

# THE EFFECT OF THE DEFENSE PROGRAM ON SCIENTIFIC RESEARCH

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The sudden awakening of America to its danger and to its responsibility for preserving human decency in the world was a startling phenomenon. No group has been more vitally affected in its thinking and planning than the scientific research workers of the country. They believed with all their hearts in a world of continuous human betterment and conceived of their efforts in understanding of the laws of nature and the behavior of man as progress in the enrichment and rationalization of life.

A philosophy of life sets the goal of endeavor, and progress toward that goal—whatever it be—is obtained by the application of knowledge. We see today the menace of catastrophe to the great human adventure of self-mastery and evolution of the good life. Great nations have had their ideals perverted, and their efforts turned to mass murder for the sake of national aggrandizement by ruthless dictatorships. As they have devoted all their technical skill and scientific knowledge to an assault on human decency, we must give an equal or greater devotion of our skills to defense.

The scientific workers of our country were not slow in comparison with the rest of the country in recognizing these facts, and are not being slow in organizing for and entering into the new direction of effort.

## RESEARCH POWER INCREASED

In the years since the previous world war, America has increased its research power very greatly. Powerful research

laboratories are today the rule rather than the exception, in the more important industries. In addition to carrying on research under their own organizations, both the Navy and the Army in recent years have called upon the research groups in the industries and in the academic institutions to a much greater degree than before 1917. In pure science, America stands second to no other nation today.

Shortly before we entered the previous world war, the National Research Council was organized, under the National Academy of Sciences. Dr. George E. Hale played the leading role in producing this body, and Dr. Robert A. Millikan directed the efforts of its division of physical sciences. The scientific force of the country was rapidly mobilized by the National Research Council, and individuals and groups were soon working on a vast number of problems for the Army and Navy.

The lessons of that period were not forgotten. The Army and Navy have kept contact with civilian science. In recent years they, and the National Advisory Committee for Aeronautics, in addition to carrying on their own research, and supporting research by individuals and institutions, have used the National Academy of Sciences and the National Research Council for the study of basic questions, and for organizing active research groups. The Navy has recently formed a Central Body of Control of all of its research, which consults with an Advisory Committee of the National Academy. Direction and support of defense research has been greatly stimulated by a newly formed National Defense Research Committee. These groups and committees keep in close correlation. The California Institute of Technology is well represented in all of these groups and the Institute as a whole is exceedingly active in the defense program.

There is no field of scientific activity which has not contributions of importance to make in this emergency for national defense. The country has been late in understanding its danger, but as far as the research phase of defense is concerned, the speed of organization and initiation of intensive effort have been satisfactory and heartening.

A grim and distasteful task is before us, and it may absorb our thoughts for years to come. But the better it is done the sooner can we return to a life of sane and wholesome endeavor in a world of hope.

## RECORD NEW SUPERNOVA

As much light as several hundred suns is given off by a giant exploding star recently discovered between the North Star and the Dipper by Dr. Joseph J. Johnston, Caltech astrophysicist. He spotted the new star from Palomar Mountain with an 18-inch Schmidt telescope, which has been instrumental in discovery of 16 exploding stars since 1936.