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In conclusion I must heartily congratulate the Society on the choice which it has made for President in the coming year, and must add the wish, in which I am sure that you all share, that he may find the duties of President compatible with what I take to be not less his duty—that of instructing, interesting, and entertaining us with the admirable exhibitions and communications which from the storehouse of his knowledge he has always been so ready to give us at recent meetings.

Professor HUGHES and Baron VON HÜGEL spoke upon the proposed New Museum of Archaeology and of Ethnology.

ON TWO WHEEL-DESKS: THE ONE IN THE CHURCH OF S. NICHOLAS, GREAT YARMOUTH; THE OTHER IN THE BIBLIOTHEQUE DE L'ARSENAL, PARIS.

BY J. W. CLARK, M.A.

IN the accounts for fitting up the library of the King of France in 1367 and 1368, when it was removed from the Île de la Cité to the Louvre, the carpenters are paid, among other things, for "having taken to pieces all the cases (*bancs*) and two wheels (*roes*) which were in the King's library in the palace, and transported them to the Louvre, with the desks (*lettrins*) to the aforesaid wheels, each made smaller by a foot all round¹."

I shewed in *The Care of Books* that these "wheels" were revolving desks, which could be raised or depressed by means of a central screw; and I illustrated the passage quoted above by a miniature executed in Flanders for King Henry the Seventh, and now in the British Museum, representing two gentlemen in a library, studying at such a desk². The principle, once adopted, became exceedingly popular, and desks of a similar character, but of different forms and ornament, are among the commonest pieces of library-furniture depicted in miniatures.

¹ *The Care of Books*, ed. ii, p. 294.

² *Ibid.* p. 295.

In my present paper I propose to describe another form of wheel, also used for library-purposes, which seems to have been invented at the beginning of the seventeenth, or end of the sixteenth, century. It is described and figured in a work by Heinrich Zeising, called *Theatrum Machinarum*¹, the first edition of which was published at Leipzig in six parts between 1614 and 1622. The twelfth plate (fig. 1), which illustrates the contrivance and its mechanism, is accompanied by the following letterpress:

Ein kunstlicher Studier-Pult, darauff man auff einmal ein grossen Hauffen Bücher kan halten und gebrauchen.

Dieses ist eine schöne und kunstliche Machina, welche den Studirenden Personen gar nützlich ist und wol bekommt, sonderlich aber denen so auff einmahl viel Bücher und Authores müssen für sich haben, und aber Podagrish oder sonst schwach seyn dass sie nicht viel hin und wieder mögen gehen. Denn mit dieser Machina kan der Mann eine grosse Anzahl Bücher durchblättern und umwenden und darff nicht einmal aufstehen von seinem Stuel. Zu dem hat es auch diese gute bequemligkeit, dass dieses Instrument gar wenig raum bedarff an dem ort da mans hinstellet wie ein jeder vernunftiger Mensch aus der Figur wol kan mercken. Man muss ein Rad also zurichten dass wenn man Bücher auff seine bretlein legt, und treibt das Rad herumber, so sollen doch die Bücher steiff an ihrer Stelle bleiben, keins herabfallen oder die Blätter umkehren, sondern stets also bleiben wie sie auff die Radbretter oder tafelein gelegt worden. Dieses Rad kan man nun gross oder klein machen wie es einem jeden gefellig, oder das losament darinnen es stehen soll erleiden mag. Doch wird der Werckmeister so solche zurichtet achtung geben auff die proportion aller theil dieser unser kleinen Rädlein und anderer Künsten so in solcher Machina sie gesehn werden. Dann dieselben stück alle mit mass und proportion gemachet seind; und darmit ein jeder der diese Machina wil lassen zurichten solche desto besser mög verstehen hab ich hineben alle Subtiliteten sondarinn seind in der Figur entdeckt zu besser jedermenniglichs gebrauch.

This passage may be translated as follows:

An ingenious desk for study, on which a large number of books can be laid and used at one and the same time.

¹ The book was published by Henning Gross the younger in six parts dated as follows: Pt. i. 1621; Pt. ii. 1614; Pt. iii. 1618; Pt. iv. 1622; Pt. v. 1614; Pt. vi. 1614. These parts formed two volumes. The whole was reissued at Leipzig in 1673, and 1708. My attention was first directed to this book in 1894 by Mr F. G. Teggart, chief cataloguer in the library of the Leland Stanford junior University, U.S.A.

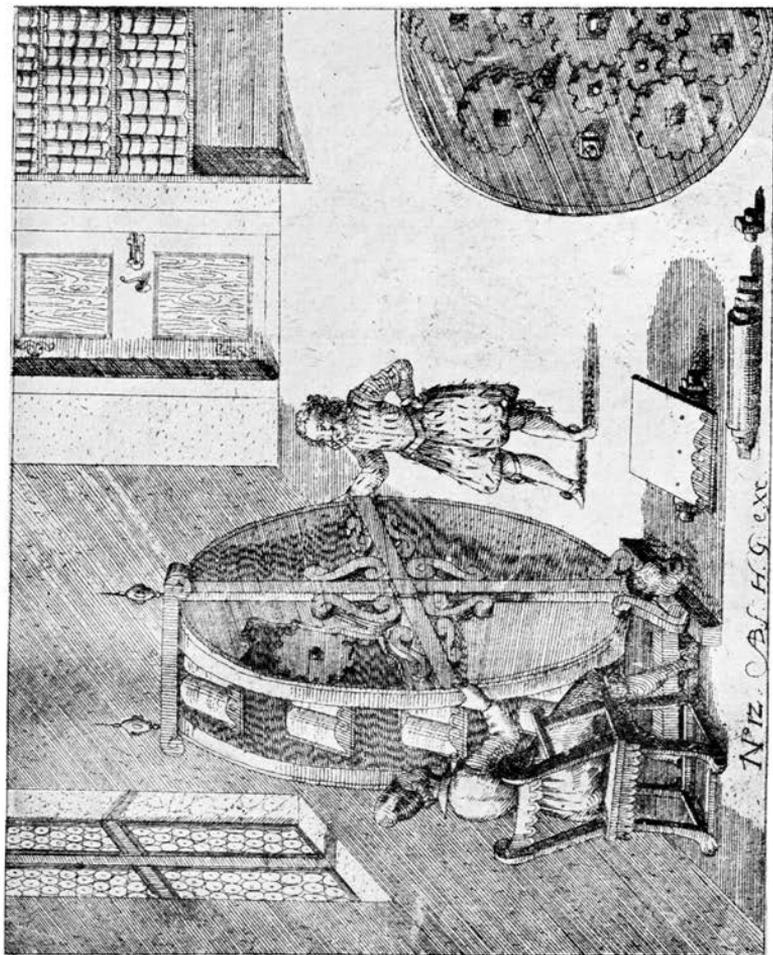


FIG. 1. Reproduction of Plate XII in Heinrich Zeising's *Theatrum Machinarum*, 1614-1622; shewing a wheel-desk, and the mechanism connected with it.

This is a beautiful and ingenious machine, which is very useful and convenient for persons studying, especially for those who must have by them many books and authors at once, and are gouty or otherwise infirm, so that they cannot easily move backwards or forwards. With this machine a man can turn over and consult a large number of books, and need not even rise from his chair. It has further this great convenience that the instrument requires very little space on the spot where it has been put up, as every reasonable man can see by this figure.

A wheel must be so arranged that when books are laid on the little shelves, and the wheel is turned round, the books may remain steady in their places, and none may fall down or their leaves be turned over, but remain as they were laid on the shelves or tablets.

This wheel can be made large or small according to pleasure, or as the space in which it is to stand will allow. The mechanic who puts it together must pay attention to the proportion of all parts of our little wheels and other contrivances which are required in such a machine, for all these pieces are made according to measure and proportion; and in order that everyone who wishes to have these machines made may the better understand them, I have in this figure shewn all the delicate contrivances, for the better information of everybody.

Let us now examine the figure. The wheel hangs free within a stout wooden frame; and as the artist has drawn a seated figure reading at it, it is easy to calculate that the diameter of the wheel was about 5 feet. There were eight shelves. The width of the wheel was not greater than that of the reader's chair—that is, about 2 feet; and, as the woodwork on which the shelves hang is of considerable thickness, but little space is left for the shelf itself. In consequence a single volume only is shewn upon each shelf, that is to say, only eight volumes could be consulted at once, a number which hardly bears out the statement in the description that “with this machine a man can turn over and consult a large number of books.”

The drawing further gives a rough sketch of the machinery by which the shelves are kept steady when the wheel is set in motion—what the text calls “the delicate contrivances.” The general scheme of a number of cog-wheels is perfectly correct; but they are drawn so roughly that I will say no more upon this subject at present.

A desk constructed on this principle has been preserved for many years in the church of S. Nicholas, Great Yarmouth.

I am sorry to say that nothing is known of its date, or of the place whence it came. The figure of it which I am able to give (fig. 2) renders a description almost unnecessary. The material is oak. The wheel is supported on a stout frame, so as to ensure complete steadiness. The diameter of the wheel is 3 ft. 9 in. The height, from the ground to the axis of the wheel, is 4 ft.; and the shelves, of which there are six, are 4 feet long, and $11\frac{1}{2}$ inches broad. They will contain about 50 volumes at once.

A second example (fig. 3) is in the Bibliothèque de l'Arsenal, Paris. In detail it differs a good deal from that at Yarmouth, but the principle is the same. The stand is highly ornamented, with wreaths of flowers and fruit on the central support and on the lateral wings; and the lower of the two bars connecting the ends of the stand, together with the edges of the shelves, is carved. The wheel is reduced to a cross, each arm of which carries one of the four shelves. The height is 3 ft. 5 in. from the ground to the axis (slightly less than at Yarmouth); each arm of the cross is 3 ft. 2 in. long by 8 in. wide; and each shelf is 3 ft. 9 in. long, by 17 in. wide.

Nothing is known about the history of this desk except that when the library was being arranged after the Revolution, the librarian asked for leave to annex "Un grand pupitre à ressort de la Bibliothèque des Capucins." This request was made "7 Primaire an VI" = 28 November, 1798. My friend M. Henri Martin, the present librarian, decides that the library in question belonged to the Capucins de la Rue St Honoré—a convent of vast extent, with a fine library, containing in 1790 a collection of books numbering from 18,000 to 24,000 volumes¹.

Two other examples are to be met with in Germany: the one at Wolfenbüttel, the other at Wernigerode in the Hartz. The former, in the library of the Grand Dukes of Brunswick, was constructed in the middle of the seventeenth century by order of Duke Augustus (1634–1666). It is of wood, and closely resembles the Yarmouth example, but the frame is so constructed as to leave a very small interval between the wheel

¹ Franklin, *Anciennes Bibliothèques de Paris*, ii. 238.

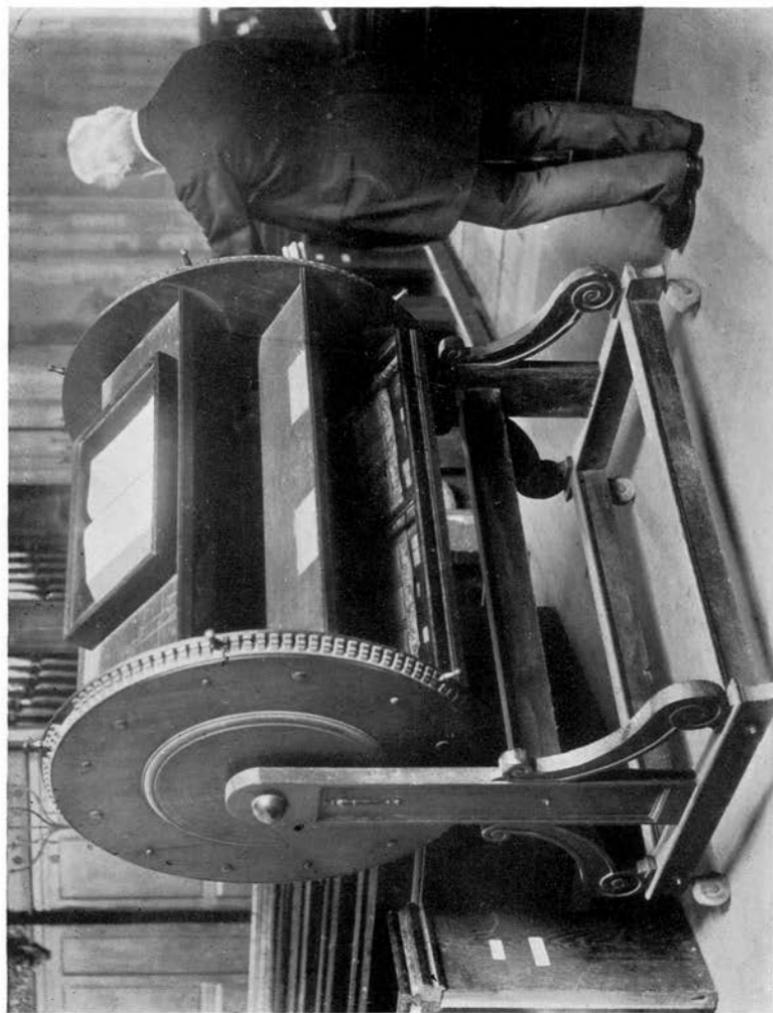


FIG. 2. Wheel-desk in the Church of S. Nicholas, Great Yarmouth.



FIG. 3. Wheel-desk in the Bibliothèque de l'Arsenal, Paris.

and the ground. The wheel is hexagonal, and is fitted with six shelves. The whole works by a system of cogwheels evidently identical with that which I figure below. The example at Wernigerode is in the library of the Prince of Stolberg-Wernigerode. It is wholly of iron, and the system of

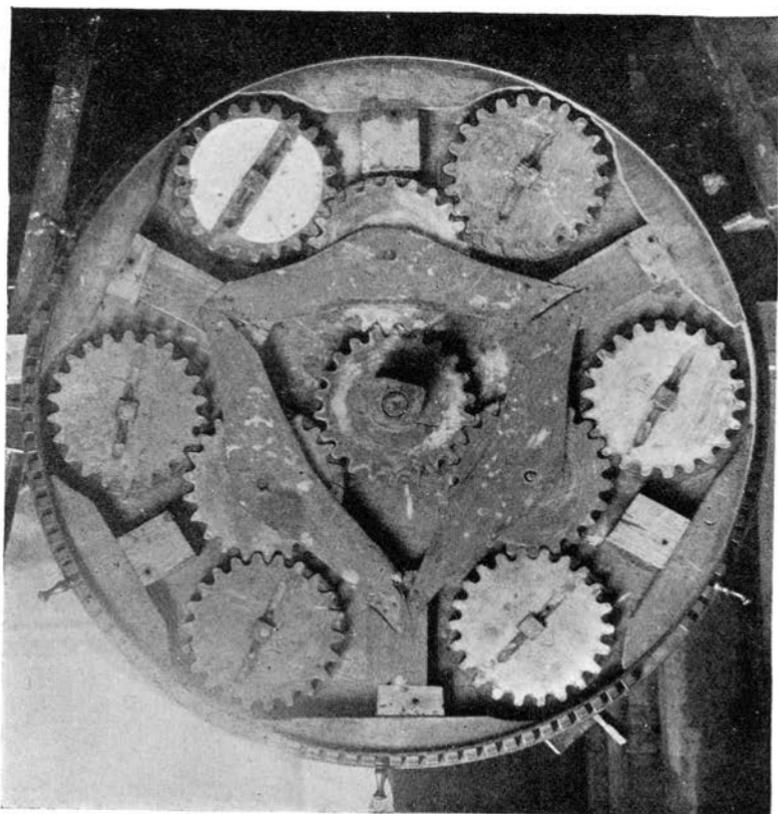


FIG. 4. One end of the wheel-desk at Great Yarmouth, with the outer covering removed to shew the mechanism.

cogwheels by which it is worked, similar to the former, is exposed to view. This desk is known to have been in the library in 1751, but no record of its *provenance* has been preserved.

Both these desks are now used, and presumably have always

been used, to accommodate the catalogue of their respective libraries¹.

I now come to the machinery by which these desks are worked; and I consider myself fortunate in being able to exhibit a photograph of the whole system in the Yarmouth example (fig. 4)². In this example there are wheels at one end only, but, if I mistake not, in the French example both ends are fitted with them. No iron is used: the wheels, the central axis, and the axis of each shelf, are all of wood. The central axis is concealed in a wooden cylinder (fig. 2); and the axis of each shelf is attached to the under side of the shelf to which it belongs in such a position that the shelf balances exactly. To each of these axes a cogwheel is attached (fig. 4); and the six cogwheels of the outer system are brought into relation with the central cogwheel by means of three intermediate cogwheels. All the cogwheels are of the same size.

In the Paris example the system is slightly modified, having regard to the peculiar shape, and the presence of four shelves only. The desk was not taken to pieces in my presence, but the machinery was kindly explained to me by M. Müller, keeper of the printed books in the Arsenal Library, who had seen it when it was under repair a few years since. There is, of course, a central cogwheel, and a cogwheel attached to the axis of each shelf. Between these four cogwheels and the central cogwheel four others are interposed, making a total of nine.

¹ I have to thank my friend Dr James, Fellow of King's College, for this information, and for a photograph of the desk at Wolfenbüttel which was taken under his direction expressly for my use.

² I have to thank my friend the Rev. the Earl of Chichester, Vicar of Great Yarmouth, for kindly allowing me to have the desk opened; and Messrs Norman, cabinet-makers, of Great Yarmouth, for doing the work and obtaining a photograph of the machinery for my use.

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