

GENERAL SCIENCE

Science Talent Institute

Eminent scientists participated in event held in Washington for the 40 high school winners of the honor-trip. Radio study originates new branch of astronomy.

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 (Feb. 27-March 2) 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 Mrs. Truman, as shown on the cover of this week's SCIENCE NEWS LETTER.

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

New Branch of Astronomy

➤ RADIO broadcasts to and from the heavens have opened up a new branch of astronomy, Dr. Harlow Shapley, director of the Harvard College Observatory and president of Science Service, told 40 young scientists of tomorrow.

The scientist told the winners of the Seventh Annual Science Talent Search that radio and electronics are bringing new discoveries to the oldest of the sciences, astronomy.

Dr. Shapley, Dr. Wendell M. Stanley of the Rockefeller Institute for Medical Research, and Dr. Karl Lark-Horovitz, head of the department of physics at Purdue University, discussed "Great Future Problems of Science" as guests of Watson Davis, director of Science Service, on Adventures in Science, heard over the Columbia network.

The Harvard astronomer said that microwave or radio astronomy of the future included exploration of the ionosphere and its various layers, measurement of the heights, numbers and motions of the shooting stars in our earth's atmosphere, bouncing of radio waves off the moon, solar noise, cosmic static and cosmic radiation.

Reflecting radio waves off the moon "is not nearly as silly as it sounds," Dr. Shapley cautioned the high school scientists, "because this two-way connection with the moon will help us explore our own upper atmosphere and especially the so-called empty space between the earth and the moon."

The astronomer disclosed that he hopes to use radio noises from the region of the constellation, Sagittarius, in the Milky Way as a part of an exploration of the "Hub of the Universe," which lies more than 20,000 light years away.

Not only is this region sending us the light of billions of stars, but it apparently is broadcasting in the 10-meter band, Dr. Shapley said.

Dr. Stanley, a Nobel prize winner in medicine and physiology, told the science-minded high school audience that studies on viruses may not only help fight disease, but they may also solve

some problems relating to the nature of life.

Conservation Necessary

➤ "YOUNG people who will be among the leaders in science tomorrow must share in the responsibility for the conservation movement which will be necessary for our continued progress and prosperity."

This challenge to leadership in science outdoors as well as science in the laboratory was laid before the 40 finalists in the Seventh Annual Science Talent Search by Dr. Clarence Cottam, assistant director of the U. S. Fish and Wildlife Service.

At present, Dr. Cottam stated, our wildlife resources are declining decidedly in such items as waterfowl, grouse, pheasants, muskrats and rabbits, while at the same time the population of crows and such carnivores as coyotes, mink, foxes and raccoons are building up to a peak. These imbalances are not always due to over-shooting by sportsmen, he pointed out; desirable wildlife populations may be decimated through changing uses of the land, such as cutting down forests and planting crops in the cleared land, drainage of marshes



ON THE BEAM—This shows the group of high school winners at the broadcasting studio where leading scientists answered their questions about astronomy, viruses and physics.

and shallow lakes, and clean cultivation with the eliminating of game-sheltering brushy corners and fencerows.

"The best approach to maintaining high population of fish and wildlife is by natural means," Dr. Cottam declared. "Artificial propagation usually is comparatively inefficient and expensive."

Shapes of Molecules

► "TELL me what shape you are and I'll tell you what you can do" might well he said of many molecules, especially the larger ones. Foreknowledge of a compound's properties through a study of the shapes of its molecules was explained to the winning group by Prof. Hugh S. Taylor, dean of the graduate school at Princeton University.

Silk, for example, is a liquid with soluble molecules while it is in the silkworm's glands, Prof. Taylor said, but as soon as it has been spun it solidifies into an insoluble condition. Study of the fibroin molecules that are the basis of silk shows that they are elongated affairs, divided into thirds by hinged joints. When they are folded up like a carpenter's rule they are soluble; during the spinning process they become stretched out and achieve insolubility.

Art Affected by Science

► MODERN ART, such as a Picasso picture, arises from the influence of Einstein's theory of relativity, just as surely as the atomic bomb's conversion of mass into energy stems from another Einstein discovery.

National Gallery of Art lecturer Grose Evans finds that art, like the rest of the world, is affected by advances in science and technology.

Explaining the interrelations of art and science to the 40 Westinghouse scholarship winners in the Seventh Annual Science Talent Search, Mr. Evans said that art and science are far more separate today than centuries ago. In earlier times there was a confusion between the two, today art and science are distinct.

"An artist is a scientist in recording appearances," Mr. Evans contended, "whereas the physicist or chemist is little concerned with how things look."

The generally-accepted diagram of the atom is an outstanding example of the way scientists attempt to render compre-

hensible something we cannot really perceive. We cannot really paint a picture of an atom because it is beyond our experience, he stated. The result is that the diagram does not look like the atom, but it does help us understand the atom.

Examples of scientists who were also among the world's greatest painters are Leonardo da Vinci and Albrecht Durer. The art of both was influenced by their scientific interests.

Through proportion, "the magical rule of numbers" crept into art, Mr. Evans said. Leonardo believed that all figures should be geometrically exact and fitted them into geometric designs. Durer, particularly in his earlier work, attempted to draw a normal person then analyzed the figure to work out geometrical principles.

Modern conceptions of space and the universe have influenced modern art, Mr. Evans pointed out. The Copernican system, which placed the sun rather than the earth at the center of the solar system, and the Einstein theory of relativity both have been reflected in the art of their times.

Need for Basic Research

► DON'T specialize too soon or too narrowly, and when you do concentrate on one research subject let it be one of the basic sciences rather than something of apparent "practical" application. This advice was given to the 40 winners of the Seventh Annual Science Talent Search by a veteran of an earlier Search, Raymond Schiff, who won the \$2,400 Westinghouse Grand Science Scholarship in 1943.

Mr. Schiff practices what he preaches, for at Harvard, where he graduated last year, his major was nuclear physics. He is at present a junior engineer in the Westinghouse Research Laboratory at Pittsburgh, but intends to begin graduate work at the University of Illinois next September.

No matter how earnest a student may be in pursuit of his science, said Mr. Schiff, he must not let it absorb him completely. He cited the case of one intense fellow-student who considered all courses outside his own special line of interest as "the bunk" and avoided them accordingly. Later he realized how lopsided he had made his training. A properly planned college career, the speaker declared, includes not only a good assortment of "cultural" courses

but a reasonable amount of extra-curricular activities and social contacts.

The widely accepted notion that scientists are dry-as-dust recluses never was true for most of them, he asserted. The recluse scientist was always an exception, and he is becoming scarcer all the time, now that the world has realized the great importance and value of science in both war and peace. The really successful scientist is one who has learned to get along with people; he is a social and a political being as well as a scientist.

The scientist must be a functioning citizen if he is to survive as a scientist, Mr. Schiff continued. Science, he emphasized, can flourish and advance only in an atmosphere of freedom; under too strict control from any source it wilts and dies. The scientist's fellow-citizens are now in the mood to defend and promote science, but they cannot be reasonably expected to do much on behalf of science unless the scientist himself participates in their efforts.

Science News Letter, March 6, 1948

GENERAL SCIENCE

Winning Science Students Are of Mixed Parentage

► AMERICA'S traditional function as melting-pot of nationalities seems to have operated strongly in the parentage of the 40 top-flight high school seniors who were in Washington from Feb. 27 through March 2 for the finals of the Seventh Annual Science Talent Search for the Westinghouse Science Scholarships.

Although a majority of the 40 are of native American stock on both sides, it is not at all a large majority. Twenty-five of the students state that both their parents were born in this country; four have one native-born and one foreign-born parent each, and 11 are of wholly immigrant parentage.

Five of the winners were themselves born in Europe: One is Miss Ursel J. Blumenheim of Forest Hills, N. Y., who comes from Germany. Three New York boys were born in what was the Austro-Hungarian empire before World War I: Gerhard Rayna, who is of Hungarian stock; Walter J. Scheider, who was born in Czechoslovakia; and Kurt W. Kohn, born in Austria of Polish-Czechoslovak parentage.

The foreign-born parents represent a wide range of nationalities. Four of them came from Russia and four from Poland. Three each were born in Czechoslovakia, Greece and Hungary,

and two each in Armenia, Austria and Germany. France, Turkey and Yugoslavia are represented by one parent.

Small families are the rule. Among the 40 winners, 11 are only children, and 15 have only one brother or sister. Eight belong to three-child families, and two to families of four children. One girl and one boy can boast of four brothers or sisters each.

Professions of the fathers are highly varied. The list includes engineer, manufacturer, farmer, salesman, forester, patent agent, machinist, real-estate broker, restaurant manager, optometrist, builder, radio operator, export manager, wood technologist, accountant, appraiser, elevator manager, sheet-metal worker, missionary, teacher and school executive. Two paternal occupations have a unique look: green chain grader, and research analyst for the War Crimes Commission.

Twelve of the students' mothers have occupations outside their homes. Professions represented are teacher, musician, missionary, designer, editor, secretary, bookkeeper, social worker, sales clerk and corsettiere.

Four of the winners have only one parent living. Approximately 62% of the winners' fathers and 52% of their mothers attended college.

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GENERAL SCIENCE

Big-Game Hunting, Flying, Not for Modern Youth

► WHAT has happened to the boy who used to want to be a high-altitude flyer, an African big-game hunter or Antarctic explorer "when he grew up"?

Apparently, he is being replaced by a sober group of young people who value service to mankind higher than any other factor in the choice of a job. Boys—and girls too—today want a chance to continue in the same position year after year. They want to feel that they can work themselves up. They are concerned about the effect of the job on their health.

This new view of the ambitions of high school boys and girls and those in grades seven and eight is disclosed by a survey of more than a thousand students made by Dr. R. W. Edmiston of Miami University and Supt. C. H. Starr of the Arcanum, Ohio, schools.

Adventure is pushed down to the bottom of the list of considerations important in picking a job. Kids nowadays don't want adventure—or say they don't. Neither do they want public acclaim.

Or responsibility.

What they do want is security and freedom from political strings. And even

those who would like a chance to travel want to be able to get home at night.

Science News Letter, March 6, 1948

MEDICINE

Skin Glow Test for Drugs

Persons suffering from such allergic conditions as hayfever or asthma can have the anti-histamine effect of new remedies determined by this method.

► A SKIN glow test for new drugs being developed as possible remedies for hayfever, asthma and other allergies is announced by Drs. Samuel C. Bukantz and Gustave J. Dammin of Washington University School of Medicine, St. Louis.

The test will determine the anti-histamine effect of the new drugs. Histamine is a chemical normally present in the body but when freed from its bound state in the body cells acts like a powerful poison and can produce severe shock. It is thought by many scientists to be the agent responsible for the symptoms in various allergic conditions. Many efforts to find chemical cures for allergies have been directed toward making drugs with an anti-histamine action.

The St. Louis scientists discovered, in the course of studies on sensitive, or allergic, states that when the dye, fluores-

cein, and histamine are injected into the forearm skin of normal persons, the skin glows under ultraviolet light for only four to 10 minutes. When the dye, fluorescein, alone is injected, the skin glows under ultraviolet for 30 to 40 minutes. And when fluorescein, histamine and an anti-histamine drug, benadryl, are injected, the skin glows for the same 30 to 40 minutes.

A test on a person with an allergy also showed the anti-histamine effect of the drug, benadryl. With fluorescein alone there was only a four-minute glow. With fluorescein plus histamine there was also only a brief period of glow. But fluorescein plus histamine plus benadryl gave fluorescence for 25 minutes, showing, the scientists state, "the neutralizing effect of the anti-histaminic drug." (*Science*, Feb. 27).

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SCIENTIFIC WORLDS TO CONQUER—Dr. Wendell M. Stanley of the Rockefeller Institute for Medical Research, a Nobel prize winner in medicine and physiology, told these future scientists that many problems are waiting for them to solve.