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Examinations in Secondary Schools*

Mr. F. H. Reid, B.Sc., Wh.Ex. (Member) who introduced the discussion said that the thorny problem of secondary school examinations was not a new one; it had been before educationalists and employers for many years, and in 1938 the Consultative Committee of the Board of Education (as it was then) issued a report on secondary schools, with special reference to grammar schools and technical high schools. That committee, under the chairmanship of Mr. Will Spens (as he then was) issued what became known as the Spens Report, which gave a lot of attention to not only the curriculum in secondary schools but also the examinations to be taken and the system which should be adopted in future years to modify what had been in operation for about forty years. There had always been talk about the pressure on students preparing for examinations which had lost their original purpose of showing the educational standard reached by the boy or girl on completion of schooldays. The examinations had come to be used more and more as university entrance examinations. and the majority of pupils were forced willy nilly to follow a curriculum in an examination syllabus drawn up for the purpose of the comparatively few going on to university education.

Paragraph 99 of the Spens Report stated:

"We consider that a dominant cause of the pressure exercised on pupils preparing for this examination is the fact that it has been used at the same time for two distinct purposes:—

(i) to test the results of the first stage of the education provided by Grammar Schools;"

(i.e. those who left at the age of sixteen)

"(ii) to enable the pupils of such schools to obtain a certificate which would exempt them from Matriculation Examination".

That has been found to give a great deal of difficulty in many cases. The President of the Board of Education then reconstituted the Consultative Committee and asked them to draw up a report on the curriculum and examinations in secondary schools. That committee, the Norwood Committee (under the chairmanship of Sir Cyril Norwood), issued its Report in 1943, and, in giving an outline of the history of the developments which really brought the new examination scheme into being, it was necessary to read a few paragraphs of that Report. Paragraph (9) of the recommendations stated:

"In the interest of the individual child and of the increased freedom and responsibility of the teaching profession change in the School Certificate Examination should be in the direction of making the examination entirely internal, that is to say, conducted by the teachers at the school on syllabuses and papers framed by themselves."

(When the Report was issued that paragraph, amongst others, gave rise to much controversy).

"(10) For a transitional period of seven years the examination should (*a*) continue to be carried out by existing University Examining Bodies, but should be conducted in each case by a Sub-Committee containing strong representation of teachers; (*b*) become a "subject" examination, pupils taking whatever subjects they wish to take. A certificate stating the performance of the pupil should be given to each candidate; to this statement should be added by the school authorities an account of the pupil's school record.

(11) At the end of the transitional period the decision should be made whether conditions make possible a change to a wholly internal examination, or whether there should be a further transitional period in which teachers would take still greater control of the examinations, and the Universities still less.

(12) To meet the requirements of University entrance, of entry into the professions and other needs, a School Leaving Examination should be conducted twice each year for pupils of 18 and over. Pupils should take in this examination the subjects required for their particular purpose in view. Its purpose should not be to provide evidence of a "general" or "all-round" education."

Earlier in the report reference had been made to a new form of certificate (p. 48):

"The suggestions which we have made point to a new form of school certificate, falling into two parts. The first part would contain a record of the share which the pupil had taken in the general life of the school, games and societies and the like. It would, in short, give a reader some idea of the way in which he had used the opportunities offered to him by his education, using the term in its widest sense. The second part would contain the record of the pupil's achievement in the examination taken at the end of the main school course. During the interim period the record would state the pupil's performance in the examination conducted under the arrangements which we have indicated. When the examination had become internal, the record would relate to performance in an entirely internal examination. Such a certificate would give a summary of the pupil's career as known to his teachers and as appraised in a test; it would be a document which would give real information about his capacities and performance as shown in the whole field of his school career."

The publication of the Norwood Report gave rise to very heated discussions in the educational world. Some teachers, and some university authorities, considered that it was impossible to devise a system of internal examinations which would be of any use to the pupil after leaving school.

In June 1946 the Secondary Schools Examination Council was reconstituted under the chairmanship of Sir Maurice Holmes, and

* Discussion at the Annual General Meeting of the Education Group on 28th May 1948 introduced by F. H. Reid, B.Sc., Wh.Ex.

was asked to advise the Minister on the future of examinations in secondary schools. In August 1947 that committee presented the Minister with its Report, published in December 1947, on "Examinations in Secondary Schools". Before considering that Report one should pay a little attention to what happened in 1944, when the new Education Act passed into law. Up to that time there had been no "system of education" in this country; but that Act laid down a "system of education" in three sections: primary education up to the age of eleven; secondary education from eleven and over; and further education for those who had left day school. That was the first time the provision of further education had been made compulsory. Until then there had been no need for any education authority even to provide secondary education, and the only compulsory education had been what was known as "elementary education". The various documents which were published, including the Ministry of Education's Green Paper and the Minister's White Paper, envisaged secondary education falling into three categories: normal, grammar and technical; that is to say, three streams of secondary education. All education authorities were required to formulate their schemes and forward their education plans. Some authorities were going ahead with schemes for three types of schools as separate entities; some authorities were dealing with it bilaterally, in some cases bringing technical and grammar together in one school and in other cases bringing technical and normal together in one school. He believed he was right in saying that the Ministry of Education deprecated the combination of technical and normal; he personally hoped they would oppose it. A third method adopted by some authorities, London included, was to set up what were called multi-lateral schools, or comprehensive high schools, in which all the pupils attended under one head but in different streams. In his own view that was not a good scheme.

The Holmes Report, as he would call this Examinations in Secondary Schools pamphlet, made reference to some general principles of education as follows:

> ". . . the courses should be designed with appropriate variety of subjects and treatments to suit the ages, abilities and aptitudes of the pupils. In the later years, the reasonable requirements of future careers or further education should be taken into account."

That had been stressed many times before in different reports and documents, and it was interesting to see that it reappeared in this pamphlet. The Holmes Report stressed very strongly that the maintenance of careful records of individual pupils should be kept throughout the school life, and in paragraph 6 recommended that:

> "Every pupil on leaving a secondary school should be provided with a comprehensive school report containing the fullest possible positive information about him and his abilities and potentialities."

Later on the report referred to objective tests as follows:

> "Objective tests of various kinds should be set periodically within the secondary school and the results recorded in school records and used to assist in guiding pupils towards suitable courses of study or types of employment."

The report then came down heavily on the side of internal examinations, to which previous reports had referred and stressed, and stated in paragraph 16:

> "We recommend that:—
>
> (*a*) Individual secondary schools should carry out systematic internal examinations based on and designed to suit the particular courses and the pupils following them.
>
> (*b*) The Ministry and Local Education Authorities (singly or in groups) should promote and encourage experiments in the conduct and assessment of internal examinations:
> e.g. (i) through the association of teachers from neighbouring schools or areas in the setting and marking of examination papers, (ii) through external assessment on wider lines by appropriate assessors."

While the report came down heavily on the side of internal examinations it made no reference to the different types of schools in that connexion, so presumably their intention was that internal examinations should play a very large part in all types of secondary schools. The report also referred to external examinations and said it considered that external examinations had some useful functions to perform in two connexions: in deciding, first who should be awarded scholarships; and secondly, what exemptions from parts of the university courses, and also from professional examinations, would be required. For that external examination the report advocated three standards of examination: "Ordinary", "Advanced" and a "Scholarship" examination. The "Ordinary" external examination should be suitable in giving a reasonable test for pupils who had followed a wide and general education course up to the age of sixteen. The "Advanced" examination should be a reasonable test in subjects studied by pupils who had spent two years in a sixth form. The "Scholarship" examination should be such that it would give an ample choice of questions to give specially gifted pupils—notice that reference to specially gifted pupils—an opportunity to show distinctive merit and promise. That was advocating a new method of selecting scholarship candidates. On the results of the external examination a "General Certificate of Education" would be awarded, in either the "Ordinary" grade, the "Advanced" grade or the "Scholarship" grade. There should be no minimum requirements as to the number of subjects that should be taken; there should be no grouping of subjects, and a candidate might get a certificate in one subject only. It would be a "General Certificate of Education" indicating the subjects in which he had passed.

Then the question of the date of the examination was considered. Recently there had been much talk of staggered holidays. There had been lots of difficulties with students at the Higher School Certificate level getting admission to universities after they had been informed that they had won State scholarships on the result of the examinations. Therefore, the Committee strongly recommended that the dates of all these examinations should be brought forward to such time as would enable examining authorities to publish the results and inform the Ministry not later than 1st August, and for that purpose it would probably be necessary to hold the examinations in May. The report stated:

> "The examinations should be held at such a time as will enable the result (at any rate for those candidates who seek awards) to be communicated to the Ministry by August 1st . . .
>
> We recommend that:—
>
> The new system of external examinations should be introduced in 1950."

Since the publication of that report the Ministry had sent out Circular 168 giving their interpretation, and what they proposed should happen to the future examinations. This year and next year there were no changes; the examinations went on exactly as they had done in the past, under exactly the same conditions. But in 1950 they should be held on much the same lines as they were held at present, but at the earlier date. On the present General School Certificate it was stated whether the student had obtained a "credit", and in order to get exemption from Matriculation the student had to have "credits" in certain subjects, so that there was a fairly well defined "pass" standard and "credit" standard, leaving aside all reference to "distinctions". The Ministry said that in 1950 the standard of a "pass" would be somewhere between the present "pass" and "credit" standards. At present, officially there was no lower age limit at which a student could sit for the School Leaving Certificate, and there was a recommendation in the Holmes Report that this external examination should not be taken before the age of seventeen. In the Ministry Circular 168 it was said that no pupil should be allowed to sit who was under sixteen on 1st December of that year; which meant that approximately fifteen years and five months was the youngest age at the time of the examination.

For the "Advanced" examination a standard would be set at the present standard of principal subjects in the Higher School Certificate. Most Higher School Certificate examinations could be taken at the principal or subsidiary subject level—the subsidiary level being appreciably lower than the principal level. In 1950 the examination would still be set under the present set-up of examination and examining bodies, syllabuses, groupings and so on.

In 1951 the "General Certificate of Education" would come into operation; the new scheme would be brought into operation, and the examination would be open to boys and girls who were still at school and would have reached the age of sixteen on 1st

September of that year. There was another transitional period: in 1950, sixteen on 1st December, in 1951, it was brought forward to sixteen on 1st September. Also, that examination in 1951 was open, not only to boys and girls still at school, but to those who had left school. Then the examination could be taken by anyone who would have reached the age of sixteen on the following 1st September, the papers being set on the three levels recommended: the "Ordinary" level, the "Advanced" level and the "Scholarship" level. All subjects would be optional; there would be no minimum requirements; the pupils might sit for one, two, three, four or five examinations; no student would be allowed or able to sit the examinations of more than one examining body.

For many years one had heard about the chasing of scholarships at the Higher School Certificate level, taking the examinations of two or three examining bodies in the hope that the boy or girl would be lucky in at least one case and get a scholarship. In 1951 that principle would not be present. It was strongly recommended in the Report that the school would enter for the examination only those pupils who had a reasonable chance of success. In 1951 the "pass" level would again be between the present "pass" and "credit" standards; but in 1952 the "pass" level would be raised to the present "credit" level. There was a great stepping up of the standard, and in 1952 the age would be not less than sixteen on 1st September. In Circular 168 the Ministry strongly recommended that as soon as possible after 1952 the minimum age should be raised to seventeen. Presumably that meant raising it to seventeen when the school-leaving age had been raised to sixteen. At present the school-leaving age was fifteen, and under the Education Act of 1944 it must ultimately be raised to sixteen.

The possession of the new "General Certificate of Education" would not have much real significance, because the pupil would get a certificate if he had reached the necessary standard in one subject or more. It was the contents of the certificate which would be of value, in order to provide the necessary information on the capabilities and training of the pupil, so that employers would not simply ask: "Have you got the School Certificate?" It was astounding to note how many industries, trades and professions at the present time tried to insist on the boy or girl holding the School Certificate. If the answer to that question was "Yes" there were very seldom any further enquiries about the subjects taken. However, in future it would be necessary to enquire what subjects had been put on the certificate.

It was anticipated and hoped by many that these examinations—at any rate the "Ordinary" examination—would be suitable for the products of all types of schools, not only grammar and technical schools but also the modern schools. In many cases the pupil at the modern school would be unable to take that examination while still at school because he could leave at the age of fifteen at present; but the provision which allowed entry from those who had left school would give an opportunity to the modern school product to take the examination. Of course, it would mean that the pupil would have to continue his education at either the country college, or part-time day classes, or evening classes. A pupil from the modern school who had the ability, and who continued his education would be able to get a certificate equally as valuable as the certificate obtained by a boy or girl from the technical or grammar school. It would not be easy, but the pupil was given the chance.

Earlier he referred to the fact that the School Certificate examination was at present drawn up mainly with reference to university requirements. Now the professional institutions—not only on the engineering side but on the commercial side—would have to give serious consideration to the exemptions they could grant from the present preliminary examinations. It was known that today in most cases a School Certificate awarded by external examination was accepted provided the right subjects had been studied. Presumably a similar value would be placed on the new external "General Certificate of Education" awarded under the new scheme. He hoped that some thought would be given to the possibility of including consideration for those internal certificates which would be awarded by the schools on their own examinations. In the old days it was thought that teachers were incapable of examining their own pupils. He hoped that most people now realized that teachers as a whole could undertake the examination of their own pupils. After all, many teachers had gained excellent experience from acting as examiners and assistant examiners for the present examining bodies. All examiners were not university professors and lecturers: many were teachers in the schools. He emphasized that, because he thought that this reference to the external examination must not be allowed to overcloud completely that strong recommendation for the setting up of a proper scheme of internal examinations, and the possibilty of some external assessment in dealing with those examinations. He hoped that local authorities, the Ministry of Education and the various teachers' associations would combine to give serious consideration to the possibility of having some form of external assessment. Many who had had many years' experience of assessment in connexion with National Certificates knew the success of that scheme. About twenty-five years ago they were not thought very much of; they were brought into operation in 1921; but there was no doubt about the value attached to National Certificates at present. He thought that something on those lines might be found very useful to the secondary schools.

The published report on the examinations was a unanimous recommendation, the members of the Committee represented all phases of education—educationalists, the universities, and the secondary schools. He was not sure whether there were representatives directly from what were now called the "Normal" schools' teachers, but the teachers' organizations were represented. There was a unanimous recommendation, in spite of all the controversy which took place following the publication of the Spens Report and the truly great Norwood Report.

Mr. C. W. Tonkin, B.Sc. (Member) said that the recommendations in the report were extremely interesting, in that they coincided to a considerable extent with opinions that had been expressed for a long time by technical teachers. He thought that in the past there had been a tendency to cram youngsters for external examinations such as the School Certificate, and to bundle them into the examinations willy nilly. This might have been good for their souls and been good discipline, but it had not always been good for their mental development. In his view the possibility of introducing an internal examination was a good idea, but the fact that it would be possible to obtain a certificate labelled with one subject only had been regarded in some quarters as bringing the certificate into disrepute, the suggestion being that the certificate became meaningless when obtained with only one subject. He felt that there would still be a demand on the part of the School Certificate diehards for a vast number of subjects to be on the certificate before any serious notice was taken of it. He was sure that the addition of external assessment on internal examinations was a highly desirable feature.

Referring to the question of the ability of the students, he pointed out that it had been suggested by the Ministry circular, in particular, that it was hoped the examinations would be of the type that would attract all students, even those who continued up to the age of fifteen—or sixteen when the school-leaving age was raised; and, when the compulsory attendance age was raised to sixteen, youngsters who had not attended the higher forms of secondary modern schools—as he called them for want of a better term—would still be taking the examinations. If, as was generally the case, a youngster attended what was called the secondary modern school the tendency (which would become greater) was for him to do so largely because of lack of academic ability to attend a more advanced school. That youngster was therefore being presented with the situation: "You did not succeed in getting into a grammar type of school at the age of eleven and over, or to transfer, as theoretically you are permitted to do now, at a later date and now that you have left school at fifteen (or sixteen, as the case may be) and are at work all day, we offer you the opportunity of taking this grammar school type of examination under very much worse conditions than you would have had at school, although we know that your general academic ability is rather lower". Although the offering of the opportunity was good, the possibility of it becoming effective was remote.

He went on to draw attention to an interesting letter which had been published in the "Times Educational Supplement", which had said that nobody would be permitted to take the examination ultimately until the age of seventeen, and had asked why an arbitrary age of that nature should be taken, and why it should not be determined on weight and laid down that nobody under, say, 10 stone 3lb. could take the examination. He agreed with that to a considerable extent, because in future the able youngster would be rather penalized to make sure that the less able youngster was not dragooned into taking an examination before he was fit to do so.

Mr. B. C. Curling (Secretary) said that being particularly interested in Mr. Reid's views on the possibility of the student in the modern school qualifying, he would like to quote the following excerpt from a letter in "The Times" of that date:

> "But there is reason to believe that the Minister's determination to advance the age at which this new examination can be taken is mainly intended to make it impossible for any child to take the examination from a secondary modern school, where few children will stay beyond the school leaving age. From this it follows that a "General Certificate of Education", to be awarded on a "pass" in one subject . . . can be obtained only by those children who are fortunate enough to be sent, at the age of 11, to a secondary grammar school . . .
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> At present we proclaim, as instructed, the "parity of esteem" which the Government boasts for its secondary modern schools, most of them in rural areas non-existent. Parents think this parity bogus: Circular 168 proves them abundantly right. And if "General Education", with a Government certificate, is the privilege of the grammar school only, one cannot blame parents for taking every possible step to secure their child's admission to the privileged school."

He asked what were Mr. Reid's reactions to that view. He himself thought that employers would be particularly concerned about the increase in the age at which the school leaving examination was to be taken and its effects upon the starting age of apprenticeship, bearing in mind that at the present time most apprenticeships started at the age of sixteen. If after 1952 it became established that a boy wishing to become a marine or mechanical engineer would not leave school before obtaining a certificate at the age of seventeen, the apprenticeship period would have to be correspondingly deferred.

Mr. Reid replied that he had been interested in the letter in "The Times", and had noticed similar letters in the Press on two or three occassions. One point which he thought he ought to have mentioned in the course of his opening remarks was that there was no embargo on a boy leaving school at fifteen taking one subject one year, another subject the following year, and so on; they would all be added to the certificate.

The best aspect of the report was that it gave the opportunity to obtain a certificate to the modern-school boy whose present possibility of doing so was almost nil; and they all knew that many good lads had come from the modern schools. Statistics showed that many of the Higher National Certificate holders had never attended any other than an ordinary elementary school, and in his view if in their young days those people had had the opportunity of obtaining a certificate in instalments—because that was what it amounted to—they might have obtained the necessary qualifications to enter a university, although he did not know whether they would have been better for following a university course than the Higher National Certificate course and getting practical and technical training at the same time. He thought that under the proposed scheme the modern-school boy was in a much better position than before. Had the age limit been fixed at sixteen then, and seventeen in the future ,and the examination available only for those attending full-time school, it would have been a very serious disability to the modern school.

Linked up with that to a certain extent were the capabilities of some pupils to follow an academic type of course. In the past there had been talk about parity between the three types of schools, and he thought he had been as guilty of that as anyone; but they never would be able to get parity between three types of schools, any more than there would ever be equal opportunities for all. However, he could not see there being brought into operation at that moment any system of education which would bring every boy and girl up to, say, grammar school level. He thought he was right in saying that the Ministry had stated that in their view the provision of the three types of schools should be roughly on the basis of 70 per cent modern and 30 per cent technical and grammar, with roughly 15 per cent technical and 15 per cent secondary. The Ministry's view, as he understood it, was that about 30 per cent of the children were capable of obtaining the maximum benefit from those two types of education.

He wanted them, when speaking about modern schools, to forget the elementary schools and to think of what the modern schools would be in another decade, when the modern schools were housed in decent premises, with smaller classes, practical rooms, laboratories and workshops—something more akin to the grammar school but dealing with the subject matter in a slightly different way. The education would be as good as but of a different type from that of the grammar and technical schools. He stressed what he said in opening, that he hoped that in formulating the syllabuses for the examinations, consideration would be given to all three types of schools. At present, although some of the School Certificate examining bodies set papers on handicraft, music and so on, they were highly theoretical. Yet if those concerned gave proper consideration to the proposed examination scheme it should be possible to obtain syllabuses and examinations which would enable the modern school pupil to take those subjects after leaving school when he had spent some time in the county college, or at evening classes before the county college came into being.

Replying to Mr. Curling's question about the age of entry to industry, he said it was not many years since industry would not take a boy much over the age of fourteen, and insisted on his serving a seven years' apprenticeship, finishing at twenty-one. The proposal now was that the boy should start at sixteen and finish at twenty-one, with a five years' apprenticeship; but if in the new type of modern school that lad got some training in crafts, woodwork and metal work, with an introduction to elementary science, and a little more arithmetic and English than before, his educational standard on entry to industry would be raised, so that surely the length of apprenticeship might be reconsidered.

As to the type of lad who would become a professional engineer, he thought the bigger firms were looking for professional engineers from the pupils who had stayed at school beyond the age of sixteen. It was not so difficult as it used to be to get engineering firms to take boys of sixteen as apprentices; at any rate, he had not found it so difficult in Sunderland during the war, when many firms would take boys even up to seventeen if they had had a good school training. He did not think that would present any real difficulty in training people for the professions. Indeed, the tendency all along had been to raise the age of entry gradually. The principle governing entry into professional institutions would naturally follow the trend of raising the age of entry into those professions, and he did not think those sorts of questions would worry them.

He pointed out that at first industry did not like the raising of the school-leaving age to fifteen, thus taking away the whole of their entrants at fourteen; but industry had more or less got used to it in the last twelve months. Ultimately, if the school-leaving age were raised to sixteen, young people would not be able to start work of any sort until sixteen years of age, so that if the lowest grade of worker was to be recruited at sixteen there could be no objection to recruiting entrants at a slightly higher age for courses leading to the highest branches of the professions.

Mr. R. S. Hogg (Member) said that he was not quite clear how the new certificate would impinge upon the National Certificate scheme. If a lad left the modern school, or even a technical school, with a certificate covering one subject would he want to continue his education on a part-time basis with a view to obtaining more "passes" in more subjects? Would that interfere with the existing curriculum? What notice would professional institu-

tions take of those certificates, so far as the professional student examinations were concerned?

Mr. Reid replied that they must bear in mind that when the Act was completely implemented there would be, for all up to the age of eighteen not attending full-time at day school, compulsory part-time day education, which would include general education. The understanding was that about five-eighths of the day might be spent on so-called vocational training and the remaining three-eighths at least on such things as English and what were called cultural subjects. Therefore, when compulsory part-time day education came into effect the pupil could then study for the School Certificate subjects.

The question whether the new certificate would impinge on the National Certificate was another problem. Under the present system a boy who had attended full-time education up to the age of sixteen was exempt from the first year of the National Certificate scheme provided he had studied science and had done some drawing. The whole question of the National Certificate scheme had been in the melting pot for the last two years, and a lot of consideration had been given to the re-orientation of that scheme consequent upon the raising of the school-leaving age and the implementation of part-time day education. As he understood it, there would be very little change in the National Certificate scheme, so he did not think there would be any impingement. The new arrangement would mean lads coming to the courses with better general education, who consequently should be able better and more successfully to follow the National Certificate scheme. They all knew that at that moment the falling by the wayside in the National Certificate courses was extremely heavy.

He added that the professional institutions would have to consider the changes, and probably the Engineering Joint Examination Board would have to consider what would happen about the Common Preliminary Examination exemptions. Obviously all professional institutions—not only engineering but banking, accounting and secretarial—would have to consider what recognition they would give to the new type of "General Certificate of Education", and he hoped they would also consider what recognition to give to the internal certificate awarded at the age of sixteen when a pupil left school without having sat for the external examination.

Mr. C. J. M. Flood, B.Sc., Wh.Ex. (Member) said he had understood from Mr. Reid that there would be an award of certificates for internal examinations, together with awards for external examinations. What value would be attached to the internal certificate as compared with the external certificate?

Mr. Reid replied that he was being asked to interpret what would be the attitude of the professions and employers to the new certificate, but he was not prepared to anticipate that. What he was prepared to do was to say he hoped they would attach a good deal of value to it. From 1930 to 1938 he had signed a whole host of leaving certificates for junior technical schoolboys, and employers over a fairly wide area of North-West London knew what that certificate meant; they had accepted and honoured it. The employers had had to be educated a little in 1931 and 1932, but at the end of the thirties they were placing very good reliance on those certificates awarded from the Paddington Junior Technical School on a purely internal examination—which, however, did not contain what was recommended in the new scheme.

The new certificate would contain reference to all that a pupil had done in the school; what part he had played in the school life, and so on, to give some idea of what advantage he had taken of the facilities available to him. The certificate which he used to give showed that the pupil had attended a three-years' course, had studied certain subjects, whether he had obtained satisfactory marks for the course work and examinations throughout the course, his final examination subjects, and that he was ultimately put in Class I, II or III. Of course, there had been a number who did not get a certificate at all; if they failed there was no certificate saying they had failed. Class III was not a very high standard. Those who had any connexion with universities would know that if someone had a Third Class Honours Degree, it would mean he had gone through the course but could not fully satisfy the examiners at the end: it meant he had followed a certain course of training in the university, and from that point of view it was valuable.

He was not prepared to forecast, but he hoped that employers and those mainly concerned would place value on the internal certificates under the new scheme, which would contain far more information about the pupil than was given on any certificate which could be given at that time. The results of objective tests throughout the school life would be taken into account; it would be a big job for the schools to keep the records and to compile them in the proper way, and it would be a few years before all the teachers and headmasters and principals could operate it properly. There would be a transitional period, but they must look ahead to when the scheme worked. He had no doubt that professional institutions were investigating the method of testing students and of recording the whole history of their school life. A lot of work remained to be done. Various forms had been produced by educationalists, which were being considered, and he thought that ultimately some good schemes would result, and that when they were operated employers would give fuller consideration to the certificate, but he would not like to try to commit them.

Mr. Flood interjected that that was not exactly the point. He wondered whether the certificate on the internal examination would have some value with the universities and professional institutions.

Mr. Reid did not think the universities would place any value on the internal examination. He emphasized that that was simply what he thought, having had some connexion with university bodies. People in London spoke about the Matriculation Examination; but in North-East England, matriculation was not the passing of an examination but the act of signing the book on being admitted to the university after passing the entrance examination. For many years, while universities had accepted the School Certificate there had been talk of not accepting the ordinary School Leaving Certificate, but of accepting only the Higher School Certificate. Under the new scheme the whole thing was rearranged; the scholarship examination would be taken by students who wanted a scholarship to go to the university; presumably the scholarship would be awarded only on that examination—at any rate the State scholarships, the numbers of which had increased considerably in recent years. The universities had had the award of a number of scholarships in their own hands; even in the older universities the scholarships were not university scholarships but college scholarships, and candidates had to take the college examination. Of course, a number of colleges had amalgamated and held a common examination, but for that purpose the college set its own examination. He had not very much hope of the universities accepting the internal examination, although he hoped the professional institutions would.

Mr. T. A. Bennett, B.Sc. (Member of Council) said he gathered from the discussion that if in external examinations a certificate could be gained by passing only one subject it seemed that the certificate would really be a report on the pupil's education, which could be added to by taking further examinations later on. As the results of internal examinations were also reports on the pupil's education, the two certificates could be very nearly merged into one. Mr. Tonkin had said that to a certain extent it would penalize the bright boy who could pass the examination and get the certificate much quicker than those who were not quite so bright, but as it was practically a report on a boy's education which could be obtained after passing in one subject, he could not see why, and he could not see the necessity of having two certificates.

Mr. Reid asked, in turn, who would sign the certificate. He pointed out that paragraph 8 of the Ministry's Report said:

"Every pupil on leaving a secondary school should be provided with a comprehensive school report containing the fullest pos-

sible positive information about him and his abilities and potentialities."

That was something which could be done by the school, but which no combination of university examining bodies could compile. It could be only a statement from the school's complete records. It would not be of very much value to say one had a "General Certificate of Education"; what would count would be what was on the certificate—the number of subjects shown. The new scheme would enable every pupil to get a certificate provided he had the ability to pass in one subject. So many times in the past pupils had failed in one subject and so could not be granted a certificate. That could not now arise. Also, the pupil who could pass in four, five or six subjects would be no worse off; the subjects in which he had passed would all be recorded on the certificates, so the bright pupil was not penalized. But those who could pass in only one, two or three subjects would get a certificate indicating that fact, which he thought was of great advantage from the pupil's point of view.

He did not think the bright pupil was handicapped at all, because the more subjects he passed the more would be shown on the certificate. The certificate would simply connote that the pupil had reached an educational standard in whatever subjects appeared on the certificate; and the internal certificate would show not only the record through the school, but general progress and ability, what the pupil had taken an interest in, and how he had fared in the final examination. He hoped that no school would issue a certificate showing that a certain boy had got certain marks but that they would indicate on the internal certificate the subjects in which the boy had passed. The General School Certificate was taken by a pupil as a school candidate, and showed not only the subjects in which the pupil had passed, but those which had been studied, and the name of the school at which the pupil had studied. A pupil taking, say, the Durham School Leaving Certificate at that time, not as a candidate from the school, was awarded a different type of certificate altogether from that obtained by the school candidate. In future the certificate would not mention the school at which the pupil studied, but would simply state the subjects in which he had passed.

Mr. Tonkin said that in referring to the bright pupil he was not thinking so much of the actual obtaining of the certificate, as the age at which he could get the subjects on his certificate, which was limited to sixteen at that moment and seventeen later. As in the old days of the Board of Education certificate, the starting point at which the pupil got those subjects on a certificate was delayed until the age of seventeen. They all knew of cases where, without any pushing, a student could have passed certain examinations at an early age. If they were now to be concerned with the number of subjects that a student had on a given certificate, if the student were not allowed to start obtaining those subjects until a given age undoubtedly the bright student was being prevented from passing some subjects before that age.

Mr. Reid interjected to ask if the pupil could get them then, unless he was of a certain age.

Mr. Tonkin said that the pupil could get them at a lower age. The objection, of course, was that youngsters were pushed into examinations before they were really ready to take them, and he was inclined to agree that the harm done to a comparatively large number was greater than the good that would be lost by a comparatively small number.

Mr. Reid quoted the case of which he had heard only recently, of a lad who was nearly nineteen and had a First Class Honours Degree in engineering, and asked whether any engineer would say that lad was an engineer.

The Chairman (Mr. J. Calderwood, M.Sc.) (Member) said that up to then the discussion had been left to the educationalists and teachers, but he wanted to put in an oar to see if he could induce people on the other side of the fence to give their views. The idea of education was all very well, but what was education? To his mind the so-called Minister of Education and the other people concerned with the Education Act, and also with the Report, had never taken the trouble even to study the meaning of the word "education". Education was the process of drawing out and broadening a boy, but the new scheme tended in exactly the opposite direction. According to the Ministry's leaflet, the child, at a comparatively early age, was to go to either a grammar or technical school where it mixed with other children who had the same general line of interests, so that the child's outlook might be narrowed by mixing only with other children having the same general outlook. When reaching the examination stage the pupil was to be given a certificate for one, two, three or more subjects. That, by some process of reasoning which he himself could not conceive, was to be called a "General Certificate of Education".

To begin with, what was a "General Certificate of Education"? On a question of English grammar, it did not mean anything at all. They might have a "Certificate of General Education"; but what was a "General Certificate of Education"? He said that he felt rather strongly on this matter, and thought there would be a tendency for far too much specialization at too early an age. Before the 1914-18 war he had, after leaving school in England, spent a short time at a school in Germany, and in those days the German education system had been very similar to what the Board was now trying to establish in England. He found in those days, at the age of sixteen, that he was at least a year ahead of any other boys of that age who had been taught under the German educational system, although he was not ahead of other boys of his own age who had been taught under the English system.

The one very big fault with the old English system was that it did not give anything approaching equality of opportunity, but depended entirely on whether the lad's father could pay to get the lad into a school which would give him a broad education. He thought that the old English system modified to give equal opportunity to every suitable lad would result in better education than the very complex system which was being aimed at.

Mr. Reid had said that it was only fair, first to give a pupil a certificate for only one subject, and secondly to allow the pupil to sit for the subjects one at a time. To his own mind, a certificate with six subjects on it, taken one at a time, was of not the slightest value to anyone wanting to employ the boy, because very many boys, given a few months to study one subject, could pass the examination every time, but two days after the examination they would not know a thing about it. He felt very strongly that they should retain the idea of not giving any certificates unless a number of subjects were taken at the same time. He agreed that under the old system, where certain groups of subjects were chosen, a lad might not be able to pass all the subjects in one group, and there ought to be perhaps more latitude than there had been; but he felt that no certificate of education of any kind should be given without a reasonable variety of subjects being included.

Mr. Reid agreed about the inadvisability of early intensive specialization, and it was in an endeavour to prevent it that the age had been raised, with a continuation of school life.

The Chairman interjected that it would be all right if grammar and technical schools were combined under one roof. The feature to which he objected was having children divided into separate secondary-technical and secondary-grammar schools.

Mr. Reid replied that he could say a lot on that, but thought that perhaps he had better not. All he would say was that he seriously disagreed, and thought that the Chairman was not entirely conversant with what was done in the junior technical schools. Generally speaking, in the junior technical schools the boy spent as much time in the workshops as the secondary schoolboy spent in his handicraft room, and the junior technical schoolboy's practical hours were more than those of the secondary schoolboy. In most cases, the junior technical schoolboy got his secondary education without languages, and without quite so much English grammar, but his science was treated in a more realistic manner, and in mathematics he got a real sound secondary educa-

tion, plus some training leading to craftsmanship, with some knowledge of the proper use of tools. But that was really outside the subject under discussion. He understood the Chairman to refer to people who grew up knowing nothing about education.

The Chairman explained that he referred to the definition of "education". He had not said they knew nothing about it.

Mr. Reid asked them to read Appendix 2 of the Spens Report, which was very illuminating. He knew quite a number of those who had sat on the various committees, and they would be very annoyed to hear such a remark as that of the Chairman. He said that he would not attempt to define "education", because it depended where one looked for the definition. He would say that, roughly, education was that which enabled a man or woman ultimately to lead a free and useful life. Part of their job was to teach people so that they could lead such a life, and have some knowledge of responsibility not only to themselves, but to their fellow beings.

When it was said that a certificate with one subject was not of the slightest value to an employer, he asked them to think of the psychological effect on the boy who would have a "General Certificate of Education". It would do a young boy or girl good to be able to say, "I have got a Certificate of General Education." The point was, it was not the certificate that would be of value to a prospective employer or professional institution but the subjects on the certificate. The issuing of such a certificate would not make it any worse for the lad who had all the subjects on it, but it would do something for the youngster who, up to that moment, had had no opportunity of getting anything.

He thought that a number of those present were old enough to remember when they used to sit for the old science and art certificates as a pastime, merely to collect certificates; but he thought they were proud to get them. The certificates were not of much value in life, but they were of psychological benefit. Under existing conditions, according to the Ministry of Education 70 per cent of the children would not have the opportunity of going to a secondary-grammar or secondary-technical school. It was intended to make it possible for that 70 per cent to get a certificate.

While he had been interested in the reference to the German system of education, he thought the English system was far better. He did not often defend the Ministry of Education, but they had gone to great trouble over many years to investigate the educational systems in all countries. Every country in Europe had been thoroughly investigated, and the Ministry had published several booklets on Continental educational schemes; but quite a lot of information which they had correlated and made available to various committees had never been published because the cost would have been too great; the Ministry had investigated the American and every other type of education scheme. People in this country had always prided themselves on the fact that the educational system here was vertical; a lad from an elementary school could reach the top; but under most of the Continental schemes children were put in strata at a very young age and could not go from one stratum to another. Giving the young boy from the modern school the opportunity of getting a certificate opened up the avenue, and that was the main point.

He summed it up thus. The brilliant boy would not be harmed in any way; the facilities would still be there, although he might have to wait a little longer. There were exceptional cases, such as the lad of fourteen who 200 years ago got a First Class Degree at Cambridge University, and the new scheme would prevent some of the younger bright children getting their external certificate at a young age; but there was nothing to prevent them getting an internal certificate at sixteen. He did not think that having to wait a little longer would harm those boys. There was already a tendency to raise the age of entrants to universities, and the present influx of ex-Servicemen and women would give that more impetus. The older and more mature were these entrants, the greater benefit would they derive from university education. He thought that ultimately industry and the country as a whole would benefit greatly from the longer school life, and the whole object of the report and examination schemes was to give a lead and an indication to teachers of the lines on which they should progress. But he hoped that a great deal of care would be taken in formulating not only the syllabuses, but the actual subjects which would be available under the new scheme of examination to make it possible for the modern schoolboy or schoolgirl to get half-a-dozen subjects on the certificate. The professional institutions would have to decide what they wanted on the certificate, as they did with the School Leaving Certificate.

Mr. F. R. Nicholls (Member) asked if anybody had ever thought of the value of the training to the pupil before getting the certificate. Although Mr. Reid had said he was very proud of the fact that he had some certificates, he himself did not think that the average pupil (not the exceptional pupil) really knew what a certificate meant to him when getting it; it was more or less something that came at the end of a school career. When boys gained certificates they did not generally realize what they meant. It was different with a sea-going engineer when getting his certificate, because without it he would get nowhere; but a schoolboy did not realize it meant so much to get a certificate. Something ought to be done to educate the pupil to realize exactly what the certificate would mean. That had never been explained to him, and he had been very glad at the time when he was unable to sit for an examination.

Mr. Reid thought that was a different question. He had sometimes tried to take his mind back to his school days, and he doubted, no matter how well the value of the certificates had been explained, whether he would have appreciated it. All that happened was that when he was about thirteen the teacher had said, "You are all taking third stage mathematics, science and art examinations next Monday", and they did so; some passed and some failed. In those days there were no fees, but grants were given on examination results and probably the teacher had done very well out of it, although the pupils did not know that at the time. But if some time before the examination the teacher had warned them that he was entering them for the examination there was the possibility that they would have funked it. He wondered whether they could really have grasped the importance of it had the teacher explained beforehand the value of the certificate.

They were dealing with pupils under the age of sixteen. On the whole, boys and girls attending a secondary grammar school knew a lot about the School Certificate, and knew that ultimately they would sit for it. When the pupils got into the upper form they might be told, " If you get this certificate it will enable you to go to a university". But what would that mean to them at a much younger age? He did not know what could be explained to a young boy or girl; but to boys and girls over sixteen a good deal could be explained.

Mr. Curling referred to Mr. Reid's remark that the professional institutions would have to decide what they would require on the certificate, and said he thought a pupil of fifteen who intended to go into a branch of engineering would have a clear indication of the value of the certificate, at any rate to himself.

Mr. Reid said that at that age it depended upon the school. Not only parents but teachers, even in secondary schools, needed to be educated on what was required in the School Certificate. Many lads of eighteen who wanted to take a degree course, although they had various School Certificates with "credits" and "distinctions" were deficient of an essential subject, simply because the subject was not taught at the school they attended. He remembered one lad who wanted to be an engineer; he had eight "distinctions" in his School Certificate, but he had done no science. For years the boy, his parents and the school had known he wanted to be an engineer. He was educated at a so-called public school, but the subjects he needed were not available; he simply took the curriculum that was available. The boy's father was an engineer, and the boy wanted to be a civil engineer, but when he left school at seventeen and went to college he was told that he could not be accepted for a university course until he had done some science.

With reference to the Chairman's views on blending of technical and grammar schools education the following editorial is reprinted from The Times, dated 7th September 1948, by permission.

Secondary School Experiment

Today, with the opening of the winter term, the county of Middlesex begins an important educational experiment. Three of its secondary schools are to be run on what is called the "comprehensive" system. While most education authorities in England are planning their secondary education on a tripartite basis with separate grammar, technical and modern schools, Middlesex and London believe that all children in a particular area should go to the same secondary school, where grammar, technical and modern courses, fitted to varying standards of ability, could be provided under one roof and all the pupils would join together in games and other activities outside the class-room. The comprehensive school has some administrative conveniences, but its underlying aim is to bring about a more equalitarian society.

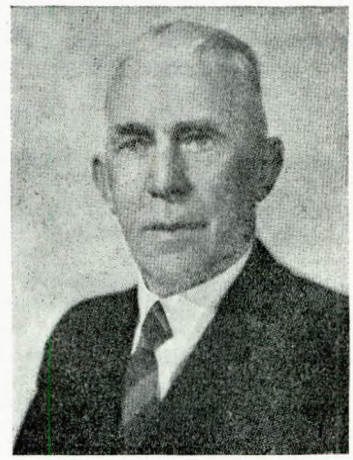
One educational argument put in its favour is that the comprehensive school will make it much easier to transfer at thirteen years of age any child who has been started off at eleven on what turns out to be the wrong kind of work, but many doubts of much more substance are held on educational grounds. American secondary education has expanded on similar lines and its products have many critics in American universities. It can be argued that comprehensive schools must either be much too large or fail to give the academic side of their work the range of attention that a good grammar school can offer. If not more than a quarter at the outside of the children in any area are able to profit from a grammar school education, and if the ideal size of a grammar school is taken to be from 400 to 500 children, then to combine these with all the other children in the area means bringing total numbers in the comprehensive school up to anything from 1,600 to 2,000. Schools as large as this, where the head could not hope to know each pupil personally and where the sense of community might be hard to foster, would be a big change in this country. Middlesex tries to escape from the burden of size, which has been lightly accepted by London, by favouring comprehensive schools of between 600 and 950 pupils, even though this means that the section giving grammar schooling will be well below the best size.

The Middlesex experiment, like those made elsewhere in the country, is to be welcomed, provided it is frankly regarded as experimental. A fair body of opinion is in favour of comprehensive schools and to try them out is good sense. Middlesex has chosen only three schools, and parents in the three areas whose children had reached the standard have been allowed to send them to established grammar schools and not to the experimental schools if that was their wish. The experiment is bound to take time; children are entering this term at eleven, it will be seven years before the best of them have passed through the sixth form, and no sound judgment can be made of schools until their sixth form standards have been proved. Certainly it would not do, even if the first year or so seems promising, to press ahead with committing more schools to an untested change in organization which is entirely novel in English practice.

OBITUARY

GEORGE JAMES WELLS (Member 2578 and Honorary Vice-President), died on the 16th December 1946 at the age of 83, after having been in very poor health and out of touch with the Institute's activities for several years. After a three year course as a Whitworth Scholar at the Royal College of Science, Mr. Wells was engaged successively as a draughtsman with Messrs. Willans and Robinson, Ltd., Rugby, Chief Draughtsman with Messrs. W. T. Goolden and Co., Ltd., Assistant Manager with Messrs. Easton, Anderson and Goolden Ltd., Inspector in the Engine Department of The British Westinghouse Co., Ltd., Technical Adviser to Yates and Thom, Ltd., and Works Manager with The North British Motor Manufacturing Co., Ltd. In 1912 at the time of his election to membership of the Institute, he was a partner in the Consulting Engineering practice of Messrs. Wells and Taylor. From that year to 1926 he was a Recognized Teacher of the University of London, and held the post of Lecturer in the Department of Civil and Mechanical Engineering at East London College now Queen Mary College. For a number of years Mr. Wells was actively associated with the work of the Council holding office as Convener of the Junior Section Committee from 1918 to 1921, Convener of the Membership Committee from 1929 to 1935, and Convener of the Awards Committee 1932 to 1935. He was elected a Vice-President in 1926 and an Honorary Vice-President in 1938. Mr. Wells was also a Member of the Institution of Mechanical Engineers, Associate Member of the Institution of Civil Engineers and a Member of the Manchester Association of Engineers. For some years he was one of the Institute's representatives on the Heat Engine Trials Committee. He was a versatile author, and his contributions to the Institute's TRANSACTIONS include the following papers: "Thermodynamics and Refrigeration" (1913), "The Determination of Steam Engine and Boiler Efficiency" (1916), "Boiler Heating Surface—What is its True Value?" (1918), and "Lighthouses" (1920). He was also joint author with A. J. Wallis-Taylor of "The Diesel or Slow-Running Oil Engine", a treatise on its design and construction, published in 1919.

ROBERT LIVINGSTONE GILLIES (Member 7264) was born in Sydney on the 22nd March 1881 where he was educated and served his apprenticeship. After leaving school and the Sydney Technical College he joined the Union Steam Ship Co. of New Zealand, Ltd. in 1901 as 2nd engineer of the "Monowai" and rose to the rank of chief engineer of the "Rakanoa" in 1914, and later, the "Waihemo" and "Waitotara". In 1916 he was transferred to shore duty as assistant local superintending engineer at Sydney and in 1920 became local superintendent engineer at Melbourne. In 1921 he accepted the post of relieving local superintending engineer of Auckland, New Zealand. He transferred to the Wellington office in 1922 and in 1923 was appointed assistant superintending engineer at Wellington. In 1934 he became superintending engineer and held this position until he retired in 1946. In 1935 he visited the United Kingdom in connexion with the building of T.S.S. "Awatea" and again in 1937 to assist in new tonnage building. He was elected a member in 1932 and Vice-President of Wellington in 1944, resigning in 1946. He was a member of the



New Zealand Institute of Marine and Power Engineers and also a Registered Engineer of New Zealand. He died in Gloucester House Hospital, Sydney, on the 8th May 1948, aged 67.

WILLIE W. S. IBBETSON, B.Sc. (Member 4194) was born in 1878. He graduated from Armstrong College in 1902 with the degree of B.Sc., and from 1903 to 1906 was employed in the workshop and central power stations of the old London and North Western Railway at Derby and Nottingham. From 1907 to 1930 he was in charge of the electrical engineering department at the School of Engineering at Poplar and then retired. While there he took a post-graduate course for a year at the East London (now Queen Mary) College. In the first World War he was an engineer on the switchboard at Barking Power Station. Apart from his reputation as a lecturer on electrical engineering, he was perhaps better known as an author of engineering works, his "Electricity for Marine Engineers" being one of the first publications dealing with electricity for marine use. Among his better known books are included: "Electrical Installation Rules and Tables for Rapid Reference", "Electric Circuits and Installation Diagrams", "Accumulator Charging, Maintenance and Repairs", "Electric Power Engineers' Handbook", "Motor and Dynamo Control" and "Electric Wiring". He died on the 9th June 1948.

Com'r Sir Edward Robert Micklem, C.B.E., R.N. (ret.),
(President)

COM'R SIR EDWARD ROBERT MICKLEM, C.B.E., R.N. (RET.)

Com'r Sir Edward Robert Micklem, younger son of the late Leonard Micklem, was born on the 5th June 1891. He was educated at the Royal Naval Colleges at Osborne and Dartmouth and served in the Royal Navy from 1903-19. He saw service in the 1914-18 war as Lieutenant (E), including two years in the submarine service. He retired from the Navy in 1919 and joined companies associated with Vickers Ltd. In 1928 he became general manager at Elswick. He was appointed Deputy Chairman of Vickers-Armstrongs in 1944 and Chairman two years later. He is also a Director of The English Steel Corporation Ltd. and Vickers Ltd., and is a Member of the Boards of Barclays Bank Ltd., the Sun Insurance Office Ltd., and the Sun Life Assurance Society. In 1942 he was Chairman of the Regional Board, Northern Area, Ministry of Production, and in the same year his services were loaned to the Ministry of Supply. From 1942-44 he was Chairman of the Tank Board and also of the Armoured Fighting Vehicle Division of the Ministry of Supply. He was made a C.B.E. in 1942 and was knighted in the New Year's Honours List of 1946. He is a Member and past Member of Council, of the Institution of Mechanical Engineers, a Member of the Institution of Naval Architects, a Member and past Member of Council of the North East Coast Institution of Engineers and Shipbuilders and Vice-President of the Engineering and Allied Employers' National Federation. Sir Robert, who married Sybil Ursula, only daughter of J. R. Head, has one son and one daughter.