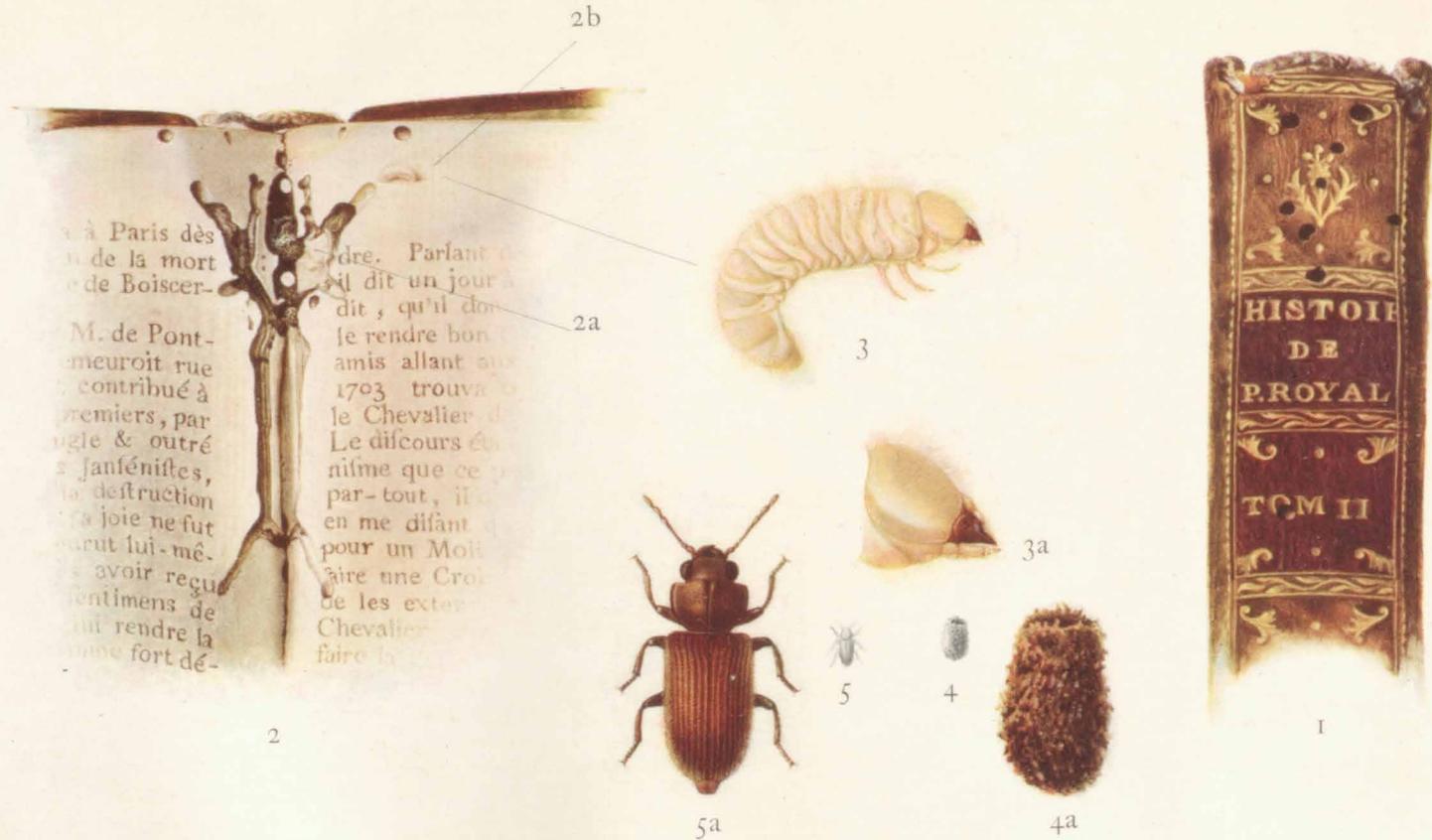


ms. 5270
H. 296-7.

From the *Bodleian Quarterly Record*. Professor Osler.



BOOK-WORM.

Anobium hirtum, Illig.

1. Back of book showing exit holes of the beetles.
2. Book opened showing damage, and (2a) pupa-case in situ, (2b) larva natural size.
3. Larva greatly enlarged. 3a. Head and fore part of same.
4. Pupa case, made of particles of frass cemented together, natural size. 4a. The same greatly enlarged.
5. Beetle in its perfect, or imago, stage, natural size. 5a. The same greatly enlarged.

ILLUSTRATIONS
OF THE
BOOK-WORM

ILLUSTRATIONS OF THE BOOK-WORM

IN *Micrographia*, a 'study of the Minute Bodies made by the Magnifying Glass', London, MDCLXVII, one of the earliest publications issued under the authority of the newly-formed Royal Society, Robert Hooke described in Observation LII the 'small silver-colour'd Book-worm', 'which upon the removal of Books and Papers in the Summer, is often observed very nimbly to scud, and pack away to some lurking cranny'. The third figure of the 33rd scheme pictures a monster so formidable-looking that Blades¹ may be forgiven the suggestion that Hooke 'evolved both engraving and description from his inner consciousness'. Comparing, however, this earliest known drawing with one in Houlbert's monograph, *Les Insectes Ennemis des Livres*, 1903, we find that the distinguished author of the *Micrographia* knew what he was about, as alike in text and figure he has given what Houlbert calls 'une belle et exacte description' of the *Lepisma saccharina*, a formidable enemy of books, 'one of the teeth of time', as Hooke calls it. It is a fine bold figure, well executed, and the text is remarkable for a digression upon the different refrangibilities of light of the scales of the *Lepisma*, which cause the shining appearance, and explain the name 'silver fish' given by children to this insect.

In *Beschreibung von allerley Insecten in Deutschland*, 1721, anderer Theil, p. 36, ix, 'von dem kleinen Gelben Brodt-Käfer', Joh. Leonhard Frisch gives the first account of the common *Anobium paniceum*; and Tafel viii, fig. i, illustrates roughly the larva and pupa. Though not directly referred to as a book-worm, Frisch knew that it attacked manuscripts and books.

As Prediger's *Buchbinder und Futteralmacher*, 4 vols., 1742 and 1772 (and an earlier unknown edition), is not in the British Museum or in Bodley, I cannot say whether or not the book-worm (which is referred to) is figured. The *Gentleman's Magazine* for 1754 has a brief reference to the work.

The Göttingen prize essays in answer to the questions of the Royal Society of Sciences as to the varieties of insects' injuries to books, &c., *Drey Preisschriften zu Beantwortung, &c.*, Hannover, 1775, have no illustrations.

During the first half of the nineteenth century only a few observations of importance were made upon book-worms. The widespread prevalence of insect

¹ *Enemies of Books*, 1896.

pests in the United States aroused the attention of trained entomologists, and the studies of H. A. Hagen, Riley, and others enlarged our knowledge of the varieties of insects which preyed upon books. How rare are good illustrations may be judged from those in Blades's *Enemies of Books*, 1896, and in Ed. Rouveyre's *Connaissances nécessaires à un bibliophile*, 5^{me} éd., tom. 8, 1889. Scattered contributions to the number of about eighty are recorded for the nineteenth century in the bibliography given by Houlbert. In 1900, at the 'Congrès international des bibliothécaires' held at Paris, it was decided to offer prizes for the best memoirs upon the insects which attacked books. One of these Marie-Pellechet prizes, the memoir of M. Houlbert, just referred to, gives for the first time a systematic grouping and study of the insect enemies of books. It is surprising to find so large a number as sixty-seven species described, of which about one-half are Coleoptera or beetles. Apart from the Termites, which are rare in Europe, the larvae of Coleoptera are the most harmful, and of these the Anobiides are the common and dangerous forms. Houlbert states that in France nine times out of ten the *Anobium paniceum*, known in America as the *Sitodrepa panicea*, is the culprit. In the *Cambridge Natural History: Insects*, Part II, Sharp gives a good account of the Anobiides, and the best figures I have seen of the transformations of *Anobium paniceum*. In tome iii, pl. 53, of Jacquelin du Val's *Genera des Coléoptères d'Europe* *Anobium pertinax* is figured, the only coloured illustration I have seen of a book-worm.

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In October 1915 I received from a Paris bookseller, M. Lucien Gougy, three volumes of the *Histoire abrégée de la dernière persécution de Port-Royal*. Edition Royale, MDCCL,' no place of printing indicated. On a card inside the cover, with ornamented border, is printed 'Resid. Tolos. S.J.', which indicates the provenance of the volumes from the south of France. The backs of two of the volumes were wormed, vol. i with two holes, vol. ii with ten, and this volume when opened showed at the back close to the binding a single large tunnel, an inch and a half in length, with laterals above and below. The borings had a fresh look and there were many granular castings. Near to the top of the main tunnel my eye caught a globular nest or casing (seen in figure 2 a, midway between the holes through the back), and from the upper open end of this a brownish black head bobbed in and out. With a lens part of the body could be seen, and with gentle manipulation the little worm was extracted. In figure 2 b it can be seen on the page of natural size, at the top of the upper right-hand tunnel. It had a yellowish white glistening body covered with fine soft hairs. The enlarged larva and mandibles

are shown at figure 3 *a*, while figs. 5 and 5 *a* show the adult beetle of natural size and magnified, and figs. 4 and 4 *a* the pupa case. Only once before, in the University Library, Utrecht, had I seen a living book-worm. The picture of the opened book was so striking that Professor Poulton, to whom I showed it, urged me to have a sketch made by the well-known artist Mr. Horace Knight, of the British Museum. Mr. Knight writes, September 4, 1916, 'Herewith the drawing of the book-worm which more than a year ago you asked me to make. It has been waiting in hopes the larva would pupate, but it has not even commenced to make a case, and Dr. Graham thinks it may go another year. . . . There are no eggs of this species in the British Museum and no drawing of any value.' Mr. Knight's beautiful sketches are so superior to anything in the literature that Mr. Madan has kindly consented to have the plate reproduced in the *Bodleian Quarterly Record*.

The specimen is *Anobium hirtum*, not a native of England, but met with occasionally in the centre and south of France. Houlbert says there are very few observations upon it. In the southern states of America it is more common, and the best account is to be found by E. A. Schwarz (*Insect Life*, vol. vii, p. 396, Washington, 1895) in a paper entitled 'An imported Library Pest'. Large numbers were found in the State Library, Bâton Rouge, La., and the Library of St. Charles College.

Insect book-worms are rare in Oxford, even in the most secluded libraries. Mr. Maltby, the well-known bookbinder, has the largest collection I have seen, made during the past twenty-five years, all of *Anobium domesticum*, except one unknown Lepidopteran larva. There are a few in Mr. Madan's possession. Though many of the old books in Oxford libraries are badly wormed, recent ravages are rare. One of the least used collections is that of Bishop Allestree, housed so quaintly above the cloisters at Christ Church. There have been books badly damaged, but at a recent visit I could find no worms in the books, but one shelf had plenty of borers whose sawdust covered the tops of the books below. It may be mentioned that the *Anobium* is the genus of the 'death-watch' beetles which make a clicking sound in wood, so that there is some basis for the statement of Christian Mentzel, an old seventeenth-century worthy, that he heard a book-worm crow like a cock. Bodley is singularly free from the ravages of book-worms—confirming the remark of Charles Nodier, 'La bibliothèque des savants laborieux n'est jamais attaquée des vers'.

WILLIAM OSLER.