the Society of Apothecaries and the Royal College of Physicians in turn, the Pharmaceutical Society of Great Britain and the Senate of the University of London. It is intended that the existing garden should be fully maintained, a suite of rooms being provided for lectures and experimental teaching, whilst the Trustees are to be given authority, if they think fit, to erect and fully equip a physiological laboratory.

To carry out the new scheme referred to above, an annual income of eight hundred pounds is to be provided by the Trustees, and it is proposed in addition that the committee shall be furnished with such a capital sum as may be necessary to enable them to enforce the scheme to its full extent. The committee is to appoint a curator for the scientific supervision of the garden, and other members of the staff. Further, the committee will be authorised by the scheme to provide instruction in botany by means of lectures, demonstrations, &c., with special reference to the requirements of elementary education ; to arrange for the maintenance of botanical collections of living plants for teaching purposes, and, so far as practicable, for the supply of botanical specimens for the purpose of external instruction. Students of institutions receiving aid from the funds of the City Parochial Foundation are to be eligible for admission without payment of fees ; and it is provided that, so long as a yearly payment of not less than one hundred and fifty pounds is made to the Trustees out of the moneys provided by Parliament, students of the Royal College of Science shall also be admitted to the garden without payment, while they, the professors and teachers of the College, shall be entitled to the use of the garden, the botanical collections, and the lecture rooms for such time as may be approved by the Charity Commissioners. It will thus be seen that the scheme is of a far-reaching character, and calculated materially to increase the usefulness of the garden.

SCIENTIFIC SERIALS.

Memoirs of the Kazan Society of Naturalists. Vol. xxx.— On the oro-hydrography of the Nizhne-Isset mining region in Middle Ural, by V. Rozhkoff, with an orographic map in which the plateau character of the region appears very well.—On intracellular growths in cancer, by A. Rebrovsky, with a plate. Sporiferous growths were not found in cases unaccompanied by wounds.—On the parisitism of the Rotatoria *Notomatta Wernecki* in the Vaucheria, by W. Rothert, with a plate.—On the geology of the water-parting between the Volga and the Don at Tsaritsyn, by M. Yanischewsky. A large development of old Post-Pliocene alluvial deposits was found.—Water in wells at Kazan, by Prof. Scherbakoff.—On crystal-bearing cells in cork membranes, by W. Rothert. The observations of Zacharias, Cederwall, and Meyer are confirmed by observations on *Agave*, *Fourcroya*, *Drocaena*, and several others.

Vol. xxxi.—On the structure of the membrane of the vessels in plants, by W. Rothert, with a plate. A preliminary report on extensive researches into this question.—On the pathological and anatomic changes in organs and tissues resulting in raphania, ergotismus, and similar diseases, by N. Vinogradov, with one coloured plate. A detailed investigation of many cases of these diseases, which often assume in Russia an epidemic character.—On investigations of the soil, made in 1896 by R. Rispolozhensky. Part of a wide system of investigation which is being carried on for many years in Russia.—Chemical and physical researches into the soils of Kazan, by V. Sorokin.— The fauna of the upper parts of the Permo-Carbonic formations on the Kama and Chusovaya rivers, by N. Romanov. Eighty-nine species are described, the following being new : *Aviculopecten Stuckenbergi*, *A. parvulus*, and *Pleurotomaria fluctuosa*. The deposits belong to the Kungur division of Prof. Stuckenberg.

Bollettino della Società Sismologica Italiana, vol. iv., 1898, No. 4.—On the investigation of seismic periodicity by the method of overlapping means, by C. Davison. A description (in English) of a rough method of harmonic analysis suitable for the investigation of the annual and diurnal periodicity of earthquakes, with examples worked out in illustration of the method.—On the increase of activity presented by Vesuvius in the months of April and May, by R. V. Matteucci.—Notices of earthquakes recorded in Italy (September 1897), by G. Agamennone. A long and valuable series of records of

three earthquakes, two of which originated at Labuan (Borneo) on September 20 and 21, and the third in the province of Ancona (Italy) on September 21.

Bulletin de la Société des Naturalistes de Moscou, 1897, No. 4. This volume contains one paper, "*De Aphodio scuticolli m. (nigrivitti*, Rth.) *ejusque cognatis,*" in Latin, by A. Semenoff. The remainder is taken up with the proceedings, which contain a number of shorter notes, and the yearly report. During the year 1897 a considerable number of members of the Society, chiefly botanists, explored various parts of Russia.

SOCIETIES AND ACADEMIES.
LONDON.

Royal Society, November 17.—"The Electrical Conductivity and Luminosity of Flames containing Vaporised Salts." By Arthur Smithells, H. M. Dawson, and H. A. Wilson. Communicated by Sir H. E. Roscoe, F.R.S.

(1) The authors conclude from their experiments, that the conductivity of vaporised salt is of an electrolytic character, but that there are features connected with it that distinguish it from electrolytic conduction in aqueous solution. Thus Ohm's law is only obeyed within certain limits, and the general relation between current strength and electromotive force can only be represented generally by a more complex expression.

(2) The conductivities of different salts differ greatly, according to the electropositive constituent.

(5) Among different salts of the same metal differences of conductivity appear at the higher concentrations, but at low concentrations equivalent solutions have equal conductivity.

(4) The conductivity of the haloid salts as a group is distinct from that of the oxy-salts.

(5) The conductivity of the haloid salts of a metal among themselves increases with the increasing atomic weight of the halogen.

(6) The conductivity of the oxy-salts of a metal is approximately equal, and approaches that of the hydrates.

(7) The more easily oxidisable halogen salts are probably partly converted into oxide in the flame, so that their conductivity is composed of two parts.

(8) The behaviour of the salts in flames supplied with chloroform vapour seems to establish the fact that the conductivity and the colour produced by the salt vapour are not due to a common cause.

The coloration of a flame by an alkali salt does not seem therefore to be connected with the conisation of the salt. It must be attributed to the metal set free by a chemical process. This process consists probably in a reduction effected by the flame gases. An oxy-salt would, generally speaking, form in the first instance an oxide, which would then be reduced. In the case of haloid salts it seems also necessary to suppose that an oxide is intermediately formed, the metal being then liberated by reduction.

Physical Society, December 9.—Mr. Shelford Bidwell, F.R.S., President, in the chair.—Dr. C. Chree read a paper on longitudinal vibrations in solid and hollow cylinders The ordinary formula for the frequency of longitudinal vibrations refers to an ideal rod of infinitely small section. This formula constitutes a first approximation, according to which the higher notes are exact harmonics of the fundamental note. Prof. Pochhammer, and Lord Rayleigh independently, over twenty years ago, arrived at a corrective term for solid isotropic rods of circular section, according to which the harmonic relation between the notes is no longer exact. During the last twelve years Dr. Chree has devoted several papers to the subject, confirming by independent methods the *results* obtained by Pochhammer and Rayleigh, and arriving at analogous results for other forms of section, and for material symmetrical round an axis but not isotropic. The first part of the present paper develops what appears to be a new method, based on expressions obtained some years ago by the author for the mean values of the strains in an elastic solid of any kind or shape, exposed to any system of forces. Besides confirming his previous results, Dr. Chree obtains new results applicable to material neither isotropic nor symmetrical round the axis of the rod. The second part of the paper treats of a hollow circular rod, or tube, of isotropic material. When the walls of the tube are thin, the correction to the ordinary formula is twice as large as for a solid