Building. Subsequent meetings are: Salt Lake City, June 15–16, 1933, Pacific Coast; Chicago, June 19–24, 1933, a joint meeting with the American Association for the Advancement of Science; Cincinnati, December 1 and 2, 1933; December, 1933, Pacific Coast, time and place to be announced later; annual meeting, December, 1933, Boston.

THE Canadian Institute of Mining and Metallurgy will meet at Toronto on April 4, 5 and 6. The program calls for some forty addresses by authorities on various phases of mining. For the first time, the Institute of Mining and Metallurgy of London will send its president, Dr. Sydney W. Smith, to confer with the Canadian Association. R. B. Bennett, prime minister, will be the chief speaker at the annual dinner. Other speakers will be Robert C. Stanley, president of the International Nickel Company; Wesley Gordon, federal minister of mines; Charles McCrea, minister of mines for Ontario, and Dr. Smith.

ARRANGEMENTS are being completed for the holding of the 1933 meeting of the Canadian Phytopathological Society at Regina, Saskatchewan, in July. A committee under the chairmanship of Dr. P. M. Simmonds, Saskatoon, has been appointed to look after local arrangements.

THE International Museums Office, on the invitation of the Spanish government, has called a conference to be held in October at Madrid for the study of museum problems.

THOSE interested in forming a Society for Research on Meteorites, whose purpose shall be to promote the discovery, collection, investigation and preservation of meteorites and to advance the science of meteoritics and related sciences through the increase and diffusion of knowledge concerning meteorites, are invited to communicate with the acting secretary of the preliminary organization, Professor H. H. Nininger, director, The Nininger Laboratory, 1955 Fairfax St., Denver, Colorado, or with Frederick C. Leonard, acting president, Department of Astronomy, University of California at Los Angeles, California.

THE following message was sent by President Roosevelt to the fourth congress of the Pan-American Medical Association, which opened at Dallas, Texas, on March 21: "I extend to you and your fellow members of the Pan-American Medical Congress, on behalf of the government, cordial greetings on the opening of the fourth congress, the first to be held in an English-speaking country. The medical profession is deeply interested in the accomplishment of this meeting, which means so much to the health and welfare of the nation, to say nothing of the promotion of friendly relations and mutual understanding between the United States and her sister republics of Latin-America. I am confident that you will find a most hearty welcome by the medical profession and an earnest desire to cooperate with you in every way in furthering the high object of the congress. I wish the members of the fourth congress every success in their great undertaking."

THE Marqués Sanchez Dalp, of Seville, has presented to the Institute of Agrarian Reform his large estates on the banks of the Guadalquivir, covering nearly 10,000 acres and containing 200,000 olive trees and several model farms linked by 56 miles of roads. The Marqués has improved his lands for 40 years and they are now valued at 30,000,000 pesetas (about £700,000). The object of the gift is to help the Spanish government with its schemes of agrarian reform, the intention being that the estates with all the installations on them, such as olive-oil factories and maize and bean sorting and packing machinery, should be used as a school for agriculture.

DISCUSSION

PATENTS ARE ETHICAL

THERE has recently been considerable discussion of the propriety of members of a university faculty taking out patents based on their discoveries. Such comments as I have seen have tended to the view that, if patents are obtained, they should ethically be transferred to the university.

With this view I very decidedly disagree; and my opinion is based, not on theory, but on extensive practical experience.

In the first place very few inventions are financially remunerative. If the university is to take the profit, it should also pay the expenses; and if it did pay the expenses, it would generally have a net loss. If an occasional patent does return more than the fees to the U. S. Patent Office and lawyers, the inventor is not thereby tempted to an enervating luxury. As a member of a university faculty, he generally needs an increase of income over and above his university salary. A good invention is as proper a source of income as the authorship of a good book. If the holder of the patent is freed to some extent from financial stringency and care, he will be the better able to devote himself to further scientific discoveries and useful inventions. Bread, or even a little butter on the bread, for a man and his family is one of the prime requisites for research, although this nutritional feature of productive scholarship is often overlooked.

But there are even better reasons for patenting new ideas whenever possible, and for the discoverer or inventor holding the patent himself. He can push it with more knowledge and energy, and can control it for the general welfare more effectively, than can the financial officers of a university. There is an opinion imputed to Emerson to the effect that the inventor of even a better mouse trap, although he hide in a cabin deep in the forest, will find that the world will beat a wide path to his door. I understand that it is doubtful whether Emerson ever said or wrote anything of the sort. He was a sensible man of considerable experience with new ideas; and certainly this statement is utterly contrary, in the large majority of cases, to actual experience. Inventions, like all other new ideas, have generally to be forced on conservative mankind. It would be easy to point to many inventions and other applications of discovery now saving large numbers of lives that would not yet be in use without advertising and the efforts of salesmen. Without commercialization a large part of all the scientific ideas that are now in constant and active use in our daily lives would be locked in books on the dusty shelves of university libraries. It is properly the business of the creative scholar to see to it that, if possible, his ideas serve mankind in his own generation.

But an even stronger duty rests on a discoverer or inventor. He should see to it that his idea or invention is not misused. He should control it. He should find one or more high-grade concerns to develop it. He should afford them at least such little protection as a patent gives against cut-throat competition, after they have spent money to put the invention into practical form and have made a market for it. Without some assurance of such protection it is difficult to get an idea developed and commercialized. The inventor should so far as possible prevent the sale of inferior or harmful imitations.

Often the investigator or inventor will be unable to accomplish all this. But at least he can do it better than the financial officers of a university. Their responsibilities and duties are sufficiently trying just now without this addition.

In this matter, as in all the other relations of scholars to their universities, it should always be assumed that members of university faculties are men of the highest character. Any new practise, rule or regulation that involves even the smallest imputation to the contrary, or that in any way impairs scholarly freedom, will tend rather to diminish than to insure the maintenance of scholarly ethics and faculty morale. Regulations impair ethics.

YANDELL HENDERSON

YALE UNIVERSITY

UNIVERSITY PATENTS

DR. ALAN GREGG has done a notable service not only to research in medicine but to scientific research in general. John Maynard Keynes has recently said that nothing is more important than that we should get rid of the profit spirit in modern life. His opinion applies more definitely to research than to any other social or human activity. As a matter of history, the scientific discoveries that have ultimately inured to the benefit of society either financially or socially have been made by men like Faraday and Clerk Maxwell who never gave a thought to the possible financial profit of their work. They were driven on by the spirit of curiosity, and that alone should animate workers in scientific laboratories. The moment that research is utilized as a source of profit, its spirit is debased. The state's and the individual's interest in its support is necessarily weakened, and the most glorious characteristic of modern science is debased. There may be a few who will think that Dr. Gregg is treading on their toes. If so, let the "galled jade wince."

ABRAHAM FLEXNER

MATURATION DIVISIONS IN TRADESCANTIA, RHEO AND OENOTHERA

IN a recent communication Dr. Belling,[1] whose sudden and untimely death is a great loss to biology, has made comments on my recent short article in SCIENCE for January 13, 1933 (pp. 49–50). His courteous criticisms seem to turn on the definition of a univalent chromosome. This may conveniently be described as a single (that is not paired with another) chromosome of the first meiotic division. Consequently neither the so-called bivalents nor their constituents can logically be called univalents. According to the results of a number of investigators, in *Tradescantia virginica,* there are found two kinds of chromosome pairs (the so-called synaptic mates), namely, ring pairs, which resemble those generally seen in meiosis in favorable objects, such as Allium, Lilium, etc., and by contrast a varying number of so-called rod pairs. The ring couples are regarded as parasynaptically mated side by side, while the rod bivalents are believed to represent chromosomes paired telosynaptically end to end. We have thus the truly remarkable paradox of the chromosomes of the same species in the identical meiotic division, conducting themselves in fundamentally different fashions. The conception of telosynapsis or end-to-end pairing has long been in growing disrepute, particularly among geneticists. Favorable material seems to show clearly that the meiotic so-called bivalents are primitively always in relation side by side. My extended and somewhat

[1] SCIENCE, 77, p. 260, March 10, 1933.