with two turns of fine thread. The plane of vibration can then be easily adjusted to suit the spectators by sluing the wire in its lashing.

Note.—The triangular thread *dAe* should be of the same quality as the vibrating length. If it is much heavier length for length the arms of the triangle may become half wave-lengths of the vibration for the tension employed, and then they lose their control over the plane of vibration.

The arrangement has its own worth, independently of the aid it lends to visible effect, as an illustration of the suppression of all half wave-lengths which are not true sub-multiples of the vibrating length of the cord. When the fork is moved from its position in the figure to bring up the line *de* to the position of A, the vertical vibrations are suppressed, and only the horizontal vibrations are possible. W. SIDGREAVES.

EIGHTH CONGRESS OF RUSSIAN NATURALISTS.

THE eighth Congress of Russian Naturalists and Physicians was opened on January 9 at St. Petersburg, and was a great success. It was attended by no fewer than 2000 members, half of whom came from the provinces, and at the three general public sittings (corresponding to the sittings of the British Association devoted to the delivery of the Presidential addresses), as well as the meetings of the Sections, the public were well represented. At the first general sitting, Prof. Mendeleeff delivered a most interesting address on the methods of natural science as applied to the study of prices. His parallels between the prices of goods and the specific weights and specific volumes of chemical bodies were very suggestive. The next address, by Prof. Sklifasovsky, was on the wants of Russian medical education. At the second general sitting, Prof. Stoletoff spoke of ether and electricity. Prof. Famintzyn's address on the psychical life of the simplest representatives of living beings, partly based upon his own recent researches into the intelligence of Infusoria, was full of facts as to the means used by various micro-organisms in attack and defence. Prof. Wagner dealt with the physiological and psychological views upon hypnotism, and Prof. Gustavson spoke of the micro-biological bases of agronomy.

The work of the Sections was very varied, and will be fully reported in the Diary of the Congress, the publication of which began during the sitting of the Congress, and will be continued till a full account has been produced.

The Sections of Geography and Anthropology, Hygiene, and partly of Agronomy, were most largely attended, and many interesting communications were made in them. At the combined sittings several important questions were raised as to the geography of Russia, its meteorology, and the bearings of a scientific study of climate and soil upon agriculture.

The following communications relative to geography and anthropology were especially worthy of note. Captain Makaroff reported the results of his careful measurements as to the differences of level of various seas of Europe. Taking the average level of the Atlantic Ocean opposite Lisbon for zero, he found that the level of the western parts of the Mediterranean is 434 millimetres below zero, its eastern part, − 507 millimetres; the Ægean Sea, − 563 millimetres; the Marmora Sea, from − 360 to − 291 millimetres; while the Black Sea is + 246 millimetres —that is, higher than the Lisbon zero; the western part of the Baltic, + 259 millimetres; its eastern part, + 254 millimetres; and the Gulf of Finland, + 415 millimetres. Dr. Blum's anthropological measurements amidst twelve different tribes of the Caucasus show that there are no pure races in Caucasia, all of them being mixtures between Semitic and Indo-European races. Like conclusions were arrived at by M. Kharuzin as regards the Bashkires, who proved to be a mixed race, presenting features both of the Mongolian and the Caucasian races.

Prof. Klossovsky's researches into the variations of level and temperature in the coast region of the Black Sea are most valuable, as they are based on accurate measurements made since 1879 at 16 different places. They fully disclose the importance of atmospheric pressure upon the level of the Black Sea, and it is worthy of note that the passage of a cyclone over Odessa resulted in a rise of the level of the sea by fully 5 feet over the average, followed by a sinking of the level by fully 7 feet, in accordance with the variations of atmospheric pressure.

Dr. Orzanski's extensive anthropological researches amidst the population of Russian prisons, and his numerous measurements, show no difference between the supposed "criminal's skull" and the average Russian skull. Numerous photographs were exhibited to illustrate this conclusion, so different from those arrived at by Dr. Lombroso.

Two new periodicals—one of them devoted to Russian natural science, and the other to meteorology—were founded while the Congress was at work. The meeting came to an end on January 20.

The Congress hoped to obtain from the Government permission to appoint a permanent Board, and thus to lay the foundation of a Russian Association for the Advancement of Science.

TECHNICAL EDUCATION IN ELEMENTARY SCHOOLS.

THE Committee of the National Association for the Promotion of Technical and Secondary Education have submitted to the Education Department the following suggestions for the modification of the Code as regards elementary technical education :—

A.—*Drawing.*

(1) Drawing to be introduced in infant schools, at least for boys.

(2) Drawing to be made compulsory in boys' schools.

(3) The Minute requiring cookery to be taught in girls' schools as a condition of receiving grant for drawing, to be repealed.

B.—*Object Lessons.*

(4) No school to be recognized as efficient which does not provide in the three lower standards a graduated scheme of object lessons in continuation of Kindergarten instruction in the infant school.

C.—*Science.*

(5) In order to encourage science as a class subject, the clause requiring English as one of the class subjects to be cancelled, and the teaching of science as a class subject to be further encouraged in the upper standards by an additional grant.

(6) Scholars of any public elementary school to be allowed to attend science classes held at any place approved by the inspector, and such attendance to count as school attendance.

(7) Examinations in science to be conducted orally, and not on paper, especially in the first five standards. If the inspection is satisfactory, an attendance grant of 4*s.* to be made for scientific specific subjects.

(8) Managers to be encouraged to submit alternative courses of instruction in specific subjects under Art. 16 (Code 1888). Such subjects to receive a grant on the same principle as the subjects enumerated in Art. 15.

[Art. 16. "Any other subject *other than those mentioned in Art.* 15, may, if sanctioned by the Department, be taken as a specific subject, provided that a graduated scheme of teaching it be submitted to and approved by the inspector."

But Art. 109 (*g*) which lays down the condition for grants, says, "The specific subjects which may be taken *are those enumerated in Art.* 15."]

(9) Grants to be made towards apparatus for science teaching and school museums.

D.—*Manual Instruction.*

(10) Manual instruction to be introduced in boys' schools, corresponding to needlework for girls.

(11) Instruction in the use of *simple tools* to be introduced in the higher standards as a specific subject, and grants to be paid thereon.

(12) Provision to be made for the introduction of *elementary modelling* in connection with the teaching of drawing, and a grant to be made in connection therewith.

(13) Instruction in *laundry work* to be encouraged in girls' schools, so far as practicable, as a part of domestic economy.

E.—*Evening Schools.*

(14) The clause providing that "No scholar may be presented for examination in the additional subjects alone" to be cancelled, to enable scholars to earn grants though not receiving instruction in the standard subjects.

(15) The number of "additional subjects" which may be taken to be increased from two to four.

F.—*Training Colleges.*

(16) Day Training Colleges and a third year of training to be recognized. The Universities and local University Colleges to be utilized for the training of teachers, where suitable arrangements can be made.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

CAMBRIDGE.—The following appointments of Electors to Professorships have been made. Each Board consists of eight members, and it is provided by the Statutes that at least two members shall not be resident in the University or officially connected with it. In certain cases more than two such members have been voluntarily chosen by the Senate.

Arabic: Prof. Bensly. *Music:* Sir George Grove; *Chemistry:* Dr. E. Frankland, F.R.S.; *Plumian of Astronomy;* Mr. W. D. Niven; *Anatomy:* Dr. Huxley, F.R.S.; *Botany:* Prof. D. Oliver, F.R.S.; *Woodwardian of Geology:* Dr. A. Geikie, F.R.S.; *Jacksonian of Natural Philosophy:* Dr. Hugo Müller, F.R.S.; *Mineralogy:* Sir W. Warington Smyth, F.R.S.; *Political Economy:* Mr. R. H. Inglis Palgrave, F.R.S.; *Zoology and Comparative Anatomy:* Dr. Huxley, F.R.S.; *Sanskrit:* Prof. Aufrecht and Mr. R. A. Neil; *Cavendish of Physics:* Sir William Thomson, F.R.S.; *Mechanism:* Mr. W. Airy; *Downing of Law:* Mr. Justice Denman; *Downing of Medicine:* Dr. Richard Quain, F.R.S.; *Physiology:* Prof. Burdon Sanderson, F.R.S.; *Pathology:* Dr. J. F. Payne; *Surgery:* Sir James Paget, F.R.S; *Chinese:* Dr. Peile.

Prof. Robertson Smith being unable on account of the state of his health to lecture this term, Mr. A. A. Bevan, B.A., of Trinity College, has been appointed his deputy.

The Syndicate appointed to consider the probable expense of maintaining and working the great telescope offered to the University by Mr. Newall, report that a capital sum of £2225, and an annual expenditure of £400 will probably be required. They report further that the Sheepshanks Special Fund, founded in 1863 for the benefit of the observatory, will probably be able to furnish a capital sum of £1000, and an annual grant of £100, towards the expenses of the Newall telescope. The remainder, or £1225 at once, and £300 a year, will have to be provided from other sources; but whence is by no means apparent.

SCIENTIFIC SERIALS.

Revue d'Anthropologie, troisième série, tome iv., sixième fasc. (Paris, 1889).—Researches on the cephalic index of the Corsican population, by Dr. A. Fallot (of Marseilles). In an earlier number of this review, the author drew attention to the very appreciable alteration which the cephalic index had undergone in recent times among the inhabitants of Marseilles. Thus in one group of living subjects, born at the beginning of the century, he found that 21 per cent. exhibited an index of 84, while in another group, consisting of men of middle age, this number occurred only in the ratio of 7 per cent. This remarkable difference led the author to continue his determinations of the cephalic index among different communities. With this object in view, he last year visited Corsica, and in the present article we have the results of his craniometric determinations in this island, where from its peculiar geographical position and geognostic features, the inhabitants have preserved a permanence of type, and a homogeneity of ethnic characteristics, probably unequalled in any other European nation. Indeed so inconsiderable have been the changes effected in recent times in the Corsican population, that the observations made by Volney, in 1793, on the country and the people, apply almost equally well to their present condition. At the same time so little addition has been made since that period to our previously imperfect knowledge of Corsica, that Dr. Fallot's observations supply a valuable contribution to ethnological inquiry. All his determinations tend to demonstrate the great uniformity of cranial type and characters in the people. Thus while 54 per cent. of the population present a cephalic index varying from 75 to 78, not more than 13 per cent. gave an index above 80, while in only one out of 200 cases the index amounted to 86, and hence he assumes the mean index to be 76·5. He found that this uniformity was the greatest in the interior of the island, and more especially in the *département* of Corte; while at Bastia, in the extreme north, the cranial characteristics exhibited more variety, and afforded evidence of an admixture with foreign elements, a subbrachycephalic type supplanting the more general Corsican character of dolichocephalism. In the preponderance of this latter type Dr. Fallot thinks we have incontrovertible evidence against the opinion of Lauer, that the Corsicans are of Ligurian descent, and he believes that they may be more correctly characterized as an offshoot from the old Iberian races. The author gives numerous useful tables, and his brief summary of the history of the island is clear and instructive. From his observations on the geological conformation of the island we learn how numerous spurs, thrown off from the central high mountain range, have enclosed and isolated the several valleys, cutting off villages and settlements from their neighbours, and thus exerted so strong an influence upon the character and habits of the inhabitants, that the physical features of the island may be said to supply the key to its history. From the author's observations it may be assumed that in the mountain districts of the interior the genuine Corsican cranial type has been best preserved.—On infibulation, and other mutilations practised among the littoral tribes of the Red Sea, and the Gulf of Aden, by Dr. Jousseaume. The author describes at length the methods by which these processes are effected, and considers that whatever may have been their original motive they are in no way at present connected with religious observances, but are simply carried on from generation to generation as survivals of ancient barbarous customs.—On modern crania in Montpellier, by M. de Lapouge. In 1888 the author obtained 150 tolerably perfect skulls, which had been recovered from the soil of a cemetery at Montpellier used for interments from the seventeenth century until it was closed in 1830. An examination of the author's elaborate series of comparative craniometric measurements shows that the mean for the cephalic index of these skulls, viz. 78·3, is the lowest as yet observed in France, while their general cranial characters have less affinity with a French, than a North African type.—Prehistoric Scandinavia, by M. I. Undset. This is a sequel to a paper published in this review in 1887, the author now bringing his survey of the progress of northern palæontological science up to the present time.

THE *American Meteorological Journal* for December contains:—An article by W. M. Davis and C. E. Curry, on Ferrel's convectional theory of tornadoes; his theory, which is remarkably simple, is based on the occurrence of an ascensional movement in the tornado-whirl. The authors state that this fact seems too well established to admit of a doubt, although Faye and others in Europe, and Hazen in the United States, have questioned it. The paper contains graphical illustrations of the instability caused by convection.—Tornado chart of the State of Indiana, by Lieutenant J. P. Finley, compiled from statistics for seventy-one years ending 1888. The average yearly frequency is 4·5 storms. The month of greatest frequency is May.—Theory of storms, based on Redfield's laws, by H. Faye, continued from the November number, and dealing with the mechanics of whirls in flowing water, and with the upper currents of the atmosphere; the conclusion being that cyclones are whirls, originating in the upper regions of the air.—A continuation of the article on the meteorology at the Paris Exhibition, by A. L. Rotch, describing the meteorological instruments in the foreign sections.—The conclusion of Dr. F. Waldo's interesting discussion of wind velocities in the United States, with charts of "isanemonals" for January, July, and the year. The fact that the curves can be drawn with general symmetry shows that there is some uniformity in the exposure of the anemometers for *like* regions. The author points out that the effect of the Rocky Mountains seems to make itself felt on the winds to a distance of 200 or 300 miles to the eastward.

SOCIETIES AND ACADEMIES.

LONDON.

Royal Society, December 19, 1889.—"Some Observations on the Amount of Luminous and Non-Luminous Radiation emitted by a Gas-Flame." By Sir John Conroy, Bart.