DOES AN EMBRYO CLIMB ITS TREE?

WILLIAM J. TINKLE*

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The notion of recapitulation by a developing embryo has been soundly discredited for years. Indeed, even when it was in favor it was maintained only by ignoring contrary evidence, and even by outright forgery of evidence. But still the notion reappears now and then, chiefly in text-books, or semi-popular writings, the readers of which are not in a good position to learn the truth from other sources. Thus, it seems worth while to point out once more that the notion is a completely false one, and is not held by knowledgeable biologists themselves.

One of the most remarkable claims of the evolutionists was that embryos did not find the genes from parents adequate for their guidance in development but must go through the stages which their distant ancestors had as adults; they must recapitulate or repeat their ancestral forms. As one person has worded the process, the embryo climbs its own ancestral tree. We creationists prefer as a figure a row of diverse trees growing on the same level rather than one tree to represent all life.

This recapitulation hypothesis flourished during the years when Mendelism in the form of Gregor Mendel's famous paper was lying on a shelf, namely 1865-1900; about a quarter century ago it was given up by a majority of biological scholars, even though many of the scholars still hold to other suggestions of evolution. In recent debates strangely, the idea has been dusted off and advocated as one of the chief evolutionary doctrines.

*William J. Tinkle, Ph.D., taught biology, genetics, and related matters for many years. He is now retired, and lives at Timbercrest Home, North Manchester, Indiana 46962.

Scientists Question

A number of questions have been asked by serious scholars.

> First, if the developing embryo is supposed to reenact the stages in the evolutionary history of the race, why are so few stages included? Why should we find some of them appearing in the wrong order? Why should we not find thousands of steps instead of only a few? Why does the embryo go through some steps that could not possibly have been included in the history of the animal? How can such stages as the egg, larva, pupa, and adult of a butterfly be explained? Why do some parts of an enbryo show recapitulation and other parts never show it?[1]

Another biologist, writing a year later, sings the swan song of the famous fabrication:

> This law has been so seriously questioned and so obviously inapplicable in many instances that as a law it is now of historical interest only.[2]

If further obituary is needed for recapitulation, this testimony is added:

> According to it, ontogeny, the development of the individual, recapitulates phylogeny, the development of the race . . . . In this form the theory runs into so many difficulties it clearly cannot be true. An immediate problem is presented by the fetal membranes, the umbilical cord, and other fetal structures that cannot represent adult structures of any period. Furthermore, mutations have been shown to modify all stages of development, not just the final ones.[3]

Thus, one by one are snapped the guy wires which support the tottering tower of evolution. Recapitulation is flung into limbo to keep company with acquired characters, spontaneous generation, gradually developing genes, and progressive mutations.

NOTICE OF OPEN MEETING

Notice Regarding Research Reports

An open meeting of the C.R.S. Board will be held beginning at 1:00 p.m., Friday, April 18, 1980, at the Concordia College, Ann Arbor, Michigan.

The C.R.S. does not hold conventions, and this meeting is not to be understood as a Creation Seminar in the usual sense of that term. However, various individuals and groups carrying out research under the auspices of the C.R.S. will give progress reports on such activity. C.R.S. members wishing to present short reports of their own creation research projects should write to Dr. Emmett Williams, Jr., 5093 Williamsport Drive, Norcross, Georgia 30071, submitting a one-page abstract of the data and conclusions to be shared. The abstracts may be printed for circulation at the meeting. Dr. Williams will coordinate the session and will include as many papers as time permits. Those wishing to attend are cordially invited.

General announcements and progress reports will also be given on Friday, possibly at a session held Friday evening, beginning at 6:00 p.m.

On Saturday morning, April 19, 1980, the Board of the C.R.S. will go into closed session.

PLACEMENT SERVICE

Do you know of academic vacancies to which creationists might be directed? The Creation Research Society would like to be in the position to inform creationist scientists of such vacancies. If you know of such positions will you please inform Dr. John W. Klotz, 5 Seminary Terrace North, St. Louis, MO 63105 describing the position, the academic requirements and training required and any other information that might be available. You will be helping provide students with information on the position which you yourself share.

Examples Cited

Let us look at some structures which are cited from nature as evidence. One-celled animals were mentioned to typify a fertilized egg cell in diagrams to typify evolutionary order, in a diagram called a phylogenetic tree. Diagrams, when used properly are very useful in teaching and understanding zoology or botany.

So the lowest animal in the phylogenetic tree, representing the oldest animal, was a one-celled creature, a Protozoan. These animals have structures and abilities for catching and digesting food which a cell of a larger animal does not have; nevertheless one was drawn to represent the other. The succeeding stage in the diagram was Hydra, which has some resemblance to an early stage in the development of a starfish, a double sac called a gastrula. But Hydra is much more than a double sac; its system of assault, e.g., consists of many nematocysts which it shoots out to pierce or entangle other creatures.

Seeing that Hydra is not entirely primitive but specialized, it usually is not now given a place so low in the tree of life; but this place and the whole trunk are not assigned to any real animal. The twigs, however, bear the names of well-known species; the twigs are real but the trunk and big limbs which are supposed to bear them up are hypothetical; figments of the imagination; a poor ladder for climbing!

Now look at Figure 1, A and B, and you will see another example, notable because Ernst Haeckel used it when he promoted this famous guess. Calling it the Phylogenetic Law, he chose to make much of what he liked and left the rest of nature without explanation. Fig. 1, A is a cross section of the gastrula stage of rabbits and other mammals while Fig. 1 B is a cross section of the gastrula of starfish. They are formed by different methods and are like very few adult animals; and they certainly prove nothing about common ancestry.

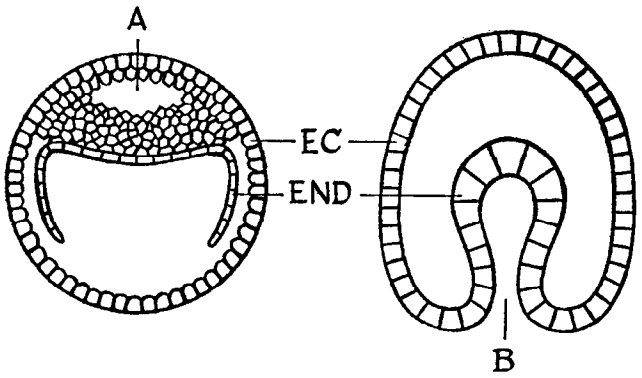

Figure 1. Contrasting types of embryo. Left, rabbit. Right, starfish. A, amniotic cavity, B, blastopore, END, endoderm. Later stages of the two kinds differ still more, for the starfish goes through a complicated larva stage which the rabbit does not have. These are not diagrams but realistic drawings of cross sections.

Those who think the rabbit and starfish developed from a common ancestor are fond of noting a few likenesses, while they pass by a number of differences.

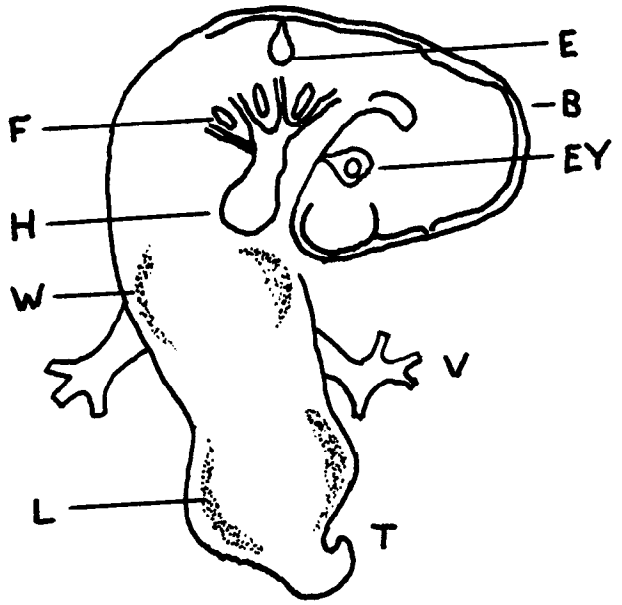

Figure 2. Chick embryo after three days of incubation, F, furrow where skin sinks between blood vessels, H, heart, W, wing bud, L, leg bud, E, inner ear, B, brain, EY, eye, V, vein to yolk, T, tail. Can you see why embryologists have given up the idea that a chick embryo resembles a fish?
Drawing from specimen.

The Most Popular Alleged Recapitulation

The claim of recapitulation that has been repeated most often was that man's descent from a fish was illustrated by man's posession of gill slits. A fish breathes by taking water into the mouth and forcing it out past the gills, which are located beside slits in the neck. But human embryos have no gill slits nor even gills or the beginning of gills, at any time.

Human embryos are like chick embryos in this respect. There are alternating ridges and furrows in the neck region, traversed by arches of the aorta artery, some of these blood vessels developing and others closing like the early blood tubes in general, A. F. Huettner, in his "*Embryology of the Vertebrates*" states on p. 273," Thus we have gill pouches in the mammalian embryos, but they no longer open to the outside but are closed by thin membranes."[4] These membranes could be broken by inept handling and thus give an impression of a gill slit as in a fish.

A chick embryo never has gills or the shape of a fish, as we might expect if one developed from the other. (See Figure 2) Relative sizes of parts are different from the adult; and this may be explained. The head is relatively large because the brain and eyes are to become very complex, needing an early start. The heart is large because the embryo needs blood very early for its fast growth; even at the age shown here there is adequate circulation of blood. For a like reason, wing and leg buds are small because limbs are not needed until after hatching. Thus we account for growth regulation by teleology, for which science should make no objection and we no apology; the world shows formation according to plan.

Order Important

The circulatory system also has been claimed to illustrate recapitulation. It was said that the heart of a mammal or bird develops in the same order that those animals developed on the earth in evolution; a fish has a heart of a single tube, a frog's heart is partly double, having two atria and one ventricle, while birds and mammals have two atria and two ventricles. (They were careful to choose examples that suited their conclusion, not mentioning the earthworm, *Lumbricus*, which has five pairs of hearts.)

See Figure 3 which is two realistic drawings of a chick's heart, a few hours apart. The heart starts with a rising of the embryo and folding together of the heart muscle and lining which have been spread out on the yolk. Note that at first there are two tubes which soon coalesece to form one; this is not the order from simple to compound as was claimed to form a basis for recapitualtion; it is from 2 to 1, not 1 to 2. In the mammal the order is the same, although there is no changing from a flat embryo to a cylindrical one.

There has been some attempt to bring in also the skeletal materials in this development. In a developing mammal the bones are formed of cartilage and later osseus matter is brought in, gradually changing most of the cartilege to bone. A young shark has a skeleton of cartilage, but it remains cartilege as long as the shark lives. Geologists tell us that trilobites in oldest fossil-bearing rocks, the Cambrian, furnish a large part of the calcium of those rocks; they had true bone.

Actually, the meaningful resemblances are found, not between embryos and their supposed ancestors, but between adult individuals of different species. Such resemblances are viewed by Creationists as only what is to be expected, seeing that the different species were made by the same Creator.

Conclusions

As we have attempted to explain in this paper, not only Creationists, but even a majority of evolutionists, have given up this alleged principle of an embryo's having to recapitulate the morphologies of its ancestors. Careful studies have shown that the order of growth in an embryo is wrong for such a principle. Again, the alleged principle is not good science, because it rests on selected data, ignoring other data which are opposed to it. The growth of an embryo is directed by its genes. Much has been learned about such matters in the last 25 years, and recent studies in embryology have come to our aid. By getting rid of beliefs which are supposed to have a scientific basis but do not, Creationism is winning over evolution, and purifying science in the bargain.

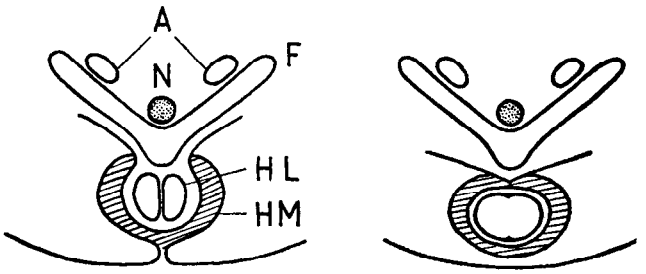

Figure 3. Early stages of heart in the chick embryo. Left, 27 hours of incubation. Right, 29 hours. A, arteries, N, notochord, F, fore gut, H L, heart lining, H M, heart muscle. Note that the inner tube of the heart is double at first but soon becomes single. If this double heart showed what ancestor the chicken developed from it would not indicate a fish, for the fish has a heart of a single tube. Scientists have decided that such structures do not show what ancestors the animal had.
Drawing from specimen.

Acknowlegements

Scientific Creationism, by Henry Morris, published by Creation-Life publishers, San Diego; and *Heredity*, W.J. Tinkle, published by St. Thomas' Press, Houston; were helpful in the prepartation of this article.

The illustrations are from the book *Heredity*, pp. 115-117.

References

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[2]Breneman, W.R., 1954. Animal form and function. Ginn. P. 407.
[3]Moment, G. B., 1958. General zoology. Houghton Mifflin. P. 201.
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Rivers of Eden

(Continued from page 170)

[8]2 Kings 19:12; Isaiah 37:12; Ezekiel 27:23.
[9]See footnotes on Genesis 2:13 in the Berkeley, New American, and New International Versions. Also New Catholic Encyclopedia volume 5 p. 102. Also Jamieson, Fausset and Brown, One Volume Commentary, Associated Publishers, Grand Rapids, Michigan. P. 18.
[10]New Jewish Encyclopedia, Behrman House Inc., New York. P. 159. also Davis, op. cit., p. 792.
[11]Davis, op. cit., p. 188. Also 1957. Unger's Bible Dictionary. Moody Press, Chicago. P. 231.
[12]Douay-Challoner, King James, and Lamsa versions.
[13]Berkeley, Geneva, Good News, Jerusalem B, Living B, New American Standard, New English, New International, New World, Revised Standard, and Smith and Goodspeed.
[14]Davis, *op. cit.*, p. 188. Also 1970, New Westminster Dictionary of the Bible. Philadelphia. P. 239.
[15]Britannica Macropedia, volume 1, pp. 1052 and 1053: "Rummah-Batin carries vast loads of sediment from the the interior towards the Persian Gulf."
[16]Davis, *op. cit.*, p. 188. Also Britannica Macropedia 1977, volume 16, p. 277 Also New Westminster Dictionary, p. 239. See Baly, Denis, 1963. Geographic companion to the Bible. McGraw-Hill, New York. P. 173.
[17]Britannica Macropedia, reference 16, p. 276.
[18]Davis, *op. cit.*, p. 188.
[19]1962. Columbia Lippincott Gazeteer of the World. P. 745.
[20]Woolley, C. Leonard, 1965. The Sumerians. W.W. Norton Co., New York. P. 2.
[21]1978. Times Atlas of World History. Hammond Inc., Englewood, New Jersey. The map on p. 55 shows the upper Persian Gulf as only a lagoon. See also Baly., *op. cit.*, p. 105.
[22]1972. Webster's New Geographic Dictionary. G. and C. Merriam Co., Springfield, Mass. Pp. 591, 1207, and 381 respectively.
[23]Gellhorn, Eleaner C., 1965. Guide to the Middle East. David McKay Co., New York, p. 125, states: "Al Qurna, 40 miles north (of Basra) is a legendary site of the Garden of Eden".