dimensional Object to
a 2-dimensional universe?

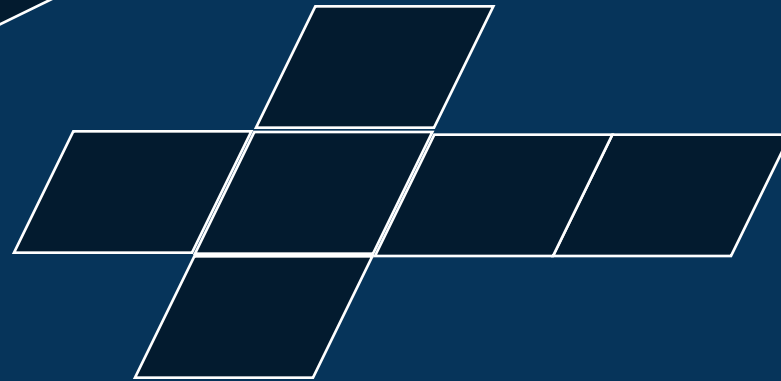
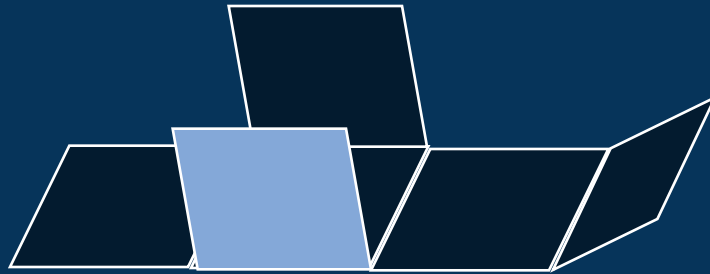
By a 2-dimensional projection?



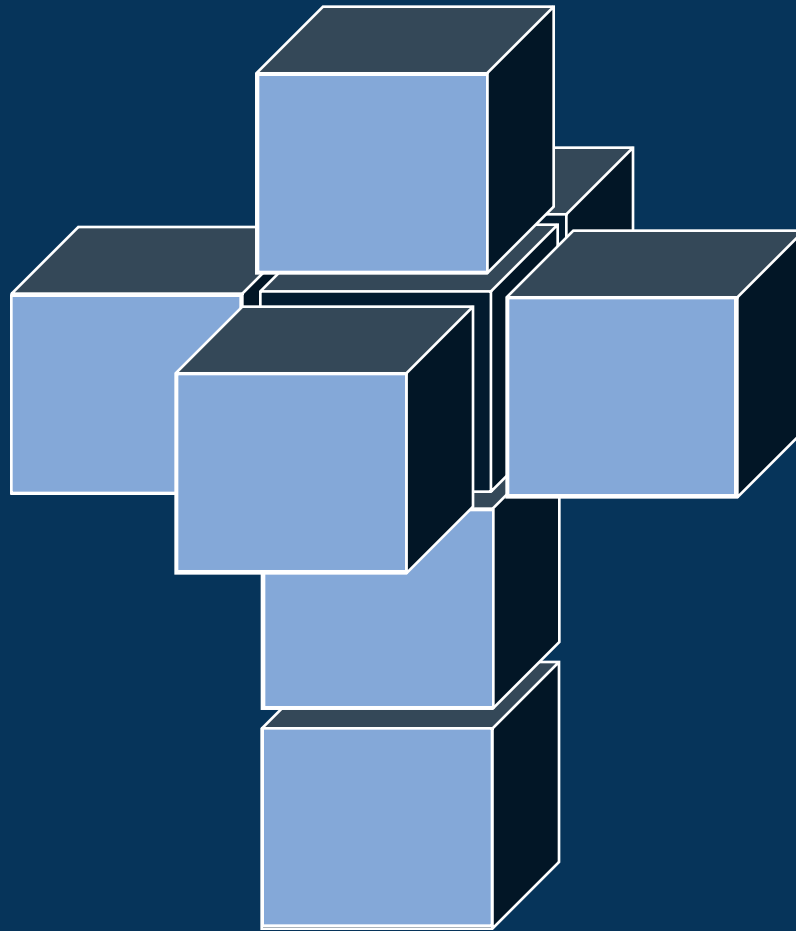
Here is a 3-dimensional
projection of a 4-dimensional
hypercube.

Not very useful, is it?

Unraveling a 3-dimensional object into 2-dimensions:



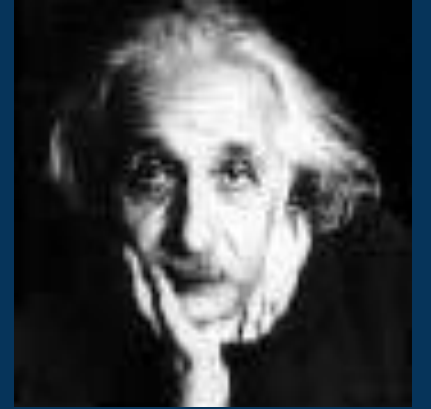
An Unraveled 4-dimensional Cube



Our Finite Boundaries



Einstein's Revolution



Special Relativity (1905)

- Length, mass, velocity and time are *relative* to velocity of the observers

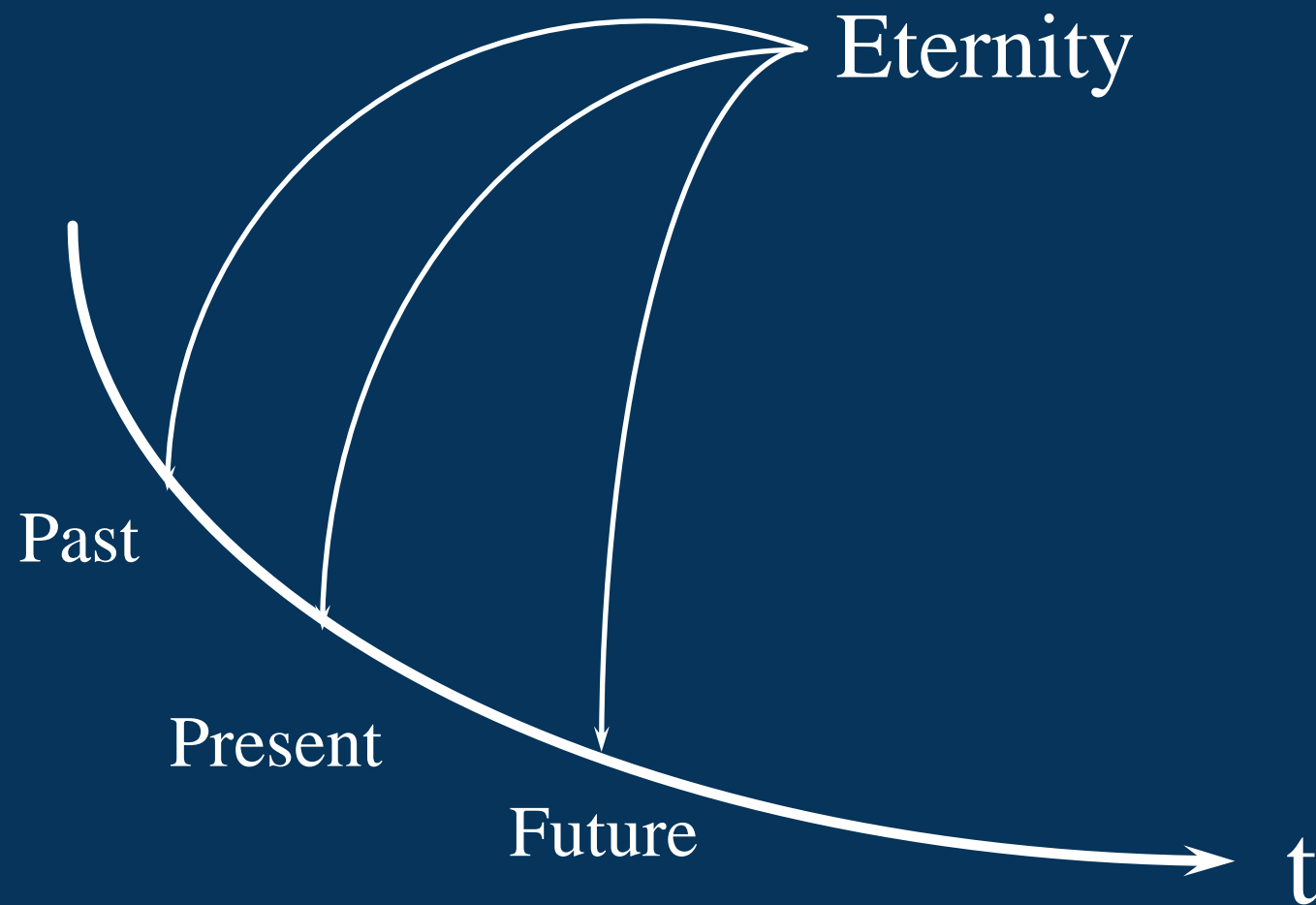
General Relativity (1915)

- No distinction between time & space
= a 4-dimensional continuum (Confirmed
12 ways to 19 decimals)

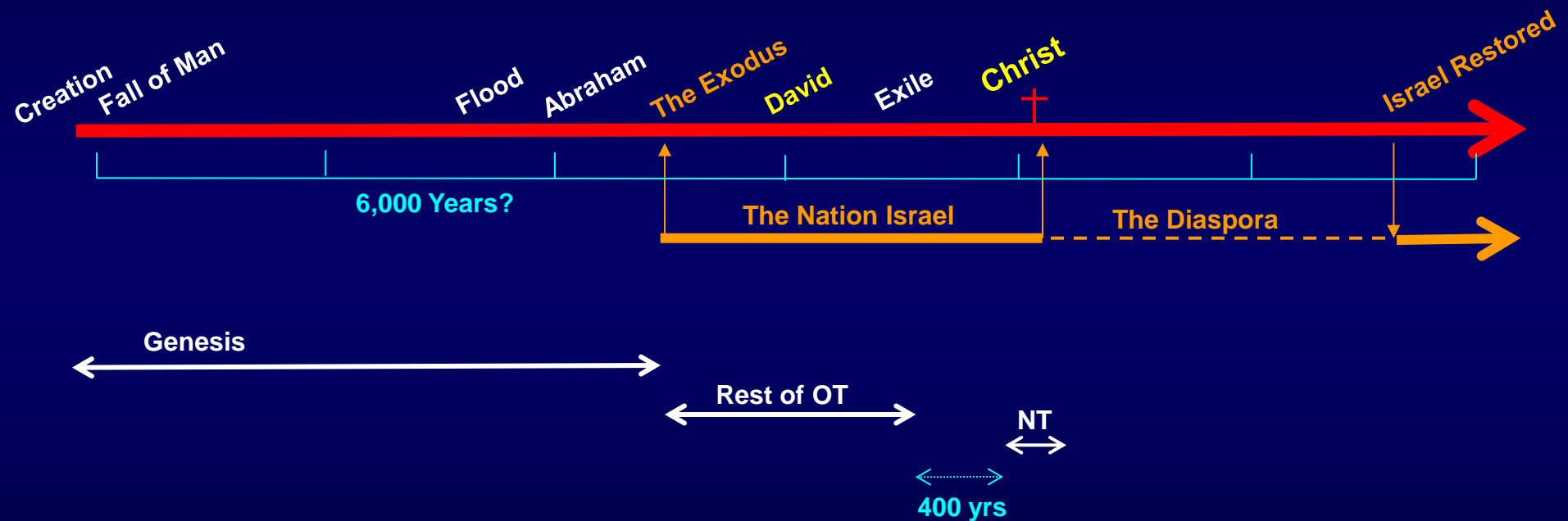
Eternity?



The Geometry of Eternity



The Panorama of History



Hidden Codes in the Bible?

*It is the glory of God to conceal a thing:
but it is the honor of kings
to search out a matter.*

Proverbs 25:2

*The secrets of the Torah are revealed ...
in the skipping of the letters.*

Rabbi Moses Cordevaro, 16th century

“Equidistant Letter Sequence?”

Rips explained that each code is a case of adding every fourth letter to form a word.

Read the code

Genesis

49 Letters: בְּרֵאשִׁית בָּרָא אֱלֹהִים אֶת הַשָּׁמַיִם וְאֶת הָאָרֶץ:
וְהָאָרֶץ הָיְתָה תֵהוֹ וּבְהוּ וְחָשֶׁךְ עַל-פְּנֵי תְהוֹם וְרוּחַ אֱלֹהִים מְרַחֶפֶת עַל-פְּנֵי
הַמָּיִם: וַיֹּאמֶר אֱלֹהִים יְהי אוֹר וַיְהי-אוֹר:
49 Letters: וַיֵּרָא אֱלֹהִים אֶת-הָאוֹר כִּי-טוֹב וַיַּבְדֵּל אֱלֹהִים בֵּין הָאוֹר וּבֵין הַחֹשֶׁךְ:
וַיִּקְרָא אֱלֹהִים לְאוֹר יוֹם וּלַחֹשֶׁךְ קִרְא לַיְלָה וַיְהי-עֶרֶב וַיְהי-בֹקֶר יוֹם אֶחָד: ך

תורה = TORH

Exodus

וְאֵלֶּה שְׁמוֹת בְּנֵי יִשְׂרָאֵל הַבָּאִים מִצְרָיִם אֶת יַעֲקֹב אִישׁ וּבֵיתוֹ בָּאוּ:

49 Letters:

רְאוּבֵן שְׁמֵעוֹן לֵוִי וִיהוּדָה:

49 Letters:

יִשָּׁשְׁכָר זְבוּלֹן זַבְדֻּנִּי:

דָּן וְנַפְתָּלִי גָד וְאָשֶׁר:

49 Letters:

וַיְהִי כָל-נֶפֶשׁ יִשְׂרָאֵל דֹּעֵקֵב שְׁבָעִים נֶפֶשׁ וַיּוֹסֶף הָיָה בְּמִצְרַיִם:

וַיָּמָת יוֹסֵף וְכָל-אָחִיו וְכָל הַדּוֹר הַהוּא:

תורה = TORH

Numbers

וַיְדַבֵּר יְהוָה אֶל-מֹשֶׁה בְּמִדְבַּר סִינִי בְּאֹהֶל מוֹעֵד בְּאַחֵר לַחֹדֶשׁ הַשֵּׁנִי בַּשָּׁנָה
הַשֵּׁנִית לְצֵאתָם מֵאֶרֶץ מִצְרַיִם לֵאמֹר:
שֹׂאוּ אֶת-רֹאשׁ כָּל-עֵדֹת בְּנֵי-יִשְׂרָאֵל לְמִשְׁפַּחְתָּם לְבֵית אֲבוֹתָם בְּמִסְפַּר שְׁמוֹת
כָּל-זָכָר לְגִלְגָּלָתָם:
מִבֶּן עֶשְׂרִים שָׁנָה וּמַעְלָה כָּל-יֵצֵא זָכָא בְּיִשְׂרָאֵל תִּפְקְדוּ אֹתָם לַעֲבָדָתָם וְאַהֲרֹן:

הרות = HROT

Deuteronomy

בְּעֵבֶר הַיַּרְדֵּן בְּאֶרֶץ מוֹאָב הוֹאִיל מֹשֶׁה בָּאֵר אֶת־הַתּוֹרָה הַזֹּאת לֵאמֹר:
יְהוָה אֱלֹהֵינוּ דִּבֶּר אֵלֵינוּ בְּחֹרֵב לֵאמֹר רַב־לָכֶם שָׁבַת בְּקֹרֶה הַזֶּה:
פָּנוּ וּסְעוּ לָכֶם וּבֹאוּ הָרָה הָאֲמֹרִי וְאֶל־כָּל־שְׁכֵנֵינוּ בְּעֶרְבָהּ בְּהָר וּבְשִׁפְלָהּ וּמִן־גִּבְ
וּבְחוּף הַיָּם אֶרֶץ הַכְּנַעֲנִי וְהַלְבִּנוֹן עַד־הַנָּהָר הַגָּדֹל נְהַר־פָּרָת:
רְאֵה נָתַתִּי לִפְנֵיכֶם אֶת־הָאֶרֶץ בָּאוּ וּרְשׁוּ אֶת־הָאֶרֶץ אֲשֶׁר נִשְׁבַּע יְהוָה
לְאֲבֹתֵיכֶם לְאַבְרָהָם לְיִצְחָק וּלְיַעֲקֹב לֵאמֹר לְתַת לָהֶם וּלְזֶרְעָם אַחֲרֵיהֶם:

הרות = HROT

Torah Codes

49 (7^2) letter sequences:

Genesis	TORH
Exodus	TORH
Leviticus	?
Numbers	HROT
Deuteronomy	HROT

Leviticus

Intervals of 7:

וַיִּסְרָא אֶל-מִשְׁהָ וַיְדַבֵּר יְהוָה אֵלָיו מֵאֶהָל מוֹעֵד לֵאמֹר:

יהוה = YHWH

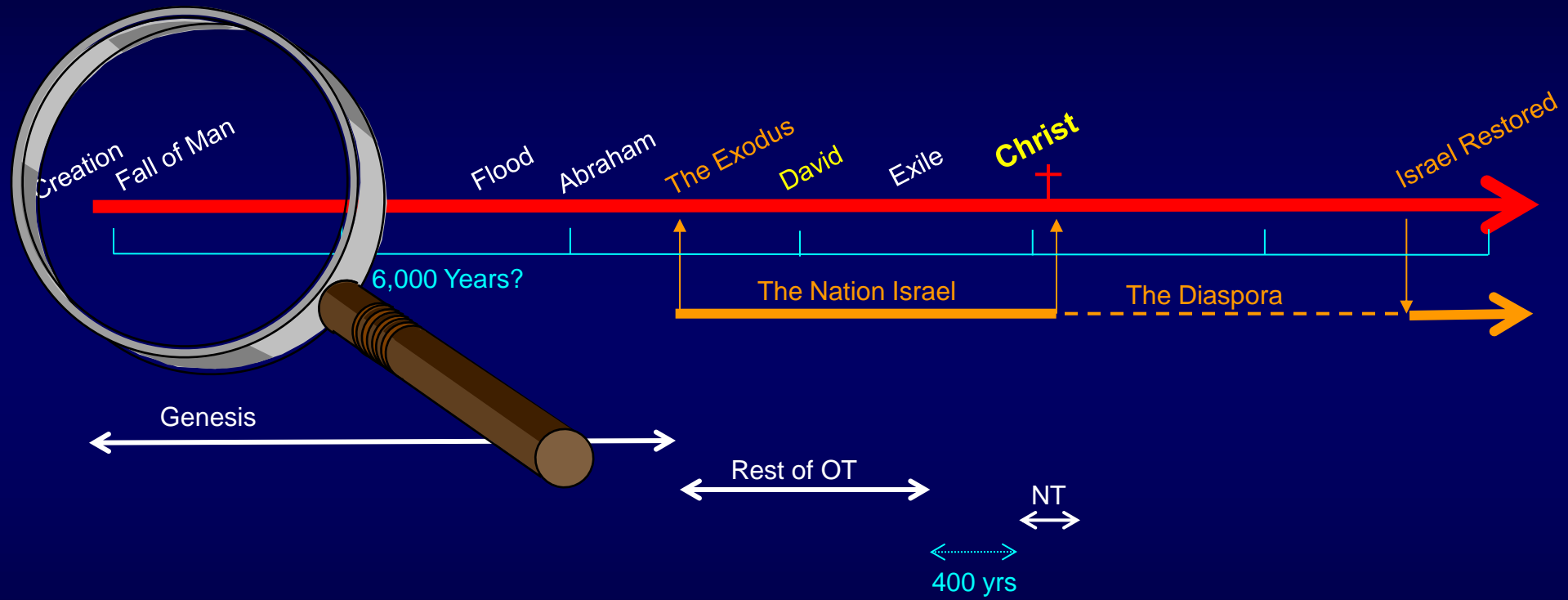
The Torah Always Points to YHWH



The Torah

Genesis	The Book of Beginnings
Exodus	The Birth of the Nation
Leviticus	The Law of the Nation
Numbers	The Wilderness Wanderings
Deuteronomy	The Laws Reviewed

The Panorama of History



Collapse of Skeptical Theories

- Historicity of Patriarchal accounts
- Denial of writing in Moses' day
- Gospels and Epistles: 2nd century?

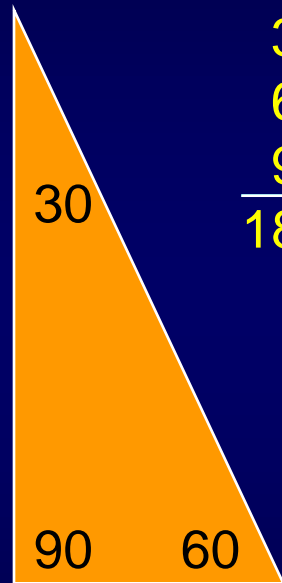
Refuted by:

- Archaeological discoveries
- Documentary discoveries
- Competent analysis

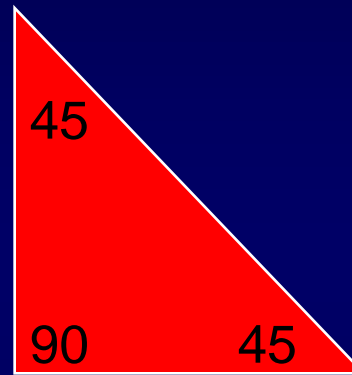
The Nature of Reality

A Glimpse of Hyperspaces

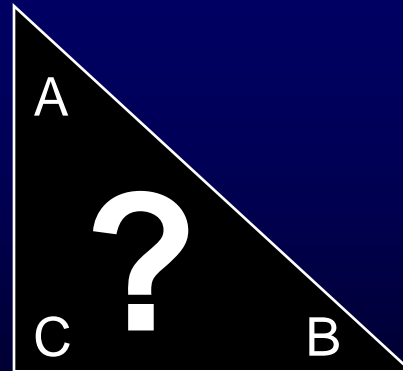
Trigonometry



$$\begin{array}{r} 30 \\ 60 \\ \hline 90 \\ 180 \end{array}$$

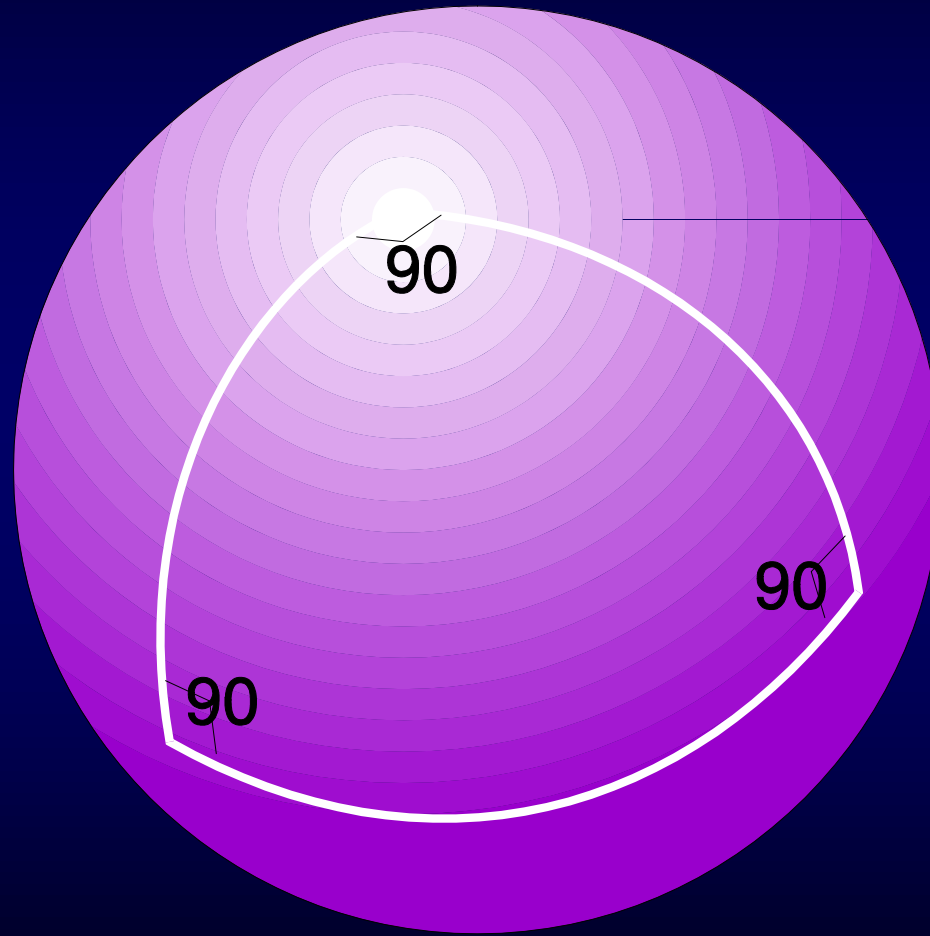


$$\begin{array}{r} 45 \\ 45 \\ \hline 90 \\ 180 \end{array}$$



$$\begin{array}{r} A \\ B \\ \hline C \\ >180? \end{array}$$

Spherical (3-D) Trigonometry



The Nature of Time

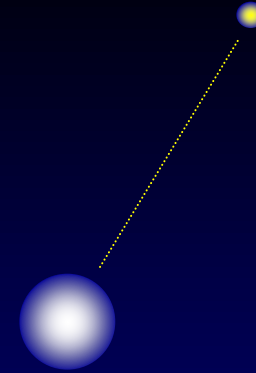
Gravitational Time Dilation

- Identical Atomic clocks are located at
 - the National Bureau of Standards in Boulder, Colorado,
 - the Royal Observatory in Greenwich, England.
 - Both are accurate to better than 1 μ second/year.
- The NBS clock ticks 5 μ seconds/year faster than the identical clock at Greenwich. Why?
- Both are correct:
 - Boulder, Colorado = 5400 ft altitude
 - Greenwich, England = 80 ft.

Demonstrations

- Atomic Clocks
Faster by 10^{-16} /meter
- Aircraft experiment (1971)
Eastward : lost 0.059 microsec.
Westward: gained 0.273 microsec.
- Twin Astronauts (hypothetical)
Alpha Centauri trip

Alpha Centauri Trip



$$T_e = \frac{T_s}{\sqrt{1 - v^2/c^2}}$$

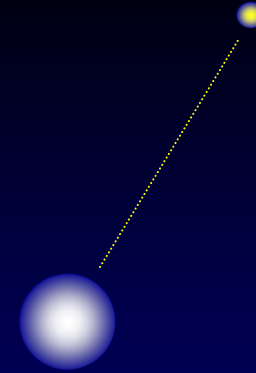
If $v = 50\%$ of c :

$T_e = 18$ years

$T_s = 15$ years, 3 months

2 years, 9 months younger!

Alpha Centauri Trip



$$T_e = \frac{T_s}{\sqrt{1 - v^2/c^2}}$$

If $v = 99.99\%$ of c ?

$T_e = 9 \text{ years}$

$T_s = 46 \text{ days}$

Time = Physical Property

- We exist in *more* than 3 dimensions
- Time itself is a *physical* property
- Time varies with Mass, Acceleration, Gravity

Linear Time?

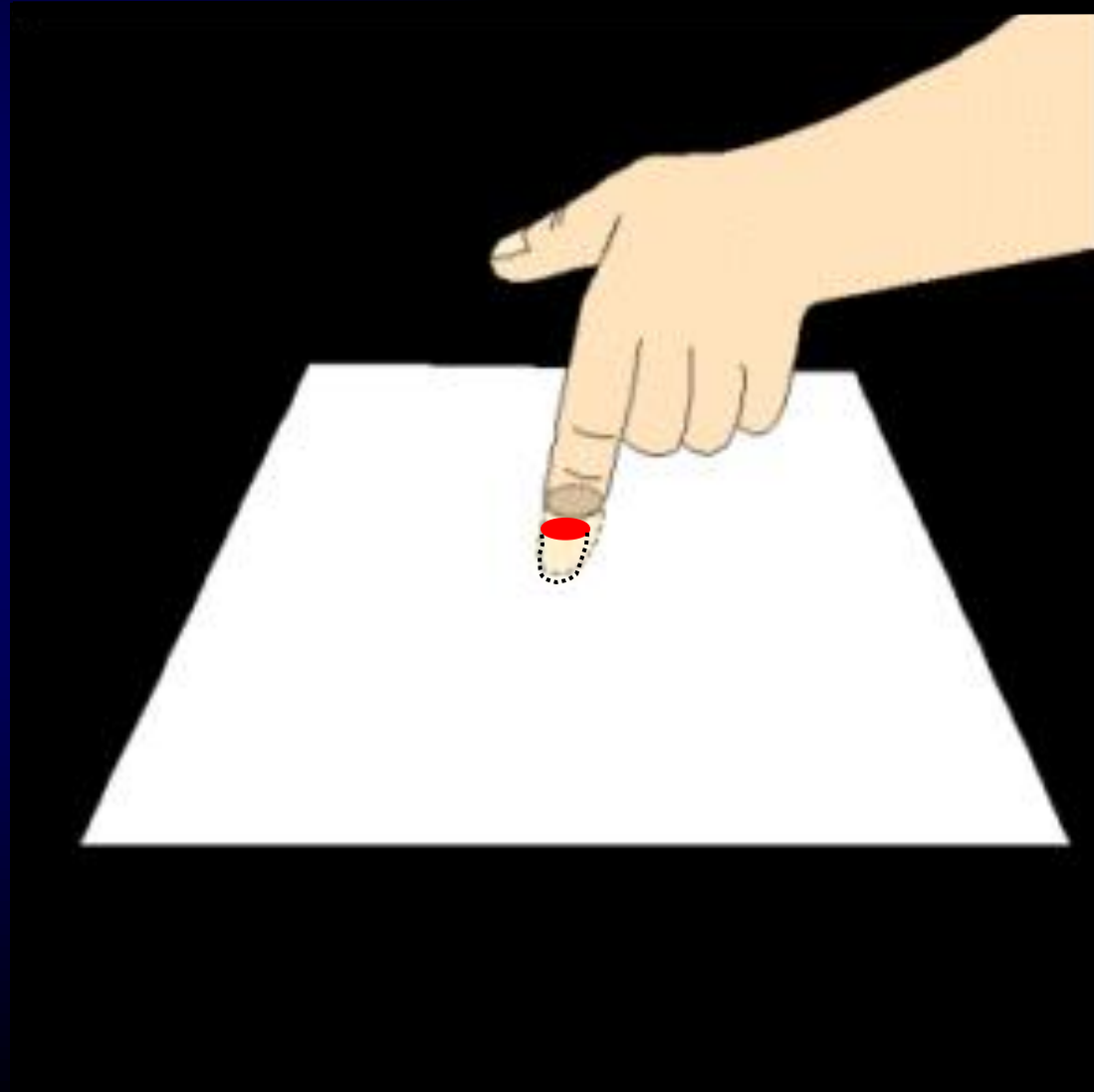


Beyond Euclid

(>3 Dimensions)

- 1854: Georg Riemann's Metric Tensors
- 1915: Einstein, 4-Dimensional Spacetime
- 1953: Kaluza-Klein: 4+n Dimensions
 - Light, & Supergravity
- 1963: Yang-Mills Fields
 - Electromagnetic & Both Nuclear Forces
- 1984: Superstrings, 10-Dimensions

3-D Finger Thru 2-D Plane:



Sphere Passing Thru Plane:

