

continent. Work on the development of an accurate automatic method of measuring evaporation from natural surfaces, including growing crops, has reached an advanced stage. Measurements of the size and concentration of droplets in maritime and continental cumuli have shown that the droplet-concentration is systematically higher in continental cumuli, and further tests on artificial rain formation indicate that if seeding with silver iodide is to succeed the particles must be generated under conditions which ensure that they reach the supercooled regions of the atmosphere as soon as possible after release.

NATIONAL INSTITUTE FOR RESEARCH IN DAIRYING

REPORT FOR 1956

IN these eventful times, when so much is heard of atomic research and nuclear power, it is all too easy to forget that the production of good-quality food in amounts that will meet the needs of the world's ever-increasing population is one of the most important problems on which intensive scientific research is still urgently required. With this in mind, it is cheering to turn to the annual report of the National Institute for Research in Dairying, and to realize that so much work is being done on the production, properties and utilization of milk and milk products, and that so much detailed study is being made in the various sciences on which the dairy industry in all its many branches closely depends.

The Institute was founded forty-five years ago, and even a cursory glance at the report for 1956* is sufficient to show what marked progress it has made in recent years, and how clearly the action of those who founded it at Reading in 1912 has been justified. The total number on the staff in 1956 exceeded three hundred, more than one hundred of whom were graduates in one or other of the many branches of science. The Institute now has eight principal departments, covering dairy husbandry, feeding and metabolism, physiology, nutrition, bacteriology, chemistry, physics and engineering. In addition, there are sections that deal specifically with isotopes and statistics, and a unit the duty of which is to maintain liaison with the dairy industry.

In the foreword of the report more than four pages are devoted to a very brief but highly informative outline of some recent investigations. The reader who wants to know at a glance what the Institute does, how its work adds to existing knowledge and how its findings apply to the dairy industry will find this short section particularly valuable. For the more leisurely reader this part of the report is followed by more than a hundred pages in which an account is given of the work of each of the main departments and units. Finally, for those who may be working in allied fields of research or who may require full details, a list of the Institute's recent publications is given with titles and references. More than 150 papers are cited in the list, most of which were published in 1956.

* National Institute for Research in Dairying: University of Reading, Report, 1956. Pp. 158. (Shinfield: National Institute for Research in Dairying, 1957.)

Many of the problems under investigation are likely to give results of immediate importance in some branch of the dairy industry. Such, for example, are the studies that are being made of the milking machine and the milking technique itself, the sterilization of milk bottles, the ripening of cheese in modern types of wrapping and the ultra-high-temperature sterilization of milk. But in addition to work like that on subjects of immediate practical importance, the Institute has for many years enjoyed a well-merited reputation for the excellence of its fundamental work, particularly in the physiology of lactation and in the realm of nutrition. Among the many topics that fall into this category, mention is made in the report of research on the biosynthesis of carbohydrate by mammary gland tissue for which glucose labelled with carbon-14 was used. This study has shown that the galactose required for lactose formation is made from glucose in the mammary gland itself, and that pyruvate is not a precursor of lactose. Another piece of fundamental work has shown that the two β -lactoglobulins of cow's milk differ in their crystal forms but have almost equal molecular weights. Yet another deals with the relations between the hormones oxytocin and prolactin in their influence on the mammary gland and on lactation. Statistical methods are being increasingly used in many of the Institute's investigations, and in the past year they have been applied to a variety of problems, such as manurial trials with kale and cabbage, pasture evaluation and the assay of prolactin.

It is good to know that in Britain, which at present produces only some 40 per cent of its own food, so much research work of this high standard is in progress in problems related to the important industry of dairying.

WESTERN EUROPEAN CO-OPERATION

THE broadsheet "Designs for Europe" (No. 414, September 16, 1957), issued by Political and Economic Planning, follows two earlier broadsheets: No. 405 (December 17, 1956), which gave a summarized translation of Part 1 of the Spaak Report, dealing with the Common Market, in which are outlined the proposals for the merging of markets, the policy to be pursued for the common market, and the development and use of Europe's resources; and No. 412 (July 15, 1957), "Free Trade and Social Security". This broadsheet quotes the Government's view expressed in the White Paper, "A European Free Trade Area", that it was not considered essential, in order to achieve the degree of effective competition necessary for the functioning of the Free Trade Area, that agreement to remove the disparities between the social regulations in different countries should precede or be a necessary condition of the creation of such an Area; it also summarized social security policies in Europe and described national schemes in France, Germany, Italy and Sweden before considering the possibility of international action. The broadsheet points out that there was insufficient information for a final opinion on the effects of great economic integration on social security policies and vice versa and that further research was needed.