

GENERAL SCIENCE

Truman's AAAS Address

"These are truths that every scientist knows. They are truths that the American people need to understand," he said, referring to unfair attacks on scientists.

The complete text of the A. A. A. S. address of President Harry Truman on Sept. 13 follows:

➤ I AM DEEPLY HONORED in being with you tonight on the one hundredth anniversary of the founding of the American Association for the Advancement of Science. As President of the United States, I welcome you to Washington.

In the 100 years since this Association was organized, science has helped transform the United States into the most productive nation in the world. I know that in your meetings this week you will be looking back over the progress of American science in the past century. I also know that you are much more interested in looking into the future.

You are looking forward, I know, because we stand at this moment at the threshold of revolutionary developments. Scientific research daily becomes more important to our agriculture, our industry, and our health. The members of this Association know better than I what developments to expect in the years ahead in physics, in chemistry, in biology and the other sciences, but I am certain of this—that science will change our lives in the century ahead even more than it has changed them in the hundred years just past.

Science and National Policy

I hope you will also be thinking about the relationship between science and our national policy.

Two years ago, I appointed a Scientific Research Board. Its report, entitled SCIENCE AND PUBLIC POLICY, was submitted last fall. The report stressed the importance of science to our national welfare, and it contained a number of important recommendations.

The most important were these:

First, we should double our total public and private allocations of funds to the sciences. We are now devoting, through Federal and private expenditure, little more than one billion dollars for research and development per year. With a national income of more than \$200 billion annually, the Board felt that we should devote at least \$2 billion to scientific research and development each year.

Second, greater emphasis should be placed on basic research and on medical research.

Third, a National Science Foundation should be established.

Fourth, more aid should be granted to

the universities, both for student scholarships and for research facilities.

Fifth, the work of the research agencies of the Federal Government should be better financed and coordinated.

I hope that you have been weighing these recommendations carefully, and that if you agree with me that they are sound, you will consider how they can be made effective national policies.

I know that you are also deeply concerned with the relationship of science to our national defense and security. Three years ago, when the fighting stopped, all of us were eager to return to our peacetime pursuits. The first thought of a great many of us was how to translate our wartime advances in scientific knowledge into better standards of living.

It is an unfortunate fact, however, that the peace we hoped for has not come quickly. We are still living in hazardous times. We are required to give unremitting

thought to the defense of the United States at a period when defense has become incredibly more difficult. American scientists must, like all the rest of our citizens, devote a part of their strength and skill to keeping the Nation strong. At a time when we hoped our scientific efforts could be directed almost exclusively to improving the well-being of our people, we must, instead, make unprecedented peacetime efforts to maintain our military strength. For we have learned—we have learned the hard and bitter way—that we cannot hope for lasting peace with justice if we do not remain strong in the cause of peace.

Leadership in Science

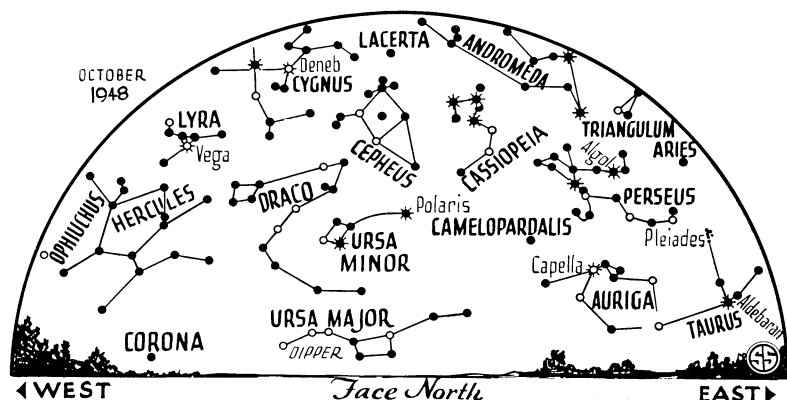
If we are to maintain the leadership in science that is essential to national strength, we must vigorously press ahead in research. There is one simple axiom on which this thought is based. The secrets of nature are not our monopoly. Any nation that is willing and able to make the effort can learn the secrets that we have learned. Such a nation may, indeed, discover new facts of nature we have not yet discovered.

Our problem, therefore, is not a static one of preserving what we have. Our problem is to continue to engage in pure—or fundamental—research in all scientific fields. Such research alone leads to striking developments that mean leadership. Yet it

(Continued on page 203)



PHYSICISTS PUT THEIR HEADS TOGETHER—These professors of physics attended the A. A. A. S. meeting in Washington to report recent advances to the scientists gathered there. They are, seated left to right: Dr. C. M. G. Lattes, University of California; and Dr. John A. Wheeler, Princeton U. Standing, left to right: Dr. Jayme Tiomno, Princeton U.; Dr. Willis E. Lamb and Dr. I. I. Rabi, of Columbia U. (See p. 195)



Truman Address

(Continued from page 199)

is precisely in this area that we, as a nation, have been weakest. We have been strong in applied science and in technology, but in the past we have relied strongly on Europe for basic knowledge.

Pure research is arduous, demanding, and difficult. It requires unusual intellectual powers. It requires extensive and specialized training. It requires intense concentration, possible only when all the faculties of the scientist are brought to bear on a problem, with no disturbances or distractions.

Some of the fundamental research necessary to our national interest is being undertaken by the Federal Government. The Government has, I believe, two obligations in connection with this research if we are to obtain the results we hope for. First, it must provide truly adequate funds and facilities. Second, it must provide the working atmosphere in which research progress is possible.

Program in Many Fields

As to the first point, the Government is developing impressive programs in many scientific fields. Fundamental research is being carried on for the National Military Establishment in the laboratories of the armed forces, of industry, and of our universities. The Atomic Energy Commission has been pushing its extensive research. The National Advisory Committee for Aeronautics has expanded its many aeronautical developments. The Federal Security Agency has engaged in extensive medical studies, in its own laboratories like the National Institutes of Health, and through grants to colleges and universities. Other Federal agencies, such as the Departments of Commerce, of Agriculture, and of the Interior, have pursued vigorous programs. The Inter-Departmental Committee on Scientific Research and Development, appointed by me last March, aids in coordinating the Government's many research programs. I sincerely hope that these programs will be further developed and coordinated by the early passage of a National Science Foundation bill.

The second obligation of the Federal Government in connection with basic research is to provide working conditions under which scientists will be encouraged to work for the Government. Scientists do not want to work in ivory towers, but they do want to work in an atmosphere free from suspicion, personal insult, or politically motivated attacks. It is highly unfortunate that we have not been able to maintain the proper conditions for best scientific work. This failure has grave implications for our national security and welfare.

There are some politicians who are under the impression that scientific knowledge belongs only to them. They seem to feel that it is dangerous to let scientists know anything about scientific developments in this country.

Telegram from Scientists

This situation has been of increasing concern to me. It was highlighted by a telegram I received last week from eight distinguished scientists. These men expressed their alarm at the deterioration of relations between scientists and the Government because of the frequent attacks which have been made on scientists in the ostensible name of security. The telegram points out that the actions of certain groups are "creating an atmosphere that makes men shun Government work," and that the Federal Government is losing the services of excellent scientists because they have been looked upon from certain quarters as "men not to be trusted." The telegram points out that scientists fully appreciate the need for sensible security measures. But scientists very understandably are reluctant to work where they are subject "to the possibility of smears that may ruin them professionally for life."

That telegram was a balanced and sober presentation of a vital problem that concerns every American.

Continuous research by our best scientists is the key to American scientific leadership and true national security. This indispensable work may be made impossible by the creation of an atmosphere in which no man feels safe against the public airing of unfounded rumors, gossip and vilification. Such an atmosphere is un-American. It is

the climate of a totalitarian country in which scientists are expected to change their theories to match changes in the police state's propaganda line.

I hardly need remind this Association that it is primarily to scientists that we owe the existence of our atomic energy enterprise.

It was the scientists who first saw the possibility of an atomic bomb. It was the scientists who proved the possibility. It was the scientists who first saw the need of security measures, and who on their own initiative clamped down a tight lid of secrecy on all experiments. It must not be forgotten for a moment, and certainly it must not be obscured by any smear campaign, that but for the scientists we would have no atomic energy program.

We are only in the beginnings of the atomic age. The knowledge that we now have is but a fraction of the knowledge we must get, whether for peaceful uses or for national defense. We must depend on intensive research to acquire the further knowledge we need. We cannot drive scientists into our laboratories, but, if we tolerate reckless or unfair attacks, we can certainly drive them out.

These are truths that every scientist knows. They are truths that the American people need to understand.

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Set, complete \$150.00 fob Philadelphia

SET NO. 1

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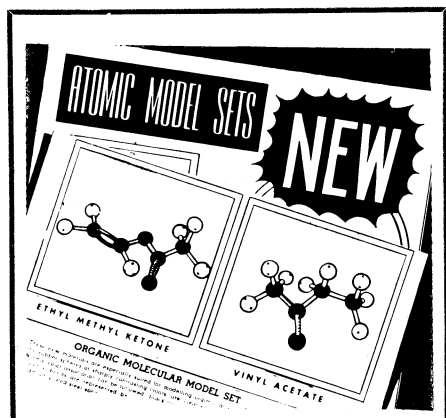
The average annual consumption of *eggs* in the United States is 380 per person.

Paint in the can should be stirred, not shaken; shaking is apt to result in minute air bubbles which may cause pin prick blisters on the finished job.

Deciduous trees with small leaves thrive best in *high-wind areas*; the small leaves spin in the wind and stay on the tree, while large leaves of other trees are pulled off.

A disease that appears to be native to the soybean belt of the United States called *brown stem rust*, is caused by a fungus that has the peculiarity of growing rapidly only in rather cool weather.

Six varieties of *trees*, used to repair 1944 hurricane damage, have been found to do best in the salt spray and strong winds on Cape Cod, Mass.; they are honey locust, Wisconsin golden willow, Austrian pine, Japanese black pine, Aspiratte spruce and the native pitch pine.



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Science has no political affiliation. Concern for our national security is non-partisan. Sober recognition of scientific research as the basis of our future national security should certainly be non-partisan. All Americans have a solemn obligation to avoid those methods and procedures which are impeding scientific research—whether adopted mistakenly with good intent, or advocated in the name of security by men with other axes to grind.

My emphasis tonight has been on the physical and biological sciences. These are obviously in the forefront in terms of our industry and technology. But the social sciences and related fields are at least as important in the present stage of human affairs.

The physical sciences offer us tangible goods; the biological sciences, tangible

cures. The social sciences offer us better ways of organizing our lives. I have high hopes, as our knowledge in these fields increases, that the social sciences will enable us to escape from those habits and thoughts which have resulted in so much strife and tragedy.

Now and in the years ahead, we need more than anything else the honest and uncompromising common-sense of science. Science means a method of thought. That method is characterized by open-mindedness, honesty, perseverance, and, above all, by an unflinching passion for knowledge and truth. When more of the peoples of the world have learned the ways of thought of the scientist, we shall have better reason to expect lasting peace and a fuller life for all.

Science News Letter, September 25, 1948

TECHNOLOGY

Dishtowels from Asbestos

➤ **FLUFFY FIBERS** of the mineral asbestos are being woven with cotton to produce a truly absorbent dishtowel.

The fabric is 20% asbestos and 80% cotton. Tiny bundles of asbestos fibers in the cloth blot up the water.

The fabric is dyed after being woven, but only the cotton fibers absorb the color. Thus the solid-colored towels, sold under the trade name of Carosel, are decorated with tiny flecks of white—the undyed asbestos.

Fire-resistant cloth is also made of asbestos and cotton fibers. This material contains 80% asbestos, 20% cotton—just the reverse proportions of the dishtowel fabric.

Useful in fighting fires, this material serves in the home as ironing board covers and “slippers” for hot irons. The fabric, which weighs only 22 ounces per square yard, is used in electrical insulation, laundry mangle and press covers, fireproof draperies and industrial rubber goods.

Cotton is mixed with the fireproof asbestos to give the fabric a firmer construction. Slippery asbestos fibers do not hold together well, so cotton is employed to anchor them in place. The cotton is combustible, but because of the large percentage of asbestos fibers the fabric will not support a flame for more than an instant or so.

The strength of cotton yarn is almost doubled by a new chemical and mechanical treatment. Any type of conventional cotton ply yarn can be used. The chemical treatment works on the natural waxes of the cotton fibers to reduce their tendency to slip over each other; a stretching operation further increases the strength of the cotton. The yarn's tensile strength is improved as much as 70% to 90%.

This extra strength makes the yarn especially valuable for use in rubber-fabric conveyor belts, high-pressure hose and other industrial rubber products where high

strength and low stretch are important.

Some yarns are made to stretch, then snap back into shape. These elastic yarns are becoming increasingly popular for home use. Buttons can withstand sudden tugs when sewed with elastic yarn. Ruffling for curtains can be shirred and little girls' dresses smocked on the sewing machine when this thread is used.

The base of the elastic yarn is a rubber core, around which threads are wound. At least two threads are always applied, wound in opposite directions, to balance the yarn and keep it from twisting.

Samples of these specialized yarns and textiles have been collected for you through the cooperation of the United States Rubber Company and Science Service. Also included among the nine specimens are an elastic yarn only 1/125 of an inch in diameter and a fabric of permanent starchiness.

These specimens, with a leaflet telling how they were made and experiments you can perform with them, may be secured by sending 50 cents to Science Service, 1719 N St., N. W., Washington 6, D. C. Just ask for unit No. 95, the Specialized Textiles Unit of THINGS of science.

Science News Letter, September 25, 1948

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