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The Archimedes Palimpsest: Experiences of a Palaeographer*

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My involvement with Archimedes and the famous palimpsest goes back a long way. Some fifty years ago—it may have been in 1972—I was in the USA and took the opportunity to visit Gerald Toomer, then a professor at Brown University in Providence. We had known each other as students in the same Oxford college in the 1950s. In the course of conversation he drew my attention to an entry in the catalogue of Greek manuscripts acquired by the University Library in Cambridge since the middle of the 19th century. This was no more than a summary catalogue, prepared by Pat Easterling, who later became the Professor of Greek in Cambridge, published in 1962.[1] One of the manuscripts acquired in 1879 (MS 1879.23; Fig. 1) is a single leaf of parchment. The original text is stated in the catalogue to be a fragment of a mathematical work with diagrams. Toomer asked me to have a look at it when I next found myself in Cambridge.

A year or so later I was able to do this. The leaf is relatively well preserved, and within a few minutes I found what I needed; I was able to read a relatively rare word, a technical term that would be recorded in the Greek lexicon with some citations of its occurrence. And so it was; the lexicon guided me to a passage in Archimedes. I then recalled that the Danish scholar Heiberg had published in 1907 a paper about the palimpsest of Archimedes in the library of a Greek monastery in Istanbul.[2] This made front page news in the New York Times. It took me only another few minutes, thanks to the plate in Heiberg's paper, to establish that the Cambridge leaf had originally belonged to the Istanbul codex. A little further research established beyond reasonable doubt that it had been stolen by the eminent German theologian Konstantin von Tischendorf; we know from his published writings that he had visited the library in 1844, and one can hardly believe that

* This paper is the text of a talk given to the R-CHIVE group based at the Rochester Institute of Technology, N. Y., on Friday 17 November 2023. A few very minor revisions have been made.

1 EASTERLING 1962, 307.

2 HEIBERG 1907, 234–303.

the monk in charge of the library gave it to him as a souvenir. The leaf will have been acquired for Cambridge from his executors.

Given that the ultraviolet lamp had been in use for some time to help reading palimpsests, I was keen to pursue the possibility of applying it to the Archimedes text. But it was known that it was no longer in Istanbul. In fact it had disappeared. However, by good fortune I happened to be on good terms with Addi Wasserstein, professor of Greek at the University of Leicester, and it turned out that he knew who the owner was. However, he did not reveal the identity of the owner to me, nor do I know what passed between him and the owner. I have sometimes suspected that he hoped to secure the manuscript for a library in Israel. Eventually the owner decided to sell it, and it came up for auction at Christie's in New York in 1998. I wrote most of the description for the sale catalogue. In order for that to happen the codex was sent back from New York to Oxford so that I could study it in the library of my college. As I was working on it one day my colleague the eminent Tudor historian Susan Brigden stopped by my desk to see what I was doing. On seeng in what poor condition the codex was she remarked "Nigel, this manuscript that you are handling is a health hazard". But I survived.

One other mildly interesting detail from that stage of my involvement comes to mind. For some reason, which I now forget, I needed to take the codex to the Bodleian Library and wondered about my obligation to ensure the security of the precious object. Luckily I was on excellent terms with Anthony Hobson, who had had a long career at Sotheby's and was obviously familiar with such problems. His advice was simple. "Put the codex in a large carrier bag marked with the name of any prominent supermarket." I followed that advice.

Another puzzle is worth a mention. When the manuscript reappeared it was found that four pages had been covered—it would be better to say disfigured—by portraits of the evangelists in the Byzantine style. As John Lowden said, in an essay contributed to our 2011 publication, it is unexplained why the owner "should have done something so vandalous as to obliterate some of the pages with fake Byzantine images".[3] But experts were able not only to identify a manuscript in the Bibliothèque nationale in Paris as the source on which these portraits were based but to establish that one of the pigments used had first become available in 1938. Can one establish more precisely when and why this act of desecration had taken place? I have a suggestion. The owner, being a Jew living in Paris under German occupation, needed to escape, which in fact he succeeded in doing in 1942 with the help of the Resistance. My guess is that he needed to raise a lot of money and thought that a manuscript with illuminated pages would fetch a better price. I leave open the question whether the Resistance actually needed money in order

[3] NETZ – NOEL – TCHERNETSKA – WILSON 2011, I, 110.

to bribe officials. Anyway, though damage had been done, thanks to the synchrotron facility at Stanford it was possible to solve the problem fairly satisfactorily.

The story of the decipherment is told in detail in the preface of the 2011 publication, and so is readily available. It is a very fine example of what can be achieved by the cooperation of experts in diverse fields.

For me personally one of the most memorable and at the same time amusing moments in my participation in this scholarly operation occurred during work on one of the other texts discovered in the palimpsest, a commentary on one of Aristotle's treatises on logic (Fig. 2).[4] In order to deal with this abstruse text, which is of some interest to historians of philosophy, a small separate team was formed. At our final session before the deadline for submitting our transcription there was still one very strange puzzle that remained unsolved. In the middle of one line we could read what appeared to be the adjective "daimonioi", a masculine plural meaning "divine/relating to the gods". But in the context this made no sense; there had been no reference to gods. But at the very last moment a new set of images arrived, and I suddenly realised that I could read four letters, previously illegible, immediately preceding what had appeared to be the mysterious adjective. They were lambda, alpha, kappa and epsilon, and so the text referred to the Lacedaimonians, in other words the inhabitants of the city of Sparta. A moment later I was able to read at the end of the line another word which had defied all previous attempts, the adjective Argeioi, the inhabitants of the city of Argos, traditionally the rival and enemy of Sparta. The decipherment of four letters had disposed of a puzzle (Fig. 3).[5]

Finally a note on recent developments. In the publication of 2011 there is one page of the Archimedes text which is shown to be badly damaged, so that in the upper half of the two columns it was not possible to read more than about half of the text, and at the bottom of the second column there were four lines which were almost entirely illegible. As the text here is the essay known as Method, it is important. But since 2007, when the images were made, there have been significant advances in the technology, and so I have wondered if the application of the latest version could help. This would mean asking the owner for permission to make a fresh image of that page. Whether this request will be granted remains to be seen. But in the meantime Keith Knox and Roger L. Easton, Jr., have come forward with the suggestion that reprocessing the data obtained in 2007 could yield results. They have been proved right, since their new images have made it possible to read a few more words. This is still not enough to fill the gaps satisfactorily, but it does

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[4] The nature of the text was not initially clear, but I suddenly managed to read the name Ἀριστοτέλης (see Fig. 2b), which put me on the right track.

[5] In the illustration which is available for this paper (Fig. 3b) the first two of the four vital letters are not as clear as they were during the session described above, for the image focuses on the legibility of the page as the whole. Even if the first two letters had been invisible, there could still have been no doubt about the correct reading.

suggest that with the application of the latest technology there could be a breakthrough, with the result that one could read enough of the text to be fairly confident of the course of the argumentation, thus validating the conjectural reconstruction offered by mathematicians. I am deeply grateful to Keith and Roger for their continuing help.

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Abstracts

The Archimedes Palimpsest: Experiences of a Palaeographer

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The famous palimpsest containing important works by Archimedes was discovered by a Danish scholar early in the 20th century. But owing to its poor state of preservation many passages were difficult to read or completely illegible. This paper describes the stages by which, thanks to the application of modern technology, it has been possible to resolve most of the difficulties.

[Archimedov palimpsest: skúsenosti paleografa]

Slávny palimpsest obsahujúci dôležité diela Archimeda objavil jeden dánsky učenec začiatkom 20. storočia. Avšak kvôli zlému stavu zachovania rukopisu boli mnohé pasáže ťažko čitateľné alebo úplne nečitateľné. Tento článok popisuje etapy, v ktorých sa vďaka aplikácii moderných technológií podarilo vyriešiť väčšinu ťažkostí.