News Notes

Snow Pleads for More Scientists in Government: Warns of Secret Politics, Citing Wartime Incident

Scientists are needed in the top levels of government to keep "our sense of the future" in focus, says C. P. Snow, British physicist and novelist. Snow, who has explored the lives of modern scientists in a series of novels, *Strangers and Brothers*, gave the last of three Godkin Lectures on "Science and Government" at Harvard University early this month. He pointed out that, by contrast with the Communist nations, which are "future directed societies," the nations of Western Europe and the United States are becoming "existential societies." He said, in part:

"We seem to be flexible, but we haven't any model of the future before us. In the significant sense, we can't change. And to change is what we have to do.

"*That* is why I want scientists active in all the levels of government. By 'scientists' here I mean people trained in the natural sciences, not only engineers, though I want them too. I make a special requirement for the scientist proper, because, partly by training, partly by self-selection, they include a number of speculative and socially imaginative minds. . . . Engineers—more uniform in attitude than one would expect a professional class to be—tend to be technically bold and advanced but at the same time to accept totally any society into which they may have happened to be born. The scientists proper are nothing like so homogeneous in attitude, and some of them will provide a quality which it seems to me we need above everything else.

Soviet Scientists in Government

"I don't merely mean here that, if we had scientists of any kind diffused through government, the number of people helping to influence secret choices is bound to increase. That is true. In my view, it would be a real gain. It is a clear advantage to the Soviet Union that they have, right at the top of the political and administrative trees, a fairly high proportion of men with scientific or technical training. The proportion of these men in the top executive organs, or among high-ranking diplomats, seems to be somewhere between 35 and 45 percent, which is far higher than in the U.S. or England. In the fields where they have made better technical choices than either of us—and there are plenty—this collective influence has no doubt been a help. But, though that is a real gain, it is secondary to what I have most in mind.

Urgent Need for Foresight

"I believe scientists have something to give which our kind of existential society is desperately short of—so short of that it fails to recognize of what it is starved. That is foresight.

"I am not saying, of course, that all scientists have foresight and no one else has. Foresight is a fairly rare quality . . . it isn't quite knowledge. It is much more an expectation of knowledge to come. It is something that a scientist, if he has this kind of sensitivity . . . , picks up during his scientific experience. . . .

"Any scientist realizes that his subject is moving in time—that he knows incomparably more today than better, cleverer, and deeper men did 20 years ago. He knows that his pupils, in 20 years, will know incomparably more than he does. Scientists have it within them to know what a future directed society feels like, for science itself, in its human aspect, is just that. That is my deepest reason for wanting scientists in government. . . .

"We [in the West] are immensely competent; we know our own pattern of operations like the palm of our hands. It is not enough. That is why I want some scientists mixed up in our affairs. It would be bitter if, when this storm of history is over, the best epitaph that anyone could write of us was only [this]: 'The wisest men, who had not the gift of foresight.' "

The Danger of Secret Decisions

To illustrate his thesis of the need for more scientists in government, Snow described, in the second of his Godkin Lectures, a heretofore undisclosed incident that took place in England during World War II as an example of the risk involved in the "secret choices," made by a mere handful of men, that today critically affect the future of the advanced countries, now so dependent on science and technology. He told the story of conflict between Sir Henry Tizard, the man who pushed the development of radar before World War II, and Lord Cherwell, who was Winston Churchill's scientific adviser.

In 1942, Lord Cherwell urged strategic bombing. Tizard and P. M. S. Blackett, another physicist, found, on scientific grounds, that Lord Cherwell's estimates of the effectiveness of strategic bombing were five or six times too high. This indicated that a different strategy, both for production and for use of troops, was required. But Lord Cherwell's policy, backed by the Air Ministry, was put into effect, and Tizard was pushed out of the scientific councils of Great Britain.

After the war's end, the strategic bombing survey found that Cherwell's estimates had been ten times too high. Snow commented:

"It was not easy for [Tizard] to be called a defeatist. It was even less easy to be shut out of scientific deliberations, or to be invited to them on condition that he did not volunteer an opinion unless asked. It is astonishing in retrospect that he should have been offered such humiliations. I do not think that there has been a camparable example in England in this century. . . .

"He believed, both in his dignified exile in Oxford and to the end of his life, that if he had been granted a fair share of the scientific direction between 1940 and 1943, the war might have ended a bit earlier and with less cost. As one goes over the evidence, it is hard not to agree with him."

A new book by Snow entitled *Science and Government,* from which the Godkin Lectures are drawn, will be published next spring by Harvard University Press. It will be a Book-of-the-Month Club selection.

Seaton Sets Aside Alaskan Wildlife Areas

Secretary of the Interior Fred A. Seaton announced on 8 December that he had issued orders reserving some 11 million acres of federal lands in Alaska for wildlife. Some 8,900,000 acres have been set aside for the Arctic Wildlife Range, 1,400,000 acres for the Kuskokwim National Wildlife Range, and 415,000 acres for the Izembek National Wildlife Range. Conservationists have pressed for such action for years.

The Arctic Wildlife Range is to be located in northeastern Alaska in an area not presently inhabited. Canada is expected to establish a comparable, and adjacent, area. The ranges are needed to protect Arctic caribou, grizzly bears, Dall sheep, moose, and marine animals,

whose numbers are dwindling, and to provide nesting grounds for migratory waterfowl, as well as to preserve a unique portion of the Arctic for scientific study.

The Kuskokwim and Izembek National Wildlife Ranges are located on lands in the public domain. The Kuskokwim and Izembek regions are important, respectively, as nesting and congregating areas for waterfowl.

Enrollment Leaps, But More Is Spent on Gambling than Education

Fall enrollment of full- and part-time students reported by the nation's colleges and universities at the beginning of the 1960–1961 scholastic year reached the all-time high of 3,610,007, the U.S. Office of Education reports. The 1960 fall enrollment exceeds the 3,402,297 enrollment of 1959 by 6.1 percent. This is the ninth consecutive year that a rise has been reported. The number of students enrolled in college for the first time rose to 929,823, a jump of 12.4 percent over 1959.

The 1960 enrollees included 2,270,640 men and 1,339,367 women as compared with 2,173,797 men and 1,228,500 women in the fall of 1959. The percentage increase for men was 4.5; for women it was 9.0.

Yet, despite these figures, the Council for Financial Aid to Education reports that Americans spend $20 billion a year for legalized gambling, while only $4.5 billion goes for higher education. The council also reports that experts estimate that by 1970 college applications will have doubled. And the tuition usually paid by a college student covers less than half the actual cost of his education. The balance must somehow be made up by the institution.

Latin-American Medical Research Agreement Announced

An agreement to aid in the administration of medical research activities in the countries of the Americas has been announced jointly by the Pan American Health Organization and the United States Public Health Service. The agreement, issued as a "statement of arrangements" between the two organizations, focused on three primary points: (i) staff collaboration between the two organizations, (ii) development of PAHO research activities, and (iii) definition of forms of Public Health Service aid that might be applied to PAHO research activities.

The Pan American Health Organization will provide moderate financial support to certain research projects and programs, conduct research by its own staff, provide coordination for research projects involving more than one country, and aid in the development of scientists, scientific communication, and other medical research activities.

The U.S. Public Health Service, under the agreement, will provide technical advice on research design. In addition, PHS will consider research-grant proposals from investigators who may wish to participate in research programs coordinated by PAHO and applications for support to PAHO for research conducted or coordinated by the PAHO staff.

Continuing responsibility within the Public Health Service for development of program plans and specific details will be delegated by the Surgeon General to the Office of International Research Activities at the National Institutes of Health.

News Briefs

Geneva talks adjourn. The international nuclear test-ban conference in Geneva is in recess until after President-elect John F. Kennedy takes office. The United States proposed that the talks adjourn until 7 February, and Britain and the Soviet Union readily agreed. The final session, on 8 December, was the 273rd of the 2-year-old conference.

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Californium. The first pure chemical compounds of the man-made element californium have been produced at the University of California, Berkeley, by Burris B. Cunningham and James C. Wallman of the Lawrence Radiation Laboratory. Californium is element 98 in the periodic table. The compounds—californium trichloride, californium oxychloride, and californium oxide—were prepared by treatment of californium and hydrochloride acid and steam at high temperatures.

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Radiation protection. The Federal Radiation Council is considering the problem of providing radiation protection guides for selected radionuclides to be used in the control of human exposure from environmental sources. The council invites public comment on the basic issues involved in this problem. To insure effective consideration, comments should be transmitted by 14 February 1961. For an outline of the problem, copies of *Radiation Protection Guidance for Federal Agencies*, and of the related Staff Report No. 1, may be obtained from: Chairman, Federal Radiation Council, Executive Office Building, Washington 25, D.C.

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NSF awards. The National Science Foundation has announced 376 science faculty and senior postdoctoral fellowship awards for 1961. Some 285 college and university faculty fellowship winners were selected from 754 applicants from all parts of the United States and its territories; 91 recipients of senior postdoctoral fellowships were selected from 275 applicants.

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Report on Soviet abstracting. The National Federation of Science Abstracting and Indexing Services (301 E. Capitol St., Washington 3, D.C.) has released *Some Counterparts in Perspective*, a detailed report on visits in 1959 to the Soviet All-Union Institute of Scientific and Technical Information, the Polish Central Institute for Documentation in Science and Technology, the Excerpta Medica Foundation, and the Danish Technical Information Service. The volume was prepared by D. B. Baker, G. M. Conrad, J. C. Green, M. Hoseh, and R. A. Jensen.

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UNESCO survey. UNESCO's South Asia Science Cooperation Office is conducting a survey in South Asia of nongovernmental organizations for the promotion of science. The office has requested associations and societies in the fields of the natural sciences to complete a questionnaire. Scientific organizations which may have been overlooked are requested to communicate as soon as possible with the UNESCO Office (21 Curzon Road, New Delhi 1, India).

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Biology style manual. The American Institute of Biological Sciences (2000 P St., NW, Washington 6, D.C.) has announced that the new *Style Manual for Biological Journals* is available at $3 a copy. The manual is designed for biologists preparing manuscripts for publication in scientific journals. Style is interpreted broadly to include forms of expression in scholarly writing and

general technical requirements of journals, such as form of typed manuscripts, standard abbreviations, and form of reference citations.

The Conference of Biological Editors' Committee on Form and Style, under the chairmanship of J. R. Porter, worked for 3 years in preparing the manual, which was read in draft form by approximately 100 editors and publishers. The editorial boards of 76 biological journals have adopted the manual in whole or in part.

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Massachusetts Hospital anniversary. The Massachusetts General Hospital will celebrate its 150th anniversary with a 3-day convocation 31 January–2 February. An extensive program of scientific symposia has been planned. For information, write to Joseph E. Garland, Massachusetts General Hospital, 275 Charles St., Boston 14, Mass.

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Research association formed. A new organization, the British Industrial Biological Research Association, has been formed in England to study the possible effects upon health of substances which may be ingested in food, drink, and cosmetics. Supported by a number of leading companies, it is welcomed by interested government departments and will receive a grant from the Department of Scientific and Industrial Research. The association's main object is the establishment of a biological re-research station. Although some of the larger companies in the food and chemical industries have their own research facilities, until now there has been no national industrial organization in England with responsibility for work of this kind.

Grants, Fellowships, and Awards

Cerebral palsy. The United Cerebral Palsy Research and Education Foundation, Inc. (321 W. 44 St., New York 36, N.Y.) has announced that the following changes have been made in the deadlines for submission of applications for research and training grant support by the foundation. For funds made available on 1 July, the application deadline is *15 January*; for funds available on 1 January, the deadline is *15 July*. Applications received after these deadlines will automatically be held over for consideration during the subsequent fund-granting period.

However, the foundation has allocated a certain portion of its funds as fluid capital, which enables it to consider, between the usual meetings of its scientific advisers, special projects that may require support on an emergency basis. Applications for the support of projects of this nature will be considered for prompt action if, in the opinion of the foundation, the circumstances warrant such consideration.

Foreign. The twelfth edition of the United Nations' *Study Abroad* is now in print. It contains information on some 100,000 individual opportunities for international study and travel in 1961 and 1962. These scholarships and fellowships are offered in a wide range of fields and at all educational levels; they vary in duration from about 2 weeks to 8 years.

The new edition may be procured from the UNESCO Publications Center and from the Columbia University Press. Approximate price, $3.

General, for women. Sigma Delta Epsilon, Graduate Women's Scientific Fraternity, has announced a small grant that is available to any woman who (i) holds a degree from a recognized institution of higher learning and (ii) has demonstrated outstanding ability in research in one of the mathematical, physical, or biological sciences. The award may be applied either directly to a research project or to course work, provided the latter is relevant to the proposed research program.

Appointments will be made irrespective of race, nationality, creed, or marital status. Preference will be shown to applicants 35 years of age or older, but this limitation is not absolute.

Application blanks may be obtained from Dr. Ruth V. Dippell, Zoology Department, Jordan Hall 218, Indiana University, Bloomington, Ind. The application deadline is *1 February*.

Miniaturization. Miniature Precision Bearings, Inc., invites entries for its Miniaturization Award competition, conceived to give recognition to the outstanding miniaturization achievements of the year and to increase public awareness of significant advances in the field of miniaturization. For information and entry forms, write to the Miniaturization Award Committee, Box 604, Keene, N.H. The deadline for the 1960 competition is *10 January 1961*.

Rumania and Poland. The Institute of International Education has announced that fellowships for graduate study in Rumanian and Polish universities are being offered to American students for the academic year 1961–62. The awards are open to both men and women, in any field of study. Candidates must be at least 21 years old, must be U.S. citizens, and must have the necessary foreign language. While married persons may apply, no funds will be available for the support of dependents. Applicants for the Rumanian scholarships should have at least a year of graduate training; a bachelor's degree is required of candidates for the Polish awards.

Application forms, which must be returned by *15 January*, may be obtained from the Institute of International Education, 1 E. 67 St., New York 21, N.Y., or from one of the institute's regional offices.

Social sciences. The Division of Social Sciences of the National Science Foundation has announced that the next closing date for receipt of basic research proposals in the social sciences is *1 February 1961*. Applicants will be advised approximately 4 months later of the disposition of proposals received prior to that date. Proposals received after the February closing date will be reviewed after the spring closing date of 1 May. Inquiries should be addressed to the National Science Foundation, Washington 25, D.C.

Scientists in the News

George Feher, on leave from Bell Telephone Laboratories as professor of physics in the School of Science and Engineering at the University of California, La Jolla, received the American Physical Society Prize of $2500, sponsored by the Hughes Aircraft Company, during the society's annual Thanksgiving meeting. Feher was honored "for originating and developing the electron-nuclear double resonance technique and for applying it in solid state and nuclear research," work he conducted while at the Bell laboratories.

Charles J. Fish, professor of marine biology at the University of Rhode Island, has resigned from his administration duties as director of the Narragansett Marine Laboratory, North Kingston. He asked to be relieved of these duties because of the growing program of basic research supported by the Navy, for which he is primarily responsible. In addition to heading this work he will continue as a faculty member. Fish has directed the Marine Laboratory for 25 years. In October a new laboratory building was dedicated in his honor.

Ralph P. Stein, formerly director and technical adviser of the AEC-supported Heat Transfer Research Facility at Columbia University, has accepted a position with the Nuclear Development Corporation of America as advisory engineer and manager of the engineering department, Heat Transfer Section.

The Institute of Physics and The Physical Society of Great Britain, which recently amalgamated, have made three recent awards.

J. B. Adams, the director-general of the European Organization for Nuclear Research, has received the Duddell Medal for his leadership at CERN.

A. W. Merrison of the University of Liverpool has received the Charles Vernon Boys Prize for his distinguished research in experimental physics.

S. E. Forbush of the Carnegie Institution of Washington has received the Charles Chree Medal and Prize for his work on cosmic radiation.

Eugene Sullivan, honorary chairman of the board and a director of Corning Glass Works, has been named the 1961 recipient of the Albert Victor Bleininger Award. This award, presented annually by the Pittsburgh Section of the American Ceramic Society, is one of the highest honors conferred in this country for distinguished achievement in the field of ceramics.

Sullivan, a chemist who is often called the founder of organized research in glass, began his work with Corning in 1908. He is best known for the development of boro-silicate glasses, such as those used in Pyrex cooking and dinner ware and in chemical glassware.

Janwillem van den Berg of the University of Gröningen in the Netherlands has received the 1960 Gould Award of the William and Harriet Gould Foundation for his contributions to laryngeal physiology. The award is presented annually for outstanding laryngeal research. The candidate is selected by an international committee, of which Hanis von Leden of 30 North Michigan Ave., Chicago, Ill., is at present a member.

James F. Haggerty recently joined the staff of the National Cancer Institute as chief, Research Grants Branch. He was formerly associated with the U.S. Atomic Energy Commission, having spent 9 years on the staff of the Division of Biology and Medicine as biochemist, Medical Research Branch.

H. R. Copson, supervisor of the corrosion section of the research laboratory, International Nickel Co., Inc., Bayonne, N.J., has been awarded the Willis Rodney Whitney Award in recognition of his public contributions to the science of corrosion. The National Association of Corrosion Engineers will present the award to Copson during its 17th annual conference, to be held 13–17 March in Buffalo, N.Y.

Lawrence J. Giacoletto, for 4 years manager of the electronics department of the Ford Motor Company Scientific Laboratory, has been appointed professor in Michigan State University's department of electrical engineering.

G. H. Chidester, chief of the U.S. Division of Pulp and Paper, U.S. Forest Products Laboratory, Madison, Wis., has been named recipient of the 1961 TAPPI Medal, which is administered by the Technical Association of the Pulp and Paper Industry. The presentation will take place during the association's annual meeting, to be held 20–23 February 1961, at the Hotel Commodore in New York.

Abraham Bavley, former assistant director of research for the Gillette Safety Razor Company, has been named manager of the Research Division at the Philip Morris Research Center in Richmond, Va.

The Radiological Society of North America recently awarded gold medals to **Thomas B. Bond** of Fort Worth, Tex., and **Warren H. Cole**, professor and head of the department of surgery at the University of Illinois College of Medicine, Chicago. **Howard P. Doub** of Detroit, Mich., was also honored by the society, receiving a silver tray commemorating 20 years as editor of the journal *Radiology*.

I. T. Haig, secretary general of the Fifth World Forestry Congress, has retired from active service and returned to his home in Asheville, N.C. He has been appointed Carnegie visiting professor of forestry at the University of Hawaii for the academic year 1962–63. Prior to his return to the United States from Rome, in 1958, to take up his duties in connection with the Forestry Congress, Haig was chief of the Branch of Research and Technology in the Forestry and Forest Products Division of the Food and Agriculture Organization.

Recent Deaths

Clifford C. Carr, Wantagh, N.Y.; 61; assistant dean of the School of Engineering at Pratt Institute in Brooklyn and a member of the Pratt faculty since 1920; 9 Dec.

Jaques Cattell, New York, N.Y.; 56; editor of *American Men of Science* and *Leaders in Education*, publisher of the *American Naturalist*, and president of the Jaques Cattell Press, Inc.; established the *Directory of American Scholars* in 1942 under the sponsorship of the American Council of Learned Societies; president of the Science Press Printing Company and pioneer in the use of cold-type composition in scientific publishing; coeditor of *Science*, 1944-45; published a number of books in his "humanizing science series"; 18 Dec.

John T. Lonsdale, Austin, Tex.; 64; director of the Bureau of Economic Geology at the University of Texas and professor of geology; 5 Oct.

Walter Noddack, Bamberg, Germany; 67; widely known scientist who, with his wife, discovered the element rhenium; headed the State Research Institute for Geochemistry, served as a professor at the University of Freiburg, then worked for many years at the University of Berlin; 7 Dec.

E. Vernon Potter, Ventura, Calif.; 52; director, Physics and Electronics Division of the U.S. Naval Civil Engineering Laboratory, Port Hueneme, Calif.; his entire career was in government research laboratories—the Bureau of Mines, the Bureau of Ships, and the Bureau of Yards and Docks—where he was recognized as an authority in the fields of underwater acoustics and electromagnetic radiation; 6 Oct.

Philip A. Shaffer, St. Louis, Mo.; 79; professor of biochemistry at Washington University and former dean of the School of Medicine; first faculty member to receive the title "distinguished service professor"; member of the National Academy of Sciences; specialized in kidney function and, with Alexis Hartmann, devised what became a standard test to determine the amount of sugar in blood; 4 Dec.

Erratum: In the abstract "Binding of reduced diphosphopyridine nucleotide to yeast alcohol dehydrogenase according to chemical relaxation by temperature jumps," by Georg Czerlinski [*Science* **132**, 1490 (18 Nov. 1960)], the four equations at the bottom of column 1 should have read:

$$YADH + H^+ \rightleftharpoons YADH_2^+$$

$$YAD^- + H^+ \rightleftharpoons YADH$$

Equilibria involving hydrogen bonding

Equilibria involving refolding of enzyme(-parts)