LETTERS TO THE EDITOR.

[The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts intended for this or any other part of NATURE. No notice is taken of anonymous communications.]

The Chief of the American Nautical Almanac.

PAGE 542 of the issue of NATURE for April 6 contains an announcement that Dr. T. J. J. See has been nominated as Chief of the American Nautical Almanac Office; but as this is entirely erroneous, I venture to hope you will correct it. Prof. See has been assigned to a subordinate position in the Naval Observatory, and has nothing whatever to do with the Nautical Almanac Office.

WM. HARKNESS.

Nautical Almanac Office,
U.S. Naval Observatory, Washington, April 18.

[The announcement referred to by Prof. Harkness was based upon information given in *Science*, and was corrected in the following number (p. 562) upon the authority of the same journal.—ED.]

Wehnelt Interrupter.

IN a previous communication to this journal (p. 438), I pointed out various methods of controlling the Wehnelt interrupter with a view to preventing the destruction of Crookes' tubes. Since then I have made a series of observations which confirm what was previously stated. The principle upon which the experiments were conducted was to keep all the factors constant with one exception, the amperage, voltage, results upon the fluorescent screen and photographic plate being carefully noted and registered by means of an X-ray meter. In one set of experiments the voltage was varied, in another the density of the solution, in the third the size of the platinum, in the fourth the self-induction of the primary coil. By varying any of these, or by a combination specially suited for different purposes, complete control of the Wehnelt was obtained in the way of greater or less fluorescence, actinic power, and steadiness of the screen. Briefly stated, it was found that all these effects decreased as we lowered the voltage, the self-induction of the primary, the density of the electrolyte, and the size of the platinum.

Early in these investigations, great differences between the readings across the Wehnelt and those across the terminals of the primary were observed, for the most part indicating increase in the former. An extended series of observations was made by means of Lord Kelvin's electrostatic voltmeters and ampere gauge, and a relationship between all the different factors was clearly demonstrated. Different induction coils were used, in one of which the self-induction could be altered by withdrawing the soft iron core. Briefly put, it may be said: (a) that there was a corresponding decrease in the readings across the Wehnelt as the voltage in the primary decreased; (b) different conditions, such as length of spark gap, or different vacuum in the Crookes' tube placed in the secondary circuit, affected the readings considerably; (c) the increased voltage across the Wehnelt seemed to depend upon the amount of self-induction in the primary. In this group of experiments, it was noted that, as the self-induction increased, the voltage increased, the amperage decreased, and the number of interruptions also decreased. A non-inductive resistance was made with a view of confirming the results, and it was used instead of the primary of the ordinary coil. In this there was, however, sufficient self-induction to work the Wehnelt under certain conditions. With this arrangement, not a single reading across the Wehnelt was higher than that of the voltage across the primary.

J. MACINTYRE.

Glasgow, April 28.

Polarisation Experiment.

By the following simple arrangement a single pile of glass plates may serve at once as polariser and analyser, and be used to study or to exhibit on a screen the interference colours with mica or crystal sections. It may not be new, but I have not seen it given anywhere. A beam of light is reflected down from a pile, polarised in the plane of reflection. Passing through a double-refracting crystal, it is resolved and then reflected by a common mirror under the crystal. On passing through the pile,

which polarises by refraction in a plane at right angles to the plane of first polarisation, it shows the interference colours. Using sunlight and interposing a convex lens, we may by this simple means project the interference rings of crystal sections.

Central College, Bangalore, India.

J. COOK.

Gecko Cannibalism.

A FEW days ago, on opening the stomach of a young female gecko (*Gecko monarchus*, a species which occurs fairly commonly in the compound outside our bungalow here), it was found to contain, in addition to a caterpillar and some other remains which I could not identify, a smaller gecko of the same species; this, judging from its position in the stomach, had evidently been eaten head foremost, and was quite entire.

The lengths of the two individuals were:

Larger individual	{	Tip of snout to cloaca, 57 mm. (tail broken off).
Smaller ditto ...	{	Tip of snout to cloaca, 32 mm. Tip of snout to tip of tail, 74 mm.

Günther, in his "Reptiles of British India," alludes to geckos as being known to destroy "the younger and weaker members of their own species," and he describes the individuals of *Gecko monarchus* as "pugnacious among themselves"; but the fact that an animal will prey upon another of its own species while living under completely natural conditions and with an abundant supply of its normal insect food seems worth recording.

F. P. BEDFORD.

Singapore, March 23.

"Asia, the Land of Rice."

THROUGH the medium of your pages I would ask, Can any of the numerous readers of NATURE give information as to how or from what origin the name Asia came to be applied to a large portion of the earth's surface? Did it in olden times belong more especially to that district which we now term India? Was the name Asia used by any race of people to denote the land of spices and other valuables, whose products were brought by caravan across Persia and onward by way of the Red Sea?

In the last number of the *Journal* of the Polynesian Society (vol. vii. 185) an interesting paper, by Mr. S. Percy Smith, the Surveyor General for New Zealand, is published, "Hawa-iki: the whence of the Maori," in which he shows that Polynesian traditions tell that the Maori people of New Zealand originally started on their migrations through the isles of the Pacific from a large country which they name "Atia-te-varinga."

"In Madagascar, the name for rice is *vari* or *vare*; in Sunda (Java), Macassar, Kolo, Ende, rice is *pare*; in the Bima tongue it is *fare*; in Malay it is *padi* and *pari*. It is stated that the Arabs changed the original Malay *f* into *p*, so that originally the Malay name was *fari*."—"It is sufficiently clear from the above that *vari* means rice, and the Rarotongan tradition is correct, though not now understood by the people themselves."—"It would seem from this that Atia was a country in which the rice grew, and the name Atia-te-varinga may be translated Atia-the-be-riced, or where plenty of it grew."

In the word *varinga* the suffix *nga* is significant of the plural, and so we get "Atia the rice-growing land."

TAYLOR WHITE.

Wimbledon, Hawkes Bay, N.Z., February 9.

RECENT SCIENCE IN ITALY.

A BRIEF survey of recent numbers of the *Transactions* published by the Reale Accademia dei Lincei, or by the various other Italian Royal scientific academies, will amply show that the country to which we are indebted in the past for the telescope, the mariner's compass, the voltaic cell and other equally valuable inventions, is keeping well to the fore in all advancements of modern science.

In mathematics there have appeared, during the year 1898, papers by A. Brambilla on Steiner's surfaces, and on the surfaces of Veronese, also on the principal polygons of a gibbous quartic with a double point; while G. Gallucci has dealt with tetrahedra inscribed in a gibbous

cubic. Capelli has continued his researches on the reducibility of algebraic equations. Papers dealing with kinematical considerations have been published by E. Cavalli and C. Pietracola. The theory of groups forms the subject of papers by G. Bagnera and G. Fano; while the geometry of hyper-space and non-Euclidian geometry have received contributions from R. Banal, E. Bertini, L. Berzolari, L. Bianchi—Berzolari's paper being on an extension of Meunier's and Euler's theorems to hyper-spaces.

Of papers on higher geometry, we may note those of F. Enriques on the double planes of linear order $p^{(1)} = 1$, and on surfaces which possess a sheaf of rational curves; besides other papers by F. Amodeo, E. Ciani, B. Levi, M. Pieri, P. Pizzetti, and E. Veneroni. The Wronskian determinant has been treated by E. Bortolotti and P. Vivanti. A number of papers dealing with questions chiefly of analysis have appeared by U. Amaldi, P. Burgatti, E. Bortolotti, T. Cazzaniga, S. Pincherle, U. Scarpis, C. Severini, and others. A review of Italian mathematical work would not be complete without some reference to G. Vailati's historical papers, dealing chiefly with the early theories of mechanics.

Passing to astronomy, we find that P. Tacchini has continued his observations on the sunspots, protuberances and faculæ at the Roman College during the year. Observations have been contributed by E. Millosevich on the comet Perrine, on the planet DQ, 1898 (433), and on the last intrajovial planets. Contrary to the common opinion that the astronomy of the ancients was based exclusively on the geocentric hypothesis, Schiaparelli has shown that Heraclitus Ponticus, a disciple of Plato, had already adopted the theory that the sun was the centre of the orbits of the planets, while the earth remained the centre of the universe, and of the lunar and solar rotations—a system substantially that of Tycho.

A considerable number of additions to our knowledge of terrestrial physics have appeared during the year. Seismology has been well represented by G. Agamennone, who has occupied himself with determining the velocities of propagation of the earthquakes of Aidin and of Pergamos (Asia Minor) of 1895, and the earthquakes of India, of Labuan, and of Hayti of 1897; while P. Tacchini has considered the Emilia earthquake of 1898. Volcanic phenomena have been closely observed on Vesuvius by R. V. Matteucci. The year 1898 witnessed the rare appearance of flames on the volcano, which have been attributed by Semmola to jets of incandescent gas at a high temperature, unaccompanied by combustion; while Matteucci differs in thinking that these flames are due to the imprisonment of inflammable substances. The formation of a cupola of lava on Vesuvius forms the subject of another note by Matteucci. A highly promising field of research has been opened up in a paper, by the same writer, on the physics of flowing lava, dealing with the effect of artificial refrigeration on the crystallisation of the magma. The probable presence of coronium in the gases of the Solfatara and of Vesuvius is dealt with by F. Anderlini, R. Nasini and R. Salvadori. Bassani describes the formation of a small vent in the Solfatara.

F. Morano, in his experiments on the thermal conductivity of the rocks of the Campagna, has added fresh links of evidence on that debatable point, the age of the earth; while the second bone of contention betwixt mathematicians and geologists—the glacial period—forms the subject of a note by L. De Marchi, in reply to objections of Arrhenius.

G. Folgheraiter has recently continued his investigations on the secular variations of magnetic dip as revealed by the magnetisation of ancient vases. At the observatory of Capodimonte, the variations of the magnetic elements have been closely studied by F. Contarino and V. Tedeschi, the latter concluding that at the present rate

of decrease, the magnetic declination would vanish in 113 years.

F. Angeletti has devoted his attention to the rectification of the terrestrial meridian, and has found for the earth's quadrant the value 10,000,855.76477 metres. On Mount Etna and its neighbourhood an important series of meteorological and gravitational observations have been carried out by A. Riccò. E. Oddone, working in the neighbourhood of Pavia, has investigated local variations of gravity, and the distribution and circulation of underground waters. Finally, a series of observations has been carried out on the steamer *Aspromonte* on the temperature and colour of the waters of the Adriatic and Ionian seas, of which A. Riccò and G. Saija have published a general *résumé*.

Passing from the physics of the earth to physics proper, a prominent place must be given to E. Villari's investigations on the Röntgen rays, referring more especially to their action in promoting the discharge of electrified bodies. Various experiments made by screening these rays off partially by the aid of tubes, all tend to the conclusion that the rays do not themselves promote the discharge, but cause it by means of the air on which they act. The diffusion of Röntgen rays and the influence of secondary rays emitted by bodies on which they fall have been considered at some length by R. Malagoli and C. Bonacini, whose views have been criticised by Murani. A. Battelli has continued his investigations on the nature of Röntgen rays by examining the analogy between these and cathodic rays. Other properties of Röntgen rays are dealt with by G. Guglielmo, A. Ròiti, A. Sandrucci and others. Several papers have appeared from the pen of that fertile physicist A. Righi, dealing, among other points, with the kinematic interpretation of Zeeman's phenomenon, and with the absorption of light in a magnetic field. The former of these subjects is also dealt with by O. M. Corbino. The properties of caoutchouc have been investigated by O. M. Corbino and F. Canizzaro, with regard to the variations of its dielectric constants due to traction; while M. Cantone has studied the traction and the accompanying phenomena of hysteresis from a mechanical point of view, applying his results to the determination of "Poisson's ratio." The velocity of Hertzian waves forms the subject of a paper by V. Boccara and A. Gandolfi, while Murani proves, contrary to the assertion of Le Royer and Van Berchem, that a coherer is not adapted to exhibit the maximum and minimum points of stationary Hertzian waves. In thermo-electricity, we have P. Straneo's papers on the temperature of a bimetallic conductor, and on the simultaneous determination of thermal and electric conductivities of metals. In electricity proper, we may refer to Grassi's calculation of the dimensions of induction in a continuous current dynamo, and his note on the work of magnetisation in an open cycle; A. Dina's application of aluminium to transform alternating into continuous currents; F. Lori's studies on the capacity of condensers; and A. Ròiti's paper on the two discharges obtainable from one condenser. Of thermodynamical interest are G. Bruni's series of papers on certain solid solutions, and on the equilibrium of amorphous mixtures, and of systems of two and three components with a liquid phase. C. Del Lungo deals with the density of liquids and saturated vapours considered as a function of the temperature.

In chemistry, a long series of quantitative and qualitative analyses have been conducted by Ogialoro, in conjunction with O. Forte and G. Cabella, on the waters of the baths of Belliazzi in the island of Ischia.

Menozzi, experimenting on the behaviour of certain organic nitrates in contact with the earth, has shown that hippuric acid is not absorbed or decomposed by the constituents of ordinary earth, though certain salts of this acid, similarly treated, undergo transformation. A.

Piutti has discovered a new test for the presence of wood in paper, namely chlorohydrate of *o*-Br-phenetidin, which tinges the woody fibres a bright yellow, while cellulose, ordinary fibres of cotton, wool, silk and linen are unaffected. A large number of other papers on certain new organic derivatives have been published in the *Rendiconto* of the Naples Academy, partly under the authorship of Piutti, working in conjunction with Piccoli, partly as the result of work done in Piutti's laboratory; while a detailed study of the crystallography of certain other new organic compounds, illustrated by diagrams, is contributed to the *Rendiconti* del Reale Istituto Lombardo by Boerio. Papers dealing with the methylation of the indols, and the bases derived from them, have been contributed to the *Atti dei Lincei* by A. Piccinini, G. Plancher and Bettinelli.

A geographical congress was held last April, in connection with the centenary celebrations of Paolo Toscanelli and Amerigo Vespucci.

In geology, mineralogy, and palæontology, a number of papers have appeared, but these are chiefly of local interest. We may, however, mention G. Gemmellaro's description of a new genus of brachiopods from the Sicilian *Fusulina* limestone; Artini's account of a meteorite which fell in the Somali peninsula; Bassani's work on the ichthyofauna of the eocene limestones of Gassino in Piedmont; and Taramelli's exposition of Schardt's theory, according to which a large extension of the Swiss pre-Alpine rocks is to be regarded as a limb of the secondary formation which at one time covered the Alps much further to the south.

Botany is represented by Delpino's description of several new instances of myrmecophilous plants furnished with extra-nuptial glands; A. de Gaspari's contribution to the biology of ferns dealing with spore dissemination, acarophily and myrmecophily; L. Buscalioni's work on the origin of vascular elements in the growing point of monocotyledonous roots, and his joint paper with R. Pirotta on plurinucleate vascular elements in Dioscoreaceæ; and B. Longo's researches on chromatolysis in vegetable nuclei, and on the affinities between the Rosaceæ and Calycanthaceæ.

A prominent place in the zoological literature furnished by Italy must be accorded to B. Grassi's researches on the relations between mosquitos and malaria, which have formed the subject of several notes in *NATURE*. Suffice it here to say that these researches have led Grassi, with the co-operation of G. Bastianelli, A. Bignamini, and A. Dionisi to trace the further stages of the development of the malarial parasite within the body of the gnat *Anopheles claviger*, a work which must certainly result in facilitating the prevention of this dangerous disease in Italy. A series of papers on the morphology of Diplopods have been presented by F. Silvestri. The late A. Costa commenced an investigation on the reciprocal actions of certain animal toxins, based on the fact that the sting of certain Hymenoptera (*Scolia*) has the remarkable property of allaying the irritation due to a scorpion's sting. P. Pavesi chronicles the capture of a fish (*Coregonus Schinzi Helveticus*) near the mouth of the Ticino, probably carried down from Lago Maggiore. L. Maggi has made an extended study of the comparative anatomy of the skull, tracing the homology and homotopy of certain bones from the ichthyosaurus up to man.

Among physiological and histological papers, interest attaches to Albini's considerations on the nutritive value of whole-meal bread, which seem to demonstrate that this bread is inferior in nutritive matter to ordinary bread, besides having the disadvantage of containing an excessive quantity of indigestible matter formed of the harder parts of the pericarp of the grains. A. Montuori has investigated the formation of hæmobilin. Golgi has noted two re-

markable peculiarities of the nerve-cell. Monti deals with the preservation of museum specimens, and with the pathology of nerve-fibres in anæmia, in embolism, in congestion, in hydræmia, in malaria, in poisoning, and in inflammation. The conversion of starch into sugar during digestion in the stomach is dealt with at some length by E. Oehl. Marengi has studied the regeneration of nervous fibres in cut nerves; M. Jatta, the genesis of fibrin in pleural inflammation; and D. Baldi has applied the Baubigny process to discover the presence of bromine in thyroids.

Italian science has lost the following workers during the year 1898: Pacifico Barilari, engineer, for many years president of the Council of Public Works in Rome; Giuseppe Gibelli, professor of botany in the Royal University of Turin; A. Costa, the author of numerous papers on entomology dealing with Amphipoda, Hymenoptera, and especially with Italian saw-flies; Teodoro Carnel, botanist, of Florence; and Dr. Eugenio Bettoni, director of the Royal Piscicultural Station in Brescia.

A condensed review, such as the present, would not be complete without some reference to the long array of papers—many of them of the greatest interest to specialists—which want of space prevents us from enumerating individually, but which are none the less worthy of consideration.

G. H. BRYAN.

HIGHER EDUCATION IN PARIS.¹

THE report of the Senate of the University of Paris, drawn up by Prof. Moissan, and presented to the Minister of Public Instruction in December last, gives abundant evidence of the excellent provision for higher education in Paris. It is gratifying to observe the importance attached, by State authorities in France, to the opinions held by eminent men of science on the subject of education. The record of a splendid year's work which is here brought together is proof enough, were any needed, that nothing but good can result when men distinguished in science exert their influence on Councils responsible for the administration of education.

On July 10, 1896, the new University of Paris was endowed by law with a large measure of autonomy. After the period of transition, which naturally followed the inauguration of the new University, the results of self-government have proved completely satisfactory, as the work accomplished during the school-year 1897-8 amply demonstrates. Since 1896 new chairs have been established, new courses of instruction have been formulated, new laboratories have been furnished, and the provisions for practical work have been extended in several directions. The Senate has considered many questions directly affecting their relations with the students, and has endeavoured to interest the general public in the work and development of the University. It is recognised that the University should be a national institution, and that substantial progress can only be assured by an association of effort on the part of the whole body of professors and the public.

Number of Students, &c.—The following table shows the number of students in the various faculties for two years, that especially dealt with in the present report and the year immediately preceding :—

	1897-8.	1896-7.
Faculty of Protestant Theology	95	77
Faculty of Law	4607	4549
Faculty of Medicine	4495	5015
Faculty of Science	1370	1243
Faculty of Letters	1989	1904
Higher School of Pharmacy	1790	1845

14,346 14,633

¹ Rapport du Conseil de l'Université de Paris. (Année Scolaire 1897-1898.)