SCIENCE AND RELIGION

I. Areas of Conflict.

A. Usual. Evolution vs. Creation; age of earth, etc.

B. More Important: Freedom vs Determinism, also Providence (Divine Freedom)

II. Methodology. Three Approaches.

A. (Thomas Hobbes; see Randall, The Role of Knowledge in Western Religion, 1959): Religion does not deal with knowledge, fact, quantity; it concerns only the poetic, symbolic, mythological. Its aim is for insight, morality, action, not knowledge of the world. It has nothing to do with "truth" in the scientific interpretation of the word.

B. (Medieval world, Spinoza, Hegel): Relgion and science cover the same field, deal with same subject matter. They are therefore either competitors from which we must choose one (Medieval Church, devotees of Scientism); or they are identical, the conflicts only apparent and due to ignorance, hence must strive to reconcile (Medieval Scholasticism, Saadia, Maimonides, etc. So, Spinoza, Hegel). Religion = ought; Science = is

C. (Kant, Schleiermacher, others): They have essentially different functions, but they overlap. Science deals primarily with quantifiable phenomena and the factual; religion is "transcendental reason," more esthetic than factual, deals with value judgments.

III. A Jewish Attitude. Criticism of Above.

A. Division too rigid, classification too neat. Requires a double standard of truth, essentially dualistic. Its religion must be completely out-of-this-world, which impossible for Halakhah which is so strongly this-world oriented. Also, it reduces science to technology. Conant makes the point that scientists frequently must make ethical choices.

B. Irreconcilability is un-Jewish. Ki hi chokhmat'khem u-binat'khem l'enei ha-goyim was interpreted by Sages to mean astronomy, mathematics.

Bruno Kisch on ve'kivshuha as a commandment to pursue science as method of conquering Nature. Also, irreconcilability sets up science as an independent quasi-religion. Earmarks of "Scientism": a way of life; redemptive ("science" will bring utopia);a priesthood (of Ph.D.s); certainty ("science says..."); exclusion of other systems.

Total reconcilability also must be rejected. Leads religionists to the fallacy of dogmatically accepting as eternally valid an ever-changing system. Thus Maimonides tried to reconcile Judaism with Aristotelian philosophy and with an antiquated science, Ptolemaic astronomy.

C. Third method is valid. Science is not a religious competitor, it is merely a method of ordering knowledge that has proved highly successful. It is a policy, not a creed. A scientific textbook is not a Bible. Similarly, Bible is not a scientific or history text. Religion deals with the ought, while science describes the is. But since science's direction involves ethical choices, and since religion seeks to be relevant to real men in real life, they must occasionally overlap. Conflict may occur where fact and value merge.

Using this third method, must keep in mind following two principles:
a) Religionist must take an open attitude, using the challenge of science to rethink his own position, perhaps deepen his insights and comprehension. READ selection from Letters of Rav Kook, quoted in Perakim be'Machshevet Yisrael pp. 422-425.

Read at IV-B

b) Must never accept judgment of science as absolutely final. Its normal tendency to change with accretion of new information. A hypothesis is not a fact. Not equipped to deal with the singular and unique. (story: Army doctor advises GI who complains of insomnia to fast, then to eat well. "Do you realize how science changed ...?)

IV. Evolution versus Creation.

A. The Problem. The Torah teaches creation of the universe by G-d ex nihilo, and organic life in fixed species (le'minehu).

Evolution falls into three classes (Lamarck, Darwin, mutation) common features are following:

1) Presently existing species were not always thus.

2) Life is constantly evolving, from simpler to more complex forms.

3) Species not fixed, all descended from common origin ("The Origin of Species"), probably a unicellular germ. Over millions of years, several lines of descent gave rise to present forms, including Man.

The three theories of the mechanism of evolution are:

1) Lamarck: organism adapts itself to environment, gaining new skills and organs, losing others (example: giraffe's neck), thus: the inheritance of acquired characteristics.

2) Darwin: a constant "struggle for survival" with a "survival of the fittest", strongest species wins in battle which defines life itself.

3) Mutation: survival or extinction of a species is due to pure chance mutation of genetic material, hence a matter of probability.

B. First Resolution. Aggadic portions of Torah, especially beginning of Genesis, may be interpreted liberally. No authoritative, dogmatic single interpretation. Also, as quoted Rav Kook above, fact that Sages refered to Maase Bereshit as a mystery means that they insisted upon a deeper, non-literal meaning in Genesis. Hence, following points pertinent:

Read Rav Kook Perush (III-C-a)

1) evolution as such acceptable. But line of descent with changing species was not blind, not merely result of a struggle, but the will of G-d. John Fiske: "Evolution is G-d's way of doing things."

2) Order of creation in Bible is, like in evolutionary theory, from simpler to more complex: inorganic to organic to man.
First Day: heaven and earth (matter) and light (energy)
Second: water and atmosphere
Third: Water deposits, geotopic outline of earth, vegetable life
Fourth: sun, moon, heavenly bodies
Fifth: Sea-life, birds, sea monsters(mammoth reptiles)
Sixth: insects, beasts, man.

3) Midrashic statements that anticipate details of evolution theory.
*Talmud, Eruvin : man originally bisexual (androgyny) and once had a tail (resemblance ape family).
*Avot d'Rabbi Nathan, Pesikta Rabbati: man created slow stages, was a living creature long before he assumed final, present form and before endowed with human intelligence.

*Talmud, :Birds have scale-like skin on feet because created from water like fish (birds & fish have common origin)
*Midrash Avakir: man before Noah had webbed fingers to dig manually, since tools not yet invented. Later lost webs since they atrophied (Lamarckian).
*Certain species may vanish. Thus, Tachash (unicorn) of Bible.

C. **Second Resolution.** We do not accept evolutionary theory, or any scientific hypothesis as absolutely final.

1) Evolution may yet be questioned:

*Lamarckian theory has absolutely no proof, cannot be demonstrated experimentally. Also difficult to maintain logically.

*Darwinian theory, though popularly a quasi-religious dogma thanks to the works of Wells and Huxley, is not as universally accepted as once was the case. Many great scientists conclude it is mostly an a priori ordering of facts. Natural selection, struggle for survival, may lead to perdition, and Mutualism (symbiosis) may be more likely method leading to survival and higher formations.

*Many first-rate zoologists find 17 major form-groupings, say it is impossible to find transitions from one form to another. Thus it is possible that evolution occurred in the le'minehu originally created.

*One prominent French biologist (Jean-Paul Aron, Diogenes, Summer 1954) concludes: "the experimental production of new species has never been accomplished...evolution is not a fact in the strictest sense in which science understands the term. It remains an idea..."

*Lecomte du Nuoy: if you do not assume divine intervention in evolutionary process (i.e. evolutionary creation), then the theory of evolution stands in direct conflict with the most basic law of physics, the 2nd law of thermodynamics, according to which entropy is always incresing, i.e. the natural state of the world leads to greater disorder and randomness, not to more order, greater differentiation.

*a number of independent findings recently tend to confirm an initial act of creation at a specific time in past. Thus: George Gamow (1952) "big bang" theory of creation, uses two previous theories: idea of expanding universe (Hubble's "Red Line" shift) which, calculating backwards gave Gamow a figure of a few billion years as the age pf the universe; and notion that major features of our universe are of limited age: uranium-lead dating rocks gives few billion years; recession of moon from earth and slowing of earth's rotation (thus lengthening day by one thousandth second/century) calculated backwards gives a few billion years when moon was in contact with earth, prObably Pacific basin; so other evidence. Thus, universe was created.

constants Doppler's

*In biology, in evolution itself, a type of creation is now being propounded. It supplements, in other ways contradicts, the basic notion of evolution. Generally known as "Emeregent Evolution" (Jan Smuts: Holism;others: Organicism, Levels of Integration, etc.) and with great support (as: leading biologists, also philosophers of science from Bergson to Lovejoy to Whitehead)idea: in forming new combinations of existing properites, new properties emerge which are not predictable from the old. (Analaogy: properties water unpredictable from study of hydrogen and oxygen). Life is one of these "emergent" properties. This banishes strict determinism from evolution, introduces element of novelty, creativity. Especially important is the application of this approach to the appearance of the human capacity for reason. Evolutionary progression can produce a longer neck for the giraffe or shape hand for man -- differences of degree and form, not kind and essence -- but not the power for abstract reasoning. The gap between man's mentality and that of apes cannot be bridged by the usual evolutionary mechanisms. Mathematical and linguistic exercises are not found as such in a state of nature. Hence, biologists must rely upon the concept of <u>emergent evolution</u> to account for the phenomenon of mind -- and this is in fact a concept of creation!

*It is erroneous, therefore, to accept evolution as an outright opponent of relgion, or creation, and to assume that the victory of evolution is total and unquestionable.

2) The retroactive disciplines of science do not have the finality of experimentally repetitive ideas. A hypothesis not subjected to scrutiny in a laboratory, in accordance with scientific method, may be mostly a matter of imagination.

*James B. Conant:
"Many of the so-called theories of the origin of life are not scientific theories at all in the sense of being guides to action. They are merely speculative ideas which no one knows how to connect with new experiments or observations. On this point...the general public is apt to be much confused. People fail to distinguish between a new theory about the origin of life (or of granite or of petroleum), which is merely one speculative idea, and a theory from which flow new consequences that can be tested. Speculation in the field of cosmogony is not to be disparaged, but the wide publicity given to each new flight or fancy tends to confuse the general public."