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THE CO-OPERATIVE MOVEMENT AND BETTER NUTRITION

Standard Definition of Foodstuffs
Education of Producers and Consumers

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INTRODUCTION

The enquiry on nutrition problems jointly undertaken by the Health and Economic Organisations of the League of Nations, the International Labour Office, the International Institute of Agriculture, the International Committee for Inter-Co-operative Relations, and other bodies qualified to collaborate in dealing with the matter, has involved a wide network of consultation and research. These have extended to facts and their causes, the manifold economic and social aspects of the question, and the various aspects also of a co-ordinated nutrition policy aimed at immediate or less immediate results.

Among the forms of action possible to-day, at the present stage of information and comprehension and with the existing machinery, mention must undoubtedly be made of the efforts to educate consumers in the economics and the hygienics of nutrition, and to secure the genuine character and constant quality of goods offered to the public in general and the poorer strata of society in particular.

The need for an international exchange of information and ideas on the subject was expressed in the following form in a resolution relating to the nutrition of workers adopted by the International Labour Conference at its Twentieth Session in 1936:

"In regard to the work of the Office in this connection, the Conference considers it particularly desirable . . . to collaborate with the appropriate organs of the League of Nations in studying the activities of all institutions and organisations, both public and private, which . . . are endeavouring to find the means of guaranteeing the constant and wholesome quality of foodstuffs placed at the disposal of consumers. . . ."

Moreover, the Assembly of the League of Nations, desirous of supporting the efforts made to provide the public with sufficient supplies of the necessary foodstuffs, and particularly of protective
foods, decided at its 1936 Session to make a number of recommendations to Governments. These included the following:

"(3) To conduct a vigorous policy of education on popular nutrition for the instruction of the general public in this subject;

"(5) To facilitate and promote international co-operation in education and propaganda and in the exchange of information, and, in particular, to encourage all appropriate international organisations to lend their help;

"(9) With a view to assuring purity of food, and in the interest of public health, to promote, so far as possible, the international standardisation of the technical analysis and control of foodstuffs, and of the control of preparations sold primarily for their vitamin content, on the basis of the work being conducted on the standardisation of biological products;

"(10) To set up standards of reference and specifications for grading foods of all kinds according to quality;

Each of these resolutions, either in the passages quoted above or elsewhere, points out the need for an appeal to the experience of private institutions and organisations as well as for the collaboration of official bodies and services, in order to undertake this general consultation and follow it up with action.

The organisations of agricultural producers and of consumers are naturally among the private bodies whose help in studying the problem of nutrition can be most valuable. Constituted largely on a co-operative basis, the agricultural organisations are in many countries responsible for a large part (often for the greater part) of the production and marketing of certain important foodstuffs, while the consumers' societies are the commonest organised form of popular food distribution. It was therefore essential systematically to collect information on the special experience obtained by these bodies and the measures they have used for educating producers and consumers; and for improving, defining, supervising and guaranteeing the quality of the food products which they put on the market or distribute.

This, then, was the twofold object of the enquiry, the results of which are found below. It was undertaken, not by the International Labour Office itself, but, at the request of the Office, by the Inter-

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national Committee for Inter-Co-operative Relations, under conditions which will be indicated.

It should be remembered that the Committee is composed of representatives, in equal numbers, of the International Co-operative Alliance and the International Commission of Agriculture, with an independent chairman from outside these members, chosen by the representatives of the two foundation organisations. Under its Standing Orders, adopted on 9 February 1931 and amended on 20 September 1932, its duty is to promote the development of moral and economic relationships between agricultural co-operative societies and distributive co-operative societies, and further, "to act as a liaison body between the co-operative movement as a whole and international institutions, in particular the Economic Organisation of the League of Nations, the International Labour Office, and the International Institute of Agriculture".

Established to secure collaboration between the two great international organisations of co-operative societies, and to maintain relations between them and the official international institutions, the Committee was thus fully qualified to take successful charge of this enquiry. It therefore did not hesitate to undertake the work when, at its session of October 1935, having noted the resolutions adopted in the same year by the International Labour Conference and the Assembly of the League of Nations, it was requested to do so by its chairman, who is the Director of the International Labour Office.

The enquiry was carried out in two stages. In the first, a provisional questionnaire, after having been submitted to the officers of the Committee for their approval, was communicated to a small number of co-operative organisations in each of the two groups. In this way preliminary material of a very useful character was collected; and the method also had the advantage of putting the draft questionnaire through a test such as would reveal its faults in advance. In the course of its session of March 1936, the Committee adopted this questionnaire with certain alterations of detail, and opened the second stage of the enquiry which was now extended to a larger number of co-operative organisations. In the relatively short period available it was not possible to notify all the organisations capable of furnishing information, nor did the object of the enquiry demand such a course. Still less was it possible to be certain of obtaining replies from all the organisations consulted. But on the whole the Committee had reason for congratulation on the reception given, even
in certain distant countries, to its request for information. The following is a list of the organisations and individuals that answered, and the date of arrival of the replies:

I. — *Agricultural Co-operative Organisations*

4. Verband schweizerischer Eierverwertungsgenossenschaften, Küsnacht, Zurich. 29 June 1936.
5. Zentralverband schweizerischer Milchproduzenten, Berne. 29 May and 19 June 1936.
11. Norske Eggcentraler, Oslo. 1 August 1936.
15. De Samvirkende danske Andels-Svineslagterier, Copenhagen. 15 August 1936.
20. Ch. Schandl, President of the Hungarian Committee for Inter-Co-operative Relations, Budapest. 25 September 1936.

II. — *Distributive Co-operative Organisations*

1. Union Suisse des Coopératives de Consommation, Basle. 1 February 1936.
4. Savez nabavljaca i zadruge drzavnih službenika, Belgrade. 10 July 1936.
7. Société générale coopérative, Brussels. 21 July 1936.
12. Yleinen Osuuskauppojen Liitto r.y., Helsinki. 28 August 1936.
13. Ch. Schandl, President of the Hungarian Committee for Inter-Co-operative Relations, Budapest. 25 September 1936.

In publishing the results of this enquiry, the International Labour Office sincerely thanks all the organisations and individuals in question for their collaboration, as well as the International Committee for Inter-Co-operative Relations, which prepared and directed the enquiry and contributed so much by its invaluable experience and authority.

* * *

The information received as a result of the enquiry has been classified in two chapters, one relating to agricultural and the other to distributive co-operative organisations.

In view of the nature of this information and of the conditions under which the enquiry was carried out, it has been thought best to arrange the particulars in a form as similar as possible to that chosen by their authors, and thus to bring the reader into the closest contact with the original sources. The information obtained is therefore submitted in the shape of lengthy extracts from or summaries of the replies themselves, bringing out the salient facts of general significance or of special value as examples.

For the same reasons, it has been considered desirable to reproduce here the general remarks with which the International Committee on Inter-Co-operative Relations concludes its enquiry:

"Hygienists do not confine themselves, in the present state of scientific knowledge, to determining the composition of the food ration of a man, according to age, occupation, climate, etc."
"They are also aware, and have insistently called attention to it, of the importance of another problem of a practical character: that of assuring to consumers the quality and genuineness of the food products placed at their disposal; that is to say, of obtaining and giving a guarantee that such products comply exactly, uniformly, and constantly with definitions established with precision and scrupulously observed.

"The foregoing information shows the means employed by the co-operative organisations for solving this problem. It has also another scope. It furnishes an occasion for elucidating the problem itself, reflecting on it, and recognising its extraordinary complexity.

"How is it possible to secure that, from numerous orchards and pastures, widely dispersed and varied, cultivated by producers not possessed of considerable financial and technical resources, apples or oranges of the same variety, the same quality, the same colour, etc., or butter of an identical chemical composition, taste, and smell shall, week by week and year by year, be put not only on the local and regional, but even on the international markets?

"If the pieces proceeding in a practically unlimited series from an embossing machine are all identical with each other and perfect, this is due to the perfection of the machine and the perfect homogeneity of the metal plates with which it is fed.

"If the products issuing from a multitude of rural undertakings appear on the market in a practically unlimited series, homogeneous and of irreproachable quality, it is no exaggeration to say that such uniformity and quality is due to the co-operative organisation.

"It is true that, especially in food-exporting countries, the State frequently ensures the control of the finished product and gives its guarantee, or superimposes its control and guarantee on those of the co-operative organisation. Apart, however, from the fact that this is not always the case, it is a fact worthy of remark that in almost all cases the initiative for a control and for a guarantee mark has come from the co-operative organisations, which have preceded and even guided the action of the State, and that State control has not been imposed on the co-operative organisations but demanded by them, and that they collaborate actively in such control.

"Finally, the control of the finished product is merely the end and consecration of a long preparatory process from which it derives its virtue. It eliminates defective products. It does more: it marks the end to be attained, it fixes the rules and definitions or at least invests them with a certain constraining force. It creates the necessity for observing such rules and definitions, but it does not furnish the means for doing so.

"The isolated producer does not possess these means and may not even know of them. As regards some of these means at least, it is not sufficient to procure them for him or to teach them to him. He must procure them for himself or accept them voluntarily and without reserve, since their effectiveness depends in large measure on his adhesion to them.

"If agricultural producers had been able to carry their technical resources to the degree of perfection which has been seen, they owe this first of all to the financial means which their associated forces have been able to provide and thanks to which laboratories have been instituted and continual research carried on. But this alone would not have been enough; if they have been able to develop their own sense of responsibility, identify themselves individually—during their daily round of work—with the common task of progress, and to compete together therein; if they have been able to submit to the most exact
prescriptions, the most meticulous checks, and even accept punishment—
all of which would have been intolerable if imposed by an outside author-
ity: they have been able to do so because the discipline to which they
submit is the expression of the aims and the will of their societies, is
based on rules they have themselves framed or voluntarily accepted,
and thus draws its compulsory strength from within themselves.

"As regards the distributive co-operative societies, emphasis should
be placed on their sustained and varied efforts for the enlightenment
and guidance of consumers—efforts towards what may be called the
latter's 'food education'; on the basis of the knowledge acquired by
specialists in food hygiene, and even in some cases by taking a direct
part in such researches.

"It is further desirable to mention the assistance which they are able
to render to the public authorities in the repression of fraud and in all
action directed to progress in the matter of food.

"Lastly, the enquiry has been of undoubted help in drawing attention
to the care exercised by the distributive co-operative societies, on their
side, in the choice and verification of the goods which it is their duty to
distribute, and the inspection, check and test which they apply to the
manufacture and preparation of the goods they produce themselves.
In this connection, their most characteristic efforts take the form, first
of all, of precautionary measures relating to the preservation, handling
and packing of foodstuffs, and secondly, the establishment of laboratories
for analysis, which apply severe tests to raw materials for manufacture,
the process of manufacture itself, the finished products, and the goods
offered for sale to the central organisations and their affiliated bodies.

"The work of the consumers and of the agricultural co-operative
societies in this field is thus mutually complementary.

"All the products which the agricultural marketing co-operative
societies put on the market are not all delivered direct to the actual
consumer. Wherever, however, they are directly received for trans-
formation or preparation by the distributive co-operative organisations
an uninterrupted and complete chain of provisions extends from the
place of production to the household of the consumer, which fully
ensures and guarantees their character as well-defined and wholesome
food products.

"In cases where such direct contacts are established between agri-
cultural co-operative organisations and distributive co-operative organ-
isations, they may even, as certain replies have shown, lead to confident
collaboration between the parties concerned, which makes it possible to
simplify the controls and to bring the nature and quality of the products
more completely into harmony with the requirements of consumers.

"Inter-co-operative relations appear, therefore, to secure not only
an economic advantage by the elimination of superfluous expenditure,
but also an advantage as regards genuineness and hygiene in the trade
in foodstuffs."

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CHAPTER I

ACTION TAKEN BY THE AGRICULTURAL CO-OPERATIVE ORGANISATIONS

The measures which the agricultural co-operative organisations have adopted to improve, define, check and guarantee the quality of products which they put on the market constitute a continuous chain. For the sake of convenience, we shall try to divide this chain into the following sections and examine them one by one: scientific researches and experiments, improvement of animal and vegetable species, improvement of the technique of production, training and education, encouragement of emulation, disciplinary action and supervision.

I. — SCIENTIFIC RESEARCHES, EXPERIMENTS AND OTHER MEASURES WITH A VIEW TO THE IMPROVEMENT OF ANIMAL AND VEGETABLE SPECIES

The efforts directed to putting on the market a product of high quality do not begin with the phase of industrial transformation or preparation leading up to the finished article. They are applied in the first place to each of the factors which will affect the quality of the raw product: the soil, the grass seeds which will produce the best fodder for the animals to be raised, the physical conditions of the animals intended to supply meat, the health and productivity of milk cows, the quality of laying hens, the quality and fecundity of fruit trees, etc. It is to these manifold and exacting tasks that the great central organisations of the agricultural marketing co-operative societies devote themselves, with or without the co-operation of the public authorities, sometimes by the systematic elimination of defective elements, sometimes by seeking and producing better strains, most frequently by both of these methods.

As regards the improvement of the productivity of the soil, it
is a characteristic fact that in Finland, for example, it is "Valio", the great central export organisation of the co-operative dairies, which has taken up the matter. Its laboratory produces the necessary bacteria for enriching the soil with azote; its specialists have, in different provinces, improved more than 11,000 hectares of meadowland, about 3,000 hectares of which have been converted into model pastures.

It is not less significant that in Denmark the effort to obtain, produce and distribute selected seeds has been carried so far that it has become the sole function of a special co-operative society for the production and sale of seed (Danske Landboforeningers Froforsyning).

In Czechoslovakia too, a similar function is exercised by the "Selecta" Association for the growing of plants and seeds. This Association which possesses its own testing and experimental services and a network of seed-raising stations, is actively engaged in improving the internal and external qualities of widely cultivated plants by means of selection and crossing. It sells selected products to growers through the co-operative agricultural warehouses, and seeks by every available means to draw the attention of producers to the advantages of cultivating selected seeds and plants. A large number of selected varieties, composed of high quality seed, are raised in the various districts served by co-operative agricultural societies, and care is taken to limit the varieties of seed in accordance with a definite plan, in order to ensure that the different grain-producing districts shall be sown with the varieties best suited to them, thus making it possible to harvest grain of uniform quality. The same measures are adopted as regards other cereals, namely brewing barley, rye, oats, and also as regards beans as well as potatoes of which the most suitable early, semi-early and late varieties are selected, thus ensuring a constant national supply.

In the campaign against cattle diseases and for the elimination of infected animals, the co-operative associations are not less active.

In the United States the National Co-operative Milk Producers' Federation, which represents over 350,000 farmer families, states that it has been instrumental in promoting prophylactic legislation for the eradication of tuberculosis and Bang's disease, that it has assisted in raising the necessary funds for this purpose, and that
the co-operative dairies affiliated to it have already succeeded
in eliminating poor and diseased and tuberculosis-infected cattle
from their members' herds, and that a definite movement is now
on foot to eliminate cattle infected with Bang's disease and mastitis.

Similarly, in France, co-operative societies and mutual agricul-
tural societies for insurance against mortality among cattle are
rendering assistance in the enforcement of the law for the prevention
of bovine tuberculosis. With this object they organise the periodic
inspection of their members' cattle, and instruct and assist the
persons concerned in the action to be taken, and it is these societies
also which make good the losses arising from the slaughter of
infected animals.

In Luxemburg also, the veterinary supervision established since
1932 over the co-operative dairies has led to the elimination of a
number of tubercular animals. The co-operative societies or the
mutual insurance societies pay compensation to the owners of
these animals.\footnote{Dr. Carlo Hemmer: \textit{Die Genossenschaften der Bauern und Winzer im Gross-
herzogtum Luxemburg}. Luxemburg, 1936.}

As regards vegetables, mention should be made of the activity
in France of "societies for combating the enemies of crops" and
the powers which may, in certain circumstances, be conferred
upon them by Prefectural Order for carrying out on their own
authority the necessary measures of protection.

The \textit{South African} Co-operative Citrus Exchange observes:

"Much of the insect pest control work is done co-operatively for the
members by the local co-operative citrus companies, which are members
of the Citrus Exchange. Such pest control operations as fumigation
could not be done by the smaller farmers excepting on a co-operative
basis."

The following is a brief description of its action in the same
domain given by the \textit{California} Fruit Growers' Exchange, which
comprises 210 societies with 13,000 members:

"The Exchange, representing 75 per cent. of the industry, naturally
is a leader in encouraging numerous lines of investigation by State and
federal agencies bearing directly on pest and disease control in the or-
chards and cultural practices as they affect both quality and quantity
production. . . . It co-operates with all federal, State and county
agencies in co-ordinating research activities and pest control work along
the lines most urgently needed. It also investigates carefully the result
of all commercial pest control methods and materials in use as well as trying out new ones to determine the most efficient from the standpoint of effective pest control and the effect on fruit quality and production. The results of these investigations and the information secured is made directly available to Exchange growers and indirectly to others."

In addition to these operations of prophylaxis and selection by way of elimination, attention should be called to the work carried out in most countries by the "breeding societies", associations in the co-operative form or created and supported by co-operative organisations, which devote themselves with perseverance and success to the improvement of breeds of oxen, swine and sheep by hiring out to breeders reproductive males registered in a "herd-book", keeping regular records of coverings, registering the births of young animals, the progeny of the selected males, and also in most cases co-operating in the prevention of contagious diseases. The results obtained by these organisations have been frequently noted. It will be sufficient to recall the classic example of the Danish breeders, who were originally accustomed to produce a heavy variety of fat pig for the requirements of the German market and who, when they were compelled to give up this market, succeeded in a very short time, with a view to meeting the entirely different requirements of the British market, in producing a less heavy, longer and more muscular pig, suitable for furnishing bacon.

The "Centro-Co-operative" of Prague in Czechoslovakia has obtained similar results. With the help of the "Zemka", a Livestock and Game Co-operative Society, the producers in certain districts have succeeded in making great progress in their attempts to standardise the production of livestock, by means of a careful choice of breeds and rational feeding methods. As regards pig-breeding, efforts are being made to reduce the number of breeds to one or two, in order to market pigs of a weight and quality such as required by consumers.

A similar work of selection is carried out in regard to hens. The following information, for example, is given on this point by the Pacific Egg Producers' Co-operative of the United States (25,000 members).

"Breeding (i.e. of improved laying stocks) is a specialised activity in the areas in which our Associations function and special R.O.P. groups (record of performance) have been in operation several years, encouraging the use of latest facts developed by geneticists in the State Colleges. The R.O.P. groups are encouraged to breed for the characteristics which are sought by those marketing the product."
Co-operative societies or their central organisations frequently of course supply breeders with eggs for hatching produced by layers of recognised quality. This is done, for example, by the General Federation of Agricultural Co-operative Societies of Austria and also by "Coopeuf" in France.

As regards the selection of fruit trees the South African Co-operative Citrus Exchange Ltd. mentions that its Field Staff, among other things, has to keep records of trees producing good crops of superior quality fruit for purposes of securing dependable parent trees from which to propagate young trees.

We may further take a particularly instructive example from the records of the central marketing organisation of the co-operative societies of producers of citrus fruit in California. The following extract from a report of the Fruit Growers' Supply Company, an auxiliary society of this central organisation, contains in fact detailed information on the measures adopted for improving the quality of such fruit and increasing the production of trees by the scientific selection of the original stocks from which the young plants are drawn:

"Acting upon the request of some of the leading citrus growers in Southern California, the Bureau of Plant Industry of the United States Department of Agriculture in 1909 began an investigation for the purpose, first, of ascertaining the variations which had taken place in the important commercial citrus varieties grown in California through bud variations, and to learn the comparative value of the different strains arising from these variations for commercial fruit production; second, to determine the extent to which undesirable variations have been propagated as shown by the percentage of such undesirable trees existing in parent bearing orchards; third, through improved methods of propagation to reduce the number of undesirable variations which enter into commercial citrus fruit orchards.

"Prior to this investigation, California citrus growers noted the presence of undesirable trees in their orchards. This condition seemed more apparent in young orchards or those further removed from the original trees from which the varieties developed than in the older orchards which were more closely related to the original parent trees. Many of these trees produced irregular light crops of inferior quality. In some cases the commercial and eating quality of the fruit from the off-type trees proved to be so poor that it became necessary to sort them out from the general crop and throw them into the cull bins.

"These investigations were carried on by means of records and observations of individual trees. The term 'performance record' is used for determining the type of the trees by means of individual tree records of products, observation, descriptive notes and photographs.

"As a result of the findings of the Bureau of Plant Industry the California Fruit Growers Exchange recognised the commercial importance of this work, and in May 1917, the Fruit Growers Supply Company
established a department of Bud Selection. The work of this department is to secure bud wood from superior performance record trees and to distribute it to propagators. The object of the work is to put into practice the results of the investigation of the subject by the United States Bureau of Plant Industry in order to improve the quality and quantity of citrus fruit production in the State as a whole. It is looked upon by those interested as a public service both to the producer and to the consumer, and for this reason has enjoyed the whole-hearted co-operation and support of everyone concerned. The service is performed at cost and from the beginning has been self-supporting.

"Since its beginning the Bud Selection Department of the Fruit Growers Supply Company has furnished to nurserymen and growers 5,861,649 buds which have been cut from trees of known performance. To give some idea of the work entailed in supplying the buds from trees of known and satisfactory performance, we might add that records have been kept on a total of 57,796 trees from which only 5,912 trees were selected."

Mr. A. D. Shamel of the United States Department of Agriculture, in charge of this work, states in a bulletin of the United States Department of Agriculture as follows:

"The utilisation of the results of scientific research in the improvement of citrus fruit relative to bud selection has largely been made possible through an organised citrus industry. While the investigation on this subject could probably have been carried on without this organisation, it was, as a matter of fact, largely encouraged and fostered by it. In the opinion of the writer, the widespread use of the improved methods of bud selection and propagation could not have been so quickly and efficiently introduced commercially in the citrus industry without the active participation of the co-operative growers organisation."

II. — SCIENTIFIC RESEARCH RELATING TO METHODS OF MANUFACTURE OR CULTIVATION. TRAINING OF TECHNICIANS. EDUCATION OF PRODUCERS

One of the tasks which the central organisations of agricultural marketing co-operative societies had to undertake at an early period was the education of producers in the best methods of cultivation, breeding, milking, gathering, etc., and the training of technicians, particularly for industrial transformations of the raw product.

In the most important of these central organisations this educational work is supported by a research department, to which is most often attached a service of inspection of co-operative establishments and peasant undertakings. It is carried on by means of classes, lectures, meetings, and the publication of technical periodicals, books and pamphlets.
The following is a brief description, by way of illustration, of the activity of the laboratory of research and analysis of the central organisation of co-operative dairies of Finland, "Valio".

"The commercial activity of 'Valio' is supplemented by a well-developed action in the field of scientific research and propaganda. In the summer of 1931 a new five-storey laboratory was inaugurated, to which are attached a hot-house and sheds for biochemical analyses. The chief of the laboratory is Prof. Artturi Wirtanen, one of the most highly reputed Finnish chemists. He is assisted by a staff of eight qualified chemists and bacteriologists, who are themselves assisted by an auxiliary staff. The laboratory carries out all kinds of chemical research relating to the dairy industry, as, for example, the determination of the quality of finished dairy products, the examination of raw materials and materials necessary for production and sale: chemical products, packing paper, etc. The Laboratory further cultivates the bacteria necessary for the fermentation of milk and cheese and the enrichment of the soil with azote. . . . The results of the work of the laboratory were collected in 1930 in twenty-four studies, published in Finnish, Swedish, German, English, etc.

"Another important task of 'Valio' consists in the training of qualified staffs. 'Valio' carries on at its own expense a dairy institute for the training of dairy managers and teaching staff. Numerous classes and lectures are organised in the most varied branches of the dairy industry." 1

As long ago as 1913 "Valio", with a view to assisting co-operative dairies to undertake the making of cheese, created two centres for the training of future cheesemakers.

In most countries where milk producers are organised on a co-operative basis institutions are met with in the same form or in other forms with the same object.

In France, the Dairy School and the Dairy Industry Station at Surgères were created at the request and with the assistance of the Central Association of Co-operative Dairies of Charente and Charente Inférieure and Poitou. The School works in close cooperation with the Central Association. It furnishes the managing staff for numerous co-operative dairies in the rest of France, particularly in the western regions. In addition to analyses of milk, water, butter, etc., the Dairy Industry Station has devoted itself to numerous experiments, particularly in regard to the treatment or purification of water by ultra-violet rays, the treatment of the residuary water of dairies by the use of superphosphates of lime, etc.

In the Netherlands, the Dutch Union of Co-operative Dairy

Societies, which comprises 130,000 members, instituted in 1908, that is to say 8 years after its foundation, examinations for diplomas of heads of factories, butter-makers, cream extractors, supervisors of breeding societies, cheesemakers, mechanicians, etc. In the course of 22 years it granted 1,400 diplomas among 3,400 candidates who had presented themselves for examination. For the purposes of preparation for these examinations it published a number of manuals and pamphlets dealing with the technical, economic and pedagogic problems of the dairy industry.¹

In New Zealand, the co-operative dairies, through a levy collected by the Dairy Board, have been paying large sums for the purpose of scientific research, with a view to improving quality, and steady progress has been made.

In the United States, dairy co-operatives have taken advantage of their relations with agricultural schools to arrange for their representatives to conduct educational programmes with the students. These representatives stress the need for agricultural co-operation and of cleanliness in milk production, point out how bacteria develop and how that development may be kept at a minimum in the production of milk and cream. They also assist such schools in holding dairy shows, offer prizes at dairy exhibitions, etc.

In Hungary, the Central Association of Co-operative Dairies exercises a similar influence by furnishing, at the beginning of the different seasons of production, through the local societies, useful information in regard to the hygiene of cowsheds, feeding, the means of preventing differences in quality due to changes in fodder, the hygiene of productive co-operative establishments, and the precautions to be taken in the transport of raw or semi-finished products.

In Latvia, the Central Union of Co-operative Dairy Societies states that it organises special courses for the foremen of butter-making establishments, and also visits to establishments and exhibitions, as well as the technical inspection of dairies.

In Switzerland, the public authority entrusts this task to the societies and even imposes it on them as an obligation. The Swiss regulations for the supply of milk prepared by the Swiss Milk

¹ Cf. L'industrie laitière en Hollande, published by the Dutch Union of Co-operative Dairy Societies.
Commission, adopted by the Central Union of Milk Producers and the Swiss Union of Purchasers of Milk, ratified by the Agriculture Division of the Department of Public Economy, provided in Article 43 as follows:

"Every dairy or cheesemaking society shall convene every winter at least one meeting of suppliers and cow-keepers, at which experts (professors of agriculture, veterinary surgeons, inspectors of cheese factories, local experts or cheesemakers) shall deal with the question of milk supply."

The same education effort is observable in the co-operative organisations in regard to the production and sale of eggs, fruit, etc. The 62 co-operative bacon factories in Denmark, which comprise 180,000 breeders, are all combined in a federation which, among its other functions, conducts researches concerning the improvement of the pedigree and breed of pigs, as well as experiments relating to the best methods of feeding pigs. This federation reports as follows regarding the education of breeders.

"The farmer members are all, partly through lectures, farmers' high schools, farmers' societies and agricultural papers, and partly through information and instructions from their factories, educated on such lines, that the feeding and treatment of pigs in their care have steadily improved and have reached a state of efficiency surpassed nowhere else."

The same kind of activity is carried on in Norway by the Norwegian Central Union for the Marketing and Export of Bacon, which comprises altogether nearly 90,000 producers and which, in co-operation with other farmers' associations, organises courses in all parts of the country.

In Czechoslovakia, a special mention is made of the educative and disciplinary action exercised on the producers of brewing barley, with a view to the utilisation of selected seeds.

"The 'Co-operativa' has drawn up certain special rules for the growing and preparation for the market of brewing barley, which are distributed every year to producers through the co-operative organisations. The barley departments of the Co-operativa and the Agrasol have published a monograph on the cultivation of brewing barley, while lectures on this subject are organised throughout the districts where the cereal is grown. Both through personal contact and through the issue of pamphlets, the co-operative agricultural societies recommend to growers the varieties of barley which are in demand, especially on the foreign market, the Co-operativa being one of the biggest exporters of brewing barley. As regards the campaign against plant diseases and pests, the cauterisation of seeds is recommended. Propaganda is also carried on, by various means including the cinema, to illustrate the proper use of chemical manures. Booklets on this subject are distributed to growers. This
whole educative movement is the result of a close and continuous collaboration between the technical and professional agricultural societies and organisations, the agricultural research institutes, the seed checking stations, the scientific brewing institutes, etc.

“In order to popularise as far as possible these educative efforts, various experiments in sorting, in the use of chemical manures, etc., are carried on by experts, the state of the crops throughout the period of growth being closely checked both by the Central and local co-operative societies.”

In the United States the marketing agency of the Pacific Egg Producers Co-operatives has replied as follows to a question addressed to them in this connection:

“Special instructions have been given to members of our Associations for many years covering the care of poultry flocks and handling the product while it remains in the poultryman’s hands. These instructions have been given in regular monthly and special meetings in the form of lectures, forums and the like. Latterly, moving pictures have been shown depicting the manufacture of feeds in our own mills. This year one of our Associations is making a film showing the progressive stages from the breeding right down through the hatchery, rearing of the chicks, feeding, handling the product on our own ranches through the packing plants and in fact through the retail merchandising units up to the consumer.”

In connection with the question of eggs and poultry again, the following is the reply of the great Central Co-operative Union of the Hungarian farmers “Hangya”.

“In the scheme of winter lectures we teach our producers methods of production, breeding and collection. Our professional publications are also placed at the service of this activity.”

As regards fruits, the same organisation refers to similar action.

“In winter we organise meetings of farmers at which we give lectures on the care of fruit trees, the gathering of fruit, and preparation for markets. The organ of the Central Union, moreover, continually publishes instructive communications for the education of fruit growers. In the centres of production we have organised export establishments where hundreds of workers are trained in methods of handling, classification and packing of fruit and other products of the soil.”

In Austria also the Central Union of Agricultural Co-operative Societies states in regard to the Farmers’ Union of Styria:

“This Union instructs the organisations affiliated to it, the great fruit growers and dealers in the methods of sifting, packing and despatching fruit. It publishes, in collaboration with the Chamber of Agriculture and Forestry of Styria, weekly bulletins relating to fruit.”

The following are the replies received on the same subject from the Federation of Fruit and Vegetable Growers’ Co-operative
Societies (France), from the California Fruit Exchange, from the California Fruit Growers’ Exchange, and from the South African Co-operative Citrus Exchange:

“The education of fruit growers is conducted on the spot by the directors of agricultural services, by professors of agriculture interested in the trade union and co-operative movements, by the directors of co-operative societies under the advice of the Federation, by the delegates of the Federation. Special meetings are held, and lectures and demonstrations are given in the districts concerned. Advice is given in the matter of sifting, packing, grouping and despatch of products.” (National Federation of Fruit and Vegetable Growers’ Co-operative Societies, France.)

“For fifteen years the Exchange and its members have been studying the best methods of preparation for sale, and have finally developed for each type of fruit a very detailed scheme of specifications concerning quality, etc., with which the individual producer must comply. . . . Apart from this, each member receives a copy of a monthly publication, the ‘Blue Anchor’, which contains advice concerning the growing and care of fruit, etc.” (California Fruit Exchange.)

“The Exchange has both a Research and Field Department Laboratory in which the men are constantly experimenting with various methods of improving both the methods of handling the fruit and, also, the improvement of sanitary practices to insure cleanliness and aseptic conditions in the packing houses handling the various citrus fruits.

“This information developed in the laboratories is given the associations through personal contact and through circulars sent out from the main office.” (California Fruit Growers Exchange.)

“The South African Co-operative Citrus Exchange maintains its own field staff composed of five technically trained field officers working under the direction of a technical adviser.

“The functions of the field staff are, in particular, as follows:

“(i) To carry out investigations in the various citrus producing areas of the Union with a view to determining the most economical methods of producing bigger crops of better quality fruit. These investigations cover cultivation, irrigation, fertilising and manuring, disease control, insect pest control, better methods of picking and of handling the fruit from tree to packhouse, decay prevention and grading;

“(ii) To keep every grower in close touch with the results of these investigations and with the results of investigations carried out by the Department of Agriculture and other private or semi-private institutions. This is done by personal visits by the field officers to the growers and by means of roneoed circulars, printed articles, lectures to meetings of growers and demonstrations of the results of different treatments on the trees and on the quality of fruit;

“(iii) To control the grades and quality of fruit packed under the Exchange Trade Mark.

“In addition to the above the Citrus Exchange initiates much of the research work in citrus undertaken by the Department of Agriculture and
in special cases even finances such work." (South African Co-operative Citrus Exchange Ltd.)

The reply from the National Federation of Agricultural Co-operative Marketing Societies of Japan relates to various products. It is as follows:

"Conferences about co-operative selling business of each kind of agricultural products are held by our federation or local federations several times a year in each district; and at that time many instructions are given to members of local associations or groups with regard to working up or preparing raw products."

III. — Encouragement of Emulation Among Technicians and Producers

By the organisation of exhibitions and competitions which bring into play all the forces of emulation and which sometimes, moreover, furnish a new opportunity of concrete instruction, producers and technicians are encouraged to utilise, supplement and improve the knowledge and methods which have been imparted to them.

The following are examples of the activity of the co-operative organisations in this field, taken from the replies received in connection with dairy produce, meat, eggs, fruit, etc.

"Co-operative associations maintain exhibits and have their representatives at State and county fairs, they attend different adult educational meetings in which dairymen are interested so that any arising questions may be answered and active contacts maintained." (The National Co-operative Milk Producers’ Federation, United States.)

"To safeguard their interests and at the same time to increase the professional skill of their staffs, the co-operative dairies in each province have organised Co-operative Dairy Unions, which employ a secretary and consulting advisers for milk production and machine installation. These Dairy Unions hold several Butter and Cheese Exhibitions each year. They give technical advice to the member dairies and organise competitions in which every side of dairy-farming is thoroughly gone into from the professional point of view." (Finland.)

In Hungary the co-operative institutions do not organise independent exhibitions, but they take part in those which are held. The following is the reply received on the subject from the central co-operative organisation of Hungary:

"The National Hungarian Farmers' League has for the last twenty years organised a National Agricultural Exhibition every spring. Farmers and co-operative organisations always participate in this event

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1 Finnish Butter, p. 15.
in large numbers. Various regional or urban agricultural organisations also organise agricultural exhibitions at irregular intervals, with the assistance of the co-operative dairies, generally in connection with cattle competitions, in which a large number of breeders and co-operative dairies regularly participate."

"Up to 1934 dairy competitions were organised by the agricultural and industrial fair of Kaunas. The co-operative dairies took part in them in the proportion of 70 per cent. Since 1935 the Central Union of Co-operative Dairies of Lithuania has itself organised competitions in regard to the quality of dairy products. The basis of these competitions is the percentage of products of first-rate quality and in a good state of preservation supplied by the dairies. The chiefs of the manufacturing departments of the thirty leading dairies receive honorary distinctions and money prizes. The co-operative dairies themselves only receive honorary distinctions.

"The Union further inaugurated in 1935 annual competitions among farmers for ascertaining those who supplied the dairies with milk containing the largest quantity of fat substance per hectare of land. The Union has awarded prizes to the most important suppliers of each co-operative dairy, to the most important milk suppliers of each administrative district of the country and to the three leading milk producers in Lithuania. The last-named have also received decorations from the President of the Republic." (Central Union of Co-operative Dairies of Lithuania.)

In Switzerland, competitions have been organised for the supply of clean and wholesome milk. These competitions, which have been held over a period of five years (1926 to 1932) under the auspices of the Swiss Milk Committee, have been discontinued. They will shortly be resumed.

In Norway, the Central Union for the Marketing and Export of Bacon distributes prizes for good quality beasts shown at competitions organised each year by the Royal Society for Public Welfare in Norway.

"Individual growers and associations belonging to the California Fruit Growers' Exchange always take part in the Annual National Orange Show which has been held at San Bernardino, California, since about 1910." (California Fruit Growers' Exchange.)

The Californian Fruit Growers' Exchange also exhibits specimens of fruit of various qualities and methods of packing at local or State fairs.

"The South African Citrus Exchange does not organise regular Citrus Shows or competitions but through its field staff encourages members to participate in the Shows organised by the general Agricultural Societies. In addition, it actually supports the Imperial Fruit Show held in London and encourages its members to participate."

"Several exhibitions and competitions are in operation simultaneously over the territory served by our Associations. In one State the Annual
Fair is held at which the largest exhibit is comprised of several hundred dozens of specially selected eggs. One day in the week is given over to the celebration for poultry products and the organisations engaged therein. Competitions for grade improvements are held all over the territory under the auspices of the local Associations sponsored by the Co-operative Associations.” (Pacific Egg Producers Co-operative Inc., United States.)

“The Union of Agricultural Co-operative Societies of Lower Austria takes part in the Vienna fair twice every year. In other Federated Provinces also the co-operative organisations regularly participate in provincial and district agricultural exhibitions.” (General Union of Austrian Agricultural Co-operative Societies.)

“The ‘Hangya’ Co-operative Society for the production and sale of honey takes part in exhibitions organised in the autumn in different regions of the country by the various organisations of agriculture interests. It co-operates with the Foreign Trade Office in the organisation of export fairs in connection with such exhibitions. The society is still in the first year of its existence and this accordingly is the first time that it has organised such exhibitions. It proposes, however, to continue this activity. Great interest is taken in these exhibitions and export fairs, and they have, moreover, been organised at the request of those concerned.” (Hungary.)

“In order to popularise the movement both among growers, whose interest it is to produce only the best variety of plants, and among consumers, who should make certain that all their needs are being satisfied, competitions and exhibitions are regularly organised in provincial towns with the assistance of the local co-operative warehouse and the branch of the Agricultural Union, the central agricultural association in Czechoslovakia. Other highly successful centres of propaganda are the local exhibitions, held in the counties and provinces, in which the leading co-operative and occupational organisations participate, and, lastly, the great National Agricultural Exhibition held every May.” (“Centrokoooperativ”, Czechoslovakia.)

“Exhibitions and competitions organised locally are held several times a year by districts, by local co-operative societies, by agricultural co-operative societies or with their collaboration.” (National Federation of Agricultural Co-operative Marketing Societies, Japan.)

IV. — DISCIPLINARY ACTION. REGULATIONS. INSPECTIONS. CONTROL SOCIETIES. SANCTIONS. TESTING OF RAW PRODUCT AND FINISHED PRODUCT. GUARANTEE MARKS

Most agricultural co-operative organisations do not confine themselves to instructing, informing and encouraging their technical staff with a view to enabling them to supply products of high and constant quality. Co-operative discipline creates constraints which go much further. By the mere fact of conforming to the statutes of a co-operative society the members undertake to submit to a series of imperative and detailed provisions contained
in such statutes and supplemented by severe regulations, which are continually brought into agreement with technical progress.

Inspections carried out by officials of the co-operative societies, or by special societies to which the latter delegate this function, make it possible to control the scrupulous observance of such provisions, rectify errors committed and furnish new members with advice and assistance. Such inspections not only take place in manufacturing establishments (where the product undergoes an industrial transformation). They are also carried out on members’ farms, in their sheds, orchards, etc. The product itself is subject to a whole series of tests, from the time of delivery up to the time of its being placed on the national or international market. At each stage of this control the observance or non-observance of the prescribed rules is enforced either by various prizes or bonuses, or by fines and even by expulsion from the society.

In almost all cases moreover, the price paid to the producer for the raw product, and the price paid to the transforming co-operative society for the finished product, vary in accordance with rules established in advance, in proportion as the definition and quality of the product differs from the agreed definitions and qualities.

All such provisions, notwithstanding considerable diversity in detail, are sufficiently similar in their general lines in all countries. They naturally differ chiefly according to the nature of the product and particularly according to whether it is a product which undergoes industrial transformation or not. For this reason it is desirable to describe them separately and successively, first as regards eggs, fruit and honey, then as regards butter, cheese and bacon.

The regulations in question are so manifold and complex, the measures of inspection, control and sanctions follow so closely on each other through the various stages followed by the product, and even overlap to such an extent that it is often difficult to isolate them. It is therefore proposed to explain them in the case of each product under consideration, from the natural source to the market, without attempting to divide the process into uniform stages which would run the risk of being artificial.

Products not Undergoing any Important Industrial Transformation

As regards eggs, the following are a few extracts from the reply received from the Pacific Egg Producers' Co-operative Inc. (United States), covering the principal points in the enquiry:
Field men employed by the Associations make inspections on members' premises and offer suggestions for improvement. This embraces functions of a veterinarian, nutritionist and expert in egg quality.

Measures of hygiene are largely in the hands of the respective States in which our Associations are active. Some of our Associations have veterinarians in their employ and in every instance the Association co-operates very closely with the State veterinarian. Various procedures are recommended to the poultrymen as in the case of vaccination for pox. Constant struggle is made against the sale and use of various nostrums which are foisted on any gullible poultryman.

Payments to producers vary with the quality of the raw product delivered at the packing plants, in accordance with standards and definitions agreed upon in advance.

Control of the eggs after shipment from the various packing plants is retained by the Associations in their local markets and to a central sales agent, Pacific Egg Producers' Co-op. Inc., for distribution in that portion of the United States east of the Rocky Mountains and in foreign countries. In other words, control of the product is maintained by the Associations up to the jobber and in a large portion of their business, up to the retail store. The latter is achieved in their local markets, in their function as jobbers.

In Austria the supply of eggs to the co-operative societies is effected by weight, after sorting and "candling".

In Lithuania the collecting centres only buy fresh and sound eggs and pay for them at the same rate, while they themselves only receive for second-rate eggs prices 30-40 per cent. below the normal prices.

In France the members of the Agricultural Co-operative Society "Coopeuf" receive 30 francs more per thousand for brown, heavier and better preserved eggs. In the course of four years the proportion of brown eggs supplied rose from five to fifty per cent.

In Hungary the producer who supplies the largest quantity of products of the best quality and the best appearance receives a special allowance by way of bonus at the end of each financial year from the surplus of the "Hangya" co-operative society for the sale of poultry and eggs.

The Danish Co-operative Egg Export Society (D.A.E.) comprises eight hundred local societies acting as collecting centres in the following manner:

Each of the societies collects eggs from producers at least once a week and sends them to the nearest depot. These depots, of which there are twenty-one distributed over the different regions, examine the eggs by holding them up to the light, classify them, sort them and carefully pack them.
Our testing system is simple but effective. Each local member stamps all his eggs with the number of his group and his number as member of the group (e.g. \( \times 258 \times 25 \times \)). By means of this system it is very easy to find the producer of eggs of second quality, and as the difference in value for such second quality eggs is deducted from the payment to the producer, the system acts as an incitement to produce the finest possible quality, and this is the principal reason for the high reputation of eggs from D.A.JE.

The information received from the Norwegian Farmers' Co-operative Egg Export Association brings out very clearly the importance which consumers attach to the practice of stamping, such as that described in the case of Denmark. It shows, in fact, that the stamp immediately acquired in the eyes of the public the value of a guarantee mark and that it in fact led to the introduction of such a mark. The reply from this organisation, moreover, furnishes an opportunity for a definition of a first quality egg. The reply is as follows:

"The co-operative egg-marketing organisation in our country has always given consideration to the question of the improvement of the quality of eggs. For the last forty years producers of the co-operative movement have stamped each single egg with a number by which the actual producer can be identified and whereby he is made responsible for the quality of his eggs. As a result of this 'producers' stamped eggs' became known to consumers as specially good eggs.

"This, however, led the wholesalers outside our organisation to register their trade marks, consisting of letters or figures as similar as possible to those of the producers of the co-operative organisation. These marks were stamped on the eggs at the wholesalers', the eggs being then sold as 'stamped eggs' in competition with those stamped by the producers themselves. This misleading stamping could not be stopped, as anyone may use a registered trade mark for his goods. 'Stamped eggs' therefore gradually came to offer the consumer no guarantee as regards quality, and the organisation had to adopt new methods for securing the reputation of their eggs. This was done in 1934, from which time each single egg passing through the organisation Norske Eggcentraler s/1, Oslo, has been 'candled', and only eggs of the very highest quality receive the first-class stamp (Sol-egg, that is Sun-egg; a sun is stamped on the shell of each egg). After the Norske Eggcentraler had been practising this new method for about a year and a half and their 'sol-egg' had become recognised as of the very best quality, a Government system of control was established which was based directly on the experience acquired by the Norske Eggcentraler, s/1. The following is what is demanded as regards the quality of the higher class:

"First Class (Sol-Egg)

Air Chamber: Not more than 5 mm. regular and immovable.

Yolk: Invisible or slightly visible, without clear outline, must not change appreciably from its central position on the egg being suddenly turned.

White: Firm, transparent, without spots or visible filaments."
Shell: Clean, intact and smooth.
Other characteristics: Good normal shape; no unusual smell, no spots of blood or foreign bodies.

"The eggs of our organisation are still stamped by the producers with their numbers. Eggs not of the best quality are not paid for at full rate, but either at reduced rates or not at all.

"Complaints may occasionally be received from retailers or consumers. In order to give due consideration to complaints, the sun mark on the egg is stamped one week in green, the next week in black, another week in blue or red. By this arrangement we can always say which week within four weeks the eggs complained of were controlled by us."

The following are some particulars of the same nature relating to fruit received from the co-operative organisations of the United States, Turkey, France, Hungary, and the Union of South Africa.

The California Fruit Exchange pays the producers the price which it is able to obtain for their fruit, which varies according to quality, subject to the deduction of a commission. A corps of trained inspectors is employed by the Exchange, who examine the fruit supplied by members and are entitled to reject that which does not meet with their approval. Fruit is also subject to inspection in the premises of the Exchange and during transport, up to the moment at which it is delivered to the consumer.

The inspection is not limited to a comparison of the fruit delivered with the standards imposed. Although the fruit is marketed in its natural state, certain hygienic measures are necessary, for example, getting rid of parasites which may be present in such fruit. The following are the precautions adopted in this matter by the Exchange:

"Fruit which is sprayed with arsenate of lead as a protection against moth, such as pears and apples, is washed in a hydrochloric acid solution and subsequently rinsed in pure water before packing, in order to comply with international regulations. Every car of such fruit is subjected to rigid federal and State inspection and chemical analysis, which ensures compliance with the strictest health requirements throughout the world.

"Many fruits are wrapped in special hygienic paper. All are packed in new, clean fruit boxes, often lined with paper and protected with special packing material."

In dealing with the same problem, the Union of Agricultural Marketing Co-operative Societies of Aydin in Turkey decided to abandon the process of dipping figs and raisins affected with parasites in boiling water, as this process destroys the vitamins and spoils and hardens the fruit. After a few months in warehouse products treated in this way are unfit for consumption. The Union
engaged American specialists to construct powerful fumigation installations, working by depression, for the destruction of the parasites.

In order to receive the mark of the California Fruit Growers' Exchange, fruit of each species must comply with the most precise definitions as to degree of ripeness, dimensions, quantity of juice (25 per cent. of the volume as regards lemons for example), etc. They have to be packed according to conditions minutely specified.

The inspection service of the Exchange, consisting of about forty inspectors, has the duty of supervising the observance of these various rules and regulations.

"In addition to the manager and assistant manager of the Field Department, there is a supervisor for each of the different divisions, namely: picking inspection, orange and grapefruit inspection, lemon inspection, pest control, and laboratory. Inspection department inspectors, under the respective supervisors, are delegated to certain territories and their duties are to inspect and report on all packing houses in their respective territories. In addition to working in the regulatory capacity, they also perform a valuable service in an advisory capacity."

In case of wilful or persistent violation of the regulations imposed, an inspector is sent to the establishment and remains there for a period which may be as much as thirty days at the expense of the delinquent Society, for the purpose of supervising the fruit at the time of packing. Finally the right to use the mark may be withdrawn.

In France each of the groups affiliated to the National Federation of Fruit and Vegetable Growers' Societies is bound to exercise a strict control over the production of its members. By way of example, the following extracts are given from the internal regulations of an important grape producing organisation in Vaucluse:

"Members must furnish the Co-operative Society with healthy products of an irreproachable commercial and marketable value and of normal ripeness.

"The fruits delivered to the Co-operative Society, packed with the greatest care and without concealment of inferior specimens, in the material supplied by the Co-operative Society, are inspected and tested by the director. They must conform to the indications furnished as to quality and calibre.

"The director has the right to refuse fruit of an excessively inferior quality or which will not bear transport.

"In the event of the Co-operative Society receiving complaints of bad deliveries due to concealment of inferior specimens, cheating or otherwise, the Co-operative Society has the right to take action against the offending member, and in case of a repetition of the offence, the Board of Directors must impose a sanction which may extend to expulsion."

The National Federation also exercises a control over its marketing agencies. Delegates regularly visit sellers and distributors and supervise their operations.

The following information is taken from the reply received from the Hungarian Central Co-operative Organisation, "Hangya":

"We have established qualitative categories for fruit supplied by producers for export purposes, and the prices paid to the producer vary with the different categories. Further, part of the surplus of the Co-operative Society is distributed at the end of the year in the form of bonuses to meritorious producers.

"The first inspection is effected at the place of production on the receipt of the products. A selection is afterwards made, where suitable, at the time of making up consignments for export. In addition to the control exercised by us before the departure of the goods, official inspection bodies further examine all consignments. In case of despatch of goods to distant destinations, the consignments are subjected to further examination as regards their condition at the intermediate frontier stations. We further give attention to reloading, supply of ice and anything else that may be necessary, in order that consignments may reach their destination in perfect condition. These control organisations, after long practice, work perfectly. In case of negligence the service found at fault is suspended and the station excluded for the rest of the year from co-operative exports."

In the same country the Co-operative Society "Hangya" for the sale of honey supplies the following information:

"The prices on delivery of honey are determined by the quality of the goods delivered, in such manner that beekeepers supplying products of excellent or improving quality are naturally favoured. At the end of the year meritorious beekeepers receive allowances by way of bonus, for furnishing which a part of the surplus of the society is set aside."

The following is a description of the measures taken by the South African Co-operative Citrus Exchange Ltd., for the picking and transport of fruits and the means employed for checking the quality of the fruits put on the market:

"The local co-operative citrus companies take every known precaution to ensure freedom of the fruit from mechanical injury and wastage.

"Such precautions include picking of the fruit with gloves, using proper orange clippers, preventing grit and sand getting into the field boxes, the spraying of picking boxes and other machinery with fungicides daily, etc.

"Producers' earnings vary with the quality of fruit produced in accordance with standards and definitions agreed upon in advance.

"As far as the fruit exported is concerned, the minimum grades of quality to which the fruit must conform, are laid down by a Grading Committee appointed by the Co-operative Citrus Exchange.

"This Committee obtains the views of the Chief Fruit Inspector, the Principal Government Horticultrist and all other interested persons, before taking its decisions."
"It meets at the end of each season to review the operation of the export regulations during the previous season and to decide in what respects the regulations for the coming season should be amended.

"Before the decisions of the Grading Committee become law, they have to be approved of by the Minister of Agriculture. In practice the Minister usually approves of the recommendations made by the Grading Committee.

"When once the regulations become law, they apply to all citrus fruit exported.

"The actual application of the regulations is left to a Government-appointed body of fruit inspectors, working under the direction of a chief fruit inspector.

"Fruit inspectors are stationed at various inland loading centres and at the ports of shipment.

"A small percentage of fruit from each consignment is inspected and, if it complies with the regulations, it is allowed to go forward for export but is subject to check inspection at the ports. If it fails, it is rejected and must be either repacked to conform with the regulations or be sold on the local markets.

"Up to the present no regulations apply to the quality and standard of fruit sold on the local markets. The Citrus Exchange, however, is endeavouring to get the necessary legislation introduced to ensure the control of the quality of fruit sold on the local markets."

This description is supplemented by the information furnished by the Exchange and reproduced below which make it possible to appreciate the efficiency of the measures adopted:

"Through the activities of the Citrus Exchange Field Staff in the Rustenburg District of the Transvaal, the average production of navel trees of full bearing age has been more than doubled and the average juice percentage of the fruit has been increased from 44 per cent. to 50 per cent. with a proportionate increase in the ratio of sugar to acid in the juice.

"This was the first area in which the Exchange commenced field work five years ago. Similar improvements are commencing to show up in the other areas where field work was undertaken at a later date.

"The gradual improvement in the quality of fruit exported is reflected in the following comparison between the minimum export regulation requirements for fruit exported in 1928 and for fruit exported in 1936.

<table>
<thead>
<tr>
<th>Variety of citrus</th>
<th>Percentage juice</th>
<th>Sugar-Acid ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1928</td>
<td>1936</td>
</tr>
<tr>
<td>Navels</td>
<td>No minimum set</td>
<td>44</td>
</tr>
<tr>
<td>Valencias</td>
<td>Do.</td>
<td>43</td>
</tr>
<tr>
<td>Seedlings</td>
<td>Do.</td>
<td>36</td>
</tr>
<tr>
<td>Grapefruit</td>
<td>Do.</td>
<td>36</td>
</tr>
</tbody>
</table>
"The trade mark 'Outspan' introduced at the commencement of 1936 denotes the success of the efforts made towards the improvement of the products. The minimum requirements as far as internal quality and external appearance are concerned for fruit packed under this trade mark are higher than the minimum requirements of the Government Export Regulations. This trade mark serves as a guarantee to the consumer of the superior quality of the fruit, and assures to the producers of this quality a better revenue."

Products Undergoing an Industrial Transformation

These are principally dairy products and also meat where it is used for making bacon, sausages and the like, tinned meats, etc.

As regards dairy products in particular, attention must be drawn in the first place to the part played by "control societies", "milk control societies", etc., in certain countries in the supervision of cowsheds, and of the health and feeding of milch cows. Such supervision has gradually perfected its methods and is based on a series of observations which have become more and more precise and which need to be carefully registered and checked: weight and testing of the milk of each animal under control, examination, in respect of weight and food units, of the fodder which the animal consumes, variations in the weight of the animal, calving, etc. It presupposes the possession of special knowledge and involves the use of apparatus which is sometimes costly. For all these reasons it has sometimes been thought desirable to relieve the co-operative dairy organisations, which are already burdened with many delicate tasks, wholly or partially from such supervision. It was in this way that "control societies" came into existence. The first was established in Denmark in 1895. This country now possesses several hundreds. They are also numerous in Finland, Hungary, etc., where their activity sometimes replaces and sometimes supplements the inspections carried out locally by the co-operative dairies.

Most of the central organisations of co-operative dairies, especially those in export countries, have supplied abundant information relating to the work of supervision which they carry out in connection with their affiliated societies and which they cause the latter to carry out in relation to their members. Some of the replies make it possible to give a more detailed account of the rules and regulations imposed on members; others insist rather on the methods of inspection and their results, the control carried out during manufacture, the control of the finished product or the sanctions inflicted, etc. Extracts are given from the replies received which supplement and cross-check each other.
The following are some examples of the provisions to be found in the "Regulations for the supply of cream or butter" enforced by the Central Federation of Swiss Dairy Societies and forming an integral part of the contract for supply of cream or butter:

"1. The supplier of cream or butter, or the weigher, shall see that the milk intended for the extraction of cream is delivered to him twice a day and complies in all respects with the requirements of the regulations for the supply of milk adopted by the competent federation. He shall regularly check the cleanliness and condition of the milk receptacles of the producers.

"8. Every consignment of cream shall be accompanied by a label bearing in legible characters the date of delivery, the name of the consigner, the number of cans and the gross and net weight in kilograms.

"9. On the arrival of every consignment, the central butter factory shall ascertain the net weight and fat content of the cream. Such content shall be determined by means of controlled butyrometers. . . . The supplier shall in every case be immediately notified in writing of the results obtained.

"10. . . . All cream showing defects (bad taste, metallic taste, mustiness, greasiness, rancidity, acidity, addition of water, too great concentration or any other kind of defect) shall be declassed or returned by the central organisation.

"11. The managements of the central butter factories shall inform the suppliers of cream so far as possible of all defects noted. They shall assist in ascertaining the causes of such defects and shall assist the cream supplier in the application of the measures to be taken.

"13. . . . Consignments of bad quality shall be declassed, that is to say, only the price paid on the market for the lowest quality of butter without the subsidies of the Central Federation will be paid."

Either alone or in co-operation with the official institutions, the Swiss producers' co-operative organisations see to the observance of the measures prescribed by the public authorities or by themselves. The Swiss milk supply regulations provide, among other things, as follows:

"Section 30. — Every dairy or cheesemaking society shall appoint at least two local supervisors. It shall furnish them with such instructions as will enable them effectively to assist the cheesemaker or the weigher and the competent control authorities in supervising delivery, either by inspecting cowsheds, or by collaborating in milk inspection.

"Section 31. — The cheesemaker, the weigher, and the local supervisors shall at suitable periods, independently of the inspector of cheese factories and cowsheds, carry out detailed inspections relating to foddering, the service of cowsheds, the upkeep of milk receptacles, the care of milk and the state of the udders (examination of the milk from each teat). The observations made at such inspections shall be entered in the inspection register and communicated to the milk suppliers."
“Section 33. — A register of inspection of milk and cowsheds and a notebook of reports shall be kept and brought up to date by each dairy or cheesemaking society.

The cheesemaker or the weigher and the competent organs of the society shall occupy themselves alone or jointly in remedying the defects noted.

“Section 34. — The cheesemaker or the weigher shall immediately notify to the president of the society all defects which he is unable himself to remedy. He shall at the same time notify the competent control authority and request its assistance. It shall be his duty, and that of the local supervisors, to assist the said authority in every way on the occasion of any inspection.

“Section 45. — Every dairy federation shall establish, either by itself or in agreement with the associations of milk buyers, regulations providing for the inflicting of disciplinary (agreed) fines on defaulting producers, either after conviction by the courts for fraud in the supply of milk, in accordance with Article 36 or 37 of the Act relating to the trade in foodstuffs, or for any other infringements of the milk supply regulations, after previous warning and providing such warning has proved ineffectual.”

Further, the Central Federation of Swiss Dairy Societies “refuses in principle all guarantee of prices for cheese or butter and any other subsidy to members of the society who fail to observe the provisions of the Swiss milk supply regulations relating to manuring, foddering and obtaining milk, or to societies which neglect to appoint the prescribed control officers or to supervise their activity. The federations must apply these provisions in principle also to suppliers of milk for consumption.”

As regards cheese, the payment for milk cannot be calculated according to quality, since technical means are lacking for ascertaining the quality of milk for purposes of cheesemaking. With a view, however, to encouraging the production of good cheese, the Central Federation grants special bonuses for quality to the cheesemakers of Emmenthal.

A small pamphlet, published by the Ministry of Agriculture,1 Denmark, states the circumstances under which the special brand of butter called “Lur” came into existence and gives the precise definition to which butter has to conform in order to come under this brand:

“In 1900 a special Society was formed for the purpose of having a National Brand applied to all Danish butter, viz. the so-called ‘Lur Brand’.

“In a very short time this mark was in use in almost all Danish dairies. It was registered in Denmark, England and Germany.

1 All About Danish Agricultural Produce, Copenhagen, 1930.
"Having accomplished this by voluntary action the dairy industry caused the Government to pass in 1906 a law making the Lur Brand compulsory for all Danish butter exported from Denmark. In 1911 a new law was passed, which is still in force, giving regulations for the use of the Lur Brand. When the State took over the Lur Brand, this was registered in the name of the Danish Ministry of Agriculture in England, Germany and in other countries as a 'common or standardisation mark'.

"To obtain the right to use the Lur Brand the dairy or creamery must notify the police. When the proper authorities have given their sanction, the creamery is then accepted for control and may produce butter for export. All butter produced in a creamery accepted for control must be marked by the Lur Brand. This is applied to two opposite staves in casks, or to the two ends of boxes. Paper labels of thin paper, with the Lur Brand printed on them, so-called Control Labels, are to be placed on the butter itself, one label on the top and one on the bottom surface of the butter.

"The manufacture of lur-branded packing material and paper labels bearing the Lur Brand is confined to firms having contracts with the Ministry of Agriculture, and all reproduction of the Brand by others is prohibited by law. The lur-branded articles are delivered to the creameries by order of the controlling authorities, and these cause them to be marked by numbers which must not be removed. One number is applied to the staves of casks or ends of boxes, another number to the control labels inside the cask or box. These numbers, although different, correspond in a way known only to the controlling authorities. The identity of the butter can therefore be traced until it reaches the first receiver abroad.

"Danish butter must not be exported from Denmark except when marked with the Lur Brand, and it must fulfil the following requirements.

"1. It must be prepared from pasteurised cream, and is therefore free from danger of contamination by tuberculosis. The pasteurisation which is strictly controlled is by the flash point method, the cream being heated to at least 80° C. (176° F.). 16,500 samples of cream or buttermilk were tested in 1928 to see whether they had been pasteurised and also 13,000 samples of the skim milk, as this must also be pasteurised. Contraventions are punishable by fines.

"2. It must not contain above 16 per cent. of water and must contain at least 80 per cent. of butterfat. Contraventions are punishable by fines and the goods are to be confiscated. Both the creamery and the merchant who has sold the butter may be punished. 11,500 samples were taken in 1928 for analysis at the creameries, butter stores, and in warehouses.

"3. It must contain no other preservative than common salt. Other preservatives have never been used or deemed necessary in Denmark and have therefore never been found by analysis.

"4. It must contain no aniline dye. The only butter colour used is annatto prepared with vegetable oil.

"5. It must not be adulterated. Denmark was the first of all countries to legislate for the regulation of the trade in margarine. The first law is of 1885, the present one is of 1 April 1925. Adulteration of butter which never was more than feebly attempted has for many years been quite out of the question and the chief reason is this, that the importance of the butter industry and of the butter export for the whole life of the nation is so generally understood. The punishment for adulteration of butter is
imprisonment without the option of a fine. Some thousands of samples of butter and of margarine are analysed annually. All margarine must contain a tell-tale substance, sesame oil, recognisable by a simple colour-reaction. The whole manufacture of and trade in margarine is under special control, and books, open to inspection, have to be kept showing the manufacture and sale of the products. Margarine has to be kept in special packing, must not be found on the premises where butter is made, and so on.

"6. The butter, to bear the Lur Brand, must maintain a certain quality. If the quality of the butter is found to be below a certain minimum, the Minister of Agriculture will deprive the creamery of the right to use the Lur Brand which means that the butter from that creamery cannot be exported. All creameries accepted for control are, at the request of the Central Organisation of the Danish Dairy Associations, under an obligation to send whenever requested an already packed cask of butter to the State butter testing in Copenhagen. The butter is paid for at the current price. The butter is judged at the age it would have when received by the purchaser abroad in the ordinary course. The judging is done by three groups of judges, two butter merchants and one dairy representative in each group. Each of the nine judges must specify which faults he finds in the butter. The result of the judging is communicated to the creamery for its guidance. Not only the quality of the butter, but also its apparent moisture as well as the packing, are examined.

"If the quality is inferior which is reported to the creamery, another cask is called for as soon as possible, and if the quality of this is no better, the manager is advised to call in the Government dairy expert for the district whose services are free. If this advice is not taken the creamery is deprived of the right to use the Lur Brand. If the dairy expert is called in, some time is allowed in which to find and remove the cause of the faulty quality and if after that time the butter is still unsatisfactory the creamery is deprived of the right to use the Lur Brand. This is done by the police removing all lur-branded packing material from the creamery. When the creamery has succeeded in improving the quality it will again be accepted for control and receive the lur-branded articles."

In Finland, the Co-operative Butter Export Association, "Valio", explicitly states that a member may be expelled from his co-operative society if, after notification, he neglects to comply with the obligations imposed by the statutes.

In all undertakings working for export, moreover, that is to say in the great majority of cases, the milk supplied by the farmer is paid for according to quality. The milk is subjected to examination from the point of view of hygiene, content in fatty matters and the presence of foreign bodies. The Gerber method is applied for determining fatty matters, while the Barthel-Orla-Jensen method is used for fixing quality. The price is determined according to the quantity of fat per kilogram of milk; other qualities in the milk are a matter for increase or diminution of the basic price.¹

¹ Die Molkereigenossenschaften in Finnland und deren Zentralorganisation "Valio", p. 9.
In order to maintain interest in the improvement of quality, Valio pays its member dairies according to the quality of the cheese they send in. The cheesemaker of each dairy receives a bonus from ‘Valio’ for every cheese placed in one of the four highest grades. His salary from the dairy is also generally so arranged that in addition to a fixed remuneration, he receives a definite bonus (usually the value of a kilo of cheese) for every cheese placed at the official examination in one of the highest grades.

There is also another system of rewards which Valio has started in order to improve the quality of the cheese produced. Rewards in money and certificates are awarded each year to those cheesemakers who have done most to improve the quality of the produce of their dairy as compared with the preceding year.¹

It is interesting to note that until 1913, in the absence of supervision by the State, only butter furnished by the co-operative dairies affiliated to Valio and intended for export was subject to supervision. Since that date the control authorities of the State deal with all exported butter. Since 1924 the system of supervision has been extended to cheese, but it was applied voluntarily by the co-operative dairies up to 1928, after which date it became compulsory.

As regards the Netherlands, a pamphlet published in French by the Dutch Union of Co-operative Dairy Societies, which has already been referred to, ‘La Coopération laitière en Hollande’, furnishes exact and complete information on the conditions of delivery and the various phases of control and the sanctions attached to them. The following are a few extracts:

“The testing and inspection of dairy products, carried out in a regular and permanent manner, commences from the moment of reception of the milk at the factory.

“Every day, before weighing, the consignments of milk of every member are carefully examined from the point of taste, smell and appearance and also from that of the cleanliness of the cans. A sample is then taken from each consignment and the inspector carries out detailed analyses in the dairy laboratory, which permit of estimation of the milk both from the hygienic point of view and as regards its richness. The samples are subjected to the following tests: determination of the percentage of fatty matter, degree of acidity, lactofermenter and lactosedimentor tests. If this examination shows that the consignment of one of the members does not comply with the normal requirements from the point of view of quality, the inspector of the dairy visits the farm with a view to discovering and remedying the irregularities.”

"The inspectors of the regional associations are also at the service of breeders in regard to the hygienic and rational installation of their cowsheds. They organise classes for milkers in the villages.

"The members of the societies are paid in Holland according to the percentage of fatty matter in their milk. In many co-operative dairies, moreover, regard is had also, for purposes of payment, to the condition and the cleanliness of the milk, with a view to further stimulating members to deal with the milk on the farm itself with all desirable precautions.

"Inspections of the quality of butter and cheese are organised periodically by all the regional associations, and every affiliated dairy is obliged to take part in these. The consignments of each dairy are taken from the production of any day arbitrarily fixed by the association. If the butter or cheeses of a dairy obtain certain marks throughout the year, the dairy receives a diploma, accompanied in some associations with a bonus to the butter or cheesemaker concerned."

It should be added that State control of butter and cheese is superimposed on all measures of control applied by the Dutch Union. It should be further noted that in the Netherlands, as in most other countries, official control was established on the initiative and at the request of the co-operative organisation.

In Hungary:

"The co-operative dairies may give instructions to all their members as regards the cleanliness of cowsheds and the foddering of cattle. The most important of these provisions relate to the prohibition of certain fodders. In the interest of the improvement of the quality of milk, the co-operative societies may inflict fines and even expel defaulting members.

"The supervision of members' undertakings is carried out from the point of view of milk production by the co-operative dairies federated in the central organisation. Every co-operative dairy is bound to employ a manager who has passed a vocational examination and who inspects the cowsheds of members without previous notice, accompanied by a delegate of the central organisation.

"With a view to securing the uniform quality of butter, the co-operative dairies do not themselves make butter; they confine themselves to collecting, extracting and refrigerating the cream and transporting it to central transformation establishments in each region.

"The majority of them pay for the milk supplied by their members according to quality and content in fatty matter.

"Supervision is carried out in the following manner from the place of production to the place of sale:

"(a) The manager of the co-operative dairy supervises the delivery of milk and the cowsheds of the members.

"(b) The itinerant master buttermakers of the co-operative societies control the co-operative dairies in their district and in proper cases the farms producing the milk.

"(c) The master buttermakers of the State carry out inspection of co-operative and private commercial undertakings in each county.

"(d) The Royal Hungarian Control Station for Dairy Products undertakes the testing of all the butter admitted for export."
"The sanctions available to the co-operative supervision authorities are fines and expulsion. The sanctions which may be applied by the official authorities are withdrawal of authorisation to use the guarantee mark or even to make butter."

In Austria:

"The co-operative dairies possess laboratories for examining the quality of milk supplied by producers. The acceptance of milk and the price paid depend on its quality (content in fatty matters). Inspections are carried out without previous notice in the co-operative cowsheds by the co-operative dairies. Numerous co-operative dairies have introduced bonuses for the quality of milk. The co-operative societies of Lower Austria constituting the Union of Agricultural Co-operative Dairies of Lower Austria are, moreover, under the supervision of the Chamber of Agriculture of Lower Austria, which carries out inspections on the spot from time to time. A test of butter is, moreover, carried out twice a month."

In Latvia:

"Every dairy examines the content in fatty matter of the milk delivered, its cleanliness and its taste. The price paid for the milk depends on the results of the examination. The statutes of the dairies contain articles providing for disciplinary penalties."

In Lithuania the manufacture of dairy products is subject to regulations enforced by inspectors. Every manipulation contrary to the rules of hygiene involves the dismissal of the person responsible. The co-operative dairies are fined for every dairy delivery in this respect.

As in the co-operative dairies in other countries, milk and cream are sterilised. It is to be observed, however, that this practice is not the subject of any legislative provision or regulation.

The price paid to the dairies depends on the quality of the butter supplied, which is judged by the control authorities of the State. The price paid to producers for the milk supplied to the co-operative dairies is calculated according to content in fatty matters. In from 50 to 60 per cent. of such dairies the price further depends on certain other requirements established in advance which permit of a classification of butters according to their qualities as a whole. This system will be made general in 1937.

The quality of butter intended for export is controlled by the State authorities. In this case, where it does not comply with the required conditions, it is subject to an export duty which renders export unremunerative.

This supervision was established at the request of the co-operative organisations.
In Czechoslovakia:

"All the co-operative dairies check the percentage of acid in the milk supplied to them by producers, and arrange for reductions in price in the case of acid milk. Acting upon instructions received from their headquarters, they consequently inform their members as to the measures to be taken in order to obtain sweet milk with a low percentage of acidity. Milk collecting centres with a common refrigerating system only exist in certain localities, but the big dairies lend refrigerators to their members and organise the construction of milk storehouses. Courses and lectures are instituted on milk hygiene.

"All the big dairies carry out tests for the cleanliness of milk, and communicate the result to their members. The co-operative agricultural dairies lend filters to their members, and insist upon the importance of supplying clean milk. The staff of these dairies pay visits to agricultural concerns and firms in order to keep a check on dairy farmers and to give them the necessary instructions.

"On the initiative of the co-operative dairy organisations, a Government Order was made in 1934 regarding the production of and trade in milk and dairy produce. This laid down the measures of hygiene to be observed in the production of milk and dairy produce."

In New Zealand:

"From a quality point of view on the farm, a number of companies have appointed farm dairy instructors whose job it is to visit the supplying farms and assist them towards improving the quality of the cream they supply. These officers are paid partly by the co-operative company and partly by the Government with a view to their having certain Government powers. At the factory the cream is graded by an employee or employees of the co-operative company. These graders can only operate under licence from the Government. The co-operative company fixes the price to be paid for the cream, but the Government fixes the differentials between finest, first or second grade cream."

In the United States:

"Dairy co-operative associations maintain a field force which constantly checks tests for butterfat, checks weight of members' milk and tests individual herds for the elimination of low butterfat-producing cows. These men also constantly check on the quality of producer members' milk, urging at all times to use better methods, suggesting new practices in order to improve the quality.

"The associations also work with the State and city health departments so that a common understanding may be had in regard to farm inspection, milk plant inspection, and the like."

For the purpose of encouraging the improvement of the milk supplied to the Washington market a method of dairy farm scoring has been introduced.

"Under this system producers are paid over and above the contracted price. This extra bonus in some cases may be as much as the contracted price the producers receive. With a farm score of 98 to 100 and a cattle score of 99, a producer receives 46 cents per 100 pounds additional
on his Class 1 milk and 11½ cents per pound butterfat on milk sold
for cream. However, with a farm score of 90 to 94.9, a producer will
receive 23 cents per 100 pounds additional and 6 cents per pound
butterfat for cream and with a farm score of 80 to 84.9, he will be
paid 12 cents per 100 pounds additional on his Class 1 milk and 3 cents
per pound butterfat on his milk sold for cream. These premiums he
knows about and it falls on his shoulders so to improve his farm score
that he will receive maximum premiums.”

As regards meat, the Norwegian Central Union for the Marketing
and Export of Pork Bacon furnishes the following information:

“Veterinary control of all the cattle that pass through Oslo Kjøtthall
(the market-place for meat and pork in Oslo) is carried out by a munici­
pal veterinary surgeon. Together with this sanitary control a quality
control by the Central is carried out. The Central has for the last
few years distributed diplomas to the butchers who treat their goods
in such a way that they appear on the market in a delicate condition.
“All settling of accounts for meat and pork takes place according
to the classification of quality. Especially first-class pork is given an
addition of 0.03-0.05 Kr. per kilogram over the top-price as a quality-
prize. For bad quality a deduction is made.”

Finally, the following is extracted from the reply received from
the Federation of the Danish Co-operative Bacon Factories:

“Payment for the pigs from the farmers according to quality, with
punishment in form of a reduction in price for inferior meat, has been
in force for many years with the result that the farmers take the greatest
care in supplying the highest number of first grade pigs.
“Similar steps are taken to prevent a farmer from delivering diseased
animals, and the fact that he himself has to bear a proportionate loss
if a pig when delivered to the factory is found to be diseased is a great
incentive to farmers to do all in their power to breed only first class,
healthy animals.
“The surroundings in which the pigs are kept also receive the
attention of the bacon factories’ management, and such points as
fresh-air ventilation, temperature and regular disinfection of pig-
sties, etc. are subjects on which farmers are carefully instructed.
“When delivered to the bacon factories the live pigs are inspected
by a veterinary surgeon, such inspection being compulsory and having
the object of preventing animals suffering from certain infectious
diseases from mixing with healthy animals, and in certain circumstances
from entering the premises of the factory.
“All pigs killed are thereafter carefully examined by the veterinary
surgeon, and any faulty animal is partly or wholly rejected as unfit
for human consumption.
“This veterinary inspection is a result of collaboration between the
health authorities and farmers’ organisations, who at an early stage
recognised the importance and value of scientific guarantee of their
products, and it is now by law ensured that one veterinary surgeon
only has to examine a certain number of pigs per week; should this
number be exceeded, two or more surgeons must be employed to ensure
a thorough examination, and their decision on all points relating to
their office is final.”
"The health authorities, in collaboration with the bacon factory organisations, have also prescribed a number of rules and regulations relating to the localities used for the slaughter of pigs, curing of bacon and handling of by-products, such regulations mainly aiming at the most hygienic treatment of the meat and safeguarding public interests. The health authorities see that these regulations are enforced, and in case of breach thereof, the management of the factory is immediately warned.

"Apart from the veterinary control, the factories are also subjected to inspection by an inspector from the bacon control, an institution created at the instigation of the Joint Committee of the bacon factories, and which is directly responsible to the Ministry of Agriculture.

"The bacon inspector and his assistants have at regular intervals to inspect each factory and to control such technical functions in connection with the bacon production as: temperature in various departments, strength of the brine used for curing, proper trimming of the bacon sides, purity of various articles used, such as salt, saltpetre, wrapping material, etc., general cleanliness in the factory and proper and uniform handling of the products.

"The inspector, in collaboration with his superiors, in cases of breach of regulations has power: in the first case to warn the factory management; in case of repetition to inflict a monetary fine, and as a last resort to withdraw the use of the 'Lur' mark, which in reality means, that the factory is unable to export bacon for such period as the withdrawal lasts.

"In those departments where the by-products are handled and manufactured into finished articles, for instance, tinned goods and sausages, and in lard refineries, similar thorough regulations pertaining to cleanliness and hygiene are in force, and tinned goods leaving a factory must have a State control number embossed on the lid of each tin as a proof that that particular tin contains meat from sound and healthy animals only and that the meat has been inspected by the meat control."

Guarantee Marks

All this effort of discipline and supervision has led to a production of recognised and consistent quality. All the great central organisations of agricultural co-operative marketing societies have ratified this result by the establishment of marks which furnish a secure guarantee both to the producer and the consumer. As has been pointed out where opportunity has arisen, the obtaining of this mark is subject to rigorous conditions and the right to use it may at any moment be withdrawn if the beneficiary ceases to deserve it. In exporting countries the withdrawal of the mark amounts to a prohibition to export. In such countries it is frequently the State which has established and issues the mark. In most cases, however, this has been done at the instigation and with the collaboration of the co-operative organisations.
CHAPTER II

ACTION TAKEN BY THE DISTRIBUTIVE CO-OPERATIVE ORGANISATIONS

The facts which have been collected in connection with the present enquiry make it possible to define the attitude of the Consumers' Co-operative Organisations in respect of the problem of dietetics, this attitude being successively examined in its four principal aspects:

(1) Care taken in the purchasing, warehousing and distribution of foodstuffs.
(2) Endeavour to produce themselves the greatest possible number of these products in the best conditions of hygiene.
(3) Educational action on their staff, members and on the public at large.
(4) Collaboration with public authorities.

I. — MEASURES ADOPTED IN CONNECTION WITH PURCHASE, WAREHOUSING AND DISTRIBUTION OF PRODUCTS

Choice of Articles and Choice of Suppliers

As the "Finnish General Co-operative Union of Distributive Societies" (Y.O.L.) and the "British Co-operative Union" observe at the very commencement of their replies, not only one of the chief concerns, but one of the reasons for the existence of distributive co-operative societies is to supply their members with products which are genuine and wholesome.¹

¹ By way of illustration the Finnish General Union mentions in this connection that the Finnish co-operative movement has concerned itself with this question from the first years of its existence, at the Congresses of 1907 and 1908, and has frequently discussed it since, and that finally the Congress of 1935 took the initiative in demanding general legislation in relation to the making, importing and trade in foodstuffs.
This does not necessarily lead them to seek for luxury or fancy articles, to use the expression employed by the Belgian General Society. It is a matter of discernment, as is shown by the following remark of the Swedish Co-operative Union:

"It should be noted, however, that this seeking after irreproachable quality does not logically lead to the encouragement of the consumption of luxury goods. The dearest qualities of a given product are not always superior to the cheaper standard qualities from the standpoint of health and nutrition, and from the housewife's point of view they are often even inferior. But as the sale of luxury products often brings in a larger profit to the seller, private retailers are usually particularly anxious to push these goods. The distributive co-operative societies, whose object is to protect the interests of the home, have occasion in certain cases to guide demand into other channels than those promoted by private trade."

The care which consumers' co-operative societies need to take in the choice of the articles which they purchase and in the choice of their suppliers is one of the reasons which have led them to combine in central organisations, to which they delegate to a large and increasing extent the function of buying and even that of the industrial production of the articles which they distribute.

Further, a considerable number of them, among others the distributive co-operative organisations of Belgium, Finland, France, Hungary, Poland, Switzerland and Yugoslavia, point out that it is this which has led them or which has led their wholesale societies to obtain their supplies from agricultural co-operative organisations, having regard to the guarantee of quality which the latter furnish.

The purchases made from agricultural co-operative societies by the distributive co-operative societies in Belgium, which are principally concerned with butter, are not indeed very considerable, but it is remarked that "quality is the determining factor in these purchases".

In Finland, on the other hand, and for the same reason of security in quality, the Co-operative Wholesale Society (S.O.K.) of the General Co-operative Union of Distributive Societies, for example, receives a large quantity of goods from the Agricultural Marketing Co-operative Societies. The following is the statement of the Union on this point:

"The S.O.K. tries to buy from such firms as are certain to deliver high class merchandise. As an example may be mentioned that S.O.K. buys butter and cheese for its member societies from "Valio" ¹, which

¹ Central Organisation of Co-operative Dairies of Finland.
has its own investigation laboratory by which it controls the quality of its products. Through the Egg Export Society "Muna" S.O.K. buys the eggs for its member societies and these eggs are examined when received. Meat products are bought by S.O.K. from the Co-operative Cattle-selling Societies. The quality of these products is controlled by experts and sanitary authorities. For other foodstuffs, which S.O.K. buys from agricultural co-operative marketing organisations, it has fixed exact standards of quality according to which the goods are received and controlled. In this way S.O.K. has raised the level of quality of foodstuffs."

As for France, the Co-operative Wholesale Society observes:

"In general, the choice of articles and consequently that of the purveyors plays an important part in our decisions.

"Our arrangements with the Federation of Fruit and Vegetable Growers' Co-operative Societies guarantee us the delivery of commodities of the best quality.

"It is with the same intention of receiving commodities of the best quality and of our choice that we send seeds to co-operative organisations in Morocco." ¹

Similarly in Hungary, the great Central Co-operative Organisation "Hangya" which has founded seven central co-operative societies for the marketing of various products (honey, fruit, cattle, poultry, eggs, etc.) reports as follows:

"The urban co-operative societies affiliated to our Union, especially the great society of Budapest, obtain from these societies all the products with which they deal, so that they may always be sure of receiving goods of irreproachable quality, the more so that these marketing societies attach the greatest importance to the qualitative improvement of Hungarian agricultural produce."

In Poland the Union of Co-operative Dairies is the sole supplier of butter to the urban distributive co-operative societies for the reason that "this Union possesses all the scientific apparatus and means of control which secure the excellent and hygienic quality of its production ", and the Union of Distributive Co-operative Societies, "Spolem", confirms the importance which it attaches to this consideration by the following observation in which the concern for hygiene prevails over the question of price:

"It is for this reason that the prices paid for its butter are higher than those of private traders and it is the quality of its products which secures this premium."

The following is the reply from the Swiss Union of distributive co-operative societies, which not only marks its preference for supplies coming from the agricultural co-operative societies, but

¹ The French Co-operative Wholesale Society has, besides, contracts which give it the control and monopoly of certain mineral sources in Vichy and Vals.
further makes the interesting remark that, in certain cases, these inter-co-operative relations have had the effect of influencing agricultural production so as to bring it more into harmony with the taste of consumers:

"The question as to whether certain foodstuffs are bought from central organisations of agricultural marketing societies partly to ensure that they shall be of unimpeachable quality can be answered in the affirmative. For instance, we obtain from the Union of East Switzerland Agricultural Co-operative Societies at Winterthur our supplies of dried apples, dried beans, dried peas and unfermented wine, the high quality of which is greatly appreciated by our members. Other goods obtained from agricultural co-operative societies include potatoes, apricots, apples and pears, cherries, strawberries, cabbages and bulbs. In this connection it may be noted that the closer relations established of recent years between the agricultural societies and our own Federation have played a decisive part in improving quality and grading; greater attention is now paid by growers to the sorting and packing of their goods, and this has conduced to larger sales. Our organisation has contributed very substantially to the improvement in the quality of cabbages, bulbs and other field produce by advising the growers how to produce marketable goods."

The Union of State Officials' Distributive Societies in Yugoslavia also endeavours, so far as possible, to secure supplies for its affiliated societies from agricultural co-operative societies and encourages the latter to give continually increasing attention to the quality, handling and packing of their products.

Checking of the Quality

Whatever their source, the goods distributed by the distributive co-operative societies are usually subjected to analyses and test with a view to ascertaining their genuineness, freshness, and nutritive value. In certain cases this inspection and testing is partially secured by the retail co-operative societies themselves or on their initiative, most frequently by the co-operative wholesale societies. Although it is in some cases still open to improvement, and is in fact being continually improved, it has in most cases reached a high degree of development and efficiency, both as to extent and strictness, as is shown by the information which has been collected in the course of the enquiry.

Part played by retail societies

It is especially in Great Britain that examples are found of large retail societies possessing all the technical resources necessary for such a checking.\footnote{In other countries, such as Belgium and the United States, societies are mentioned which undertake such checking, but in a less systematic manner.} The following are some examples:
The London Society—*the largest retail co-operative society in Great Britain*—has employed qualified people in its creameries and milk factories for a number of years. Up to two years ago, these were supervised by an independent analyst who was paid by means of a retainer plus the expense incurred in making tests. The Society has now appointed an analyst to the staff for the purpose of making tests of the commodities—both food and textiles—retailed, with a view to protecting its members’ interests. The Society’s laboratory works independently of any section of the business. The chief analyst reports direct to the General Manager, and copies of his weekly report are provided for the Board of Management, who, in addition, interview the analyst four times a year.

Apart from the point of view of members’ welfare, the department has been able to render valuable assistance in dealing with unjust claims and complaints which have been made and, in addition, the tests have revealed to the Society’s buyers essential details for determining the values of the commodities handled.

Besides the foregoing, there have been quite a number of instances, where definite savings to the Society have been made as a result of the information provided by the department.

Other large Societies submit to rigid tests the milk received from dairies:

(a) upon receipt from the farms and collecting stations, and
(b) after pasteurisation.

Analytical tests are conducted for the presence of bacteria and coli. The cleanliness of milk bottles after the washing process is also subject to laboratory tests.

The Birmingham Society established a laboratory in connection with its Dairy Department some seven or eight years ago and at the present time a large amount of testing and analysis is done to ensure a clean, pure milk supply.²

From time to time commodities are submitted to a well-known firm of public analysts in Birmingham to determine their standard in relation to the claims made for such commodities in advertising announcements.

Samples of foodstuffs are occasionally submitted by large retail societies for analysis by independent experts.”

*Part played by wholesale societies*

It is most frequently the wholesale societies which play the largest part in the system of checking, not only as regards the goods which they produce themselves, which will be considered later, but also

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¹ The Society has 575,000 members and an annual trade of about £12,000,000.
² Mention should be made here, as another method not only of checking but improving the quality of the products received, of the system of bonuses for quality, similar to the system used by the agricultural marketing or transforming societies in their relations with their members, of which the Birmingham society furnishes an example. This bonus scheme for farmers was established some years before the present Accredited Milk Scheme launched by the Milk Marketing Board came into operation, and this has resulted in more than 95 per cent. of the milk supplied to the Society being of Grade “A” standard.
as regards those which they purchase or which are offered by private wholesale traders to their affiliated societies.

In Belgium it is the Laboratory of the General Co-operative Society\(^1\) at Micheroux, concurrently with the official laboratories of the State, Provinces and the Communes, which discharges this office chiefly as regards butter, cocoa, vinegar, alimentary oils, flour, yeast, fats and pharmaceutical products.

The Union and Wholesale Society of the Danish distributive societies (F.D.B.), which in 1934 comprised 1,835 societies with an aggregate of 331,000 members, possesses a central chemical and biological laboratory, founded in 1929, which employs 4 chemists in addition to the managing staff. The operations of the laboratory will be capable of considerable further development when the erection of the new buildings is completed.

The central laboratory is used by the commercial departments of the Union for analysing samples of goods offered and examining any complaints which may be made. During 1935, the laboratory carried out 2,193 analyses. The distributive co-operative societies also have recourse to the services of the laboratory.

In Finland, the Wholesale Society (O.T.K.) of the Central Union of Distributive Societies (110 societies with 358,450 members in 1934) has also possessed, since 1923, a central laboratory which at the end of 1935 employed 10 persons. It tests all goods which are offered to the purchasing services, all those delivered and those which have been warehoused for some considerable time. The retail distributive societies also frequently send it samples for analysis. In 1935 it carried out 3,225 analyses, 200 of which had been applied for by retail societies.

The other Finnish co-operative wholesale society (S.O.K.), the Wholesale Society of the General Union of Distributive Societies (417 societies with 243,335 members in 1934) has maintained a chemical investigation laboratory since 1 November 1913. In 1935 it employed 16 persons, including apprentices, and carried out 3,690 analyses comprising 230 different classes of goods (as against 2,301 analyses and 183 classes of goods in 1931). By a calculation, the method of which is not explained, the Director of the S.O.K. estimates that the control carried out by the laboratory produces an annual saving of from 40,000,000 to 50,000,000 Finnish

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\(^1\) This comprised 95 societies with 310,435 members in 1934.
marks by eliminating adulterated or defective goods from the market.

The central laboratory of the English Co-operative Wholesale Society (1,052 societies with 5,983,810 members in 1934) was founded in 1917. It deals with all foodstuffs, raw materials, textiles, leather and general products used and sold by the co-operative organisations. Its staff consists of 31 persons, and it is estimated that the number of samples examined during the current year will be approximately 20,000. The Scottish Co-operative Wholesale Society also undertakes a large number of analyses for the retail co-operative societies, particularly as regards butter, milk, sugar and butcher's meat.

The Hungarian Wholesale Society also possesses a chemical laboratory which is chiefly used for checking the quality of the raw materials purchased for the co-operative factories, but also for testing other goods.

In the Netherlands, the Wholesale Society of the distributive co-operative societies (288 societies with 200,000 members in 1934) has maintained a laboratory since 1934.

In Poland, the Union of Distributive Co-operative Societies (975 societies with 275,600 members in 1934) established a chemical laboratory in 1932 with a very complete equipment, which employs a chemical engineer and two assistants. This laboratory carries out the analyses and researches which are frequently required from it by the retail societies in regard to the goods offered to them by private traders. In 1935 it carried out 564 analyses dealing principally with confectionery and chocolate products.

In addition to the laboratories in operation in each of its productive establishments, the Swedish Co-operative Union set up a general analytical laboratory in 1935, which analyses meat and meat products as well as other foodstuffs. Any retail society may have analyses carried out by it.

The Swiss Union of Distributive Co-operative Societies (534 societies with 397,142 members in 1934) gives a somewhat detailed description of the working of its laboratory. This description is here reproduced in its entirety:

"Checking of the quality of the goods distributed by our societies is ensured by the Chemical Laboratory, set up in 1905 to strengthen the precautions taken to ensure that only good and moderately priced wares
should be delivered to the societies. The Chemical Laboratory is intended to serve as an inspection centre for all the goods distributed by the central organisation and was set up at a time when the Federal Act on foodstuffs was being drafted but had not yet come into force. The Laboratory’s work consists in the testing, chemical analysis and tasting of all the goods bought to supply the needs of the societies. Special attention is paid to the goods sold under the Organisation’s own brand “Co-op”; these are subjected to regular tests as regards their raw materials, manufacture and composition as well as the quality of the finished goods, so that in buying co-operative brand articles customers may be sure of getting really moderately priced goods of reliable quality. The number of articles which, although not produced in the Organisation’s own factories, are manufactured under its permanent supervision, is now 50, including cocoa, chocolate, cigarettes, Italian pastes, soap, etc. It is also the duty of the Chemical Laboratory to inspect the goods in the Federation’s warehouses in order to ascertain whether, and to what extent, they have deteriorated by keeping.

“The Laboratory employs two chemists to carry out the chemical analyses. For tasting, etc. the expert buyers for the various branches are sometimes called upon to help. The number of analyses carried out in the past few years is as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Analyses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1935</td>
<td>4,241</td>
</tr>
<tr>
<td>1934</td>
<td>3,925</td>
</tr>
<tr>
<td>1933</td>
<td>5,023</td>
</tr>
<tr>
<td>1932</td>
<td>4,007</td>
</tr>
</tbody>
</table>

“Instances of the enquiries carried out by the Laboratory are given in the annual reports of the Co-operative Union and Wholesale Co-operative Society of Switzerland.”

Some results of checking examination

For the purposes of the enquiry it will not be without utility to note some of the defects or adulterations brought to light by the researches of the laboratories of the distributive co-operative organisations. The following are some of the results of the researches carried out by the S.O.K. in Finland in connection with goods offered for consumption:

Ryemeal. — A sample of ryemeal contained 2½ per cent. of sand. Another sample of ryemeal contained lime. A great many samples of ryemeal have smelt mouldy.

Wheatflour. — A large number of wheatflour samples have been spoilt by vermin and caterpillars.

Potato-flour. — Several samples of potato-flour have had a sour smell and taste. From several samples it appears that tapioca-starch has been sold as potato-flour.

Cheese. — Half-skim and even skim-milk cheeses have been offered as full-milk cheese.
Butter. — A sample of butter contained 40 per cent. of water. Several butter samples have been found to contain margarine.

Lard. — A sample of lard contained 38.8 per cent. of water.

Coffee. — Coffee has often been dyed and made better looking. Even sea-damaged coffee has been offered as a perfect commodity.

Cocoa. — A commodity containing 90 per cent. of ground cocoa shells has been offered as cocoa.

Tea. — Most of the tea samples have been worthless.

Chicory. — Chicory has been found to contain sand up to 15 per cent.

Berry juices. — Artificial makes have been sold as sugared berry juices made of natural berries.

Honey. — Artificial honey has been sold as natural honey.

Wine-vinegar. — A product containing about 4 per cent. of tartaric acid and water dyed by aniline colours and perfumed by an artificial perfume has been sold as French wine-vinegar.

Dried fruit. — Dried fruits have been found to contain too much zinc and sulphurous acid.

A sign of the efficiency of this test is perhaps to be found in the fact reported by the two Finnish wholesale societies that the percentage of goods refused after examination tends to decrease regularly (it being of course understood that the number of products being distributed by the co-operative organisations has not diminished). The percentage was 26.25 in 1931 and 20.03 in 1935 in the S.O.K. laboratory. It fell from 35.9 in 1923 to 14.6 in 1935 in the O.T.K. laboratory. In the latter case the fact is noted, and is deserving of remark, that the percentage temporarily increased during the years of depression. Having fallen to 12.8 per cent. in 1928, it rose to 14.6 in 1929, 17.4 per cent. in 1930 and 21.2 per cent. in 1931, after which it progressively decreased to 18.5 per cent. in 1932, etc.

Preservation, Handling and Packing

The replies received furnish some indication of the precautions taken by the distributive co-operative organisations, both in
warehouses and distributing stores, in the preservation, handling and packing of goods intended for food.

On this point the replies received from the co-operative organisations of Great Britain, Sweden and Switzerland, which will be reproduced in their entirety, give the principal characteristic features, which will be confirmed or supplemented from the information received from Denmark, Finland, France, Hungary, the United States and Yugoslavia.

The following is the reply received from the British Union:

"Cold storage accommodation is now fairly prevalent for the preservation of perishable goods such as butcher's meat, cooked meats, butter, margarine, etc.

"Glass screens, and wholly or partially enclosed windows, are used for the protection of provisions from dust, mud splashes, and handling by customers; glass-fronted counters or show-cases which are dustproof and, sometimes, refrigerated, are used to protect cooked meats, sausages and similar goods from dirt and flies, and also to prevent decomposition.

"As an example, all the fifty-one Fresh Meat Departments of the South Suburban Society (London) are provided with thermostatic control refrigerators, as are also their fourteen milk depots. The Royal Arsenal Society, also in London, has provided all its butchery shops, and practically all the provision departments with refrigerating chambers. Milk distribution depots have refrigerating cabinets for the accommodation of butter and eggs sent out for distribution on the rounds.

"In all but the smaller societies, the bulk of the dirty work, e.g. bacon processing, ham cooking, fruit cleaning and the unpacking of boxes, cases, etc., is done in the warehouse, where adequate facilities are provided for the cleaning of the personnel, tools and equipment.

"In the modern warehouse the packing-room is light, airy and clean. Many commodities, such as flour (plain and self-raising), rice, sugar, dried fruits, etc., are pre-packed, ready for retail sale, in the central warehouse, thus minimising the risk of contamination by (1) reducing the period of exposure to the air, and (2) ensuring that such exposure as is unavoidable is under the cleanest possible conditions.

"In the shops, specialisation of duties tends towards the maintenance of cleanliness by making each member of the staff responsible for the cleanliness and protecting of stock in a given section."

The Swedish Co-operative Union emphasises certain other aspects.

The following is the passage concerning the disposition of premises:

"The greatest care is taken to ensure that all premises shall be as hygienic as possible and easy to keep clean. As a rule the floors are tiled and the walls of butchers' shops and dairies covered with marble or glazed tiles. For salted herrings, salmon, and other similar products sold loose out of barrels, a special place is provided with a slightly lowered floor and a drain. As a general rule flour is kept in a special room in order to prevent the dust from spreading. The butchers' shops have cold storage rooms and cellars for storing salted goods.
In the dairies the milk cans are kept in cooled tanks, and nothing else but bread is kept in the shops which sell milk. Fresh meat is always sold on special premises, and the same is true of fresh fish.

"What has been said above applies even to the smallest stores."

As regards the methods of packing, this is what the Swedish Co-operative Union writes:

"In 1923 the organisation purchased a machine to pack margarine, which had formerly been sold loose because the manufacturers demanded a substantially higher price to supply it in packets. As the Co-operative Union did not raise the price for margarine made up into packets, customers took to buying it in this form, and thus forced the other manufacturers to abolish the surcharge for packets. The change-over from the sale of loose oatmeal to that done up in packets also happened in the same way.

"Flour was formerly packed in jute sacks. The Co-operative Union first began to use cotton sacks, and this form of packing has now been generally adopted.

"A factory has also been set up for preparing, sterilising and packing dried fruit, which is able to keep the distributive societies constantly supplied with freshly packed fruit. In this way the fruit is prevented from deteriorating, as it would do if it had to be transported for long distances when ready packed."

The following extracts are taken from the reply of the Swiss Union of Distributive Societies:

"Wherever possible, goods are packed mechanically; this is the case for coffee, groceries and tea, which are packed in the Union’s warehouses, and also for cocoa, sweets, chocolate, Italian pastes, soap, etc.

"As regards the setting up of depots to ensure that foodstuffs are properly stored, the Federation tries to assist the branch societies by sending round its inspectors from time to time. Most of the societies have special arrangements, refrigerators, etc., for storing cheese, pork-butchers’ goods, etc."

Packing in the warehouses, which is mentioned in the above replies, is also referred to by the "Hangya" Society. It is moreover a practice which is almost universal. There are now hardly any retail stores where goods are delivered loose and packed on sale.

Similarly, cold storage chambers and other installations for preserving by refrigeration are not the exclusive privilege of the British, Swedish and Swiss co-operative organisations. Their use is also mentioned by the Co-operative League of the United States, by the French Co-operative Wholesale Society, and by the General Union of Finnish Distributive Co-operative Societies, and it is becoming more and more general.
The damp and dark shops which, up to a recent period, constituted almost a tradition among distributive co-operative societies, are now rapidly disappearing.

"In their interior arrangement our distributive shops are in no way inferior to the great private shops," says the Yugoslav Union of State Officials' Distributive Societies. "In small localities our distributive shops set an example to the local traders by their order and cleanliness and the installations of all kinds which are absolutely necessary for the proper preservation of foodstuffs."

The Swedish Co-operative Union (K.F.), the Union and Wholesale Society of the Danish distributive societies (F.D.B.) have even created special architectural service for considering and carrying out the most rational and hygienic plans of disposition for their societies' premises. Other organisations also refer to reforms which have been introduced in the same field. The following are their replies:

Reply of the Union of the Danish Distributive Societies:

"In 1929, F.D.B. founded an architect's office. This office now employs 35 architects, in addition to the office staff properly so called. It works both for the Union and the affiliated Societies. Its principal object is the re-arrangement of distributing shops and model warehouses. The majority of our architects are engaged in modernising the existing premises and in building new ones. Great importance is attached to furnishing the Danish distributive societies with suitable and hygienic places for storing their goods. During the last seven years, about one-third of all the distributing shops of our societies have been modernised with the assistance of the architect's office."

Reply of the General Union of Finnish Distributive Co-operative Societies:

"Especially during recent years many co-operative societies have had their premises rebuilt, having simultaneously given attention to the satisfactory preservation of foodstuffs both in shops and warehouses. New special shops have also been established for the sale of milk, meat, fruit and groceries, possessing their own refrigerators."

Reply of the "Hangya":

"Throughout the country the distributing shops are distinguished by their practical arrangement and their cleanliness. Some time ago our Wholesale Society established a standard type for distributing shops, and all such shops will be altered in accordance with this type in the near future. A considerable part of the goods supplied by the wholesale society to the affiliated societies are delivered in uniform packages, which is very important from the hygienic point of view. The inspectors of our Union regularly visit the distributing shops and it is their duty strictly to control the observance of the rules of hygiene."
II. — MEASURES ADOPTED BY THE PRODUCING ESTABLISHMENTS OF THE DISTRIBUTIVE CO-OPERATIVE ORGANISATIONS

There is, as is well known, a continually progressing tendency among distributive co-operative organisations to produce the greatest possible proportion of the provisions and articles which they distribute.

The retail societies themselves follow this tendency, although only to a modest extent. Bread and pastry constitute their principal production, and the distributive co-operative societies of most countries possess bakeries, mainly large bakeries of the industrial type. Certain retail co-operative societies possess establishments of their own for milk and dairy products (Switzerland), mineral water factories (Finland), butcheries (United States, Hungary, Switzerland), establishments for the production of bacon, ham, boiled ham, potted meats, sausages, etc. (Finland, France, Great Britain, Hungary, Poland). The value of the foodstuffs produced in 1934 by the British retail co-operative societies is estimated at £30,000,000.

As regards most of the staple articles of consumption which admit of a certain delay in transport, it is the wholesale societies or federal societies with special objects which ensure their production, either wholly or in part.

The following are the principal commodities produced or prepared by the central organisations which have taken part in the enquiry and furnished the desired information on this point:

The English and Scottish co-operative wholesale societies produce almost all the staple foodstuffs required by their members. In 1934 the value of the bacon, biscuits and cakes, butter, cheese, canned foods, flour and meal, lard, margarine, preserves, peels and pickles, etc., produced by the English Co-operative Wholesale Society amounted to £14,384,000. In the same year the value for the Scottish Co-operative Wholesale Society was £2,250,000 (bacon, flour, and meal, margarine, preserves, sausages, etc.).

The other co-operative wholesale societies have not, as a rule, in their production or preparation of foodstuffs, reached the same variety or the same volume as those of Great Britain. These efforts at present in the various countries affect the following commodities:

_Belgium:_ Margarine, jams, syrups, chocolate, confectionery, mustard, mineral waters, chicory.
Denmark: Margarine, chocolate, sweetmeats, flour, semolina.

Finland: Butter, cheese, margarine, flour and groats, sweetmeats, sugared berry juices, macaroni, twisted biscuits, omelette powder, jelly products, etc.

France: Preserved vegetables, canned fish, pies and various forms of preserved meat, jams, chocolate, butter, coffee, roasting, bananas (ripening), salts.

Hungary: Alcoholic liquors, vinegar, mustard, coffee.

Netherlands: Tea, coffee, flour, puddings, cocoa, colonial produce, vanilla sugar, oils and fats, jams, apple and pear syrups, sugar-cane syrups, fruit juices, lemonade, petits-fours, biscuits, rusks, cakes, sweetmeats, cocoa, chocolate.

Sweden: Flour (wheat and rye), various kinds of meal, macaroni, Swedish crisp bread, margarine.

Yugoslavia: Flour.

Where retail co-operative societies and their central organisations have engaged in manufacture, it is generally and principally with a view to absorbing and placing at the disposal of their members the profits arising out of the industrial transformation. In certain cases, however, and to a certain extent it has also been done with a view to distributing goods of irreproachable quality and satisfying all the requirements of hygiene. This is shown, for example, by the information given by the distributive co-operative organisations of Finland, France, Hungary, the United States and Yugoslavia.

In any case, both as regards the retail co-operative societies and their central organisations, the replies received call attention to the precautions and the checking measures adopted by both for ensuring the quality of the goods which they manufacture or prepare. These measures regard the raw materials employed, the process of manufacture itself and the finished product.

The retail co-operative societies do not all possess the necessary means of checking and test for all their products. In the Netherlands some of those which produce bread have solved the problem by combining to form the "baking and milling station" at Wegeningen. This institution provides for the permanent supervision of the bakeries affiliated to it. It subjects their bread and other products to periodical examinations as regards the content in water (and in fatty matters in the case of milk bread), the content
in dry matters, the method of baking, cleanliness, etc. Where successive examinations show defects in the goods, the bakery in question is expelled from the association.

Most frequently, however, retail co-operative societies engaged in production have recourse to the laboratory of their central organisation. These institutions not only test, as has been seen, the provisions for immediate consumption which are offered to their members, but also the raw materials which are to be employed in their manufacture and the finished product. This practice is noted in particular as regards the Finnish Co-operative Wholesale Society (O.T.K.) and the English Co-operative Wholesale Society.

As regards the producing establishments of the wholesale societies and the federal societies with special objects, they are not only assisted and supervised by the central laboratories already mentioned and which are, for the most part, of recent creation. Each of these producing establishments has a laboratory of its own carrying out a daily inspection and test in collaboration, where necessary, with the principal laboratory. This is the case in Denmark. It is also the case with the English Co-operative Wholesale Society, which possesses more than 100 factories and workshops. It is equally the case with the Scottish Co-operative Wholesale Society in regard to which the following information, furnished by the British Co-operative Union, is quoted by way of illustration:

"All raw materials on arrival are tested to see that they are up to the standard of sample. Throughout the process of manufacture the chemists exercise supervision to ensure a uniform standard of production. After manufacture the finished product is sampled and subjected to chemical and practical tests. These act as a final check of quality, purity and accuracy of manufacture."

Similar information has been furnished in the replies relating to France, Hungary, Poland and Sweden.

The Central Union of the Dutch Distributive Co-operative Societies states on this subject that the management of the producing establishments of the co-operative wholesale society intends gradually to introduce the system of stamping a control number on every package. This system, which is similar to that employed by the agricultural marketing co-operative societies, will make it possible to fix responsibility in case of fault.

The reply of the Swedish Co-operative Union (K.F.) shows how the test laboratory may also serve as a research laboratory.
The following is the information furnished in this reply in regard to the control of cereals and flour:

"The factories have been provided with laboratories in which both the raw materials and the finished products are examined. The laboratory for the flour mills was set up in 1922 and now has a staff of nine persons. It examines the grain before it is purchased and carries out trial bakings in order to ascertain whether the flour is of good baking quality. The laboratory also carries out a large number of tests on behalf of the distributive co-operative societies."

Further on it adds:

"Since 1925 the Co-operative Union has employed the services of a specialist with several assistants to investigate the vitamin contents of different kinds of foods. This specialist also tests, on behalf of the Union, provisions manufactured by private firms, which in many cases have subsequently been obliged to drop misleading advertisements as a result of the Union's representations."

It gives elsewhere another example of its researches.

"Meal made from hips, a food which is particularly rich in vitamin C. Formerly the hips were cooked and strained before being made into soup, a process which took several hours and also diminished the nutritive value of the food because the vitamins were affected by being cooked for so long a time. The Co-operative Union accordingly carried out various experiments, which led to the discovery that the hulls of the hips could be ground into meal, after which they needed cooking for only a short time and retained their full vitamin value."

In the field of production by consumers' co-operative organisations, it is perhaps useful to note an interesting form of international collaboration. The International Co-operative Wholesale Society has instituted among the twenty-four central organisations of which it is composed the exchange of the methods of manufacture. It has recently made known to them methods of fruit drying recommended by the Swedish co-operative organisations.

III. — Educational Efforts

In order fully to exercise the functions confided to them by the households which they represent, the distributive co-operative organisations were necessarily led to develop among their members, and among their managing and executive staff, a knowledge of commodities to serve for guidance in the purchase of foodstuffs and their preparation.

The replies received, from which the essential passages will be quoted, show the systematic character and variety of form taken
by this educational activity. All the organisations have their own organs in the Press and most frequently, in addition to an official and technical review, a weekly organ in a popular form which reaches the home of each member. In these popular organs more particularly considerable space is given to articles and discussions on health in general, on food hygiene, on the composition of bills of fare, on the best way of utilising the nutritive value of foodstuffs, etc. The same questions also figure in the agendas of special meetings to which members are invited and which are chiefly attended by housewives. They are sometimes discussed in booklets, pamphlets, almanacks, etc., which are distributed gratuitously or at a moderate price. Exhibitions, tastings and demonstrations are organised with a view to extending the use of particular products or showing the manner of preparing them. Courses of instruction and lectures are regularly given to the managers of shops and all categories of employees. Schools have even been established with this special object. Finally, use is sometimes made of broadcast talks and cinematograph exhibitions for the education of members and of the general public.

The following is the information which has been collected of this manifold activity, showing the sources from which it is derived:

**General Co-operative Society of Belgium (S.G.C.)**

"Educational action is carried on in the co-operative societies and for the benefit of the public by exhibitions, cooking demonstrations, tastings, distribution of samples, appeals through the Press and lectures to housewives. Meetings of the selling staff are held for the purpose of initiating them in their professional duties."

**Union of Danish Co-operative Societies (F.D.B.)**

"The Danish Co-operative School established in 1932 (Den danske Andelsskole), which is attended by 100 pupils, teaches the science of merchandise. The popular co-operative organ (Brugsforennigs bladet), which appears every fortnight in an issue of 260,000 copies, and other publications are issued with the object of propagating such knowledge progressively."

**Co-operative League of the United States**

"Some of our distributive co-operative organisations give information concerning the selection and preparation of food products . . . 1

"Most of the information concerning the selection and preparation of foods is given by clerks in co-operative food stores to the consumer members.

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1 The Co-operative League published a leaflet entitled: "How to buy wisely at your Co-operative Store", which gives in simple language some elementary notions on the characteristics of various foodstuffs, the composition of menus, etc.
"Co-operative societies could improve the hygiene of foodstuffs by securing better standardisation and the labelling of packages in such a way as to convey accurate information of the contents."

The General Union of Distributive Co-operative Societies (Y.O.L.), Finland

"The Finnish Co-operative School has been in operation since 1919. Great attention is being paid to the knowledge of merchandise and its judgment. Capable employees have been educated in the School to serve the movement. In addition special courses are organised for the employees. Amongst the subjects to be taught there are knowledge of merchandise and its management in shops and stocks. Also the Co-operative Societies have courses for employees at which the hygienic treatment of foodstuffs is a subject. For housewives there are held general meetings at which the quality of commodities is discussed. In the co-operative periodicals there are published articles on foodstuffs and their quality. The S.O.K. Laboratory officials have delivered several speeches in the radio of the Broadcasting Company. Pamphlets for housewives have been issued to give advice for baking. At the foodstuffs exhibitions and fairs, the necessity of the good quality of foodstuffs is also underlined and their hygienic packing methods are explained."

French Co-operative Wholesale Society (M.D.G.)

"Education is given by the following means:

(1) Co-operative technical schools;

(2) Experienced committees composed of the managers of the big societies;

(3) Meetings of purchasers where lectures are given on the manufacture, preservation, and the methods of distribution of certain foodstuffs;

(4) Films of the principal products of the French Co-operative Wholesale Society."

Co-operative Union of Great Britain

"Through trades and business conferences, lectures to officials, and instructional visits to laboratories and places of manufacture, the managing bodies of local co-operative societies receive education in the selection of commodities. When appointments of co-operative buyers are made, notice is taken of the educational certificates earned through courses of study in appropriate subjects.

The Co-operative Union, through its Education Department, prepared courses of instruction for apprentices, salesmen, branch managers, departmental managers and general managers, which cover, inter alia, knowledge of commodities and the selection and preparation for sale of foodstuffs.

Exhibitions of co-operative manufacture are from time to time held in large centres, and the demonstrations and displays shown to the public are in some measure educational as regards the selection and the preparation of food products. The Co-operative Wholesale Society also has a series of cinematograph films which may be said to be educational in this way.

Instruction is given through local classes, correspondence courses, and lectures at the Co-operative College. These courses are conducted
during the winter months, and supplemented by courses taken at technical summer schools. The Co-operative Union has prepared textbooks for (a) Apprentices in Foodstuffs Department, (b) Salesmen in Grocery Departments, in Butchery Departments, and in Dairy Departments and is preparing a textbook for (a) Apprentices in Foodstuffs Departments, (b) Salesmen in Grocery Departments, in Butchery Departments and in Dairy Departments, and is preparing a textbook for Branch Managers in Grocery Departments. Other books will follow.

"During the Session 1935-36, the following were the numbers of students from Foodstuffs Departments enrolled in the respective grades of classes:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apprentices</td>
<td>1,786</td>
</tr>
<tr>
<td>Salesmen</td>
<td>1,382</td>
</tr>
<tr>
<td>Branch Managers</td>
<td>109</td>
</tr>
<tr>
<td>Departmental Managers</td>
<td>18</td>
</tr>
</tbody>
</table>

"By an extension of tuition and examination work along practical lines. It is now five years since practical tests (including a commodities test) were made an integral part of the examination for all salesmen.

"By a development of tuition moving from the side of production of foodstuffs, sources of supply, preparation for sale, etc., and by stressing the importance of food values and dietetics.

"By the education of the consumer."

_Hangya (Hungary)_

"With a view to developing the knowledge of commodities our Union regularly organises courses of instruction for the managing staff of local societies and the managers of distributing shops and it does not neglect the education of apprentices. It has further published a manual for directors of local societies and another for managers of distributing shops, which contain a detailed description of the principal commodities and advice as to their handling. The importance of our efforts in this matter has been greatly appreciated by the competent authorities and even in commercial circles. The education of our members is carried out by means of lectures, films and our official organ. Local societies, moreover, frequently organise tastings and cooking tests for their members."

_The Central Union of Dutch Distributive Co-operative Societies_

"The Wholesale Society (Haka) has this year established a practical school in which the selling staff receives suitable instruction and in which knowledge of commodities is taught. The Co-operative Press also deals continually with these questions. Haka also publishes an excellent cookery book which housewives can obtain by means of coupons attached to Haka packages."

_Union of Distributive Co-operative Societies of the Polish Republic_

"In all efforts for the education of our staff emphasis is placed on the importance of a thorough knowledge of commodities and methods of control. In 1935, 375 special courses on knowledge of commodities were held, which were attended by 3,591 persons."

_Swedish Co-operative Union (K.F.)_

"In the Co-operative Union's School for employees the study of the composition of goods is given an important place, particularly in the
courses for employees in co-operative stores. As a rule the classes are so divided that part of the time is devoted to special categories of goods and the rest to an outline of the physiology of nutrition. The students are also given the opportunity of studying displays of goods.

"The course of instruction is planned with the object of enabling the students to advise housewives how to make their purchases most economically. Attention is therefore focussed not so much on details of manufacture as on the finished goods and their progress from shop to the table. In accordance with this policy, cooking lessons are also included in the course.

"The most important material used in teaching consists in the displays of goods mentioned above. Publications of various kinds are also used, such as cookery books, the staff newspaper 'Var Tidning', Professor von Wendt's books 'Kost och kultur' (Food and Culture) and 'Rakost och' (Raw Foodstuffs and Raw Preserves) and Mr. Iwan Bolin's book 'Rainläggning Varnkännedorn för hemmet' (Knowledge of Commodities for the Home), etc.

"The Co-operative Union has also sought other means of propagating knowledge of the composition of goods. For many years past it has helped to organise women's evenings in the rooms of the co-operative societies. Certificated teachers of cookery or other competent persons spend one or two evenings in explaining the manufacture of different products in the factories and their preparation in the home. In order to give the members an opportunity of studying the problems of nutrition, a special handbook has been issued, arranged in the form of question and answer and based on various standard books on the subject. The members form discussion groups to study the various problems with the aid of the handbook, and send in answers to some of the more important questions to the Co-operative Union, which verifies their accuracy. Some 300 of these study groups with about 3,600 members have been organised up to date. The weekly newspaper "Konsumentbladet", which has a circulation of about half a million, often contains articles dealing with the subject. In 1932 the Co-operative Union founded a research fund, which had a capital of 396,370 Swedish crowns on 1 January 1936, and which it intends to enlarge in the future in order to enable it to contribute to scientific research, particularly in the field of nutrition.

"The local societies also try to spread knowledge of the composition of goods among their members by a variety of means. The women's evenings and study groups have already been mentioned. The societies also organise lectures at these meetings from time to time; last year, for instance, the Stockholm Distributive Co-operative Society organised lectures on problems of nutrition at all the local meetings, and engaged the most eminent experts in Stockholm as lecturers. The books on commercial products issued by the Co-operative Union are also distributed among the staff and members."

Co-operative Union and Wholesale Societies of Switzerland

"The Swiss co-operative movement does a great deal to spread information about the goods sold among its members, and in particular among its staff. Among the methods employed are the permanent courses of the Co-operative Seminar (Bernhard Jaeggi Foundation), supported by the whole co-operative movement, lectures to the local societies (staff and members), information spread by the heads of the Chemical Laboratory and other competent persons, information to consumers, published in the press, etc."
It should be added that the Co-operative Union and Wholesale Societies of Switzerland has published in French and German a study "On the knowledge of Goods" prepared by the Director of its Test Laboratory.

Union of State Officials and Consumers' Co-operative Societies (Yugoslavia)

"General education is partly by lectures organised by the different societies and partly by the co-operative press.

"The Union organises each year in Belgrade fairly long courses for the training of staff. Exchanges of staff have been introduced in order that salesmen in small shops may accustom themselves to work in more important and better organised establishments.

"The Union possesses a 'Milos Stibler fund' the income of which is used in sending members of the staff of the Union and the Societies to improvement courses at home and abroad. There is a special fund for the instruction of apprentices."

IV. — COLLABORATION BETWEEN THE DISTRIBUTIVE CO-OPERATIVE ORGANISATIONS AND THE PUBLIC AUTHORITIES

In a certain number of countries the public authorities have realised the effectiveness of the efforts made by the distributive co-operative organisations in the matter of food hygiene, and have not hesitated to recognise their special qualifications to represent the interests of consumers in this domain. They have accordingly accepted or invited the collaboration of these organisations in the preparation or control of measures aiming at the repression of fraud and adulteration or at promoting general progress in matters of food.

Mention has already been made of the initiative taken by the Managing Committee of the General Union of Distributive Co-operative Societies of Finland with a view to obtaining an amendment of the legislation in force relating to the manufacture, import and trade in food products. The Government having appointed a Committee to prepare the necessary bill, the General Union of Distributive Co-operative Societies was represented on this Committee by the Director of the Laboratory of the wholesale society.

In Great Britain the Joint Parliamentary Committee of the Co-operative Congress has frequently assisted by submitting voluminous evidence to the Departmental Committee on Food Laws, and co-operative representatives have frequently been selected to sit on bodies appointed by the Government to consider new measures.
In *Hungary* "Hangya" also states that it participates in the work of committees and official bodies established for preventing and repressing frauds, improving the quality of foodstuffs and preparing the necessary legislative measures.

The *Swedish* Co-operative Union (K.F.) furnishes the following information on this point:

"Any proposals for the amendment of the regulations concerning foodstuffs, whether drafted by the authorities or submitted by the producers themselves, are usually referred by the Government or other authorities to the Co-operative Union for its opinion. Any comments which the Co-operative Union may make on these proposals are taken into consideration, and representatives of the Union are also invited to take part in the preliminary discussions."

The *Swiss* Union of Distributive Co-operative Societies refers to a similar kind of collaboration:

"By taking part in conferences, and in particular in the preparation of Federal regulations concerning foodstuffs, the Union is also able to co-operate in the promotion of official measures to guarantee the quality of the food and other goods sold."

Finally the Union of State Officials’ Distributive Co-operative Societies, *Yugoslavia*, also states that in all matters relating to trade in foodstuffs the public authorities closely collaborate with the co-operative organisations.