

long be instructed to give practical effect henceforth to any such instructions that may exist, and thus that the forward march of English power may once more, as it should, be accompanied by a general advance of scientific knowledge.

Leaving Samarqand early in May, Mr. and Mrs. Littledale drove in Russian post-carts up the beautiful valley of the Syr-Daria, which reminded them in parts of the Vale of Kashmir, as far as Osh, the last post-station. Here they organized their caravan for their great adventure, the crossing of the Pamirs into Kashmir. They had the advantage of previous experience of Central Asian travel, and of the cordial assistance of the Russian Commandant, Colonel Deubner, who could hardly have done more for the travellers had they been his own nearest relatives. After much hesitation from the difficulty of obtaining any trustworthy information as to the state of the Alai passes, they selected the Taldik, 11,600 feet, before crossing which, they left behind the last tree and bush they were to see until reaching the valley of the Gilgit.

Crossing the Alai plateau they proceeded by the Kizil Art Pass to Karakul Lake. Thence their route led over passes of 15,500 feet, in sight of the great Mustag Atta to the Murgab or North Oxus, which they struck at 12,300 feet, their correct elevation between the Alai and Sarbad. Another pass of 14,200 feet led over the Alichur Pamir—where *Ovis poli* horns lie about in hundreds—to the Boshgumbaz Valley. The pass of the same name was found impracticable. Mr. and Mrs. Littledale made a long detour to visit the Victoria Lake, one of the sources of the South Oxus, for purposes of sport. Thence they turned eastwards and crossed by the Little Pamir Lake into the Valley of Wakhan. When near Sardab they met with their first misadventure, and this was the encounter with the troops of our ally the Ameer. The civil authorities detained Mr. and Mrs. Littledale for many days, and only let them go at last grudgingly, and after having despoiled them as far as they could without open robbery.

ELIZABETH THOMPSON SCIENCE FUND.

THIS fund, which has been established by Mrs. Elizabeth Thompson, of Stamford, Connecticut, "for the advancement and prosecution of scientific research in its broadest sense," now amounts to \$26,000. As accumulated income will be available in December next, the trustees desire to receive applications for appropriations in aid of scientific work. This endowment is not for the benefit of any one department of science, but it is the intention of the trustees to give the preference to those investigations which cannot otherwise be provided for, which have for their object the advancement of human knowledge or the benefit of mankind in general, rather than to researches directed to the solution of questions of merely local importance.

Applications for assistance from this fund, in order to receive consideration, must be accompanied by full information, especially in regard to the following points:—

(1) Precise amount required. Applicants are reminded that one dollar (\$1.00 or \$1) is approximately equivalent to four English shillings, four German marks, five French francs, or five Italian lire.

(2) Exact nature of the investigation proposed.

(3) Conditions under which the research is to be prosecuted.

(4) Manner in which the appropriation asked for is to be expended.

All applications should reach, before December 10, 1891, the Secretary of the Board of Trustees, Dr. C. S. Minot, Harvard Medical School, Boston, Mass., U.S.A.

It is intended to make new grants at the end of 1891.

* * The trustees are disinclined, for the present, to make any grant exceeding three hundred dollars (\$300); decided preference will be given to applications for smaller amounts.

(Signed) HENRY P. BOWDITCH, President.
WILLIAM MINOT, JR., Treasurer.
EDWARD C. PICKERING.
FRANCIS A. WALKER.
CHARLES-SEDGWICK MINOT, Secretary.

List of Grants hitherto made.¹

1. \$200, to the New England Meteorological Society, for the investigation of cyclonic movements in New England. [*American Meteorological Journal* for 1887, and May 1888.]

¹ The results published are given within brackets.

2. \$150, to Samuel Rideal, Esq., of University College, London, England, for investigations on the absorption of heat by odorous gases.
3. \$75, to H. M. Howe, Esq., of Boston, Mass., for the investigation of fusible slags of copper and lead smelting. [*Trans. Amer. Institute of Mining Engineers*, Feb., 1890.]
4. \$500, to Prof. J. Rosenthal, of Erlangen, Germany, for investigations on animal heat in health and disease, [*Sitzungsber. K. Akad. Wiss.*, 1888, 1309-1319; 1889, 245-254. *Arch. Anat. u. Physiol.*, Suppl. 1888, 1-53.]
5. \$50, to Joseph Jastrow, Esq., of the Johns Hopkins University, Baltimore, Md., for investigations on the laws of psycho-physics. [*American Journal Psychology*, 1890, III., 43-58.]
6. \$200, to the Natural History Society of Montreal, for the investigation of underground temperatures. [*Canadian Record of Science*.]
7. \$210, to Messrs. T. Elster and H. Geitel, of Wolfenbüttel, Germany, for researches on the electrization of gases by glowing bodies. [*Sitzungsber. K. Akad. Wiss. Wien.*, xcvi., Abth. ii., 1175-1264, 1889.]
8. \$500, to Prof. E. D. Cope, of Philadelphia, Penn., to assist in the preparation of his monograph on American fossil vertebrates.
9. (Withdrawn.)
10. \$125, to Edw. E. Prince, Esq., of St. Andrews, Scotland, for researches on the development and morphology of the limbs of Teleosts. ["Inaugural Dissertation," Pp. 24, Pls. II., Glasgow, 1891.]
11. \$250, to Herbert Tomlinson, Esq., of University College, England, for researches on the effects of stress and strain on the physical properties of matter. [*Philos. Magazine*, Jan., 1890, 77-83.]
12. \$200, to Prof. Luigi Palmieri, of Naples, Italy, for the construction of an apparatus to be used in researches on atmospheric electricity.
13. \$200, to Wm. H. Edwards, Esq., of Coalburg, W. Va., to assist the publication of his work on the butterflies of North America. ["Butterflies of North America," 3rd Series, Part V.]
14. \$150, to the New England Meteorological Society, for the investigation of cyclonic phenomena in New England.
15. \$25, to Prof. A. F. Marion, for researches on the fauna of brackish waters.
16. \$300, to Prof. Carl Ludwig, for researches on muscular contraction, to be carried on under his direction by Dr. Paul Starke. [*Abhandl. math. phys. Classe K. sächs. Ges. Wiss.*, xvi., 1890, 1-146, Taf. i.-ix.]
17. \$200, to Dr. Paul C. Freer, for the investigation of the chemical constitution of graphitic acid.
18. \$300, to Dr. G. Müller, for experiments on the resorption of light by the earth's atmosphere. [*Publicationen Astrophys. Observ. Potsdam.*, viii., 1-101, Taf'n II.]
19. \$300, to Prof. Gerhard Krüss, for the investigation of the elementary constitution of erbium and didymium. [*Liebigs Annalen*, Bd. 265, 1-27.]
20. \$50, to Dr. F. L. Hoorweg, for the investigation of the manner and velocity with which magnetism is propagated along an iron bar.
21. \$150, to Mr. W. H. Edwards, to assist the publication of his work on North American butterflies. ["Butterflies of North America," 3rd Series, Part VIII.]
22. \$250, to Dr. Ernst Hartwig, for researches on the physical libration of the moon (see Grant No. 27).
23. \$200, to Prof. Charles Julin, for researches on the morphology of Ascidians.
24. \$250, to Prof. M. Nencki, for researches on the decomposition of albumenoids by microbes. [*Arch. Expt. Path. Pharmak.*, xxviii., 311-350, Taf. IV.-V.]
25. \$200, to Prof. Carl Frommann, for researches on the minute organization of cells.
26. \$300, to Edward Atkinson, Esq., for experiments on cooking, to be carried on under the direction of Mrs. Ellen H. Richards. [*Proc. Amer. Assoc. Adv. Sci.*, 1890.]
27. \$250, to Dr. Ernst Hartwig, to continue the work of Grant No. 22.

28. \$200, to Edward S. Holden, Esq., for researches on stellar spectroscopy, to be carried on at the Lick Observatory.
29. \$150, to Prof. J. Kollmann, for investigations on the embryology of monkeys.
30. \$25, to Prof. J. P. McMurrich, Clark University, Worcester, Mass., to study embryology of Aurelia.
31. \$200, to Dr. Johannes Dewitz, Zoolog. Institute, Berlin, Germany, for researches on the laws of movement of Spermatozoa.
32. \$150, to Alexander McAdie, Clark University, Worcester, Mass., for experiments on atmospheric electricity.
33. \$250, to Prof. Julien Fraipont, University of Liège, Liège, Belgium, for the exploration of the cave of Engihoul.
34. \$50, to Prof. M. E. Wadsworth, Houghton, Michigan, for observations on the temperature in mining-shafts.
35. \$50, to Prof. A. B. Macallum, University of Toronto, Toronto, Canada, to study the digestion and absorption of chromatine.
36. \$250, to Dr. G. Baur, Clark University, Worcester, Mass., for the exploration of the Galapagos Islands.
37. \$300, to Prof. Edw. S. Holden, Lick Observatory, Cal., for astronomical photography.
38. \$250, to Prof. Louis Henry, Louvain, Belgium, for researches on the fundamental solidarity of carbon compounds.
39. \$300, to Prof. L. Hermann, Königsberg, Prussia, for phonographic experiments on vowels.
40. \$50, to Prof. Alpheus Hyatt, Cambridge, Mass., for researches on the evolution of Cephalopoda.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

OXFORD.—Convocation on Tuesday arrived at the following decision:—

“That the University accept the offer of Mr. G. J. Romanes, F.R.S., Christ Church, to give an annual sum of £25 for a lecture to be delivered once a year on some subject approved by the Vice-Chancellor relating to science, art, or literature. The lecturer to be called the Romanes Lecturer, and to be appointed by the Vice-Chancellor annually in the Michaelmas Term, the lecture to be delivered in the next following Easter or Trinity Term on a day to be fixed by the Vice-Chancellor, who shall give public notice thereof to the University in the usual manner. Also, that the thanks of the House be given to Mr. Romanes for his liberality.”

We understand it was Mr. Romanes's wish that the foundation should be anonymous; but as such a course was found to be without precedent, and otherwise impracticable, he yielded the point to the University authorities.

Mr. H. T. Gerrans, Fellow of Worcester College, has been elected by the Board of the Faculty of Natural Science a member of the Committee for nominating Masters of the Schools from Hilary Term 1892 to Hilary Term 1895. Mr. C. H. Sampson, Fellow of Brasenose College, has been elected by the same Board of Faculty a member of the Committee for nominating Mathematical Honour Moderators.

SCIENTIFIC SERIALS.

A GOOD deal of interesting geological information is given in the last number of the *Ivestia* of the East-Siberian Branch of the Russian Geographical Society (vol. xxii., 2 and 3). M. Obrutcheff gives an orographical and geological sketch of the highlands of the Olekma and the Vitim, with the exploration of which he was intrusted by the mining administration. Besides the upheavals of these highlands, which have a general direction from the south-west to the north-east, M. Obrutcheff found another series of upheavals stretching west-north-west to east-south-east, the chief ridge of that system (named Kropotkin's ridge by the author) rising to the height of from 1300 to 1500 metres, and separating the tributaries of the Lena from those of the Vitim. Several lower chains seem to have the same direction. The whole series consists of metamorphic slates and limestones, intersected by granites and gneisses, and belongs to the Lower Silurian and Cambrian system, a closer definition of its age being difficult

on account of a total want of fossils. M. Obrutcheff also confirms the glaciation of the whole of these highlands. The valleys are filled up with morainic deposits, with polished and striated boulders, and there are traces of inter-glacial layers. The *dômes arrondis* and the *roches moutonnées*, so familiar to the glacialist, are frequent, and the author gives interesting facts to confirm the transport of boulders at great distances over the mountain-ridges, which cannot be explained without admitting that the whole of the highlands was covered with a mighty ice-cap. The same number contains a note by the same author on the Jurassic fossil plants recently discovered on the Bureya River (a tributary of the Amur), and a list of 290 flowering plants collected by Mme. Klements in South Yeniseisk and Tomsk, and described by M. Preyn.

SOCIETIES AND ACADEMIES.

LONDON.

Chemical Society, November 5.—Mr. W. Crookes, F.R.S., Vice-President, in the chair.—The following papers were read:—The magnetic rotatory power of solutions of ammonium and sodium salts of some of the fatty acids, by Dr. W. H. Perkin, F.R.S. Ostwald has argued that the peculiar results obtained by the author in the case of solutions of acids and of ammonium salts, &c., are in accordance with the electrolytic dissociation hypothesis; and has suggested that since salts formed from weak acids are as good conductors as those formed from strong ones, we may expect in this case also, marked deviations from the calculated values. He also considers that such salts as ammonium formate, &c., when in aqueous solution would show molecular rotations which would not be the sums of the rotations of the components of the salts, as must nearly be the case if the view put forward by the author be correct, that such salts are almost entirely dissociated into acid and base. The author has obtained results which show that the rotatory powers of the ammonium and sodium salts do not vary with dilution; and on comparing the experimental values obtained in the case of ammonium salts with those afforded by the constituent acid and ammonia, as might be expected, as reduction of rotatory power always attends combination, the values are slightly less in the case of the salts. This reduction is very nearly the same as that which takes place in the formation of the corresponding ethereal salts, and as the latter are anhydrous, the results show that the values for ammonium salts in solution are practically those of the dry salts, and therefore that Ostwald's views are inapplicable.—Note on the action of water gas on iron, by Sir H. E. Roscoe and F. Scudder. Whilst making experiments on the application of water gas for illuminating purposes, the authors have observed that occasionally the Fahnehjelm comb becomes coated with a deposit of ferric oxide, and a further examination of the tips of the steatite burners showed that the deposit of ferric oxide was “coralloid,” and therefore could not be produced from dust in the atmosphere. They also observe that water gas which has been standing in steel cylinders at a pressure of 8 atmospheres for about a month contains a much larger quantity of iron. A preliminary determination of the iron in this gas amounted to 2.4 milligrams per litre. Although the compound, which is doubtless the iron carbonyl of Mond and Quincke, is only present in this small quantity, the authors have succeeded in proving that it can readily be liquefied. In the discussion which followed, the Chairman referred to the fact that at the recent British Association meeting at Cardiff, Mr. Mond had exhibited specimens not only of liquid iron carbonyl, but also of a solid compound of iron with carbonic oxide. Prof. Ramsay stated that he had found that the compound of nickel with carbonic oxide was formed in the cold.—The dissociation of liquid nitrogen peroxide, by J. Tudor Cundale. The author has determined by colorimetric methods the relative amount of NO₂ formed in liquid nitrogen peroxide, (1) by dilution with chloroform, (2) by rise of temperature. He has also ascertained the absolute amounts of dioxide by comparing the colour of the liquid solution with that of the gas containing a known amount of nitrogen peroxide. The results show that, on dilution, (1) dissociation takes place very slowly at first, but more rapidly when less than 5 per cent. of the peroxide is present; (2) that solutions of the peroxide dissociate more rapidly than the pure liquid on rise of temperature.—Ortho- and para-nitro-ortho-toluidine, by A. G. Green and Dr. T. A. Lawson. The authors find that when ortho-toluidine sulphate is nitrated in a large