state milk shipment program, voluntary cooperation of the States and industry under leadership of the Public Health Service has been successful in achieving a high degree of consumer protection.

Food Protection Research in the Public Health Service[1]

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INTRODUCTION

The environmental sanitation program of the National Center for Urban and Industrial Health encompasses activities related to interstate carriers, recreation, and urban sanitation, but its research component is associated with food protection. Although the main thrust of the research is directed toward prevention and control of food-borne disease, a variety of projects have been undertaken that are of mutual interest not only to other components of the program and of the Center, but to other Federal agencies that have, in part, supported this research effort.

The Public Health Service has been actively engaged for more than 50 years in assisting agencies of Federal, State, and local governments, and industry to improve the safety and quality of our food supplies. Its efforts are based on the knowledge that proper diet is essential for the physical development of every individual and that food can be a major source of human exposure to hazardous contaminants from the environment, including microbial agents of disease and toxic chemical residues. The past contributions of the Service to improved sanitary practices in the dairy industry and in food service operations (through development of recommended ordinances, codes, manuals, and guides to safe practices) are so well known that detailed recitation is not necessary. Over the years, the recommendations of the Public Health Service have been incorporated into many State laws, local ordinances, and Federal regulations. They now constitute the invisible framework within the structure of public health protection that is used by enforcement agencies and industry to prevent food-borne illness in the United States.

Modifications of these recommendations repeatedly have been necessary, especially in recent years, to cope with the rapid technological changes that have occurred throughout the food producing, processing, distribution, and serving industries. As the technology of feeding the increasing urban population has become more and more complex, the need has increased for research to investigate potential hazards to health and to devise appropriate new measures for the prevention and control of food-borne illnesses. Since the close of World War II, the Public Health Service has maintained a modest research effort in Cincinnati and a substantial grants program in the field of food protection. The intramural studies were conducted under the auspices of the Robert A. Taft Sanitary Engineering Center from 1954 through 1966, when they were transferred to the National Center for Urban and Industrial Health.

Substantial contributions have been made by this group to the detection, identification, and reduction of such potential health hazards as radionuclides in milk, pesticide residues in drinking water and foods, and several types of microbial food poisoning including staphylococcal food poisoning, botulism, and salmonellosis. Extensive research on time-temperature relationships of bacteria and their toxins, as well as viruses, has resulted in improved refrigeration, pasteurization, and other heat treatments of foods. Pilot plant studies have revealed sanitary deficiencies in commercial equipment and processes that have been overcome through experimental engineering.

The findings of these studies have been presented in more than 250 technical publications and have been used extensively in the development of model ordinances, codes, and industry sanitation guides. They have also been incorporated in specialized training courses for professional personnel employed in food

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