Lots of Better Things For Home Sweet Home

By Jane M. Porter

Why do most of the pots and pans made in the United States have flat bottoms and straight sides? Because in the 1930's researchers in the State Experiment Stations of Maine and Washington carried on thermal tests with cooking utensils and found that such pans with tight-fitting lids made the most efficient use of heat in cooking.

They also found that the ideal material, if it could be engineered, would be a metal with high conduction for the bottom and a metal that was noncorrosive for the sides and interior. Industry did the rest by fusing copper and stainless steel.

Little research in home economics was carried on in the State Experiment Stations before 1925. Any such research was labeled Agricultural Engineering or Nutrition. The Illinois Station, for example, completed a five-year study of septic tanks in 1926. West Virginia published a bulletin on Farm Water Supply and Sewage Disposal Systems the same year, and New Jersey was engaged in extensive work in farm sewage disposal at the same time.

These studies established scientific data on the functioning of septic tanks and the most effective sizes and shapes. They provided the basis for formulating standards so that industry could mass produce components, and health departments could set standards.

The Purnell Act of 1925 authorizing additional Federal funds for research in State Agricultural Experiment Stations specifically mentioned home economics research as one of the fields to be pursued. The year before the act, only four stations had research projects in home economics. The next year 36 stations

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Above, portable respirometer used to measure energy expended on various household tasks. In this 1950's experiment, woman places pan in oven at many different heights, and energy for each height is recorded. Height which requires least exertion is best for the homemaker. Top right, stove or "cooking center" typical of those used in 1920's. Note table, which possibly as result of research has been elevated to proper height for homemaker, making her work less fatiguing. Right, modern kitchen. Range has continuous-clean oven panels.

had home economics projects and the stations had 65 new employees in home economics. The 20 years following the Purnell Act produced a revolution in American homes.

Studies of women's movements in cooking, washing dishes and ironing revealed that traditional cabinet, table and ironing board heights were all wrong—producing excessive fatigue and contributing to poor posture.

Research at the North Dakota, Washington, Oregon, Indiana and Vermont stations led to the planning of kitchens and the development of specifications so that cabinets, countertops, etc., could be mass produced as components for kitchens.

The pantry, and the "hoosier" cabinet of the turn of the cen-

Hoosier cabinets were miracles of convenience for homemakers. They provided a work area, storage, and usually a flour bin and sifter.

tury, became obsolete. The kitchen stove—whether wood, coal, kerosene, gas or electric—received a lot of research attention from stations in Indiana, Virginia, Nebraska, Maine and Kansas. It was found that many kerosene, electric and gas stoves were very inefficient users of energy. New designs for burners, for enclosures around burners, for ovens and for insulation were developed. These were quickly adopted by industry and incorporated into new models in the middle 1930's.

Similarly, studies on refrigeration were undertaken by numerous State stations, resulting not only in improved design and efficiency but in changes in homemaker practices. For example, the thrifty housewife used to cover the block of ice in her icebox with old newspapers to conserve ice. Experiment station research at Rhode Island and Indiana stations demonstrated that while this saved the ice it did not save the food.

In 1930, President Hoover called a National Conference on Home Building and Home Ownership. Experiment station workers served as chairmen of the Home Furnishings and Decoration Committee (Cornell), and Kitchens and other Work Centers (Wisconsin) Committees.

Results of experiment station research were presented in many papers and embodied in the reports and recommendations of committees. The conference produced an upsurge of interest in housing and probably stimulated the first national survey of housing, conducted in 1934. This was financed by the Civil Works Administration, and carried out under the direction of

the U. S. Department of Agriculture (USDA) with the cooperation of the State Experiment Stations.

Dangers to Health

The survey revealed that in some rural areas over 30 percent of the homes had sanitary arrangements that were a danger to health. An analysis of the 1934 housing survey in Iowa, carried out by the Iowa Station, revealed that one house in five had a bathroom, one in four had cold water piped into the house, one in eight had piped hot water, and one in two had a kitchen sink with a drain. Few homes had screened doors and windows; almost none were insulated.

These data provided the impetus for designing sanitary outhouses, followed by a campaign by State extension services to see that every home was provided with a sanitary outhouse. As a result of the interest of the wife of the U. S. President in this campaign, such facilities were sometimes called "Eleanors." A similar campaign was carried out to get families to install screening, at least in the kitchen.

The 1934 survey and subsequent research revealed that new housing in rural areas was usually not much better and sometimes inferior to older housing. The Experiment Stations recognized that there was a need for suitable plans at various cost levels, for minimum standards, and for the testing of construction materials.

Under the Research and Marketing Act of 1946, USDA's Agricultural Research Service coordinated the first Nation-wide survey of the kind and extent of activities in farm homes, and farm families' preferences in housing facilities. Forty-three State Experiment Stations cooperated in this study, which provided the basic research data on space requirements in homes. These were then translated into graphic standards for the use of architects and families.

During the 1920's, a large percentage of families in towns and cities were sending laundry to commercial laundries. Economists were predicting that home laundry functions, like spinning and weaving, were destined to be displaced in rural as well as urban areas.

Laundry was about the heaviest work of the rural housewife. A Nebraska study revealed that the average distance water was carried for laundry use was 62.5 feet, and that it took 46 min-

utes to carry enough water to do the family wash. In the absence of electricity on most farms, human muscle power cranked the wringer and perhaps a washing machine as well.

Lightening the Workload

Rural electrification was the only practical way to lighten the workload of the rural homemaker. Many stations—including Iowa, Kansas, Maine, Nebraska, Missouri and Michigan—had projects on developing unit electric plants for farms and for making the extension of central station power to rural areas economically feasible.

Testing of washing machines of various designs for efficiency in cleaning and wear on clothing was carried out by Washington, Indiana, and other stations.

Tests of electric irons at the Virginia station demonstrated that 1,000 watts capacity was necessary for maintaining a constant ironing temperature. They also showed that lightweight irons were as effective as heavier ones, and that temperature controls should be marked according to the kind of fabric to be ironed. These recommendations have all become standard in the appliance manufacturing industry.

In the 1920's, textiles and clothing were almost unexplored fields of research. The Texas Experiment Station was the first to establish a well-equipped textiles laboratory, and it retained leadership in this field for many years. In 1935 only a few stations had

Left, Fadeometer used in Ohio research projects on textiles, testing fabrics for color fastness to sunlight. Right, a flexible automatic washer provides precise amount of water needed for any size load, from big 18-pound dry load to just a single item.

adequate equipment for textile research. Before World War II, water-repellency, mildew resistance and wrinkle proofing were unknown. Most fabrics could be expected to shrink in use and laundering. The Research and Marketing Act of 1946 provided funds that greatly stimulated textile research.

In conjunction with textile research, the stations carried out research on the effects of various kinds of water and laundry materials on fabrics. When industry produced the first synthetic detergents in the 1930's, the stations tested them in various kinds of water and on various fabrics.

It was found that synthetic detergents eliminated the problem of soap-curd, a chemical reaction that created serious laundry problems in hard-water regions of the country. Synthetic detergents caused no more wear on garments than soap. These findings encouraged industry to market the new detergents.

Collection and analysis of body measurements for women and children completed in 1941 provided the basis for developing a practical and scientific system of sizing garments and patterns. This research was a national project carried out by the State Experiment Stations in cooperation with USDA.

The proposal for improved sizing of garments was accepted by the several branches of the apparel industry and served as the basis for the development of Commercial Standards of the U. S. Department of Commerce. They have been used as a guide by research workers in European countries.

Research in most of these areas continues as the changing lifestyles of families and new technologies create ever changing and developing needs. We are indebted to the State Experiment Stations in some degree for most of the comforts and conveniences we take for granted.