

system—may, indeed, make an end of it. After the war, the report says, "keen emulation will be encountered, lost ground must be recovered, new openings must be found," and so on; and modern languages must be taught so that boys may be prepared to join in this commercial warfare or in the higher warfare of diplomacy. Though it may be questioned whether the success of a nation is due entirely to these things, the Committee leaves no doubt as to its own views. The value of business is stated quite candidly and unconsciously. "Our foreign trade does not comprise the whole of our activities, but the whole of our activities depend upon it." "After the war we shall want it more and more if we are to enter into the commercial conflict and succeed in the struggle." To the honour of schoolboys be it said, they will not be inspired with a consuming zeal for study by these business outlooks on life.

We submit that the duty of the Committee was not to supply service of this kind, or to satisfy the demands of either commerce or diplomacy. Its privilege was to impress new ideals into the service of the State; to inspire and send forth new workers into all parts of the national life. Whatever views we may hold on the historical, social, or economic questions of this or any other country—and the Committee does not conceal its own views—we might have expected in the report nobler foundations for these new modern studies.

The report is on pleasanter ground when it considers the special value of modern languages in the interchange of knowledge and ideas between the nations of the world. The Committee reminds us that no country can afford to rely on its own domestic stores of knowledge and ideals; and scientific workers are advised to make themselves familiar with as many modern languages as possible. "The whole civilised world is a co-operative manufactory of knowledge" and of ideals. "New researches are constantly leading to new discoveries, new and fruitful ideas are giving new pointers to thought, new applications of old principles are being made, and in this work all civilised countries can collaborate." We would that the Committee had made these fruitful thoughts more pronounced and more vital in its report, and that it had shown how to apply them in the school life. It is possible that this union of thought and endeavour between the nations is the gift for which we are searching.

When, however, the Committee definitely turns to the value of modern studies in education it becomes apologetic, and has no advice to offer but that the modern language master should copy his classical colleague and try to live up to his standard of culture. The value of classical studies is set forth in the well-known form, and the search for the new spirit which the study of modern languages might invoke is abandoned.

The opinions of the Committee on educational methods are astonishingly reactionary, and would be alarming if they proceeded from men who were themselves trained in modern studies; but the surprising, and to that extent reassuring, fact is

that most of the Committee are men who have gained their inspiration from the classics, and not from modern language study. They lament that "instruction cannot be universal; it must proceed from the more instructed to the more ignorant." Or, again: "Modern studies can only work through the few to the many, through the many to the multitude." This is certainly contrary to natural methods of progress, and is opposed to the modern methods of education which have been suggested by science. It is to be regretted that the Committee did not include any representative of science. The sister Committee on science had the help of at least two modern language scholars.

The report is influenced by the Board of Education. This is easily traced in the appearance of "coherent" education and co-ordination. Coherence appears in most of the Board's circulars. It has worked woeful ruth with evening schools, continuation classes, and technical education. It reaches its sublime limit in the advocacy of classics as the dominant study for admission to the Higher Civil Service—for which the classical education is described as the most coherent of courses of study.

INSURANCE AND ANNUITIES FOR COLLEGE AND UNIVERSITY TEACHERS.

THE recently issued twelfth annual report of the president and treasurer of the Carnegie Foundation for the Advancement of Teaching is one of much importance in connection with the question of life insurance and pension provision for college and university teachers in America. Twelve years ago the above corporation was founded in order to provide pensions for the college and university teachers in the United States, Canada, and Newfoundland, and during this period it has, without doubt, not only proved a boon to the beneficiaries, but also increased the attractiveness of the teaching career. But the experience of the past twelve years and a careful study of the whole problem have led the trustees of the foundation to the conclusion that the principles on which they have acted in the past have been unsound. While insisting that the payment of pensions to men who, like college and university teachers, are in receipt of fixed and rather modest salaries must be regarded as a matter of right, and not of favour, the trustees have become convinced that no system of free pensions can be devised which will not in the end affect the teacher's pay, and that the contributory system of annuities is the only one which society can permanently support.

The trustees are, therefore, driven to the conclusion that the policy of free pensions which has been pursued during the past twelve years is unsound, and they have decided to act sincerely and courageously on the strength of their newly formed convictions, while at the same time acting justly towards those present teachers who have come to regard the present rules of the foundation as in the nature of a contract. An additional

reason for reconsidering their policy is found by the trustees in the fact that the very considerable additions which have in recent years been made to the ranks of the teachers promise to impose a strain on the funds of the foundation far beyond their powers to support.

The purpose of pensions is to ensure to the teacher economic independence at the close of his productive life. Without such provision the work of the teacher cannot be carried on without undue care and apprehension, which lower the quality of the teacher's work. But there is another point to which attention is less often given—namely, the necessity of freeing the teacher from the apprehension of the economic dependence of wife and family in the event of his death. In the case of the young married teacher this apprehension is probably more powerful and more detrimental to good work than the former. As the present report emphasises, however, the problem of the annuity cannot be financially separated from the problem of life insurance during the productive period of the teacher's life.

It is of much interest to notice that the conclusions reached here are fundamentally quite similar to those arrived at by the commission on the superannuation system for the federated universities of Great Britain. Whereas, however, in Great Britain, owing to the comparatively small number of teachers involved, and for other reasons, the insurance and annuity contracts are carried out through the agency of existing insurance companies, the trustees of the Carnegie Foundation have decided to found a special teachers' insurance and annuity association to be organised, under the laws of the State of New York, so as to represent primarily the interests of the policyholders, to whose scrutiny and oversight it would be subject. In this way insurance can be effected at a lower rate than is possible with insurance businesses carried on for profit, and the benefits to be derived under the proposed scheme appear to be appreciably greater than those accruing under the British scheme. With regard to the combination of life insurance with annuity provision, the trustees point out that this can be effected best by a combination of so-called term insurance with deferred annuity insurance. By this means, by the payment of the same total sum as is contributed under the pension scheme a much greater protection is given to the dependents of the insured during his productive life, without greatly diminishing the value of the annuity should the insured live to the pensionable age. The suggestion is well worth the consideration of authorities in this country.

ON COLOUR SENSITISED PLATES.

UNDER the above title, in the issues of NATURE of February 18 and 25, 1915, we described the general character and some of the typical uses of colour sensitised plates—that is, plates made sensitive to colours to which the simple gelatino-bromide of silver is practically insensitive. The

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additional sensitiveness is produced by the incorporation of dyes with the emulsion or by their application to the finished plates, and we pointed out that when a continuous spectrum was photographed on such plates, there was clearly shown the original maximum of sensitiveness of the silver bromide and the new maximum or maxima added as the result of the special treatment. Plates made sensitive to all the colours of the visible spectrum would thus have three or four maxima, instead of only one. This irregularity was obviously one cause of the difficulty of getting the complete control of the colour effect that is desirable.

Shortly after those articles were written, the "Wratten Division" of Messrs. Kodak improved their panchromatic plate so effectually that it showed an almost even sensitiveness to the normal solar spectrum. Messrs. Ilford make a plate with similar characteristics. In these plates there is slight evidence of maxima in the greenish-blue and in the red, but these are so slight that it is often scarcely necessary to take notice of them.

It is obvious that a plate of even sensitiveness is theoretically, and one may add practically, the best and simplest where the general and various control of colour effects is necessary. For three-colour reproduction purposes, for example, where the spectrum has to be divided into three regions—roughly, red, green, and blue—the exposure for each colour is very nearly equal. For orthochromatic work—that is, where it is desired that the degrees of whiteness in the print shall correspond in proportion with the degrees of luminosity in the object that produces them, irrespective of their colour—it is clear that we must use a colour filter that will gradually tone down the action of the red and the blue, giving a curve of transmission similar to the luminosity curve of the spectrum—and such a filter will be green. The general idea that a yellow filter is the proper one to improve the rendering of colour sensitised plates, which was correct with the older plates that were deficient in red sensitiveness, appears still to predominate. A yellow filter with modern panchromatic plates will darken the representation of the blues, but will leave the reds, and colours such as yellow, of which red is a component, too light. The difficulty is to find a suitable green filter, for it is, as a rule, much more trouble to get a green filter to suit one's needs than that of almost any other colour. Of the well-known dyes, naphthol green seems the nearest approach to what is wanted, so far as absorption is concerned. As Prof. Pope has been so successful in his work on dyes, perhaps he will be able to find one that gives a better curve and that absorbs less of the colour that it is desired should be transmitted. Of course, theoretically, for orthochromatic results there is the alternative of reducing the sensitiveness of the plate to red to a proper degree, leaving only the action in the blue excessive, and to be reduced by a yellow filter.

We have just received from Messrs. Ilford a portfolio containing a set of comparative prints