**Origins 101-8**

**Macroevolution**

Script

1. Origins 101--Macroevolution
2. In order to believe that all this amazing diversity developed without a Creator / from a single-celled common ancestor, it is necessary to believe that two things happened:
3. Those two things are abiogenesis and macroevolution. In our last presentation, we saw that the challenges to abiogenesis at every step along the way indicate that it is not a viable option for the origin of life. But let’s imagine for a minute that somehow a living cell *was present--*in spite of all the evidence against it. The next problem would be how that first living cell could produce the amazing diversity we see in living organisms today.
4. Different people use different names for this process. / You may remember from previous presentations that many people equate microevolution with macroevolution. / But this is not how we will use the term.
5. Dr. Leonard Brand, in his book Faith, Reason, and Earth History, defines macroevolution as changes that produce new groups of organisms at the level of genera, families, orders, classes, and phyla. / He defines changes that produce new groups at the level of families and above as megaevolution.
6. The folks at Answers in Genesis define the kind of changes we will be describing as Molecules-to-Man evolution.
7. For the sake of simplicity, we will use the word macroevolution.
8. It doesn’t matter what name we choose for it, but macroevolution boils down to the kinds of change and the amount of change necessary to go from the supposed single-celled common ancestor to the diversity around us in the world today. / That means that cells had to evolve the ability to organize into tissues, organs, and systems, with increasing levels of complexity. / In order for this to happen, the cells would have to develop complicated ways of communicating with each other. / They would also have to be able to specialize in order to do specific tasks.
9. Macroevolution also includes the kinds and amount of change necessary to transform a water-dwelling creature into one that lives on land or vice versa. Let’s think about some things that are different in the water and on land. / Because of gravity, land animals need more robust bones and muscles / as well as a more complex circulatory system that can pump blood against gravity. / Most fish suck food into their mouths but land animals needs jaws to eat. / Since light and sound behave differently in water than they do on land, sensory organs must work differently in water and land animals. / Land animals must also have physiological systems in place so that they do not dehydrate. All these changes are part of what we include in macroevolution
10. Macroevolution includes the kind and amount of changes necessary to transform an earth-bound creature into one that can fly. / / Powered flight requires (1) a lot of energy (high metabolism) / (2) huge intake of oxygen (highly efficient respiratory system) / (3) a modified circulatory system to efficiently deliver the oxygen to the flight muscles, / (4) modified bones that are both strong and light-weight, / (5) complex nervous system to coordinate flight and quickly react to changing air currents, and / (6) limbs that can create the airfoil needed to generate lift.
11. Macroevolution includes the kind and amount of change necessary to change a creature whose body temperature varies with the environment—like amphibians, reptiles, and fish— / into ones with an internal system for heating and cooling themselves—like mammals and birds
12. And it includes the amount of change necessary to transform an organism without an eye to one with an eye. And not just one kind of eye—but different kinds of eyes, / like the pinhole eye of the nautilus, / the compound eye of a wasp, / and a camera eye like we have—which would have to have evolved twice— / once on the branch leading to humans, / and another time on the branch leading to the squid and the octopus.
13. When we say macroevolution, we are referring to kinds and amount of change required to go from one single cell to the amazing diversity of life that exists today— / including humans. With that in mind, let’s look at the evidence in support of this idea.
14. As we have learned, small changes in genetic makeup of a specific population happen over time, / and we call this microevolution. / And when people talk about evolution as a fact, they are assuming that a lot of microevolution over many millions of years is capable of causing much larger changes. / But it has not been demonstrated that a lot of microevolution over lots of time is capable of producing the major changes necessary to turn one kind of animal into another.
15. We learned about three sources of variation. / One is the recombination of genetic material during reproduction, which reshuffles existing genetic information but does not create new information.
16. Another source of variation is mutations. These mistakes are usually negative and do not appear to be capable of causing major changes.
17. This is because mutations that cause major changes to the body plan are not viable; and viable changes do not produce major changes to body structure.
18. The third source of variation—epigenetics--does not increase or decrease the amount of information in the gene, but alters how that information can be used. (like pages sticking together in a book)
19. It does not appear that these three sources of variation are capable of producing the kinds and amount of change we mean when we use the term macroevolution. But if they had, we would expect to find evidence of many transitional forms in the fossil record.
20. But as you will recall from a previous presentation-- / instead of numerous transitional fossils, / we find the pattern of abrupt appearance, / stasis, / and abrupt disappearance.
21. Let’s look at this branching bush that is used to represent macroevolution.
22. Notice that these vertical lines represent what we actually see in the fossil record—the abrupt appearance and disappearance of creatures.
23. What is mostly absent from the fossil record are the transitions represented by these branching dotted lines.
24. We could say that these vertical lines represent the data in the fossil record…
25. But in most cases, these dotted lines represent an interpretation of the data that is largely unsupported by the facts.
26. Charles Darwin was concerned about the lack of transitional fossils found in his day and hoped that they would be found as the digging continued. But in well over a century since his death, scientists still have not found the many transitions we would expect to find if macroevolution had occurred.
27. To believe that all this diversity exists without a Creator, it is necessary to believe two things: abiogenesis and macroevolution. We have looked at both and seen that neither is supported by the evidence. Next we will look at one more issue—origin of information in the cell)