GENERAL SCIENCE

Science Talent Institute

President Truman promised the 40 honor-trip winners that when peace came to the world there would be an immense number of jobs in the field of science.

See Front Cover

➤ FORTY boy and girl winners, the year's top talented young scientists of America, attended the five-day Science Talent Institute in Washington (March 3-March 7) as the culminating event in the Science Talent Search for $11,000 in Westinghouse Science Scholarships. This educational event is conducted by the Science Clubs of America, administered by Science Service.

Upon their arrival in Washington, the young scientists were welcomed at the White House by President Truman, as shown on the cover of this week's SCIENCE NEWS LETTER. He stated in part:

"There never was a time in the history of the world when we need scientists and people of energy as we need them now. There is more room at the top now than ever in the history of the world.

"Don't let anybody tell you that by effort and by hard work you can't reach the top of the profession, if you want to, because people who try to work and want to work are as scarce as the proverbial hen's teeth. Those people who want to work and are willing to shoulder responsibility will always find plenty of responsibility and plenty of work. I think I am in a position to say that better than most anybody.

"So just bear that in mind. And I want to congratulate all of you. I appreciate the privilege of getting a chance to see all of you, and I hope that you will go out of here with the idea of finishing the job and becoming an asset to this great United States of America.

"If at a later date the peace comes to the world and we proceed to implement the policies which we are trying to inaugurate, there will be an immense number of jobs—a greater number of jobs in your line—than there will be men and women available to fill them."

This issue of the SCIENCE NEWS LETTER contains some of the addresses made by leading scientists. Further activities of the Institute will be reported in the next issue when the scholarship winners will be announced.

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Pure Science Aids Progress

➤ "PURE science is the life blood of all industrial progress," an industrial research executive told the nation's top high school scientists.

Dr. John A. Hutcheson, director of the Westinghouse Research Laboratories, told the 40 winners of the Eighth Annual Science Talent Search that government and university laboratories have no monopoly on pure research.

He said that huge sums are spent each year by industry in scientific research "quite without regard to immediate practical application."

He cited the construction of an atom smasher by Westinghouse before nuclear fission was demonstrated as an example of pure research which later "paid off." Westinghouse scientists later discovered the exact amount of energy required to split uranium atom.

"The fact is," declared Dr. Hutcheson, "that industrial progress would come to a complete standstill without pure research."

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Genetics Called Practical

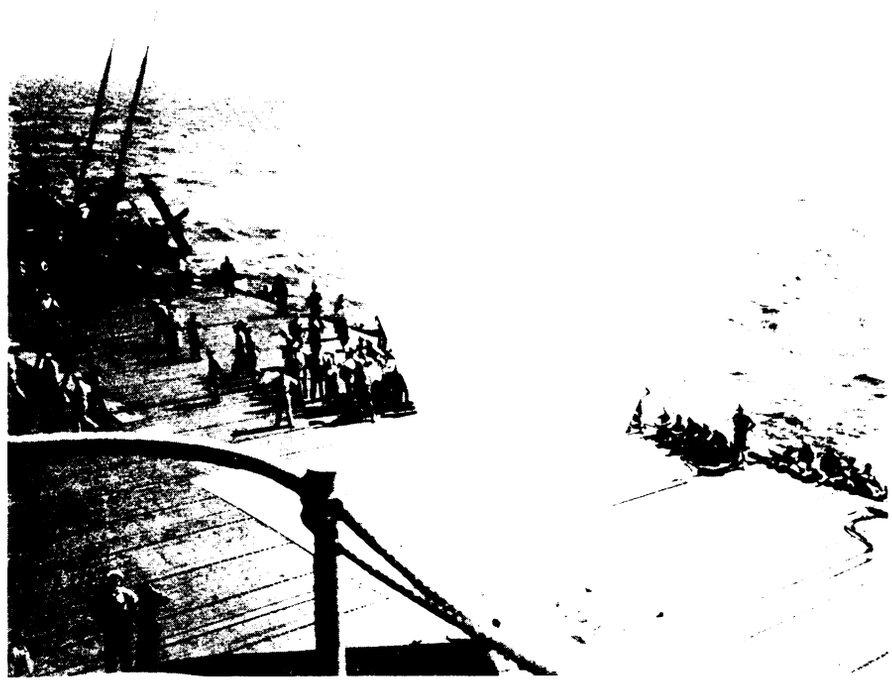
➤ MENDELIAN genetics, the branch of science that has been suppressed in the USSR partly on the grounds of its alleged impracticality, was declared of immense practical value by Dr. M. Demerec, geneticist of the Carnegie Institution of Washington. He spoke before the Science Talent Institute, attended by the 40 winners of the Eighth Annual Science Talent Search for the Westinghouse Science Scholarships.

"From the practical standpoint, genetics has made many important contributions to the improvement of domestic animals and plants," Dr. Demerec stated. "The most striking success has been accomplished in corn breeding, where the crop yield has been increased about 20% by the use of hybrid corn, developed through methods based on the theoretical work of G. H. Shull. In 1948 the value of this increased yield was around a billion dollars.

"Production of penicillin also has increased, five- to sevenfold, through the development of high yielding strains of Penicillium by genetical methods."

Genetics is also proving of great value in untangling knotty questions in other fields of biology. The speaker cited, as one example, the use of special strains of a fungus in studying how amino acids, the building-blocks of proteins, are put together by living organisms. This is a problem in physiology with eventual possibilities in such everyday practicalities as the production of bread, beans and beefsteaks.

Dr. Demerec reviewed the recent controversy among Russian biologists, which



OPERATION SKYHOOK—A high-altitude plastic balloon, as seen from the bridge of the USS Saipan, aircraft carrier, shown nearly ready for launching, reached an altitude exceeding 90,000 feet. This took place in the Caribbean area as part of a cosmic ray research project being carried out under the direction of the Office of Naval Research. The project gets its name from the 100-foot balloon, several of which were launched carrying cloud chambers.

ended in the triumph of Trofim Lysenko and the banning of teaching and research in Mendelian genetics in Soviet institutions by order of S. Kaftanov, Minister of Higher Education in the USSR. Until this intervention of the political power of the state to force conformity with his views, Lysenko's views were not taken seriously by informed biologists, Dr. Demerec pointed out. He characterized the experimental evidence offered by Lysenko in support of his anti-Mendelian claims as "weak and questionable."

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Radium Has Cost Few Lives

➤ THE equivalent of hundreds of tons of radium has been handled by the wartime Manhattan District and the U. S. Atomic Energy Commission with the loss of only two lives, compared with about 100 lives lost in refining only two and one-half pounds of radium up to 1941. These figures were disclosed to the 40 high school scientists by the director of the AEC's division of biology and medicine, Dr. Shields Warren of the Harvard Medical School.

He advised the science-minded high schoolers that the chief problem of modern medicine is degenerative diseases, such as cancer, hardening of the arteries, diabetes and arthritis.

"In general, little progress has been made in controlling them and insufficient progress in treating them," Dr. Warren said.

Today's young scientists are starting out with important new tools for tackling this and other problems, he pointed out, citing the development of atomic energy, use of radioactive tagging of elements and knowledge of the biological effects of radiation.

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Food-Population Problem

➤ SCIENTISTS of tomorrow fired questions at two scientists of today in an interview over one of the world's more pressing problems: whether world food production can be increased enough to meet the needs of the world's rapidly multiplying population.

The two scientists were Prof. Paul B. Sears, Oberlin College botanist and author of DESERTS ON THE MARCH, and William Vogt, chief of the conservation section of the Pan American Union and author of ROAD TO SURVIVAL. They faced a barrage of questions from winners in the Eighth Annual Science Talent Search, in Washington for final selection in the awarding of $11,000 in Westinghouse Science Scholarships. Their interview was put on the air over stations of the Columbia Broadcasting System, as part of the Adventures in Science series, with Watson Davis, director of Science Service, participating.

Prof. Sears and Mr. Vogt agreed that the problem is exceedingly critical right now, with population apparently outstripping its means of support. Mr. Vogt pointed out that each day the world has some 55,000 more mouths to feed than it had on the day before, and added that if India's death rate is cut to the level of America's, the people of that one land "could populate five earths the same as ours within the next hundred years."

Admitting that the situation is serious, Prof. Sears declined to regard it as hopeless. People can change their ways, he declared, and it is possible to induce them to make changes in the right direction by proper appeals to their self-interest. As an example, he cited the way the American people have literally cleaned themselves up in the past couple of generations, in response to persistent propaganda for hygiene and sanitation, and equally persistent advertising for soap and bathroom fixtures. Similar campaigns, he held, could get us and other peoples to conserve our resources and use them wisely instead of wasting and ruining them.

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Lay Cultural Foundation

➤ LEADERSHIP in science demands a well-rounded education in non-scientific subjects as well as specialization in science, the 40 winners of the Eighth Annual Science Talent Search were told by top scholarship winner of the First Science Talent Search, Dr. Paul E. Teschan of the University of Illinois Hospitals in Chicago.

Since every young man and woman who looks toward a career in research science must expect to put in from two to five years of graduate training after receiving the bachelor's degree, there will be plenty of time for close specialization in one's chosen subject in the graduate or professional school, Dr. Teschan pointed out. The time to acquire mastery of the necessary non-scientific subjects is in the undergraduate years, for once graduate training has begun the schedule will usually be too tight to permit any such academic browsings.

The science student planning his course should begin, Dr. Teschan advised, by selecting the graduate school he expects to attend and learning its entrance requirements. He should then select an undergraduate college that will enable him to meet those requirements and at the same time give him the knowledge and thoughtways in non-scientific fields which he will need as a complete citizen. He suggested considering the small independent liberal arts college for undergraduate work because of the smaller classes and the closer contact between students and head professors possible in such places.

Dr. Teschan, who won top honors in the First Science Talent Search in 1942, attended Carleton College and the University of Minnesota, and received four degrees from the latter institution. He holds the rather unusual degree of Bachelor of Medicine as well as B.S., M.S. and M.D. degrees. He was married last September to a fellow-student in medicine, Miss Patricia Pendill of Washington, D. C. Mrs. Teschan is now completing her medical studies at the University of Illinois Medical School while her husband serves his internship.

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ARCHAEOLOGY

Ancient American Remains Found in Virginia Campsite

➤ DWELLING sites of some of the oldest of America's inhabitants have recently been found in two places in southern Virginia and northern North Carolina by archaeologists of the Smithsonian Institution. A report by Carl F. Miller of the River Basin Surveys describes them.

These early traces of habitation were left many centuries ago by Folsom Man—a tribe so ancient that by comparison the Lees and the Seviers seem comers on a recent immigrant ship. Folsom Man is known primarily from campsites unearthed in the West, yielding peculiarly chipped stone dart points and other artifacts. Similar remains have been found in the Virginia-Carolina campsites.

Of later date, Mr. Miller states, are other sites where weapons and other objects of peoples who came after the Eastern Folsom group. Even of these, some are from so far back that the occupants did not know the use of pottery. Finally, there are culture remains of more readily recognizable Indians, who used bows and arrows instead of the earlier hand-flung darts, and who had also invented pottery.

The finds were made during a survey of the reservoir area of the Buggs Island dam project, which listed 94 sites of human occupancy.

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BIOCHEMISTRY

England To Hold World Congress on Biochemistry

➤ THE world's first congress of biochemistry will be held this summer, Aug. 19 to 25, at Cambridge University, England. From many countries investigators in living processes of chemistry will report their latest findings and exchange information with workers in other laboratories.

Although the French Societe de Chimie Biologique has organized in past years meetings which scientists of other lands have attended, no formal international meetings have been held previously.

The sessions of the new congress will be organized into 12 sections, covering the following fields: animal nutrition and general metabolism; microbiological chemistry; enzymes and tissue metabolism; proteins; clinical biochemistry; structure and synthesis of biologically important substances; cytochemistry; biological pigments, oxygen carriers and oxidizing catalysts; hormones and steroids; chemotherapy and immunochemistry; plant biochemistry; and industrial fermentations.

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