

## NUMBER LXXXIII.

	Page
ART. XLII.—Introduction and Succession of Vertebrate Life in America; by O. C. MARSH, .....	337
XLIII.—Note on the Helderberg Formation of Bernardston, Massachusetts, and Vernon, Vermont; by J. D. DANA, .	379
XLIV.—History of Cavern Exploration in Devonshire, England; by W. PENGELLY, .....	387
XLV.—Is the Existence of Growth rings in the Early Exogenous Plants proof of Alternating Seasons? by CHARLES B. WARRING, .....	394
XLVI.—On Sipylite, a new Niobate, from Amherst County, Virginia; by J. W. MALLETT, .....	397
XLVII.—Mean Motion of the Moon; by SIMON NEWCOMB, ..	401

## SCIENTIFIC INTELLIGENCE.

*Chemistry and Physics.*—Action of Saline solutions on Lead, MUIR: New Method for the Synthesis of Hydrocarbons, FRIEDEL and CRAFTS, 411.—The Terpenes of Swedish Wood Tar, ATTERBERG: Amylene from Amyl Iodide, ELTEKOFF, 412.—Constitution of unsaturated Dibasic Acids, FITTIG, 413.—Phenol of Phenanthrene, Phenanthrol, REHS: Formation of Rosolic Acid from Cresol and Phenol, ZULKOWSKY: A new Coloring matter, HOPMANN, 414.—Examination of a Nickel magnet. H. WILD: Spectroscope with a Fluorescent Eye-piece, M. J. L. SORET, 415.—Sun's Heat, M. A. CROVA: Changes in the Spectra of Gases caused by increasing tension: The Influence of Light in Chemical Changes, M. P. CHASTAING, 416.—Magnetic rotatory Polarization, M. H. BECQUEREL, 417.—Rose-colored Sulphide of Manganese: Analysis of Alkaline Sulphides and Sulpho-carbonates, M. M. DELACHANAL et MERMET: Separation of Potassium from Sodium, SCHLOESING: Volumetric method of determining the amount of Manganese in iron ores. M. G. PARREÑO, 418.—Light, etc., A. M. MAYER and C. BARNARD: Manual of Inorganic Chemistry. T. E. THORPE: System of Volumetric Analysis, by Dr. Emil Fleischer, M. M. P. MUIR, 419.

*Geology and Mineralogy.*—Geological and Geographical Survey of the Territories, F. V. HAYDEN, 420.—Fifth Annual Report of the Geological and Natural History Survey of Minnesota, N. H. WINCHELL, 422.—Geological Record for 1875, W. WHITAKER: Notice of Petarolite: a new Mineral Species, G. E. MOORE: On some Tellurium and Vanadium Minerals, F. A. GENTH, 423.—Mineralogische Mittheilungen, G. VOM RATH: Elemente der Mineralogie, C. F. NAUMANN, 424.

*Botany and Zoology.*—Occurrence of another gigantic Cephalopod on the coast of Newfoundland, A. E. VERRILL, 425.—The Antelope and Deer of America, J. D. EATON: Life Histories of the Birds of Eastern Pennsylvania, T. G. GENTRY: Zoologische Wandtafeln, R. LEUCKART and H. NITSCHKE: Bulletin of the U. S. National Museum, T. H. STREETS: Notes on some Common Diseases [of plants] caused by Fungi, W. G. FARLOW, 426.—Flora Brasiliensis: Botany of British Columbia and Northern Rocky Mountains: Sketch of the Vegetation of the Nicobar Islands, S. KURZ, 457.—Arboretum Segrezianum, A. LAVALLÉE: Systema Iridacearum, J. G. BAKER: Native "Artichokes," 428.—Necrological, 429.

*Astronomy.*—Discovery of a New Planet, C. H. F. PETERS, 429.—Comets in 1877: Observations and Orbit of Tempel's Comet, 430.

*Miscellaneous Scientific Intelligence.*—Davenport Academy of Natural Sciences, 430.—U. S. Geographical and Geological Survey of the Rocky Mountain Region, J. W. POWELL: Burial Customs of North American Indians. H. C. YARROW: On the Science of Weighing and Measuring, II. W. CHISHOLM: How to draw a Straight Line, A. B. KEMPE: The Elements of Descriptive Geometry, S. E. WARREN, 431.—Smithsonian Report for 1876, 432.—*Obituary.*—Urban J. J. Leverrier, John G. Anthony, Benjamin Hallowell, 432.