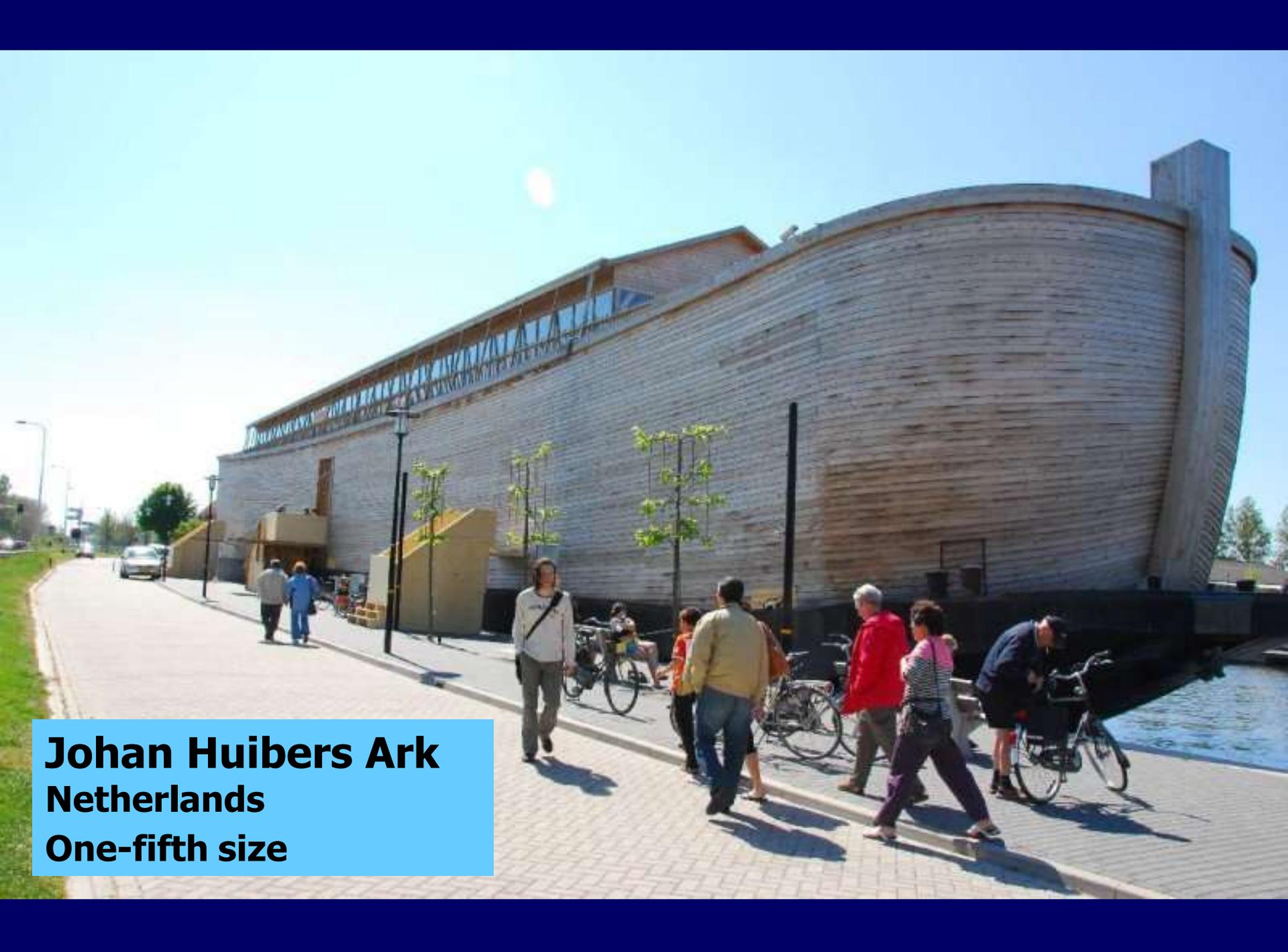


Noah's Ark – A Feasibility Study

**Interpreting Noah's Ark and the Great Flood
as real history**

Jason D. Browning

October 2009



Johan Huibers Ark
Netherlands
One-fifth size















2 Peter 3:3 First of all, you must understand that in the last days scoffers will come, scoffing and following their own evil desires. They will say, "Where is this 'coming' he promised? Ever since our fathers died, everything goes on as it has since the beginning of creation." But they deliberately forget that long ago by God's word the heavens existed and the earth was formed out of water and by water. **By these waters also the world of that time was deluged and destroyed.**

Noah's Flood on Mars?

'A flood of biblical proportions—enough to fill the Mediterranean Sea—gushed down from the highlands of Mars a billion or so years ago, the latest pictures from the Pathfinder confirmed Monday.'

Cincinnati Enquirer,
Ancient gullies suggest 'key ingredient for life,'
Robert S. Boyd, July 8, 1997.



OH ADAM!
THIS IS SUCH
A PERFECT
WORLD!!

YES EVE!
IT'S "VERY GOOD"
JUST LIKE GOD
SAID!

**MILLIONS
OF
YEARS**



**PAIN
DEATH
KILLING
DISEASE
THORNS
STRUGGLE
SUFFERING
EXTINCTION**

**FOSSIL
RECORD**

©AiG 2001

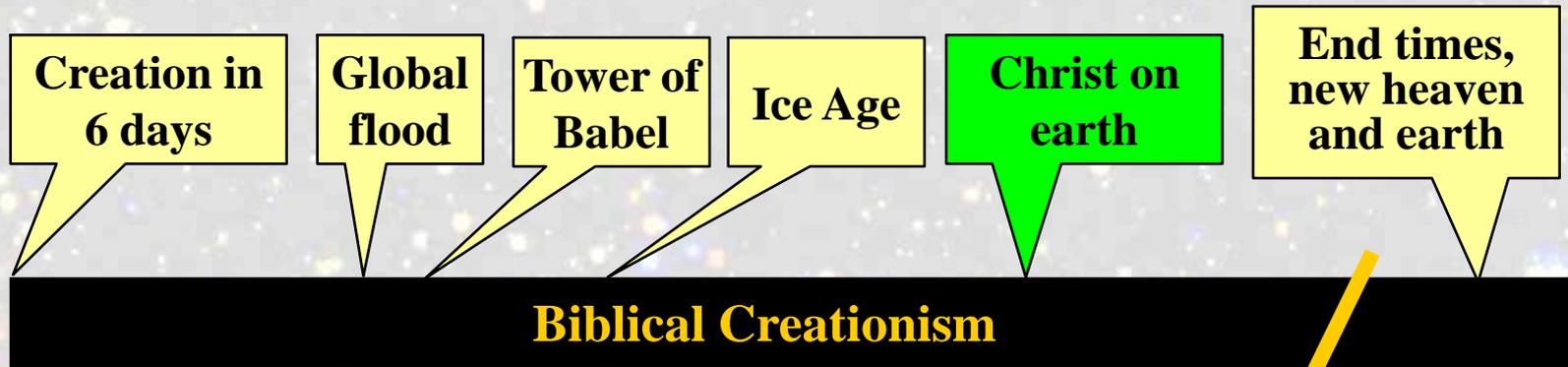
Overview

- ▶ **The Book of Genesis describes how God destroyed the face of the earth through a year-long global flood, because of the “great wickedness” of the people**
- ▶ **Noah and his family survived, along with representative animals, on a large boat (the ark)**
- ▶ **Many regard this account as a myth, or as an exaggeration of an actual local flood event**
- ▶ **Could Noah’s ark have occurred as described?**
 - ▶ **John Woodmorappe has performed a scientific study of the animal handling requirements of the ark and other issues and concludes that all potential problems have reasonable possible non-miraculous solutions**

Background

- ▶ **“Noah’s Ark: A Feasibility Study” by John Woodmorappe, published in 1996 by the Institute for Creation Research**
- ▶ **Woodmorappe has a B.A. and M.A. in Geology, and a B.A. in Biology**
- ▶ **Also wrote book “Studies in Flood Geology”**

Timelines of History



6-15,000
years ago

~5,000

~4,500

2,000

Today



7-20 billion
years ago

4.6B

~3.5B

100,000

The Genesis Flood

Described in Genesis chapters 6-9

- ▶ **6:5** The LORD saw how great man's wickedness on the earth had become
- ▶ **6:6** The LORD was grieved that he had made man on the earth
- ▶ **6:8** But Noah found favor in the eyes of the LORD.
- ▶ **6:14** So make yourself an ark of cypress wood
- ▶ **6:17** I am going to bring floodwaters on the earth to destroy all life under the heavens, every creature that has the breath of life in it. Everything on earth will perish.
- ▶ **6:19** You are to bring into the ark two of all living creatures, male and female, to keep them alive with you.
- ▶ **6:21** You are to take every kind of food that is to be eaten and store it away as food for you and for them.





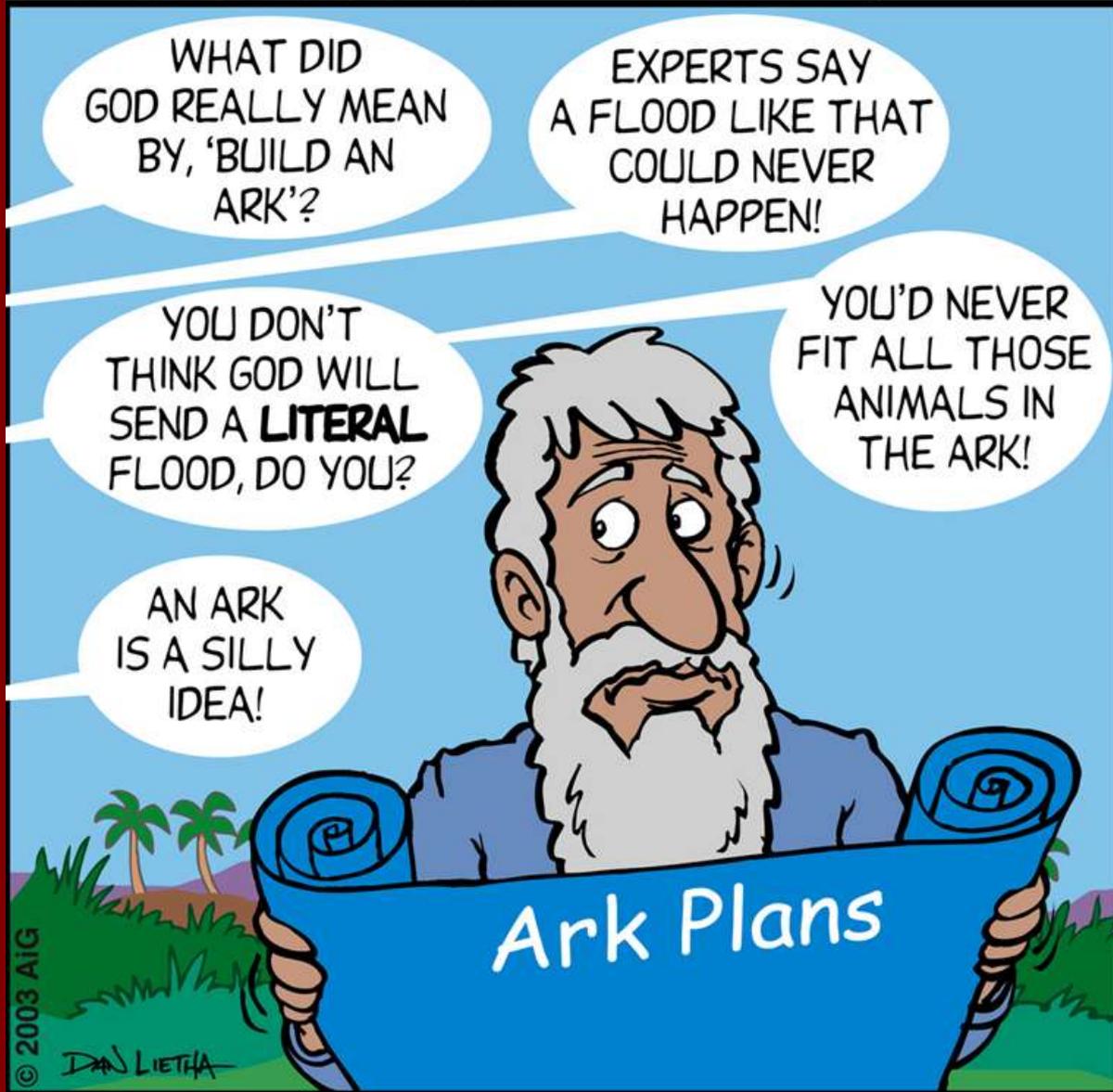
"No, no. ... Not this one. Too many bells and whistles."

- Noah had up to 100 years to plan and build
- He was probably well off (blessed by God)
- He could have hired help



AFTER EDEN

by Dan Lietha



As it was in the days of Noah ...

Ark Specifications

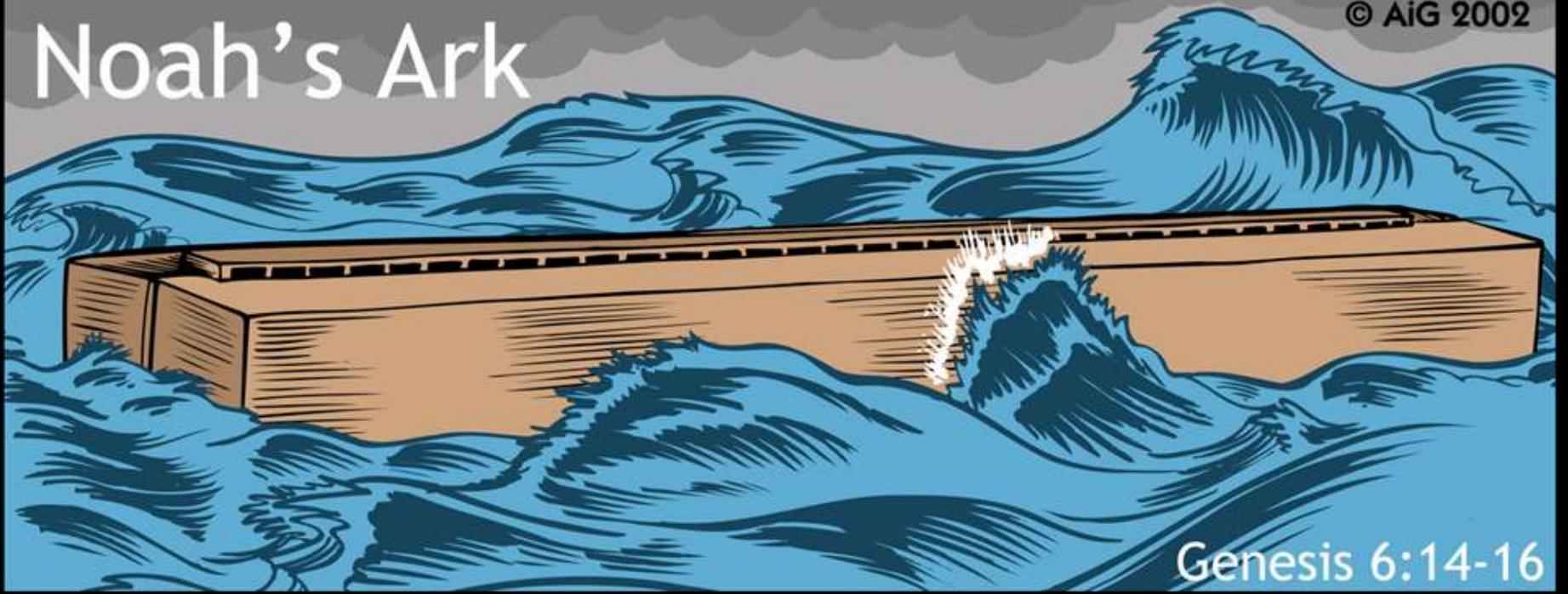
Genesis 6:14-16:

- ▶ 437 feet long, 73 feet wide, 44 feet high
- ▶ Three decks
- ▶ A door in the side
- ▶ Ark “window” was continuous slot under the roof eaves, 18 inches high
- ▶ Made out of “gopher” wood (teak or other hardened wood)
- ▶ Sealed with “pitch” inside and out



Noah's Ark

© AiG 2002



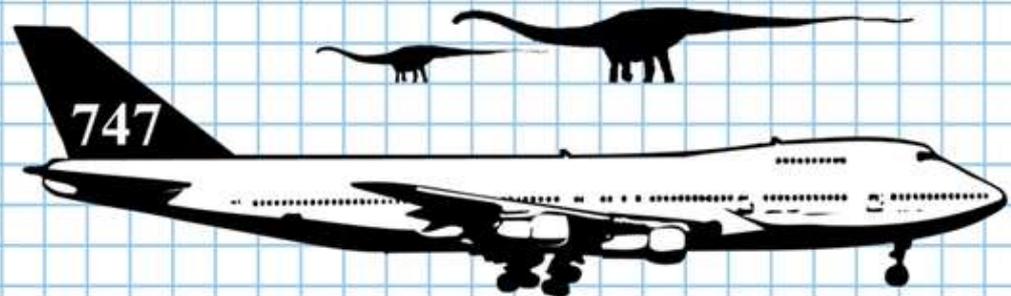
Genesis 6:14-16

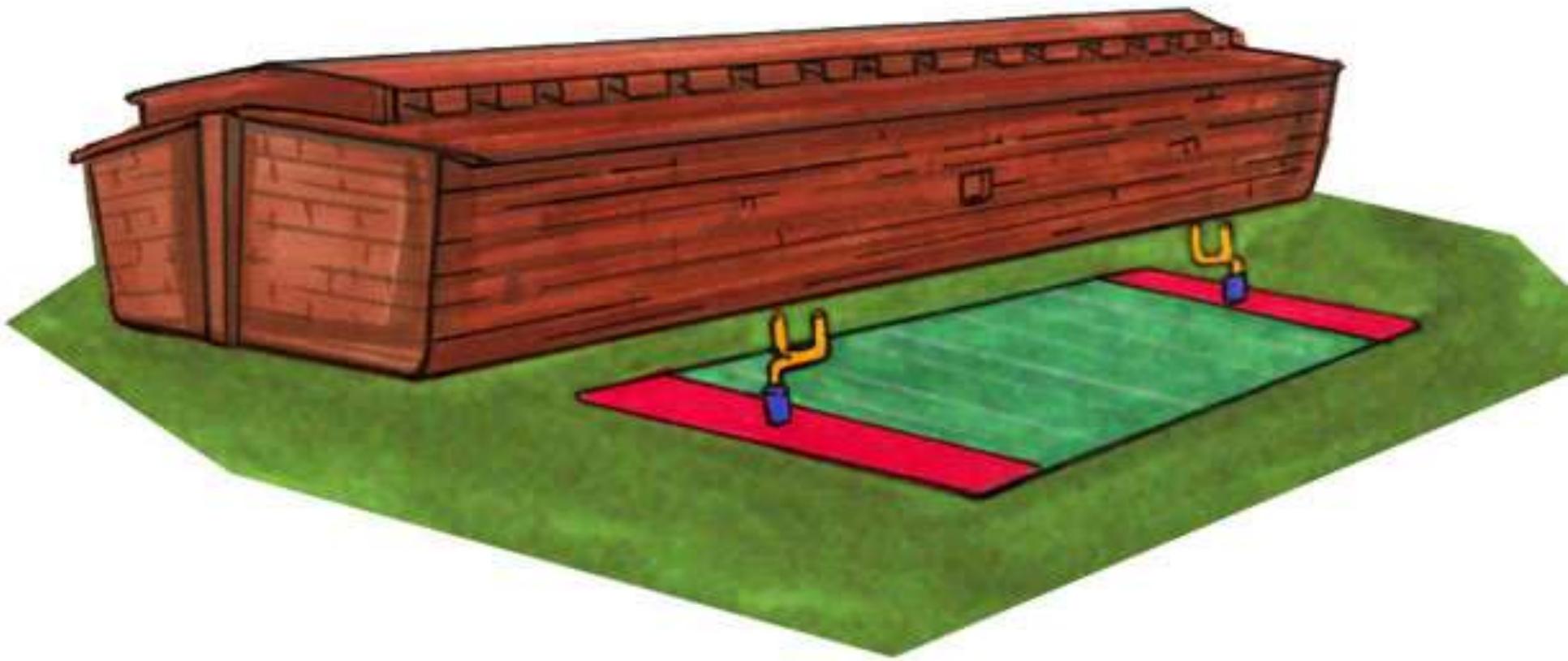


73 ft wide



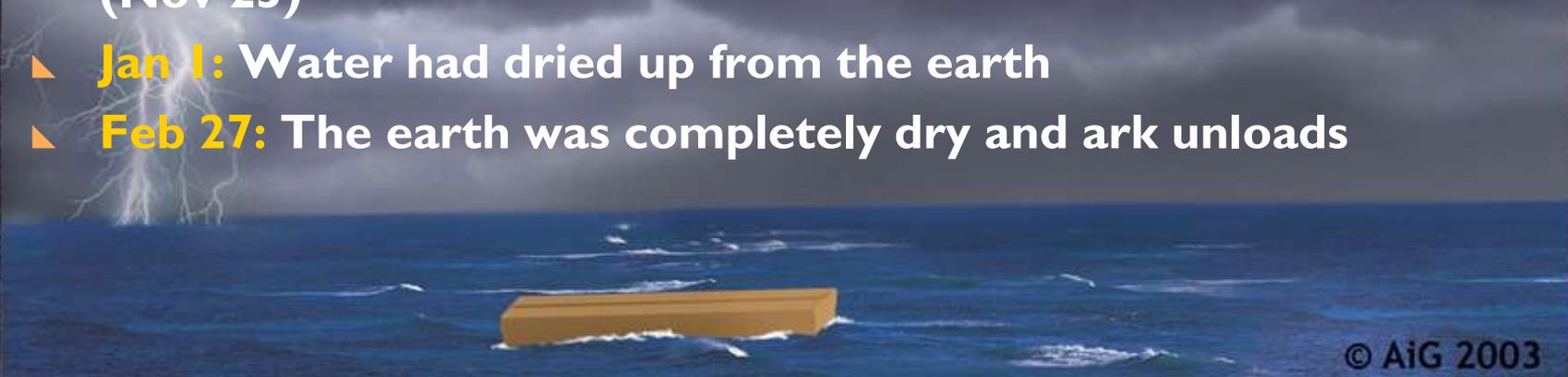
44 ft high





The Flood Events

- ▶ **Feb 10:** Noah, his family, animals enter the ark
- ▶ **Feb 17:** “All the springs of the great deep burst forth” and rain falls for 40 days and nights
- ▶ Water floods the earth for 150 days
- ▶ **Jul 17:** Ark comes to rest on the mountains of Ararat
- ▶ Waters recede steadily
- ▶ **Oct 1:** Tops of mountains become visible
- ▶ **Nov 9:** Noah sends raven - returns; 7 more days dove brings olive leaf; 7 more days dove doesn't return (Nov 23)
- ▶ **Jan 1:** Water had dried up from the earth
- ▶ **Feb 27:** The earth was completely dry and ark unloads

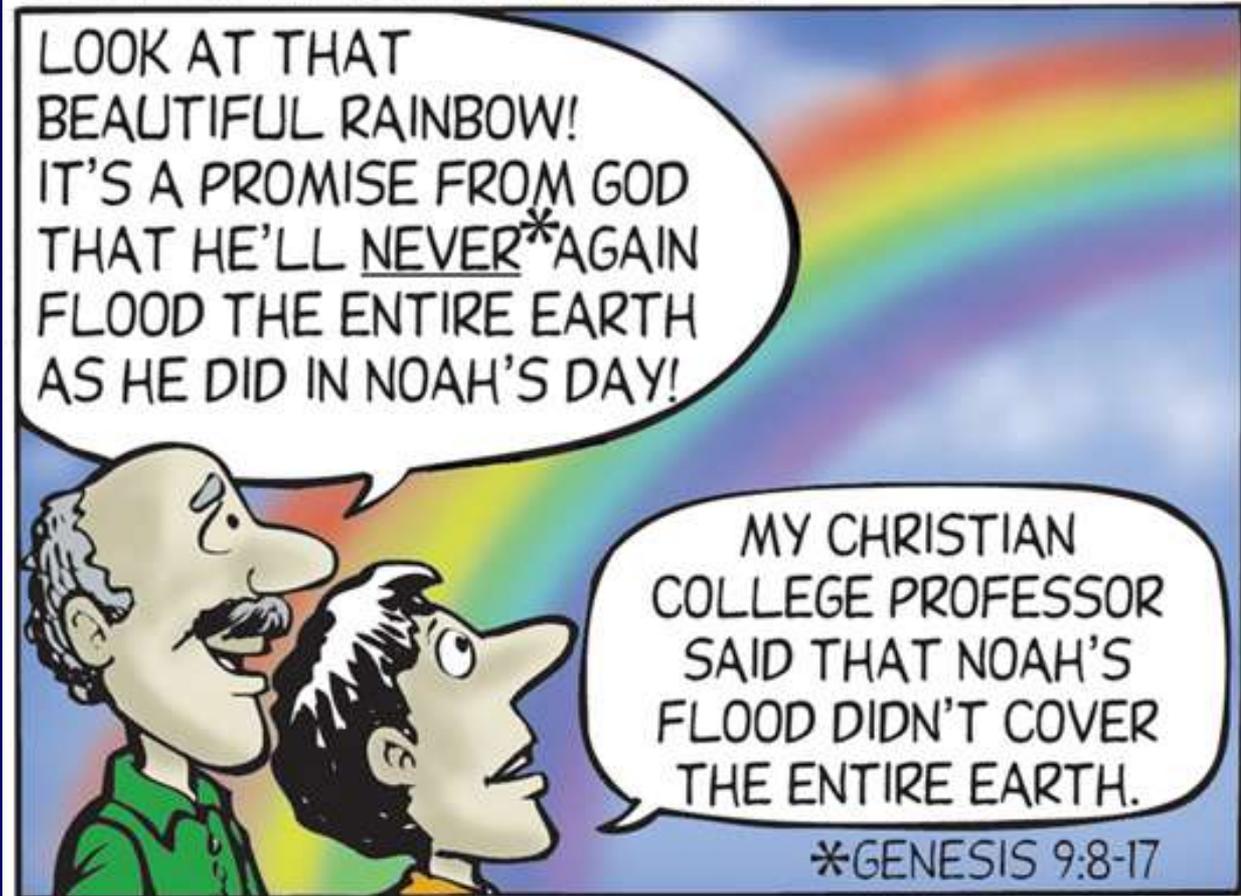


- **The ark was big enough for many more people**
- **Everyone was probably invited to enter**





CREATIONWISE



LOOK AT THAT BEAUTIFUL RAINBOW! IT'S A PROMISE FROM GOD THAT HE'LL NEVER*AGAIN FLOOD THE ENTIRE EARTH AS HE DID IN NOAH'S DAY!

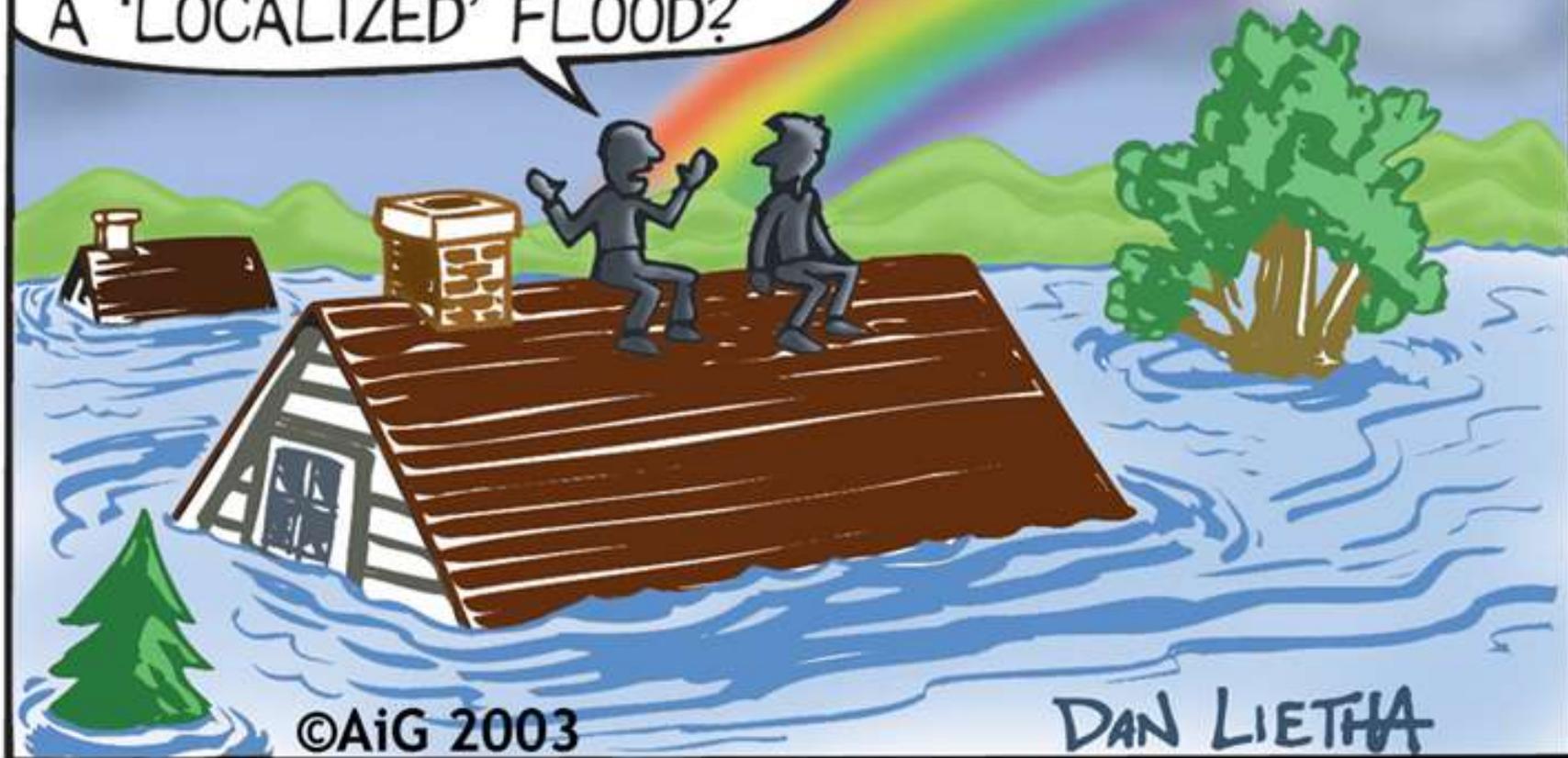
MY CHRISTIAN COLLEGE PROFESSOR SAID THAT NOAH'S FLOOD DIDN'T COVER THE ENTIRE EARTH.

*GENESIS 9:8-17

HE TOLD YOU IT WAS JUST A 'LOCALIZED' FLOOD?

THAT'S WHAT HE SAID!

SO HE BELIEVES
THAT GOD PROMISED
TO NEVER AGAIN SEND
A 'LOCALIZED' FLOOD?



©AiG 2003

DAN LIETHA

Competing Views of the Geologic Column

Evolution

Evolution of animals of increasing higher orders

Pre-flood, flood boundary

GEOLOGIC TIME SCALE		
PERIOD	EPOCH	SUCCESION OF LIFE
QUATERNARY 0-1 Million Years Rise of Man	Recent Pleistocene	
TERTIARY 62 Million Years Rise of Mammals	Pliocene Miocene Oligocene Eocene	
CRETACEOUS 72 Million Years Modern seed bearing plants, Dinosaurs		
JURASSIC 46 Million Years First birds		
TRIASSIC 49 Million Years Cycads, first dinosaurs		
PERMIAN 50 Million Years First reptiles		
<i>Carboniferous</i> PENNSYLVANIAN 30 Million Years First insects		
MISSISSIPPIAN 35 Million Years Many crinoids		
DEVONIAN 60 Million Years First seed plants, cartilage fish		
SILURIAN 20 Million Years Earliest land animals		
ORDOVICIAN 75 Million Years Early bony fish		
CAMBRIAN 100 Million Years Invertebrate animals,		
PRECAMBRIAN Very few fossils present (bacteria-algae-pollen?)		

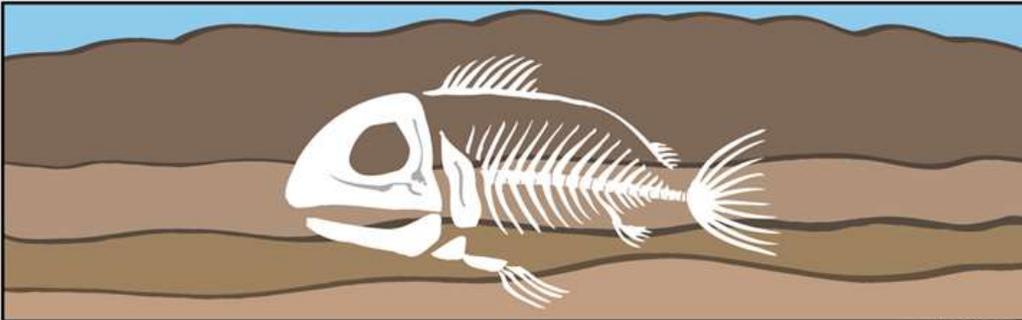
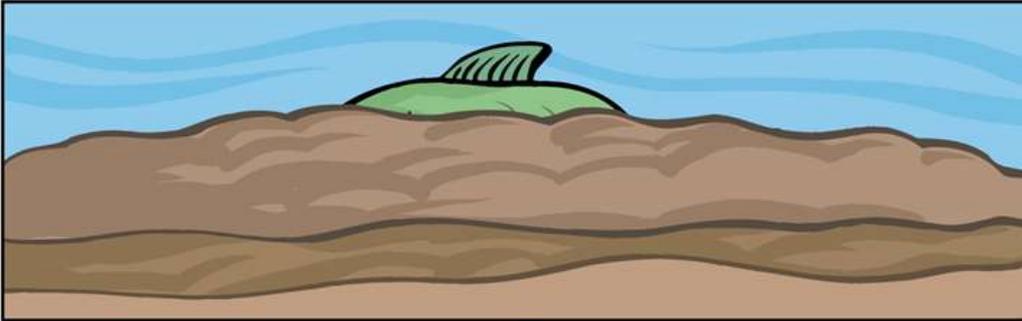
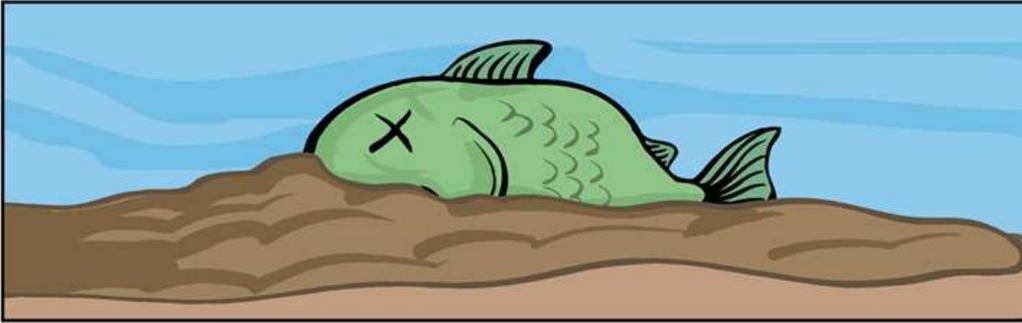
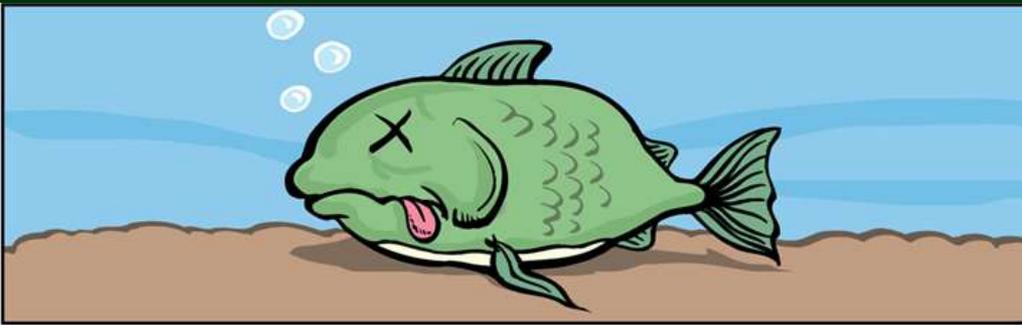
Flood

More mobile, smarter animals

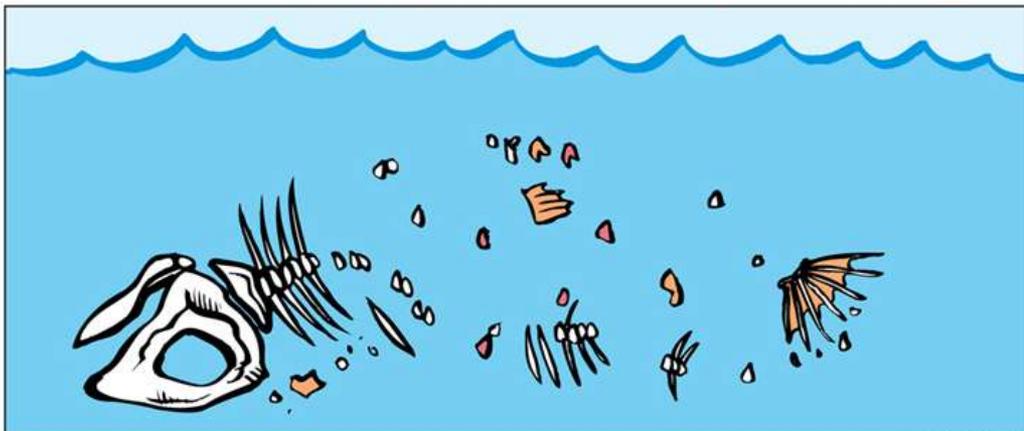
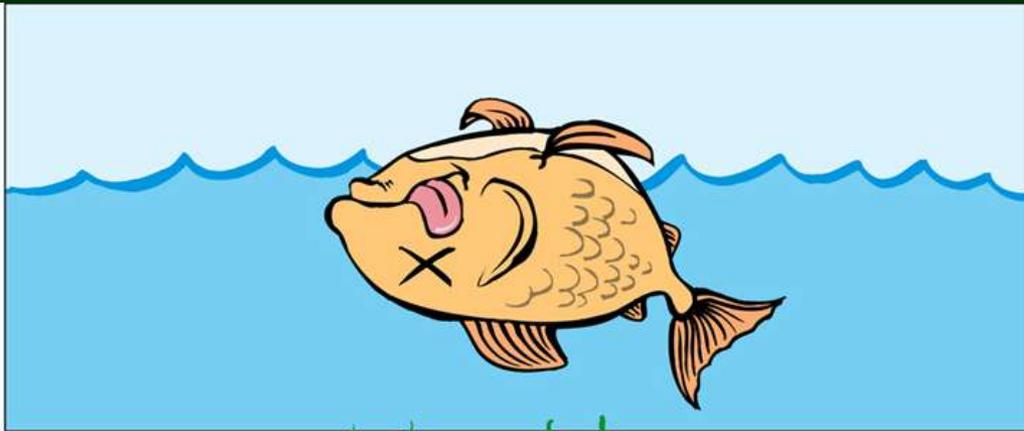
Habitat zones

- Various Land
- Near-ocean
- Ocean

Simpler shaped

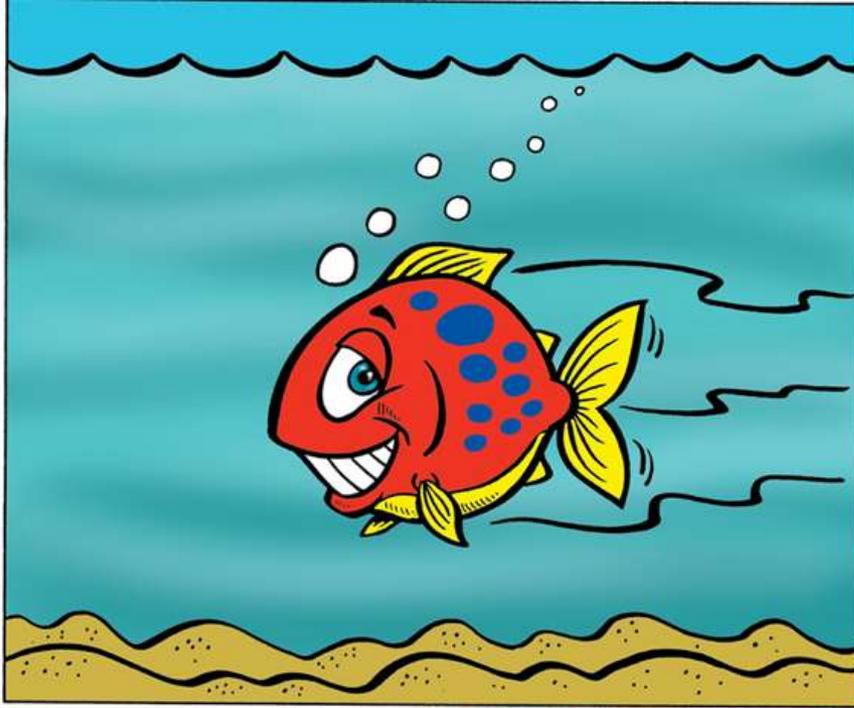


Common belief
about fish fossil
formation – dead
fish sinks to bottom
and is gradually
covered by
sediment

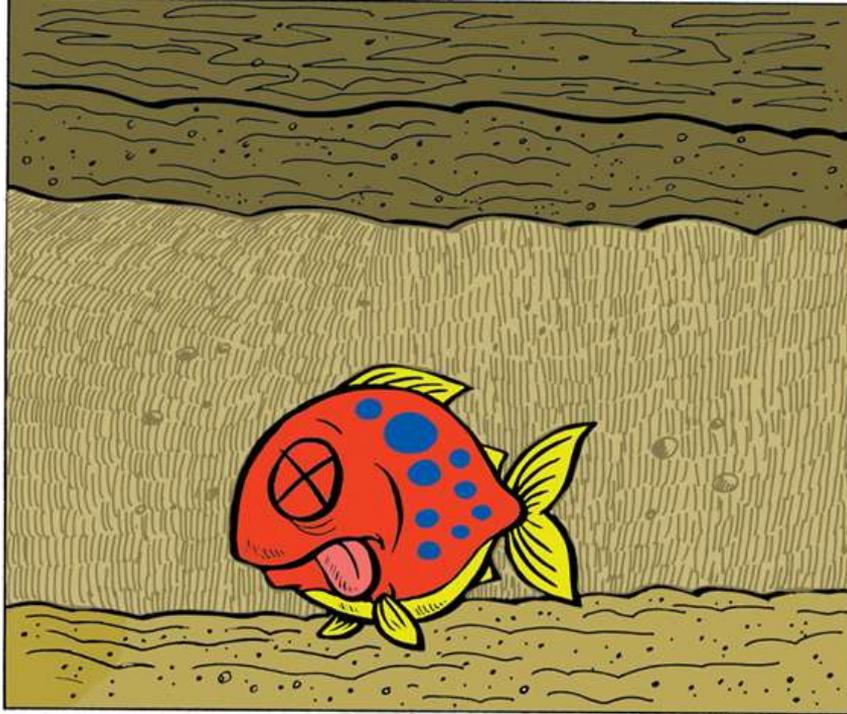


The observed fact today – dead fish float and remains are quickly scavenged

Fossil formation
requires quick burial
through a
catastrophic event!



Mud hardens to form the intact fossil



© AiG 2003



FLOOD

c. 2500 BC



Who Was on the Ark?

- ▶ Land mammals
- ▶ Land reptiles
- ▶ Terrestrial birds
- ▶ Dinosaurs
- ▶ Amphibians
- ▶ Some animals now extinct
- ▶ Eight people
- ▶ Representative animals from each genus, *not species*
- ▶ The genus is the smallest division of plants and animals that can be recognized without scientific study
- ▶ Up to 16,000 animals (maybe as few as 2,000)
- ▶ Large-sized were juveniles
- ▶ Median size = a small rat
- ▶ Only 11% larger than a sheep

Animal Space, Food, Water Needs

- ▶ **Ark situation equivalent to intensive livestock confinement (not a zoo)**
 - ▶ **Temporary captivity, need only to survive in reasonable health**
- ▶ **Animal housing: 46.8% of ark floor space**
 - ▶ **2.5 sq. meters for juvenile of largest animals**
- ▶ **Food: 6-12% of interior ark volume**
 - ▶ **Compressed hay, dried fruit, meat, fish**
- ▶ **Water: 9.4% of ark volume**
 - ▶ **Or could have collected rainwater**



Waste Management

- ▶ **12 tons of wet excreta produced daily (12 cubic meters) - comparable to intensive poultry house**
- ▶ **Animal enclosures designed to minimize cleaning**
 - ▶ **Sloped, non-bedded floors**
 - ▶ **Slatted floors with manure pits**
 - ▶ **Thick sanitary bedding with no excreta removal**
 - ▶ **Manure gutters (animals can't turn around)**
- ▶ **Use of biological pest control (ducks, cats, mongooses)**
- ▶ **Vermicomposting (use of earthworms to biodegrade manure)**

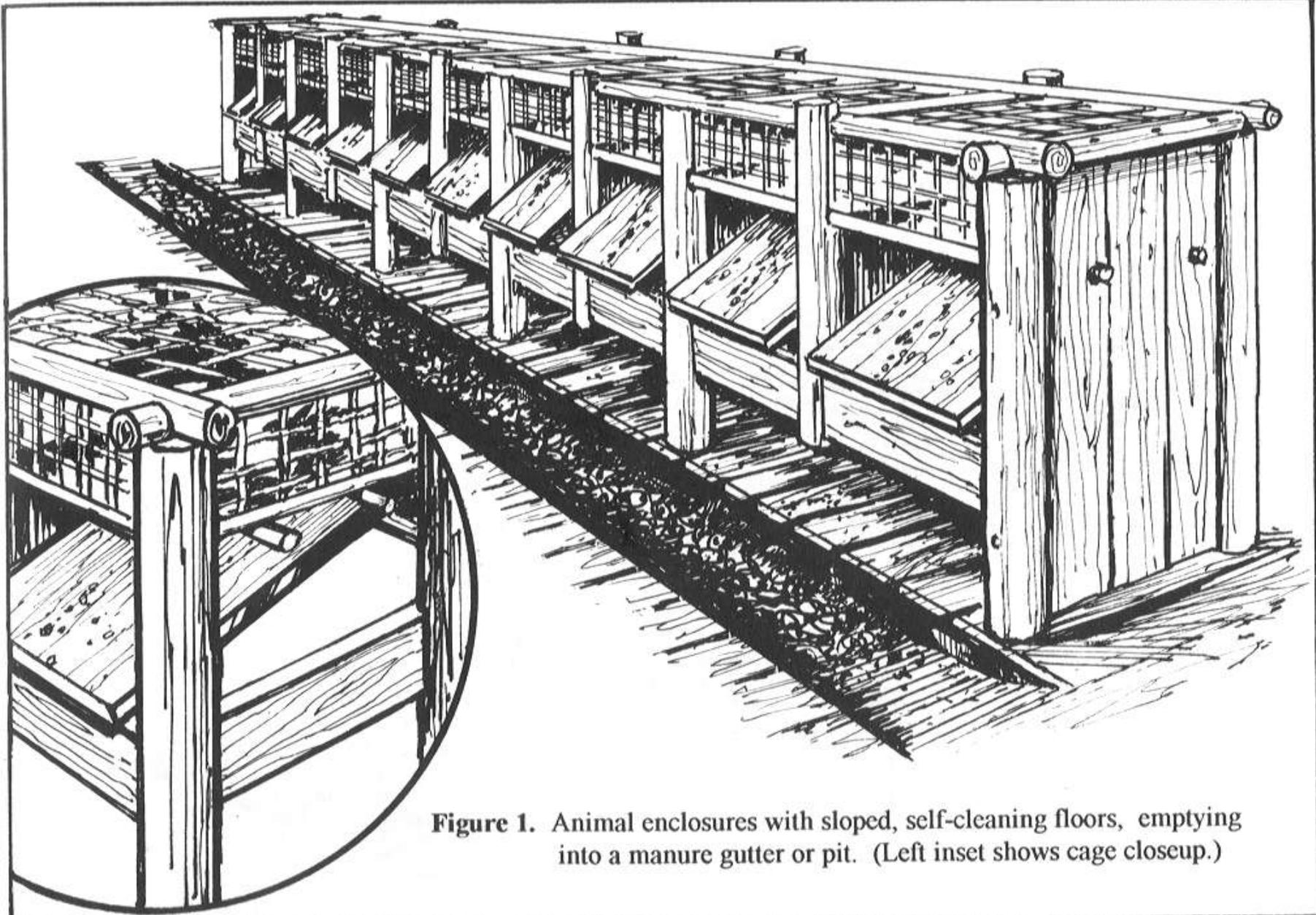


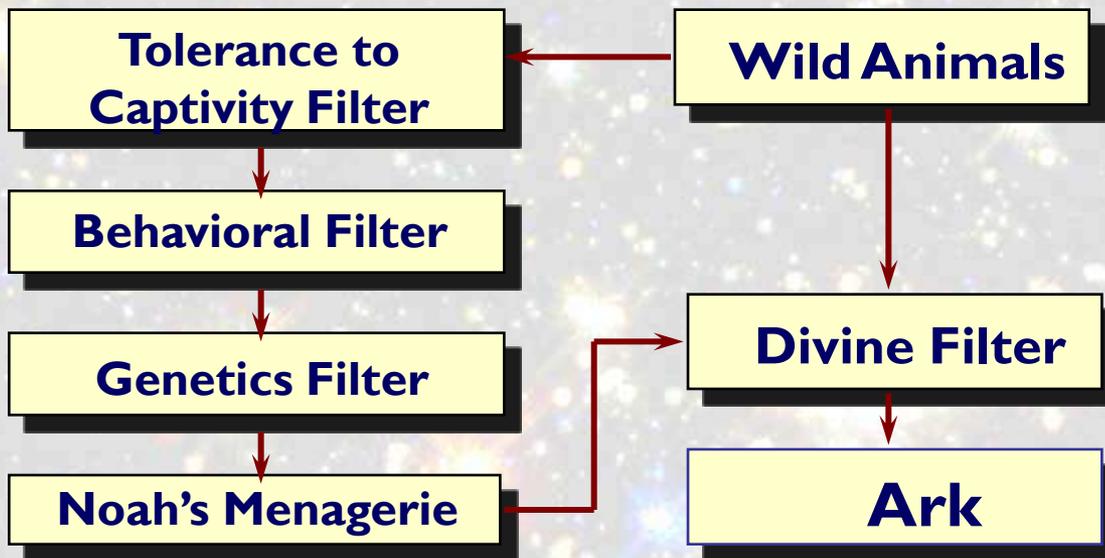
Figure 1. Animal enclosures with sloped, self-cleaning floors, emptying into a manure gutter or pit. (Left inset shows cage closeup.)

Ark Inventory by Mass

Category	Tons
Empty Ark	4,000
Biomass at start	111
Biomass at end	411
Food at start	2,500
Water at start	4,070
Total needed	11,000
Cargo capacity	17,000
Spare mass	6,000

Gathering of Animals

Both Noah (Gen 6:19, 7:2) and God (Gen 6:20, 7:9, 7:15) were involved (reproduction of Figure 6 from book)



Factors Lessening Difficulties of Gathering Animals

- ▶ **Antediluvian world was much different**
 - ▶ **(Possibly) Just one continent (Pangea)**
 - ▶ **Warm climate throughout (probably not due to “vapor canopy”)**
 - ▶ **Animals were more evenly distributed**
- ▶ **Animals did not fear humans (Gen 9:2)**
- ▶ **Animals were originally vegetarians (Gen 1:30)**
- ▶ **Migration instinct may have been introduced at this time (Gen 6:20)**
- ▶ **Hibernation instinct may have been introduced at this time**

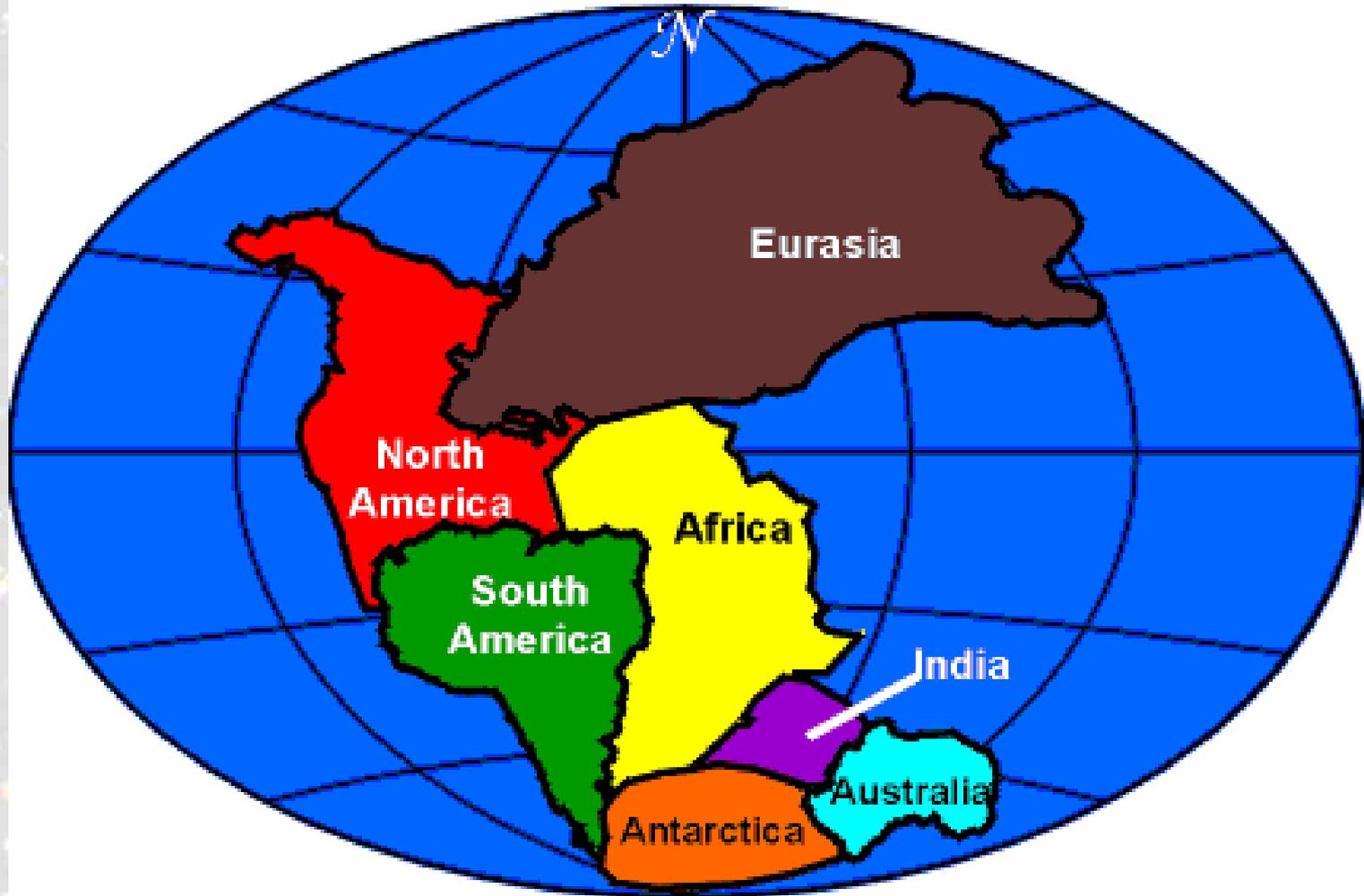
Other Alleged Ark Difficulties

- ▶ **Building a large wooden vessel**
- ▶ **Care of the animals by eight people**
- ▶ **Animals that eat fresh or live food, or have special diets**
- ▶ **Animals that have differing climate needs**
- ▶ **Heat buildup in the ark**
- ▶ **Illumination in the ark**
- ▶ **Violent flood waters, large waves (tsunamis)**

After the Flood

- ▶ **(Possible) Breakup of the unified landmass during the flood (catastrophic plate tectonics) (Gen 7:11)**
- ▶ **Mountain ranges formed as plates collide**
- ▶ **Introduction of varying climates and seasons (Gen 8:22)**
- ▶ **People and animals given permission to eat meat (Gen 9:3)**
- ▶ **Introduction of hydrological cycle - possibly no rain prior to the flood (as there were no rainbows, Gen 9:12-14)**
- ▶ **An ice age caused by excess heat in the oceans and barren landmasses**
- ▶ **Drastic climate changes lead to extinction of the dinosaurs and many other animals**

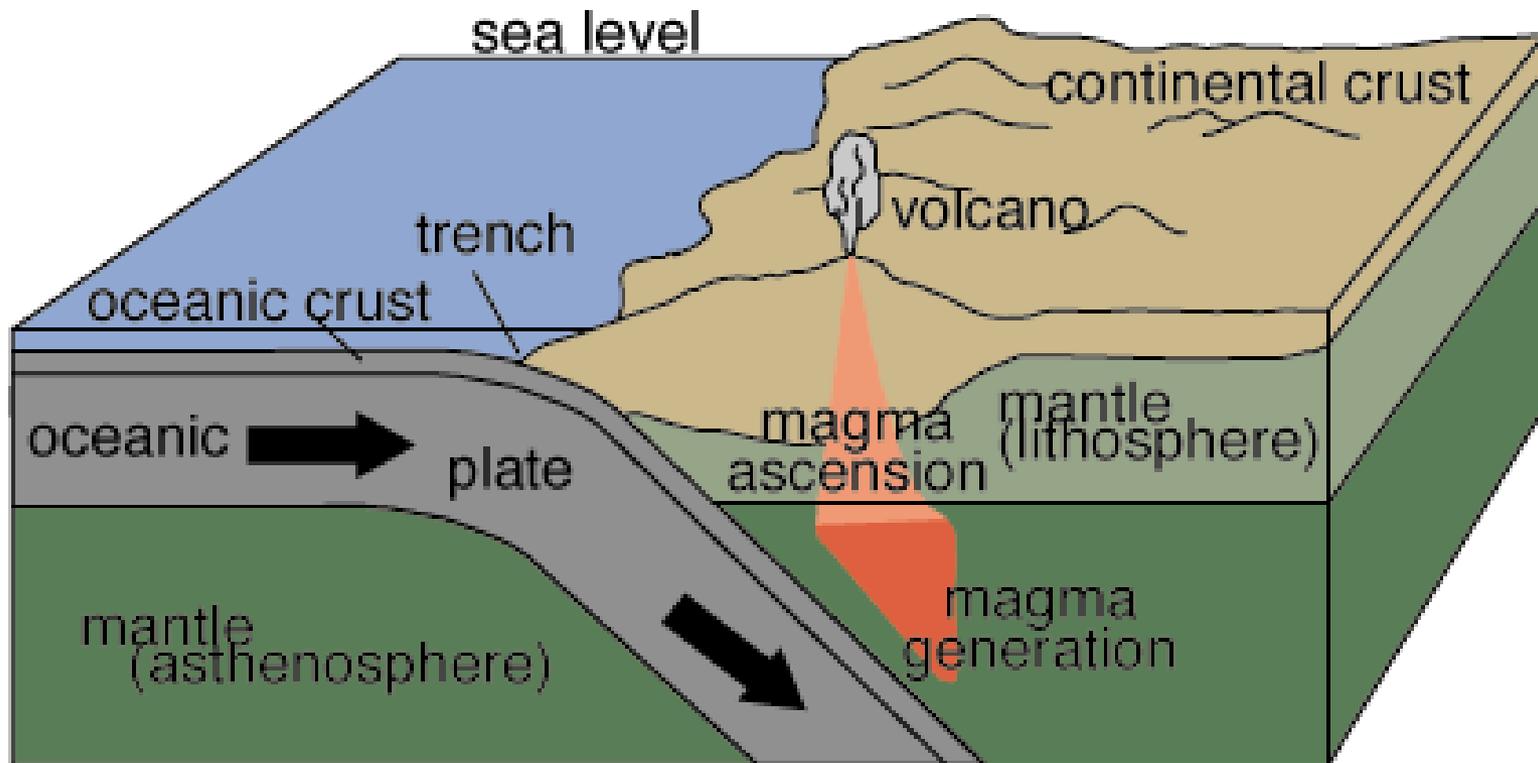
Catastrophic Plate Tectonics – One Pre-Flood Continent (Pangea)



Catastrophic Plate Tectonics

- ▶ **Speeded-up version of standard plate tectonics**
 - ▶ **The pre-flood ocean floor plates are forced below the continent plates**
 - ▶ **Occurs in a catastrophic fashion due to the potential for thermal runaway in silicate rock (minerals that form over 90% of the earth's crust)**
- ▶ **Began with the start of the flood**
 - ▶ **Genesis 7:11 “on that day all the springs of the great deep burst forth”**
- ▶ **Was largely completed by the end of the year-long flood**

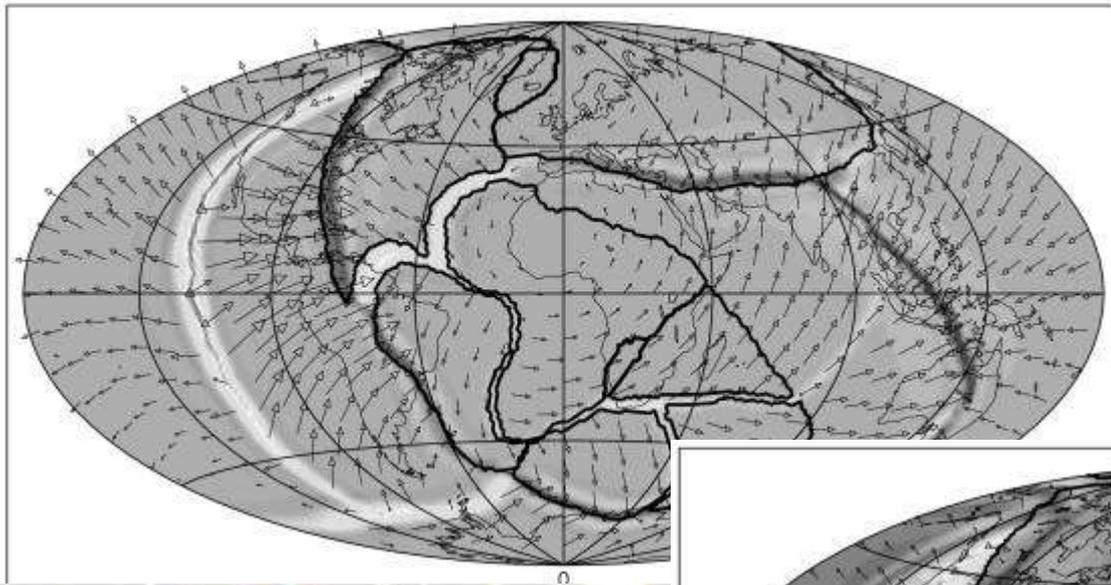
Plate Tectonics Illustration



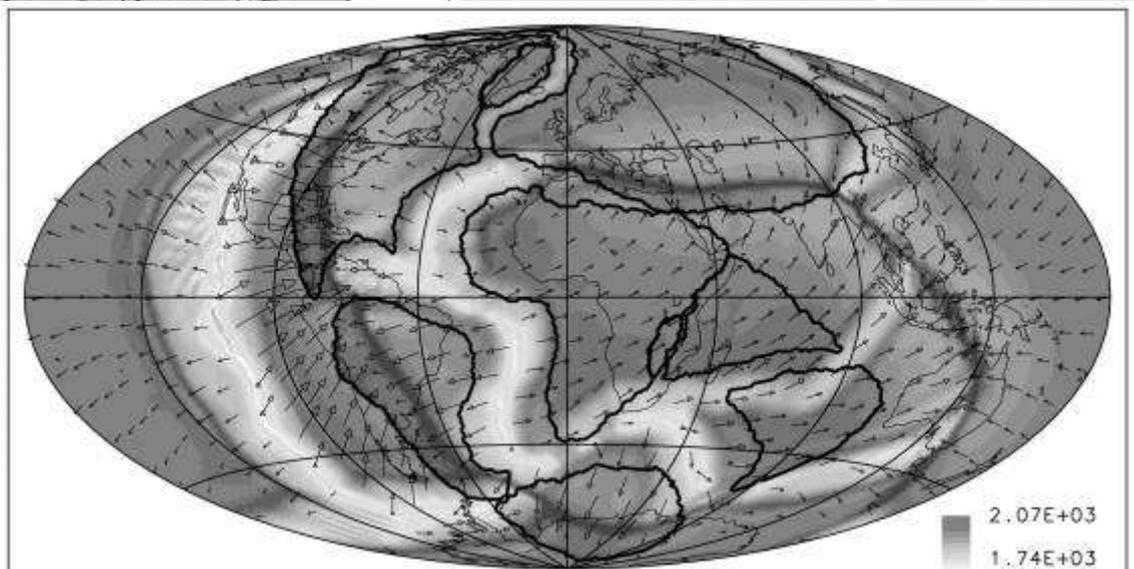
Magma is generated at subduction zones where dense oceanic plates are pushed under lighter continental plates.

CPT Modeling

From www.globalflood.org

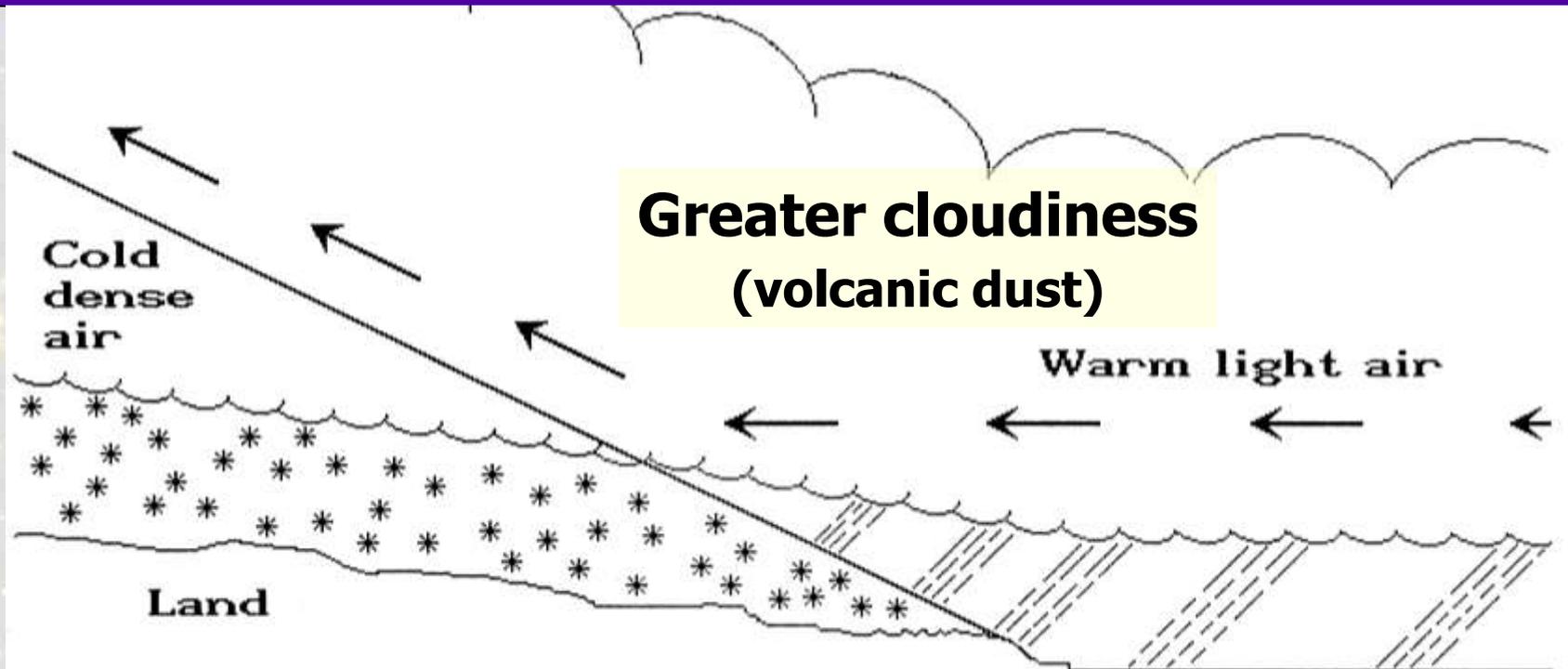


After 15 days



After 25 days

Ice Age – A Natural Result of the Flood

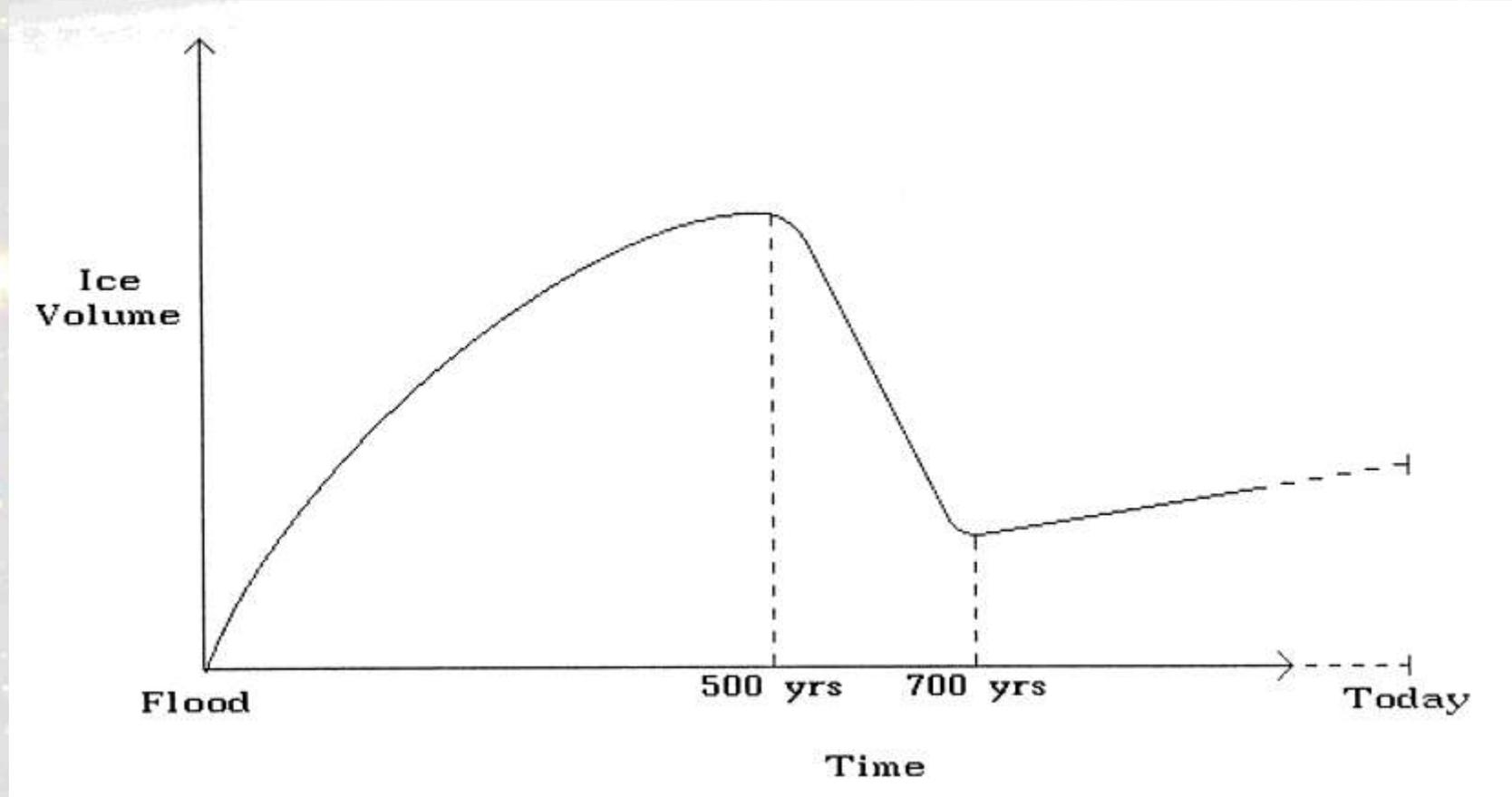


**Cooler land
(stripped of vegetation)
(snow-cover cooling)**

**Much warmer ocean
(fountains of the deep)
(plate movement friction)**

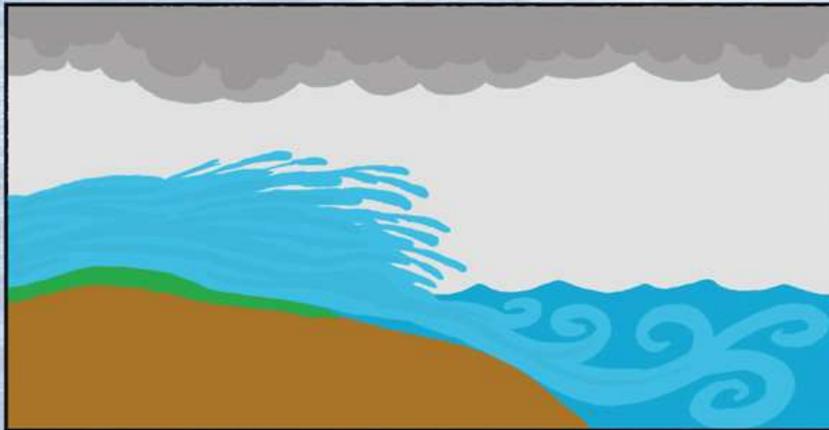
From Oard, "An Ice Age Caused by the Genesis Flood"

Duration of the Ice Age

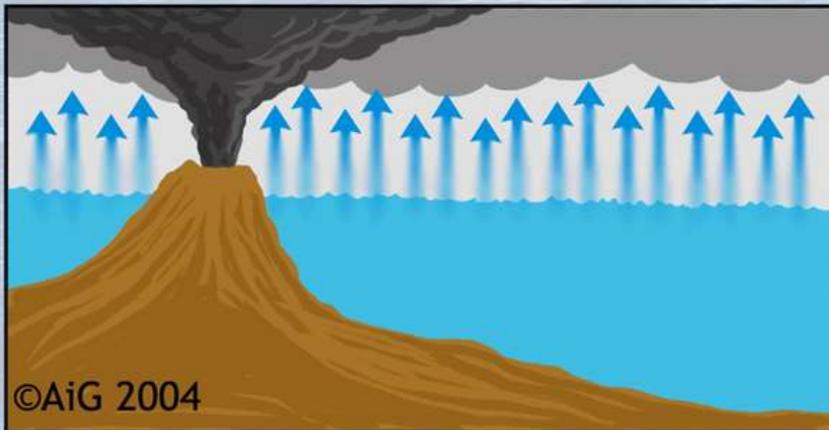




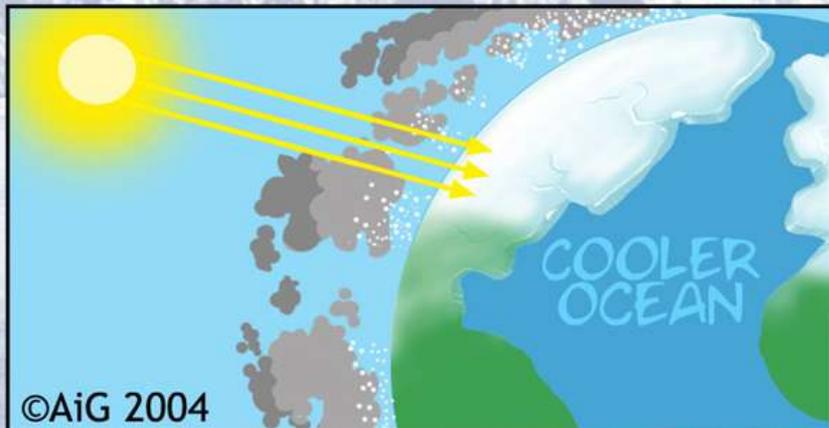
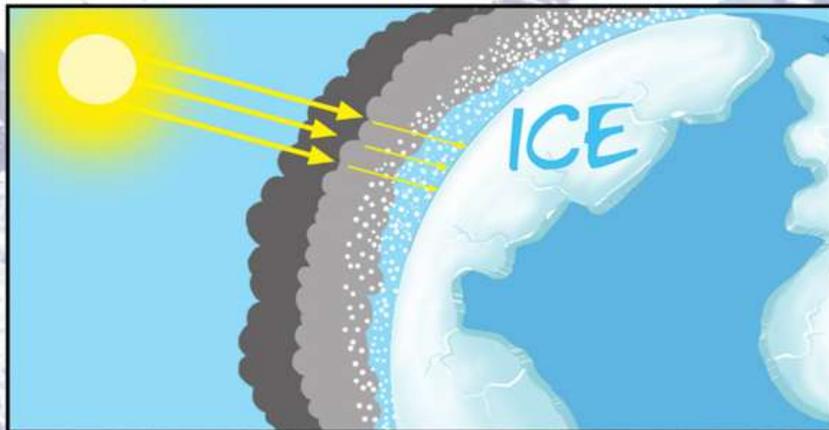
“Fountains of the deep”
break open
Hot water gushes into
oceans



End of flood
Waters drain off land
Still warm from volcanic
activity and plate
movements



More evaporation from the
oceans = more snow and
rain



©AiG 2004

Ocean evaporates faster
Much more snow & rain
after the flood
Snow over much larger area
due to volcano dust blocking
sun

Land cooler due to volcano
dust
Snow does not melt in
summer

Eventually oceans cool and
dust clears away
Ice age is over
500 years to build up
200 years to melt back

Recovery After the Flood

- ▶ **Survival of organisms outside the ark**
 - ▶ **Water salinity stratification allowed some fresh, brackish, and salt-water fish to survive**
 - ▶ **Large floating mats of vegetation**
 - ▶ **Seeds buried and re-exhumed by erosion, or floated**
- ▶ **Food sources after the flood**
 - ▶ **Plants, seaweed, fungi, carrion, fish, insects, earthworms, rodents**
 - ▶ **Three months between first dry land and emergence of animals gives time for some plants to grow**

Recovery After the Flood

- ▶ **Repopulation of the world**
 - ▶ **Animals migrated from Ararat**
 - ▶ **Mountain landing: encouraged fragmentation of populations; offered varying ecological zones**
- ▶ **Genetic diversity and speciation**
 - ▶ **Rapid post-flood speciation**
 - ▶ **Modern examples of single-pair founders**
 - ▶ **A single pair possesses most of the genetic diversity of the parent population**

Conclusions

- ▶ The flood is necessary to explain the geologic column
- ▶ There is historical and physical evidence that a global flood has occurred about 4,500 years ago
 - ▶ World-wide flood traditions
 - ▶ Early European written history back to Noah
 - ▶ Population build-up statistics
 - ▶ Sedimentary rock formations covering continent size regions
 - ▶ Great fossil beds
 - ▶ Interior mountains made of ocean bottom rocks
- ▶ It is feasible that a barge/ark could have been built to carry about 16,000 animals + food + water
 - ▶ Only needed representatives of each genus, not species
 - ▶ Median animal size = small rat
- ▶ Eight people could care for the animals
 - ▶ Some animals in hibernation state
 - ▶ Labor-saving housing systems
- ▶ God was involved of course, but continuous miracles were not necessary
- ▶ The history of the Bible can be trusted!