

## GENERAL SCIENCE

# Learn Russian, Get Ph.D.

Speaking at the annual National Science Fair Awards Luncheon, Dr. Glenn T. Seaborg gives the young scientists his recipe for the making of a scientist.

► YOUNG scientists should learn Russian and young engineers should plan on getting a Ph.D., Dr. Glenn T. Seaborg, Nobelist and professor of chemistry at the University of California told 233 teen-age scientists at the Eighth National Science Fair in Los Angeles.

Dishing up his own recipe for what it takes to make a scientist, Dr. Seaborg told his audience it was a combination of four basic ingredients—innate ability, motivation, training and work.

The Nobel Prize-winner spoke to the teen-agers at the awards luncheon culminating the annual fair sponsored by SCIENCE SERVICE.

Discounting the need to be a genius to make contributions to science, Dr. Seaborg advised the teen-age scientist "not to worry too much about his intelligence as compared to his fellow students, but to concentrate on going as far as possible with the basic endowment which nature has given him.

"By learning the fundamental principles," he said, "by mastering the elements of the scientific method, and by acquainting himself with the experimental techniques available to the modern scientist, the youth of today—any youth in this audience today—can proceed with near certainty to significant scientific advances and to achievement which may exceed that of many mental giants of a generation ago."

Crediting the late Dwight Logan Reid of David Starr Jordan High School in Los Angeles with motivating him toward a science career, Dr. Seaborg also credited the science fairs with sparking an early interest in science for young people throughout the nation.

From high school, Dr. Seaborg told the winners, "you should go to college." Furthermore, he said, "you may want to extend your college training through college to the Ph.D. degree. In basic science the Ph.D. degree is the rule rather than the exception for positions of mature responsibility."

Although it is not presently the case, the Nobelist said, for persons in the Fair winners' generation, a doctorate will be the rule rather than the exception in engineering.

Dr. Seaborg also advised the young scientists to give serious consideration to the Russian language, which, he predicted, "next to English, will be the most important language of science in the next 50 years."

As for college, Dr. Seaborg advised the prospective science student to choose the best college within his scholastic and economic ability to attend. Dr. Seaborg also warned the young scientists not to undertake their training on too narrow a basis.

Finally, Dr. Seaborg said, the last ingredient, hard work, "runs counter to the trend of modern times with its emphasis on more leisure time, shorter work weeks and more leisure-time activities.

"I am in sympathy with these developments in society, generally," he said, "but I cannot feel that the 35-hour week has much relevance for a creative scientist."

Scientists, he concluded, do not work hard against their will. They are not clock watchers and derive much of their satisfaction from helping make the world a better place to live in.

Dr. Seaborg charged the youngsters with the scientific future and predicted the United States will be called upon during the next 50 years to "use extraordinary political skill to aid the development of the backward nations toward economic and political stability and to guide the development of a stable international order."

Earlier, the young scientists had heard Dr. Howard L. Bevis, chairman of the National Committee for the Development of Scientists and Engineers, and A. H. Batchelder, vice president of the California Research Corporation. Following Dr. Seaborg's talk, the prize-winners were presented the National Science Fair "wish" awards by Watson Davis, director of SCIENCE SERVICE.

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## METEOROLOGY

## Earth Satellite May Help Weather Forecasting

► STUDIES made from the earth satellite may revolutionize weather forecasting, with resultant benefits to the public, Dr. Lloyd V. Berkner, president of Associated Universities, Inc., has predicted.

The earth satellite, he said, brings a "new tool of magnificent power" to the meteorologist. One of the first experiments from the man-made moonlet will be an attempt to measure the heat balance of the earth and its variations.

Shortly after, Dr. Berkner forecast, the cloud and storm systems over the entire earth and their movements will be mapped from the satellite. The location of unusual atmospheric hot spots and cold spots could be charted, he told a joint meeting of the American Meteorological Society and the American Geophysical Union, of which he is vice-president.

The carbon dioxide content of the atmosphere, which has increased two percent in the last 50 years, may rise to 40% by the

end of this century, he said, due to ever-increasing burning of fossil fuels. The consequent greenhouse effect—warming of the air, and possible changes in rainfall and cloudiness—"can no longer be ignored" and requires an imperative program of research on atmospheric chemistry.

Dr. Berkner said that, as a taxpayer, he felt a bit "cheated" because more money was not spent on meteorological research in general "since a modest investment holds so great a promise of an immense return to the people, to agriculture, industry and commerce, to the Government."

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## GEOPHYSICS

## Russian Earth Satellite May Be in the Air Now

► THE RUSSIANS may have seized the earth satellite initiative.

Any Russian earth satellite secretly circling the world will undoubtedly be discovered before the end of May.

If there is such an object, some team of amateur observers will be able to spot it during the nation-wide alert scheduled for later this month. The possibility Russia has secretly sent a man-made satellite out into space exists, scientists agree.

Exact date for the alert has not been set yet, but it will definitely be sometime this month, SCIENCE SERVICE learned.

One reason for the Russians' keeping it secret would be to test U. S. ability to spot it. If this is the case, they'll be surprised. The observers of Operation Moonwatch, code name for the visual satellite observation program, would undoubtedly identify it.

The groups might also detect a natural earth satellite so far undiscovered as it whizzes by too fast to be caught even in wide-angled telescopes.

Any earth satellite formed naturally at the time of the earth and other members of the solar system would long ago have disappeared. There is a chance, however, the earth has temporarily captured a meteor or an asteroid that the amateur observers would find during the alert.

The amateur astronomers are a new brand of ground observer corps, looking not for planes but a tiny pinpoint of light that will be the earth-circling satellite. In the event the moonlet's radio fails, they are the main line of defense in locating the object. Precision cameras can then be trained on it.

A few amateur astronomers in the Washington area have already held one practice alert, a dry-run for the nation-wide program later. They saw a "simulated satellite," actually a high-flying airplane showing one candle power of light.

It was even brighter than many astronomers expect the earth satellite will be when it is launched sometime during the 18-month International Geophysical Year starting this July 1.

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