above) is substantiated in Professor Gortner's treatment of the proteins and in the introductory quotation from Emil Fischer: *"Da die Proteinstoffe bei allen chemischen Prozessen im lebenden Organismus auf die eine oder andere Weise beteiligt sind, so darf man von der Aufklärung ihrer Struktur und ihrer Metamorphosen die wichtigsten Aufschlüsse für die biologische Chemie erwarten."* Pauli has also laid emphasis on the proteins as the ultimate seat of vital phenomena in saying that "they alone display the specific properties of living matter."

In discussing certain phases of the controversy precipitated by Jacques Loeb, on the relative importance of the H ion, as compared with other ions, on adsorption, degree of peptization and like phenomena, Professor Gortner states that "we have here a lyotropic series . . . the degree of peptization can be due only to a specific influence of the anions, . . . proteins must be considered not alone as complex organic compounds but likewise as colloid micelles, subject to all the varied reactions of a lyophilic system." It is interesting to see the pendulum swing back again to Nägeli's micellae and Hofmeister's series.

The biologist will be particularly interested in the chapter on "The Biological Reactions of the Proteins" since this includes a consideration of phylogenetic relationships as determined by serological reactions.

Part III is on the carbohydrates. It includes sections on photosynthesis and fermentation. Here, as elsewhere, the book shows its special value to the general botanist and zoologist, and again in Part V on plant pigments where the relationship between blood pigments and chlorophyll and the chemistry of color inheritance are considered.

Five chapters on fats, lipides, oils, vitamins (prepared by L. S. Palmer) and enzymes complete the book proper. Eight pages of general reference and two indexes are appended.

In addition to its scientific value—and this can not be overestimated—there is a human, or philosophic side to Professor Gortner's book which is especially fine. In discussing histamine he says, "Toad skin, according to Pliny, was a medicine. Abel showed that it contained a powerful drug. This is an additional instance where one of the old folk remedies was found to be not so foolish as it appeared to be." In many similar remarks one realizes that the author is a man who, though taking his work seriously, still appreciates the uncertainty and the humor in science.

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REPORTS

THE CANCER RESEARCH FUND OF THE UNIVERSITY OF PENNSYLVANIA

THE Cancer Research Fund of the graduate school of medicine of the University of Pennsylvania has received a gift of $210,000 from a philanthropist who does not desire to have his name revealed. It has been realized for some time that progress in cancer research work depends upon the association of the physician, the biologist and the chemist and upon the close cooperation of related clinics and laboratories. And now, as the result of the generous support which has just been given by a philanthropist from whom the Cancer Research Fund will receive $70,000 annually over a period of three years, the school has been placed in a position to carry on the cancer research work along these broad cooperative lines to an extent which heretofore was impossible.

One joint research project has been undertaken in association with the Bartol Research Foundation of the Franklin Institute, which is one of the great physical research institutes of the country, while research work has also been arranged for in association with the American Oncologic Hospital, a cancer hospital at Thirty-third Street and Powelton Avenue.

Plans are being developed for the equipment of a new clinic for modern diagnosis and treatment of tumors in the American Oncologic Hospital, and Dr. George M. Dorrance, professor of maxillo-facial surgery in the school of dentistry of the university, has been appointed chief of the clinic. Dr. Dorrance is assembling a group of specialists of the highest type to serve on the clinic staff, and the American Oncologic Hospital will be developed gradually into an anti-cancer center of the most complete character. Central laboratories of the Cancer Research Fund have been established at 133 S. Thirty-sixth Street, and here a complete tissue culture department is under the direction of Dr. Clarence E. McClung, professor of zoology at the University of Pennsylvania, and Professor David H. Tennent, of the department of zoology of Bryn Mawr College. Professor J. P. M. Volgelaar, of the University of Leyden, Holland, and Dr. Raymond C. Parker, the latter of whom recently was connected with the Kaiser Wilhelm Institute of Biology in Berlin, also have been added to the staff of the tissue culture department, and eight other research workers will be maintained in this department.

The central laboratories also have an experimental animal cancer department under the immediate direction of Dr. Shigemitsu Itami, who has had ten years' experience at the Crocker Cancer Institute of New York and four years with the British Empire Cancer Campaign in London, and who is assisted by a chemist and zoologist. Research work in radiation and other physical aspects of cancer is being carried on in the central laboratories in collaboration with the Bartol Institute, and for this purpose the Cancer Research Fund is maintaining two physicists, two chemists and a scientific secretary.

At the Philadelphia General Hospital the Cancer Research Fund has had for some time a research laboratory for the study of biochemistry of the blood before and after radiation of patients, and for the study of the hematology and immunology of cancer. This laboratory works in conjunction with the cancer clinic of the Philadelphia General Hospital, and has a staff of three chemists, one immunologist, one physician and one voluntary worker.

In addition to maintaining the laboratories mentioned, the Cancer Research Fund has made a number of grants for investigation to be carried on by research workers in collaboration with the work of the fund. These are as follows: A study of the metabolism of cells, by Professor W. D. Bancroft, of Cornell University; a study of the fixation of pathological material, by Dr. Henry J. Fry, of New York University; a study of the sensitization of cells to fluorescent substances and specific wave-lengths of X-rays, by Professor Eric Ponder, of New York University, and a study of the quantitative spectrographic estimation of minute quantities of substances in biological material, by Dr. Andrew Dingwall, of the department of chemistry, Columbia University.

In connection with the last-named study the fund has established a fellowship under the name of the Dr. J. Packard Laird Fellowship for Cancer Research; this fellowship is held at present by R. J. Crosen, of Columbia University. Another fellowship to be known as the Dr. John G. Clark Fellowship in Cancer Research also is being established.

The director of the cancer research is Dr. Ellice McDonald, assistant professor of gynecology in the graduate school of medicine of the university, and the Cancer Research Fund is controlled by an executive committee consisting of Dr. McDonald, Dr. George H. Meeker, dean of the graduate school of medicine, and Professor W. F. G. Swann, director of the Bartol Research Foundation and special lecturer on electrical engineering at the university.

In addition there is the following board of scientific directors of the research: Dr. McDonald, *chairman;* Dr. Meeker; Professor Swann; Dr. John A. Kolmer, professor of pathology and bacteriology in the graduate school of medicine; Dr. Eugene L. Opie, professor of pathology in the graduate school of medicine; Dr. Martin Kilpatrick, assistant professor of chemistry, University of Pennsylvania, and Dr. Clarence E. McClung, professor of zoology at the university. The board of scientific directors has recently established a publications committee with Dr. Opie as chairman.

SCIENTIFIC APPARATUS AND LABORATORY METHODS

A DIET FOR STOCK RATS

DURING the past seven years the stock rats of this laboratory have been reared on a diet which has given uniformly satisfactory results from the standpoint of growth and fertility and which has the further advantage of being obtainable ready-mixed at a very reasonable cost.

This ration was originally developed by Maynard, Norris and Krauss[1] as a feed for young calves. It was later tried out with rats with such good results that it was adopted as our stock diet. The formula[2] for this diet as now used is as follows:

300 lbs. Linseed oil meal
200 " Ground malted barley
440 " Wheat red dog flour
300 " Dried skim milk
300 lbs. Oat flour
400 " Yellow corn meal
20 " Steam bone meal
20 " Ground limestone
20 " Salt

Originally the formula contained some soluble blood flour, a special product which later became difficult to obtain and which was therefore replaced by the dried skim milk. The diet is used as the sole ration, with the exception that cod-liver oil is fed twice a week, mixed in as 3 per cent. of the day's food. No green food of any kind is supplied.

The mean growth curves for our rat colony, plotted upon a semi-logarithmic scale, are shown in the chart. The animals providing the data for these curves were weaned at twenty-three days of age. The foundation rats for our colony were obtained from the stock of Osborne and Mendel. Since 1919 no animals from any outside source have been introduced.

[1] Cornell Agr. Expt. Sta. Bull. 439, 1925.

[2] This formula is marketed as a ready-mixed feed under the name G. L. F. Calf Meal by the Cooperative G. L. F. Exchange, Buffalo, N. Y.