

STATISTICAL AND SOCIAL INQUIRY SOCIETY OF IRELAND.

FOREWORD.

ON account of the paper shortage it was not found possible to print summaries of discussions on papers read during the 1943-44 Session. These are printed in the present supplement, the pagination of which continues from that of the Journal for the 97th Session (1943-44) and thus it constitutes a part of Vol. XVII. Matter printed is based, as is customary, on résumés kindly furnished by members and visitors of their contributions to the debates.

Discussion on " Irish Tuberculosis Death Rates " by J. E. Counihan, M.B , and Professor T. W. T. Dillon, M.D., on Friday, 29th October, 1943

Mr. Ó Broleháin in proposing a vote of thanks said that Dr. Dillon and Dr. Counihan are to be congratulated on this very excellent paper on Irish Tuberculosis Death Rates

In the paper attention is drawn to the fall in the death rates and to our failure to keep pace with the international reduction. This failure has very serious consequences for us which have not been specifically mentioned by the authors—that of the early age deaths.

It is admitted that in any country—particularly an older country—the change-over from a rural civilisation to an industrial life is accompanied by a big increase in the tuberculosis death rate, followed later by a fall. This has been the experience in England, Germany and Sweden but the increase takes place by a very severe rise in the death rates for the 20 to 30 year age group. Subsequent action has always succeeded in bringing down these early age deaths and reducing the mortality to somewhat normal proportions with a low death rate in the early ages and a gradual increase with age

Ireland is at present suffering from the very severe effects of such urbanisation with a high death rate amongst young people. The fact that this has been the experience of our predecessors in the realm of urbanisation is not sufficient excuse for our failure to tackle the problem : it is more in the nature of an indictment for we should before now have learned from the bitter experience of our European neighbours.

The authors have referred to four environmental conditions which have a bearing on tuberculosis—nutrition, housing, medical facilities and urbanisation. Urbanisation of itself is not important as in the long run it tends to reduce the tuberculosis death rate—it is only important in so far as it accentuates the other factors—nutrition, housing and medical facilities. Housing, though a serious factor, is stated by the authors to be relatively unimportant until such stage as the disease is under control. At present, it seems, the disease is too far advanced to be cured by good housing. We have, therefore, only two factors with which to deal—nutrition and medical facilities

In a country which is noted for its export of the highest quality of both food and doctors, such a position is not merely paradoxical—it is deplorable: but until a levy is put on food exports for the purpose of subsidising home consumption and facilities are provided for the utilisation of Irish medical skill at home, no improvement can be expected. There is in every part of the country machinery ready to fight T.B. but lack of money and of public demand has held it in check. The Red Cross Society, in taking over the responsibility for organising the anti-tuberculosis drive, has undertaken a big task but it is not an impossible one, as is indicated by the authors of to-night's paper for they say "There is very little doubt that tuberculosis will become as rare as typhoid or typhus." But there is a proviso—they add "within the next fifty years."

Dr. Charles Dickson, in seconding the vote of thanks said that while no statistician he welcomed Dr. Dillon's and Dr. Counihan's paper as a valuable contribution to the work of bringing order out of chaos and providing a sure foundation on which future efforts for the eradication of tuberculosis could be built.

He drew attention to the possibility that the returns from which the comparative figures in Table II had been calculated were vitiated owing to the wholesale destruction of life during 1918-19 by the world wide Influenza Epidemic and the inevitable transference of large numbers of potential tuberculosis deaths to the Influenza category. If this were so it should be shown by an especially steep fall in tuberculous deaths during these two years if such figures were available.

With reference to Dr. Dillon's statement that a fall in T.D.R. is not due to transference to some other rubric, at least to the extent of upsetting comparative statistics, attention was drawn to the Belfast experience where a remarkable transference actually took place from what had previously been non-tuberculous chest conditions to tuberculous by the simple measure of increasing to five shillings the fee for notifying tuberculous deaths! In Belfast also, at least some years ago, there was the unusual statistical phenomenon of a female excess for pulmonary tuberculosis. This was, probably rightly, attributed to the entirely exceptional amount of female labour employed in the relatively dangerous branches of linen manufacture.

Dr. Dickson also stated that the figures indicating a relatively low T.D.R. in some parts of Eire, and particularly the western counties, should be accepted with reserve as personal experience suggested strongly that for a variety of reasons, the true figures were considerably in excess of those given and probably unequally so.

Finally, he emphasised that anti-tuberculosis work would meet with disappointment, as it had done in the past, unless and until successful effort was directed to removing the reproach that in matters of hygiene, personal and otherwise, public opinion here was probably the most backward in western Europe.

Where the standard of personal cleanliness is low, where there is toleration and complacency, instead of disgust for appalling hygienic shortcomings, then in any campaign such as that which is so urgently necessary to eradicate preventable disease, we shall find ourselves in the position of an army whose soldiers refuse to fight and the campaign, no matter how brilliantly planned and led, can only result in frustration and defeat.

Mr. P. S. O'Hegarty suggested that the predominating factor in the incidence of tuberculosis was malnutrition, and that in very many cases this malnutrition was due rather to ignorance of the proper and economical use of food than to means deficiency. He thought that as the main work of women would continue to be the running of homes and the rearing of children, domestic science generally, and food values and food preparation and the balancing of diet in particular, should form a part of the curriculum in girls' schools.

Mr. R. Henderson : In joining with the other speakers in congratulations to Dr. Counihan and Professor Dillon, I welcome the general implication in the paper that it is but the preliminary of a more intensive exploration of the incidence of tuberculosis in this State.

It is rather significant that the tuberculosis death rate, as shown in Tables I and VI has not fallen in the 1935-1937 period at the same percentage rate of decrease as in other countries. There may be many factors to which this unfavourable comparison may be attributed and I would suggest that the mortality rate must be measured alongside the morbidity rate if we are to avoid wrong conclusions.

In so far as National Health Insurance experience reveals a morbidity rate for this State, the experience for 1937 and 1933 shows for men and women an increase in average duration per 1,000 members. It may be concluded that as the tuberculosis death rate falls the average sickness duration per individual case and, probably for some time, per 1,000 members is likely to increase and this, in fact, has happened. It would be desirable to explore the progress of the mortality rate alongside the morbidity rate. Once we have succeeded in accelerating the percentage decrease in the tuberculosis death rate together with a reduction in average duration of the incapacitating sickness, we may feel a confidence that tuberculosis is under control. The tuberculosis death rate alone is not a final measure of success or failure.

In the wider aspects of the paper whilst not deprecating the need for improved housing I would urge that nutrition is of first importance. Unless good housing can be provided at economic rents the reduction in purchasing power diverted from nourishing food to meet the higher rentals payable can create a situation in which exposure to infection risk is increased. Such is stated to have been the experience in a large Liverpool slum clearance.

It is also interesting to observe that the mortality rate in Table VII corresponds to the sickness experience; the counties with the highest death rate have the highest sickness rate and those with the lowest death rate have the lowest sickness experience. As already observed the converse might reasonably be expected. Similar phenomena obtain, for example, in two towns in one county or as between certain towns of equal population and industrial texture.

Why these anomalies should be I would commend to the authors of the paper as a suitable subject for further investigation.

Commissioner D. J. O'Donovan said that although very appreciative of the research work which made possible so informative a paper, he, like others, who are closely concerned with the grave problems created by tuberculosis, has become less interested in statistics showing the experiences of this as compared with other countries, even in the variations of incidence and duration within our own country. We know well enough for the purposes of action how grave is the scourge, how many

are the victims and what are the necessary remedial measures. The great need of the moment is to clear the obstacles to action on a scale not previously attempted, and one of these obstacles to such action is indecision as to who should act.

It is advisable, therefore, to consider the place of voluntary agencies in the sphere of social services. In the past great pioneer work has been done by voluntary agencies in many fields where the community as a whole was not yet prepared to act, and we have seen service after service taken over as nations became convinced of their necessity and of the need for action on a national scale. Perhaps the greatest contribution made by voluntary agencies to the public well-being is that they have so often by their pioneering activities indicated and prepared the way for public effort on a scale more adequate than is possible under the voluntary system. The need for large-scale effort in the matter of tuberculosis is now so apparent that we must face the implications of official action. There is still, and there will be always, ample scope for voluntary bodies which are prepared to come together amongst themselves and unite their forces behind any official body charged with responsibility by the community. Only by such harmony and co-operation, based upon a recognition of facts, can we anticipate with confidence a successful outcome to national effort, and feel assured that by mutual consultations and goodwill gaps and overlappings will be avoided and effective work performed.

Dr. Geary said, in regard to the opening remarks of the previous speaker, that he believed in statistics as a pointer to the way towards, and a direct stimulus to, ameliorative action. The present campaign against T B was inaugurated as a consequence of the trend in a single statistic, the number of deaths from T.B. Statistics showed that the way to combat the scourge was to improve the physical standard of living of the people. This was proved beyond question by statistics and the statistical technique in the present paper and in his (Dr. Geary's) paper of 13 years ago, which the present authors had rescued momentarily from deserved oblivion. In that paper, in fact, it was shown (i) that the first definite decline in mortality from T.B. occurred about 1896 and coincided, therefore, with the beginning of the upward swing in the economic cycle in this country as elsewhere, and (ii) that the inverse relationship between the T.B. mortality rate and social (or income) grade was overwhelmingly strong.

In regard to Mr. Henderson's point about duration of the disease, could it not happen, in fact was it not to be expected, that the decline in the aggregate *volume* of T B (as measured by total mortality or morbidity) would be accompanied by an increased duration of the disease per person affected?

Dr Geary thought that the authors were well advised to put two query marks in their Table V, the validity of which, as they recognise, is very doubtful. In works of this kind authors were too prone to regard the "unemployed" as a well defined distinct body like the farmers or doctors. This was not the case. While the total number of unemployed in this country did not vary much from year to year the personnel was constantly changing. The workless included those who were physically unfit for work and were more likely to contract T.B. : the chain of causation was affected by the fact that if unemployment were the cause of T.B. it might also be an effect. He was glad to note that the authors proposed pursuing this subject by case histories. only in this way could

the problem be subjected to something like statistical laboratory control, though there remained the difficulty of getting enough cases to show significant results.

Dr. Geary thought that Dr. Dickson and other sceptics about the accuracy of the statistics used might have addressed themselves specifically to the closely reasoned case of the authors that valid deductions might be drawn, even though registration was defective, instead of giving their necessarily limited personal experiences.

Mr. R. J. P. Mortished said that for most problems ordinary common sense sufficed to suggest perhaps four or five probable causes. The value of statistical analysis, such as that made in the present paper, was that it enabled the separating-out of the really determining cause. But it could not be claimed that statistical analysis inevitably led to effective action. In this case, the analysis had shown that the determining factor in our tuberculosis problem was malnutrition. There was a great deal of over-elaborate talk about nutrition, the essential thing was that people should get more milk, eggs, butter, cheese, wholemeal bread, green vegetables and fruit. No amount of propaganda, even concerted propaganda by the Government, local authorities and the Red Cross, would suffice to ensure that our people were properly fed. A T.B. slogan on every bus and blank wall in Ireland would not enable the people to drink more milk. The real problem was how to organise the production and distribution of plenty of good food at accessible prices, but in this country we had not yet agreed that it was the function of governments and local authorities to provide a solution for that problem.

Discussion on "A Comparison of the Principal Economic Features of Éire and Denmark" by J P Beddy, M Comm, D Econ.Sc, on Thursday, 25th November, 1943.

H. A. V. Osterberg, Honorary Consul General for Denmark, paying a tribute to Irish labour for its adaptability to any new Industry, mentioned that the question of providing room for the increase in population had been seriously considered in Denmark some 40 years ago, at which time it was stated that Agriculture could not absorb more labour but that Industry and ensuing Commerce could absorb the expected increase in population for many years. Dr. Beddy's statistics have proved this point of view to be completely right.

One of the advantages of the Co-Operative Movement between farmers, so strongly developed in Denmark, is that by leaving his whole trade to his co-operative societies, the farmer gets much more time to look after his farm.

The Agricultural Credit System has allowed farmers in Denmark to put much more capital in their farms, and thereby get much higher output, than if they should be confined to their own resources. This extended credit system would only become a danger and need State help in great national and international crises, and the advantage in normal times had greatly outweighed this disadvantage.

The Land Reclamation was started in Denmark by the so-called Heath Society, after the lost war in 1864 and under the motto "What is lost externally must be regained internally." It was a national movement, based on a 5s. membership subscription, which has not only reclaimed large areas and increased their value more than six times but has also given much indirect employment. For instance, pipes

laid for draining moors represented in 1938, 200,000 working days in manufacture and 400,000 in laying, altogether work for 2,000 men for a year.

The rural population in Denmark had been awakened and enlightened by the Folk High Schools started 100 years ago. They had for declared object to make young people better acquainted with human nature and human life in general, and with themselves in particular, the pupils to receive guidance in all civic duties and relationships and to get to know their country's real needs. Their love of their country should be nourished by the mother tongue and their nation's history by their country's songs. The 57 Folk High Schools now in existence take yearly about 7,000 pupils from 18-25 years of age of both sexes. The course takes from a minimum of 3 months in summer time for women, to a maximum of five months in winter time for men, and cost, before the war, £3 10s. 0d. per month, including board and lodging. The Folk High Schools, while preserving their complete private character and management, now receive considerable public grants and young people can obtain county council grants if they do not have sufficient means.

Nowadays, owing to the present world war, the Danish picture had changed radically. The cattle, poultry and pig populations had been reduced to fractions of their former size, which meant that large capitals had been eaten up. The external credit of the country had since its occupation increased by about 150 million pounds, which might be a doubtful asset.

Dr. Beddy deserved great thanks for the elaborate and accurate analysis, which ought to be studied with all possible attention both in Éire and Denmark, and would be equally valuable for the two countries.

Mr. H. S. Kennedy said he wished to add a footnote to what Dr. Beddy had said about Danish enterprise overseas, as he had lived for three years in Bangkok, the capital of Siam, where that enterprise was very conspicuous. The last European head of the Siamese police force had been a Dane as also had the most famous European head of the navy. A Danish company provided Bangkok, a city of over half a million people, with its very fine electric light service and tramway service. The only direct passenger service from Siam to Europe was provided by a Danish shipping company with a fleet of half a dozen fine modern passenger-cargo liners. A subsidiary of that company with a fleet of another six or seven smaller, but equally well-designed boats, provided Siam with its only regular coastal passenger service, some of them calling at all the ports between Bangkok and Singapore and some at the ports on the route to French Indo-China. Danish shipping had the third highest tonnage figure of vessels entering the port of Bangkok, being far larger than the figures for Dutch, Japanese, Chinese, French or even Siamese shipping. In the export of teak, Siam's third largest export, a Danish firm was responsible for probably a quarter of all the teak exported.

A Dane was also head of the Siamese cement industry. In most of these enterprises not only was the initial enterprise and capital Danish but the executive posts were held by Danes, including the officer-posts on the Siamese coastal service. The total value of the capital invested was probably not nearly so large as the value of Irish overseas investment but it gave a richer return to the nation in that it provided careers for young men and also enriched the national life by intimate contact with a foreign people.

Mr. Meyland-Smith remarked that the scale of earnings should include the cost-of-living index numbers for the two countries. The Danish industrial worker was paid almost the same amount in pounds as the Irish but the cost of living was appreciably lower in Denmark.

Mr. O'Hegarty said that he did not wish to be taken as assenting to an implication in the paper that telephones, wireless sets, and motor cars were marks of civilisation. They seemed to him to be the direct contrary, in that they are responsible for that annihilation of Time and Distance which was destroying civilisation and turning mankind into an efficient barbarian Robot.

Two other matters he desired to mention. Mr. Kennedy had suggested that farming was under-capitalised. It may be, but it is not because the farmer has no money. He spends his money in making Priests, Nuns, Nurses, and Doctors of his children, but he uses as little as he can of it in improving the farm, out of which it comes. Mr. Osterberg had remarked that Denmark was at a very low financial ebb in 1870, just recovering from two disastrous wars. If it were only two wars in our case! From the day that the Normans landed in Wexford in 1170 until the signing of the Treaty of 1921, we had one continuous bloody and destroying war. The wonder was, not that we are as bad as we are, but that we are as good as we are.

Discussion on " Infant Mortality in the City of Belfast " by James Deeny, M.D., F.R.C.P.I., and Eric T. Murdock, Ph.D., on Friday, 17th December, 1943.

Dr. Dorothy Price, proposing the vote of thanks, congratulated Dr. Deeny and Dr. Murdock on the work which they had put into the making of the paper, and for the conclusions so reasonably arrived at. She said that the problem appeared to be a city problem, and that it would be interesting if a similar investigation could be made in a rural area and the results compared, in rural areas the mortality was between 40 and 60 per thousand. She commented on the high institutional death rate and on the fact that 40 per cent. of deaths were in the neo-natal period in Belfast. The majority of these deaths are not microbic, and could possibly be prevented by a wider system of home visiting of healthy cases by nurses who would instruct on the management of infancy. The mother's diet is also important in avoiding premature birth. The infants constitute the weakest portion of the population, and sudden and rapid illness overtakes them before medical aid is sought. She suggested that encouragement should be given to all persons to help them to produce healthy babies, commenting that whereas as Dr. Deeny suggests low income may be due to low mentality and vitality, so also low income (through bad luck) tends to reduce people to C3 grade.

Mr. Thomas Johnson drew attention to one or two minor passages in the paper which did not accord with his experience in the Belfast of 20 and more years ago. He was astonished to hear that " very few of the mothers were engaged in industry." This denoted a great change for the better if it meant that few working-class mothers now needed to go to work in mills and factories. Was it possible that those who answered the questions meant that during the infant's life the mother did not go out to work?

Respecting incomes In 70 per cent. of the cases the household income exceeded 10s. per head per week, 40 per cent. exceeded 15s. per head. The household income is defined as "the income, less rent, available to the mother for household purposes," and is the weekly average for the month before the fatal illness. The size of families is not stated but it may perhaps be deduced from the tables in Appendix A that at least 50 per cent. of the families had three or more children—this means a family of five or more persons. Probably at least 75 per cent. of the population of Belfast would be described as of the working-class. It surprised him that working-class husbands now-a-days were able to give to their wives for housekeeping so high a proportion of their weekly wages as the figures suggested. He would like to feel more confident that they reflected accurately the social conditions.

Miss G. M. Barrington said that since 1925 the St. John Ambulance Brigade has been feeding destitute expectant and nursing mothers for a specific ante and post-natal period.

These mothers are sent by the Medical Officer of Health for Maternity and Child Welfare. They are given daily a special meal balanced to counteract the carbo-hydrate meals of bread and tea, which constitute the main intake of the poor.

In 1941 an experiment was undertaken at the Rotunda Hospital to determine the effect of the meal on 50 expectant mothers receiving dinners and 50 controls—the result was very satisfactory. Later, a second experiment was made to find out the result of extending the post-natal period of dinners to the breast-feeding mothers from two to six months. The result was also most satisfactory.

Expectant mothers registered in the St John Ambulance Brigade Dining-rooms now receive three months' ante-natal dinners and two months' post-natal, which is extended to four months for all certified breast-feeding mothers.

The following table may be of interest :—

Year :	No. of Confinements :	Stillbirths or Deaths under 14 days :
1933 ..	447	11=2 46%
1934 .	462	17=3 68%
1935 .	542	16=3 0 %
1936 .	612	40=6 5 %
1937 ..	632	47=7 4 %
1938 .	615	51=8 3 %
1939 ..	670	49=7 76%
1940 ..	596	35=5 8 %
1941 ..	612	27=4 4 %
1942 .	714	24=3 3 %
1943 ..	586 (To date)	22=3 75%

Dr. Geary said that the Statistics Branch felt honoured to be associated with such a fine piece of work as that of their lecturers this evening. The policy of the Branch was to assist scientific inquirers in the production of statistics which would be useful to the community. The Council had often been criticised for not having papers related to the Six Northern Counties and lecturers have been admonished because their surveys did not extend to that part of the country. A very honourable amend has surely been made this evening.

The χ^2 - test would not be all Greek to members of this learned Society. (The speaker made some observations about the use and misuse of the test). He agreed with Mr. Johnson that it would have been well to sub-divide the income grades. The difficulty was, however, that such sub-division resulted in too small numbers for statistically significant conclusions to be drawn from the figures.

His secretarial colleague, Dr. Beddy (who, unfortunately, could not be present in person), suggested that as a very large proportion of deaths were due to premature birth and other causes which were not obviously due to low incomes it would be interesting to analyse in detail the circumstances relative to such deaths.

Discussion on " Nutritional Standards of some Working-Class Families in Dublin, 1943 " by Charles Clancy-Gore, M D., on Friday, 28th January, 1944.

Mr. Thomas Johnson, in moving a vote of thanks to Dr. Clancy-Gore for his valuable paper, said whilst the ordinary observer no doubt realised that the larger families of the working-class could not be provided for adequately out of their wages, it was not generally understood that this is true even in respect of the more highly paid, such as those comprised within this study whose incomes ranged from £4 to £5 per week. Yet the tables prove it to be so, if it is accepted that the B.M.A. minimum standard diet is requisite for health.

No doubt recent medical science had discovered facts about nutrition unknown a generation ago but he had been interested in some evidence submitted to the Royal Commission on the Poor Law, 1908, by Sir Thomas J. Stafford, Medical Commissioner to the Local Government Board for Ireland. This evidence related to a detailed examination of the food budgets of 21 working-class families, mainly labourers, in Dublin in 1904. The average income of these was 23/2½ per week and the expenditure on food 13/1½. The nutritional value of the food consumed was found to be deficient and a theoretical dietary for two adults and three children to cost 13/- was presented. In calories and proteins it does not differ appreciably from that of the B.M.A., though no mention is made of the proportion of first-class proteins. This theoretical dietary of 1904 at 1943 prices would cost 34/8 (at least). Dr. Clancy-Gore's paper (Table IX) shows, for the groups of families of five or six persons, that the actual expenditure on food was 37/7. The B.M.A. dietary would cost, say, 52/10. (See Table III.)

It is noteworthy, he said, that the quantity of milk consumed by each group of Dr. Clancy-Gore's 100 families was about the same, irrespective of the size of the family, *i.e.*, an average of approximately 21 pints per week. If these 100 families had all been inmates of the Dublin Union institutions, they would have had equal to 64 pints of milk per family! The ration scales there provide 13½ pints per week for children and 5½ pints for adults.

The percentage of families in each group, classified according to number in family, does not vary greatly from that of the 6,000 odd families rehoused in recent years in Corporation dwellings. But the average incomes of the 6,000 were very different from those of the 100, averaging about one-third lower. It may be dimly realised from these facts how much less than adequate are the nutritional standards of the far greater number of people outside the new housing areas whose incomes are lower still.

The position as stated was very grave. It could only be hoped that the Children's Allowances for which legislation was pending, would, to some extent, improve matters.

It gave him great pleasure to be associated with previous speakers in support of the vote of thanks for this most interesting and instructive paper.

Dr. E. J. T. McWeeney, speaking to the vote of thanks to Dr. C. Clancy-Gore, said that he regretted that owing to absence from Dublin on duty he had not had an opportunity of studying this extremely interesting paper beforehand. A paper of such scope, containing as it did a great deal of statistical information deserved a closer study than he had as yet been able to give to it. He would, therefore, have to confine his remarks to a few points only.

The Nutrition Committee of the League of Nations, reporting some years before the present war, laid down, in the light of knowledge available at that time, certain desirable minimum levels of dietetic intake. They suggested that a man weighing about 10 stone, doing moderately hard work would require a diet giving about 3,200-3,300 calories daily. This should provide about 3,000 calories net. The protein intake should be about 75-100 gms per diem, of which about 50 per cent. should be first-class or animal protein. The fat intake should be about 100 gms. daily. Recommendations were made in respect of vitamin and mineral intakes.

In view, however, of the global experiments in dietetics now proceeding through the rationing schemes in belligerent countries it would be well not to be too dogmatic on the question of dietetic requirements nor to regard the League of Nations' recommendations as final. As well as the mass experiments, research on diets was being carried out, certainly in England.

A research group of 4 men and 4 women in England in the early years of the war voluntarily submitted themselves to a very severe scheme of rationing for a period of three months, 1 lb of flesh foods, $\frac{1}{4}$ pt. milk and 4 ozs unvitaminised margarine per week, no other fat, very little sugar. Bread, green vegetables, and potatoes were unlimited. Throughout the experiment food values of intake were estimated and excretions analysed in order to record absorption. Weight and bodily health were constantly checked. It is interesting to note that after an initial fall each individual automatically raised the calorific value of his or her diet to about its pre-experimental level by substitution of unrationed for rationed foods and maintained it throughout. In most cases bodily weight was maintained and in all cases general health was good, indeed, it was improved in some instances. At the conclusion of the experiment and whilst still on the diet, several members of the party carried out very successfully severe exercise tests, including long distance cycling and mountain-climbing in cold weather.

Now the total protein intakes of the experimental group ranged from 55-149 gms daily, of which 15-21 gms only was animal protein. Fat intakes ranged from 35-64 gms. Vitamin and mineral intakes were good except for Vitamin D, although no signs of Vitamin D deficiency appeared.

Work of the kind just discussed suggests that our qualitative and quantitative estimates of bodily requirements in food have not reached finality.

Dr. Collis emphasised the importance of the work done by Dr. Clancy-Gore and said that one thing stood out from the paper and that was

the inadequacy of the ordinary wage levels in Éire to-day to meet the economic needs of the ordinary working family. When Dr Dockeray's figure of 3/- a week for the expectant wives of unemployed men was remembered the hopeless inadequacy of the present situation in regard to the lower grades particularly, the unemployed, must be realised and our present somewhat complacent attitude was to be deprecated. Before, however, practical steps to overcome the present situation, particularly in regard to the malnutrition could be undertaken it was necessary to extend the present investigation and do a number of dietetic surveys among different wage levels in the country, both in the city and the rural areas as had been done in England. This should not wait upon the reports from other countries but should be undertaken at once as a practical step. Once these surveys have been made it would be possible to act on the basis of knowledge rather than rely on experiences elsewhere and he hoped that such surveys would be undertaken in the near future.

Professor Shields stated that Dr. Clancy-Gore had compiled an interesting paper on the nutritional standards of a number of working-class families in Dublin. The subject matter includes some details only indirectly connected with the title of the paper, such as clothing, fuel, light, cleaning and transport, while his method of approaching the subject by way of basic diets obtaining in another country and their conversion into money values may lead to erroneous conclusions. He seeks to measure the nutritional standards of a selected number of working-class families in Dublin by British family needs, as defined by the British Medical Association in 1933. There are many items in Table I taken from the British Medical Association Minimum Diet (No. 2) for an adult male for a week which the ordinary unskilled or skilled Dublin worker will not consume. The cost of the British Association diet for an adult male estimated at prices ruling early in 1943 in the area in which the workers lived, amounted to 14/1 per week. It must be noted that on account of the varying quantities of food consumed by adults and other members of the different families, it will be impossible to compare them with the standard subsistence diets set up by any medical or other authority, when money values are used for this purpose. So, converting the amounts of foodstuffs into money values in an authoritative standard, and comparing them with the money spent on food by a number of families, no matter how representative they are of the type in question, will not afford any information as to subsistence needs or levels of the particular families. Further, the values of the calories, carbohydrates, fats, etc., of these varying quantities of foods may be widely different, even if the weekly expenditure on foodstuffs per adult male in each case amounts to 14/-. I quite agree with Dr. MacWeeney, when he says that we should not be dogmatic on this question. The proper method of dealing with the problem of nutritional standards is to collect food budgets of representative working-class families, and then test the extent to which the amounts of the particular kinds of food consumed in each case reaches the minimum standard for subsistence. Leaving aside scientific methods of analysing and comparing nutritional standards, those engaged in social work in Dublin know quite well that the meagre allowances given by State authorities to heads of families, when unemployed or sick, are utterly inadequate to provide reasonable nutrition for themselves and their families and other necessary expenses.

In associating himself with the vote of thanks **Mr. R. Ó Brocháin**

said that he thought the most significant table in the inquiry was the last table which showed the differences between the persons above and below sufficiency on the different bases of calculation. On the first method which assumed that the breadwinner kept only sufficient to pay essential overheads (rent, etc.), and that all of the balance was spent on essential foods, fuel, etc., it was shown that only 29 per cent. of the adults and 21 per cent. of the children had a sufficiency. When, however, on the second and third methods, allowance was made for other overheads such as hire purchase and the calculation was related to the statement of the housewife as to the actual amount received by her for food, it was then found that only one family, or at most two, out of the hundred families had a sufficiency. This indicated that a large proportion of the money required for food was spent on luxuries (though these might be classed as necessaries in some cases). This indicated that any effort by state or other action to ameliorate the adverse conditions would not succeed if it aimed merely at an increase of the cash income. There must be an increase of the income allocated to the housewife. As a temporary expedient this could be done by some such method as the food voucher system or by subsidiary rent, fuel or other overheads.

Dr. Clancy-Gore's inquiry pointed to a way towards the ascertaining of that most elusive of social standards—a living wage. It also showed that efforts or legislation towards the attainment of this wage would not be successful in increasing nutrition unless preceded or accompanied by a general education in the requirements for proper allocation of the wages received.

It was generally desirable that wages should be paid in cash as it was more satisfactory to give the responsibility of its allocation to the individual, but until the wage earners were prepared to accept and carry out that responsibility satisfactorily the payment in kind method was indicated.

Discussion on "Population Distribution in County Sligo" by T. W. Freeman, M.A., Lecturer in Geography, Trinity College, Dublin, on Friday, 25th February, 1944.

Mr. J. Kelly : It gives me great pleasure to propose that the best thanks of the Society are due to Mr. Freeman for his valuable paper, which, like his earlier papers on the population distribution of Irish counties, suggests so many pregnant and important questions relating to the forces which mould the people's lives.

Mr. Freeman on page 5 states that part of the price paid for the amelioration of social and economic conditions has been a heavy loss of manpower from rural areas. I think that another part of the price is the great decline in the number of marriages among the farming community, and the increasing ages at which marriages take place. It is a curious thing that among urban communities, the earliest and most prolific marriages are among those grades where employment is most precarious and poorest paid. Among very poor agricultural communities, such as those of Eastern Europe the tendency is the same, just as it was in Ireland up to the time of the Famine. In present-day Ireland, however, the tendency is directly the reverse, and we share the experience of the countries of Western and Northern Europe, where the ownership of property and the desire to maintain and improve living conditions

seem to be dominant factors in limiting the size of the agricultural population.

The last Irish Census demonstrates the trend in an interesting way. It shows, firstly, that all over the country the average age at marriage is rising and the percentage of farmers who remain single all their lives is increasing. Secondly, this phenomenon is more pronounced among the comparatively rich counties in the East of Ireland than in the West and South. Thirdly, in all counties, the age at marriage is greater and the percentage who remain single all their lives higher among the smaller and poorer farmers than among their richer neighbours.

Every farmer feels it incumbent upon himself to arrange for an equitable distribution of his property among all his children at his death. This seems to be a matter of greater difficulty in the East than in the West and South, probably because in the latter areas the children expect to have to make their living more by their labour or talents than by the possession of property. But in all areas it is a matter of difficulty, and in any area the smaller the farm the greater the difficulty.

This question of providing portions for children is responsible for much of the chronic shortage of capital from which agriculture suffers, and for a great though mostly unrecognised part of farming indebtedness. Furthermore, it is the cause of much direct economic loss to the country as a whole, owing to the large number of farms in the hands of aging unmarried persons who are incapable of working their land to the best advantage.

In so far as emigration may facilitate the marriage of those of the farmer's children who remain upon the land, it is not altogether an un-mixed evil. It is interesting to speculate on what would be the effect upon the marriage rate and upon the rural standard of living if emigration for any reason were no longer to be possible.

Discussion on "Financial Results on Mixed Dairy Farms in 1942-43 as compared with 1938-39" by M. Murphy, M A , B Comm , Lecturer in Dairy Accountancy, University College, Cork, on Wednesday, 24th May, 1944.

Professor T. A. Smiddy said that Mr. Murphy has shown the substantial increase in the gross and net value of the output in 1942-43 as compared with 1937-38 as also an increase in the costs. This increase in output is largely the result of increased prices for nearly all agricultural products. In this respect the trend of his findings is substantially in accord with the figures published for the whole of the country by the Statistical Branch of the Department of Industry and Commerce when the estimated value of agricultural output for 1942-43 increased by £32½ million as compared with that of 1938-39, i.e., 61%. He also shows that in the five year period the volume of gross output decreased by 11 per cent, but the volume of net output increased by 7.4 per cent.—viz., having deducted from the gross volume, fertilizers, seeds, feeding stuffs purchased to supplement intra-farm production resources, which were substantially less in 1942-43 than in 1938-39. Again, we have substantial agreement in trend with similar figures for the whole of the State as indicated in the Trade Journal, June, 1940 and December, 1943, which shows that the gross volume of output decreased by 7.7 per cent. while, as the Minister for Agriculture recently stated in the Dail, the volume of net output increased by 9 per cent. between 1938-39 and 1942-43. It is worthy of

note that notwithstanding the fact that the figures given by the Minister deal with the State as a whole including farms operated under different conditions from those dealt with by Mr. Murphy, the national average and Mr. Murphy's average for gross and net outcome are substantially comparable, though one would expect the volume of output would be greater in the farms Mr. Murphy examined as these farms are better than those in the country as a whole and are served by an excellent creamery. One must bear in mind that since 1939-40 there has been a substantial decrease in male labour in rural areas so that we have maintained our physical output with less labour which suggests in normal times a redundancy of labour in some districts, perhaps, the Congested areas.

The volume of agricultural production has been static for a period of fourteen years—no increase during that period in real wealth. Evidently, there are some very fundamental forces at work to render agriculture so inelastic to price influences. Even the low prices that obtained for agricultural products during the world agricultural depression did not decrease physical output by more than 5 per cent., nor did higher prices raise it beyond 5 per cent.

It is essential to ascertain what are the obstacles—structural, technical, social, economic, educational and psychological—which render our agriculture so static, and, having ascertained them, the real problem is to devise methods by which farmers may be induced to adopt measures to increase their efficiency. We have farmers in nearly every part of the country, small and large-size farmers, who are highly efficient and comparable to the best in any country, yet, they do not seem to influence their neighbours to imitate them. The solution of the problem is not simple but highly complex and must be approached from many angles. Again, we must be aware of the fallacy of assuming a capacity for uniformity of efficiency in farmers, and no more assume such uniformity than we do among shop-keepers or manufacturers. Farmers, like all human beings have varying aptitudes, inherited and acquired, good luck or ill luck, various degrees of industry and of thriftiness, and one cannot, therefore, hope for, in practice, the theoretically best possible. This diversity of ability among farmers was brought out by Mr. Murphy in his paper on the Financial Results on Sixty-One West Cork Farms in 1940-41 read before the Society in April, 1942, where he shows that on farms of approximately the same size, there existed substantial differences in the "total labour income" per farm. An extension of the work of Mr. Murphy to many other areas in the State would give data which would help to ascertain the reasons for the static condition of our agriculture.

So far, there has been no serious attempt to inaugurate a scheme to secure financial and other data relating to the costs of agricultural products. The figures published by the Statistics Branch of Industry and Commerce are indispensable for any student of agricultural economics but they are not intended to achieve the purpose Mr. Murphy had in view, viz., ascertaining the costs of agricultural products to individual farmers. We have no data on the subject except the surveys made by Mr. Murphy of 93 to 55 farms in North Cork-Limerick border and 61 farms in a district in West Cork, and these were dairy farms which are not representative of many other parts of the country. The absence of such data does seem strange when the Government needs facts on which to base the guaranteed prices of various agricultural commodities—for milk, wheat, beet, etc. Even such data are necessary to ascertain the size of a representative

farm that would give a farmer and his family a frugal but healthy existence, and thereby give guidance for the division of land. In 1934 the Milk Marketing Board of Great Britain inaugurated a scheme to ascertain costs of milk, and provided funds for the purpose. Many interim reports have been published on the subject up to the end of September, 1940. It is interesting to compare some of the results of this inquiry with those of Mr. Murphy as regards the cost of milk. In the first two years of the scheme—1934-35 and 1935-36—the largest number of costs were between 8d. and 9d. per gallon; in 1936-37, between 9d. and 10d.; in 1937-38, 10d. and 11d.; and in 1938-39, 9d. and 10d. per gallon. Cost of management and interest in capital invested in land and buildings are excluded. The Oxford Agricultural Economics Research Institute, 1943, published a Study of Variations in Costs of Milk Production, 1934-35 to 1938-39. The figures contained therein refer to about 600 farms in each year producing for the wholesale market. The Market Board realized the necessity of a study at first hand of costs of milk production with a view to price-fixing.

If the Government policy is to fix prices of any agricultural product it will be acting largely in the dark if it has no data on which to base its price. Hence, the necessity for the more general application of the method of survey adopted by Mr. Murphy—to be applied to some thousands of farms characteristic of the varying conditions under which farming is conducted and in different localities. Mr. Murphy has pointed the way and shows the method and technique of ascertaining such costs. An extension of Mr. Murphy's work throughout the country in co-operation with and under the appropriate Minister suggests itself to one as desirable and feasible. A beginning could be made in the dairy districts and be gradually extended to non-dairying areas. A national survey such as Mr. Murphy's would incidentally give much valuable information of a social and general economic character. One cannot express too much admiration or give too much encouragement to Mr. Murphy for giving such a lead in an inquiry into agricultural costs.

Lieut.-Col. K. E. Edgeworth : I am not a farmer, but I have listened with considerable interest to discussions on agricultural matters before this society, and it seems to me that there may be something which students of economic problems in general can usefully contribute to these discussions.

Agriculture resembles any other field of study in that it can be helped by the adoption of scientific methods, and one of the outstanding principles of scientific study is the use of precise measurements of those quantities which are relevant to the point at issue.

One of the fundamental factors in connection with production, whether agricultural or industrial, is technical efficiency. In the case of agriculture in this country, the farmer must sell a part of his output in the international market, and he must do so at a competitive price. If he is unable, for any reason, to produce as much as his international competitors, he will either lose the market or he must accept a lower standard of living than that which prevails elsewhere. And if the standard of agricultural living is low, the rural population will gradually migrate from the land into the towns or they will leave the country altogether. In the last resort all rural problems, such as the improvement of the amenities of rural life reduce themselves to the same common denominator. If agriculture is efficient and therefore profitable, money

is available to pay the farmer a decent wage and to supply these other things as well, but not otherwise

It follows that the fundamental factor which should be employed in measuring agricultural efficiency and agricultural prosperity is, not the total output of the country, nor the output which is physically possible, nor the output per acre, but the *output per worker*. This factor, when it is known, can be used for the purpose of determining the prospects of agricultural prosperity, for measuring the efficiency of production and comparing it with that of other countries, and last but not least it can be used for deciding whether one type of farming is better or worse than another type of farming. In making the actual comparisons the cost of capital must of course be taken into account, but it is not necessary to dwell on this point as it is of course fully recognised.

The next point to which I wish to refer is the importance of collecting actual facts relating to the efficiency of production in this country. The results obtained in Denmark and New Zealand are of course of very great interest and importance, but, in attempting to apply them to this country, there are too many differences in soil and climate to make these comparisons entirely reliable. What is needed is precise information as to what can be and is being done in this country, and here we come up against the serious snag that the average farmer has neither the time nor the aptitude for keeping accounts.

I now come to Mr. Murphy's paper, and I am not going to take up time in trying to pay Mr. Murphy the compliments which he so obviously deserves. Perhaps his most remarkable achievement is that he seems to have solved the problem of how to get a farmer to keep accounts. He has also provided us with precisely the type of information which is necessary in order to discuss agricultural problems intelligently and to pass judgment on what is happening.

What is evidently needed in order to place agricultural production in this country on a proper scientific basis is to extend the methods which Mr. Murphy has developed to other problems and to other parts of the country, so that accurate and reliable answers will be obtainable to the many questions which are now the subject of so much vague controversy. The questions to be answered would no doubt include the following —

- (i) What is the type of farming, or more particularly what is the type of output, which will give the highest output per worker on various types of land, due allowance being made for the cost of capital?
- (ii) What are the most efficient methods for securing this type of output?
- (iii) What increase of output per worker is likely to be secured by the adoption of improved methods?
- (iv) How will the improved output per worker compare with the output of possible rivals such as Denmark and New Zealand?

Dr. Collis referred to pages 35 and 36 of Mr. Murphy's paper where the calf mortality rates were given. He pointed out that the figure of 24 per cent is extremely high and when the stillborn and abortions are taken into consideration as well the enormous mortality among the herds really amounts to a matter of great importance. He felt that with proper measures the mortality rate could be reduced by half. To do this, however, it would be necessary first of all to give special courses to the veterinary surgeons and then to educate the farmers in both hygiene and the necessary preventative measures.

The importance of reducing the mortality rate could not be exaggerated as the milk industry was one of the main bases on which the health of the community rested. At present the milk supply in Dublin was half as plentiful, twice as expensive and twice as dirty as it should be and this could only be remedied by great increase in supply and complete reorganisation of methods used.

Finally Dr. Collis congratulated Mr. Murphy on his paper and thanked him particularly for the section dealing with the mortality among the calves as tending to give publicity to a subject which has been neglected in the past.

Father Coyne : In answer to Professor Smiddy's query why Irish agriculture is so inelastic and will not respond to a very sharp rise in prices by a corresponding rise in the quantity of material products, I should like to suggest that the answer is comparatively simple. Until the Irish farmer has a great deal more of three essential elements at his disposal he will not be able to do what he would most willingly do, increase his material production whenever prices rise. These three elements are education, organisation and capitalisation. I put them in this order because unless we increase a particular type of education, unless we give to the farmer a peculiar body of knowledge relatively modern, it will be impossible for him to make full use of organisation and it will be dangerous for him to put himself into debt by increasing the application of capital to his farm. There are half a dozen points on which a great deal more technical education is required by the farmer, such things as grass technique, the feeding of livestock, the breeding for special purposes and knowledge of diseases and their prevention. As to organisation, the I.A.O.S. believe that the type of organisation which they look after is the one likely to give most return. Moreover, this organisation is being used as you have heard, for the purpose of conveying right up to the farmer's hall door that particular type of education which he most needs. We have many farms for demonstration purposes attached to the creameries and you will have seen to-day how Mr. Noonan has placed at the disposal of Mr. Murphy all the facilities for scientific examination of the financial side of the farms. Finally, the Irish farmer must have a great deal more capital at his disposal, capital that is, which he can use for the purpose of his industry and which he can obtain at a figure comparable to the return which agriculture gives. With regard to Mr. Murphy's paper there are two or three questions which I would like to put to him. I take it personally, and I presume that he does too, that the whole object of ordered Government is what Henry IV of France said it was "to hang a fat chicken in front of the fire of every peasant" and consequently the first figure I looked at in his paper was the figure of the total labour income obtained by the farmer in 1942-43. Am I correct in thinking that this total labour income is only 5 per cent. higher than that of 1938-39 if measured in volume and not by inflated price value? If this is so it means that the farmer has got an increase of 5 per cent. for an expenditure of labour which I think we must all agree must have been much greater than in 1938-39. There were many non-economical motives at work in 1942-43 to induce the farmer to work harder and to work longer and in return for that extra work he has only obtained a 5 per cent. increase in real return. The second point that I would like Mr. Murphy to elaborate is the net return volume per labour unit. This brings us back again to the question of education and capital. It seems to me that the net volume return

per labour unit has fallen surely had the labourer been equipped with greater knowledge and with more efficient instruments that return should have been very much greater. The third point which I would like to mention is the net return measured in volume per acre. In one of the diagrams Mr. Murphy gives the return per farm and here it seems to me that the net labour return has fallen considerably. As someone else has said these two figures are essential and fundamental. If Irish agriculture is to be prosperous it can only be so by lowering the cost of production, or in other words, by increasing the net output per labour unit. As I said at the beginning I know of only one way in which this net output can be increased. The labourer must be given the very latest and very best scientific knowledge to guide his thoughts and actions and we must put into his hands at whatever capital cost, the very best and most economical capital equipment and finally, we must so organise his buying and selling activities that we cut out all waste.