

be caused by differences of the vegetables out of which the coal has been formed.

PHILADELPHIA

Academy of Natural Sciences, Oct. 1, 1872.—Prof. Leidy remarked that he had visited a corundum mine recently opened in the city of Unionville, Chester Co., Pa. The accumulation is perhaps the most extraordinary discovered, and its extent yet remains unknown. The corundum, as exposed to view at the bottom of a trench, appears as the crest of a large body or vein lying between a decomposing gneiss and a white talcose schist. The exposed portion averages about six feet in depth and five feet in thickness at bottom, and is estimated to contain about fifty tons. It looks as if it promised to be the most valuable deposit of corundum ever found. The corundum is the pure material, and is not emery.

October 8.—Mr. Thomas Meehan remarked, that as botanists well knew, *Quercus prinoides* seldom grew more than two feet in height. It was one of the smallest of shrubs. In his collections in Kansas, he found oaks in the vicinity of Leavenworth, which made small trees from ten to fifteen feet high, and with stems from one to two feet in circumference. He was entirely satisfied that it is identical in every respect but size with the *Q. prinoides* of the Eastern States. Among trees there are few which produce forms as low shrubs; but the *Pinus Banksiana*, in the East but a bush of five or ten feet, grew often forty feet along the shores of Lake Superior; the *Castanea pumila*, Chinquapin chestnut, when it gets out of the sands of New Jersey into the clayey soils west of the Delaware, often grew as large as many full-grown apple trees; while the *Celtis occidentalis*, which in the East is generally a straggling bush along fence corners, is in Ohio a large spreading tree with enormous trunk, and in Indiana is as lofty and as graceful as an elm.

PARIS

Academy of Sciences, April 7.—M. Bertrand in the chair. The following papers were read:—On batteries and on electrocapillary actions, by M. Becquerel.—On a new method for the application of the third theorem to the control of geodetic lines and to the determination of the true figure of the earth, by M. Yvon Villarceau.—On the discovery of Lunar variation by Aboul Wefá, by M. Chasles.—On an accessory reduction in the number of periods produced by juxtaposition at the moment of the formation of a double point, by M. Max Marie.—On Metallic Reflection, by M. Mascart.—On the action of electric currents on atmospheric air, by M. Boillot; a paper dealing with the formation of ozone by tubes coated with carbon powder.—Note on a new series of samples of crystalline or crystallised substances obtained in the dry way, by M. Ch. Feil.—A letter was received from M. Van der Mensbrugge, stating that he had been completely convinced by the arguments and experiments of M. Gernez and Violette, in the recent controversy on crystallisation, and seeing that the superficial tension of liquids did not play the important part he assigned to it, he requested the Academy to consider his recent papers as not received.—A note on Tempe's comet (1867, II), was received from M. Stephan.—On composite electric sparks, by M. Gazin.—On the Phonoptometer, an instrument for the study of periodic or continued movement, by M. J. Lissajous.—Note on the effects produced by currents of electricity on mercury immersed in different solutions, by M. Th. du Moucel.—On the solvent action of glycerine on metallic oleates, calcic oleates, and calcic sulphate, by M. Asselin.—On the action of chloroacetic chloride on aniline and toluidine, by M. D. Tommasi.—On the toxic effects of the iodides tetramethylammonium, and tetramethylammonium, by M. Rabuteau; the author has found that so long as an atom of hydrogen remains unreplaceable, the amyl and methylammonium compounds are harmless, but that as soon as the last atom of hydrogen is replaced by the radical, the body becomes excessively poisonous, with an action like that of curara.—On the age of elevation of Mount Lozère, by M. Fabre.—Note on the public fountains of Toulouse, by M. Grimaud de Caux. During the meeting an election to the vacant chair of the late M. Delaunay, in the astronomical section, took place. M. Luewy obtained 31, M. Wolf 24, and M. Stephan 2 votes; M. Loewy was declared elected.

April 14.—M. de Quatrefages, president, in the chair.—Explanation of the text of Aboul Wefá on the third irregularity of the moon, by M. Chasles.—A long and detailed reply to M. Faye's late criticism on the solar spot theory was received from Father Secchi; this was followed by an answer by M. Faye, who also answered M. Vicaire's attempted revival of Herschel's

theory in the same paper.—A correspondent for the astronomical section, in place of the late M. Quoy, was then elected, M. Mulant obtained 31 votes, M. Baudclot 8, and M. Joly 1; M. Mulant was therefore declared duly elected.—A report on M. Boussinesq's "Essay on the theory of running waters" was then read.—On the residues relative to Asymptotes, classification of the quadratics of algebraic curves, by M. Max Marie.—New observations on the theory of solar cyclones, by M. Vicaire.—A memoir on substitutions (mathematical), by M. C. Jordan.—On a new determination of the constant of attraction and of the mean density of the earth, by M. M. A. Cornu and J. Baillet.—On the effects produced by electric currents on mercury immersed in different solution, by M. Th. du Moucel, a continuation of the paper read at the last meeting.—On irradiation, by M. F. P. Le Roux.—On the hybrid reproduction of Echinoderms, by M. A. F. Marion.—On the trunk of a Nemertian hermaphrodite from the coasts of Marseilles, by M. E. Zeiler.—A study on the carboniferous formations of the Bas Boulonnais, by M. M. Gosselet and Bertaut.

DIARY

THURSDAY, APRIL 24.

ROYAL SOCIETY, at 8.30.—On the Durability and Preservation of Iron Ships, and on Rivetted Joints: Sir W. Fairbairn.—On the Employment of Meteorological Statistics, in determining the best course for a Ship whose Sailing Qualities are known: F. Galton.
ROYAL INSTITUTION, at 3.—Light: Prof. Tyndall.
GRESHAM LECTURES, at 7.—On Climate: E. S. Thompson.

FRIDAY, APRIL 25.

ROYAL INSTITUTION, at 9.—Palæontological Evidence of Modification of Animal Forms: Prof. Flower.
HORTICULTURAL SOCIETY, at 3.—Lecture.
QUEKETT CLUB, at 8.
GRESHAM LECTURES, at 7.—On Climate in Health and Disease: E. S. Thompson.

SATURDAY, APRIL 26.

GRESHAM LECTURES, at 7.—On Stimulants: E. S. Thompson.
ROYAL INSTITUTION, at 3.—Oz ne: Prof. Odling.
ROYAL BOTANIC SOCIETY, at 3.45.
GEOLOGISTS' ASSOCIATION, at 8.—Excursion from Charing Cross (2.25) to Charlton.

MONDAY, APRIL 28.

GEOGRAPHICAL SOCIETY, at 8.30.—On the probable existence of unknown Lands within the Arctic Circle: Capt. Sherard Osborn, R.N.
LONDON INSTITUTION, at 4.—Elementary Botany: Prof. Bentley.

TUESDAY, APRIL 29.

ZOOLOGICAL SOCIETY, at 8.30.—Anniversary.
ROYAL INSTITUTION, at 3.—Music of the Drama: Mr. Dannreuther.
SOCIETY OF ARTS, at 8.—On the British Settlements in West Africa: Governor Pope Hennessy.

WEDNESDAY, APRIL 30.

LONDON INSTITUTION, at 12.—Annual Meeting.
SOCIETY OF ARTS, at 8.—On the Condensed Milk Manufacture: L. P. Merliam.
GEOLOGICAL SOCIETY, at 8.—On the Permian Breccias and Boulder-beds of Armagh: Prof. Edward Hull.—Geological Notes upon Grignald West: G. W. Stow.—On some Bivalve Entomostraca, chiefly Cyprinidæ, of the Carboniferous Formations: Prof. T. Rupert Jones.

THURSDAY, MAY 1.

LINNEAN SOCIETY, at 8.—On Cinchonas: J. E. Howard.
CHEMICAL SOCIETY, at 8.—On Zirconia: J. B. Hannay.—On a new class of Explosives: Dr. Sprengel.
ROYAL INSTITUTION, at 2.—Annual Meeting.

CONTENTS

PAGE

SCIENTIFIC ENDOWMENTS AND BEQUESTS	477
CLERK-MAXWELL'S ELECTRICITY AND MAGNETISM	478
OUR BOOK SHELF	480
LETTERS TO THE EDITOR:—	
Reflected and Transmitted Light.—W. B. WOODBURY and Prof. TYNDALL, F.R.S.	481
The Zoological Collection in the India House.—Prof. A. NEWTON	481
On the Affinities of Diptera, and its Allies.—A. H. GARROD	481
Auroral Display.—Prof. A. S. HERSHEL, F.R.A.S.	481
April Meteors.—W. F. DENNING	482
Instinct: A Mechanical Analogy.—J. J. MURPHY, F.G.S.	483
UNITED STATES SIGNAL SERVICE	484
THE ZOOLOGICAL AND ACCLIMATISATION SOCIETY OF VICTORIA	484
NEW FRENCH INSTITUTION FOR THE EXPERIMENTAL SCIENCES	485
POSSESSION ISLANDS (With Illustration)	486
ON THE ORIGIN AND METAMORPHOSES OF INSECTS, I. By Sir JOHN LUBBOCK, Bart., M.P., F.R.S. (With Illustrations.)	486
ON THE STRUCTURE OF STRIPED MUSCULAR FIBRE	489
NOTES	
THE BIRTH OF CHEMISTRY, IX. By G. F. RODWELL, F.C.S. (With Illustrations.)	492
SCIENTIFIC SERIALS	494
SOCIETIES AND ACADEMIES	495
DIARY	497