of little efforts. We find that technical education has been made to include all sorts of subjects, even music. Several Councils give grants to classes formed for the exclusive study of music, either instrumental or vocal. The following selection of subjects taught will give some idea of the variegated nature of "technical" work: farriery, straw-plaiting, basket-making, ploughing, draining and dyking, clicking, cabinet-making, thatching, sheep-shearing, fishing, sail-making, china-painting, hat-manufacture, type-writing, political economy, life-saving, and house-decoration. So long as such subjects absorb the attention of Committees, little national advancement is possible. Instruction in the dodges of the workshop may produce a more dexterous and quicker workman, but it does nothing to educate him in those broad principles which enable him to assist intelligently in the real improvement of industry.

THE spirit of rivalry which regulates the conduct of educational institutions in some of our large towns is to be deplored, for its effects are detrimental to the advance of education. Reports, received from time to time, show that, in many districts, local institutions compete with one another instead of forming distinct steps in the educational ladder. So common is this kind of competition that it is refreshing to learn that the City Council and the School Board of Manchester have agreed between themselves that the Technical School shall discontinue its more elementary classes, and begin its curriculum at the points where the Board schools leave off. An effort is to be made to secure a corresponding gradation between the Technical School and Owens College. Manchester has thus taken important steps towards the solution of a difficult problem in public education, and it would be well if those provincial towns that have not already considered the correlation of their technical and scientific institutions would do so without delay. It is a question, indeed, whether a central authority ought not to be able to give a definite place in the educational ladder to the various institutions in a town, and to insist upon the absence of competition with one another. With each part of the engine doing its proper work, progress will be made; but if there is a confusion of functions, advance is impossible. The establishment, in recent years, of numerous technical institutions in many of our large provincial towns, and the extension of the work of old-established Mechanics' Institutes and Trade Schools, make it very necessary that something should be done to define the place of these institutions in our educational system. The University Colleges are especially affected by such institutions. Bristol, for instance, possesses one of the best University Colleges in the country; it has done excellent work, and will certainly do more. But during the past few years the Merchant Venturers' School has largely developed, and it is now a rival establishment situated only a few hundred yards from University College, with which it competes. This competition is no doubt responsible, to some extent, for the adverse balance of £950 in the accounts of University College, Bristol, for the year 1895; the total indebtedness of the College is now more than £6000. There is ample room for both institutions in Bristol, but the work of one should supplement, and not clash with, the work of the other. What is happening in Bristol is happening elsewhere, and is retarding educational advancement. In fact, we have no hesitation in saying that one of the most important points which needs to be settled at the present time is that which refers to the status of various institutions in the scheme of education.

SCIENTIFIC SERIALS.

American Journal of Science, January.—The quarries in the lava beds at Meriden, Conn., by W. M. Davies. The present condition of the quarries in the Triassic (Newark) formation near Meriden shows the vesicular upper surface of one lava bed under the dense basal portion of a later flow, and a number of fractures dislocating the double flow.—The form of isolated submarine peaks, by G. W. Littlehales. Theoretically the form of an isolated submarine peak would be that of a solid of revolution in which the crushing strength of any section is equal to the combined weight of the portion of the formation above that section and of the superincumbent body of water. The author derives a general equation for the slope of submarine peaks, and finds that the average slopes of Dacia Bank, Seine Bank, The Salvages, and Enderbury Island are fairly in accordance with the formula. This investigation has an important bearing upon the intervals at which deep-sea soundings should be taken in searching for probable shoals in the open ocean and in developing the character of the sea-bottom. The minimum radius at the bottom which a dangerous shoal can have, must vary directly with the depth, but on the average, in the deep sea, it may be stated as ten miles. An interval of ten miles, coupled with an interval of two miles, would be sufficient for general development, and would prove with certainty the existence or absence of any formation rising close to the surface.—On the epidote from Huntingdon, Mass., and the optical properties of epidote. This epidote is almost identical with that of Zillerthal, in Tyrol, but has the lowest percentage of iron oxides (6·2) and the lowest double refraction of any epidote recorded.—The iodometric determination of selenious and selenic acids, by F. A. Gooch and A. W. Peirce. The principle previously applied to the estimation of chlorates is equally advantageous for the determination of selenious and selenic acids. The selenious acid is treated with potassium iodide, di-hydrogen potassium arseniate, and half-strength sulphuric acid. The liquid is concentrated by boiling, the residue is cooled and the acid nearly neutralised with potassium hydroxide, acid potassium carbonate is added in excess of neutralisation, and, after the addition of starch, standard iodide is introduced until the starch-blue appears. The iodine introduced measures the arsenious acid, and the difference between it and the iodine, originally present in the form of the iodide, represents the amount set free by the selenious acid. Selenic acid, on the other hand, may be determined iodometrically with accuracy by first reducing it to the condition of selenious acid by treatment with potassium bromide in the presence of sulphuric acid, and then completing the reduction to the elementary condition by the treatment with potassium iodide and potassium arseniate.

SOCIETIES AND ACADEMIES.

LONDON.

Geological Society, December 18, 1895.—Dr. Henry Woodward, F.R.S., President, in the Chair.—Prof. G. K. Gilbert, Washington, D.C., was elected a Foreign Member, and Dr. A. Penck, Vienna, was elected a Foreign Correspondent of the Society.—The tertiary basalt-plateaux of North-western Europe, by Sir Archibald Geikie, F.R.S. The author in this paper gave the results obtained by him in the continued study of Tertiary volcanic geology during the seven years which have elapsed since the publication of his memoir on "The History of Volcanic Action during the Tertiary Period in the British Isles." His researches have embraced the Western Islands of Scotland, St. Kilda, and the Faröe Islands. In an account of the rocks of the basalt-plateaux, attention was particularly directed in this paper to a type of banded basic lavas which played an important part in the structure of the volcanic districts both of the Inner Hebrides and of the Faröes. A number of examples were adduced of the volcanic vents which form a characteristic feature of the basalt-plateaux. The paper described in some detail the evidence for the flow of a large river across the lava-fields during the time when volcanic activity was still vigorous. Many additional details were given to illustrate the structure and behaviour of the basic sills which are so abundantly developed, especially at the base of the plateaux. The author added some additional particulars, more especially from Skye and St. Kilda, to his published account of the dykes which had taken so important a place in the origin and structure of the plateaux. Further observations were narrated regarding the great bosses of gabbro in the Inner Hebrides. The author, having been able to visit St. Kilda, described the junction of the granophyre of that remote island with the basalts and gabbros. He brought away a series of specimens and photographs which demonstrated that the acid rock had been injected into the basic masses, traversing them in veins and enclosing angular pieces of them. The granophyre was precisely like that of Skye and Mull, and was traversed by veins of finer material, as in these islands. By way of illustrating the probable history of the basaltic plateaux of North-western Europe, the author gave a short summary of the results of recent investigations of the modern volcanic eruptions of Iceland, especially of Th. Thoroddsen and A. Helland. Reference was made to the evidence of considerable terrestrial movement since the Tertiary volcanic period, as shown by the tilting of large sections of the plateaux in different directions, and also by the existence of actual faults. The con-