146. The Committee considers that a suitable course of practical training for degree students and for those taking the diploma course in mechanical engineering should include acquaintance with as many of the following processes as possible: erecting or assembly, bench fitting, including marking off, machining, patternmaking, foundry, welding, sheet-metal work, smithy or structural steelwork, boilermaking, planning, maintenance of works equipment. In addition to work of this nature the diploma student should spend a period of at least one year in a mechanical engineer's office on design work. No attempt has been made to lay down the order in which these periods of training will be carried out, as this will vary with the number of apprentices or cadets undergoing training in a particular workshop.

147. The Committee is of the opinion that the present period of practical training for the student taking B.E. (Mech.)—nine months—is too short in view of his close association with skilled tradesmen, and considers that some arrangement should be made to increase this period.

148. There seems to be a considerable majority in favour of a period of practical training before the professional subjects of the degree course are entered upon. This would give a youth an opportunity of finding out what engineering is like; it would help him in appreciating later the significance of his professional studies. The best time to make the break is probably at the end of the intermediate year. Opinions vary about the length of the period of this practical training, but it must be long enough for the youth to find his feet and receive proper training. It cannot be very long, for reasons which are obvious. The main difficulty, of course, is in arranging a suitable system. Co-operation is required between the employer, the University, and the student.

149. The Committee was impressed by the scheme put into operation by Metropolitan Vickers, Ltd., and referred to in a pamphlet published by the firm entitled "Education Schemes in Industry." It considers that the best solution may well be along the lines set out in the following quotation from p. 12 of the pamphlet:—

> This method of two years' practical training following three years' full-time study has been varied by the company by the introduction of its probationary College Apprenticeship Course, which consists of one year's practical training before entry to the University or senior technical college, followed by one year on the completion of full-time academic studies. The company accepts some thirty-five such apprentices each year.
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> The company pioneered this method of training and after some twenty years' experience is firmly convinced that it represents the best form of training for the great majority of professional engineers. That this point of view is being increasingly accepted throughout the profession is shown in the publications of the Institution of Mechanical Engineers, the Institution of Electrical Engineers, and the Institute of Physics. From the company's, as well as the individual's, point of view by no means the least advantage lies in the opportunity offered to the apprentice in his initial year to discover whether or not his real interests and aptitudes are for the engineering profession before committing himself to a three-year University course. It is, in other words, a very practical form of vocational guidance which helps young men to make a choice of career based on real knowledge of conditions. Those who have followed this course have repeatedly expressed their appreciation of its value whilst many of those who did two years' practical training after graduation have said that their experience led them to wish they had had a year's practical training before entry on their full-time University studies.

150. The Committee commends this system to prospective entrants to the profession as one well worthy of trial. The objection may be raised that the necessary break in academic studies might cause some difficulty to students and that the subsequent study would suffer thereby. The Committee considers that the suggested trial would show that the difficulties were more imaginary than real, especially if the students attended evening classes during the period of practical training.