

&c.—the pupil must not copy them, but give a restored rendering of the part. The casts were the same as those used in the Kunstgewerbe Schule, and made upon the school-premises. Many good modern casts are in use both in this stage and that answering to our 8^b. In the latter stage the director considered that pupils who were in training as teachers learnt more of the actual form of eyes, noses, mouths, ears, and other details of the figure from very good modern examples than from the antique. Interesting models of hands and feet, in planes only, showing slightly-exaggerated treatments of subcutaneous parts, a head upon a pivot, with lines drawn through the eyes, mouth, nose, &c., to illustrate the principles of construction, the pupil is required to draw, besides giving a lecture before the director upon the object. Drawing leaves, flowers, fruit in outline, resembling Stage 10, and shading came next. The study of botany had to accompany this drawing from nature, in the same way as anatomy did that of the figure. The pupils worked in large classes, groups of eight or nine working from the one group of models or cast. They are expected in their own schools to always teach in classes; individual-teaching, so common with us, is unknown. Geometrical and perspective drawing were taught, but in such an elaborate manner as could only be used in schools of a most advanced character. A model used for orthographic and perspective projection, and which all teachers of these subjects must demonstrate from, was one of the best that could be made, and extremely useful. The advanced pupils had to attend a series of lectures upon architecture by a leading Berlin architect. Seeman's "History of Art" was the text-book, and every third pupil attending the lecture was supplied for his and his fellow-pupils' use with three or more plates referring to the history or period intended to be explained by the teacher. Supplying these plates is one among many helps given to students, though it must be extremely expensive to the Government. No design was taught, and the ordinary school-teacher was not expected to know very much about this subject. The principles of colouring had to be understood, but only from diagrams. Owen Jones's method is not approved of, and teachers are not expected to teach any of the principles that he lays down in his "Grammar of Ornament." There is a most useful library belonging to the school, with a copying-room adjoining. About a hundred students could be easily accommodated in these rooms. The course of instruction is entirely in the hands of one man—the director—who sees every drawing and marks it, and grants diplomas of efficiency when he considers the would-be teacher is capable of teaching upon his or her own account. The time spent in the school varies according to the ability of the pupil, but the average time seems to be about three years. Before being allowed to enter any classes in the school all the male pupils must have passed very severe examinations in general knowledge, equivalent to the matriculation examination of the university student, which carried with it the privilege of serving only one year in the German army instead of the usual three. The number of pupils attending all classes is nearly five hundred. The building is very large, and affords ample accommodation. As in the "Kunstgewerbe" School, the staff of masters and mistresses is a very large one. Scholarships are largely given to help specially-deserving pupils. Often it may happen that a provincial town will send a promising pupil for even so short a time as three months to profit by the instruction and advantages offered by this school.

USES, OBJECTS, and METHODS of TECHNICAL EDUCATION in ELEMENTARY SCHOOLS. By HENRY H. CUNYNGHAME.

No apology is needed for bringing to the notice of a society founded for the purpose of encouraging the arts and manufactures a subject so important as the education of our mechanics and artisans. A generation has not yet passed away since the necessity of educating the masses of the people was recognised, and only some fifteen years have elapsed since the subject was undertaken in earnest. Though England was late to begin, as compared with foreign nations, yet her progress in this respect has been surprisingly rapid, and bids fair shortly to place her in possession of a system of schools in no way inferior to those on the Continent of Europe or America. But an opinion is steadily growing up, and every day finding more adherents, that our elementary training, whether for rich or poor, is still incomplete, and that it will not become fitted to the wants of the time until it has undergone some grave modifications; for since the framework of our educational system was put together in the Middle Ages great modifications have taken place in modes of thought. The criterion of truth is no longer the voice of authority; the schoolmaster must therefore modify his system. He has no longer a right to require the assent of his pupils by a mere *ipse dixit*. His true province is now to teach his class how to observe and how to experiment and learn of Nature for themselves, rather than to supply them with an encyclopædia of facts supported only by the voice of authority.

In the universities this change of system is silently but rapidly progressing; science-laboratories are rising up everywhere for the experimental method of study, and mathematicians, imitating the example of men like Newton, Gauss, Pascal, Clerk Maxwell, or Sir W. Thomson, are going to experiment for the basis of their theories, instead of for ever proceeding by a deductive method based upon a series of unverified assumptions. So that it is no uncommon sight to see a senior wrangler in a physical laboratory. Even classics, the former stronghold of didactic teaching, is taking the same line. Visits are made to Greece, and scholarships awarded to enable egyptologists to study upon the spot; and, thus understood, classics, instead of being confined to an imitation of the styles of ancient authors, is becoming expanded over the whole field of ancient philosophy, history, and art, and therefore glows with a life, a truth, and a reality that it never previously possessed. In the great public schools, too, the same influence is spreading. Laboratories are being constructed, presided over not, as before, by the nearest country medical practitioner, but by men who have regularly taken their degrees in chemistry and physics. There are botanical and entomological clubs, and in the corners of the playground carpenters' shops are being erected. These shops are, it is true, not yet on a satisfactory footing. Patronised with perhaps a shade of contempt by the classical master, they are often left to the mercies of some superannuated carpenter,