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THE FIFTIETH ANNIVERSARY OF THE U. S. GEOLOGICAL SURVEY

SCIENCE IN THE GOVERNMENT[1]

OUR civilization is being made over right before our eyes under the stimulation of the forces set loose by discovery, research and invention. This new physical world has a firm basis upon undeviating universal laws. It is probably true that we have available a mere fragment of the great structure of knowledge which will eventually be brought into the service of man. Our view-points are rapidly changing. Old assumptions, theories and dogmas are being rapidly pushed out of our minds. In this period of mental ferment, shams have been exposed, the taboos of centuries released, and much has been brought up for discussion which was considered settled by our forefathers.

In the field of government there has been a rapid increase of democracy. To an increasing degree, science has become definitely associated with the development and functions of government. This is the age of democracy and science. Science has no sympathy with substitutes for the truth. Science is giving the human family a unique and unexampled service, and through it the human mind has been vastly increased in its range and mental power.

With the development of the democratic idea and the elimination to a large degree of the divine right of rulers, the necessity of wise leadership selected by democratic processes becomes a paramount need. This is the day of the expert. The man who knows must be recognized and used. In the fields of science the experts can be trained and developed, but such experts require opportunity for long years of study and they need constant exposure to those who are devoting their lives to research; in fact, progress in our modern civilization is going to depend upon the experimental method rather than upon catchwords, aphorisms or the persistent broadcasting of untried ideas. So close to-day is the link between science and its laboratories and the government that we can measure the progress of a civilization by its economic capacity to support laboratories and by the quality of the intellects brought into them.

It has been customary in government with the needs of agriculture, public health and in other fields to set aside a certain amount of money and certain

[1] Address delivered in Washington on March 21, 1929, upon the occasion of the celebration of the fiftieth anniversary of the foundation of the U. S. Geological Survey.

bureaus for those studies requisite for security. There has been too a fortunate tendency to increase the amount of work done in government laboratories which can be classified as of a fundamental character —that is to say, searching for truth for its own sake rather than for practical procedures immediately applicable to daily life. Essentially research depends upon a large amount of reserve time which can be used by men of great curiosity and industry without the supervision of others except in the broadest way. The ordinary administration of government, the ordinary handling of budgets, do not lend themselves well to research. It requires its own technique. In it there will always be an apparent waste of time and false leads. Most leads in the great unknown are apt to end blindly. The discovery of new facts which once discovered become the eternal property of man, is full of hazards and uncertainties. In some ways the research worker has as difficult a task as that of a blind man trying to thread a needle. Many attempts must be made before success is assured. Because of this it is most important for the modern democracy to set up its relationships to science from the standpoint of the budget in such a way that funds will not be tagged for specific purposes. Funds should be made available for the securing of the best brains possible and for the facilities that they require, in order to pursue the unknown. While this function is carried on by many independent institutions and as a part of great industrial concerns, nevertheless it seems to me that, since science and government are so closely related, government itself must make liberal grants for investigation and research. In the new world's civilization which is now a world-wide structure, interlocked economically and with all kinds of interrelations and intercommunications, a new conception of world citizenship is developed. Truth discovered by the citizen of any country can readily become the property of all. A democracy which is not seeking for new truth and new facts can no longer consider itself safe in this world of harsh reality where facts determine the issue. These facts applied either to industry or to national defense determine not only progress but even safety.

The U. S. Geological Survey is an example of the service which science can render to government. The geologist with his trained mind has made a study of that part of this great continent which is in our possession. Through years of endeavor and the work of thousands of trained men, we possess a fund of information regarding our mineral, water and soil resources which guides much of our national policy in various fields. It is obvious that without the help of the expert we should have floundered in our conquest of the natural resources of the country. Upon the imaginative mind of the geologist and his capacity to visualize the treasures stored below the surface of the earth depends much of our future national welfare. In the Geological Survey we have had much that was practical but also much that was fundamental.

It is a privilege for me to congratulate the men here who represent in person the great services rendered to our country through this particular activity. In them we see the scientist in the service of government. If we can develop in other fields the same type of devoted and earnest and intelligent service that characterizes this survey, we can look with assurance upon the future of our people. But this assurance can only be secured by an understanding on the part of the citizens of our democracy of the true place of science. Majority votes may determine political activities, but they can in no way influence the laws of nature or those of science. A wise democracy will harmonize its program with them. The scholar and the research worker must have the freest initiative to pursue truth, no matter where it may lead, if we are to avoid the perils of ignorance.

RAY LYMAN WILBUR

DEPARTMENT OF THE INTERIOR

THOMAS JEFFERSON, THE PIONEER OF AMERICAN PALEONTOLOGY[1]

IN 1789 the Reverend Nicholas Collin, an accomplished botanist and acquaintance of Linnaeus, remarked before the American Philosophical Society at Philadelphia:

> The vast Mahmot is perhaps yet stalking through the western wilderness; but if he is no more, let us carefully gather his remains, and even try to find a whole skeleton of this giant, to whom the elephant was but a calf.

Collin was one of the prophets of American paleontology, with whom we may rank other historiographers—such as, Samuel Maverick (1636); John Bannister (1686); the French officer, Longeuil (1739), who took the teeth of a mastodon from the mouth of the Ohio River to the great French naturalist, Buffon; also the pious Cotton Mather, who in 1705 described the mastodon remains found at Albany as those of a human giant, and Dr. William Hunter, of Harvard College, who remarked to his medical students in 1767 regarding the mastodon:

[1] Address delivered in Washington on March 21, 1929, on the occasion of the fiftieth anniversary meeting of the foundation of the U. S. Geological Survey.