Complete Dictionary of Scientific Biography

Albert of Saxony

(b. Helmstedt, Lower Saxony, ca. 1316; d. Halberstadt, Saxony, 8 July 1390)

physics, logic, mathematics.

The family name of Albert of Saxony was de Ricmestrop his father, Bernard de Ricmestorp was a well-to-do burgher of Helmstedt. A brother, John, was a master of arts at the University of Paris in 1362, while Albert of himself was still there. Of Albert's youth and early schooling nothing is known, although there is some evidence to Paris, where he obtained the degree of master of arts in 1351.

He quickly achieved renown as a teacher on the faculty of arts at Paris and was made rector of the university in 1353. During most of the period of Albert's study and teaching at Paris, the most influential figure on the faculty of arts was Jean Buridan, and Albert's own lectures on natural philosophy, represented by his books of questions on Aristole's Physics and De caelo et mundo, were modeled closely on those of Buridan. Nicole Oresme, another pupil of Buridan, also taught at Paris at this time, and there is evidence that he influenced Albert in the direction of mathematical studies. Albert apparently studied theology also but never received a theological degree.

It is believed that he left Paris by the end of 1362, going to Avignon and spending the next two years carrying out various commissions for Pope Urban V. The pope obtained for him a benefice at Mainz, later made him parochial priest at Laa, and shortly afterward canon of Hildesheim. Albert played a major role in obtaining the authorization of the pope for the establishment of a university at Vienna and in drawing up its statutes. When the university was established in June 1365, Albert was its first rector. But he held this position for only a year; at the end of 1366 he was appointed bishop of Halberstadt and his academic career came to an end. His twenty-four years as bishop were marred by political and financial difficulties and at one point he was even accused of heresy by some inimical clergy of his own region who intimated that he was "more learned in human science than in divine wisdom," and that the had openly taught an astrological determinism with denial of human freedom of choice. Surviving these vicis situdes he held the bishopric until he died at the age of seventy-six. He was buried in the cathedral of Halberstadt.Albert's writings, which were probably composed during the years when he was teaching at Paris, consist mostly of books question on Aristole's treatises and of some treatises of his own on logic and mathematical subjects. Extant in early printed editions are questions on Aristotle's Physics, De caelo et mundo. De generatione et corruptione, Posterior Analytics, and on the "old logic" (Prophyry's Predicables and Aristotle's Categories and De interpretatione):

a complete textbook of logic published in 1522, under the title Logica Albertutii; an extensive collection of logical puzzles, entitled Sophismata; and a treatise on the mathematical analysis of motion, entitled Tractatus proportionum. In unpublished manuscripts there are sets of

questions on Aristotle's Meteora, Ethics, De sensu et sensato, and Oeconomica; a book of questions on John of Sacrobosco's De sphaera; and two short treatises on the mathematical problems of "squaring the circle" and of determining the ratio of the diameter of a square to its side. Suter's ascription of the second of these mathematical treatises to Albert has been questioned by Zoubov (see Bibliography), who attributes it to Oresme. It does in fact echo passages found in one of Oresme's known works, but since Albert often paraphrased the content of works whose ideas he borrowed, this does not prove that the work was not written by Albert. There is much uncertainty concerning the attribution of a number of these manuscript works to Albert. It has been shown that his Questions on the Ethics, although written by Albert as his own work, is an almost literal plagiarism of the corresponding work of Walter Burley.

Albert's significance in the history of science is primarily that of a transmitter and an intelligent compiler of scientific ideas directly drawn from the works of Buridan, Thomas Bradwardine, William of Ockham, Burley, Oresme, and other writers in the medieval scientific tradition. His works in physics are heavily dependent on the corresponding works of Buridan, to the extent that all but a few of the questions devoted to the Physics and the De caelo et mundo correspond directly to those of Buridan's works of similar title, both in form and in content. Most of the questions that Albert adds, and which are not found in Buridan's works, draw their materials from the Oxford tradition of Bradwardine and his Mertonian pupils, or, in a few cases, from the early thirteenth-century works on statics and hydrostatics associated with Jordanus de Nemore. Albert's Tractatus Proportionum is modeled directly on Bradwardine's treatise De proportionibus velocitatum in motibus, although it adds some refinements in terminology and in the analysis of curvilinear motions that reflected the later Mertonian developments and probably also the influence of Oresme.

Despite his lack of originality Albert contributed many intelligent discussions of aspects of the problems dealt with, and he had the particular merit of seeing the importance of bringing together the mathematical treatments of motion in its kinematic aspect, stemming from the Oxford tradition of Bradwardine, with the dynamical theories that Buridan had developed without sufficient concern for their mathematical formulation. As a transmitter of Buridan's work, Albert played an important part in making known the explanations of projectile motion and of gravitational acceleration provided by Buridan's theory of impetus, although he tended to blur the distinction between Buridan's quasi-inertial concept of impetus and the older doctrine of the self-expending "impressed virtue." Unlike Buridan, he introduced an error into the analysis of projectile motion, by supposing that there is a short period of rest between the ascent of a projectile hurled directly upward and its descent. Yet this led him to initiate a fruitful discussion by raising the question of the trajectory that would be followed by a projectile shot horizontally from a cannon. He supposed that it would follow a straight

horizontal path until its impetus ceased to exceed the force of its gravity, but that it wouldthen follow a curved path for a short period in which its lateral impetus would be compounded with a downward impetus caused by its gravity, after which it would fall straight
down. Leonardo da Vinci took up the problem, but it remained for Nicoló Tartaglia to show that the entire trajectory would be a curve determined by a composition of the two forces.
Albert's textbook of logic is one of the best organized of the late medieval works in the field. In its first three sections it presents the analysis of the signification and supposition of terms,
and the internal analysis and classification of propositional forms, provided by the work of Ockham and Buridan. The fourth section, on "consequence,' shows influence by Burley and Buridan, developing the theory of inference on the foundation of the logic of unanalyzed propositions, exhibiting the syllogism as a special type of consequence, and ending with a very full treatment of modal syllogisms and a shorter formulation of the rules of topical argumentation. The last two sections deal with logical fallacies, with the "insoluble" (or paradox of self-reference), and with the rules of disputation known as Obligationes. There is little that is not directly traceable to the sources Albert used, but these materials are skillfully
integrated, reduced to a uniform terminology, and presented with systematic elegance.
Despite its excellence as a textbook, this work did not achieve the popularity or influence attained by Albert's Tractatus proportionum and by his questions on the physical treatises of
Aristotle. These, printed in many editions at Venice, Padua, and Pavia, became the principal means by which the contributions of the northern Scholastics of the fourteenth century to the science of mechanics were made known to the physicists and mathematicians of Italy, from Leonardo da Vinci to Galileo himself.

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Ernest A. Moody