

with their large resources, they had it in their power to do great things for the prosperity of commerce and of the national industries, that by a reorganization of apprenticeship, by the issue of certificates granted to young workmen after examination, and by making provision for sound and practical technical instruction, they might regain their old prestige, and put British industries in a better position to cope with foreign rivalry.

In 1879 the Institute was incorporated. It seeks no aid from the State, and receives from it no money grants. It depends on annual donations from the guilds. It has a good understanding with the Science and Art Department, by which it is treated almost as if it were a public and official ally. While the Institute busies itself with technology, the department deals with the more purely scientific subjects, although it does admit a little technology into its programme.

1. *The Institute as a Central Administrative Body.*

It assists in many practical ways in the development of technical education, as, by the elaboration of a programme of studies for all branches of trades education, by the registration of classes, by the inspection of classes and schools, by organizing examinations, by granting certificates and prizes, by money grants, and by the direct institution of schools of trades and industry.

1. *Programme of Studies.*—For each subject the programme, which is issued every year and kept up to date in the light of experience and of fresh needs, prescribes a complete course of study graduated for the work of two or three years, and every year the questions set at the examinations of the previous year are duly published. The number of separate subjects in 1879 was seven; in 1895 the number was sixty-three. Practically the number is made much larger by a subdivision of subjects; thus, there are two courses in photography, the goldsmith can choose one course out of four, the shoemaker one out of ten, and so on. The list of subjects is as follows: Salt manufacture, alkali manufacture, soap manufacture, bread-making, brewing, spirit manufacture, coal-tar products, sugar manufacture, painters' colours (and oils and varnishes), oils and fats (including candle manufacture), gas manufacture, iron and steel manufacture, paper manufacture, photography, pottery and porcelain, glass-making, dressing of skins, tanning, boot and shoe manufacture, silk-dyeing, wool-dyeing, cotton-dyeing, cotton and linen bleaching, calico and linen printing, wool and worsted spinning, cloth-weaving, cotton-spinning, cotton-weaving, flax-spinning, linen-weaving, silk throwing and spinning, silk (including ribbon) weaving, jute-spinning, jute-weaving, lace manufacture, framework knitting and hoisery, hat manufacture, telegraphy and telephony, electric lighting and power transmission, electro-metallurgy, metal-plate work, plumbers' work, silversmiths' work and plated wares, goldsmiths' work and personal ornaments, watch and clock making, mechanical engineering, road-carriage building, rail-carriage building, typography, lithography, raising and preparation of ores, mine-surveying, slate-quarrying, carpentry and joinery, ship-carpenry, ship-joinery, brickwork and masonry, plasterers' work, cabinetmaking, milling (flour-manufacture), bookbinding, painters' and decorators' work, dressmaking, manual training (woodwork), manual training (metal-work).

2. *Registration of Classes.*—Subsidies and other advantages depend on registration. In order to be registered a class must be taught by a person holding the teacher's certificate in technology (which is granted by the Institute to those who have obtained its full certificate in the subjects which they respectively profess to teach), or a person teaching under the Science and Art Department, and able to prove that he has acquired adequate practical experience with respect to his subject; or a person whose special qualifications are recognised by the Institute on some other grounds. The Institute can inspect before registering, and can, if it sees fit for any reason, refuse to register.

3. *Inspection.*—On giving due notice, and paying the expenses, the managers of a school can have it inspected by an officer of the Institute. Eight inspectors were employed in this service in 1893-94, and 181 classes were inspected. The Rope-makers' Company maintain an inspector at its own expense to supervise the technical instruction in its own industry.

4. *Examinations.*—The annual national examinations constitute the most important part of the operations of the Institute. They are conducted on similar principles to those which are observed in the examinations of the Science and Art Department, and nearly at the same time. No candidate may take more than two subjects at a time. There are eleven subjects in which the examinations are at the same time theoretical and practical. The local committees, which assist in the formation of classes and watch over their progress, make all local arrangements for the examinations, and distribute the certificates and prizes. The examination fees are fixed by the Institute. As a rule, the fee is 1s. for each subject; but for some subjects higher fees are charged—for example, 5s. for woodwork and 10s. for ironwork. The Local Committee may require candidates from outside to pay an extra fee of 2s. 6d.

The practical examinations are of two kinds. In some cases the work is done in the presence of judges, in others it is done in definite time before the day of examination. In some subjects the work is sent to the Institute for examination. There are seventy-one examiners and forty-one assessors. It is hard to find tradesmen who have both the practical and the theoretical qualifications for the office of examiner; on that account it is the rule, in some cases, to associate a workman or employer with an experienced teacher.

The number of candidates is constantly increasing: in 1894 there were 11,631 at 344 centres, in 272 places, including some colonial cities and towns. The proportion of successful candidates was 55·4 per cent. The proportion is on the increase, though year by year the examinations become more severe.

In each subject there are three stages—preliminary, ordinary, and honours. Practically there are six stages, for at each stage there is a first-class and a second-class; and a candidate who has gained a second-class at any stage can come up afterwards for the first-class.