Throughout the reports of the inspectors the welcome information is made known that experimental work in science is becoming more common, but there is still much room for improvement. The supply of apparatus is being largely increased, and *laboratory accommodation is being extended. The* chief difficulty to be contended with at the present time is the insufficient education of the students who join the evening classes. Especially is there a lack of knowledge of scientific principles, and there is a difficulty in getting students to take up subjects which lie at the bottom of all technical subjects. On this point Dr. H. H. Hoffert says: "It is much to be desired that as Technical Institutes multiply, and permanent staffs of well-qualified teachers become appointed, more encouragement may be given to students of evening classes to take up definite courses of study. Such students too frequently attempt the study of the more purely technical and applied subjects, without having the necessary knowledge of the underlying sciences, and in consequence of this the teaching is largely based on rule-of-thumb methods of practice, and is lacking in scientific generality and educational value. There is an undue disproportion in number between classes on such subjects as applied mechanics, steam, and mining, and those in theoretical mechanics, elementary physics, chemistry and geology."

In addition to the reports on instruction in science and art, the Blue-book just issued contains as appendices reports on the Royal College of Science, the South Kensington Museum, and other museums in connection with the Department of Science and Art, supported by the State. There is also in it the Report of the Director-General of the Geological Survey of the United Kingdom and the Museum of Practical Geology, and a Report to the Solar Physics Committee on the work done in the Solar Physics Observatory at South Kensington.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

THE appointments, recently advertised, at the Northampton Institute, Clerkenwell, have been filled as follows:—Mr. John Ashford, Lecturer on Engineering at the Birmingham Technical Schools, to be Head of the Mechanical Engineering and Metal Trades Department; Mr. John Williams to be Head of the Artistic Crafts Department; Mr. C. V. Drysdale to be Chief Assistant in the Applied Physics Department; and Miss Mary A. H. Gibbs to be Head Teacher in the Domestic Economy School.

THE Technical Education Board of the London County Council has addressed a letter to the Councils of University and King's Colleges on the subject of the financial assistance to these institutions during the forthcoming session. It is pointed out in this letter that the Board cannot undertake to ensure regular annual grants towards either of these colleges. It is further recommended that the Councils of the two colleges should confer together before making any application for assistance, with a view to coordinating the work now specially carried on in connection with Oriental languages. A question has been raised with regard to King's College, as to whether the Board can legally make a grant to an institution of a denominational character. But since the discussion of these questions will take some time, it is proposed to continue the grants of £1500 to University College and £1000 to King's College for next year, on the understanding that such a conference shall be held.

THE following complaint, which has been made by *The Local Government Journal*, is not, we think, borne out by the reports of the technical education committees of those County Councils which administer the affairs of the agricultural counties, and which have been sent to us from time to time. The paragraph runs thus: "If technical education committees would bestir themselves and give lessons in thatching, hedging, ditching, sheep-shearing, and so on to the men, instead of providing an afternoon's amusement for labourers' wives in showing them how to make butter without having a cow to produce the milk, and similar instruction for farmers' wives and daughters when the ladies of the farm have no intention of making butter, or of bending their backs to skim the milk, much more good would be done than is accomplished at present, and a great waste of treasure would be obviated." More than one committee in charge of technical instruction would be grateful to our contemporary for some successful method of getting farm-labourers together for the purpose of agricultural instruction, though we have our opinion of the wisdom of teaching the subjects named, *even if these arts are not included in the well-known restriction* of the Technical Instruction Act.

SCIENTIFIC SERIALS.

American Journal of Science, August.—Molluscan archetype considered as a *veliger*-like form, by A. E. Verrill. In the form of molluscan larva known as *veliger*, and in its slightly younger stages, we have organisms that swim free, often seek their own food, and seem to have claims to be considered the nearest living representatives of the ancestral molluscan archetype, or archetypes, for it is quite probable that the different classes of Mollusca have descended from distinctly differentiated *veliger*-like organisms. In general, it may be stated that nearly all Gastropoda, except certain terrestrial and fresh-water forms, pass through *veliger* stages. The same may be said of Bivalvia, Scaphopoda, and Pteropoda. Cephalopoda, on the other hand, seem to have an abbreviated development, like terrestrial Gastropoda, and leave the egg with the general structure of the adult. It is probable that each of these great classes were originally small, free-swimming forms, furnished with a ciliated locomotive organ similar to the velum of modern veligers. The primitive Cephalopoda had probably a similar origin from a *proveliger* like that of some pteropods and gastropods. On the other hand, it seems impossible to derive a cephalopod or a bivalve from a creeping chiton-like archetype such as Lankester has proposed.—An apparatus for the rapid determination of the surface tensions of liquids, by C. E. Linebarger. The apparatus is based upon Jäger's method of employing two capillary tubes of different bore immersed in the liquid, and measuring the difference of the depths to which they were plunged when air bubbles forced out of them at the bottom required the same air pressure. The tubes employed had bores ranging from 0·1 to 1·5 mm. Two tubes were mounted in clamps in a stand over a test tube containing the liquid, and immersed in a water or glycerine bath. Air pressure was applied, and the orifices were shifted until the liquid was pushed down to the orifices, and there the heights were carefully adjusted until equal streams of bubbles issued from both orifices. The surface tensions were found by the formula

$$\gamma = chs + s^2$$

when γ is the surface tension in dynes per cm., c the apparatus constant, h the distance between the ends of the tubes, and s the specific gravity.—Wardite, a new hydrous basic phosphate of alumina, by J. M. Davison. Mr. Packard's "variscite" from Utah occasionally leaves on decomposition some cavities in the nodules, and encrusting these cavities is a hydrous basic phosphate of alumina, which appears to be a new mineral. It is a light green or bluish green, with vitreous lustre, concretionary structure, hardness about 5, and density 2·77. Its formula is $Al_2(OH)_3PO_4$, and it forms a series with Peganite and Turquois.—On the existence of selenium monoxide, by A. W. Peirce. The author has been unable to find evidence of the existence of the monoxide, either gaseous or solid, and his experiments go to show that the peculiar smell of decayed cabbage, attributed by Berzelius to the monoxide, is only developed when selenium is heated in presence of moisture, if only a mere trace, and is probably due to selenium hydride.

Bulletin of the American Mathematical Society, vol. ii. No. 9, June.—The motions of the atmosphere, and especially its waves, is a translation, by Prof. Cleveland Abbe, of an address by Dr. E. Hermann, which was delivered before the Meteorological Section of the Association of German Naturalists at the annual meeting held in Vienna, September 25, 1894. The author states that the inadvisability of the views according to which the motions of the atmosphere consist in the development of independent cyclones and anticyclones is, of late years, more and more plainly recognised. This conclusion has been arrived at, not so much through a severe criticism of the fundamental basis upon which these erroneous views had been established, as by the power of the facts that resisted introduction into this artificial system. He traces this change of view