

of the term, but simply the result of local chemical action. The formation is cretaceous. The bluff is capped by calcic carbonate. Beneath are shales containing ferric bi-sulphide in crystals of pyrites. Below the shale is a soft limestone, containing carbonates of magnesia and alumina. The chemical reactions consequent upon part of the soil being soaked with water after its fall toward the river, have been the decomposition of the pyrites, the production of sulphuric acid, and the attack of the acid on the alkaline carbonates. The heat evolved in the first of these reactions is, of course, very great; in the latter part the violence must be increased by the liberation of carbonic anhydride. All the authenticated disturbances are thus easily explained. Prof. Aughey does not connect them with the earthquake.

Prof. J. L. Campbell, of Washington and Lee University, has been collating and discussing the data for the great meteor which was seen in many parts of Virginia on the afternoon of November 20. He concludes that its height was about 100 miles; but this estimate is merely approximate. Its course seems to have been 8° or 10° west of north. Its explosion appears to have taken place over the south-east corner of Halifax County, about fifteen or twenty miles a little south of west from Clarksville, 100 miles from Richmond, eighty from Lexington, and fifty-five from Raleigh. It was a meteor of unusual size and brilliancy, and detonated loudly when it exploded.

The corner-stone of a building for the accommodation of the Davenport Academy of Natural Sciences was laid on October 4, and is almost the first edifice west of Chicago intended for purely scientific purposes; the building is expected to be ready for occupation this month. The Academy is a young institution, which has grown very rapidly, and has already assumed a prominent position among establishments of this kind in the United States. This is due principally to the excellent character of its *Transactions*, filled with interesting information, and especially rich in subjects relating to American archæology. Part I of vol. ii. has been sent us.

If the descriptions are not overdrawn, a remarkably convenient small steam engine has been invented in Philadelphia. It is an oscillating engine, attached to a tank holding about two gallons of water. The boiler is of about a quart capacity; the steam-chest half that size; the whole concern occupies a space of about 10 inches square and 18 high, and weighs 35 pounds. It is designed for use with any sort of light machinery, and is said to be suitable for a variety of domestic work. The details of the contrivance are not yet stated, but assurances are given that it cannot, under any circumstances, explode; that it is as manageable as an ordinary gas burner, since the inventor has succeeded in dispensing with water and steam gauges and automatic floats, so that the whole apparatus is simple, and no skill is required to operate it. The kitchen of the future is expected to contain one of these engines, to chop hash, turn the coffee-mill and the roasting-jack, sift ashes, and mangle the family linen.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE

EDINBURGH.—The matriculation returns for the past year have now been completed, and show a considerable increase in the number of students in residence over any former period. The numbers on the register for 1876 were 2,302, for 1877 they amount to 2,560. The students are divided between the several faculties as follows:—In the faculty of arts, 953 students; of theology, 67; of law, 364; and of medicine, 1,176. The ground is now being cleared for the erection of the University Extension Buildings, which, with the aid of the Government grant, will be vigorously proceeded with, and thus furnish the additional accommodation so urgently required for the increasing number of students, and for the fuller development of the teaching resources of the University.

TAUNTON COLLEGE SCHOOL.—A first-class microscope by Smith and Beck, a handsome clock and centre-piece, a purse containing 136*l.*, and addresses emblazoned on parchment, from the old boys, the parents, and the friends of the school, have been presented to the Rev. W. Tuckwell, on his leaving Taunton.

FRANCE.—M. Bardoux will propose to the French Parliament, during its present session, to organise, in each department (there are eighty-nine), a high primary school after the model of the Ecole Turgot, one of the municipal schools of Paris. He will also

introduce a bill for enlarging the Sorbonne, the traditional headquarters of the University.

BERLIN.—The professorship of botany, which has been vacant since the death of Alexander Braun last March, is now to be filled by Prof. Eichler, of Kiel, who has accepted a call to this position as well as to the directorship of the Botanical Gardens in Berlin. He enters upon his duties next April. During the *interim* the gardens are under the direction of Prof. Koch.

GÖTTINGEN.—The present attendance at the University is 909, a slight decrease on the past summers. They are divided among the faculties as follows: theology, 86; medicine, 115; law, 275; philosophy, 433. The representation of foreign countries is unusually small, with the exception of America, which supplies a contingent of 27. The corps of instructors, numbering 116, includes 9 in theology, 26 in medicine, 14 in law, and 67 in philosophy and science.

ERLANGEN.—The University is attended at present by 448 students, a slight increase on the number of the past summer. Bavaria contributes 305, the remaining 143 coming from the other parts of Germany and from abroad. Medicine includes 110, pharmacy 56, chemistry and the natural sciences 32, mathematics and physics 10.

SCIENTIFIC SERIALS

THE current number of the *Quarterly Journal of Microscopic Science* commences with Dr. Roberts' address at the Manchester meeting of the British Medical Association on the doctrine of Contagium Vivum and its application to medicine.—Following this is Part 4 of Mr. Archer's *résumé* of recent contributions to our knowledge of "Fresh-water Rhizopoda," including the Rhizopoda, Monothalamia, Monostomata.—Prof. Carl Vogt's account of *Loxosoma* is abstracted, with notes, by Rev. T. Hinks. The genus is confirmed as a Polyzoan, and allied to *Pedicellina*. Its ova and reproductive buds are described, as well as the different organs, in detail.—A paper by Prof. Arthur Boettcher treats of the results arrived at by treating red blood corpuscles with alcoholic solution of corrosive sublimate.—Dr. Klein contributes a paper on the minute anatomy of the epidermis in small-pox of sheep.—The last paper is Prof. Lankester's important notes on the embryology and classification of the animal kingdom; comprising a revision of speculations relative to the origin and significance of the germ-layers. This paper has since been separately published.

Annalen der Physik und Chemie, No. 10.—On the border angle and the expansion of liquids on solid bodies, by M. Quincke.—On the specific heat of vapours and their variations with the temperature, by M. Wiedemann.—Determination of the ratio of the specific heats for air at constant pressure and constant volume by the velocity of sound, by M. Kaiser.—On the internal friction of solid bodies (continued), by M. Schmidt.—On the doctrine of aggregate states, by M. Ritter.—Manometric method of determining the specific gravity of gases, by M. Reek-nagel.—On the disaggregation of tin, by the Editor.

SOCIETIES AND ACADEMIES

LONDON

Royal Society, Dec. 13, 1877.—"Experimental Researches on the Electric Discharge with the Chloride of Silver Battery," by Warren De la Rue, M.A., D.C.L., F.R.S., and Hugo W. Müller, Ph.D., F.R.S. Part I.

The paper in question deals mainly with the striking distance between terminals of different forms in air and in other gases at ordinary atmospheric pressures; and in air at reduced pressures short of the partial vacua of the so-called vacuum tubes.

The authors have found that the discharge of the battery, with one or two poles in the form of a point, presents several interesting phenomena which precede the true jump of the spark, and which do not occur with other forms of terminals; for example, discs or spherical surfaces. With 8,040 cells the striking distance between a paraboloidal point, positive, and a disc is about 0.34 in. (8.64 millims.), but there is always a luminous discharge. Very apparent, far beyond the distance measurable by their micrometer-discharger, namely, 1.16 inch (29.5 millims.), as they have before stated.¹

The current which passes during the luminous discharge which

¹ *Proc. Roy. Soc.*, 1876, vol. xxiv. p. 169.