REPORTS

ACTIVITIES OF THE COMMONWEALTH FUND

IN its annual report for the year ending September 30, 1936, made public on January 18, the Commonwealth Fund records appropriations amounting to $1,967,153.26, intended, in the words of its founder, Mrs. Stephen V. Harkness, "to do something for the welfare of mankind."

More than two thirds of the total was devoted to the betterment of health. Grants were made for public health service to rural communities, rural hospitals, medical education and medical research. Postgraduate education in medicine was emphasized, the fund believing that such work is of major importance in improving the quality of medical service.

For the first time in several years a large share of these appropriations went to educational institutions in New York City. The largest of these was a conditional gift of $250,000 to the College of Physicians and Surgeons of Columbia University, to meet part of the cost of enlarging laboratory facilities at the Columbia-Presbyterian Medical Center for graduate teaching in the medical specialties. The fund also continued to help in financing a study, sponsored by the New York Academy of Medicine, of medical education in New York hospitals.

As part of its mental hygiene program the fund contributed to educational activities at the Babies Hospital and the New York Hospital. A similar project at the Children's Hospital in Boston is also being supported by the fund.

The fund continued to work through various channels for the improvement of medical practice in rural areas, particularly in Tennessee, Mississippi and the northern New England states. In all, 379 scholarships have now been awarded to physicians for postgraduate study at Harvard, Tulane, Vanderbilt and other medical schools.

In the belief that improvement in rural medical service will be hastened if newly trained physicians enter practice in country districts, the fund offers scholarships to undergraduates in medicine at Tulane, Vanderbilt and Tufts. Thirty-nine scholarship holders have now been graduated and seven have completed their internships and have entered practice, in accordance with the terms of the grant, in towns of less than 5,000. Twelve or more well-trained young physicians will be ready for rural practice each year in the three states, Mississippi, Tennessee and Massachusetts, where these scholarships are offered.

Nine years ago the fund began to build, with local cooperation, small general hospitals in country communities. After six had been completed, the depression interrupted the building program, but this has now been resumed. The seventh hospital, in Kingsport, Tennessee, has been open a year and more than 5,000 persons in a population of approximately 21,000 have already subscribed to a prepayment plan entitling the subscriber to free hospital care or a discount on hospital charges. An eighth hospital is nearing completion in Tupelo, Mississippi, and a ninth has been awarded to Ada, Oklahoma.

During the past year state health department service has been emphasized as the best means of improving local health work. In Tennessee, Mississippi and Massachusetts traveling units have worked under state auspices to supervise and strengthen local health departments or to deal with particular health problems such as communicable disease and tuberculosis. The fund has also helped to finance the development of health departments in two counties in Tennessee, two counties in Mississippi and two town-unions in Massachusetts. These areas are used as demonstration and training centers. In New Mexico the fund has continued to help spread nursing service over the state.

The fund made its first appropriation during the year to a newly organized study of high blood pressure uncomplicated by organic disease, to be directed by Dr. Warfield T. Longcope at the Johns Hopkins University School of Medicine.

Continued appropriations were made for the study of placental extract in the treatment of measles and other virus infections at the Harvard Medical School, of trachoma at Washington University, of rheumatic fever at the New York Hospital and the House of the Good Samaritan, Boston, of tuberculosis at Bellevue Hospital, New York, and at the Harriet Lane Home of the Johns Hopkins University School of Medicine, of kidney function at the University of Pennsylvania, of the chemical nature of insulin at the Johns Hopkins University and of growth and development in childhood at the University of Colorado.

Aid was given to the study of the structure and development of the brain at the Neurological Institute, New York. The fund continued to share in the fight against pneumonia by subsidizing the serum treatment project of the New York State Department of Health, by aiding the Michigan State Department of Health to study special reactions connected with serum treatment and by publishing a handbook for physicians on the serum treatment of this disease.

The legal research committee, headed by George Welwood Murray, sponsored studies in administrative law and legal history.

The fund continued to offer a group of fellowships for British graduate students at American universities, 31 having been appointed this year to spend two years in this country as guests of the fund. The distinguished physicist, William Lawrence Bragg, of the University of Manchester, has been elected to the British Committee of Award which selects these fellows, succeeding Sir Hector Hetherington, vice-chancellor of the University of Glasgow.

Appropriations were made for the training of psychiatrists and psychiatric social workers as a contribution to the progress of mental hygiene in the United States. The fund shared in the support of a central bureau of information about child guidance, under the auspices of the National Committee for Mental Hygiene, and of a study of psychiatric education. Gifts were made to the Welfare Council and to the Family Welfare Committee of New York City.

At the close of the fiscal year, September 30, 1936, the invested assets of the fund had a book value of $42,607,226.31 and a market value of $41,039,182.93. The directors of the fund are as follows: Edward S. Harkness, president; Malcolm P. Aldrich, Samuel H. Fisher, William M. Kingsley, Robert A. Lovett, George Welwood Murray and Dean Sage.

SPECIAL ARTICLES

A CRYSTALLINE VITAMIN A CONCENTRATE

THE non-saponifiable matter from the liver oil of *Stereolepis ishinagi*[1] was dissolved in a suitable solvent and fractionated by freezing at carbon dioxide snow temperatures. A final product, quite distinctly crystalline to the naked eye, was obtained. This material had the rather remarkable value of $E^{1\%}_{1\,cm} = 2{,}000$ (as determined by the Hilger Vitameter-A) while the blue value (determined by antimony trichloride reaction according to the method recommended by the British Pharmacopoeia) was 100,000. It is interesting to note that the ratio between these values is 1 to 50, which is in agreement with the ratio of the rather generally accepted provisional standard values for vitamin A, $E^{1\%}_{1\,cm} = 1{,}600$ and blue value = 80,000 (approx.).

The melting point of the pale yellow crystals was determined by evacuating at low temperatures to remove the last traces of solvent and then *very* gradually warming the cooled bath surrounding the melting point tube. To retard this rise in temperature the bath liquid was placed in a Dewar flask (transparent). The melting point ranged from 5.5° C. to 6° C., a rather satisfactory range since the resulting yellow liquid, or melt, is very viscous even at room temperatures. It is obvious that great accuracy in the determination of the melting point is difficult because of the high viscosity of the liquid.

After standing twenty-four hours with von Hubl's solution, the iodine number was 360, which corresponds to four double bonds; longer standing produced a slightly erratic increase in the iodine number. It is probable that addition to the double bond in the ionone ring is difficult.

Purely preliminary quantitative determinations of carbon and hydrogen in this product seem to indicate a carbon content of approximately 83.5 per cent. and a hydrogen content of approximately 10.5 per cent. (with remaining fraction ascribed to oxygen); these values will be corrected at an early date. Molecular weight determinations as well as biological tests are in progress and will be reported later.

HARRY N. HOLMES
RUTH E. CORBET

OBERLIN COLLEGE
DECEMBER 19, 1936

[1] Ishinagi liver oil furnished through the courtesy of the Mead Johnson Company.

STREAM DOUBLE REFRACTION OF PREPARATIONS OF CRYSTALLINE TOBACCO-MOSAIC PROTEIN

PREVIOUS experiments[1] have indicated that under certain conditions the concentration of tobacco mosaic virus in plant juice shows a high positive correlation with the intensity of stream double refraction produced by the juice. These results and others have indicated that the virus in plant juice may be composed of submicroscopic rod-shaped particles capable of causing stream double refraction.

Stanley[2] has obtained crystal preparations from infective juice which contain a high concentration of virus and has obtained considerable evidence that these crystals are the virus in a crystalline state. We have prepared crystals by means of Stanley's method and by a combination of certain steps in Vinson and Petre's[3] and Stanley's methods. Space does not permit giving the details of this combination method. For brevity the crystals prepared by Stanley's method will be called "Stanley crystals" and those prepared by the combination method "C crystals." It was found that the use of a Zeiss cardioid dark field condenser in

[1] W. N. Takahashi and T. E. Rawlins, SCIENCE, 81: 299–300, 1935.

[2] W. M. Stanley, *Phytopath.*, 26: 305–320, 1936.

[3] C. G. Vinson and A. W. Petre, *Bot. Gaz.*, 87: 14–38, 1929.