

realized that these new discoveries could not be readily integrated into the traditional Aristotelian framework of physics. Within a generation after his early death in 1635 the majority of Dutch scholars embraced Cartesianism. Other scholars, such as Martin Schoock (1614–1669) and Gisbert van Isendoorn (1601–1657), retained in their manuals the Aristotelian heritage. Reducing the significance of its concepts, however, they gradually turned toward empiricism.

#### SUPPLEMENTARY BIBLIOGRAPHY

##### WORK BY BURGERSDIJK

*Problema utrum quod est verum in theologica possit esse falsum in philosophia aut vice versa.* Edited by Petrus Doornyck. Leiden, Netherlands: Jacob Mark, 1620.

##### OTHER SOURCES

- Bos, Egbert P., and H. A. Krop, eds. *Franco Burgersdijk (1590–1635): Neo-Aristotelianism in Leiden.* Amsterdam and Atlanta, GA: Rodopi, 1993. Lists the editions of his manuals.
- Bunge, Wiep van. *From Stevin to Spinoza: An Essay on Philosophy in the Seventeenth-Century Dutch Republic*, 27–33. Leiden, Netherlands, and Boston: E.J. Brill, 2001.
- Cunaeus, Petrus. “Oratio XVI habita in funere Franconis Burgersdicii.” In *Orationes varii argumenti*, pp. 227–239. Leiden, Netherlands: Jaac Commelinus, 1640.
- Dibon, Paul. *La philosophie néerlandaise au siècle d’or*. Vol. 1. Paris and New York: Elsevier, 1954.
- Feingold, M. “The Ultimate Pedagogue: Franco Petri Burgersdijk and the English Speaking Academic Learning.” In *Franco Burgersdijk (1590–1635): Neo-Aristotelianism in Leiden*, edited by Egbert P. Bos and H. A. Krop, 151–165. Amsterdam and Atlanta, GA: Rodopi, 1993.
- Meursius, Johannes. *Athenae Batavae, sive de urbe Leidensi & Academia.* Leiden, Netherlands: Andries Clouck, Bonaventura and Abraham Elsevier, 1625, pp. 339–342.
- Petry, M. J. “Burgersdijk’s Physics.” In *Franco Burgersdijk (1590–1635): Neo-Aristotelianism in Leiden*, edited by Egbert P. Bos and H. A. Krop, 83–118. Amsterdam and Atlanta, GA: Rodopi, 1993.
- Ruestow, Edward G. *Physics at Seventeenth and Eighteenth-Century Leiden: Philosophy and the New Science in the University*, pp. 14–33. The Hague: M. Nijhoff, 1973.
- Wundt, Max. *Die deutsch Schulmetaphysik des 17 Jahrhunderts.* Tübingen, Germany: Mohr (Siebeck), 1939.

*Henri Krop*

**BURIDAN, JOHN (JEAN)** (*b.* diocese of Arras, France, *ca.* 1295; *d.* Paris, France, *ca.* 1360), *philosophy, logic, physics.* For the original article on Buridan see *DSB*, vol. 2.

Since the appearance of the original *DSB*, considerable work has been done on the life of Buridan, on the edition of his works, and on their doctrinal interpretation.

**Life.** John Buridan originated from the diocese of Arras. This geographical origin made him belong to the Picard Nation, one of the four Nations into which the students and masters at the University of Paris were organized. The often-repeated tradition that he was born in the town of Béthune is spurious. The first clear information about him emerges in a document dated 9 February 1328, which mentions him as rector of the University of Paris. The usual term for a rector was three months. Since this position was only open to regent masters of arts, it is assumed that Buridan started his academic training around 1320. There are, however, no records which document his university education. During his training at the arts faculty, Buridan belonged to the Collège du Cardinal Lemoine, which provided him with housing and financial support. According to its statutes, he must have left the college as soon as he started to perform administrative functions at the university, such as proctor, rector and receptor (i.e., treasurer). He never was a member of the Collège de Navarre, as was incorrectly affirmed in the *DSB*. At some date before 1334, Buridan visited the papal court at Avignon. There is also evidence for a second visit, around 1345. During one of these trips (or possibly still other trips that are not documented), Buridan made the observations reported in his commentary on Aristotle’s *Metheora* about the Cevennes and about the height of Mont Ventoux.

In early 1340 Buridan was elected rector of the university for a second time. The dating is crucial here, because in the older literature it has been assumed that he signed the so-called Ockhamist statute of 27 December 1340, which was issued by the masters of the faculty of arts. The statute prohibits six errors attributed in its rubric to the Ockhamists. The errors concern hermeneutics, in particular the failure to distinguish between the literal meaning of authoritative texts and the intention of their authors. As a matter of fact, however, Buridan was no longer rector at that time, and the statute was signed by his successor. Buridan’s name is last mentioned in a university statute of 12 July 1358. As has now been established, he probably died around 11 October 1360, but no later than 12 June 1361, on which date one of his benefices had received a new owner. Buridan did not belong to a religious order, and never sought to obtain a degree in theology. For these reasons, he has been presented as an independent “real” philosopher. Independent, because he was not involved in any of the doctrinal disputes of the religious orders, and a philosopher, because he made philosophy into a career in itself, which lasted almost forty years.

**Relationships with Contemporaries.** Throughout the fifteenth and sixteenth centuries Buridan's writings had a huge impact on philosophical thought in Europe. The manuscripts and early printed editions of his works were disseminated in all corners of Europe and were read (*pronuntiata*), for instance, at the universities at Vienna, Prague, Kraków, Rostock, and Saint Andrews. In the older literature, it has been suggested that John Buridan had grouped around him a coherent inner circle of students and followers, such as Albert of Saxony and Nicole Oresme, the so-called Buridan school. It is certain, however, that neither of them studied under Buridan in any official way. It is more helpful to perceive them and Buridan as contemporary thinkers who were interested in a number of the same philosophical topics, and who at times were each other's opponents, as is clear from their texts. Other fourteenth-century opponents who are identifiable from Buridan's texts are Walter Burley, Nicholas of Autrecourt, Gregory of Rimini, Themon Judaeus, and the less well-known Giles of Feno and Michael de Montecalerio.

Buridan's name has often been linked with nominalism. This association is mainly due to sources from the fifteenth and sixteenth centuries, in which he is labeled a nominalist and a follower of William of Ockham. Literature in the early 2000s is much more cautious in viewing Buridan—and fourteenth-century philosophy in general—as “nominalist” because this terminology is marred with confusion. The precise relationship between Buridan's and Ockham's thought, and, by implication, the impact of Ockham's thought in fourteenth-century Paris, still needs further investigation. What Buridan and Ockham share, however, is that they use logic and semantics as a method in their natural philosophy, and in all other areas of philosophy, for that matter. This approach is, for instance, illustrated by their discussion of infinity and continuity, motion and time.

**New Editions.** Over the past decade, much work has been done in editing and studying John Buridan's works. From this work it emerges that Buridan was a prolific and important (natural) philosopher. Yet, many particular aspects of his thought are as yet unexamined. A relative or absolute dating of his works is still not possible. Buridan frequently produced two or three different versions of a set of lectures. The order of composition of the different versions usually is clear, but their dating is not, nor is the relative chronology of his works. Buridan's two most important works are the *Summulae de Dialectica*, a voluminous compendium of logic and semantics (presented as a commentary on the author's revised version of Peter of Spain's *Summulae*), and the *Questions on Aristotle's Physics* (*Quaestiones super libros Physicorum, secundum ultimam lecturam*). Certain parts of the *Summulae* are now dated around 1336 and 1340. Buridan's *Physics*, at least in its last

and ultimate version, originated sometime between 1352 and 1357. Interestingly, Buridan responds to views of Albert of Saxony, and not the other way around, as has often been assumed.

Buridan entertained a view on natural necessity that made him believe that one can achieve certain knowledge about the natural world, granted that it is running its common course. He attacks Nicholas of Autrecourt for his thesis that the only criterion of certitude is the principle of non-contradiction. According to Buridan, man can know many principles of scientific demonstrations without needing to derive them from the principle of noncontradiction, namely on the basis of the meaning of their terms, on the basis of sense perception, and experience. Buridan often refers to experiments in support of his theories, although one should be cautious in concluding that these were experiments that were actually conducted, rather than examples taken from tradition, or thought experiments. The importance of Buridan's impetus theory for the explanation of projectile motion has been mitigated. Its former context, as a significant step toward Galileo's dynamics, has been abolished. Instead, the focus has shifted to other aspects of Buridan's discussion of motion, such as its ontological status. Buridan was involved in the contemporary debate of whether motion was a thing distinct (*res distincta*) from, and added to, the mobile body. He refused to identify motion with the mobile body and its successive places, as Ockham did.

Buridan's *Questions on De generatione et corruptione* have only begun to be studied. It is clear that he was engaged in the fourteenth-century debates about the way in which the ingredients are present in a compound (*mixtum*), in particular the forms of the four elements, and also in the debate about *reactio*. This latter debate concerned the phenomenon that every agent in acting will undergo a reaction. For instance, the hot iron (*agens*) immersed into water will not only heat it, but will itself be cooled by the water (*patiens*). The process seemed to involve an action by the weaker resistive power upon the stronger agent, which was considered problematic in the fourteenth century.

#### SUPPLEMENTARY BIBLIOGRAPHY

*A survey of Buridan's works and of most of the manuscript sources is provided in B. Michael, Johannes Buridan: Studien zu seinem Leben, seinen Werken und zur Rezeption seiner Theorien im Europa des späten Mittelalters, 2 vols., PhD dissertation, Freie Universität Berlin, 1985. This work is also crucial for Buridan's biography. See also O. Weijers, Le travail intellectuel à la faculté des arts de Paris: Textes et maîtres (ca. 1200–1250), vol. IV, Turnhout: Brepols, 2001, for a listing of Buridan's works and a bibliographical guide.*

## WORKS BY BURIDAN

- Sophisms on Meaning and Truth*. Translated by Theodore Kermit Scott. New York: Appleton-Century-Crofts, 1966. A separate translation of treatise 9 of the *Summulae*, the so-called *Sophismata*.
- Johannis Buridani Tractatus De Consequentibus*. Edited by Hubert Hubien. Philosophes Médiévaux. Louvain: Publications Universitaires; Paris: Vander-Oyez, 1976.
- Sophismata*. Stuttgart-Bad Cannstatt: Frommann-Holzboog, 1977. Critical edition, with an introduction by Theodore Kermit Scott.
- John Buridan on Self Reference. Chapter eight of Buridan's Sophismata. An Edition and a Translation with an Introduction and a Philosophical Commentary*. Translated and edited by G. E. Hughes. Cambridge; London; New York: Cambridge University Press, 1982.
- Quaestiones in Praedicamentis*. Edited by Johannes Schneider. Munich: Verlag der Bayerische Akademie der Wissenschaft, 1983.
- John Buridan's Tractatus de infinito, Quaestiones super libros Physicorum secundum ultimam lectionem, liber III, quaestiones 14–19. An Edition with an Introduction and Indexes*. Edited and introduced by J. M. M. H. Thijssen. Nijmegen: Ingenium Publishers, 1991. A few parts of Buridan's voluminous *Questions on the Physics*, according to the final redaction (*secundum ultimam lectionem*).
- Le traité de l'âme de Jean Buridan (de prima lectione). Édition, étude critique et doctrinale*. Edited by Benoît Patar. Louvain-la-Neuve, Belgium; Longueuil, Quebec: Éditions de l'Institut supérieur de philosophie; Éditions du Préambule, 1991. Allegedly the first redaction of Buridan's *Questions on De anima*.
- Summulae. In Praedicamentis*. Edited by E. P. Bos. Nijmegen: Ingenium, 1994.
- Summulae. De praedicabilibus*. Edited by L. M. de Rijk. Nijmegen: Ingenium, 1995.
- Ioannis Buridani Expositio et Quaestiones in Aristotelis De Caelo. Édition, étude critique et doctrinale*. Edited by Benoît Patar. Louvain-la-Neuve, Belgium; Paris: Éditions de l'Institut supérieur de philosophie; Peeters, 1996.
- Summulae. De suppositionibus*. Edited by Ria van der Lecq. Nijmegen: Ingenium, 1998.
- John Buridan: Summulae de Dialectica*. Translated by Gyula Klima. New Haven, CT; London: Yale University Press, 2001. The entire *Summulae de dialectica* has been translated here, though not based on its most recent critical edition.
- Summulae. De demonstrationibus*. Edited by L. M. de Rijk. Groningen: Ingenium, 2001.
- De tijdfilosofie van Johannes Buridanus. Een historisch-wijsgerige studiemet editie van Buridanus' Quaestiones super octo libros Physicorum Aristotelis (secundum ultimam lectionem) IV, 12–16*. Edited by D. J. Dekker. PhD diss., Radboud Universiteit Nijmegen, 2003. An edition of Book IV, pp. 12–16 (on Time).
- Summulae. De practica sophismatum*. Edited by Fabienne Pironet. Turnhout: Brepols, 2004.
- Summulae. De propositionibus*. Edited by Ria van der Lecq. Turnhout: Brepols, 2005.

## OTHER SOURCES

- Caroti, Stefano. "Da Buridano a Marsilio di Inghen: la tradizione parigina della discussione de reactione." *Medioevo* 15 (1989): 173–233.
- Courtenay, William J. "Philosophy's Reward: The Ecclesiastical Income of Jean Buridan." *Recherches de théologie et philosophie médiévale* 68 (2001): 163–169.
- , ed. *John Buridan at the University of Paris*. Special issue of *Vivarium* 42 (2004).
- Knuutila, Simo. "Natural Necessity in John Buridan." In *Studies in Medieval Natural Philosophy*, edited by Stefano Caroti, 155–176. Florence: Leo Olschki, 1989.
- Krieger, Gerhard. *Subjekt und Metaphysik. Die Metaphysik des Johannes Buridan*. Münster: Aschendorff, 2003.
- Markowski, Mięczysław. "L'influence de Jean Buridan sur les universités d'Europe central." In *Preuve et raisons à l'université de Paris, Logique, ontologie et théologie au XIV siècle*, edited by Zénon Kaluza and Paul Vigneaux. Paris: 1984.
- Pinborg, Jan, ed. *The Logic of John Buridan*. Copenhagen: Museum Tusulanum, 1976.
- Rijk, L. M. de. "John Buridan on Universals." *Revue de Métaphysique et de Morale* 97 (1992): 35–59.
- Saarinen, Risto. *The Weakness of the Will in Medieval Thought: From Augustine to Buridan*. Leiden and New York: Brill, 1994.
- Schönberger, Rolf. *Relation als Vergleich. Die Relationstheorie des Johannes Buridan im Kontext seines Denkens und der Scholastik*. Leiden and New York and Cologne: E. J. Brill, 1994.
- Thijssen, J. M. M. H. "Buridan on Mathematics." *Vivarium* 23 (1985): 55–77.
- . "John Buridan and Nicholas of Autrecourt on Causality and Induction." *Traditio* 43 (1987): 237–255.
- . "The Buridan School Reassessed: John Buridan and Albert of Saxony." *Vivarium* 42 (2004): 1, 18–42.
- , and Jack Zupko, eds. *The Metaphysics and Natural Philosophy of John Buridan*. Leiden; Boston; Cologne: Brill, 2001.
- Zupko, Jack. *John Buridan: Portrait of a Fourteenth-Century Arts Master*. Notre Dame, IN: University of Notre Dame Press, 2003. The best book-length study on aspects of Buridan's natural philosophy to date.

Johannes M. M. H. Thijssen

**BURLEY, WALTER** (b. England, c. 1275; d. c. 1345), *logic, natural philosophy*. For the original article on Burley see *DSB*, vol. 2.

Although Burley obtained his doctorate in theology from the University of Paris in the mid-1320s, and although he held numerous church livings, as well as serving both the English king and Richard de Bury, Bishop of Durham, he is unusual, among fourteenth-century