

GENERAL SCIENCE

Young Scientists and War

By DR. KARL T. COMPTON

Pres. dent, Massachusetts Institute of Technology

Address given before the Awards Dinner of the Third Annual Science Talent Institute, March 7, 1944.

► THIS SCIENCE Talent Search, so significant and stimulating to you, strikes an especially responsive chord in my mind at this time because I also am searching for science talent in another connection. As a member of a war agency charged with organizing a nation-wide program of scientific research to develop new and better weapons for our armed forces, I have come to realize that, fine as our scientific progress has been during the past generation, we are still far short of the number of high grade scientists and engineers which our country urgently needs both in war and peace. For assistance in the present war emergency I wish there were some transformation whereby you could suddenly be made a few years older in training and experience, so that you could at once help out with some of the present scientific problems.

This thought leads me to the following observations:

1. A large group of well trained and creative scientists, thousands of them, is the most important type of standing army for national defense. Battleships, aircraft and artillery of today will become obsolete, but a nation possessing a great reserve of scientists and engineers can mobilize them to create still more powerful weapons of defense and offense as the need arises. Therefore I believe that an essential part of any program for making our country safe after this war has been won will be an armed force large enough to enforce or police whatever commitment our country makes toward maintaining the peace of the world, together with such a great reservoir of science talent that a great army could quickly be equipped with superior weapons if the political arrangements for maintaining world peace should again fail.

2. The attractive aspect of this program for national security is that this lot of scientists is just as necessary to peacetime economy as it would be in the unhappy event of another war. To

repair the economic losses caused by this war, by getting industrial production of peacetime goods going again at top speed, will require very many applied scientists and engineers. To create ever higher standards of health, prosperity and opportunity for interesting living for the general public will call without limit on all the powers of all the scientists of all types: theoretical and applied, physical and social, science of the mind, of the body and of our physical environment. New knowledge and new applications of knowledge offer unlimited frontiers for exciting and rewarding exploration.

3. Science can be a life-long career, but more than most professions it offers possibility of distinguished achievement to those of talent relatively early in their careers. A very large proportion of the greatest scientific discoveries have been made by men in their twenties or early thirties. This may be because youth is more imaginative and less conservative than old age. Don't let yourselves be discouraged by observing that textbooks usually show pictures of great scientists as elderly men; this only means that their portraits were not painted until sometime after their great work was done.

The present war work of scientists illustrates the opportunities for young scientists and engineers, and the fact that they do not need to grow old before they can be useful. Some of the largest and most important firms now manufacturing materials for the war report that about one third of their entire engineering staffs are young people below the age of twenty-six, and that without the services of these young engineers the essential war production of these firms would have to be greatly curtailed. I know one group engaged in developing a device of the very highest war priority in which ninety per cent of the staff are below twenty-six years of age. There are literally no other scientists in the world who could take their places at this time, for they have themselves developed a new art.

So, young men and women who have shown evidence of talent in science, I congratulate you. I congratulate you not only on your having been selected, amid strong competition, for special recognition in this Science Talent Search, I con-

gratulate you even more because you are entering a career whose importance is great, and whose great opportunities lie not many years ahead of you. Speaking from my personal experience and acquaintance with other scientists, I can say unreservedly that it is a career in which you can find great personal satisfaction.

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The earliest known *scientific document* is probably the Edwin Smith Papyrus, a copy, made in the seventeenth century B.C., of an older Egyptian medical book on surgery and external medicine.

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Westinghouse Science Scholarships Winners

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Hagopian, Anne, New York, N. Y.
Davidson, Amber Charles, Lyman, Wyo.

ALTERNATES

Bond, Mary Ruth, Marlboro, N. Y.
Kraichnan, Robert Harry, Elkins Park (Phila.), Pa.

SCHOLARSHIPS OF \$400

Bond, Mary Ruth, Marlboro, N. Y.
Durant, Nancy Agnes, Washington, D. C.
Ford, Kenneth William, Exeter, N. H.
Gerstenhaber, Murray, New York, N. Y.
Jaffe, Lionel Francis, Brooklyn, N. Y.
Jenkins, Rodman, Anniston, Ala.
Kraichnan, Robert Harry, Elkins Park (Phila.), Pa.
Roizian, Irving William, Hazel Park, Mich.

SCHOLARSHIPS OF \$200 AND ALTERNATES FOR \$400

Baird, Joan Audry, Whitesboro, N. Y.
1st—Zablow, Leonard, New York, N. Y.
2nd—Poirier, Jacques Charles, Washington, D. C.

SCHOLARSHIPS OF \$100

Deiters, Rosemary Julia, Mt. St. Joseph, Ohio
Dunkel, Patricia Ann, Rochester, N. Y.
Honour, Nan, Atlanta, Ga.
Irving, Ellen Mary, New York, N. Y.
Marrison, Joyce Mildred, Millburn, N. J.
Miles, Ruth Hulda, Fennimore, Wis.
Slaven, Nancy Waddell, Williamson, W. Va.
Springer, Eleanor Jane, Edwardsville, Ill.
Butler, Charles William, Madison, Wis.
Corr, Royal Marden, Milwaukee, Wis.
Daniels, Gilbert Samuel, Brooklyn, N. Y.
Dyett, Edmond Granger, Jr., Rome, N. Y.
Earle, Albert Porter, Overbrook (Phila.), Pa.
Fickett, Wildon, Tucson, Ariz.
Green, Leon William, Passaic, N. J.
Hershenson, Lee Morton, Pittsburgh, Pa.
Hinkle, Richard Gordon, Tahoe, Calif.
Houck, Theodore Edwin, Rochester, N. Y.
Howlett, Eric Mayorga, Roslyn Heights, N. Y.
Mayper, Victor, Jr., Manlius, N. Y.
Mottelson, Ben Roy, LaGrange, Ill.
Newcomb, William Adrian, Garden City, N. Y.
Noland, Wayland Evan, Madison, Wis.
Stelzenmuller, Cyril Vaughn, Birmingham, Ala.
Tschudy, Donald Paul, Atlantic City, N. J.
Judges: Dr. Harlow Shapley; Dr. Stuart Henderson Britt; Dr. Harold A. Edgerton.

GENERAL SCIENCE

Science Students and China's Reconstruction

By PIN-CHUAN HO

Professor of Physics, National Tsing-hua University, Kunming, China

Address given before the Science Talent Institute.

➤ BEFORE the war China had almost all her industrial plants and educational institutions situated in the coastal provinces. After Japanese occupation of all these provinces, Chinese government has kept a dual program in function, giv-

ing an armed resistance to the invaders on the one hand and carrying on the work of national reconstruction on the other.

During the last six years some 3,000 factories have been put into operation, and more than 100 colleges and universities re-established in the interior which was more or less undeveloped as compared with coastal provinces. Owing to the urgent need of large numbers of scientific and technical specialists for the work of national reconstruction, China has had more educational institutions in the wartime than in the pre-war time. Taking, as an instance, the case of higher education, the number of colleges and universities was 129 with 59,457 students in 1942 compared with the number 108 with 40,609 students in 1936. Eighty per cent of the students came from the occupied territories, some marching on foot for months from north to south and east to west.

There has also been a great increase in the percentage of the number of the students taking applied science as their subjects of learning. For instance, there were 24% of college students registered for different branches of engineering in

1942, while the percentage was only 17 in 1936. This number of science students is of course too small for China's national reconstruction, especially so when considering the industrialization of China after war.

Chinese government has recently set up a plan for the first ten years after war, regarding the work of national industrialization. This plan is based entirely on Dr. Sun Yat-sen's industrial program, who is the founder of Chinese Republic. To complete Dr. Sun's whole program requires 30-50 years. For this first ten years' plan, it has been figured out that China needs some 520,000 graduates from the science and technical colleges and 580,000 from the secondary technical schools. Chinese government is going to increase her institutions of science and technology to a possible large number. It is also her intention to send a large number of students abroad, especially to U. S. A. and Great Britain, for their training. I am sure Chinese government and her people appreciate the friendly help given by U. S. A. and Great Britain as regards China's national reconstruction.

Science News Letter, March 18, 1944



VISIT TO CAPITOL—The Science Talent Search winners visited the scientist-statesman Vice President Henry A. Wallace. Of those visible, left to right: Wildon Fickett, Charles Butler, Donald Tschudy, Ben Mottelson, Ellen Irving, Theodore Houck, Mary Ruth Bond, Joyce Marrison, Wayland Noland, Nancy Slaven, Joan Baird, Jacques Poirier, Vice President Wallace, Lee Hershenson, Leonard Zablow, Anne Hagopian, Murray Gerstenhaber, Leon Green, Nancy Durant, Eleanor Springer, Robert Kraichnan, Gilbert Daniels, Rosemary Deiters, Irving Roizian, Victor Mayper, Eric Howlett, Cyril Stelzenmuller.