

GENERAL SCIENCE

# Back to College

**Grants of \$2,500,000 to speed return of war scientists to college research and teaching. Program of Research Corporation to cover five years.**

► **SCIENTISTS** who have been doing war research on atomic bombs, radar, jet propulsion, and many other weapons will have the chance to get back promptly to peacetime research and teaching in colleges and universities through \$2,500,000 in grants offered by the non-profit Research Corporation of New York, which develops inventions assigned to it by public-spirited inventors.

The five-year program was announced by Dr. Joseph W. Barker, acting president, who has returned to his duties with the Corporation and with Columbia University from service as Special Assistant to the Secretary of the Navy.

It will result in 100 to 200 grants of \$2,500 to \$5,000 each year in order that talented young scientists, engaged for the most part in war research in uniform or as civilians, will be able to undertake at universities and colleges research of peacetime importance in pure science, especially chemistry, physics, mathematics and engineering.

The first grants will be made in a few weeks by a special committee of eminent scientists from industrial and university laboratories. The committee is composed of Acting President Barker who is also Dean of Engineering at Columbia University; Dr. Thomas H. Chilton, director of engineering for duPont; Dr. William D. Coolidge, X-ray consultant for General Electric Co.; Timothy E. Shea, manufacturing engineer of Western Electric Co.; Dr. Lloyd P. Smith, associate research director of Radio Corporation of America; Col. Stafford L. Warren, professor of medicine at the University of Rochester; and Dr. Robert R. Williams, inventor of the synthesis of vitamin B<sub>1</sub> and coordinator of research of Research Corporation.

Grants will be made to the institutions, but awards will be based primarily upon the demonstrated ability of the men who will conduct the researches and contribute to the teaching program of the school.

"For the past four or five years," said Dr. Barker, "the Government, through the Office of Scientific Research and Development, the National Defense Research Council, the Army, the Navy,

and the Air Force, has supported a vast research and development program into which has been drawn the great majority of the most competent university research men. Already the demobilization of these research projects is under way. When their war jobs are finished many of these talented young scientists should be going back to college laboratories and lecture rooms to train and inspire the next generation of science.

"War conditions have greatly disturbed our educational institutions by diversion of talented members of their faculties into war research, by drawing off faculty and students into military service, by utilizing educational facilities for military service training programs and by interrupting sources of financial support.

"Research budgets have been drastically curtailed, especially in the smaller institutions, which in many cases have not had opportunity to undertake Government research on a substantial scale. The financial strength of many institutions also has been impaired by the depression and the war conditions which followed. Now new burdens are thrust upon them as young men from the services return to resume their interrupted training.

"Research Corporation's program of special postwar grants will round out the plans that are being made for the most effective and most prompt return of the war-engaged scientists to peacetime fundamental and applied research," Dr. Barker explained. "The Rockefeller foundation has already announced a comprehensive plan of pre-doctoral fellowships which will return to college former graduate students who left their studies and researches for war research. Current government legislation and proposed bills being considered by Congress will aid the return to college of students whose scientific and technological education was interrupted by the war. Research Corporation grants will assist colleges and universities in building research-minded staffs which will help train the students returning to colleges from the war, as well as the future contingents of students from our



**B-29'S SUCCESS**—In the new Bendix-Stromberg direct fuel injection system, which equipped the Superforts that dropped the atom bombs, the fuel is pumped under pressure directly into individual engine cylinders, entering via the stainless steel fuel lines and the nozzle shown at the upper left. Spark plug is at right. The technician's hand holds the fuel spray nozzle at the point where gasoline is sprayed into the cylinder.

secondary schools in future years."

The grants are made possible by the fact that during the war years research programs that would be normally supported by Research Corporation grants have been laid aside in order to free men and facilities for war research.

Research Corporation was begun in 1912 with the gift, through Dr. F. G. Cottrell, of patent rights on electrical precipitation, which is used for removing dust, fume and mists from industrial gases and from the atmosphere.

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GENERAL SCIENCE

## AAAS to Hold Meeting In St. Louis in March

► **AMERICAN** scientists will get together for their first big general postwar meeting in St. Louis, on March 27 to 30, 1946, Dr. F. R. Moulton, permanent secretary of the American Association for the Advancement of Science, announced. A tremendous volume of scientific information, dammed up by war-imposed necessity for secrecy as well as by lack of opportunity to report either in print

or by word of mouth, is expected to be released at this four-day gathering.

The American Association for the Advancement of Science is the great general society to which most American scientists belong. Total membership exceeds 27,000, and its meetings, which are held jointly with those of many of the 190 specialized scientific societies and groups affiliated with it, usually attract crowds of from 3,000 to 5,000 research men and teachers.

In normal times, the Association has held its meetings twice a year, one during the Christmas holidays and one in

early summer. However, like all large societies, the Association has kept meetings rather strictly in abeyance during the war. A meeting was held in Dallas, Texas, during the Christmas week immediately after Pearl Harbor, because it had already been scheduled. It was deemed advisable to hold another meeting in Cleveland in the fall of 1944, but that was the only strictly wartime gathering of the Association's members. With war restrictions on travel now removed, a heavy attendance at St. Louis next spring is expected.

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#### PHYSIOLOGY

## Bone Twists Affect Gait

The characteristic way in which a person walks is determined during the period when he learns to walk. Knowledge is useful in correcting bad foot posture.

► CERTAIN twists in the leg bones, developed during the years when children are learning to walk, largely determine the gait or characteristic way in which a person walks, it appears from studies reported by Dr. Herbert Elftman of Columbia University in the *American Journal of Physical Anthropology*, (Oct.).

The bones making up the upper and lower parts of your leg develop their twists independently. If you "toe in," the combination of these twists are in one direction; whereas, if you "toe out," the twists are in the opposite direction. Scientists, especially orthopedists, are interested in learning how each leg bone affects walking, because this knowledge is useful in correcting bad foot posture.

It is almost impossible to measure the twist in a leg bone during life, even with the X-ray. Dried bones are not entirely satisfactory either, because it is impossible to tell at what angles they were connected with one another. For example, if you straighten your leg and try toeing in and out, you will notice that the whole leg from the hip downwards turns with the foot. Thus it is necessary to study the leg as a whole. To solve this problem Dr. Elftman resorted to studying legs that have been taken off at the hip. All that he needed to do in such cases was to expose enough of the joints at the hip, knee and ankle to determine their axes. From the angles which these joints make with a standard plane he could determine the amount of twisting in each bone.

From Dr. Elftman's findings, there appears to be little relationship between

the twist in the thigh bone and that in the lower leg bones. On the other hand, the twisting of the lower leg bones as seen in the ankle joint has a definite relationship to foot position. Dr. Elftman points out also that the twists in the adult bones are quite different in degree from those present at birth. Although the evidence is incomplete, it seems to indicate that the adult condition develops during the years when children learn to walk.

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#### ELECTRONICS

## Electronic Device Measures Speed of Baseball

► THE SPEED of the baseball between the pitcher's hand and the catcher's mitt needs no longer be a guess; it can be measured, and timed accurately down to a ten-thousandth of a second. Electronics is the answer; a versatile electronic device does the job. The same device can measure the speed of the shutter on a camera or the rate of travel of a bullet from a rifle.

In measuring the speed of a moving body, two photo tubes with light sources aimed on them are set up with a known interval between them and directly in the line of flight of the moving object. The light sources shining on the photo tubes create two beams of light. A meter begins timing when the moving object breaks the first beam of light and ceases timing when it breaks the second. It records the time in thousandths of a second.

In measuring shutter speed on a camera, the time interval meter clocks time consumed by one shutter operation at any speed setting. A photo tube picks up light and transposes it to voltage pulse first when the shutter opens and again when it closes. The dial records the interval. This measurement is taken without any mechanical attachment to the camera which might retard its movement. The device was used during the war to determine time interval in checking high-speed aerial cameras.

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