The Bermuda Islands. By Angelo Heilprin. Philadelphia, The Author. 8°.

Professor Angelo Heilprin, in the summer of 1888, made an excursion to the Bermuda Islands, in order to study certain points in the structure and physiognomy of coral reefs, for the study of which the Bermudas offer special advantages. The present volume is the result of his observations on this journey. His observations regarding the formation of the island are fully in accord with those of Darwin, but, as the author points out, do not prove the correctness of the Darwinian hypothesis. Elevations and subsidences are both shown to have marked the region in its development. The author devotes an elaborate chapter of his book to a discussion of the various theories of formation of coral reefs, and expresses himself rather in favor of the old theory of Darwin. Where the author's results regarding the theory of formation of coral reefs are mainly of a negative character, his zoögeographical

results are of great interest. He finds that the Bermudian fauna is essentially a wind-drift and current-drift fauna, whose elements have been received in principal part from the United States and the West Indies. Some portion of the fauna appears to have been derived from the west coast of Europe and Africa, or from the Azores. The fauna appears to be of considerable antiquity, — a conclusion which is supported by the fact that the predecessor of a group of *Pulmonata* now peculiar to the islands is found fossil or sub-fossil in the rocks of these islands. Certain marked elements of the Bermudian fauna are of a distinctively Pacific type, but it seems impossible at the present time to explain this mixed relationship. The book is illustrated with good views from the Bermudas, and a number of plates illustrating the concluding chapters on zoölogy.

AMONG THE PUBLISHERS.

THE second part of the "Contributions to the Micro-Palæontology of the Cambro-Silurian Rocks of Canada," published by the Canadian Geological and Natural History Survey, is by Mr. E. O. Ulrich of the Geological Survey of Illinois. It consists of a descriptive report on some fossil *Polyzoa* (*Bryozoa*) and *Ostracoda* from Manitoba, and is illustrated by two full-page lithographic plates. To facilitate the binding of the present part with Mr. Foord's previously published report, the pagination and numbering of the plates of both have been made consecutive.

— A new guide-book to Florida, by Charles Ledyard Norton, will be published by Longmans, Green, & Co. early in December. The scheme of the volume is similar to that of the well-known Baedecker guides, adapted to requirements of travellers in such a country as Florida. Separate maps of the counties with post-roads and the new railway systems are a noteworthy feature of the book. This guide-book is a revival, on a new and more comprehensive plan, of "The Florida Annual" originally published, and most favorably received by the public, in 1885.

— The "Handbook of Precious Stones," by M. D. Rothschild, just published by G. P. Putnam's Sons of this city, is intended for the merchant, workman, and amateur. Mr. Rothschild is a well-known diamond-dealer of this city; and he was led to write this book by finding how many of those having to do with diamonds, rubies, sapphires, and emeralds, know nothing of these precious stones. The information is given in concise form, we fear even too concisely; but we trust that Mr. Rothschild's ambition may be gratified, and that a second and larger edition may appear in due time.

— Mr. Edwin Lassetter Bynner opens the December number of the *Atlantic Monthly* with an article of interest to the antiquarian, and especially to the student of Old Boston. This paper is devoted to "The Old Bunch of Grapes" Tavern, one of the most famous New England hostelries of the last century, and Mr. Bynner gives an amusing account of the various events which took place within its hospitable walls. Mr. Henry Van Brunt's paper on "Architecture in the West" tells about the difficulties which Western architects have to struggle against, and the new school of architecture which is gradually arising to solve the problem of making art keep step with progress without losing the finer and more delicate artistic sense. It will be studied by all Western men and all architects with a great deal of interest. Professor N. S. Shaler of Harvard College contributes a paper on "School Vacations;" and Mr. William Cranston Lawton, whose articles on the Greek drama have been among the best literary papers the *Atlantic* has lately had, writes about "Delphi: The Locality and its Legends;" and "Latin and Saxon America" (the relations of this country with South American countries) forms the subject of a paper by Mr. Albert G. Browne.

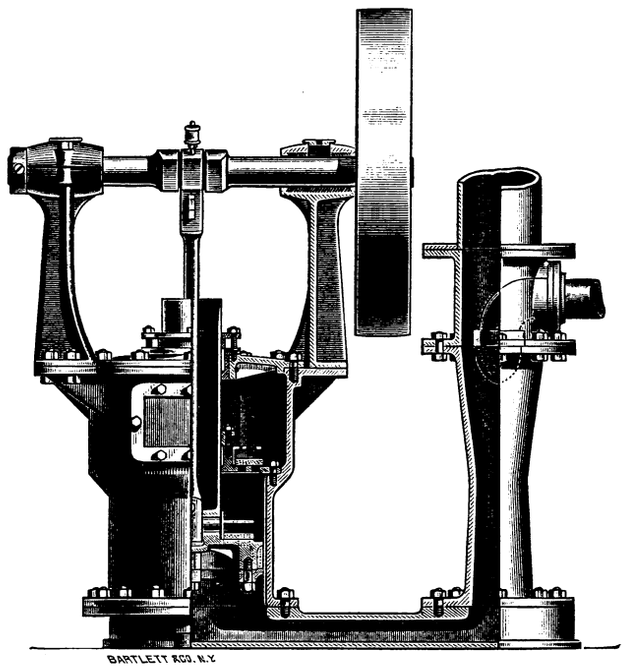
INDUSTRIAL NOTES.

Improved Belt Power Air-Pump and Condenser.

THE air-pump and condenser here illustrated has been newly designed by the builders, Conover & Co., 219 Market Street, Newark, N.J., in answer to the demands of power-users who are seeking the greatest attainable economy in all details of the modern steam-plant.

With the introduction of high-speed compound engines there is felt the need of a thoroughly efficient and simple condensing apparatus. The power required to drive it must be reduced to a minimum, and this same power must be of the most economical sort; otherwise the advantages gained by condensing will be seriously affected, if not wholly counteracted. In fact, it is a matter of record where tests have proven that certain engines have shown better economy running non-condensing than when condensing, owing to the very wasteful manner in which the power was applied to the condensing apparatus.

In presenting this air-pump and condenser to the public, the builders believe that they are offering a highly efficient, simple, and durable arrangement. As will be seen by the engraving, the air-pump is run by belt, which can be direct from the engine-shaft or from a counter-shaft, whichever may be the more convenient. Being driven by the main engine, it is obvious that the power used to operate the air-pump must of necessity be of the same economy as the engine. Thus, if the engine in question be compound condensing, running on two pounds of coal per horse-power or less, it necessarily follows that the air-pump will be operated by a similar economy. An examination of the engraving will make the operation of the condenser and air-pump quite plain. The



POWER AIR-PUMP AND CONDENSER.

spray distributes the injection water in such a manner that every particle of steam must come in contact with the water, and thus effect condensation with a minimum amount of water, and at the same time heat the overflow to the maximum temperature. The opening from the condenser to the air-pump is shaped to allow the greatest quantity of water to flow through a given opening. The pump is made amply large to remove the greatest quantity of water needed for condensing to the full capacity of the condenser. The reciprocating parts are counterbalanced by means of a weight in the wheel, to insure smooth running. As will be seen, the air-pump is vertical and single-acting; and this the builders believe to be the best form to avoid air-locks. In fact, the design throughout looks to the avoidance of all corners or pockets where air can collect and remain. This condenser is specially adapted to the requirements of high-speed compound engines in electric light and power plants, because it can be run at a speed independent of that of the engine, or it may be attached to more than one engine. It is also adapted to be applied to existing plants as a saver of fuel or an increaser of power on the same fuel. The machine is made throughout of the best of the several materials. All wearing parts and valve-seats that come in contact with injection water are made of best composition, and the workmanship is of the best. When the air-pump is in operation, the valves and stuffing-box are constantly covered with water, effectually sealing them. All parts are easily accessible without dismounting wheel or shaft.