

## THE PRESIDENT'S ADDRESS—THE RELATION OF ACADEMIES OF SCIENCE TO THE STATE.

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The Illinois State Academy is *true to type* as defined in Britannia, which says:

“An academy of science is a society whose object is the cultivation and the promotion of science undertaken for the pure love of these pursuits with no interested motive.”

It thus differs from many organizations whose motive is profit of a pecuniary character for the members. In our organization the motive is the promotion of research and the diffusion of scientific knowledge for the advantage of the people of the State.

Membership in the Academy does not convey distinction. Any one of reputable character who is genuinely interested in science is welcomed as a member. Fortunately the most prominent of our men of science are active members of the Academy, but high school boys are welcomed just as cordially—they are the eminent men of science of the future. The Academy is not exclusive or aristocratic. On the contrary, it is genuinely democratic.

As one meets man after man of our membership he finds an interesting company. They may be connected with an educational institution or not. They have usually the charm of individuality. For example, there is Mr. F., one of the most successful collectors of shells in the United States, who has a remarkable collection of snail shells which he has brought together in a search extending from Maine to Oregon and from Arizona to Florida. A few weeks ago the conchologist of the Philadelphia Academy of Science said to me: “Mr. F. has a remarkable faculty of finding the shells in which we are interested. When in the field he seems to go directly to the pile under which the shells are hidden while I wander around in vain.”

Another interesting member of the Academy works in a steel mill. A few years ago when his left hand was caught in the cogs of a wheel he had sufficient quickness, strength and courage to throw his arm around a pillar and to hold until his left arm was torn from the body and his life was saved. In spite of this affliction he has done remarkable work in paleontological collecting. Equipped with the kind of hammer dentists use he has carefully and patiently chipped out very delicate fossils. He has one of the most complete collections of mastodon tusks and teeth which I have seen outside of a public museum.

Another interesting member—just to mention one of the many men connected with educational institutions—has the habit of picking up medals! He is the second man in the United States to receive the Copley Medal given by the English government (the first being Benjamin Franklin). A few years ago he received the Nobel Prize for the best contribution in physics—the only Illinoisan thus far to receive this prize. We are hoping that each member of the academy will take his turn at this prize.

What the relationship between the Academy and the State should be can best be determined by comparing past and present practice in this regard and by conceding the services which each may render the other.

Not until recently did I happen to notice that Alexander the Great gave to the Academy of Aristotle at Athens, 800 talents—a large sum of money—and sent men to distant countries to collect plants, animals and other natural history objects. The result of this was the production of the best natural history of those times.

The first Ptolemy founded the Academy of Alexandria, housed it in a palace, supplied it with instruments, natural history objects and books. Its library of 700,000 volumes was the most famous of antiquity. In its walls studied Euclid, the father of geometry; Archimedes, the mathematician, who invented the spiral screw used to raise the waters of the Nile for irrigation; and Eratosthenes, who studied the elevation of lands, measured the circumference of the earth and pursued other geological and astronomical subjects. For seven hundred years this academy with its library and museum, was the center of learning for all Africa and Europe.

Italy has had many academies. They were supported by such rulers as the Medici, and by Prince Fredrico Cesi, who founded and supported the Academia of Lincei in 1603—the oldest of the Italian academies and the one to which that famous academician, who was the subject of a charming address by one of our presidents, Galileo, belonged.

Every European country in fact has one or more state academies of science. Just to mention a few of the most prominent we may note the English Academy, the Royal Society, which was founded in 1662 by Charles II. Four years later Louis XIV started the French Academy. Thirty-four years later (1700) Frederick I started the Berlin Academy with its libraries, museums, and laboratories. A magnificent new build-

ing was, before the outbreak of the war, being erected for it in Berlin. Twenty-four years later (1724) Peter the Great inaugurated the Petrograd Imperial Academy. Then came the Copenhagen Royal Academy founded by Christian VI (1744); the Hungarian Royal Academy, which now has such fine buildings, museums, etc., founded by Count Szechenyi; and the Vienna Royal Academy, founded by Ferdinand I. All these rulers, from Alexander the Great to Ferdinand, were men of unusual sagacity and character and nothing which they did was more wise or more instrumental in perpetuating their fame than the foundation of these academies which were centers of the intellectual life of their times. The academies mentioned are provided with ample quarters, with libraries, with museums and with laboratories.

The buildings which they occupy make an imposing array—sometimes being old palaces rich with historical settings, sometimes exquisite new buildings fitted especially for the needs of the institutions.

Their libraries are often remarkable repositories of scientific literature; their museums contain extensive and valuable collections; and their laboratories are in many instances well fitted for scientific investigations.

The list of their members includes men who have made contributions to knowledge which are immeasurable in value.

In the French Academy were such men as La Place, Buffon, Lagrange, D'Alembert, Lavoisier, Fresnel, Ampere, Biot, Gay Lussac, Cuvier, Pasteur; in the Royal Society, Newton, Sir Humphrey Davy, Michael Faraday, Huggins, Lord Lister. These men met in their academies, announced their discoveries, performed their experiments, received criticism, listened to discussions, gave and received inspiration and stimulus. As a result men are today wiser, better and richer.

In return for the \$20,000, which the Royal Society receives annually to aid its investigations, it has done much valuable work for the state. It has been called upon in hundreds of instances to furnish expert knowledge and advice. It has been consulted by the English government in a multitude of cases of which the following are instances: The equipment of the Royal Observatory; the question of calendar reform (the very question which our own State academy is considering at present); measurements of various kinds—the length of a degree of latitude, of the seconds pendulum, of standards of length; all kinds of surveys; expeditions to various parts of the world; questions having to do with health and sickness, malaria, trop-

ical diseases, sleeping sickness, etc. Today it stands as the venerated head of the splendid body of British Science.

Coming nearer home, our National Academy, of which many of our Illinois men are members, was incorporated with the provision that it should, "Whenever called upon by any department of the United States government, investigate, examine, experiment and report upon any subject of science or art." In return it receives support from the Federal Government.

Indiana on our east, Michigan and Wisconsin on the north, Iowa, Kansas and Nebraska on the west, all assist their academies financially. We trust that the time is now present when the State of Illinois will do likewise for this association of men who are working in every part of the scientific field for the benefit of our citizens.

In return for State aid what could the Academy offer? Consisting as it does of experts in all departments of science it could most appropriately and safely be made a legislative reference bureau of the highest type for certain things, and in a short time could more than justify its existence by expert advice. We believe that much faulty legislation is enacted. Far too often we are locking the stable after the horse is stolen. Faulty legislation may occur here, as it did in Pennsylvania in 1885, when the legislature authorized counties to pay bounties for the scalps of hawks and owls. Within a short time \$90,000 was paid out in bounties. It is estimated that for every dollar saved \$1,205 was paid out. The balance of nature was destroyed and within two years after the passage of the bill the farmers found their crops and orchards so completely overrun by destructive mice, rats and insects that it was estimated that \$2,000,000 loss was suffered in valuable crops. California had a similar experience.

We may become accustomed, and hence able, to endure unwise legislation, but this should be avoided when among our citizens, there are those wise enough to furnish proper counsel.

Even more important than advice in matters of legislation is the promotion and diffusion of scientific knowledge among the people. Industrial research, agricultural research, medical research, all contain possibilities undreamed of by people who are not so situated as to be conversant with what these lines of investigation have to offer.

The work of chemists, physicists, geologists, biologists and bacteriologists has revolutionized our mode of life, the comforts of our homes, the health and the happiness of our people.

In fact it may be said that every great advance of mankind has been due to scientific researches and their practical application, and I believe that the State can do nothing better to advance the welfare of its people than to encourage such organizations as this Academy of Science, which aims to inspire and assist all men who are working in scientific fields.

May the time soon come when our Academy is found in an appropriate building; is equipped with a library rich in the literatures of science, as applied to Illinois conditions, and with a museum which will fittingly represent man and nature in this State.

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