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(*b*. Southwick, Sussex, England, 1 March 1611; *d*. London, England, 12 December 1685)

mathematics.

Pell was the son of John Pell, vicar of Southwick, and Mary Holland, who both died when he was a child. In 1624 he left Steyning School in Sussex for Trinity College, Cambridge. He received the B.A. in 1629 and the M.A. in 1630. By the latter year he was assistant master at Collyer's Scholl in Horsham, and then at Samuel Hartlib's short-lived Chichester academy. On 3 July 1632 he married Ithamaria Reginalds, the second daughter of Henry Reginalds of London. In 1638 the Comenian group, of which Hartlib was a leading member, arranged his move to London; and he soon won a reputation for his knowledge of mathematics and languages. The success of the group was thwarted by political developments; not wanting to take a church living, Pell had to emigrate to secure a mathematical post. In December 1643 he became proffessor of mathematics at Amsterdam and, in 1646, at the newly opened academy in Breda. From 1654 to 1658 he was a Commonwealth agent in Zurich. After the Restoration, Pell became rector of Fobbing in Essex, vicar of Laindon, and then chaplain to Gilbery Sheldon, bishop of London.[1] For a time he lived with a former pupil at Brereton Hall. He died in London in poverty.[2]

Opinions about Pell's significance as a mathematician have always varied, and a full assessment will be impossible until his writings have been collected and analyzed. Houzeau and Lancaster, and others, have suggested that his "Description and Use of the Quadrant" (1628) and other works were printed. His first publication was undoubtedly *Idea of Mathematics*, which appeared anonymously after circulating in manuscript in an early version before 1630. The work was published in Latin and in English in 1630 and republished as part of John Dury's *The Reformed Librarie-Keeper* in 1650. The Idea won Pell "a great deal of repute both at home and abroad" and led to his post at Amsterdam. His arguments are clearly very close to those of Bacon, Comenius, and their followers but also have a large personal element. The tract stressed the importance of *mathematics and proposed "the writing of a Consilarius Mathematicus*, the establishment of a public library of all mathematical books, and the publication of three new treatises." A copy was sent by Pell's patron, Theodore Haak, to P. Mersenne, who circulated the work; Descartes replied approvingly.[3]

At Amsterdam, Pell's fame was enhanced by his *Controversiae de vera circuli mensura* (1647), which attacked C. S.Longomontanus and earned the approbation of Roberval, Hobbes, Cavendish, Cavalieri, Descartes, and others.[4] In 1647 Pell read his *oratio inauguralis* at Breda and was praised by an eyewitness[5] for the excellence of his delivery and his explanation of "the use and dignity" of mathematics.

Most mathematicians know of Pell through his equation[6] $x^2 = 1 + Ay^2$. Some suggest that Euler mistakenly attributed to Pell some work of William Lord Brouncker, but the equivalent equation $x = 12yy - zz$ occurs in Thomas Brancker's 1668 translation, *An Introduction to Algebra*,[7] of J. H. Rahn's *Teutsche Algebra oder algebraische Rechenkunst* (Zurich, 1659). Pell edited the latter part of the translation. Aubrey, however, stated that "Rhonius was Dr. Pell's scholar at Zurich and came to him every Friday night after he had writt his post-lettres" and claimed that the Algebra was essentially Pell's work.[8] If this statement is accepted, Pell should also be credited with innovations in symbolism (particularly) and with setting out equations in three columns (two for identification and one for explanation,) otherwise credited to Rahn. Without further evidence, it is best to assume that there was joint responsibility for these innovations and that Pell's contemporary reputation as a mathematician, and particularly as an algebraist, was not unearned.

NOTES

1. His academic reputation is indicated by his D.D. at Lambeth and election as a fellow of the Royal Society in 1663.

2. Some of his books and manuscripts were acquired by Richard Busby, master of Westminster School, which still has some of his books. The MSS came to the British Museum via Thomas Birch; other manuscripts were left at Brereton.

3. Wallis, "An Early Mathematical Manifesto," *passim*.

4. Dijksterhuis, "John Pell," p. 293

5. Edward Norgate, quoted by D. Langedijk in " 'De illustre schole ende Collegium Auriacum' te Brede," p. 131

6. Whitford, *The Pell Equation*, p.2 Cajori does not accept or even refer to Whitford's argument.

7.*Loc. cit.*, p. 143 no. 34 The relation between the 1659 and 1668 eds. is discussed in more detail in a forthcoming article by C. J.Scriba.

8. Aubrey's biography was partly checked by Pell himself and later supplemented by Haak.

BIBLIOGRAPHY

I. Original Works. For a 1967 repr. of the 1638 Idea and the 1682 and 1809 versions, see Wallis. Two other anonymous works not cited in the text are *Easter NotMistimed* (London, 1664) and *Tabula numerorum quadratorum* (London, 1672). See notes for a reference to his many MSS, often mistakenly said to have been published.

II. Secondary Lirerature. Writings on Pell and his work are J. Aubrey's biography of Pell, Bodleian MS 6 f.53, printed in *Brief Lives*, A. Clark, ed,, 11 (Oxford, 1898),121–131,andinO. L.Dick' 1949–1950ed.; P. Bayle, in *A General Dictionary, Historical and Critical*, J. P. Bernard et al., eds., VIII (London, 1739), 250–253; T. Birch, *The History of the Royal Society of London*, IV (London, 1757), 444–447; F. Cajori, "Rahn's Algebraic Symbols," in *American Mathematical Monthly*, **31** (1924), 65–71; E. J. Dijksterhuis, "John Pell in zijn strijd over de rectificatie van den cirkel," in *Euclides*, **8** (1932), 286–296; J. C. Houzeau and A. Lancaster, *Bibliographie generale de l'astronomie* (Brussels, 1882–1887, repr., 1964); and D. Langedijk, " 'De illustre schole ende Collegium Auriacum' te Brede," in G. C. A. Juten, ed., *Taxandria: Tijdschrift voor Noordbrabentsche geschiedenis en volkskunde xlii*, III (Bergen op Zoom, 1932), 128–132.

For additional information see C. de Waard's biography of Pell in *Nieuw Nederlandsch biografisch woordenboek*, III (1914), cols. 961–965; and "Wiskundige bijdragen tot de pansophie van Comenius," in *Euclids*, **25** (1950), 278–287; P. J. Wallis, "An Early Mathematical Manifesto —John Pell's *Idea of Mathematics*," in *Durham Research Review*, no. **18** (1967), 139–148; E. E. Whitford, *The Pell Equation* (New York, 1912); and A. Wood, in *Fasti Oxonienses*, P. Bliss, ed., I (London, 1815), cols. 461–464, and in 1967 fasc., repr. (New York-London).

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