

The new regulations of the Board of Education dealing with junior technical schools were the subject of considerable discussion, and the view was generally expressed that all forms of specialised teaching should come within the scope of the new regulations, and that all limiting conditions as to the pupil's future outlook should be entirely removed from the regulations.

Special consideration was given to that section of the report of the Royal Commission which dealt with the examination of the external student desirous of proceeding to the degrees of the University of London. It was agreed that access to the examinations of the University should continue to be, as in the past, effectively provided for with such improvements in method as experience would suggest, but that no steps should be taken which should in any way diminish in standing or importance the quality of the degree awarded to the external student, or which should impair the position of the external as compared with the internal student. It was further strongly urged that there should not be, as proposed, any exclusion of unattached students from the examinations in technology, including engineering, in view of its disastrous effect upon higher technological education, and that it was of the utmost importance that the relations hitherto subsisting between the London polytechnics and the University of London should be maintained, and the recognition of eligible teachers in these institutions be continued.

The question of the new and important regulations for the establishment of technical bursaries by the "1851" Exhibition Commissioners with a view to the assistance of eligible graduates of the universities desirous of proceeding immediately to industrial employment was fully considered, and it was agreed that the Commissioners should be asked to consider the desirability of including within the list of accepted universities other qualified technical institutions.

The very important question of compulsory continued education in respect of children who had left the elementary schools to enter into employment with a view to their further education, both vocational and general, was carefully considered.

It was urged that having regard to the vast expenditure of public money, amounting now to upwards of twenty-four millions sterling per annum, and with a view to conserve the results of this expenditure, not only should "half-time" be abolished, but all regulations by means of which a child may be relieved of attendance at school before he reaches the age of fourteen, and that there should be enacted a law under which children leaving the elementary school at fourteen should be required to attend within the usual hours of labour a continuation school, which shall include in its curriculum not only vocational subjects, but such subjects of a general character as shall conduce to his effective preparation for the duties of life, and that the responsibility for the due observance of the law be laid upon the employers. It was shown that only a mere fraction of the children leaving school for employment continued their education, the figures being, for those between fourteen and seventeen years of age, only 300,000 out of a total of 2,335,000, or 13 per cent., with the result that there was a most serious economic and moral loss to the nation.

It was further shown that the German Government, realising this great loss to the German nation, had for some years established compulsory day continuation schools for children in employment throughout the empire, with most satisfactory results. There was a general consensus of approval. In the city of Berlin in 1910-11 there were 68,000 students of both sexes enrolled in continuation schools, of whom 32,000 were students in compulsory schools.

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ANCIENT PIGMENTS.

IN *Archaeologia*, vol. lxiv., pp. 315-35, Prof. A. P. Laurie, of the Royal Academy of Arts, presents us with the chief results of an important research on the historical and local succession of the use of "ancient pigments." His material has been drawn almost entirely from western Europe, Chinese, Persian, and Indian painting not being discussed. His conclusions, derived mainly from the optical and micro-chemical examination, necessarily much restricted, of valuable illuminated MSS., amplify rather than correct those of previous investigators, such as Sir Humphry Davy, Marcellin Berthelot, and other chemists of the nineteenth century, but synthetic experiments have in some cases been utilised. The story more nearly approaches completeness in some sections than in others. The lakes, for example—pink, lilac, red, crimson, and purple—have not as yet, in all cases, revealed their origin. Perhaps the series and sequence of blue pigments may be cited as a characteristic example of Dr. Laurie's fuller treatment of his subject. Of the six blues included in the early list—indigo, Egyptian-blue, the mineral azurite or chessylite, real ultramarine from lapis lazuli, blue verditer and smalt—the most interesting is without doubt Egyptian-blue. To this remarkable pigment Prof. Laurie has devoted much attention, having finally determined its composition and properties, and also the *optimum* temperature for its production (see Proc. Roy Soc., vol. lxxxix. A, pp. 418-29). Although these six pigments were not all in use everywhere and at the same time they cover the early centuries and the period between classical times and the close of the sixteenth century. Later additions to blue pigments comprise Prussian-blue, near the beginning of the eighteenth century; cobalt-blue, and artificial ultramarine in the first quarter of the nineteenth century; and *cœruleum* about the year 1870. This dating of pigments and of their use is of the highest importance in connection with questions as to the provenance and authenticity of works of art. For full details Prof. Laurie's paper, with the annexed tables, must be consulted. A few typographical errors in this important memoir should be noted; Robertson on p. 321 should be Roberson; sulphur not silver should appear in the second line from the bottom of p. 331; and the name of the mollusc from which the Irish monks prepared the Tyrian purple employed in their illuminated MSS. is not quite accurately given in the earlier of the tables appended to the memoir. It may be suggested that this purple pigment, which is a dibromoindigotin, ought to be identifiable where its presence is suspected by means of its high content of bromine.

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CELLULOSE AND ITS DANGERS.

THE Departmental Committee on Celluloid, appointed by the Home Secretary some fifteen months ago to consider the precautions necessary in the storage and use of this substance, has recently issued its report (Cd. 7158, 1913). From this it appears that the product accepted as "celluloid" in the report consists essentially of gelatinised nitro-cellulose and camphor, the proportion of nitro-cellulose usually varying from 70 to 75 per cent. in ordinary celluloid articles, and from 80 to 90 per cent. in cinematograph films. It ignites very readily, and burns with great rapidity and fierceness; moreover, in certain circumstances it may take fire without the direct application of flame. If submitted to a moderately high temperature for some time it suddenly decomposes with evolution of considerable heat and the emission of inflammable and poisonous gases