gent selection of material things, and a more appreciative use of them, together with an appreciation of the service rendered by others?

Utilization is the last point I wish to mention. In this day of labor saving devices there is need for more intelligence in the home about the care and use of them based upon the science involved. There are both economic and aesthetic principles involved in the serious consideration of the proper care and utilization of all the material things brought into the home. Time and money are released when this is thoughtfully managed. We are confronted with the problem of the worthy use of leisure time, and the wise investing of money. These, too, are problems of the home which could be discussed at great length.

The purpose of education is training for a high type of citizenship. As the world advances toward the concept of perfection, the ideals of what this means are constantly broadening to a higher level. The training for homemaking citizenship left the home and was undertaken by the schools. Now the very obvious cooperation between the progressive and trained homemakers, and education for homemaking is leading into the type of home which fits into modern life, as Mrs. Richards again says, "the ideal home life for today unhindered by the traditions of the past."

Thus I believe that selection, appreciation, manipulation, and utilization with their relative divisions and sub-divisions are the fundamental principles in Home Economics.

Lillian A. Cummings

CO-OPERATIVE SUPERVISION

Co-operation has been arranged between the University of Virginia and the school authorities of the county of Albemarle and of the city of Charlottesville by which an associate professor of the university, Mr. Eustace E. Windes, will be "director of supervision" for the schools of the county and the city.—School Life.

RESEARCH WORK IN HOME ECONOMICS AT THE AGRICULTURAL EXPERIMENT STATIONS

Are most of the children in Virginia adequately fed? Are they getting milk, green vegetables, and fruit sufficient for growing children? Are collard and turnip greens a good source of vitamins? When these greens are cooked are most of the vitamins lost? Can onion or garlic flavor and odor be removed from milk? If so, by what method? Will the dyed sheets stand light and laundering? What types of sheeting wear the longest? Do ultra-violet rays penetrate through clothing materials?

The answers to these questions and many others have been sought by home economists engaged in research work at the agricultural experiment stations and recently the answers to these particular questions have been found wholly or in part. For the three year period, 1925-1928, seventy-eight reports were published on problems which concern the home either directly or indirectly. During the current year, over 100 projects in the field of home economics under about that number of research workers are being carried on in forty-two states. More than a quarter of a million dollars is allotted to these studies. Of the 101 projects, sixty-five relate to food and nutrition, five to textiles and clothing, three to housing, and twenty-eight are social and economic problems.

At present many more problems are being studied in food and nutrition than in other fields, but this is to be expected because food and nutrition is the field of home economics first developed. A number of these projects are concerned with the vitamin content of various foods or with the effect on this content of cultural methods, degree of maturity, milling, cooking, drying, and storage. Several other projects are studies of the effect of various factors, such as age,
feed, temperature, and time of cooking, on the quality and palatability of beef and lamb. Two states are doing research work on iron, one to determine the iron content of edible wild greens and the other to determine (1) how to conserve the iron in vegetables through methods of preparation and cooking and (2) the variations in iron content of vegetables grown on different soils. Other studies are to determine the following: the apparent prevalence of nutritional diseases in rural school children between the ages of six and twelve years; utilization of calcium and phosphorus from fresh, dried, and evaporated milk; the metabolism of obesity; the anti-rachitic potency of the sun's rays at the latitude of Kentucky; determination of the food requirements of pre-school children; standards for cooking vegetables in the electric oven; and the economic utilization of surplus food products, with special reference to the problems of the home. One project which is perhaps of special interest to teachers of foods and nutrition in Virginia is the study of the determination and identification of the organisms which cause spoilage of canned vegetables in the South.

Aside from the projects previously mentioned in the field of textiles and clothing, several others of especial interest are as follows: the protective value of certain clothing fabrics (1) against heat and cold, (2) against sunburn, and (3) against heat loss when air is in motion; factors affecting the selection, care, and wearing qualities of textile materials; the influence of sunlight on the durability and color of cotton fabrics; fiber quality and physical qualities in relation to the cost of staple wool materials; and the reliability of consumer's judgment as to the durability of cotton materials.

Two studies dealing with housing are—"Basic factors in farm home planning" and "Housing in relation to farm labor turnover."

In the new field of social and economic problems of the home several studies are being made of the standard of living of farm families and of the use of time by homemakers. Other studies deal with fuels for cooking purposes; use of electricity in the farm home; home accounts for the family on the farm and in the small town; living conditions of boarding students in agricultural high schools; index numbers of money cost of living in small towns and farms; management analyses of family finances; and efficiency of the home laundry plant.

These research studies are being carried on under the direction of the agricultural experiment stations of which there is one in each state and in a few instances two or three. With a few exceptions the experiment station is located at the same place and is closely connected, as is also the agricultural extension work, with the state agricultural college. In all but eight of the forty-eight states there is a home economics department at the agricultural college, so the research work in home economics, although a part of the agricultural experiment station, can be carried on in close cooperation with the resident instruction department and also with the extension work in home economics. In many states, this makes the state agricultural college the center for college courses, cooperative extension work, and experiment station work in agriculture and home economics.

Although experiment station funds provided for by the Congress of the United States in the Hatch Act of 1887 and the Adams Act of 1906 probably could have been used for research projects relating to the farm home, nevertheless, it was not until the passage of the Purnell Act in 1925 that definite mention was made of the use of funds for this purpose. This Act extended the scope of experiment station work to include the welfare of all who are living in a rural environment and specifically mentioned the farm home.

In speaking of the Act, the Secretary of Agriculture said: "If farm management
studies have contributed to economy and efficiency in the operation of the farm, similar studies in home management should give equal return in lightening the burdens of the farm woman and give added opportunity for the care and training of children, for social and community work, and for the organization of a more satisfactory home life. Money invested in these problems may not yield as immediate returns in the farm income as studies on the feeding of pigs, but it may easily mean immensely more in the development of a sound and enduring agricultural civilization on which to found a prosperous and progressive nation. Taken as a whole, the home economics field should receive every possible encouragement, and wherever leadership is available serious investigational work should be undertaken."

The Purnell Act provided an initial appropriation of $20,000 to each state with an increase of $10,000 a year until the total amount reaches $60,000 in 1930. No specific part of this amount is set aside for any particular lines of work, but the directors of the experiment stations in forty-two states have allotted about $252,000 to home economics projects. At present, the states are contributing very little from state funds to this work, but it is hoped they will add to the fund in the next few years so that this long neglected field of research will be proportionately as well provided for as agriculture.

Although at the present time there are probably less than 100 project leaders and assistants giving their time to experiment station problems in home economics, the number of such workers is increasing year by year as more funds are allotted to this work. Furthermore, the increasing demand by commercial firms for research workers tends to decrease the number available for experiment station work.

The qualifications for such positions are high. The research worker needs not only an all-round training in home economics with a sound arts and science background but also special training in one or more fields. Just now, as shown by the number of projects in the various fields, there is more need of special training for the study of textiles and clothing and for housing and child study problems than in the field of food and nutrition. As research work is developing in quality and broadening in its scope, there is scarcely a field in which use is not being made of statistics; a research worker therefore needs at least an elementary course in this line as part of her training.

Before becoming a project leader, one should have the experience gained from working under several different leaders of broad experience in their particular fields of research. Such experience for the beginner is likely to save her from many discouragements frequently met with by the new worker in research.

Inasmuch as a long period of training and experience and a long time is frequently required in order to solve research problems, a person should consider a position in this line as one for a period of years rather than as one for a year or two. Because of the high qualifications required, and also because at the present time there are not enough persons with sufficient training and experience to meet the demand, the salaries for research workers are higher than for some other lines of work in the home economics field. In research work it frequently happens that a problem requires two or three years of study before a solution is found. In some instances a problem has even required a life time to solve it.

As soon as the research worker has solved her problem she usually gets the results of her studies to the public by publication. The full reports of research studies made by any state experiment station are generally published as separate bulletins. These reports are also summarized briefly in the Experiment Station Record which is published monthly by the Office of Experiment Stations, United States Department of Agri-
culture, and may be found in many libraries keeping agricultural books and periodicals. Perhaps the easiest way for most home economists to keep in touch with the results of research studies is through the Journal of Home Economics, since most home economists subscribe for the magazine or have access to it. Either a full report is published or a brief summary of these studies are given in the section of the Journal recently assigned to Research. A few of the reports have appeared in the Journal of Biological Chemistry and some in the American Journal of Physiology.

In Virginia and a number of other states it is possible to have one's name put on a mailing list to receive the bulletins on home economics whenever they are published. The bulletins are usually sent free of charge to residents of a particular state and nearly always can be obtained free or for a small sum by persons outside the so long as the supply lasts. The United States Department of Agriculture and some of the states keep a mailing list to whom they send announcements of the titles of new bulletins as these are issued from time to time.

The Virginia Agricultural Experiment Station has published bulletin No. 250, on one of the studies undertaken in the field of home economics. The title of this is, "The Relation Between Dietary Habits and Health of Children in Rural Sections of Virginia." It is an investigation of dietary habits and of their relation to the health of 900 rural children. Comprising this group are 115 white children of pre-school age 462 of school age. Three-hundred-twenty-three negro school children are also included in the study. Dr. Reynolds found the diet of fifty-two per cent of the pre-school children, seventy-two per cent of the white school children, and seventy-one per cent of the negro school children questionable on account of the small amounts of protective foods used. Two other studies have been made and are now being prepared for publication. One of these is a study of, "Dietary Habits and Food Expenditures of Farm Families in Virginia," and the other a study of, "The Relation of Rural Housing to Health."

It is the aim of the Virginia Agricultural Experiment Station to undertake first the study of those problems in home economics which are of most concern to the homes of the State. The Station is glad to have homemakers, teachers, extension workers and others interested in the home, write to the Experiment Station concerning unsolved problems in the field of home economics.

ILENA M. BAILEY

SUPPLEMENTING LIBRARY REFERENCE MATERIAL

TO THE teacher of Home Economics in a school whose library facilities are limited the wealth of scientifically accurate material distributed by commercial firms should prove a bonanza.

Properly classified and filed, a collection of the booklets, charts, and exhibits obtainable on various topics should prove very helpful to students in preparing special reports, as supplementary reference for class work, and perhaps instead of a textbook.

The educational departments of many commercial firms are now employing highly trained people who are preparing much excellent material either for free distribution to teachers or at a nominal cost.

While this list of manufacturers in no wise represents all those who supply material to schools, the information regarding the material available from each one named is up-to-date, the writer having received a letter from each of the firms listed together with samples of the material, since the middle of October.

It is suggested that any teacher desiring to secure booklets or charts for use in her school write to the firm supplying them, stating where and what she is teaching and for what purpose the material is to be used.