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

to relieve a temporary emergency situation. On the basis of the earlier Koenigstein Agreement, the states are already jointly supporting a number of research institutes, particularly those of the Max Planck Society. Under the new agreement, the federal government will assume 50 percent of the expenditures required to maintain these institutes in the fiscal year 1957. The states, in turn, must use the resulting 22 million mark fund for constructing new classrooms and laboratories and for equipping these facilities.

Chest X-ray Surveys

The great decrease in the number of tuberculosis cases and the recognition that even in low doses x-rays may be hazardous have led the U.S. Public Health Service to recommend that future mass x-ray surveys for tuberculosis be confined to those groups of the population in which the risk of infection is high. Among these are people admitted to hospitals, patients and employees of mental hospitals, inmates of penal institutions, inhabitants of slum areas, migrant laborers, and alcoholics. In groups in which the incidence of tuberculosis is low, the service recommends the use of the tuberculin skin test as a first step, to be followed by x-ray diagnosis only when the test is positive.

The Public Health Service also recommends frequent inspection of all x-ray equipment in order to protect people from unnecessary radiation:

"For many years it has been known that there is a risk of excessive radiation exposure involved in the use of x-ray machines. Current findings in this field that emphasize the significance of relatively low level radiation exposure, now serve to focus attention on the need to maintain and operate x-ray equipment in such a way as to eliminate all unnecessary radiation." The American Trudeau Society, a constituent association of the National Tuberculosis Association, has made essentially similar recommendations.

Surface Measurement of Gravity in Ocean Areas

The first successful surface measurements of gravity in the open sea were made on 22 November by J. Lamar Worzel, professor of geology at Columbia University's Lamont Geological Observatory. The measurements were made as part of a program to chart gravity variation throughout the world during the International Geophysical Year. Worzel used a new sea gravimeter developed by Anton Graf of Munich, Germany, to make the unprecedented surface measurements. The instrument was mounted on a gyro-stabilized platform installed aboard the *U.S.S. Compass Island*. Previously, gravity values for ocean areas had to be measured in submarines submerged to quiet depths.

Surface gravity measurements from the *Compass Island* were taken in 9 hours, as compared with 2 days for the earlier submarine measurements. The data were reduced in just a half-day, as compared with 2 weeks needed to adjust and compute the data from submarine measurements.

Although 80 percent of the earth's surface is covered by water, to date there have been only 4000 measurements of gravity at sea made throughout the world. Roughly half of these have been made by the Lamont Geological Observatory in the past 10 years.

Gravity measurements are used to determine the shape of the earth, the true direction of the earth's center, and the density of the material of the topmost layers. With gravity and seismic measurements together, the thickness of the earth's crust can also be calculated.

Gravity determination of the true vertical and the shape of the earth are important geodetic tools. Once sufficient values of gravity are taken over a wide enough area of the oceans, maps and charts will be greatly improved.

Contract for Observatory

The recently organized Association of Universities for Research in Astronomy, Inc., signed a contract on 13 December 1957 with the National Science Foundation to build and operate an optical astronomy observatory for basic research. Alan T. Waterman, director of the foundation, pointed out that the contract was in keeping with the foundation's established policy to support those basic research facilities for which private capital could not be expected. A sum of $3.1 million for the construction of an optical observatory was included in the foundation's appropriation for fiscal 1958.

The Association of Universities for Research in Astronomy, Inc., consists of seven universities, all with large observatories and all with strong programs of research and graduate instruction in astronomy. The universities are California, Chicago, Harvard, Indiana, Michigan, Ohio State, and Wisconsin. Other universities may be added as the project develops. The chief officers of the association are: president, R. R. McMath, who is director of the McMath-Hulbert Observatory, Michigan; vice president, F. K. Edmondson, who is chairman of the Department of Astronomy, Indiana; and secretary, J. M. Miller, who is assistant vice president of business affairs, California. The main office of the association is in Phoenix, Arizona.

Choice of a site for the astronomical observatory has been narrowed to three locations: Kitt Peak (6875 feet), 40 miles southwest of Tucson, Arizona; the Hualapai Mountains (7350 feet), 13 miles south of Kingman, Arizona; and Mormon Mountain (8440 feet), 35 miles south of Flagstaff, Arizona. A final decision about the site is expected in the middle of 1958. Initial plans for the instruments call for an 80-inch and a 36-inch telescope.

News Briefs

A newly formed subsidiary of Beckman Instruments, Inc., will occupy a new plant under construction in Glenrothes, Scotland. The new facility will engage in the manufacture of precision potentiometers for electronic instruments and systems.

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The Board of Managers of Haverford College, a Quaker institution, announced recently that the college would not sponsor any applications for research grants from the Department of Defense.

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The number of mental patients in the United States is decreasing for the second straight year, it has been announced by F. Barry Ryan, Jr., president of the National Association for Mental Health. There was an estimated decrease of 5000 patients between June 1956 and June 1957, and in 1956 there was a total decrease of more than 7000 patients.

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The U.S. Department of Agriculture has begun a cooperative federal-state-local program for eradication of the imported fire ant. Eradication and control measures have begun in Louisiana and Georgia; they will be extended to other states.

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Formation of Vitro International, with headquarters in Switzerland, was announced recently by J. Carlton Ward, Jr., president of Vitro Corporation of America, New York. The new division will represent all Vitro operations overseas.

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A certificate of award and a silver cup have been presented to Argonne National Laboratory for a motion picture about its experimental boiling-water reactor. The award was won by the Argonne film at the Fourth International Electronic and Nuclear Energy Exhibition and Conference, held in Rome, Italy. Presentation was made at the U.S. Atomic Energy Commission's headquarters in Washington, D.C.