

But Sammy's transplanted heart began to fail. He was immediately placed on a heart-lung machine. This supplied oxygen and removed carbon dioxide from his blood, and it circulated blood through his body.

The doctors consulted bioengineers about Sammy. Because almost all of his life-sustaining functions were being carried on by machines, it might be possible to compress all of these machines into one mobile unit, which could be controlled by electrical impulses from the brain. This unit would be equipped with mechanical arms to enable him to perform manipulative tasks. A mechanism to create a flow of air over his vocal cords might enable him to speak. To do all this, they would have to amputate at the neck and attach his head to the machine, which would then supply all nutrients to his brain. Sammy consented, and the operation was successfully performed.

Sammy functioned well for a few years. However, slow deterioration of his brain cells was observed and was diagnosed as terminal. So the medical team that had developed around Sammy began to program his brain. A miniature computer was developed; it could be housed in a machine that was humanlike in appearance, movement, and mannerisms. As the computer was installed, Sammy's brain cells completely deteriorated. Sammy was once again able to leave the hospital with complete assurance that he would not return with biologic illnesses.

During the course of this presentation I stop and ask if Sammy is still alive. Students are allowed to discuss and argue their viewpoints. Generally, all students can agree that he is alive at the beginning of the narration and not alive at the end of it. There is always disagreement in identifying the point at which "Substituted Sammy" ceases to live. The students inevitably ask me when he died, but I do not give them an answer. My response to their questions usually points out the strengths of the students' arguments. The students are asked to make notes of the arguments, and we discuss them as the biology course develops. From these considerations the students develop a definition of life and continue to examine and refine it as the course progresses.

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Black Bear Respects Grizzly

The black bear has a deep-rooted respect for the grizzly bear. As many as eight or nine have been seen to climb trees when a grizzly arrived on the scene.

Letters to the Editor

• Brief letters—one or two pages—are more likely to be printed than are long ones, which may be cut.

Objections to Evolution Theory

James T. Robinson, in his article "Incommensurability of Evolution and Special Creation" (*ABT* 33 [9]: 535-538, 545), said that I do not understand the nature of the evolution theory.

In refutation I have analyzed the four recurring arguments for evolution and find them weak. These are (i) the rock record, (ii) homologies, (iii) extrapolated mutational data, and (iv) the appeal to authority.

Robinson implies the infallibility of carbon dating. I find serious limitations: (i) Radiocarbon is accurate to 50,000 years partly because the carbon must be the original radioactive carbon incorporated into the organism's body while it was alive. (ii) Practicing geophysicists, active in frequent exploratory probing of the earth's crust, do not use radioactivity to measure age of strata, but only for porosites, etc. (iii) Suitable materials must be found in critical places. Exploration for these in each sedimentary stratum has not been done to verify the idealized geologic timetable. (iv) Most age determinations by radioactivity have been made on minerals in igneous rocks. (v) Sedimentary dating is approximated by igneous measurement. Thus erroneous assumptions can be made.

Historical geology uncritically postulated organic evolution. The idealized time-sequence showing primitive to advanced forms exists only on paper—a result of theorizing, not research. The explanation for strata disarray is that geologic events disrupted the original hierarchic order, but often physical evidences of strata-shifting are missing.

Robinson feels that only the theory of evolution is an incentive to research. I feel that scientists are able to weigh results of studies in the light of two possible explanations. Within the gene-pool limit for each species, and considering recombinations, etc., each species remains a fixed species, the only changes being of the intraspecies sort. Admitting this fixism as a possible alternative to macroevolution will not result in scientific sterility, but will give added incentive to test and judge results in the light of the hypothesis of fixism and the hypothesis of change. If many forces are applied to living matter and the results are death or intraspecies changes only, then fixism tends to be verified. If fixism can be verified as a law of nature, then we can assume that each species is a special creation.

George H. M. Lawrence in his *Taxonomy of Vascular Plants* (1965: Macmillan Co., New York), p. 94, states:

The basis of all evolutionary theories is the belief [emphasis added] that living organisms may have progressed (though with many digressions) from primitive to more advanced forms. . . . A major [ideal accomplishment] will be a valid phylogenetic classification complete in all details and free from gaps and missing links. A phylogenetic system of classification for plants would provide the answer to questions of their origin, to [sic] their modes of evolution, to problems of monophyleticism vs. polyphyleticism, the identity of primitive and advanced characters, etc.

These are respectable goals, but the truth may be that Lawrence finds it impossible to show progression because no progression occurred. Suppose the basic assumptions of a natural beginning of life and a natural evolution of species are false. Suppose origins were not strictly natural events. In that case no amount of scientific methodology can retrace history and make nature completely autonomous merely to accommodate men's research for truth through empiricism.

Indeed, can any scientist limit the universe so narrowly that he dares to assume the natural only, to assume that man is a grown-up germ—insisting that his view alone is productive and scientifically sound? Is this not indefensible intellectual arrogance, especially when his contentions are unproved and unprovable?

The philosophic danger inherent in making man an animalistic being in a materialistic universe has begun. Already we condone fetuscide, a devaluation of human life done in the name of biologic principles. We tacitly approve not just because the father is morally unable to assume responsibility for his acts, and the mother also, both subscribing to hedonism, but also because society has been made oversensitive to overpopulation estimates. We, like overcrowded rats in a cage, are killing our young.

I sincerely believe that insistence on a natural origin only, for man, and on his "development" (a favorite propagandistic word used by evolutionists) through the animal world, will lead to a loss of quality in human life—especially to a serious loss of the ability to make sound moral judgments. When this happens, neither science, whatever its methods, nor scientists, whatever their philosophies, will be exempt from blame.

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James T. Robinson comments:

Holt does not join the central argument of the paper, but she seems to indicate that increased abortion and a decline in morality (hedonism) are caused by a people's acceptance of biologic evolution as an explanation of their origins. She seems to imply that if a people accept a spiritual cause for man they will not lose the ability to make sound moral

judgments. Such an argument is unrelated to scientific accounts of evolution and speciation.

If any of Holt's statements are correct, then I have homework to do. Because I don't think those points can be documented in the reputable scientific literature and the writer doesn't join the substantive issues in my paper, I have no further comment.

Who Paid for the Insurance?

Lloyd's of London has dropped its coverage of company officers involved in suits arising from pollution problems. This kind of insurance came to light recently when it was disclosed that the Penn Central Railroad had purchased a \$10,000,000 liability policy to protect its officers from the consequences of lawsuits brought by stockholders.

Cash for Quashing Trashers

A mother and son have received a \$12,500 bounty from the federal government for taking action when they saw a concrete company dumping washings from its mixing trucks in the East River. Reports from Gwen Zeichner and her son Steven, 17, enabled the U.S. Army Corps of Engineers to take movies that led to the company being indicted for polluting the river. . . . The firm pleaded guilty and was fined \$25,000 by U.S. District Court Judge Inzer B. Wyatt, who directed that half of the amount go to the Zeichners under a proviso of the 1899 Refuse Act.

(Associated Press report)

PRACTICAL INSTRUCTIONS WANTED

Teaching materials for biotechnicians are to be developed for the American Institute of Biological Sciences. Topics to be emphasized include analytic techniques (e.g., for determining feed efficiency), animal techniques (e.g., handling rodents), botanic techniques (e.g., how to transplant from flats to field plots), microbial culture methods (e.g., how to isolate a single cell), microscopy techniques (e.g., making frozen sections), preparative and basic skills (e.g., how to calculate or prepare normal solutions), preservation methods (e.g., preparing herbarium specimens), and sterilizing techniques (e.g., use of chemicals for this).

Practical instructions are being solicited from technicians experienced in these matters. The information will be incorporated in single-task "Biotech Teaching Modules." Further information and a list of specific needs for data may be obtained from John H. Busser, director, Project Biotech, 3900 Wisconsin Ave., N.W., Washington, D.C. 20016.