

the investigation of diseases due to the fungus parasites in general."

This is not the place to attempt anything like a true picture of the amount of fundamental research going on in our experiment stations. That it exists in large amounts is quite obvious to any careful observer. I can think of no finer tribute to these great institutions of service and science than such a picture carefully and faithfully portrayed by a discriminating survey. I, for one, shall be disappointed if such a picture does not emerge from the forthcoming survey of Land-Grant Colleges.

But directors of experiment stations who have only the faith in fundamental research are men of little faith. They have only the half of it. The other half is an unquestioned faith in your investigator. His is the lonely and hazardous field of exploration. He it is who is in the unknown forest seeking the way out. Here a deer trail lures him from his path, there a fallen tree makes necessary a detour. Heavy underbrush obscures the trail, and he must quickly follow such judgment as he may possess to determine his direction. Clues and "hunches" necessitate numerous unforeseen exploratory excursions. Trails may end in dense thickets, impassable bogs or steep precipices, and he must retrace his steps. Can you, Mr. Director, swing in the swivel chair of your office and tell him just where to go and what to do? Shall he ask you whether he must turn to the left or right around that fallen tree? Can you show him the way up the steep cliff? If so, you have no need for an investigator. You merely need a timber cruiser or a hired man.

Are you going to make this busy seeker for the trail report every move, every beaver run, every swamp he searches in his quest for the trail? Can he possibly make a detailed project of his every future move? And how much it will cost? Can he possibly tell you beforehand where he is going and what he is going to do? If he is a real and honest investigator, he will say that he doesn't know. He can not possibly foresee all of the obstacles. He is a searcher in the unknown.

True, he needs to have in mind a general project of his search. He must have a definite trail in mind. He is not merely camping or fishing for pleasure. He seeks a northwest passage and he would be hopelessly lost without a tentative chart of his proposed travels. But once started in the woods, he is on his own. His must be the decisions, his the responsibility. All that is left for the director is faith in his emissary. Of course, if he's gone too long and probably lost, a relief expedition may be necessary, or he may come back for larger supplies and more men. Then must

the director decide the advisability of continuing or abandoning the search—of renewing or withdrawing his faith in his investigator. I take it that a station director, like the director of any other institute for fundamental research, needs an inexhaustible store of faith. And please don't forget that such faith can be quite tangibly expressed on the payroll in figures that are concrete demonstrations of your appreciation of the importance of this man and his work. For "faith without works is dead!"

It was a poet and not a scientist who so charmingly advocated safe and hopeless mediocrity: "Be not the first by whom the new is tried nor yet the last to lay the old aside." Our "jazzy" but withal discriminating youth of to-day repudiate that advice when they slangily reply, "We'll try anything once!"

I believe an agricultural experiment station should engage in solving the practical problems of agriculture; I believe that it should render real service to agriculture and thus to the whole people; I believe that it should extend its knowledge to all the people by every legitimate method; and last, but not by any means least, I believe that it should contribute generously to the investigation of those deeper problems which lie at the bottom of our present knowledge in every field of agriculture. Then, indeed, will it be able to render the greatest possible service to agriculture through a more profound knowledge and a more fundamental solution of practical problems. Then will it be secure in its conviction that its numerous and ever-branching streams of extension activity flow from a deeper and clearer source of knowledge. Then, and only then, may it lay claim to its proper title as an Institute for Fundamental Research in Rural Affairs.

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SCIENTIFIC EVENTS

THE STUDY OF AGRICULTURE IN NEW YORK STATE

GOVERNOR FRANKLIN ROOSEVELT sent to the New York State Legislature on March 17 three bills, the last of his farm relief measures, based upon the recommendations of his Advisory Agricultural Commission.

The bills submitted call for appropriations totaling \$168,530 for investigation into problems of interest to the farmer, varying from crop adaptation and soil conditions to cooperative marketing and rural government. The work would be done by three state agricultural institutions.

The governor's message to the legislature, accompanying the bills, follows:

Many farmers in the state are asking for constructive assistance in the solution of certain problems in the management of their farms and in their business which call for expert scientific research. This assistance must come from those who by training and experience are in a position to deal fundamentally and comprehensively with the specialized technical and scientific problems involved.

I, therefore, recommend the passage of three bills which have been prepared, for investigations, research work and for necessary personal service, and construction work incidental thereto, by the New York State College of Agriculture at Cornell University, the New York State Agricultural Experiment Station at Geneva and the New York State College of Home Economics at Cornell University.

These bills provide for appropriations totaling the sum of \$168,530 to be spent on investigations of muck land problems in their soil and pathological aspects, crop adaptation, fertilizing and cultural practice, potato diseases, city markets, regional readjustments and development of cooperative marketing, rural government, animal husbandry, peach moths, codling moths and allied insects, and the question of living costs on the farm.

These expenditures have been recommended to me by the Agricultural Advisory Commission which I appointed last December and represent the minimum of what ought to be done this year to help the farmer to meet his farm problems.

THE "SLOTH PIT" IN NEW MEXICO

THE Peabody Museum of Yale University and the U. S. National Museum at Washington, acting jointly, sent an expedition on March 25 to New Mexico to excavate completely the extinct fumarole in which the fossil of the Yale ground sloth was found. Yale will be represented in the expedition by Fred W. Darby, in charge, and the National Museum by N. H. Boss. Ewing Waterhouse, of El Paso, Texas, one of the discoverers of the sloth, will assist the party. It has been agreed that all bones recovered will be divided between the Peabody Museum and the National Museum, with the understanding that, should another sloth be found, it is to go to the National Museum.

The work is to be done in Dona Ana County, New Mexico, about forty-five miles northwest of El Paso, Texas. This is an extensive volcanic region where lava flows are a characteristic feature. Near the town of Aden lies the low cone of an extinct crater rising about two hundred feet above the surrounding country. Within the crater the floor is flat, about a quarter of a mile across, and is sparsely covered by cacti and other desert plants. On the east side the crater rim is broken by a gap which forms a passage into the interior, with gradually narrowing walls. In the floor of this passage lies a seemingly bottomless pit, the aperture of which is about eight feet in its longest

diameter and covers the entire width of the passage. This forms a natural death trap, and it was into this pit that the sloth now at Peabody Museum blundered, possibly when pursued by wolves.

At a vertical depth beneath the surface of about one hundred feet is a cavern full of bat guano, the accumulations of thousands of years, in which the sloth was found. The guano afforded the means of preservation of the entombed fossils. This cavern, which is estimated to contain about ninety tons of bat guano, will be excavated by the expedition. This means sifting the guano with fine-mesh sifters to insure against the loss of any bones, no matter how small, either fossil or recent.

As but little of the guano deposit has been disturbed, it is believed that more specimens will be found contemporaneous with, or older than, the Yale sloth, which may be upward of 500,000 years old. Professor Richard S. Lull, director of the Peabody Museum, has said that while the place could never have been occupied as a den, "it is hardly thinkable that our sloth was the only unfortunate of his day to blunder in."

RESEARCH ON DEAFNESS

GIFTS aggregating \$40,475 for research into the cause and cure of deafness were announced at a luncheon held on March 20 in the Hotel Commodore by the laymen's committee which is assisting the American Otological Society's Research Fund Committee in an effort to reach its goal of \$500,000 by June 30.

These gifts are to become a part of the \$2,500,000 permanent fund which the Otological Society, a branch of the American Medical Association, hopes to collect for a study of diseases and affections of the ear in the hope of discovering methods of dealing with the problem of chronic progressive deafness. The society is particularly concerned over those varieties of deafness, including otosclerosis, for which no cure is known at present.

Dr. Edward B. Dench, New York otologist, who was present at the luncheon representing the board of trustees of the research fund of the society, emphasized the importance of having \$500,000 available by the end of June in order that the important research work which has been started in several medical institutions under a grant by the Carnegie Corporation need not be interrupted. Dr. Dench made the statement that one out of every four persons in the United States is suffering from hearing defects of some sort.

The campaign was announced at a dinner given last week at the New York Academy of Medicine to a group of prominent otologists and interested laymen.