But there is a great difference, at least in terms of political tactics. When there is a war there is no argument about the need to spend the money, and therefore no occasion for justifying or opposing the spending in terms of what it might do for or to the economy.

During a recession, declining tax revenues produce a deficit whether the Administration or Congress wants it or not, and the only question is the size of the deficit.

The problem Kennedy faces is in asking for a deficit neither in war nor in recession but in fiscal 1962 and 1963, when the economy, it is assumed, will be on the upswing. To win support he must convince the country that the combination of the innate value of the programs on which the money will be spent and the importance of pushing economic growth add up to as compelling an argument for more spending as either the needs for arms programs in wartime or for government stimulation during an actual recession provide by themselves. This implies a great effort at public education. Walter Lippmann recently wrote a column arguing that the President must not only undertake to be the national leader but the national teacher, and the White House has let it be known that Kennedy will begin this task in earnest through a series of television broadcasts to begin within a few weeks.

The difficulty of the task must be measured by the degree of public understanding that already exists. Congressman Curtis' lengthy speech in the House attacking Kennedy's economics, for example, began with a demonstration that the rate of growth under Eisenhower was 4.6 percent a year rather than 2.5 percent a year as Kennedy has claimed.

Curtis arrived at this conclusion by the simple device of not bothering to take into account price inflation. He was aware of this, but apparently saw nothing wrong with it, for he describes the method by which Kennedy arrived at the lower 2.5 percent in a context that implies there was something sneaky about the way Kennedy's figures were adjusted to take into account price inflation.

What was more curious than Curtis' argument, which might be dismissed as questionable but widely used political tactics, was that a widely published middle of the road reporter wrote a column praising Curtis' "brilliant" presentation, and in particular his demonstration that the rate of growth under Eisenhower was higher than Kennedy had said it was.

In a similar vein, Senator Goldwater recently argued that the Administration was exaggerating the recession. The Senator pointed out that although unemployment normally rises in January, contrary to the normal pattern the seasonably adjusted unemployment rate had actually declined this January. Unemployment had in fact gone up by a million in January, but Goldwater apparently did not choose to recognize the meaning of the term "seasonally adjusted."

This does not mean that there are not good arguments against Kennedy's proposals, especially philosophical ones dealing with the proper role of the government in a free society. But the frequency with which responsible figures make arguments that would flunk them in a freshman course in economics suggests the difficulty the Administration faces in getting across to the public the reasoning behind his proposals.

The Administration's greatest problem in economic policy is one that it faces almost everywhere in its program, and particularly in education. There is a wide gap between the ease with which it can get across the idea that something should be done and the ease with which it can get across the idea that although we are already doing a good deal we should be doing still more.

In economics, the Administration needs to get across the basis for proposing stimulation when the economy is growing and reaching new highs of output. This is a difficult notion to put across, while the contrary argument of why tinker with a system that produces new record highs almost every year is a very simple argument.

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On another problem, the Administration's team of negotiators set off for the Geneva talks, resuming the 21st, after a round of luncheons and briefings intended to convince the Senate Foreign Relations and Atomic Energy Committees that the U.S. position at Geneva would be based on a tough-minded balancing of the risks involved in either reaching or failing to reach agreement, and that, therefore, if agreement is reached with the Russians, the Senate would ratify the treaty. Word leaking out of the briefings suggested that the effort was not entirely successful.—H.M.

# News Notes

## Biologists Speak Out Against Bills To Regulate Animal Use

Many American biologists have expressed opposition to proposed federal legislation to regulate research in which experimental animals are used. Their position is stated in the February *Bulletin* of the American Institute of Biological Sciences, in an article by Hiden Cox, the editor.

Four bills, the Cooper Bill in the Senate and three identical House bills, were introduced in the 86th Congress. None was passed. A similar bill, H.R. 1937, has been introduced in the 87th Congress by Representative Griffiths (D-Mich.). The Cooper Bill provided in its preamble for "the humane treatment of animals used in experiments and tests by recipients of grants from the United States and by agencies and instrumentalities of the United States Government. . . ."

The *Bulletin* article reports the reactions to the bill of a number of biologists and biological organizations. The *Bulletin* itself takes no stand on the legislation, but Cox explains the attention given the measure in the journal in these words:

"To the surprise of few, the Cooper Bill was greeted by something less than unanimous enthusiasm. All biologists, directly or indirectly, are affected by provisions of this bill. Since this or any similar bill is aimed straightway at the research programs of a large share of biologists, the *Bulletin* should provide a means by which biologists can have their say. . . ."

The article begins by quoting a resolution adopted on 28 October 1960 by the Animal Care Panel, an organization of veterinarians, scientists, and others. The resolution declared that the bills introduced in the 86th Congress would "permit an unwarranted encroachment upon the research worker's freedom . . . delay the testing of new concepts and ideas and would hinder and restrict medical and biological research. . . ." The resolution also said that the bills contain "no constructive provisions to deal with the real current needs in the field of laboratory animal care" and would "retard the objective of rational humane care for laboratory animals."

Maurice Visscher of the University of Minnesota, former president of the

American Physiological Society, comments that the Cooper bill provided, "according to a strict interpretation," that living vertebrate animals may not be used for teaching purposes, to increase knowledge in pure science, or even in agriculture or animal husbandry, but only for medical and military purposes.

One section of the bill, he observes, "sets up an absurd regulation, namely that all animals used for surgical training be sacrificed before the most important results of the surgery are known. Survival of the patient is the most important objective in surgery and only a fanatic would want to deprive young surgeons of opportunity to learn how to accomplish this." Visscher also says that, although anticruelty laws exist, "no professional scientist has ever been convicted of cruelty in relation to a scientific laboratory experiment."

A. B. Otis, professor and head of the department of physiology at the J. Hillis Miller Health Center of the University of Florida, points out that legislation such as the Cooper bill "would add significantly to the cost of administering government-supported research, and the amount of paper work involved . . . would hamper productivity of medical research." The bill, he says, "provides for nothing positive in the way of education or research that would lead to continuing improvement in the care of animals."

Lester R. Dragstedt, Chicago, president of the National Society for Medical Research, comments: "It is not reasonable to assume that police inspectors could be hired by the Secretary of Health, Education and Welfare who would be wiser, kinder and better qualified technically to supervise the conduct of scientific research than are the university presidents, deans of medical schools, directors of research institutes and academic department heads who now bear the responsibility for the character of animal research in the United States." If the Cooper bill were strictly interpreted, Dragstedt writes, "this would stop all medical and biological research except [that] on plants and microbes for thousands of years until scientists could be sure that every possibility for the use of such lower forms of life in the solution of medical problems has been exhausted. . . ."

Cox notes in concluding his article that last year a subcommittee of the AIBS Committee on Education, headed by G. Ladd Prosser of the University of Illinois, issued a code for use of animals in high school biology courses. Cox cites it as "one of many evidences" that scientists "are and long have been concerned with humane treatment of laboratory animals."

## Land-Grant Colleges Commemorate Founding, Plan for the Future

Sixty-eight American colleges and universities are preparing to celebrate a centennial—the establishment of the land-grant system of higher education. The actual anniversary is 2 July 1962, but a steering committee of educators already has scheduled a series of programs for 1961 and 1962. At centennial headquarters in Washington, D.C., arrangements have been made for nation-wide conferences, seminars, and exhibits to focus attention on the origin of the institutions and on their contributions to the economic, cultural, and scientific growth of the United States.

### Established during the Civil War

The land-grant system, which was developed in the Civil War period, was based on the concept that learning should be practical as well as academic, and that it should be open to all, not just to a privileged few.

Congressional legislation to that end was first drawn up by Representative Justin Smith Morrill of Vermont. In final form, it provided for a federal grant of land to each state, apportioned at the rate of 30,000 acres for every senator and representative. With money from sale of the land, each state was to establish and endow "at least one college where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts."

Forward-looking men supported the Morrill bill in the belief that widespread knowledge and training were essential to the nation's agricultural and industrial progress. But opposition was heavy. Though passed by a small majority in 1859, the measure was vetoed by President Buchanan on grounds of expense, potential land speculation, competition with existing universities, and infringement of states' rights.

A similar bill was passed and signed into law by President Lincoln on 2 July 1862. Its support owed much to the provisions for military training; the lack of such training had been painfully apparent in the North's losses earlier in 1862.

### Land-Grant Institutions Today

Today land-grant institutions flourish in all 50 states and Puerto Rico. Twenty percent of all U.S. college students are enrolled in them. These schools confer all the doctoral degrees awarded in agriculture throughout the nation, about half of those awarded in sciences, engineering, and health professions, and a quarter of those awarded in arts, languages, business, and education. To these institutions goes much of the credit for extending the teaching of the humanities throughout the United States.

The colleges and universities that grew out of the Morrill legislation now play a vital role in programs providing American technical aid abroad. Through the Reserve Officers Training Corps, they also prepare nearly half the civilian-trained regular and reserve officers of the armed forces.

The land-grant institutions are responsible for advances in farming methods, new drugs to treat disease, and basic studies of raw materials used in industry. Their pioneering research in atomic-age sciences produced the first cyclotron.

Leaders of the Land-Grant Centennial plan to open discussions that are expected to have far-reaching effects on the nation's future.

## Science Foundation Announces Summer Training Programs for High School Students

More than 9000 secondary school students of superior ability are being given the opportunity, by the National Science Foundation, to obtain tuition-free science training during the summer of 1961. The foundation has announced the award of 180 grants, amounting to $2 million, for summer science training programs for secondary school students of high ability. A total of 158 colleges, universities, and nonprofit research organizations are developing special programs and using their faculties to provide instruction.

Programs being offered are of two main types. One stresses lectures, quizzes, supervised study periods, laboratory work, and field trips centered around one or more areas of science. The other gives the student real research experience by enabling him to work on a

project of appropriate scope under the guidance of experienced scientists. Some programs combine elements of both types.

### New Program Included

A third type, the Cooperative College-School Science Program, new and experimental in nature, is being included this year, with 19 programs at 17 institutions. It is designed to further the development of more rigorous curricula in secondary school science and mathematics. It will provide advanced training for about 2700 talented secondary school students and 50 secondary school teachers.

Admission to the training programs will be determined by the sponsoring institution, not by the National Science Foundation. In general, selection will be based upon scholastic ability, scientific motivation, and the completion of specified high school courses in science and mathematics. Students now in the 10th, 11th, and 12th grades are eligible. It is expected that the great majority of those selected will have completed their sophomore or junior years.

Partial support for participation will be available, so that students whose families cannot afford to pay all expenses for attendance at an institution will not be penalized. Students will be expected to meet as much of the expense as possible.

A list of the institutions where training programs for secondary school students will be held this summer, the name of the director at the institution, and the kind of program offered may be obtained from the National Science Foundation, Washington 25, D.C.

## News Briefs

**President's committee.** The new members of the President's Science Advisory Committee, which is under the chairmanship of Jerome Wiesner, are Gerald R. Zacharias of Massachusetts Institute of Technology, Paul M. Doty of Harvard University, Harold Brown of the University of California's Lawrence Radiation Laboratory, and Frank Press of California Institute of Technology.

Members of the committee appointed by the previous Administration who have been asked to complete their terms are Detlev W. Bronk, Walter H. Zinn, George B. Kistiakowsky, Harvey Brooks, Wolfgang Panofsky, Donald F. Hornig, John W. Tukey, Robert F. Loeb, Alvin M. Weinberg, John Bardeen, and Emmanuel R. Piore.

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**Biology program in Costa Rica.** The department of biology of the University of Southern California has announced that an advanced biology institute for junior college, college, and university instructors, entitled "Fundamentals of Tropical Biology: An Ecological Approach," will be held in Costa Rica, with the cooperation of the Universidad de Costa Rica, 3 July–11 August. The project is supported by the National Science Foundation. Headquarters of the institute will be at the university, in San José, but there will be 10 days of field work and instruction, in English, in all major tropical habitats within the country.

The project is headed by J. M. Savage and Andrew Starrett of the University of Southern California and Rafael L. Rodríguez of the university in San José. The institute is open to any teacher of biological sciences, whether or not he or she has been concerned with biology of the tropics. Participants will receive travel expenses and a per diem allowance. For information, write to: Jay M. Savage, Department of Biology, University of Southern California, Los Angeles 7, Calif.

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**1962 Limnology congress.** The 15th International Congress of Limnology will be held at the University of Wisconsin, 20–25 August 1962. The congress is sponsored in North America by the American Society of Limnology and Oceanography and cosponsored by the National Academy of Sciences–National Research Council and the International Society of Theoretical and Applied Limnology. The congresses are held triennially, and all previous congresses have been held in Europe. Inquiries should be addressed to: The XVth International Congress of Limnology, Dr. John C. Wright, Birge Hall, University of Wisconsin, Madison 6.

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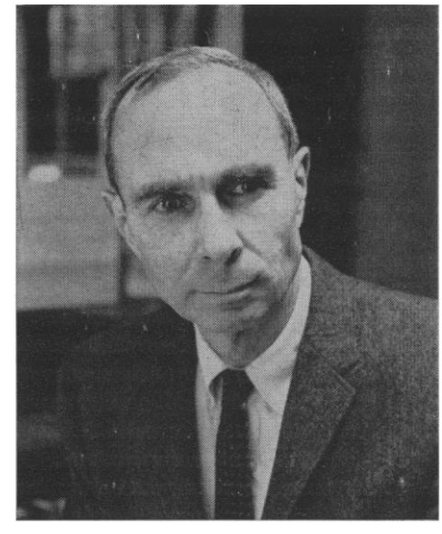
**Medical electronics.** The 4th International Conference on Medical Electronics, in combination with the 14th Annual Conference on Electrical Techniques in Medicine and Biology, will be held at the Waldorf-Astoria, New York, N.Y., 16–21 July. The conference is sponsored by the Joint Executive Committee on Medicine and Biology (IRE, AIEE, ISA), under the auspices of the International Federation for Medical Electronics. It is organized by the Institute of Radio Engineers through its Professional Group on Bio-Medical Electronics.

Anyone wishing to participate should submit an abstract of 300 words for preliminary review and a 50-word summary of his contribution for inclusion in an advance program; these should be sent *before 1 April* to Dr. Herman P. Schwan, Program Chairman, Moore School of Electrical Engineering, University of Pennsylvania, Philadelphia 4, Pa. Abstracts and digests may be in English, French, German, or Russian.

## Scientists in the News

**Philip J. Darlington, Jr.**, of the Museum of Comparative Zoology at Harvard University, has won the National Academy of Sciences Daniel Giraud Elliot Medal for his 675-page study, *Zoogeography: The Geographical Distribution of Animals.* The medal, awarded for the most meritorious work in zoology or paleontology published during a previous year, will be presented during the annual meeting of the academy in Washington on 24 April.

A member of the museum staff since 1932, Darlington is now Fall curator of Coleoptera and curator of insects. He is especially known for his taxonomic work on ground beetles and for his study of the distribution of animals over the earth. For some 30 years he has collected insects, birds, amphibians, and reptiles for the museum in Australia and the West Indies.



Philip J. Darlington, Jr.

Among the six outstanding career civil servants who have been selected to receive the 1960–1961 Rockefeller Public Service Awards of $3500 each are the following:

**Sterling B. Hendricks**, chief scientist, Mineral Nutrition Laboratory for Pioneering Research, Agricultural Research Service, U.S. Department of Agriculture (in the area of science and technology).

**Richard E. McArdle**, chief, Forest Service, U.S. Department of Agriculture (in the area of conservation and resources).

**Conrad L. Wirth**, director, National Park Service (also in the area of conservation and resources).

These awards, which will be presented at a luncheon in Washington in April, are made possible by a fund established by John D. Rockefeller III that is administered by the Woodrow Wilson School of Public and International Affairs at Princeton University.

Although the fund has been administered since 1952, this year the character of the awards has changed, for previously they were designed to make additional self-training possible for government employees in mid-career. With the passage of the Training Act of 1958, which gave broad training authority to all executive agencies of the government, a principal objective of the original awards was realized. Therefore the new Rockefeller Public Service Awards Program places primary emphasis on achievement and long and distinguished career service.

The $5000 Rumford Premium of the American Academy of Arts and Sciences was awarded on 8 March to **Charles H. Townes**, professor of physics at Columbia University, originator of the maser. (The word is an acronym deriving from *m*icrowave *a*mplification by *s*timulated *e*mission of *r*adiation.) The award recipient must be "the author of the most important discovery or useful improvement which shall be in any way made known to the public . . . on Heat or on Light; the preference always being given to such discoveries as shall . . . tend most to promote the good of mankind."

The maser, which is being further developed by a research team under Townes's direction, has enabled astronomers to determine such matters as the temperatures of Venus and Jupiter. In other fields it is used to measure time, to improve long-distance communications, to check Einstein's special theory of relativity, and as a tool in molecular and electronic research.

In 1960 Townes and A. L. Schawlow of the Bell Telephone Laboratories announced the development of an optical maser which is expected to have great importance in the field of space communications.

**I. I. Rabi**, professor of physics at Columbia University, was honored by the Society for International Scientific Relations at a dinner meeting on 28 February at Columbia's Faculty Club. On behalf of the society, Detlev W. Bronk, president of the National Academy of Sciences, presented a medal to Rabi for his outstanding contributions to science and society. Rabi delivered an address on "Science and Public Policy."

**Sydney Chapman** of the High Altitude Observatory, Boulder, Colo., will discuss "Sun Storms and the Earth" as a Sigma Xi national lecturer at a number of colleges and universities during April.

**Marvin L. Goldberger**, professor of physics at Princeton University, has been awarded the Heineman Prize for outstanding achievement in mathematical physics. He will receive the $2500 prize on 26 April at the annual dinner of the American Physical Society, in Washington. The award is endowed by the Heineman Foundation and administered by the American Institute of Physics. A committee appointed by the American Physical Society selects the winner.

**Sherwood L. Washburn**, professor of anthropology at the University of California, Berkeley, was accorded one of the highest honors in his field on 3 March, when he was awarded the Wenner-Gren Foundation's 1960 Viking Fund Medal and $1000 prize. Washburn, who is an expert on baboon behavior, was nominated for the award by the American Association of Physical Anthropologists.

**Pierre L. Balligand** will succeed **Hubert de Laboulaye** as deputy director general in charge of the department of technical operations at the International Atomic Energy Agency, Vienna. Balligand is the head of the "service des grandes piles experimentales" (the division of large research reactors) of the French Commissariat à l'Energie Atomique. De Laboulaye will leave the IAEA toward the end of March to return to a senior position with the French Commissariat.

**Herbert Friedmann**, head curator of zoology at the U.S. National Museum, Washington, D.C., has been named director of the Los Angeles County Museum in Exposition Park, Los Angeles, effective 1 April.

## Recent Deaths

**Floyd E. Bartell**, Ann Arbor, Mich.; 77; professor emeritus of chemistry at the University of Michigan and a colloidal chemist; on the faculty for 43 years before retiring in 1953; 5 Mar.

**Johannes H. Bauer**, Baltimore, Md.; 71; internationally known research physician; a pioneer in developing a vaccine for yellow fever, he did most of his work through the Rockefeller Institute, was in charge of the laboratories of the International Health Division of the Rockefeller Foundation in New York; 4 Mar.

**Enzo Beri**, Italy; professor and chairman of the department of human physiology, Medical School, University of Ferrara, Italy; director of Group 3-C of the Biology Division of the Italian Nuclear Research Center; former Rockefeller fellow at the Nobel Institute for Medical Research in Stockholm, under H. Theorell, and a former research associate at the Johnson Foundation of the University of Pennsylvania, under Britton Chance.

**Maurice B. Linford**, Urbana, Ill.; 59; professor of plant pathology, University of Illinois; formerly head of the plant pathology department, Pineapple Research Institute of Hawaii, where he did notable work in plant nematology; 24 Sept.

**Lord Stopford** (John Sebastian Bach Stopford), Arnside, Westmoreland, England; 72; anatomist, who was vice chancellor of Manchester University from 1934 to 1956; was one of the first 14 persons to be granted life peerage, in 1958; professor of anatomy at Manchester (from 1919 to 1937) and dean of its medical school; wrote *Sensation and the Sensory Pathway*, in 1930, and many papers on anatomy, education, and neurology; had held many important posts, including the chairmanship of the Universities Bureau of the British Empire; 6 Mar.