

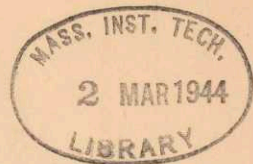
MC 0659

BOX 1 FOLDER 42

*The Ellen W. Richards Institute*

1941

THE ELLEN H. RICHARDS INSTITUTE



*Gracie*  
Mrs. PAULINE BEERY MACK

Reprinted from JOURNAL OF HOME ECONOMICS  
Vol. 33, No. 4, April, 1941

*Made in the United States of America*

T-F  
R514

T-F

R514

## THE ELLEN H. RICHARDS INSTITUTE

PAULINE BEERY MACK



RECOGNITION of the growing interest in the accumulation of research data which will tend to improve standards of living with respect to food, clothing, and shelter has led the Board of Trustees at the Pennsylvania State College to establish the Ellen H. Richards Institute as a consolidated working unit covering some of the studies already in progress at the College in these fields. The Institute will include various long-time studies in human nutrition, in textiles, textile chemistry, and detergency; and in materials and equipment used in housing.

The work in textiles and textile chemistry, including the chemistry and physics of detergency begun at the Pennsylvania State College in 1919, will be included in the Institute. The first work at the College in this field was carried out by undergraduate and graduate students. More recently, fellowships established by textile associations interested in improving textiles or textile services from the consumer point of view have been established and have made possible the employment of full-time staff members to continue investigations on a long-time basis. Fellowships have been confined to textile trade associations in certain fields and to Pennsylvania state-maintained institutions.

Notable among the fellowships which have enabled long-time studies to be carried out on the characteristics of textile fabrics related to dry cleaning and laundering and on the science of detergency are those supported by the Pennsylvania Association of Dyers and Cleaners, the Pennsylvania Laundryowners Association, and the De-

partments of Welfare, Public Instruction, Health, and Military Affairs of the Commonwealth of Pennsylvania.

Under the dry-cleaning fellowship, standards have been worked out for evaluating the efficiency of the dry-cleaning process by the use of standard fabrics for measuring soil removal, whiteness and color retention, prevention of shrinkage, and preservation of strength. New detergency materials and new methods have been developed for the benefit of the commercial dry-cleaning trade. The construction of fabrics in relation to shrinkage and strength lost during dry cleaning has likewise been a subject for long-time investigation.

In the work done under the laundry fellowship, the textile laboratories at the Pennsylvania State College have co-operated for many years with the Pennsylvania Laundryowners Association in standardizing techniques for the measurement of laundry efficiencies. The Pennsylvania laundry test bundle, consisting of an assortment of standardized test fabrics for measuring the degree of soil removal, whiteness and color retention, strength preservation, and preservation of the size and initial texture of fabrics, has been a subject of wide interest. These textile laboratories have also served as the testing center for the certification of those laundries in Pennsylvania which maintain a continuous high record of efficiency with respect to the points which constitute good laundry practice and which continually demonstrate this type of performance under the rules laid down by the Pennsylvania Laundryowners Association.

The state-owned institutions of the

Commonwealth of Pennsylvania under the Departments of Welfare, Public Instruction, Health, and Military Affairs maintain a program of research and laboratory control for their extensive laundry operations at the Pennsylvania State College. The populations of these 50 institutions total over 40,000 persons, with an annual laundry volume of approximately 30,000,000 pounds of textile fabrics. The program of cooperation between the textile laboratories at the College and the state-owned institutions, which has been in effect for the past seven years for the Department of Welfare and for the past five years for the other departments, has been shown by actual long-time trial to be responsible for extensive savings by prolonging the life of the textile fabrics owned by the Commonwealth. In addition, increased satisfaction has come to those in the institutions because of the high order of laundry performance which has resulted from standardized procedures and laboratory control of the laundry operations.

The textile laboratories at the Pennsylvania State College have been responsible for the development of methods for testing potential detergents in order to forecast their possible value as reagents in the commercial and institutional laundry field. They have likewise been responsible for the standardization of methods of using various kinds of bleaching and sterilizing agents during the laundry procedure which result in the minimum loss of textile fabric strength. The introduction of hydrogen peroxide as a bleaching and bactericidal agent in the power laundry field has resulted from the work of this laboratory.

Among the long-time projects in textiles which now are incorporated in the Ellen H. Richards Institute is Pennsylvania's part in a co-operative project involving six of the northeastern experiment stations—Maryland, New Hampshire, New Jersey, New York, Pennsylvania, and Rhode Is-

land. The project involves the application of a series of laboratory tests to samples of fabrics purchased by ultimate consumers and the further examination of the garments made from these fabrics after they are regarded by the wearers as no longer serviceable. Calculations of possible correlations between the laboratory findings and the results of the wearing tests on these fabrics and between the construction of fabrics and their performance during wear are making it possible to find out whether the laboratory tests for textile fabric performance used at present are accurate in predicting wearing performance and to ascertain what the interrelationships are between the mechanical construction of fabrics and their durability. The methods of this study have been described in detail by Searle, Chapman, and Roseberry (1).

In the field of human nutrition research, the Pennsylvania State College was a pioneer in 1935 in mass studies in human nutrition, when a project was begun under a Purnell grant made available through the Office of Experiment Stations. The project was entitled "A Study of the Dietary Habits and Nutritional Status of Representative Pennsylvania Families." Special funds provided by the Pennsylvania legislature, as well as grants-in-aid from the Rockefeller Foundation, the Milbank Memorial Fund, the Pennsylvania Dental Society, and various private donors, made it possible to extend the work, beginning in 1936, to include studies on the nutritional status of school children in representative Pennsylvania communities. The human nutrition studies have included an investigation of such relations as the following:

1. Correlations of such socioeconomic factors as family income, education of adult members of a family, food expenditure, and physical home ratings with food consumption and consequent nutritional status
2. Correlations of racial background with food consumption habits and nutritional status

3. Results of various types of efforts to improve food consumption habits and consequent nutritional status

A bulletin on methodology describing the techniques used in the Pennsylvania mass studies in human nutrition has been published by Mack and Smith (2). These will be included in the work of the Institute.

In the field of shelter, plans are in progress on the part of the Institute for studying new materials and new types of equipment which are coming onto the market in ever-increasing frequency. This follows preliminary studies on household equipment which were begun in 1938. Tentative plans have been made with producers to study some of the newer building materials and types of household equipment suitable for moderate-priced dwelling houses, under actual living conditions. These studies will enable a fund of data to be accumulated concerning the cost of installation and maintenance of materials and equipment, as well as their performance during use and other technical factors related to shelter—one of the most important aspects of modern living.

Graduate students at the Pennsylvania State College may work on various aspects of the long-time research problems in the Institute for graduate theses or dissertations while taking advanced degrees in the department of home economics or one of the other subject matter departments at the College; a degree may not be taken in the Institute as no courses are given there.

The Ellen H. Richards Institute at the Pennsylvania State College has been named after the well-known woman chemist who became the founder of modern household science. The story of her life by Hunt (3) relates the progress of this great chemist in becoming the leader of a new field of thought and work in this country.

Born in 1842, Ellen Henrietta Swallow received her college education in chemistry at Vassar College, where she was graduated

with the B.S. degree in 1870. She then became the first woman to enter the Massachusetts Institute of Technology, where she was accepted only as a special student in order not to set a precedent for the admission of women in general. From 1871 to 1875, she worked at the Institute, first as a special student, then as a student assistant, and finally as an assistant in the chemical laboratory. In 1873 she received the B.S. degree in chemistry from M.I.T., becoming the first woman graduate of that great institution. The same year she received the M.S. degree from Vassar after submitting a thesis and taking a comprehensive examination in chemistry. She remained for a number of years at the Institute, assisting in the analysis of the waters of various Massachusetts streams following the passage of a law in Massachusetts establishing a department of public health.

In 1875 she married Professor Robert Hallowell Richards, head of the department of mining engineering at the Massachusetts Institute of Technology, where she still served as a chemist. Thereafter she continued to work at the Institute, carried on a private consulting business as chemist, and assisted her husband in certain analytical studies in mineralogy.

The private practice of Ellen H. Richards as a sanitary and industrial chemist included analyses of water, of air, of foods, of wallpapers, of textile fabrics, of fuel oils, and of other household materials. At one time, while engaged in research on the spontaneous combustion of various oils in common use for an insurance company, she prophesied that the time would ultimately come when every material entering into the construction and maintenance of a household would be thoroughly tested before being used.

In 1884 Ellen H. Richards was appointed an instructor in sanitary engineering at the Massachusetts Institute of Technology, a

position which she held until the time of her death 27 years later. She raised a part of the money for the support of her laboratory and was also the guiding spirit in the founding of the Woman's Laboratory at the Institute, created for the purpose of assisting women who wanted to teach and conduct research in the sciences to study in a scientific atmosphere.

During her years as a staff member at the Massachusetts Institute of Technology, Mrs. Richards trained many young engineers to become heads of sanitary chemistry and sanitary engineering laboratories in all parts of the world, and she inspired many young women to study science because of its importance in the lives of women, not only as members of a profession but also as leaders in a home.

From 1909 until shortly before her death in 1911, she served as the first president of the American Home Economics Association, whose object was "to improve the conditions of living in the home, the institutional household, and the community," in part by "encouraging and aiding investigations in research in universities and in the state and federal governments"—an object which reflects Mrs. Richards's own philosophy and also that of the Ellen

H. Richards Institute at the Pennsylvania State College.

Although Ellen H. Richards had no specific connection during her lifetime with the Commonwealth of Pennsylvania, her work transcended state lines and influenced progress in household science in this and in other states. It is hoped by those instrumental in the establishment of the Ellen H. Richards Institute at the Pennsylvania State College that the Institute which bears the name of this pioneer chemist and household scientist will be of sufficiently broad interest in the lives of people in all socioeconomic levels throughout all parts of the country to be worthy of the woman whose namesake it is.

#### REFERENCES

1. ANNE BROHEL SEARLE, ESTHER NAOMI CHAPMAN, and ELIZABETH DOUGLASS ROSEBERRY. Co-operative Project in Textiles Conducted by the Northeastern Experiment Stations. *JOURNAL OF HOME ECONOMICS*, Vol. 31 (March 1939), pp. 177-184.
2. PAULINE BEERY MACK and JANICE MINERVA SMITH. Methods of Conducting Mass Studies in Human Nutrition. *The Pennsylvania State College Bulletin*, Study No. 4, 1939.
3. CAROLINE L. HUNT. *The Life of Ellen H. Richards*. Boston: Whitcomb & Barrows, 1918.

