

GENERAL SCIENCE

Science and Society at AAAS

Drs. Detlev Bronk, Leonard Carmichael and Edward U. Condon address sessions of the American Association for the Advancement of Science on the role of scientists in society.

► **MORE SCIENTISTS** should be in positions of control in the legislative and executive branches of government and upon the boards of trustees of universities and research institutions, Dr. Detlev W. Bronk declared, speaking as retiring president of the American Association for the Advancement of Science at Boston.

Dr. Bronk, who is president of the Rockefeller Institute for Medical Research and also of the National Academy of Sciences, said in part:

Those who formulate our laws and those who administer the affairs of government deal with the problems of a scientific age. But you will with difficulty find in Congress or in Presidential cabinets trained scientists or engineers.

The great importance of science today tempts many who are not scientists to control the policies and conditions under which scientists must work.

It does not justify the inadequate representation of scientists on the councils which shape the course of science and the destiny of people in an age of science.

More scientists are needed as trustees of universities and research institutions and administrators of governmental and private organizations concerned with science and technology.

There is need for scientists in the higher level of government . . . Society needs our participation in its guidance. This we can best do by serving on the governing councils and not as mere advisers or correctors of unwise action.

The role of the scientists in the formulation of science is of especial significance in these times when the course of science is so largely influenced by financial pressures.

In these days of budget-makers, appropriation committees and fund raisers the effects of the development of science require scientists who are also men of affairs and statesmen.

Scientists should play a significant role in the formulation of national policies in these times when authoritarianism and suppression of inquiry and free discussion are threatened by the fear of change.

The continuing vigor and vitality of our nation and our sister democracies requires courageous leaders who are intellectual adventurers.

There is no place in science for timid men and women who are unwilling to defend freedom for inquiry and free, unprejudiced discussion. The furtherance of science requires courage to withstand the pressure of reactionary forces.

Science News Letter, January 16, 1954

► **PRESIDENT EISENHOWER'S** proposal before the United Nations for international cooperation towards the utilization of nuclear energy was unanimously commended by the council of the American Association for the Advancement of Science meeting at Boston.

"Many scientific and technical problems remain to be solved in such an undertaking," the resolution states. "Scientists throughout the world will welcome the opportunity to work together on these problems as a service in the interests of peace and a contribution to the welfare of all peoples.

"Science is a major constructive force in the world. It knows no geographical boundaries. Hence the prospect of bringing scientists from many countries together in a collaborative research and development effort in this promising area provides great hope not only for immeasurable material benefits but especially for better understanding and goodwill among nations."

Science News Letter, January 16, 1954



DR. GEORGE BEADLE—*Newly elected president-elect of the AAAS, Dr. Beadle is chairman of the biology division of California Institute of Technology. Dr. Beadle is noted for his work with one-celled plants by which he has demonstrated that each of the individual, biochemical reactions of the cell is governed by a particular gene.*

► **DANGEROUS PROGRAMS** of modern Fascism and Communism can be traced back to unproved guesses about human nature, Dr. Leonard Carmichael, secretary of the Smithsonian Institution, Washington, declared in the Phi Beta Kappa address at the American Association for the Advancement of Science meeting at Boston.

Dr. Carmichael, psychologist and former president of Tufts College, said in part:

Especially during the last century and a half science has contributed to social change and to the improvement of the lot of many of the peoples of the globe. Pure science, technology and modern medicine all have continuing social implications of great importance. Political and economic stability are needed to allow the further development of these benefits and their wider distribution throughout the world.

Can science and education help in establishing such a steady and conservative economic and political life? The answer is "Yes." To do so, however, more study than at present must be given to human genetics.

Scientific psychology also must actively investigate the limitations and special characteristics of human mental life which are inborn and which do not result primarily from environmental conditioning or cultural learning.

Some economic and political revolutionaries and reformers of the 18th and 19th centuries assumed that they knew all about the basic makeup of human nature. They said that man is born good but corrupted by a bad society. Some even thought that by upsetting established economic and political institutions a golden age could be established in one generation.

They held that men and women need not themselves try to be good and to avoid evil because a utopian society would do all this for them in a painless way.

Some of the assumptions made by those who popularized this dream have never been tested by modern science. These unproved guesses about human nature, nevertheless, underlie much of the theorizing and of the dangerous programs of modern Fascism and Communism.

A full scientific study of human genetics and of the importance of heredity in determining the limitations and the inborn characteristics of man's mental life is thus a great need of our age if we are to develop a sound social philosophy and maintain our democratic freedoms.

Better education in science, social science and especially in the humanities is important in this present age of atomic development and of dangerous international tensions. A proper study of the best wisdom of the past as given in religion and in the humanities is thus now needed in a unique way.

By such education each new generation can learn about the value scales that have

proved to be adequate in the long past of human living. Such scales can then be applied to modern problems which analysis will often show are old human questions decked out in new clothes.

Thus man, in many ways an ancient mammal with fixed brain capacity, can learn how to maintain a conservative, democratic, law-based, social order which will nevertheless allow each individual to achieve and enjoy the fullest personal freedom of which he is capable.

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Uncritical Conformity Endangers Progress

► UNCRITICAL CONFORMITY is dangerous to our progress and we have a positive duty to exercise our critical faculties, Dr. Edward U. Condon, president of the American Association for the Advancement of Science, declared in the address at the presentation of the George Westinghouse Science Writing Awards at Boston. Dr. Condon, who is research director for the Corning Glass Works and formerly director of the National Bureau of Standards, said in part:

Conformity, in the sense of uncritical adherence to some established doctrine, is a deadening thing to the scientific and intellectual growth on which progress depends. This being so, we have not merely the freedom and the privilege of critical examination of the ideas and facts and interpretations put before us for our acceptance, we have a positive duty to exercise that privilege by active use of our critical faculties, a duty without the exercise of which we cannot be said to have discharged the responsibilities of democratic citizenship.

It is this attitude toward new data and new conclusions which we find well-developed in scientific research at its best. It is this attitude which is often so sadly lacking in the politician's approach to social problems, and which is so sorely needed there even though its use in the political field is so much more difficult because of the emotional connotations of so many social problems.

It is, I am convinced, the lack of this attitude in handling political problems which more than anything retards progress in this field.

This point is not as well understood as it should be, otherwise I would not use this occasion to talk about it. I think the science writers understand it pretty well for they are the kind who themselves have a natural inclination toward scientific method.

But here at this convention I have talked with several of the working press of Boston who do not ordinarily deal with science. The kind of political misbehavior, which is being these days over-dignified by calling it anti-intellectualism, and which really represents nazi-type pressures against independent thinking and toward conformity to authoritarian doctrines, seemed to be very much on their minds.

Several of these men seemed vaguely to have the idea that the tendency of the



DR. DUANE ROLLER—Newly appointed editor of both AAAS publications, *Science* and *The Scientific Monthly*, Dr. Roller, a trustee of *Science Service*, was formerly with *Hughes Aircraft Co.* in California.

scientists toward independent critical thought was just a kind of unruliness or bad-boy-ism which we perhaps have to tolerate in these eccentric fellows because they are the geese that lay the hydrogen bombs and many other great and good things.

When I encounter men who think this way, I labor earnestly with them trying to get them to see that these are not just little adventitious oddities of the scientific homunculus. I try to get them to see the point I am trying to make there, that the critical questioning attitude is an essential ingredient of the scientist's method of working. Without it the method does not work.

I just came sharply up against this misunderstanding in my loyalty hearing five years ago—a really rich experience if I ever had one. The board chairman was a tired old civil servant without the slightest notion of what modern science is all about. He was turning over some notes he had made from certain raw unevaluated files and finally said to me in an accusingly questioning way, "Dr. Condon, we understand that you have at times been critical of the older ideas in physics."

At first I thought my leg was being pulled, but then I caught a glimpse of the sustained humorlessness of these tiresome proceedings, so I replied by making a stirring affirmation of truth in Archimedes' Principle and in Newton's Law of Gravitation. This seemed to satisfy them for I was not asked to take sides on the matter which brought Galileo before the Inquisition.

Clearly it would have been hopeless with those people on that occasion to try to make the point I am trying to make here on the duty of dissent. I hope it is not hopeless or even necessary here.

I think that it is interesting and instructive to observe the degree to which people

one meets have a critical questioning attitude or conversely have an uncritical conformist viewpoint.

For example, it is instructive to consider in this light young Americans who have for a time been in some degree associated with the Communists. There are some who showed an interest in the mid-thirties, and I think it is a sign of a good inquiring mind that they did so. I respect them for it more than some of those who never had a lively enough spirit of inquiry to do so.

Then they soon became acquainted with the rigid authoritarian boundaries of its doctrine and pushed it away from themselves as a thing of no value, and I respect them for this, too.

But then there is another type of ex-Communist who never as a Communist had an inquiring or critical mind, but followed the comrades in blind faith until they happened to be disillusioned. Then in a wild emotional reaction they leap from slavish adherence to Communist dogma to equally violent and passionately slavish adherence to an authoritarian anti-communism.

It is these people who are doing so much harm in America today as they eagerly play the game of the elements in Congress who have shown little respect for American principles of freedom and fair play.

In my opinion the most important contribution which science is making and in large measure has got to make to human welfare is the inculcation of the scientific attitude of objective critical analysis of complicated situations and of the ability to reserve judgment until the facts are in.

This is not a passive attitude but an active one requiring honesty and fairness combined with the eagerness and activity shown by a good newspaperman on the trail of a story.

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DR. DAEL WOLFLE—Director of the Commission on Human Resources and Advanced Training, Dr. Wolfle has now been appointed the administrative secretary of the AAAS.