

bacteriologists and biologists. The raises were immediately criticized on several grounds: by the bacteriologists and biologists who thought that they had been unfairly left out and by those who had already reached the top salaries for their grades. The latter group objected to the elimination of pay differentials within their grades and to the provision that new employees would enter any particular level at the top salary for that level, a practice that would negate pay differentials on the basis of merit within a particular category.

In general, Government scientists, who thought the increases inadequate and belated, doubted that the changes would be effective in stemming the loss of scientists to industry, since top pay in each category was not changed. Some also doubted the realism of the Civil Service Commission's expectation that the increases would enable the Government to obtain 4000 additional scientists and engineers within the next year.

Other critics pointed out that the increases pose problems for the future: within a year or so some means will have to be found to provide for progressive increments in salary and for merit increases if the Government is to compete effectively for scientists and engineers.

Evolutionary Terminology

Julian Huxley [*Nature* 180, 454 (7 Sept. 1957)] believes that the time has now come when there is need to define the major types of evolutionary process more strictly. He recognizes three such processes, leading, respectively, to divergence and variety ("cladogenesis"), to adaptedness and biological improvement ("anagenesis"), and to stabilization and persistence of type ("stasigenesis"). *Cladogenesis* and *anagenesis* have been taken over (the latter with some extension of meaning) from Rensch [*Neuere Probleme der Abstammungslehre* (Stuttgart, Germany, ed. 2, 1954)], whereas *stasigenesis* is a new term. "Clades" are delimitable monophyletic units resulting from "cladogenesis." "Grades" are delimitable and persistent "anagenetic" units produced by "stasigenesis." Most delimitable taxa therefore will at once be both clades and grades, yet others are grades which may or may not also be single clades. "Evolutionary areas" will appear when "anagenetic" improvement is plotted against "cladogenetic" divergence on a two-way graph with time eliminated.

Huxley believes that the implications of these three cooperating evolutionary processes have not been made explicit and that taxonomy will have to contemplate a two-way system of classification which gives due consideration to the

facts of biological improvement and persistence of type as well as to the facts of phylogenetic divergence. This will, he thinks, presumably involve some new terminology.

No one interested in and believing in evolution will attempt to deny the existence of the general evolutionary processes which Huxley discusses, despite his dubious recognition of stasigenesis as something fundamentally apart from anagenesis and his use of the essentially anthropocentric term *biological improvement*. Yet it seems doubtful whether all of his proposed terms will really be of any great help in understanding the phenomena of evolution. The only justification of any new term is its demonstrable need. One major source of new terms stems from a real need for ease of communication, from a need for the ability to describe things, or phenomena, or even concepts tersely, with great conservation of words. On the other hand, far too many technical terms represent nothing other than pretentious coinage—to wit, the subconscious human need to cover our ignorance of a phenomenon by assigning to it a high-sounding technical exoticism. I do not wish to do Huxley an injustice, but I cannot help but wonder whether some of his proposed evolutionary terminology does not properly fall into this category. His proposal of *cron* (to denote 1 million years as "the basic unit of evolutionary time"), *kilocron* (for 10^9 years), and *millicron* (for 1000 years) as the basis of "a suitable chronological terminology" does nothing to remove this suspicion. Current estimates of geological time are at best mere approximations and, as such, are constantly subject to revision. The use of fancy terms for such approximations can only serve to clothe them with a spurious reality.

Similarly, one reads with misgivings the proposal of the "gradal" term, *Psychozoa*, for man. In justification, Huxley states that "cladogenetically man constitutes only the single family Hominidae; but anagenetically he constitutes a grade equivalent in evolutionary importance to all other organisms taken together." When viewed historically, Linnaeus' optimistic designation of man as *Homo sapiens* may well be forgiven. It may be that I am unduly pessimistic; yet it seems a bit presumptuous for man to confer upon himself the designation "Psychozoa" in these days of increasing disintegration of human interpersonal and intersocial relations—disintegration that is occurring despite (and, paradoxically, as a result of) his tremendous material and technological achievements. This is scarcely a "biological improvement." It must be admitted, however, that man may yet justify the statement that "he constitutes a grade equivalent

in evolutionary importance to all other organisms taken together"—either by eventual mastery of himself as well as of his environment or, ironically, by virtual annihilation of himself and the rest of the living world through the material accomplishments of his unparalleled and perhaps overspecialized brain.

The introduction of new scientific terms is inevitable and often highly desirable. It is a bit disturbing, however, to find one of the leading living students of organic evolution advocating a wholesale introduction of new, unnecessary terms that can only serve to burden this area of biology with a jargon—a jargon that is not needed by the specialist and which will only tend to confound and mislead the nonspecialist.

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German Scientific Council

Federal Chancellor Adenauer and the Minister-Presidents of the States of West Germany signed in Bonn on 5 September an agreement to establish a German Scientific Council and an agreement on a federal subsidy to the states of 22 million marks in the current fiscal year for expanding engineering school facilities. Adenauer stated of the Scientific Council that West Germany will now have an organization that can provide an over-all survey of scientific work.

The task of the council will be fourfold: (i) to work out a plan for promoting science in the Federal Republic; (ii) to coordinate the plans of the federal and the state governments, and indicate priorities in research; (iii) to formulate an annual "first priority" program; and (iv) to recommend the use of funds provided for the advancement of science in the budgets of the federal and the state governments.

Formal constitution of the Scientific Council and appointment of members will probably require several months. The council will consist of 39 members who are either scientists or closely associated with science, or persons recognized in public life. The federal president will appoint 22 members, 16 of these through joint recommendation of the German Research Society, the Max Planck Society, and the West German Rectors' Conference, and six on the joint recommendation of the federal and state governments. These members will serve a 3-year term and may be reappointed. Seventeen members will be appointed by the federal and state governments, six of these by the federal government and one by each state government including the Saarland and Berlin.

The agreement on federal financial aid for engineering schools is intended