mental conditions permit, to other similar reactions involving substitution.

We desire to call special attention to the discovery that acetic acid and sulphuric acid play a definite part in determining the position of the entering nitro group, because, heretofore, the belief has been quite general that when present with nitric acid the function of the sulphuric acid was confined to withdrawing from the sphere of activity the water formed during the process of nitration, while the acetic acid was regarded as a diluent to reduce the activity of the nitric acid. Oxalic acid and trichloracetic acid do not appear to have been previously employed in nitration experiments.

J. Bishop Tingle,
F. C. Blanck.

Johns Hopkins University,
November 24, 1906.

NOTES ON THE HISTORY OF NATURAL SCIENCE.

SIR JOHN MANDEVILLE.

To that dauntless literary freebooter of the fourteenth century who styled himself Sir John Mandeville, and whose 'Voiage and Travaile' enjoyed for a long time enormous popularity, very little consideration is given by historians of natural science. Yet this extraordinary compilation contains many matters of interest to the zoologist, botanist and even geologist of our day, to say nothing of its value from a purely literary or philological standpoint.

A fruitful theme for investigation has been an analysis of the sources, contemporary, early medieval and ancient, from which the narrator made wholesale robberies. Claiming to have been the traveling companion of Friar Odoric, the Bohemian (1286–1331), he appropriated bodily large portions of that noted traveler's itinerary, and precisely these portions are of chief interest to the naturalist. Concerning this question of sources, one may consult the splendid bilingual edition published by the Roxburghe Club, with notes by Mr. Warner, of the British Museum, and the valuable essay by Albert Bovenschen, published by the Berlin Geographical Society in 1888.

A point of interest to the geologist is Sir John's mention, in chapter 8, of the eruptive condition of Etna and the Lipari Isles. Very incomplete records have been preserved of early Liparian eruptions, and it would be interesting to find the statement confirmed by other writers that 'there be seven swelges that burn.' In the original French version this passage concludes: "Et de Ytaille iusques a ces volcans nad pluis de xxv. lieuez; et dit homme qe ces sunt chymenes denfern." This last remark is evidently a localization of a familiar legend, but whether original or not on the part of the author is hard to say. A parallelism exists, though I am not aware of any one having called attention to it, with one of the 'Dialogues' of St. Gregory, where the hermit of Lipari is described as having seen Theodoric the Great, on the day of his death, carried in bonds between Pope John and Symmachus, and thrown into the Volcano of Lipari. It was also a popular belief during the middle ages that Charles Martel had been banished within the crater of Stromboli.

Concerning the animal lore scattered throughout Sir John's book, it has been observed that "all the old legends of the Alexander saga and of the 'Miracles of the Orient'[1] are here amalgamated with much that is new about those fabulous monsters with which the medieval fancy populated the mysterious East." Yet besides these fables there is much authentic information of real value. A single point, of minor interest to be sure, is worth mentioning on account of its having engaged Cuvier's attention. A curious subversion of the Andromeda legend occurs in chapter 5 of Mandeville's book, where it is said that one of the ribs of the monster found at Joppa measured forty feet in length. The statement is evidently borrowed from Solinus (chapter 34), who obtained his information in turn from Pliny ('Nat. Hist.,' v. 14; ix., 4). According to the latter, the total length of the creature, whose bones were conveyed to Rome and exhibited there, was forty feet; and as shown by Cuvier, the description could not have applied to any other animal than a whale.

[1] References to the spread of this literature are given in Science, Vol. **23**, p. 195.

Other instances of the stranding of whales are reported by the same classic author.

C. R. EASTMAN.

CURRENT NOTES ON METEOROLOGY.

LANTERN SLIDES FOR TEACHING METEOROLOGY.

THE Geographic Society of Chicago has done an excellent work for the development of meteorological instruction in the United States. It has collected a set of 270 lantern slides of various meteorological subjects. It has published a good descriptive text to accompany them. It sells the slides at cost. This is one of the more important meteorological contributions along educational lines which has been made in this country within the last few years. The plan was inaugurated in 1905 by Dr. J. Paul Goode, then president of the Chicago Geographic Society, and on the committee which was put in charge of the work were Dr. Goode, Professor Henry J. Cox, of the U. S. Weather Bureau in Chicago, the chief observer of the Weather Bureau in Chicago, and three teachers. The slides are copied from maps and diagrams in the *Atlas of Meteorology*, recent text-books, and in the *Monthly Weather Review;* from photographs, and from weather maps and weather records selected and prepared by the committee. A wide range of subjects is covered, and any teacher of meteorology, climatology or geography will surely find many slides suitable for use in his particular line of teaching. The text to accompany the slides embraces 130 pages. It includes a 'General Introduction,' by Professor Cox; a paper on 'The Use of the Lantern in Teaching Meteorology,' by Dr. Goode; a short working bibliography for the use of teachers, and then the descriptive text (110 pages). The latter is subdivided according to the subjects covered by the slides, including the following: weather observatories; meteorological instruments and instrument records; temperature distribution; atmospheric pressure and circulation; sunshine and other optical phenomena; humidity, cloudiness and precipitation; cyclones and anticyclones; thunderstorms and tornadoes; floods; synchronous weather conditions; life response to climate. This descriptive text is almost a small text-book in itself, and will be very helpful to teachers (unless perchance it be so complete that it tempts them to limit their reading to this alone). We welcome most heartily the Chicago Geographic Society's valuable contribution to meteorological education.

LAND AND SEA BREEZES ON THE GERMAN COAST.

THE phenomena of land and sea breezes on the eastern coast of Germany bordering the Baltic have been studied by Max Kaiser, of Halle ('Inaugural-Dissertation,' Halle, 1906), who has made use of anemograph records for the period 1901–5 at five stations extending over a strip of 300 miles of coast-line; of the observations taken thrice daily at storm-warning stations of the Deutsche Seewarte, and of observations on light-ships and on passing vessels. The sea breeze was found to begin at various times, often at 8 A.M. and often not until 2 P.M. or later. The absolute maximum velocity was 13.2 miles per hour; the absolute minimum was 0.8 miles per hour. The mean velocity is 4.5 to 6.7 miles per hour. April to September are the months of occurrence. Only those days were taken as sea-breeze days which had an offshore wind early, an onshore wind at noon and an offshore wind again in the evening. The 'roundabouts' which have been noted on the New England coast and in other places are but partially developed on the Baltic coast of Germany. An interesting study of the place of beginning of the sea breeze, based on observations from vessels offshore, makes a decided addition to our present knowledge on this subject. In the region under discussion the sea breeze, when conditions are favorable, begins between four and five nautical miles offshore, and the land breeze extends as far out as eight nautical miles.

MONTHLY WEATHER REVIEW.

No. 8, Vol. 34, 1906, of the *Monthly Weather Review* contains the following papers: 'The International Symbols,' by H. H. Clayton. It is pointed out that the American term 'frostwork' is equivalent to the German 'Rauhfrost,' and the English term 'silver thaw' is the equivalent of the Amer-