

## ALEXANDER NECKAM ON THE COMPASS-NEEDLE<sup>1</sup>

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The four-hundredth anniversary of William Gilbert's birth has been commemorated by a special meeting of the Royal Society of Medicine on April 5; an address was given by Professor Sydney Chapman on "William Gilbert and the Science of his time," and has been published in *Nature* [154, 132-136 (1944)]. His work, "De Magnete," first published in the year 1600 and made readily accessible by the translation issued for the Gilbert Club in 1900, is well known to all who are interested in the history of the magnetic compass and of terrestrial magnetism. It is regrettable that the "De Naturis Rerum," by Alexander Neckam, written about 1190, seems to be known to few, since it contains an account of the use of the directional property of a magnet as early as any in Europe. Full credit is however given to Neckam by A. Crichton Mitchell in his "Chapters in the history of terrestrial magnetism" [Terr. Mag., 37, 105-146 (1932)]. Neckam is not mentioned by Gilbert, and Silvanus Thompson, in his notes on the "De Magnete," merely names him as an early author without any account of what he said or any reference to the published text. Two of his works, the "De Naturis Rerum" and the later "De Laudibus Divinae Sapientiae," were published in the original Latin by Thomas Wright, with a preface running to 70 pages, in the Rolls Series in 1863. The extent to which this book has been neglected is indicated by the fact that it is still in print and obtainable, price ten shillings, from the Stationery Office; a second-hand copy is, of course, much more expensive. An appreciative notice of it is to be found in that strange collection of fragments of forgotten lore, Chambers' "Book of Days," under the date May 21.

Neckam was born at Colchester in September, 1157, and his mother acted as wet-nurse to another baby, born at Windsor the same night as her own, Richard Coeur de Lion. By the year 1180 he was a professor in the University of Paris; in 1213 he became Abbot of Ciceter (Cirencester), and he died in 1217. His prose work, "De Naturis Rerum," was well known and quoted by the end of the twelfth century, but was not his first; the second work mentioned above is in elegant elegiac couplets, and is practically a paraphrase of the former, though some new material is added. Neckam's avowed object in writing may, perhaps, have discouraged men of science from reading his book; it was to collect known facts in natural history and use them to draw morals, some of which are exceedingly far-fetched. He is thus a mere recorder and observer, whereas Gilbert was an investigator on truly scientific lines, and the "De Magnete" is one of the pointers to the year 1600 as the approximate date of the rebirth of European science after 1,400 years of obscurity. Neckam's "facts" are largely quoted from such classical authors as Aristotle (with the spurious mediaeval additions) and Pliny, and include much fantastic nonsense, but there is sufficient new matter to show that

<sup>1</sup>Reprinted, with permission of the Royal Geographical Society, from Geog. J., London, 194, 63-65 (1944), as a contribution to the history of geomagnetism.—Ed.

he was a genuine observer. The zoologist, botanist, and student of folklore will find much of interest, while his remarks on coal, lime, jet, precious stones, and metals will appeal to the geologist. Among this last group is one point of great importance in the history of geography. He describes the loadstone and its property of attraction and repeats the well-known myth of Muhammad's coffin being suspended in mid-air by magnets hidden in the roof, floor, and walls of the tomb, though even this is less exaggerated than that of the iron figure of Bellerophon on horseback weighing 5,000 pounds similarly suspended, which was included in a Saxon list of the Seven Wonders of the World, falsely attributed to Bede. To quote Wright's preface (p. xxxiv), "Continuing his remarks on the properties of the magnet, Neckam goes on to say, 'the sailors, moreover, as they sail over the sea, when in cloudy weather they can no longer profit by the light of the Sun, or when the world is wrapped up in the darkness of the shades of night, and they are ignorant to what point of the compass their ship's course is directed, they touch the magnet with a needle, which (the needle) is whirled round in a circle until, when its motion ceases, its point looks direct to the north' (Bk. II, cap. xcvi)."

In Humboldt's "Cosmos" it is stated that the first mention of the magnetic needle in Christian Europe is in a poem by Guiot of Provence in 1190 (Bohn Ed., p. 629). Wright quotes the old French text and gives a verse translation of this poem and adds another from "an anonymous poet who seems to have been contemporary with Guiot," but he gives the date as 1205. Neckam is therefore either the first, or as early as any other European writer, to mention the compass, and deserves to be better known, at least in this country, than he is. We are indebted to the two French poets for knowledge of the simple means by which the magnetized needle was allowed to "whirl round" freely. Guiot says it was laid on a straw, his contemporary that it was passed through a bit of cork, and so could be floated on the surface of a bowl of water. The latter method was often used by Gilbert in his experiments.

This use of loadstone or magnetite was evidently familiar early in the thirteenth century, as Mandeville calls it the "shipman's stone." Quite a small piece would suffice for the purpose, and a needle would always be available on any ship. How many of us have even wondered why the pointer of a compass, or of other gauging instruments, is referred to as a needle? In the earliest illustrated book on minerals and fossils, the "De Rerum Fossilium, Lapidum et Gemmarum Figuris" of Conrad Gesner, 1565, a needle is actually shown in a woodcut being magnetized by contact with a piece of loadstone (p. 84). It is to be hoped that 12 years hence the eight hundredth anniversary of Neckam's birth will not be forgotten; perhaps an annotated translation of the "De Naturis Rerum" might be prepared.