DR. LESLIE T. WEBSTER, of the Rockefeller Institute, will deliver the sixth Harvey Society Lecture at the New York Academy of Medicine, on Thursday, March 17, on "Experimental Epidemiology."

DR. LEWELLYS BARKER, of the Johns Hopkins University, delivered the annual Alpha Omega Alpha Lecture at the Jefferson Medical College, Philadelphia, on Friday evening, March 4, on "Medical and Other Conditions in Soviet Russia."

THE Minnesota chapter of Sigma Xi recently sponsored the following series of lectures on "Evolution and Civilization": "Critical Epochs in Plant Evolution," Dean E. M. Freeman; "Physical Development of Man," Dean R. E. Scammon; "Primitive Men and Their Cultures," Professor A. E. Jenks, and "Evolution and Life Values," Professor David F. Swenson. The lectures were held in the Northrop Memorial Auditorium on the campus and were open to the public. The attendance was as large as forty-five hundred.

DURING the week of February 8, Dr. Carroll Lane Fenton gave four illustrated lectures before the Department of Geology at the Massachusetts Institute of Technology. His subjects were: "The Environment and its Records"; "Animal Associations of the Sea," "Natural History of Fossils" and "Theories and Records of Evolution."

AT the University of Glasgow, Sir Arthur Keith delivered the Fraser Lecture in anthropology on March 4.

THE American Association of Pathologists and Bacteriologists will meet in Philadelphia from April 28 to 29, instead of from March 24 to 25.

THE Seventeenth Congress of the German Dermatological Society will be held in Vienna from May 16 to 18, when the principal subject for discussion will be cancer of the skin, introduced by Lubarsch of Berlin and Miescher of Zürich.

AN Associated Press dispatch reports that preservation of approximately 6,000 acres of redwood forests in northern California has been made possible by a gift of $500,000 by Mr. Edward S. Harkness, of New York. The contribution has been matched in part by funds from the California State Park Commission and a deed to the forest lands has been acquired by the commission.

THE enlargement of the Bandelier National Monument in New Mexico to approximately 30,000 acres, to give additional protection to its unique prehistoric Indian ruins, and the transfer of jurisdiction over the area from the Forest Service to the National Park Service by presidential proclamation was recently announced.

DISCUSSION

DIRECT FINANCING FOR BASIC SCIENTIFIC RESEARCH

IT is a familiar lament that no part of the financial profit returns directly to science in many cases where scientific research results in applications of great monetary value. Professional tradition forbids the scientist to patent his findings for personal gain, and scientists as a group have been slow to take financial advantage of new knowledge that might be used in support of investigation. There are, however, signs of a changing attitude. In recent years there have been a number of cases in which patents have been taken by individuals or institutions either to protect the public from extortion, in a medical product like insulin, or to secure funds for future investigation. A number of universities derive revenue for research from such royalties, and a corporation has been organized by American psychologists with this as one of its major purposes. The dictum that a scientific laboratory might "live by its findings" appeals to many as sound. If the initial findings were of sufficient practical value a laboratory might even become endowed by a single discovery.

The latest conspicuous example of this movement on the part of American scientists is the current financing of the Basic Science Research Laboratory of the University of Cincinnati. As first conceived by President Schneider, who was then dean of Engineering, this laboratory was to be a cooperative undertaking designed for a physico-chemical approach to biological problems by individuals trained in different fields. It was further hoped that results of commercial value might be obtained and thus financial independence be secured. As the annual budget that could be provided by the school of engineering was a modest one, it was necessary at the outset to undertake certain "commercial" research, and as there was no other housing available the work began literally in a garret. But those who visited that garret in its early years were impressed and not so greatly surprised when the youthful enthusiasm and the downright ability of its investigators brought forth results of scientific importance and commercial value.

With President Schneider as the presiding genius, who conceived the plan and gave it backing in the face of discouragement, and with Professor Sperti as the leader in the laboratory, results have been obtained that have exceeded expectations. The group of investigators that is being developed at Cincinnati can now proceed with adequate financial support of their own making and may hope that other facts of commercial as well as theoretical importance will

be discovered in the future. If once established on a sufficient scale, such a laboratory could maintain not only workers in pure science but also individuals with a sense for the profitable utilization of scientific findings in ways that would probably be overlooked by the investigators themselves.

Briefly, the findings at Cincinnati aside from their theoretical importance have such commercial possibilities that the patents granted have been sold for an amount sufficient to build a laboratory and operate it for several years, while the royalties expected in addition to this fixed payment should be sufficient for the indefinite operation of the undertaking. After a study of the practices in other institutions that support investigation by such means a plan was devised that merits consideration by any university so fortunate as to command revenues of this nature. The essentials of this plan include:

(1) Payment of a cash sum to the university. This money will be used in various ways to further basic research.

(2) Formation of a holding company in which the corporation that has contracted for the patents owns a majority of the stock but the University of Cincinnati a good minority. The university has two members on the board of directors of this holding company, and the corporation involved has three members.

(3) Agreement that the name of the university can not be used in advertising, except with the consent of both university members of the board in each case; that the university will not be involved in the commercial part of the work, except as it is represented on the board of the holding company by the two members; that all developmental research shall be done by the holding company; and that the university shall retain all rights as to medical discoveries and shall derive no financial profit from such discoveries.

(4) There are a number of other provisions, including the control of advertising, stock sales, licensing, etc., all with a view to protection of the public as well as the good name of the university.

Under this form of organization the royalties are received by the university as dividends on its stock in the holding company. The patents are taken out by the workers in the laboratory, and then turned over to the university with the proviso that all the receipts go into scientific research, until this part of the university's function is adequately met. Any remaining funds may go to the general funds of the university, after certain other needs related to research have been provided.

Foremost among the studies that have resulted in this financial provision for future research is the work of Professor Sperti and his associates in the field of ultra-violet radiations. Germicidal and other effects of these rays occur, in many instances if not universally, at critical wave-lengths. It is possible by means of filters to use the radiations for one effect and to block out another effect if the critical points are not too close together. For example, an enzyme had been developed for use in bread-making. As commercially prepared, it produced a bread that decomposed within a short time after baking because moulds and bacteria found their way into the enzyme mixture as manufactured. To have sterilized by heat would have destroyed the enzyme, and to introduce an antiseptic strong enough to be effective was impossible in a product destined for food. The findings at Cincinnati had shown that many enzymes were inactivated at a critical wave-length far enough removed from the wave-length at which bacteria were destroyed so that proper filtration gave destruction of the bacteria without injury to the enzyme. The mixture as thus sterilized produces large loaves of fine texture which can be kept in good condition for long periods. There are so many other applications that one of the largest corporations in the country has become a party to the agreement described in preceding paragraphs of this article. By this means the laboratory in which these facts were established should obtain funds for its continued and independent existence.

If an increasing number of research laboratories can thus be established and "live by their findings," such a development will be one of social as well as scientific importance. Great corporations maintain research laboratories, because in the long run both laboratory and corporation live by new discoveries or by more precise applications of old ones as determined by research. In the situation proposed, workers in pure science would themselves develop industrial applications in order that basic research might obtain adequate financial support and thus live by its findings. If self-maintaining relationships like the one just initiated at the University of Cincinnati could be widely established under the control of scientists, the method would be superior to the existing condition by which basic research is supported inadequately and in haphazard fashion through private philanthropy or as a "noble charity" by industrial organizations.

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THE SUPERVISION OF STUDENT RESEARCH

THE practice of having the student who is engaged in experimental research submit weekly written reports of progress has so many advantages that one wonders why it has not come into more general use. Because research is usually costly, there exists the