

THE STATISTICAL AND SOCIAL INQUIRY SOCIETY OF IRELAND.

THE NEED FOR TECHNICAL EDUCATION.

With Special Reference to Saorstát Eireann.

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Technical Education is as old as industry and industry is as old as man. At all stages of economic development the individual required to be instructed in the operations of the task by which he, as a producer, justified his right to a livelihood. In its earliest form this instruction would be of a very primitive nature, for example, how to fashion rude weapons of the chase or of war, or how to make and set a trap. The development of social and economic life gave rise to increased variety of demand and increased intricacy in the production of goods to meet this demand. Thus, in due course, arose more urgent necessity for technical education, and hence the gradual evolving of the apprenticeship system, which system found its fullest development under the Craft Guilds. To-day production methods, whether applied to agriculture, manufactures, fishing, mining or transport, are so complex as to require the employment of only the fully qualified and highly skilled worker of every type and grade.

The difference then between the present day need for technical education and that of earlier times is merely a matter of degree. Modern conditions have intensified the need for technical education. Every State, therefore, should recognise this need and cater for it in a sound, progressive and comprehensive manner for the economic welfare of its citizens. Capital invested in education gives a greater return than in any other kind of investment.

Under any economic system man, in the long run, can only enjoy what he produces. Capital not only must be kept intact, it must be continually improved upon and added to. Only the net wealth produced can be divided amongst the agents of production, and the greater the wealth produced the greater the share for each and everyone. This is a fundamental and simple fact, but it leads to

* Throughout the Paper the word "Report" refers to the Report of the Commission on Technical Education, Saorstát Eireann (1927).

the important conclusion that all economic effort should be directed to the accumulation of as big a wealth heap as possible, and by the easiest possible methods. The ideal should be maximum productivity with minimum effort. The attainment of this ideal depends largely upon the efficiency of the Gifts of Nature, Capital, and Labour used in the production effort. All these agents are indispensable, but labour plays the most important part, and rightly gets the largest share. It is of the greatest importance, therefore, that labour be efficient.

In these days of large scale production and of international markets, it is only those producing groups that can place their goods on the market at competitive prices that can hope to live and flourish. Low prices are only possible where production costs are low, and this state can only be obtained where the labour and other agents of production are highly efficient.

In this connection the term labour includes all the workers who contribute personal service, that is to say, all those in receipt of payment by way of wages, salaries and fees.

The employee and the employer jointly contribute to efficient labour power. The employee, to be efficient, must be fit—physically, technically, intellectually and morally; in addition to this, he must be willing to put forth his best effort. In short, he must have the power and the will to work. The employer, be he sole proprietor or representative of Joint Stock interests, must possess in his sphere of organisation and management like qualities to those required of the employee.

These preliminary remarks are made to bring into relief the need for Technical Education and to emphasise that its main function is the creation of technical efficiency. Technical Education should offer to all citizens, especially to the young citizens, facilities to obtain instruction in the theory, and to some extent, the practice of whatever trade or calling they intend to adopt or have adopted, as a means of livelihood. If this view be accepted, then there is practically no limit to the activities that properly may be included in any scheme of technical education. It will embrace all grades and types of workers engaged in Trade, Industry and Commerce. Within the last thirty years practically every State in the world with any pretensions to modern civilisation has instituted and controlled a system of technical education. It is quite arguable that this is not the duty of the State but of Industry, and, as a matter of fact, many industries do shoulder this responsibility, and do it well, but in

the main such training is confined to the workshop and factory, and is severely practical and narrow. It aims merely to produce a mechanically accurate operator or tradesman. There is no wide outlook or vision. Inferior methods of training, coupled with a parochial outlook, were bound in time to react adversely on Industry as a whole, with consequent ill effects to the economic life of the State. The State, therefore, was forced to take action, hence arose State responsibility for Technical Education.

Although Industry has its very definite obligations in the training of its young employees, and should fully meet such responsibilities, it is sound policy for the State, through Central and Local Government, to frame and administer its schemes of Technical Education. The State alone can dictate policy, enforce compulsion, weave together conflicting interests and provide a scheme of finance. Under State control it might be said that the individual is called upon to bear an undue proportion of the cost of Technical Education and for the benefit of private industries and enterprises. Such a view merely takes account of surface conditions. Technical Education cannot benefit one class of the community without benefiting all classes, nor can the lack of it hurt one class without hurting all classes. All education is reflected in every thought and action of our economic and social life, and the result will be good, bad or indifferent as the education is good, bad or indifferent.

Primary Education.

The Primary School, using the term primary to mean all education up to 14 years of age, is the corner stone of all educational systems. Every child comes under its influence. The whole nation is moulded by the character and nature of its primary education. In the narrower sense of free education the vast majority of the population pass through the Primary Schools, these exercise, therefore, an enormous influence on our national thought and character. The students leaving the Primary Schools should possess a true sense of citizenship and a good sound education. By citizenship is meant a high moral tone, a correct view of rights and duties, and an inherent belief that one's future prospects and career are matters of personal courage, endeavour and ambition, and not something that depends upon State aid and spoon-feeding. The education must be such as will form a good foundation upon which may be erected the structure necessary to full efficiency in the chosen career. An educationalist once said: "There must be no specialisation in the elementary schools. Make the

children advance over a wide front; give them different aspects and a great variety of interests in life's work." These are wise words and worthy of serious thought.

As a preliminary therefore to Technical Education, it is essential that Primary Education should be sound, of good standard, and strictly compulsory. Reading, writing, arithmetic and drawing are essential subjects. It is regrettable that in Saorstát Eireann drawing is only an optional subject, with the result that in most Primary and, indeed, Secondary Schools, it is omitted from the courses of instruction. Apart from its educational value drawing is fundamental to Industry and Commerce. In the words of the *Report, "It is virtually the language of the skilled tradesman and craftsman." Until it is restored to the Primary School Programme as an obligatory subject, it cannot be agreed that the primary students are being adequately prepared for the business of life, or that they bring fully-equipped minds to the Technical Schools.

As to standard it is obvious that the higher the standard the better the student will be equipped for continuation work. The important thing is that the standard should be level. That is to say, high proficiency in one subject and comparatively low in others, is infinitely worse than a moderate all-round, but withal a level standard. An uneven student is very difficult to handle. He or she will not fit into any general scheme of work, and a weakness in a given subject tends to be accentuated unless special counteracting means are taken, and this is not always possible in school administration. The absence of drawing from the Primary School work produces uneven students from the point of view of the Technical School.

With a sound programme of work, a good level standard and strict compulsion a student leaving the Primary School at 14 years of age will be ready for the next step in the educational ladder, viz, the Continuation School.

Continuation Education.

Under existing legislation the young citizen at 14 years of age is freed from all compulsory education control. Further study is optional and depends upon circumstances. In the vast majority of cases the parents, moved by economic necessity, or acting in the belief (based on the fact that 14 years is the statutory leaving age) that all the necessary education has been obtained, endeavour to find employment for the child. On the whole, he is too young to be apprenticed to a trade, apart from the fact that the chances

of entry to any trade are very limited. The youth, and particularly the city youth, aimlessly loaf about the streets wondering, with a dull, injured mind, "when is something going to turn up." He may sell newspapers, though here again vested interests are jealous of newcomers; he may get a job as a casual messenger at 5/- per week, or enter some such blind alley occupation. If lucky, he may provide the motive power to a heavy bicycle wherewith to transport commodities from the small retailer to the consumer.

On the whole, no job will turn up and the youth will just drift about and eventually, disappointed and disillusioned, be forced into the ranks of casual and unskilled labour. He is now at war with society, for he feels that somehow or other he has not been given a square deal.

Some big comprehensive effort is needed to cope with this situation, to fill the gap between the school-leaving age of 14 and the average employment age of 16 years, to raise the general standard of education, to direct thought and ability to a practical end, and generally increase the efficiency of labour power. The most ready solution seems to lie in Continuation Schools. These would provide boys and girls between the ages of 14 and 16 years with instruction of a non-specialised pre-employment nature. The programme would be of a general character, with one or more practical or vocational subjects included. The object of instruction in the practical subjects would be to develop manipulative skill and interest. Such schools should be the means of directing the thoughts of the students to their future and be a help in the choice of a career. They would not be definitely vocational, but would have a decided bias in that direction.

The following are the main problems arising out of the establishment of Continuation Schools:—(1) Are the schools to be whole or part-time, or both? (2) What type of schools are to be set up, and how are students to be guided to the type of school that is best suited to their needs and abilities? (3) How far is attendance to be compulsory?

When boys and girls reach 14 years of age economic necessity demands that they be free to enter into immediate employment if such should offer, but it does not follow that they should be freed from all educational control. The ideal would be to continue the control of all young people up to 16 years of age. Under such a system both whole and part-time continuation schools would be necessary. Part-time to deal with those young people who enter employment between the ages of 14 and 16 years, and whole-time to cater for all who are not yet employed or attending

a school between the ages of 14 and 16 years. In the case of the part-time schools the classes, according to circumstances, would meet part-time daily, or whole-time daily for a certain number of days in each year. Distances and local conditions to be the deciding factors.

The Report recommends that the Continuation Schools should be of four main types (1) Junior Commercial. (2) Junior Technical. (3) Junior Domestic. (4) Junior Rurals. It is possible that Junior Testing Schools would also be required.

The subjects from which a suitable programme might be planned for any of these schools are as follows:—

Woodwork.	Drawing.
Metalwork.	Irish.
Art Craftwork.	English.
Cookery.	Geography.
Sewing.	History.
Laundrywork.	Mathematics.
Housecraft.	Book-keeping.
Hygiene	Office Routine.
Rural Science.	Citizenship.
Science.	Shorthand.
Physical Culture.	Typewriting.
Music.	Net-making and mending.

It is desirable that only nine or ten of the above subjects be included in the programme of any whole time school, and from four to five in a part-time school. The actual subjects chosen would reflect the needs and nature of the school and of the locality.

The question of enrolment into the Continuation Schools is important. Boys or girls of 14 years of age may or may not have ideas as to their future careers and preferences as to the particular occupations they wish to follow. It is questionable whether vocational guidance in the strict sense should be attempted at entry to the Continuation School or at the end of the Continuation School period. The latter appears to be the better plan. Young people then are ready to enter a trade or occupation, and have had, through the medium of the Continuation Schools, some training of a vocational nature, and therefore their ideas on the subject of a career should be more definite. Perhaps the most that can be said is that the parent, after consultation with the boy and the Primary School teacher, should direct the young person to that type of Continuation School which appears to be most suitable to his abilities,

ambitions and prospects, and which will thus be a source of inspiration and guidance for the future.

As a general rule in rural areas the obvious choice for boys should be the Junior Rural Continuation School. In industrial centres a strong effort should be made to direct boys to the Junior Technical Continuation School. Girls have the choice between Housecraft and Commerce, but by pressure and encouragement the majority might be induced to take the Domestic subjects. Boys who can show a very definite reason and inclination could be allowed to specialise in Commerce.

The question of compulsory attendance at the Continuation Schools, whole or part-time, raises many points. It is a simple matter to say that compulsion is necessary, and is the only adequate method. This may be so, but the circumstances of parents, the financial problem, the lack of buildings and of trained teachers, all present immediate barriers of considerable difficulty.

It seems quite clear that boys and girls who have left the Primary School and are not employed or engaged in any educational work should be made to enter a whole time Continuation School. In fact the advantages are so great that it is difficult to see why compulsion should be necessary. Under ideal conditions, where all parents are fully alive to the necessity of keeping the time and the minds of their children usefully occupied, and where proper parental control is capable of being exercised, compulsion would not be necessary. But it must be admitted that this ideal does not exist, hence the necessity for compulsion.

Young people who obtain employment before the age of 16 years are too immature to be freed from educational influences. Employers, generally speaking, should insist that their young employees attend a part-time Continuation School for a minimum number of hours each week and during the period of the working day. The advantages to the employer are so obvious that compulsion should not be necessary, but not all employers are ready to take the long view, therefore with employers, as with parents, the necessity for compulsion arises.

The Report states: "A PROPER SYSTEM OF CONTINUATION EDUCATION IS OF VITAL IMPORTANCE TO THE SOCIAL AND ECONOMIC WELFARE OF THE PEOPLE, AND ITS ORGANISATION MUST BE UNDERTAKEN WITHOUT DELAY."

The Report recommends that "a System of practical

Continuation Schools and classes should be established to educate young people between the ages of 14 and 16."

"That facilities be provided for both whole time and part-time education."

"That as soon as the necessary accommodation and staff are provided, attendance at Continuation Classes should be made compulsory in any locality in the following manner:

- (a) **WHOLE TIME ATTENDANCE IN URBAN AREAS** for all young people between 14 and 16 who are not in employment, only those in approved employment to be exempted.
- (b) **PART-TIME ATTENDANCE IN URBAN AREAS** for a minimum of 180 hours in each year of the period for all young people between 14 and 16 in approved employment.
- (c) **PART-TIME ATTENDANCE IN RURAL AREAS** for a minimum of 180 hours in each year of the period for all young people between 14 and 16."

These recommendations have as their ultimate goal the raising of the school-leaving age from 14 to 16, but not necessarily with whole time attendance in the last two years. The work of the Continuation School will be to broaden and deepen the knowledge gained at the Primary School, and at the same time through the medium of vocational subjects, prepare pupils for entry to the Technical School. The important thing is that all young people up to 16 years of age would be subject to educational control and influence.

Co-ordination.

All young persons up to 14 years of age may be said to be receiving Primary Education. At 14 years a distinction arises between those intended for professions and those who look to Trade, Industry and Commerce to provide a career. Generally speaking, the Secondary School proper will cater for those preparing for a profession and the Continuation School with its specialised branches for those seeking entry to a Trade, Industry or Commerce. At the end of the Secondary School period the doors of the University are open, and at the end of the Continuation School period the Technical School offers vocational training for all who need it.

This is true co-ordination in education and is an ideal to which we all can subscribe with whole-hearted agreement

The Work of the Technical School.

The Technical School will provide the specialised and vocational instruction required by those who have, in general, passed through the Continuation School, or the Secondary School, are over 16 years of age and have a definite career as their objective. At the same time the Technical School, especially in the first and second years, should develop the general and cultural side in such a manner and to such a degree as may be necessary to give the student a wide and generous outlook on life.

A fundamental principle of all Technical School work is that, to be effective, it must be linked up with the actual and practical life of Trade, Industry and Commerce.

To attain this desirable end an investigation of occupations should precede the setting up of a Technical Education Scheme in any area. We are particularly fortunate in this respect in Saorstát Eireann, where the recent issue of the second report of the Census of Population and the Preliminary reports of the Census of Production now in course of issue, provide much information which will be of invaluable help and service.

Apart from the local problem it is possible, from the point of view of the whole country, to classify occupations under six main heads (1) Agriculture, (2) Skilled Trades, (3) Factory Workers, (4) Craft Work, (5) Commercial pursuits, (6) Domestic work.

The importance of the agricultural worker in our scheme of economic structure is emphasised by reference to the fact that of every 1,000 occupied persons in Saorstát Eireann 514 are engaged in Agriculture. It is clear, therefore, that any Scheme of Technical Education must seriously and whole-heartedly cater for this type of occupation.

The Report, assuming that instruction in agricultural subjects proper should remain under the control of the Department of Lands and Agriculture, states:

“The majority of the farms in the Saorstát are small farms, and the farmer has to be acquainted with many operations of a technical character other than those connected with the actual working of the land. He requires a knowledge of woodwork, the making of fittings and furnishings for the homestead, metalwork, simple building work, especially in concrete, the use and care of motor engines, and possibly map reading and surveying. We recommend that the Department of Education should extend the scope of the instruction given by itinerant teachers to embrace subjects enumerated above, and that

activities on these lines should be intensified by the employment of increased staffs."

"A similar intensification is required in the work carried on in the county technical schemes by the domestic economy instructresses."

"While it is obvious that the bulk of the instruction must be carried on in local courses by itinerant teachers, we are of opinion that it is sound educational policy to encourage attendance at residential schools of Rural Domestic Economy. There are at present in the Saorstát twelve such Schools, all of which are under private management."

"We are of opinion that the number of Schools of Rural Domestic Economy should be increased; that attendance thereat of young girls of the farming community should be encouraged by a scheme of county scholarships; and that in the curriculum of all such schools Poultry-keeping and Butter-making should occupy a no less prominent place than these subjects occupy in the schools now subsidised by the Department of Lands and Agriculture. Instruction in Gardening and Bee-keeping should also be provided"

"There are certain trades associated with agriculture, the most important of which is that of the smith. It is necessary to increase the number of expert farriery instructors employed by the Department of Education. The new instructors should be fully qualified farriers, preferably with an intimate knowledge of the methods of effecting repairs to agricultural machinery."

"Technical Education in so far as it relates to the farming community and to those who live in rural areas must generally remain on a basis of voluntary attendance"

Skilled Trades.

The supply of properly-trained and fully competent tradesmen to the skilled trades is of prime importance. The whole question is bound up in the Apprenticeship System, and this presents problems of much difficulty. How is a boy to obtain apprenticeship? What are apprenticeship conditions to be? How are the interests of the employers and workers to be reconciled? What system of education and training is to be adopted? What qualifications are necessary for recognition as a journeyman? In how far, if at all, should the Industry bear the cost of educating the apprentice?

Though it is not possible to discuss all these questions in detail within the limits of this paper, some attempt may be made to cover the ground in a general manner.

Generally speaking, the existing Apprenticeship System in this country is inadequate from every point of view. No

entrance standard of education is required. No theoretical training during apprenticeship is obligatory, and at the end of the apprenticeship period no efficiency test is required. Yet all these are absolutely essential to the production of a highly-trained and efficient tradesman.

At the present time the only Day Apprentice School in Saorstát Éireann is that established at Bolton Street under the City of Dublin Technical Instruction Committee. By arrangement with the Employers' and Trades' Associations a certain number of vacancies for apprentices are allotted to the Day Apprentice School each year. A competitive entrance examination is held and successful candidates receive free training for two years, together with a payment of six shillings per week for the first year and eight shillings per week for the second year.

All classes meet in the day time. Instruction covers thirty hours weekly for 44 weeks in the year; approximately one-third of the time in the first year, and two-thirds in the second year are devoted to practical and theoretical training in the trade for which the boy is preparing.

On the conclusion of the two years' course the boy is allocated as a third year apprentice to a workshop.

It will be noted that under this Scheme entry to a Trade is by competitive examination; no premium is required and the whole Scheme depends upon voluntary co-operation between the Education Authority, the Employers and the Workers.

The Trades in which training has so far been or is now provided are:

Plumbing, Carpentry, Printing, Mechanical Engineering, Electrical Engineering, Metal Plate Work, Cabinet Making, Painting and Decorating, Motor Car Engineering, Quantity Surveying, Brass Finishing, Bricklaying, Watch and Clock Making, Handicraft Tailoring, Hotel Workers

The Scheme is confined to boys resident in the City of Dublin, but by arrangement between the City of Dublin and the Rathmines Technical Instruction Committees Rathmines boys are now eligible to compete.

This Day Apprentice School is an excellent pioneer effort. All concerned in its establishment are deserving of the highest praise for their vision and ability in drawing up an agreed scheme, but by reason of its voluntary nature and restricted scope of activity, it cannot be regarded as a final solution to the apprenticeship problem.

Apprenticeship Acts are a prominent feature of modern industrial legislation. Germany and Denmark led the way,

and now Acts are in operation in Switzerland, Hungary, Finland, Queensland, New South Wales, New Zealand, South Africa, U.S.A., and Canada, France, Italy.

The main object of the Acts operating in all these countries is to produce highly trained and skilled tradesmen, and thus increase productivity in Industry. Conditions of the Apprenticeship Contract, entrance standard of education, efficiency test at end of training, proportion of apprentices to journeymen are all provided for. Also, in most cases, Advisory or Apprenticeship Committees, representative of Masters, Men, and Government, are set up to advise and control the whole system.

The following information in reference to the Queensland Act (1924) is extracted from the Report:

“That no minor may be employed in any of the scheduled trades except under the conditions laid down by the Act. Every person desirous of becoming an apprentice must notify the Director of Labour who is responsible for keeping a register of all such persons, and every employer desirous of obtaining an apprentice must make application to the Director of Labour, and must select as an apprentice only a person whose name is already registered. Every apprentice must be employed for a probationary period so as to determine his fitness or otherwise for apprenticeship.”

“An Apprenticeship Executive, consisting of representatives of employers and of unions, together with representatives appointed by the Minister, is under this Act appointed to advise the Minister as to:—

- (1) The trades or industries which should be scheduled.
- (2) The grouping of trades.
- (3) The character of entrance examination which may be prescribed for apprentices, and
- (4) Any matters bearing on general principles of apprenticeship.

This Apprenticeship Executive collaborates with the special apprenticeship committees appointed by the Minister for each trade or group of trades. The latter committees consist for each trade of equal numbers of representatives appointed by the employers and by the unions of employees in the trade or group of trades to which the committee relates. The duties of these apprenticeship committees include the following:—

- (1) To receive from the Director of Labour the nomi-

nations of entrants for each trade or group of trades;

- (2) To advise the Minister as to the apprenticeship of each nominee and his indentures;
- (3) To make recommendations as to the matters to be taught to apprentices, as to the examinations which should be passed by apprentices during their period of training, and as to the granting of final certificates of competence.
- (4) To advise as to the educational facilities that should be provided during the prescribed period of training;
- (5) To make recommendations as to the supervision of the facilities provided by employers so that apprentices may become proficient in their trade.

At the end of the period of probation, if it is mutually agreed upon by the employer and the legal guardian of the minor, the minor may become an indentured apprentice. Special rules are laid down in the Act in regard to indentures, and compulsory attendance at technical schools is provided for. The mutual duties of employers to apprentices and of apprentices to employers, are also dealt with."

"The Trades scheduled in Queensland in the 1924 Act are as follows:—

Bread, Baking and Pastry.—Cooking.

Boot Trade.—Clicking, Stuff cutting, Making, Finishing.

Building.—Bricklaying, Carpentry and Joinery, Painting, Sign Writing, Plumbing, Stonemasons' work, Plastering.

Coach and Motor Body Building.—Coach and Motor Painting, Coach and Motor Smithing, Coach and Motor Body Building, Coach and Motor Trimming, Panel Beating, Wood-machinist in coach and motor body building.

Clayworking.—Pottery, Modelling.

Clothing.—Order tailoring for males, Order tailoring for ladies, Ready-made clothing for males, Women's order dress-making, Ready-made tailoring and ready-made dressmaking. Underclothing and white work of all descriptions except knitted goods, Collars, shirts and pyjamas, Head wear and millinery, including straw hats; Dyeing, cleaning and repairing.

Confectionery.—Cooks (as covered by the Hotel, Club and Restaurants Award, the Boarding-house Employees Award, and the Railway Refreshment Rooms Award).

Coopering.**Dental Mechanics.****Electrical.**

Engineering.—Fitting and turning, Moulding, Pattern-making, Motor Mechanics' work, Blacksmithing, Boiler-making, Copper-smithing.

Furniture.—Cabinet-making, French Polishing and Staining, Wickerwork, Wood-turning, Wood-machining, Venetian Blind-making, Bedding-making, Upholstering, Glass Beveling.

Leather.—Harness-making (including strapping), Riding, Saddle-making, Buggy Saddle-making, Collar-making, Bag-making (including clicking), Trunk and Case-making, Fancy Leather working and sporting goods making, Machine belt-making.

Musical Instrument Making.—Piano and reed organ tuning and repairing, Pipe organ building and tuning, Polishing.

Printing.—Composing, Letterpress Machining, Bookbinding, Lithograph, Process Engraving.

Sheet Metal Work.**Watchmakers, Jewellers, and Opticians."**

The Report states that "the principles underlying the South African and Queensland Acts indicate the best method of dealing with the problem of industrial training and apprenticeship in the Saorstát," and makes the following recommendations:—

- (1) "An apprentice to a skilled trade should not be engaged until he has reached a standard of proficiency that should be attained by completion of a course at a whole time Continuation School."

Here the attempt is made to raise the general level of the Education of the apprentice.

The trades to which an Apprenticeship Act would have immediate application in this country probably would include most of the following:—(1) Building and Allied Trades. (2) Mechanical Engineering. (3) Electrical Engineering. (4) Motor Garage Work. (5) The Printing Trade. (6) Hotel and Restaurant Work. (7) Watch and Clock making. (8) Handicrafts Tailoring. (9) Dress-making, etc. These recommendations get to the root of the whole problem, and, if given legislative sanction, will in time prove of enormous benefit to the skilled trades and to the country as a whole.

- (2) "Attendance at a Technical School should be made compulsory in the first two years of apprenticeship to skilled trades and that attendance should be of not less than 180 hours of day-time instruction in each year, and that instruction be part-time or whole time in accordance with the advice of the Apprentice Committees."
- (3) "That legislation should provide for the scheduling of trades, the registration of apprentices, and the appointment of Statutory Committees for each trade or group of trades to advise on all matters relating to apprenticeship, industrial training, and means of entry to industry. That the functions of a committee should include advice on such matters as the proportion of juveniles to adults, the length of the period of apprenticeship or learnership, the prescribed form of indenture, the age of entry, the standard of education on entry, the opportunities in the workshop or factory for learning a trade, the arrangements for attendance at technical classes, and the special type of education that would appear to be most suitable."

"The apprentice committees should be appointed by the State and should consist of equal numbers of representatives of employers and of workers, should have an independent Chairman, and should have as members Officers of the Department of Education and of the Department of Industry and Commerce."

Higher Technical Education.

The Report emphasises the importance of higher technical education and points out that to a large extent successful industrial development and an appreciation of the value of Technical Education to the State is in the hands of those who have received the highest form of technical training.

The following important recommendations are made:—

- (1) "The extension of the schemes of Technical Education in Dublin, Cork and Limerick, to include full-time day courses of secondary technical character. These courses should be of three years' duration and should be open to students who have followed a full-time continuation or secondary course, up to the Intermediate certificate standard. The courses should have a strong technological character."

- (2) "The continuance and wide development of the work that has hitherto been the function of the Royal College of Science in Ireland. Courses of university standard such as were formerly provided at that institute, as well as other necessary courses, will prepare students for positions of scientific and industrial importance, and will produce leaders in technical education, more especially on the scientific side. Rural Engineering, Mechanical and Electrical Engineering, and Applied Chemistry would form courses of major importance, but provision would also be made for the training of teachers of science and technology. Arrangements have already been made for the development of the Agricultural Faculty, but if technological courses such as were formerly provided in the Royal College of Science are not to be continued in future at the Universities, the re-establishment of a separate institute for the purpose will have to be seriously considered. It will be desirable to facilitate the attendance of non-matriculated students at ordinary technological courses, and also to provide such special courses of university standard as may be of advantage to persons interested in the development of trade and industry."

The Fishing Industry.

It is estimated that 1,000 fishermen regard fishing as a whole time occupation, and that 12,000 fishermen are partly dependent on this industry for a livelihood. Also, that some 500 boys are available for absorption, and therefore for training each year.

The Report makes the following recommendations to meet this problem:—

"The practical side of the industry will require to be dealt with by a special course of training on board ship, and we recommend that a suitable vessel be acquired for the purpose. The training should be based on the assumption that the industry will be carried on in large boats; to confine attention to the small boats at present in use would be to condemn the industry to its present position of inferiority. Admission to the course of practical training should be confined to boys who had completed the two years' course at the continuation school and had passed a qualifying examination as a result of which a number of scholarships could be awarded. Boys from the continuation schools

around the coast would compete for admission, and the vessel would frequent the different fishing grounds in the different seasons. This system has already proved successful in Belgium. On completion of the course of training on board ship, boys should pass examinations for certificates equivalent to those of Fishing Skipper or Second Hand under the Board of Trade, and of Engineer for fishing vessels under the same authority."

"In so far as the large number of part-time fishermen engaged in seasonal fishing around the coast are concerned, technical training can best be provided by itinerant instruction. One or two special lecturers appointed by the State could be sent to the more important fishing ports during the slack season, approximately, from Christmas to March, to deal with such topics as navigation, the proper handling and repair of gear, and the handling of motor engines. Generally speaking, courses of 6 to 8 weeks would be adequate."

Factory Workers.

Present day industry with its mass production and minute division of labour has reduced the task of the factory hand to such a simple process that very little training is required to make the worker highly efficient. The Technical School has no part in this work. If the worker is engaged before reaching the age of 16 years then he or she should come under the compulsory provision of part-time attendance at the Continuation School. If the worker is not engaged until 16 years, then he or she has received the benefits of the Continuation School, and the Technical School can only offer part-time and voluntary instruction in such subjects as may appeal to the young worker. These may have relationship to a general knowledge of the industry in which he or she is engaged, or may take the form of more recreative and cultural subjects. The choice lies in the hands of the worker.

The ambitious worker who wishes to climb from the ranks of the operative to that of shop foreman, sub-manager, or even manager should, in large centres, be provided with suitable and appropriate courses of instruction, to guide and help him in his desirable and legitimate effort.

Craft Worker.

Even under an economic system of large scale and mass production and of minute division of labour there are many employments in which the personal and artistic efforts of the craft worker are required. Some of these occupations, such as designing, are essential to large scale industry, others

stand apart as individual and distinct; for instance, jewelery, stained-glass work, and cabinet-making.

The value to a country of the craft worker cannot be estimated by reference to numbers and output. The influence for good he may exert on the arts and crafts, and hence on industry as a whole is incalculable and yet quite definite and material, hence a comprehensive scheme of Technical Education must meet the needs of the craft worker, notwithstanding any difficulty of restricted numbers or of expense.

COMMERCIAL PURSUITS.

The motive power of all production is consumption. To bring supply and demand into contact requires the machinery of commerce. This is fundamental whether we think in terms of domestic or foreign trade. Hence the need and the justification for a thorough and comprehensive programme of commercial work in our scheme of Technical Education.

One often hears the view expressed that the efficient business man is born and not made. It is true that personal characteristics are important and that most successful business men do possess natural abilities and characteristics which do not appear to be common to all men. But this is no argument against education in business matters. The man of average attainments may, by training, be fitted for responsible positions. The exceptional man may be equipped to be a leader of commercial enterprise, and the junior clerk may be made competent to undertake his simple duties.

In all these aspects the School of Commerce can play a valuable and important part.

A comprehensive scheme of commercial instruction should cater for the following types:—

- (1) Pre-employment students.
- (2) Post-employment students.

Pre-employment students will be those who have passed through the Junior Commercial Continuation School, or a Secondary School of similar standard, and are in general about 16 years of age. These young people may be divided into three groups (1) Those who have a definite object in view, such as entry to a Bank, the Civil or Municipal Service, an Insurance Office, or the business of parent or friend. (2) Those who are marking time until a vacancy offers. (3) Those who wish to acquire a practical and comprehensive knowledge of the general machinery of Industry, Commerce, and Transport so as to fit themselves eventually for posts of responsibility and leadership.

Day classes should be provided for all these groups, and specialised instruction offered according to the demand, and in so far as may be desirable and possible. Courses of instruction would be of one to three years' duration.

It is evident that specialised instruction can only be offered in large Urban centres, but a system of scholarships might bring the facilities within the reach of promising students resident in the smaller towns.

Post employment students, on the whole, will be over 16 years of age—probably much older. Those who are under 16 years should be subject to compulsory part-time day attendance at the Junior Continuation School, they will probably only represent a small number.

Those over 16 years should be provided, where possible, with specialised instruction through the medium of evening classes. This specialised instruction would take the form of courses of study, involving from three to five years' attendance at the School. The following suggested courses are mentioned to illustrate this point:—

Course.	Final Standard.
(1) Book - keeping and Accountancy	The final examination of the Professional Accountancy bodies.
(2) Secretarial Work.	The final examination of the Chartered Institute of Secretaries.
(3) Banking	The final examination of the Institute of Bankers.
(4) Insurance	The final examinations of the Chartered Insurance Insti- tute.
(5) Civil Service	A full knowledge of the theory and practice of Government Accounting and Finance, and of the functions of the various Government Departments.
(6) Municipal Service	The final examination of the Diploma in the Theory and Practice of Municipal Government.

(This course is now under the consideration of the Department of Education).

- (7) Languages. ... A thorough knowledge of the chosen language or languages, together with Business Methods and Correspondence.
- (8) Shorthand and Type-writing A junior course for those who have not attained sufficient knowledge in the Continuation or Secondary School.
- (9) Import and Export Trade A comprehensive knowledge of the Law and Practice of Foreign Trade—including Insurance and Government regulations
- (10) Commodities:—
The Wholesale and Retail Trade ... A commodity, or commodities, of importance in our economic life to be studied from the point of view—
Production, Manufacture and Distribution.
- (11) Auctioneering.
- (12) Transport.
- (13) Advertising and Publicity.

All the above courses, with the exception of the last four, are at the moment in operation in the Municipal School of Commerce, Rathmines. Their adoption in other centres will, of course, depend on local conditions.

Each of these courses, in addition to the main subject as indicated by the title of the course, will include a number of other subjects. For example, the fifth or final year of the Accountants' Course embraces the following:—(1) Accountancy; (2) Economics; (3) Cost Accounting; (4) Auditing; (5) Commercial Law; (6) Statistical Method; (7) Actuarial Science; (8) Joint Stock Company Accounts, Law and Procedure.

A School of Commerce to be of real utility must have the sympathy and the co-operation of business interests and of the Examining Authority. It may be observed that something in this direction has already been accomplished. The Institute of Bankers and the Chartered Insurance Institute have Education Committees which, as occasion arises, may be consulted by the School Authority. In England the

Chartered Institute of Secretaries and the Institute of Bankers accept, in lieu of their own examinations and as applied to certain subjects, the internal examinations of recognised Schools of Commerce. It is hoped to get this policy extended to embrace the Rathmines School of Commerce.

HOTEL AND DOMESTIC WORK.

The Domestic Economy Departments of the Technical Schools in Saorstát Eireann perform a very valuable and important function.

Apart from the work that may be carried out in the Domestic Economy Continuation School, and the apprenticeship work in the Technical School, a wide field still remains. Young girls require training as domestic workers, either as a paid occupation or to help in the homes of their parents or as potential wives.

It is unnecessary to enter into a long discussion to show that those responsible for running the house should have a knowledge of food values, proper cookery methods, and of all the sundry duties included under the term "housewifery." Or, to demonstrate how the real wage of the worker could be greatly increased by scientific spending and cooking. These things require no argument.

So far as local conditions permit, the Technical Schools should provide, in addition to apprenticeship work and work concerned with the training of hotel cooks, chefs, waiters, etc., adequate courses of instruction for all girls and women who seek training for the occupations of domestic servants, cooks, housemaids, nurses (of infants), and housekeepers. The Report advocates, and rightly so, that efforts should be made to bring the instruction into touch with the large mass of the working classes.

With regard to small hotels in Ireland, the Report recommends "the establishment of a residential school for girls between the ages of 16 and 18 years in centres such as Kerry, Mayo, Connemara and Donegal. In addition to the technical subjects of table service, pantry work, cookery and composition of menus, instruction should be afforded in arithmetic and book-keeping."

To meet the needs of larger hotels, courses of instruction should be provided in large urban centres. These courses would embrace hotel organisation and management, hotel accounting, catering and stock records.

Administration.

Under existing conditions Technical Education is ad-

ministered by Technical Instruction Committees nominated by the Local Corporation or Council. The State, through the Department of Education, is the final authority. This system has worked admirably. The Committees are in close touch with local needs and conditions, and are thus in a position to formulate schemes which reflect local opinion and interest, also they serve as a very necessary check on the enervating effect and stagnation which inevitably follows too much centralisation.

The Report advocates a continuance of this policy with some slight amendments as follows:—"The control of continuation and technical education should be vested in the local statutory committees of technical instruction; that these committees consist in future of twelve members, two nominated by the Department of Education and ten selected by the rating authority, of whom two should be representatives of employers and two of organised labour, and that for County Areas the membership should be increased by one member nominated by the Council of each urban district participating in the county scheme."

If higher schools of Technology and of Commerce are established with the object of serving the needs of the whole country, it is possible that the State would reserve greater control than that exercised over the ordinary Technical School.

Finance.

It is clear that if the recommendations of the Report are to be adopted in part or whole, a much larger sum than that now available must be provided for the purposes of administration, teaching and scholarships.

At present the total amount available for Technical Education in any year is somewhat less than £240,000, of which the State provides about 68%. The balance comes almost entirely from the local authorities, which under existing legislation are limited to twopence in the pound for general technical instruction purposes, and one penny in the pound for instruction in the Irish language. This total sum represents about £10 per student.

There are three main sources from which money to finance Technical Instruction might be drawn:

- (a) Individual Industries.
- (b) The Local Authority.
- (c) The State.

(a) In France, under the Finance Act of 1925, every person or company carrying on a commercial or industrial

profession, or engaged in mineral exploitation, or holding a concession of public works, is subject to a tax known as the Apprenticeship Tax, and has to contribute directly to the expense necessary to the development of Technical Instruction and apprenticeship, as well as to the expense of scientific laboratories.

The provisions of this Act appear to be somewhat drastic, and success, judged from every angle, is doubtful.

Industry contributes its quota to Technical Education through general taxation and local rates. A direct tax, therefore, would seem to impose a somewhat unfair burden and at the same time serve to destroy that spirit of co-operation and sympathy which is essential to the success of any scheme of Technical Education.

Apart from taxation, the employer can do much by voluntary effort. The following ways are suggested:—

- (1) The award of substantial Prizes.
- (2) Donations and Gifts. The College of Technology, Cardiff, received a donation from a private individual of £20,000 to help in the development of its Marine Department.
- (3) Payment of bonuses to apprentices who are earnest workers in the Technical School.
- (4) Practical and active help and sympathy in the work of Technical Education.

(b) The area represented by the Local Authority will, in most cases, benefit materially from the Technical Scheme in operation in that area, therefore it should be willing to contribute to a much larger extent than it does at present. This is a local rather than a national argument, hence it is narrow and parochial; nevertheless it is true and of some force.

In Scotland the local authorities contribute very largely to education. The City of Edinburgh local rate is one shilling and elevenpence in the pound, or £450,000 per annum. It must be noted that this rate is for all education. The highest rate that can be paid by a local authority in Saorstát Éireann is threepence in the pound.

(c) It is right and proper that the main burden of Technical Education should fall on central funds. The work is national, the results are national, and every citizen directly or indirectly reaps the benefits. The State, therefore, must provide its proportion in “full measure and well pressed down.”

The recommendations of the Report on this question of finance are as follows:—

“ Obligatory minimum rates for Continuation and Technical Education should be raised as follows:

- (a) Three pence in the pound in the County Boroughs.
- (b) Three pence in the pound in the large Urban Districts.
- (c) Two pence in the pound in all other areas.

Also, that increased grants be made available from Central Funds.

Conclusion.

Although this paper is unduly long, yet many points of supreme importance have not been touched upon. Vocational guidance—how far it is possible and desirable, and a review of methods. The necessity for and the provision of buildings and equipment. The training of teachers. The relationship of Technical Education to unemployment and to emigration. The Technical training for potential industries. These represent but a few of the questions omitted.

To those who are interested in Technical Education in this country a close study of the Report is recommended. It is a document full of interest and information, carefully compiled and sound and logical in its recommendations. It will, of course, be many years before all its recommendations could become fully operative, but, there is nothing to prevent an immediate start in many directions, and when the eagerly awaited and necessary Act finally becomes law a new and fruitful era will have seen the dawn in our economic life from the points of view of the relationship between employer and employee, and the material benefits to be derived. Our destiny lies in our hands—may we fashion it in a spirit of high adventure and of noble ideal.