News of Science

Nuclear Notes

Thomas E. Murray, commissioner, U.S. Atomic Energy Commission, submitted a statement on the U.S. reactor program to the Joint Committee on Atomic Energy on 18 June that contained the following comments:

"The increasing threat of world destruction compels me to urge again the acceleration of effort on peacetime power reactors.

"The prospect of getting industrial atomic power in the near future is very gloomy. The Government has prematurely abdicated to private industry the primary responsibility for building large power reactors.

"Important reactor types have been "staked out" by individual companies or groups. Yet there is no firm assurance that these and other power reactors will be built in the near future.

"Repeating a recommendation made last February, I again urge the Government to assume the primary responsibility for large reactor construction.

"While continuing to support the Power Demonstration Program, I recommend that the Government construct several large power reactors. These reactors should be located at AEC production facilities thus eliminating the issue of public versus private power.

"A program of large reactor construction would help private industry. It would also enable us to keep our repeated and widely publicized promises to make available the benefit of atomic energy to mankind at an early date.

"I strongly recommend that Congress enact legislation similar to that proposed by Senator Albert Gore and Congressman Chet Holifield. This legislation should provide for a program of large power reactor construction generally along the lines I have proposed and at the locations I have suggested."

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The current issue of *Nucleonics* contains the complete text of the recent speech in Britain by Igor V. Kurchatov on Soviet progress in controlled nuclear fusion. The magazine also presents comments from officials in the atomic energy field here and abroad pertaining to Western policies on the release of similar information.

Sen. Clinton P. Anderson (D-N.M.), chairman of the Joint Committee on Atomic Energy, stated that there is a need for more unclassified discussion:

"Too often the best ideas in basic long-range theory come from people who are entering the field for the first time with brilliant minds, a fresh perspective, and untrammeled by security restrictions—people who are able to think and talk freely. To me, classification of this program merely proves that we lose our main strength in our traditional freedom to search for new ideas when we try to classify basic scientific work such as controlled fusion."

However, Lewis L. Straus, chairman of the Atomic Energy Commission, said he could not predict whether or not the AEC plans any further issuance of unclassified information on the subject: "You will understand that I cannot forecast future actions by the Commission, being one of five members who reach decisions as a group." Sir Edwin Plowden, chairman of the British Atomic Energy Authority, declared: "It is not the present intention of the UK Atomic Energy Authority to make any further release of information on this subject."

D. J. Hughes of the Brookhaven National Laboratory made the following statement:

"In my opinion, the controlled thermonuclear field should be opened up completely in this country, and at once, so that progress will be accelerated. "Kurchatov's speech is a typical high-level technical talk, honest and straightforward, and not an attempt to convey the impression of releasing information without really doing so. It seems very important to me to note that the thermonuclear work represents the first time that the Russians have released information ahead of us."

J. G. Beckerly of the Schlumberger Well Surveying Corp., Houston, Tex., and former director of classification of the AEC, urged: "It is to be hoped that the Kurchatov lecture will stimulate public and private debate on the wisdom of continuing secrecy on controlled thermonuclear reactors. Scientists should realize that the AEC's information policy on fusion power represents a radical departure from the traditional openness of nonweapons basic research in peacetime."

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Last month some 350 scientists participated in a 5-day meeting in Gatlinburg, Tenn. They met for the Sherwood Conference, as it was called, in a theatre, with guards at the door. None would discuss the meeting for publication, but reporters learned that the group was engaged in a nuclear fusion research program.

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For the first time since Canada's atomic project opened in 1947, photographers were permitted to take pictures without restriction. The relaxation of security took place during a visit to the plant by President Sukarno of Indonesia. The step was in line with the policy of Atomic Energy of Canada, Ltd., to end the mistaken belief that work at the project is classified. Virtually all information relating to peacetime uses of atomic energy now is off the secret list.

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Great Britain and the United States have at last come to a limited agreement on the exchange of nuclear information. The pact ends a 10-year ban imposed by Congress on the sharing abroad of certain types of nuclear information. British defense and scientific circles are pleased about the exchange arrangement because it is expected to save millions of pounds and years of effort by eliminating research duplication.

However, the *Manchester Guardian* commented in its 15 June issue that the new pact was a "small agreement" that should be "welcomed but not enthusiastically." The "biggest overlap of efforts" in the atomic field was still in nuclear weapons, The *Guardian* said. It pointed out that no exchange of information in this field was provided for in the agreement.

"In money terms it would not be a bad guess to say that more than £100 million [$280 million] are spent each year in this country on making nuclear bombs." The *Guardian* cited that "waste" of resources involved in making these weapons and said:

"If there were no means of avoiding this waste we should have to shoulder it and be cheerful. But the Americans are doing exactly the same thing."

The *Guardian* called for "an agreement that will allow both countries to shed some of this load."

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The British Medical Research Council's report on nuclear hazards was released recently, and the *New Statesman and Nation* had this to say:

"In discreet and balanced terms the report . . . is the writing on the wall. . . . Statesmen will ignore it at our peril. Sir Anthony Eden can use it in either of two ways or both. He can say 'The scientists have reassured me I can go ahead with the H-bomb tests,' or he can say 'They have warned me we must hurry to reach an agreement to abandon or restrict atom tests.'

"The report shows that the amount of radiation in radioactive materials so far released by the H-bomb tests is not sufficiently serious to affect the human race. But it also shows that persistent tests will raise to a danger point the amount of radio strontium stored in the world's atmosphere."

When Anthony Eden then announced that nuclear tests would be held in the Central Pacific early next year, two British publications commented as follows:

Times Weekly Review: "Three powers —Britain, the United States, and the Soviet Union—have the weapon. All three shrink from the thought that it should ever be used. It is surely time to agree that nothing is to be gained by demonstrating that one or other is momentarily leading in the race of destructive invention. It should surely be possible at least to agree upon some limitation of the frequency of these tests. Whether rationing of explosions should be made part of general negotiations on disarmament or be made a separate urgent topic is a matter on which different opinions may be held. The danger is that rationing will always be supported by the power that believes itself to be temporarily in the lead and opposed by those which hope by the next experiments to catch up. But this line of thought implies a clinging to the belief that it is possible to win a thermonuclear war—and here is the ultimate fallacy."

The Economist: "Sir Anthony seemed to reason that Britain is justified in setting off these explosions because the Americans have had their tests at Bikini and the Russians theirs in Siberia. This is precisely the argument most likely to be used by the other countries which may soon be joining the queue of H-bomb testers. The British decision to carry on with next year's test would be more easily justified if it were accompanied by an attempt to arrange some kind of international rationing of explosions. Unfortunately, Sir Anthony, while welcoming the idea of a rationing agreement, has not yet tried to bring one into being. Britain's aim seems to be to get its own series of tests over and done with before any rationing system enters into force. This sets a bad example to other countries and may well make it more difficult to reach an agreement."

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A report from the Polish Embassy in Washington, D.C., announces that Poland has begun construction near Warsaw of what is to be its principal atomic research center. According to Prof. Andrzej Soltan, head of the Nuclear Research Institute of the Polish Academy of Sciences, the center's reactor is expected to be in operation towards the close of next year.

The report went on to say that work is also being speeded on the building of additional laboratory and lecture facilities for the Nuclear Research Institute at Krakow. The center will be equipped with a cyclotron from the U.S.S.R. Krakow scientists were among the first in Poland to study nuclear phenomena. Some years ago they built a small cyclotron, the first in the country, and have constructed a generator of the Van de Graaff type. They have also done work in magnetic nuclear resonance, neutron diffusion, and the spectroscopy of gamma and beta rays. The Krakow center, headed by Prof. Henryk Niewodniczanski, will work closely with the main Warsaw atomic research establishment.

Next fall Polish physicists will be hosts to an international conference on the theory and problems of elementary particles. The meeting is being organized at the initiative of Prof. Leopold Infeld, theoretical physicist and former coworker of Albert Einstein, as part of a broad program to expand cooperation between Polish scientists and scientists abroad.

The final paragraph of the embassy release said that Prof. Marian Danysz, a Polish expert on cosmic radiation, has indicated that as a result of the establishment in Moscow last March of the Joint Institute of Nuclear Research, Polish physicists would have new opportunities for the investigation of elementary particles and other atomic problems. The institute, of which Prof. Danysz is a deputy director, is an international research organization set up jointly by the U.S.S.R., the People's Republic of China, the East European People's Democracies, the Korean People's Democratic Republic, and the Mongolian People's Republic.

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Masutaro Shoriki, the State Minister of Japan who is also chairman of Japan's Atomic Energy Commission, has announced he favors importing British rather than American nuclear power plants. He said he had made the decision after conversations with Sir Christopher Hinton of the British Atomic Energy Authority, and Marvin Fox, chairman of a survey group from the Brookhaven National Laboratory that has been in Japan completing an Asian survey.

An article in the *New York Times*, datelined Tokyo, said that the Brookhaven group, which has just left Japan after visiting 14 countries in ten weeks, found Japan far ahead in potentialties for nuclear development, although India holds the lead at present in actual construction of research devices.

Fox reported that Asians generally are making a mistake in expecting atomic energy to cure virtually all their economic ills in quick time. He indicated that since power generated by atomic energy will not be an economic proposition for some time, it would be better if Asians went ahead with conventional hydroelectric projects at this stage. "Asian countries are wasting vast potentialities for hydroelectric power," he said. Partly at his suggestion, the Japanese Atomic Energy Commission is planning to send survey teams to Britain, the United States, and Canada.

The survey team said that the Japanese have made the most progress in Asia in plans and technique for the adaptation of atomic power. However, the Indians already have a small research reactor of their own manufacture in operation and are building a much more advanced $15 million model, to which Canada is contributing about half the cost.

The Americans found Pakistan considerably disgruntled with the progress India is likely to make with Canada's assistance in the atomic field, compared with what Pakistan might do with a $350,000 grant from the United States toward a small experimental reactor.

The Brookhaven group was making the survey to determine the best means of utilizing the Asian Nuclear Center that the United States is sponsoring in Manila. A recent Associated Press report about the Manila center said that, although Philippine leaders generally are enthusiastic about the proposed center, some have privately expressed misgivings about the reaction to the project in other Asian countries.

Some sources feel that the Washington decision was based on purely political reasons and not on realistic grounds. They admit, somewhat reluctantly, that such countries as Japan, India, and Ceylon are more advanced in nuclear knowledge than the Philippines and should have been the location for Asia's first atomic plant.

A Philippine congressional faction, moving for closer ties with Asian neighbors, viewed the American decision to set up the atomic plant in Manila as another step in harnessing the Philippines permanently to the United States. The group felt that the center should have been established elsewhere in Asia, despite the temporary loss of prestige for the Philippines, to show other Asians that the United States is not prejudiced

and would not forsake the technical advances in other countries for politics.

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At the recent meeting of the American Medical Association, L. Phillips Frohman, chairman of the section of general practice, warned that the atomic age in medicine is approaching at so rapid a pace that most physicians are not prepared for it. He commented that most physicians are "babes in the wood" about the effects of atomic radiation, largely because the information is not available. He pointed out that at the moment "we are ensnared in an incongruous situation" wherein the physical scientist controls the "atomic pile of education and knowledge," while the practicing physician passively stands aside.

Vault for the Future

Science and *The Scientific Monthly,* in company with such journals as the *Saturday Review of Literature* and *Newsweek,* will be buried in the Vault for the Future, which was dedicated on 20 June at George Washington University. The vault will preserve for 100 years records of modern engineering achievement. It is located beneath the walkway in front of the university's Tomkins Hall of Engineering, which is now nearing completion.

The vault will contain contributions from 20 Government agencies and national and local societies. Each group invited to participate will place selected materials in one of 24 copper boxes, which will be sealed in the vault and marked by a granite block surmounted by a bronze plaque.

The boxes will contain such diverse items as documents and photographs, research reports, strain gages, ball bearings, gas turbine blades, a gyroscope, and ball point pens. The university plans to open the vault 100 years from today, so that engineers then can see this record.

TB and the Yellow Bacillus

A disease that resembles tuberculosis but is caused by an unknown bacillus was reported in the June issue of the *American Review of Tuberculosis and Pulmonary Diseases* (vol. 73, No. 6), journal of the American Trudeau Society. Lawrence E. Wood, Victor B. Buhler, and Ann Pollak of the University of Kansas, describe 17 patients infected with an acid-fast type of bacillus that has the same shape as the tubercle bacillus but which produces yellow cultures, whereas the tubercle bacillus is colorless. Another distinguishing characteristic is that the yellow germ does not produce disease in the guinea pig, although this animal is highly susceptible to tuberculosis.

Among the 17 cases described six had died, but it is not known whether one death was related to the disease. Five of the deaths, however, could be attributed to the disease resulting from infection by the yellow bacillus. At the time the report was prepared, four patients were well, another four were still under treatment, and three were no longer available for study.

Again, the "Abominable Snowman"

The "abominable snowman" still haunts the Himalayas. This creature, variously regarded as a bear, as a monkey, as a giant ape surviving as a relic of the ice age, as an animal hitherto unknown to science, or even, by arrant scoffers, as a pure myth [*Science,* **123,** 1024 (8 June)], continues to make the headlines. An Associated Press dispatch from Katmandu, Nepal, dated 10 June, states that Himalayan villagers claim to have found the body of an "abominable snowman" imbedded in the ice of a crevasse at the foot of Mount Makalu, a 27,790-foot peak on the Tibetan-Nepalese border. Furthermore, according to this dispatch, Peter John Webster, a British tea planter, hopes to go to Mount Makalu next year to investigate the villagers' story.

Webster, who has climbed extensively in the Himalayas, only recently crossed 20,000-foot Ambu Lapcha Pass to join the Swiss expedition that conquered Mount Everest. Once, while high in the Himalayas, he heard a whistling sound, which his guides believed to be the wail of the "snowman." Search of the area, however, revealed no evidence of such a beast.

Webster is skeptical about the existence of an "abominable snowman"; but, with true scientific spirit, he intends to investigate the reported body in the ice beside Mount Makalu. One hopes that he will take along a camera. Yet, whatever he may or may not find, it is not to be expected that the "abominable snowman" will desist from his gambols in the Himalayan snows. He is too well established a poltergeist to do that.—W.L.S., JR.

Microwave Detection of Metallic Ions in Plant Material

Microwave developments during the war have made it possible to use microwave experiments widely, not only in physics and chemistry but even in biological investigations. H. Shields, W. B. Ard, and W. Gordy of Duke University report the "Detection of metallic ions and organic radicals in plant materials by microwaves" in the 26 May issue of *Nature.*

Materials taken from a plant or from the ground below were placed in a microwave absorption cell and studied at room temperature. In numerous plant substances, electron-magnetic resonances corresponding to those from manganese ions in aqueous solutions were detected (six equal components with a component spacing of 95 gauss). Therefore, the investigators conclude that the manganese ions found in plants may be dissolved in their water content.

In pine cones and pine needles, a single sharp line was superimposed on the manganese hyperfine structure. Similar resonances were found in fallen oak leaves, naturally dried ivy stems, and other apparently dead plant materials; this may be caused by bound or semibound oxygen.

A third type of resonance was observed in several plant materials. This was a broad resonance, which the authors tentatively attribute to cupric ions. Microwave detection of ions in plant material should become a useful tool for the plant physiologist or agriculturist.—K. L.-H.

Scientists in the News

JOHN J. DAVIS of Purdue University is retiring as head of the entomology department and the Purdue University Agricultural Experiment Station after more than 35 years of service. He will be succeeded as head of the department by JOHN V. OSMUN.

W. ALBERT NOYES, dean of the University of Rochester graduate school, has been named acting dean of the College of Arts and Sciences. He succeeds J. EDWARD HOFFMEISTER, who resigned the deanship in order to devote full time to the chairmanship of the department of geology and geography.

ALFRED M. BONGIOVANNI, associate professor of pediatrics at the University of Pennsylvania School of Medicine, has received the 1956 CIBA award of the Endocrine Society for outstanding research in human endocrine glands, particularly as they affect the development of the child. He was honored for his work on the chemical nature of adrenal cortex hormones and on the abnormalities in the biosynthesis of these hormones which lead to various adrenal diseases.

The award is made annually to a scientist under 35 years of age. It provides $1800, and $700 for expenses, should the winner decide to move to a laboratory other than his own for special research.