

11. COURSES LEADING TO INSTITUTION MEMBERSHIP EXAMINATIONS

194. Although the Committee is firmly of the opinion that the completion of a University degree course is the best method of entering the engineering profession, it realizes that this is out of the question for a number who are already in the various stages of qualifying by other means. It has been made clear, too, earlier in the report (see paras. 124 and 131 and Section 8, *passim*) that for some years to come it will be necessary to provide for those who will qualify for the profession without obtaining a University degree. Hitherto those who qualified in this way passed the examinations of one or other of the British Institutions of Engineers or of the Engineers Registration Board of New Zealand. The principal steps which the Committee proposes should be taken to cover this long transition period are referred to in the recommendation in para. 124 about courses leading to diplomas in professional engineering. These diplomas are dealt with at some length in Section 12. It will be shown that these diploma courses are more desirable than the existing methods of obtaining Institution membership other than by a degree. The Committee considers, therefore, that the great majority of those who do not seek a University degree will take the diploma courses. Here, too, there will be a transition period, but, because the diploma courses are based to a large extent on the existing Institution examinations, students will in most cases be able to transfer to the diploma courses without difficulty. The transition period, therefore, need not be long.

195. The purpose of this section is twofold. It will outline steps which the Committee proposes should be taken during the interim period for those who decide to continue with their Institution examinations. It will also make some reference to the weaknesses of those examinations under the conditions in which they may be taken in this country, thereby giving an indication of the reasons which have led the Committee to recommend a system of diplomas in professional engineering.

196. One of the problems brought out in the evidence, particularly of the technical schools, was the inadequate educational background of many of those studying for Institution examinations. No doubt a number have left school early to enter industry without any clear idea, or perhaps without any idea at all, of qualifying as a professional engineer. The development of a laudable ambition finds these people with an academic background that is not only generally inadequate, but also frequently deficient in the kind of basic education generally regarded as being essential for a professional engineer. Moreover, there is a natural desire to catch up with what has come to be regarded as wasted years. In other words, the young man, perhaps he is not so young, wishes to spend as little time as possible before beginning the professional examinations of the Institution to which he is seeking membership. In most cases the deficiency clearly revealed before very long is insufficient knowledge of mathematics and the physical sciences. The Committee considers that it would be in the best interests of students to insist on a slightly higher pre-entry qualification which, when passed, would be an adequate background for further study. The present minimum entry requirements have already been set out in Section 6. It was indicated to the Committee in the evidence that the Engineers Registration Board would not object to a suggestion that the pre-entry qualification be raised and that the British Institutions of Engineers would probably fall into line and require any New Zealand candidates to comply with the new conditions.

RECOMMENDATION:—

That the Engineers Registration Board ensure that the minimum standard of entry to the engineering profession in New Zealand be University Entrance either by accrediting or examination, and that intending students be strongly advised to include both mathematics and the physical sciences among the subjects taken at the Sixth Form stage.