Previously unrecorded Dutch citations and versions of some of the scientific publications of Robert Boyle FRS

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A considerable number of previously unrecorded citations and versions of Robert Boyle’s publications have recently been located by the author after having acquired a composite set of Kabinet der Natuurlyke Historien, Wetensschappen, Konsten en Handwerken (1719–24) edited by Willem van Ranouw¹ (figure 1) and a rare copy of the Register (1732) prepared by P. van der Meersch.² The Boyle materials in Kabinet were not noted by Fulton³ or by the editors of The works of Robert Boyle (1999–2000), who often update Fulton where appropriate.⁴ The items can be correlated with the original items as given in Works.

Van Ranouw (1673–1724),⁵ a medical doctor and editor of several journals with a medical and scientific scope,⁶ who settled in Amsterdam in 1715, was a friend of Daniel Gabriel Fahrenheit. Van Ranouw’s interest in barometric air pressure measurements and in medical matters most probably accounts for the large amount of attention given to these aspects in Kabinet.

Some 720 of the 4463 pages, mainly from volume V onwards, of Kabinet contain mentions of Boyle, Boyle material and discussions on them or on relevant items. The materials are not page-by-page translations of Boyle’s works but discussions based thereon; however, in places they have large quotations from them. Boyle is mentioned by name as ROBERTUS BOYLE or Heer BOYLE at least 519 times, often with, or by, descriptors such as De Grote, De groote (the great), De Hoogwaarde or de Hoogwaardigen (the honourable). This serial publication was issued every two months but is normally found, in libraries or on the antiquarian book market, as bound volumes with rubricated title pages and the same allegorical frontispiece for each half-year of three two-monthly issues. Volumes VII and VIII are exceptions: they contain whole years, in sections, as January to February, March to July and August to December.

THE MATERIAL RELATING TO BOYLE AND HIS PUBLICATIONS

The Boyle materials in Kabinet can be identified by the title and by comparison of selected passages and of illustrations, with the aid of the Register, with original passages and illustrations in The works of Robert Boyle. The closest correlations were found for the material on gases and, to a smaller extent, for items of medical interest; both these areas were of particular interest to van Ranouw.

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Volume I contains 549 pages of text, 9 of which refer to Boyle’s work with mention by name. The introduction refers to ‘de groote Robertus Boyle’ and page 98 refers to Boyle on atmospheric pressure. Pages 139–144 and 150–151 cite and give the Latin title of Boyle’s *Essays of Effluviums* (1673) [4.7]. Examples of good collations were the limit for the detection of copper salts with ammonia [1.I, p. 141; 4.7, p. 242], and the smell of ‘amber-greece’ and ‘assa foetida’ [1.I, p. 142; 4.7, p. 248].

Volume II contains 564 pages of text; Boyle is mentioned briefly on page 384, in connection with his air-pump.

Volume III contains 562 pages, 3 of which make mention of Boyle. The Latin title of Boyle’s *General Heads for the Natural History of a Country* (1692) [4.5]7 is mentioned
in connection with the factors of interest in the search for minerals (pp. 141–143) and again on page 160 referring specifically to article XVIII in *General Heads*, concerning ‘the mists arising from mineral grounds’.

Volume IV contains 563 pages, with no mention of Boyle.


Volume VI contains 566 pages, 108 of which relate to Boyle, with 133 mentions by name. Pages 1–92 follow on from volume 5 with further material from *Usefulness*. Close similarities between the two texts are shown about topics such as ‘sympathetic powder’ [1.VI, p 2; 4.3, p. 430], Fludd and Borelus on gout [1.VI, p. 5; 4.3, 433], Linschoten on liquor from coco-tree sap [1.VI, p. 9; 4.3, p. 438], ‘amulets’ [1.VI, p. 10; 4.3, p. 439], Heer and waters of ‘Spaa’ [1.VI, p. 21; 4.3, p. 446], the plague in Cairo [1.VI, p. 24; 4.5, p. 450] and tarantulas [1.VI, p. 25; 4.3, p. 452].

This volume continues with major sections (pages 191–278 and 381–469) based on Boyle’s work on gases given in *Spring and Weight of the Air* (1660) [4.1]. The title is given in full, in Dutch and in Latin, on page 193. The section begins with Boyle’s account of previous work by Scottus and Guericke [1.VI, p. 195; 4.1, p. 158], it notes the year of Boyle’s letter to his nephew, namely 1659 [1.VI, p. 199; 4.1, p. 300], and with the aid of plate xxxiv it describes Boyle’s air pump [1.VI, pp. 211–215; 4.1, pp. 160–163]. Plate xxxiv contains quite an accurate, but mirror-image, copy of Boyle’s air pump and of four more items from the original plate [4.1]. Considerable attention is given to Guericke’s experiments in pages 199–210.

The first section of volume VII (January to February, pp. 1–51) continues with material from *Spring and Weight of the Air*, citing for example Boyle’s results for the relative density of air and water [1.VII, pp. 22–23; 4.1, p. 260], results for the density of mercury [1.VII, p. 27; 4.1, p. 262], remarks about Acosta and America [1.VII, p. 36; 4.1, p. 269], a description of a chemical weather glass [1.VII, p. 37; 4.1, p. 270], and details of experiments with a mouse [1.VII, 42; 4.1, p. 274], on air in mines [1.VII, p. 46; 4.1, p. 284] and about divers in Sicily [1.VII, p. 49; 4.1, p. 292].

The second section (March to July, pp. 3–67) contains material from Boyle’s *Spring and Weight of the Air: 1st Continuation* (1669) [4.6], with numerous illustrations in plate xxxix. Good correlations for texts and illustrations include the first experiment describing the sucking up of mercury in a tube [1.VII, pp. 6–7; 4.6, p. 42], the hydraulic fountain.
[1. VII, p. 13; 4. 6, p. 50], the suction of water up a tower [1. VII, p. 21; 4. 6, pp. 71–72] and the experiment with a falling feather [1. VII, p. 65; 4. 6, p. 137].

The third section in this volume (August to December, pp. 3–67) contains further material from 1st Continuation. Good correlations between the text and illustrations in plate xli (almost exact copies, apart from the simplification of the image of the tower) and the originals include the bell in the experiment with an exhausted receiver [1. VII, p. 4; 4. 6, p. 140] and the experiment on raising weights [1. VII, p. 20; 4. 6, p. 156]. The next experiments described come from Spring and Weight of the Air: 2nd Continuation (1682) [4. 9], one of Boyle’s more fragmentary publications; however, most of the individual experiments, made from early in 1676 to early in 1679, are dated. The layout of material in Kabinet does not follow that in 2nd Continuation, nor are copies of the original illustrations provided. Good correlations between the two texts are shown for the experiments with grapes, 12–23 July 1676 [1. VII, pp. 57–58; 4. 9, pp. 152–153], with must from grapes, 19–27 July 1678 [1. VII, p. 63; 4. 9, p. 154], and on apples, 30 January to 17 March 1678 [1. VII, p. 63; 4. 9, pp. 154–155].

Volume VIII contains 560 pages, 149 of which are relevant to Boyle, with 79 mentions of him by name. The first section (January to February 1723) gives further material of Boyle’s air-pump experiments taken from 2nd Continuation. Good correlations are found for the experiments with dough, 23 May to 14 December 1678 [1. VIII, p. 3; 4. 9, pp. 155–156], with two flies, 12 July 1676 [1. VIII, p. 36; 4. 9, p. 198] and 12 August 1676 [1. VIII, p. 22; 4. 9, pp. 191–192], and with camphor, 18 January 1677 [1. VIII, p. 45; 4. 9, p. 204].

The second section (March to July 1723, pp. 3–192) contains further material from 2nd Continuation. Good correlations are found for the effect of air on copper solutions in the presence of ammonia, 4 March 1677 [1. VIII, pp. 10–11; 4. 9, p. 225], the mixture of ‘aqua fortis’ and ‘spirit of wine’, 3–4 May 1676 [1. VIII, pp. 11–12; 4. 9, pp. 225–226], the preservation of apricots, 3 August to 10 September 1678 [1. VIII, p. 24; 4. 9, pp. 241–242], and the storage of peaches under compression, 1 October 1678 to 28 January 1679 [1. VIII, pp. 29–30; 4. 9, p. 244]. The subject matter then changes to colours (pp. 134–192). Boyle’s Experimental History of Colours (1664) [4. 4] is referred to with its title in Dutch (p. 137) and in Latin (p. 146); the latter in a specific reference to chapter 2. The sections based on Colours summarize some of Boyle’s theoretical concepts of colour, acid–base reactions of plant and flower extracts, and reactions of tinctures of metals. The discursive style, the blending of material from Boyle and other authors such as Willem Jacob’s Gravesande, Johann Kunkel von Löwenstern and Nicolas Lemery, the lack of quantitative data and the omission of Boyle’s sources make it almost impossible to perform detailed correlations between the material in Kabinet and that in Colours.

CONCLUSION

The material from Boyle’s scientific publications found in Kabinet demonstrates that the interest of the Dutch scientifically literate public in Boyle’s science continued into the early eighteenth century. This mirrors a similar interest shown in England, demonstrated by the publication of The Philosophical Works of the Honourable Robert Boyle (1725) by Peter Shaw.8 The focus in Kabinet on Boyle’s work on gases was a result of Willem van Ranouw’s particular interests in barometric air-pressure measurements.
NOTES

1 W. van Ranouw (ed.), *Kabinet Der Natuuriyte Historien, Wetenschappen, Konsten en Handwerken*, vols 1–5 (H. Strik, Amsterdam, 1719–21), vol. 6 (Z. Moele en J. De Ruiter, Amsterdam, 1722) and vols 7 and 8 (B. Lakeman, Amsterdam, 1723–24). References to individual items in *Kabinet* are given as 1.volume (a bold roman numeral), with pages in arabic numerals, for example 1.V, pp. 15–20. Several reprints of individual volumes were issued with various dates from 1730 onwards, by Petrus Mortier and by Pieter Spriet, both in Amsterdam. The first edition of *Kabinet* (but not the index) is available online at <www.archive.org>, at Biodiversity Library. In the READ ONLINE version the text is complete110 but most of the plates suffer losses, the PDF version is slow to download, the plates on screen are reduced in size but produce acceptable prints.


4 M. Hunter and E. B. Davis (eds), *The works of Robert Boyle*, vols 1–14 (Pickering & Chatto, London, 1999–2000). References to individual items in *The works* are given as 4.volume (a bold arabic numeral), with pages in arabic numerals, for example 4.1, pp. 25–27. Michael Hunter has confirmed that the Boyle materials in *Kabinet* were hitherto unknown to him (personal communication, 26 June 2010).


8 Fulton, *op. cit.* (note 3), item no. 244, pp. 149–150.