MAGNETIC DISTURBANCES DURING THE LATE TOTAL ECLIPSE

IN the list of papers read before the Paris Academy of Sciences, which was given in last week's NATURE, I noticed one on the magnetic perturbations observed at Alençon during the late total eclipse. Now it would at first sight appear reasonable to expect that any effect produced on the magnetic needle at Alençon by a phenomenon whose maximum phase was as far removed as India or Australia, should have nearly equal effect on the needle in England, and in all countries adjoining France. It has moreover been established by frequent comparisons of carefully measured photographic records, taken at different magnetic observatories, that any disturbance of the earth's magnetic force is felt almost simultaneously at stations differing several hundred miles in both latitude and longitude. I was, therefore, justified in supposing that I should find some indications on our photo-magnetic records of a disturbance corresponding to the perturbations of the needle at Alençon, alluded to by M. Lion in his note to the Academy. The result of my examination of the records is, that there is not the slightest trace of a disturbance on either the vertical or horizontal curves, and that the declination magnet has been more than usually quiet, although on the two previous days it happened to have been somewhat disturbed about the hour at which the totality of December 11 occurred.

Accidental causes influence too largely the readings of a declination magnet for much reliance to be placed on them, however careful the observer, when they are in open contradiction to the photo-records of instruments whose diurnal corrections are sensibly constant.

Stonyhurst Observatory, Jan. 28 S. J. PERRY

SCHOLARSHIPS AND EXHIBITIONS FOR NATURAL SCIENCE IN CAMBRIDGE, 1872

THE following is a list of the Scholarships and Exhibitions for proficiency in Natural Science to be offered in Cambridge during the present year :—

TRINITY COLLEGE.—One or two of the value of about 80*l.* per annum. The examination will be on April 5, and will be open to all undergraduates of Cambridge and Oxford, and to persons under twenty who are not members of the Universities. Further information may be obtained from the Rev. E. Blore, Tutor of Trinity College.

ST. JOHN'S COLLEGE.—One of the value of 50*l.* per annum. The examination (in Chemistry, Physics, and Physiology, with Geology, Anatomy, and Botany) will be on the 12th of April, and will be open to all persons who are not entered at the University, as well to all who have entered and have not completed one term of residence. Natural Science is made one of the subjects of the annual College Examination of its students at the end of its academical year, in May ; and Exhibitions and Foundation Scholarships will be awarded to students who show an amount of knowledge equivalent to that which in Classics or Mathematics usually gains an Exhibition or Scholarship in the College. In short, Natural Science is on the same footing with Classics and Mathematics, both as regards teaching and rewards.

CHRIST'S COLLEGE.—One or more, in value from 30*l.* to 70*l.*, according to the number and merits of the candidates, tenable for three-and-a-half years, and for three years longer by those who reside during that period at the College. The examination will be on March 19, and will be open to the undergraduates of this College ; to non-collegiate undergraduates of Cambridge ; to all undergraduates of Oxford ; and to any students who are not members of either University. The candidates may select their own subjects for examination. There are other Exhibitions which are distributed annually among the most deserving students of the College.

CAIUS COLLEGE.—One of the value of 60*l.* per annum. The examination will be on March 19 in Chemistry and Experimental Physics, Zoology with Comparative Anatomy and Physiology, and Botany with Vegetable Anatomy and Physiology ; it will be open to students who have not commenced residence in the University. There is no limitation as to age.—Scholarships of the value of 20*l.* each, or more if the candidates are unusually good, are offered for Anatomy and Physiology to members of the College. —Gentlemen elected to the Tancred Medical Studentships are required to enter at this College ; these Studentships are four in number, and the annual value of each is 113*l.* Information respecting these may be obtained from Mr. B. J. L. Frere, 28, Lincoln's Inn Fields, London.

CLARE COLLEGE.—One or more of the value of 50*l.* per annum. The examination (in Chemistry, Chemical Physics, Comparative Anatomy and Physiology, and Geology) will be on March 19, and will be open to students intending to begin residence in October.

DOWNING COLLEGE.—One or more of the value of 40*l.* per annum. The examination (in Chemistry, Comparative Anatomy, and Physiology) will be early in April, and will be open to all students not members of the University, as well as to all undergraduates in their first term.

SIDNEY COLLEGE.—Two of the value of 40*l.* per annum. The examination (in Heat, Electricity, Chemistry, Geology, Physiology, Botany) will be in October, and will be open to all students who may enter on the College boards before October 1.

EMMANUEL COLLEGE.—One or more of the value of 40*l.* to 60*l.* per annum. The examination on March 19 will be open to students who have not commenced residence.

PEMBROKE COLLEGE.—One or more of the value of 20*l.* to 60*l.*, according to merit. The examination in June (in Chemistry, Physics, and other subjects), will be open to students under twenty years of age.

ST. PETER'S COLLEGE.—One from 50*l.* to 80*l.* per annum, according to merit. The examination, on April 4 (in Chemistry, Comparative Anatomy and Physiology, and Botany), will be open to students who will be under twenty-one years of age on October 1, 1872, and who have not commenced residence.

Although several subjects for examination are in each instance given, this is rather to afford the option of one or more to the candidates than to induce them to present a superficial knowledge of several. Indeed, it is expressly stated by some of the Colleges that good clear knowledge of one or two subjects will be more esteemed than a general knowledge of several.

Candidates, especially those who are not members of the University, will, in most instances, be required to show a fair knowledge of Classics and Mathematics, such, for example, as would enable them to pass the Previous Examination.

There is no restriction on the ground of religious denomination in the case of these or of any of the Scholarships or Exhibitions in the Colleges or in the University. Further information may be obtained from the tutors of the respective Colleges.

It may be added that Trinity College will give a Fellowship for Natural Science once, at least, in three years ; and that most of the Colleges are understood to be willing to award Fellowships for merit in Natural Science equivalent to that for which they are in the habit of giving them for Classics and Mathematics.

The following lectures in Natural Sciences will be delivered at Trinity, St. John's, and Sidney Sussex Colleges during Lent Term, 1872 :—

On Sound and Light. (For the Natural Sciences Tripos.) By Mr. Trotter, Trinity College, on Mondays, Wednesdays, and Fridays, at 10, commencing Monday, February 5.

On Electricity and Magnetism. (For the Natural Sciences Tripos, a short course in continuation of that of last term.) By Mr. Trotter, Trinity College, on Tuesdays and Thursdays, at 9, commencing Thursday, February 1.

On Electricity and Magnetism, for the special examination for the ordinary degree. By Mr. Trotter, Trinity College, on Tuesdays, Thursdays, and Saturdays, at 11, commencing Thursday, February 1.

On Chemistry. By Mr. Main, St. John's College, on Mondays, Wednesdays, and Fridays, at 12, in St. John's College laboratory, commencing Wednesday, January 31. Instruction in Practical Chemistry will also be given.

On Palæontology. (The Annuloida, &c) By Mr. Bonney, St. John's College, on Mondays, Wednesdays, and Fridays, at 9, commencing Wednesday, January 31.

On Geology. (For the Natural Sciences Tripos. Physical Geology.) By Mr. Bonney, St. John's College, on Tuesdays and Thursdays, at 10, commencing Thursday, February 1.

A course on Stratigraphical Geology will be given in the Easter Term. Papers will be given every Saturday at 11.

Elementary Geology (for the special examination), on Tuesdays and Thursdays, at 11, commencing Thursday, February 6.

On Botany. (For the Natural Sciences Tripos.) By Mr. Hicks, Sidney College, on Tuesdays, Thursdays, and Saturdays, at 12, beginning on Thursday, February 1. The lectures during this term will be on Structural and Physiological Botany.

On the Physiology of the Nervous System. By the Trinity Prælector in Physiology (Dr. M. Foster), at the New Museums, on Mondays, Tuesdays, and Wednesdays, at 11, commencing Monday, February 5.

The Physiological Laboratory is also open for practical instruction in Physiology to all those who have gone through the elementary course.

NATURAL SCIENCE AT OXFORD

THE following regulations have been issued for the Final Honour Examination in the Natural Science School :—

BIOLOGY.—1. Candidates who offer themselves in the Final Honour Examination for examination in Biology will be expected to show an acquaintance, firstly, with General and Comparative Anatomy; secondly, with Human and Comparative Physiology, inclusive of Physiological Chemistry; and thirdly, with the General Philosophy of the subject.

2. In these subjects the candidates will be examined both by paper work and practically; and will be required to give evidence of being competent not merely to verify and describe specimens already prepared for naked-eye or microscopic demonstration as the case may be, but also to prepare such or similar specimens themselves.

3. The following works are provisionally recommended by the Board of Studies for use in the study of the above-mentioned Departments of Biology. When the letter F or G is prefixed to the title of a work, it will be understood to indicate that the work is written in French or German, and is not as yet translated into English :—

General Anatomy.—Sharpey in Quain's Anatomy, ed. 7, 1867; The Micrographic Dictionary, by Griffiths and Henfrey, now in course of re-publication; The Histological Catalogue of the College of Surgeons, by Prof. Quekett; (G) Kölliker's Handbuch der Gewebe-lehre, ed. 1867; Stricker's Handbook of Human and Comparative Histology, now in course of translation for the New Sydenham Society.

Comparative Anatomy.—Huxley's Introduction to the Classification of Animals; Huxley's Anatomy of Vertebrated Animals, 1871; (F) and (G) Gegenbaur's Grundzüge der Vergl. Anatomie, 1869; (F) Milne-Edwards, Leçons sur la Physiologie, 1857-1870; The Osteological and Physiological Catalogues of the College of Surgeons, by Prof. Owen; The Anatomical and Physiological Catalogues of the Oxford Museum; Flower's Osteology of Mammalia, 1871; (F) Cuvier's Ossemens Fossiles, ed. 2, 1821-1824; Rolleston's Forms of Animal Life, 1870; Bronn's Klassen und Ordnungen des Thierreichs, 1860-1871.

Human Physiology.—Carpenter's Human Physiology, ed. 7, 1869; (G) Funke's Lehrbuch der Physiologie, now in course of re-publication; (G) Hermann's Handbuch der Biologie, 1870; Dalton's Human Physiology; Draper's Human Physiology, 1856; (G) Ranke, Grundzüge der Physiologie, 1868; (G) Wundt's Lehrbuch der Physiologie, 1865; (G) Ludwig's Lehrbuch der Physiologie, 1858-1861; (G) Budge's Lehrbuch der speciellen Physiologie des Menschen, 1862.

Comparative Physiology.—Carpenter's Comparative Physiology, 1854; Marshall's Outlines of Physiology, 1867; (F) Milne-Edwards' Leçons sur la Physiologie; (G) Bergmann and Leuckart, Anatomisch-physiologische Uebersicht des Thierreichs, 1855.

General Philosophy of Biology.—*a.* Darwin's Origin of Species; Van der Hoeven's Philosophia Zoologica, 1864, Lyell's Principles of Geology, ed. 1870, chaps. xxxiv—xxxvii.; Mivart's Genesis of Species; Spencer's Principles of Biology, 1864-1867; Principles of Psychology, ed. 1868-1871; *b.* Agassiz's Essay on Classification, chap. iii.; Whewell's History of the Inductive Sciences (For a Historical Survey of the Progress of Biology); *c.* Van der Hoeven's Handbook of Zoology, 1857; Nicholson's Manual of Zoology, ed. 2, 1871 (For Zoology); Van der Hoeven's Philosophia Zoologica, lib. iv.; Lyell's Principles of Geology, chap. xxxviii—xli. (For Geographical Distribution).

Ethnology and Anthropology.—Waitz's Anthropology; Brace's Races of the Old World, ed. 2, 1870.

4. Candidates may, in addition to the amount of work indicated in the preceding paragraphs, bring up any of the "Special Subjects" contained in the list appended below. A candidate who offers himself for examination in a special subject will be expected to show, firstly, a detailed practical acquaintance with specimens illustrating that subject, for which purpose the catalogues in the University Museum can be made available; and, secondly, exact knowledge of some one or more monographs treating of it. Excellence, however, in a special subject will not compensate for failure in any essential part of the general examination. Every candidate must state, at the time of entering his name for examination, what special subject, if any, he takes in. List of special subjects and of books recommended in connection with them :—

Comparative Osteology.—Cuvier's Ossemens Fossiles, any one of the five volumes; Flower's Osteology of Mammalia; Prof. Huxley's Anatomy of Vertebrated Animals.

The Comparative Anatomy and Physiology of the Organs of Digestion.—The Physiological Catalogue of the Royal College of Surgeons, vol. i.; (F) Milne-Edwards's Leçons, vol. vi.; Articles "Stomach and Intestine" and "Pancreas" in Todd's "Cyclopædia of Anatomy and Physiology;" (F) Schiff, Leçons sur la Physiologie de la Digestion, 1868.

The Comparative Anatomy and Physiology of the Organs of Circulation and Respiration.—(F) Milne-Edwards's Leçons sur la Physiologie, vol. iii.; (F) Marey's Physiologie Médicale de la Circulation du Sang, 1863; (F) Bert, Leçons sur la Physiologie Comparée de la Respiration, 1870.