



SATURDAY, JULY 28, 1928.

CONTENTS.

	PAGE
Contacts of Education and Industry	121
Common Sense in Engineering and Philanthropy	124
Lubrication and Lubricants	125
The New Reformation. By T. LI. H.	126
Europeans in Abyssinia. By A. G. C.	127
Our Bookshelf	128
Letters to the Editor :	
The Nierenstein Reaction.—Dr. W. Bradley and Prof. R. Robinson, F.R.S.	130
Adjustable Needle Valve Leaks.—Prof. Chas. T. Knipp	131
The Velocity Coefficient for Bimolecular Reac- tions in Solution.—Prof. D. H. Peacock	131
Is Crystal Reflection of X-rays entirely a Classical Phenomenon?—I. Waller and R. W. James	132
Kinetics of Absorption of Ultra-sonic Waves.— D. G. Bourgin	133
Abstracts of Royal Society Papers.—Prof. J. S. Townsend, F.R.S.	133
Does Methylene Blue penetrate Living Cells?— Tudor Jones	133
Agriculture in India	134
Reproduction, Lactation, and Vitamin E	136
News and Views	138
Our Astronomical Column	142
Research Items	143
The Forest Research Institute, Dehra Dun, India. By Alex. Rodger	146
International Astronomical Union. LEYDEN MEETING	149
The Carbon-Nitrogen Ratio in Wheat	150
University and Educational Intelligence	151
Calendar of Customs and Festivals	152
Societies and Academies	153
Official Publications Received	156
Recent Scientific and Technical Books	Supp. v

Editorial and Publishing Offices :

MACMILLAN & CO., LTD.,
ST. MARTIN'S STREET, LONDON, W.C.2.

Editorial communications should be addressed to the Editor.
Advertisements and business letters to the Publishers.

Telephone Number : GERRARD 8830.
Telegraphic Address : PHUSIS, WESTRAND, LONDON.
No. 3065, VOL. 122]

Contacts of Education and Industry.

THE Committee appointed by the President of the Board of Education and the Minister of Labour "to inquire into and advise upon the public system of education in relation to the requirements of trade and industry, with particular reference to the adequacy of the arrangements for enabling young persons to enter into and retain suitable employment," has now presented its second report,¹ which deals with the first part of the terms of reference. Already details of its recommendations have appeared in the press ; and already certain criticisms of those recommendations, particularly with regard to their cautious framing, have been made.

It is not our purpose to attempt a defence against such criticisms. There can, indeed, be little doubt as to the cautious framing of the report. Its attitude towards the raising of the school leaving age, for example ("for the reasons given in the body of our report, we do not submit any recommendations . . ."), is doubtless disappointing when the weight of other opinion is considered. Its attitude, too, towards the development of full-time instruction in technical schools (which "must be considered with due regard to the factors of supply and demand") may not be very heartening. That the result of the growth of the internal system of examination is regarded as satisfactory ; that "criticisms relating to basic subjects [taught in elementary schools] are too sweeping and are frequently made on insufficient ground" ; that authoritative industrial opinion does not favour vocational training in primary schools ; that the educational principles formulated by the Hadow Committee are accepted ; that industry would benefit by a larger intake of pupils from secondary schools, and that to accomplish this the difficulty occasioned by the age of entry into apprenticeship, namely, sixteen years, "should be examined by the industries concerned" ; that the grouped course system in evening schools is justifiable but should be more elastic ; and that the system of advisory committees in connexion with technical schools "should as far as possible be made universal" : all these points will be noted perhaps with a little impatience by those to whom the problems are familiar, and in their search for recommendations which shall show means of swift solution of these problems they may be apt to overlook not only the profounder

¹ Report of the Committee on Education and Industry (England and Wales). Second Part. Pp. 79. (London: H.M. Stationery Office, 1928.) 9d. net.

significances of this report, but also the fact that another committee, which has presented its report recently, has been dealing with the same terms of reference applied to Scotland.²

The two reports have been cast along similar lines, but the Scottish report seems bolder in its decisions. If the English committee hesitates concerning the school leaving age, the Scottish committee does not: in its first report it supported the raising of that age; in preparing this report the evidence "has confirmed us in the opinions therein expressed." Unlike the English report, too, it says clearly "attention should be given to the need for further development of whole-time technical education."

Probably the most disappointing feature of the English report is the fact that definite views were difficult to obtain from industrial sources. Yet both committees emphasise the need for employers to interest themselves in educational provision. The Scottish report puts it well:

"It is not merely that they have an interest in seeing that the money they provide is intelligently spent. They depend for their success on the mental calibre of their workers. The employer takes every care to obtain good raw material and machinery that is economical and efficient; he should be equally careful to obtain workers who will be able to use their brains as well as their hands in the fashioning of the material and the tending of the machinery."

We would commend that passage to the National Confederation of Employers' Organisations, which appears to have found itself unable to give authoritative answers to any questions except those of the raising of the school leaving age and the establishment of compulsory day continuation schools—both of which it opposed.

In spite of the fact, however, that the Confederation was unable to submit its views to the test of examination by oral evidence, we would underline its view that "the absence of collective views on the part of employers is due largely to lack of knowledge of the system," and its hope "that some way may be found of increasing that knowledge and securing contact and practical co-operation." We quote these two statements because we agree with the committee that they "remove the suspicion that the employers of this country had already formulated a body of definite views and requirements which were being ignored by those responsible for education." We agree also with the Committee's view that, since educa-

tional nomenclature is a source of difficulty, the Board of Education should issue a short handbook descriptive of the educational system. Anything which will help employers to repair their lack of knowledge of the system and so enable them to contribute their views must be done speedily—particularly since the Committee has rightly insisted that "industries must define their needs, and no other body can do it for them." Not entirely unconnected with this is the indifference of employers to technical education, and the fact that its importance is missed also by many educationists.

Valuable as all this may be to clear the ground for the *rapprochement* between education and industry, it does not present what we have called the profounder significances of the reports. There are pointers in both to the wider and deeper aspects of the problems under review.

The employer is recommended to look on primary, secondary, continuation, and technical education not as four distinct types, but as mutually related elements in a coherent system. He is advised to do this immediately, because "unless there is a totally unforeseen reversal of educational ideals this conception of education above the age of 11 is likely to be put into practice within a generation." No employer ought to miss the point of that quotation, particularly the last phrase.

There is good reason, too, for the warning sounded concerning the urgency of a solution to these problems: "any special measures which can be taken to secure the contact which every one desires should be taken with all possible speed before the educational position becomes so solidified that any modifications, however desirable, will be extremely difficult if not impossible to make."

With such significant prophecy and warning before us, it becomes ever more urgent that we should not regard education and industry as two self-contained and separate matters which have in some way to be joined together. The reports do not fail, therefore, to indicate matters not always clearly visualised.

If criticisms are made concerning lack of discipline on the part of pupils now leaving school, the Scottish committee wisely points out that it is one of the faults not so much of the school as of lack of parental control during the War, and has been accentuated by subsequent years of trade depression and unrest. Poor housing conditions are also noted as a contributory factor. It thus becomes clear that a complete science of civilisation is necessary before ideals can be translated into

² Committee on Education and Industry in Scotland. Second Report. Pp. 40. (Edinburgh and London: H.M. Stationery Office, 1928.) 9d. net.

practice. The same may be said when complaints are made that pupils tend to want black-coated jobs rather than to enter industry. In this connexion we would refer our readers to *NATURE* of Nov. 12, 1927. In an article entitled "Technical Education and Industry" we summed up the views of educationists and industrialists given at the Leeds meeting of the British Association, and suggested that "if industry has correctly expressed its needs, and education can fulfil those needs, there ought not to be the slightest difficulty in placing every properly qualified student. That is surely an 'acid test' of the relationship between school and employment." We showed, however, that the present facts do not supply much evidence of that relationship, and, if firms find their administrative sides are more attractive to qualified students than their industrial sides, we asked:

"Is it not generally true that difference of status exists? Is it not generally true that in times of bad trade it is the production side which suffers, while the administrative side enjoys something very like permanence? Can the employers help to avoid this—a very real threat to the future skill and welfare of industry?"

We are glad to note, therefore, that both reports press the importance of this aspect of the problem.

"If the schools, to meet the wishes of industry," says the English report, "give some particular form to their product, industry must do its best to see that there are corresponding places to be filled, and filled beneficially, by recruits of this kind." ". . . the black-coated worker," says the Scottish report, "has a higher social status, better opportunities for advancement, and more chance of continuous employment, while usually his wages are in the long run higher than those of the average industrial worker."

There can be no doubt, too, that each report has placed a finger upon essential factors in the question of effecting contact between education and industry. The administrative structures of the two differ. Education "is organised primarily on the basis of local government areas. Industry . . . is organised mainly on a national basis . . . trade and commerce are for the most part organised on a local basis."

Clearly, therefore, to secure correlation there must be both local and national action. Both committees emphasise the value—indeed the necessity—of local inquiries, not so much for their immediate result on school curriculum and organisation, but for their effect of drawing employers and workers, teachers and administrators together to

get to know each other personally and to appreciate each other's point of view.

Both committees also see that such local inquiries must be supplemented by national action, and they therefore make what we regard as their most important recommendation, namely, that a small national committee, representative of the views of employers, workers, local education authorities, and teachers, should be established by the Board of Education (in the case of Scotland by the Scottish Education Department) to undertake the necessary national negotiations. Briefly, the function of that committee would be to inform trade and industry of the educational system, to assist trade and industry in the formulation of their views, and to consider with education authorities how far those views can be met. It may be remembered that the machinery of the Emmott Committee (cf. *NATURE*, Jan. 14, 1928) has already made such a committee possible.

We have said that the reports have profounder significances than may be realised at first sight, even though some of their recommendations may not appear to give clear and final answers to the problem faced. But it is better, we think, to formulate those problems so that they may be seen in relation to modern development, and so that their urgency becomes apparent, than to propose piecemeal legislation which touches but lightly root causes and tendencies. For this reason we congratulate both committees on their attitude. In doing so, however, we must not fail to emphasise the fact that neither report may be regarded as self-sufficient even in the formulation of the problems. Both must be read in conjunction with the reports of other committees which have dealt with the other angles of those very problems. We would therefore refer our readers, in addition to those of our issues to which we have already referred, to *NATURE* of April 9, 1927, p. 517; Feb. 5, 1927, p. 185; and Jan. 8, 1927, p. 69, where these earlier reports have been discussed.

Finally, since there are not lacking those who think the educational problems involved can be solved by the mere addition of so-called 'practical' subjects to a so-called 'liberal' curriculum, we would suggest that the following extract from the English report is evidence that the Committee has grasped an important point in educational philosophy which is often missed, particularly by educationists: "Special subjects should not merely be added to the curriculum, but should be correlated and interwoven with the other subjects of the curriculum."