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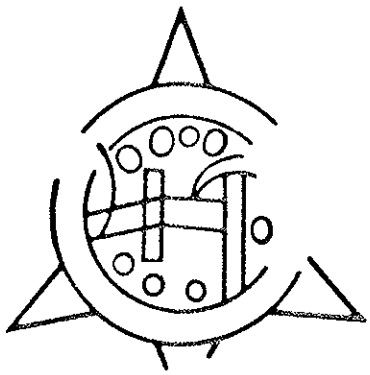

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The woodcut map considered as a physical object: a new look at Erhard Etzlaub's *Rom Weg* map of c.1500[1]

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A few recent studies in the history of cartography have demonstrated a movement away from an exclusive concern with the geographical information contained in a map towards a greater appreciation of the methods used to print or reprint it.[2] There is a growing awareness that without a clear understanding of the techniques involved in the production of a series of printed maps, any comparison between them and any conclusions about their relative importance may later prove to be invalid.

The vast majority of early printed maps were produced by means of engraved copper-plates, and the techniques involved are now common knowledge.[3] The woodcut map, though, is still something of a cartographic Cinderella, ignored or misunderstood. And yet, many of the most important maps of the fifteenth and early sixteenth centuries were produced in this way, and the failure to appreciate even the most obvious implications of this process has led a number of earlier researchers astray.

The purpose of this article is to demonstrate the results of an intensive study of one particular woodcut map. In the first place it has proved possible to define the unique features (or 'signature') of the block used to print the map's first form, which served to distinguish it from a later copy; following from that, the earliest surviving impression from the original block has been identified—as the sheet previously thought to be the latest; and then the broad outlines of the map's later development have been traced out. The latter part of the article considers the evidence as a whole and discusses some of the issues it raises.

We should perhaps start by describing the more fundamental differences between a copper-engraving and a woodcut. A copper-engraving is created by cutting out lines which are designed to be filled with ink and therefore print black; for the woodcut the process is inverted: its printing surface is raised above the level of the background. Since the greater part of a copper-plate has been left untouched by the graver it is easy to engrave new information in the vacant space. It is also a simple matter to erase material, either by rubbing the area with a burnisher from the front, so that the copper closes up once more over the incised lines until they can no longer accept ink, or by hammering up from the back. When a copper-plate is known in several versions (or *states*) the later forms will frequently reveal the presence of new material, sometimes in place of deleted information. In addition to these *intended* changes, the engraving will become steadily fainter as the constant printing wears down the copper and allows less ink to settle in the incised lines. There will also be *accidental* developments, notably breaks in the plate from careless handling, or scratch marks, which will accept ink and therefore print.

With the woodblock the situation is largely reversed. The blockcutter has removed all the material not destined to take the ink, leaving his outlines in relief. Erasure was therefore extremely simple: he just cut away the sections in question. But the insertion of new information was so complicated and so time-consuming that in actual practice it was very rarely attempted. To make an alteration or addition to a woodblock involved chiselling out the section concerned, cutting the new material on a separate piece of wood and then tailoring this to fit the waiting slot. Since it was almost impossible to arrange for the new section to match up perfectly with the old, there was an inevitable gap between the existing work and the addition. These broken lines show up on the print, giving an obvious white outline to the inserted section. There is one well-documented instance of a corrected fifteenth-century woodblock but

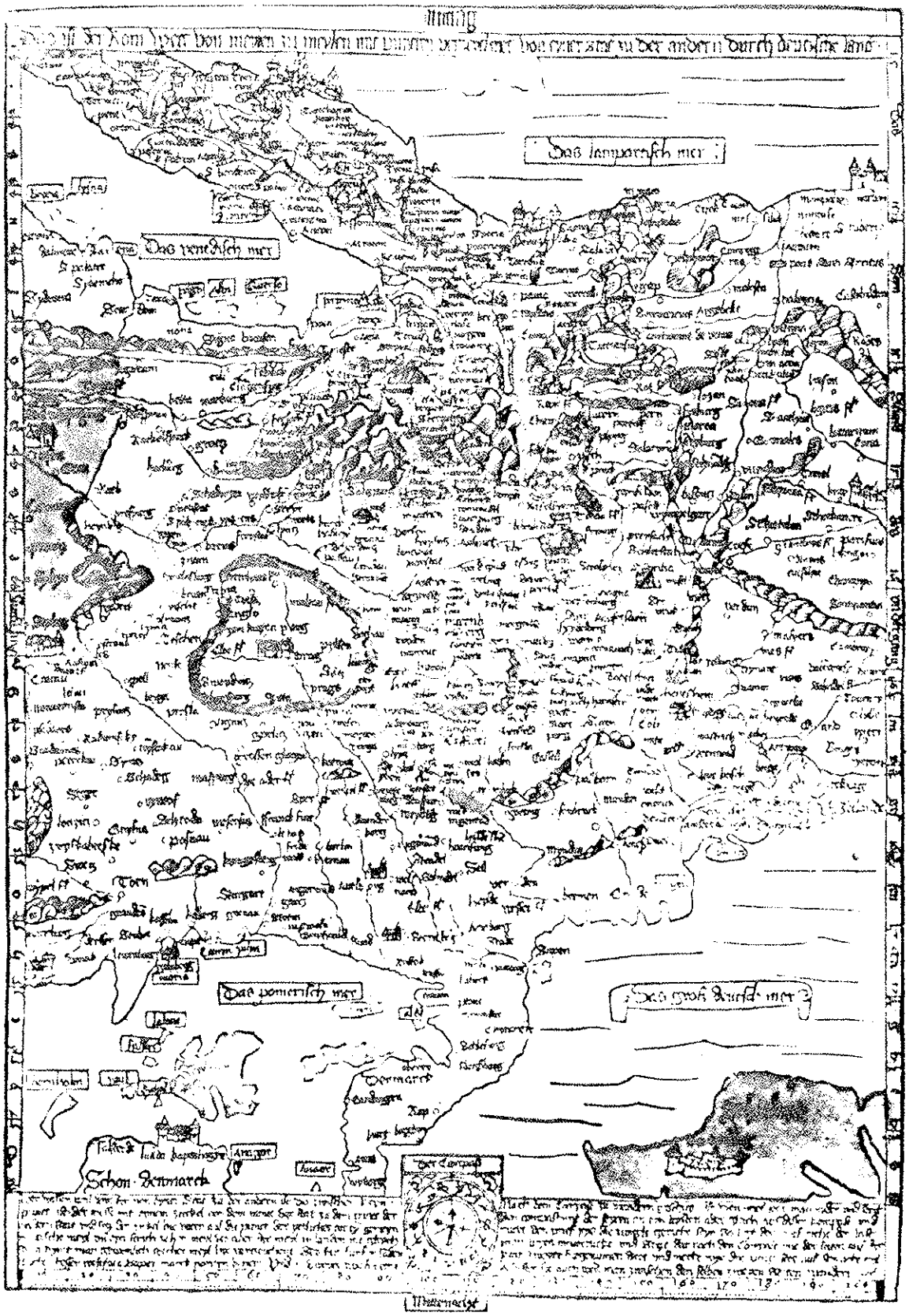


Fig. 1 The earliest surviving form of Erhard Etzlaub's *Rom Weg* map (original 292 × 404 mm).
By courtesy of the Bayerische Staatsbibliothek, Munich.

Fig. 2 The latest known form of the *Rom Weg* map.
By courtesy of the Houghton Library, Harvard University.

this is the exception to the rule. The publication in question is Jacopo de'Barbari's multi-sheet view of Venice, first issued in 1500, but later revised to show the top of the Campanile after its rebuilding in 1513.[4]

The technical ability to alter a woodblock or to insert new material was doubtless available in the fifteenth-century but the publishers of woodcut maps in this period seem not to have put it into practice.[5]

Intentional changes to a woodblock map, then, are not likely to produce either altered or added material.[6] But *accidental* changes will here play a far greater part than they do with a copper-plate, because the woodblock's raised outlines were extremely vulnerable. Careless handling, unsuitable conditions of temperature or humidity, or just the unavoidable strains imposed by frequent press work, caused small sections of the printing surface to break away. As will be demonstrated in the case of the Etzlaub map, this damage could become extensive before the block was considered unfit for further use.

A late impression of a copper-engraving will be faint (unless the plate has been recut); a late pull from a woodblock may be just as strong as an early one,[7] but the block will inevitably betray signs of unintentional damage.

None of the foregoing is startling in any way, none of it should be new; and yet the technical limitations of the woodblock seem to have been misunderstood by most historians of cartography.[8] Had this not been the case, it is unlikely that the error would ever have been made of supposing that the superficially similar fifteenth-century woodcut world maps by Hans Rüst and Hans Sporer were printed from the same block. This theory, which was expounded by Leo Bagrow,[9] was unfortunately repeated in that otherwise excellent catalogue of the 1952 Baltimore Exhibition, *The World Encompassed*, and thus in later works.[10] The catalogue conveniently illustrates the two maps on facing pages (Plates VIII & IX) and it is a simple matter to establish that two blocks are involved, provided it is first appreciated that their minute differences are what matter and not their overall similarity—this an inevitable result of one being a direct copy of the other. But the misplaced theorising as to how the supposed unique woodblock would have passed from Rüst to Sporer could have been avoided had it been realised that the task of replacing one man's name with another's and of adding extra woodcut names, as was thought to have happened,[11] could have been ruled out from the start. A similar misunderstanding of the technical possibilities has vitiated the interpretation of what is certainly one of the most important of the fifteenth-century printed maps, Erhard Etzlaub's *Rom Weg* map.

It is timely to acknowledge here the great debt that all researchers must owe to the vast array of articles on this one map that have been produced over the past thirty-five years by Herbert Krüger of Giessen.[12] His major achievement has been to analyse in detail the individual roads traced by Etzlaub, but he also suggested a new interpretation of the map's original purpose, as a guide to the various routes across Germany to Rome for the use of Pilgrims in the Holy Year of 1500. The concern of this article is not with the map's content, however, but with its physical development, and here we come to conclusions that are very different from his.

The *Rom Weg* map measures 40 x 29 centimetres and is a woodcut broadsheet with integral lettering (rather than incorporating inserts of movable type).[13] Although it bears no imprint, it was most probably issued by the Nuremberg printer Jörg Glogkendon. It was sold as a separate item and we are lucky that its popularity was sufficient for twelve examples to have survived. No other separately published woodcut map from the fifteenth-century is known in more than two copies.[14] Close comparison shows that these twelve known impressions were taken off two blocks, rather than three as Krüger thought, and it has proved possible to arrange the impressions into two chronological sequences which are significantly at variance with Krüger's. Examples of the *Rom Weg* map are currently to be found in Göttingen, Harvard, Linz, London, Munich, Nuremberg, Paris (two examples), Washington, and in a private collection in England. The eleventh example was destroyed in Dresden during the last war but a photograph of it survives. The location of the twelfth copy is now unknown.[15]

Krüger's analysis of the relationship between these twelve impressions was set out in Volume VIII of *Imago Mundi*.[16] His conclusion that the Linz example and one of the Paris sheets were

printed from a second block is beyond dispute and they can for the moment be left out of consideration, along with a third impression from this block that came to light in Switzerland in 1954 but which has now disappeared.

Krüger considered three features to be of primary importance: the combined compass and sundial (or *Compast*) at the bottom of the sheet (which appears in varying degrees of completeness), the widely spread out notes arranged in the two side margins of one example, and the publisher's colouring. Krüger interpreted the development of the *Rom Weg* map as follows. The relevant Paris sheet was supposed to be the earliest surviving impression, although for some unexplained reason he thought that the compass needle 'did not print on the paper because of a technical error'.[17] Representing the other end of the time spectrum was, in his opinion, the noticeably different Munich impression. It alone of the nine impressions under consideration has a complete *Compast*. It is also unique in being supplied with lateral notes that explain the numbering in either side margin. These refer, respectively, to degrees of latitude and the maximum hours of daylight. Krüger placed the Munich sheet at the end of the *Rom Weg* map's development[18] on the double grounds that the *Compast* was close to that found on Etzlaub's obviously later road-map of 1501,[19] and that the marginal notes were apparently designed to replace the separately printed explanatory sheet (or *Register*),[20] which was itself supposed to represent an intermediate phase in the map's development. Krüger admitted in a footnote that he had originally considered the Munich impression to have been taken off the same block as the others.[21] This would have involved adding the completed *Compast* and the marginal notes to the block, which, as we have already shown, can be discounted on technical grounds. His amended conclusion, though, was that the Munich sheet represented 'a new block of an almost anastatic trueness.'[22] Krüger also considered that the publishers had not originally planned to issue the map coloured and he believed the coloured Dresden example represented a separate edition.[23]

It can now be demonstrated beyond any doubt that all nine examples were printed from the same woodblock; that the Munich example, rather than being the map's final form, is in fact its very earliest; that the marginal notes were therefore removed rather than added; that the *Register*, which is found in conjunction with the map's earliest form, was therefore presumably part of the publisher's original plan and not an afterthought; and that the presence of old colouring on the two earliest surviving impressions contradicts Krüger's theory that this element was also a later development. These new conclusions have been made possible by a careful comparison, through photographs, of all nine examples of this version of the *Rom Weg* map, including the destroyed Dresden sheet.

It must first be proved that the Munich impression belongs to the same block as the other eight and then the chronological sequence can be set out.

In the case of copper-engravings the way to determine if two maps are taken from the same or from different plates is to search for shared accidental features, like scratch marks. Map publishers spent much of their time copying one another's work and would often transfer a rival's map directly onto a new plate. The geographical features and the lettering may be almost identical in both versions but no engraver would reproduce the damaged features of the original. They were trying to hoodwink their public, not the carto-bibliographers of the twentieth-century. On a woodcut, though, the white area will have been physically removed from the block and so the vacant space will not betray damage; but the blockcutter sometimes failed to trim off all the unwanted wood. These minute raised outcrops, which appear as dots or dashes, will therefore print and thus constitute what can be termed the 'signature' of that particular block, much as the scratch marks define a particular copper-plate.

The Munich version of Etzlaub's *Rom Weg* map shares with the other eight examples at least twenty accidentals of this kind. One of the more obvious of these is a short vertical line betwen *Rom* and *Weg* in the title (often mistaken for a hyphen) and a similar fault between *andern* and *durch* further along the same line. Other instances are a dot after Ulm, two above and one beneath Kassel, one before Utrecht, and so on. None of these mistakes occurs on the two sheets that were printed from the closely copied second block. This is enough to establish that the Munich map belongs to the same block as the other eight in this main group. What are we

to make, though, of its two unique features: the complete *Compast* and the marginal notes? Krüger had at first suggested that these elements had been added to the original block; he later amended this to propose that two different blocks were involved. Neither hypothesis is now tenable. Instead, we should recognise the Munich sheet as the earliest surviving pull of the *Rom Weg* map.

It was described earlier how successive impressions from one woodblock will exhibit increasing marks of damage. The carto-bibliographical study of a woodcut map depends, therefore, on a careful documentation of the progressive deterioration suffered by the block. Normally, small pieces of the raised outline will be knocked off but the block could also be attacked by woodworm, warp or start to split. By careful comparison, then, and on the simple assumption that any impression which lacked a recurring defect would be earlier than those which showed it, it has been possible to arrange the nine surviving examples of the *Rom Weg* map's first form into a confident chronological sequence, as follows:—

1 Munich
2 Dresden
3 Paris, London, Ehrman
6 Washington
7 Nuremberg
8 Göttingen
9 Harvard

The technique for determining the order in which the impressions were printed is straightforward and one that has already been applied to copper-engraved maps. Once a superficial pilot study has shown which is apparently the earliest form and which the latest, these two are then minutely compared and all their differences noted. These features alone are significant; all others can be ignored. It is then a simple matter to note against each example of the map those defects which are present. The greater the damage, the later the printing.

It would be impracticable to list here all the eighty-five items of damage noted on the map's final form; instead we shall cite the more obvious of those features which serve to distinguish the nine surviving impressions from one another.

The Munich sheet betrays far less wear and tear than any of the others but it already exhibits eleven items of minor damage—usually breaks in lines or letters—which recur thereafterwards. For example, four of the Mediterranean sea lines are already broken, as is the River Vistula at a point east of Torun and a small section of the North Sea coast near Bremen. In the name *Pons Santi Spiritus* (on the Rhône north, i.e. below, Avignon) the first *i* of *Spiritus* is partially missing.

Second in the chronological sequence is the Dresden example. It was destroyed in the last war and although its image survives in a pre-war photograph the imperfections of this and the heavy colouring of the original mean that some sections are illegible. Despite this, it is clear that a considerable amount of further damage has occurred. Here we can instance the *m* in *Das venedisch mer* that has broken to read *n i*, *Rodes* (west of Lyons) with its defective *e*, *Als* (Baltic) with its broken *A*, and the now almost invisible 51 in the left margin. But most dramatic of all is the *Compast*, whose eight-point centre has now been reduced to a solitary north-south line.

Next follow three example which are indistinguishable from photographs and must therefore be considered as one entity: the Paris, London and Ehrman copies. Immediately visible is the loss of *Mittenacht* (i.e. midnight or north) outside the lower border, which has taken with it a small section of the outer rule. Other defects first noted at this stage include damage to the top and bottom numbers in the right margin (15 and 18), to the *s* of *Das* and the *d* of the first *der* in the title, to the *y* of *Sydrona* (Yugoslavia) and the *i* of *Maria* (Baltic).

A number of small breaks in the outer rule are evident on these three impressions and it is an extension of this process which provides the sole evidence that the Washington sheet should be placed after them, since it lacks the very bottom section of the outer right-hand rule.

There then follows a sizeable gap because the Nuremberg sheet which comes next, as the seventh in our chronological sequence, has twenty-eight distinguishing features—considerably more than any other. The majority of these refer to sections of the outer rule which have fallen off, particularly along the top and in the upper third of the right-hand side. Further specific

features can be listed: Ingolstadt has a broken final *t*, Nieupoort (*Nyeport*) has a broken *p*, part of the right-hand turrent on the symbol for Narbonne is missing, the *y* of the first *meylen* in the title is broken, and the *Compast* centre has now lost even its residual south pointer. With the penultimate impression, that now in Göttingen, the deterioration continues. Among the damage noted at this stage is a one centimetre break in Scotland's north coast (i.e. to the left), the loss of the lower half of the left-hand figure 5 in the *Compast*, and sections of the left-hand outer rule between the figures 57 and 58 and the figures 48 and 49.

The Harvard sheet is virtually identical to that in Göttingen but two small line breaks found only on the former serve the important function of identifying the Harvard impression as the latest survivor from the block. Both faults occur in the group of three sea lines in the top right-hand corner; only the Harvard sheet has two breaks in the second of these and one break in the third. Figs. 1 and 2, which contrast the Harvard sheet with the map's original form, reveal the extent of overall damage suffered during the block's life.[24] Fig. 3 provides the same comparison in close-up, adding a similar detail from the Washington impression to show the process of deterioration at an intermediate stage.

Two possible objections to the foregoing analysis can be anticipated and countered in advance. The first would propose that some of the features that have been treated as if they were defects on the woodblock might derive instead from poor inking or faulty press work. It is certainly true that woodcut elements can 'disappear' between one printing and the next because of careless workmanship, and it would therefore be foolhardy to arrange two impressions from the same woodblock into a printing sequence on the basis of just one feature. But in the case of the Etzlaub map, eighty-five items of damage served to distinguish the surviving copies, and each subsequent impression repeated all the earlier defects while adding some new ones of its own.

Alternatively, it might be argued that the chronological order we have devised for the impressions of the *Rom Weg* map should be entirely reversed; in other words, that elements were steadily added rather than naturally disappearing. The technical difficulties that this would have entailed have already been described but the possibility can also be disposed of on strictly bibliographical grounds by looking at a woodcut map which appears in various dated editions of the same book. The best instance of this from the fifteenth century is the map of Palestine in Bernhard von Breydenbach's *Peregrinatio in terram Sanctam*. The same series of woodblocks was used for six editions between 1486 and 1498 and, while it was not possible to compare these as closely as in the Etzlaub case, a similar pattern of increasing damage can be identified. For example, by the third edition of 1490 the name Alexandria is incomplete, lacking part of the *r* and the entire *i*, and the last three editions are identical in this respect. More drastic still, by the time of the final edition one name, *Geth*, has vanished completely.

The order in which the nine survivors from the *Rom Weg* map's original block were printed has now been well enough established, but some parts of the story remain to be told. So that the detailing of the map's deterioration should remain coherent, some important developments have been glossed over because of the explanation they would require. Undoubtedly, the most significant of these are the unique marginal notes of the Munich copy, as well as the single name *Laum*, which was also removed before the pulling of the Dresden example. While the insertion of new material onto a woodcut map was rarely attempted, for reasons we have already outlined, elements could easily be removed; and this operation need leave no trace, unlike the sometimes clumsy erasures on a copper-plate. Having established the primacy of the Munich example over all the rest, we are left in no doubt that the cutting out of the marginal notes was an intentional act by whoever had control of the woodblock at the time. We can only speculate, though, on the reason for this: whether the notes were removed because the map's early purchasers found them hard to understand,[25] or whether they suffered early damage and were dispensed with as a more acceptable alternative to the complications involved in cutting new sections. The fate of *Laum* probably has a similar explanation. The name appears on the Munich sheet at the western extremity of Bohemia (shown as a heart-shaped entity ringed with forest) but is missing from the Dresden pull, and thus from all subsequent ones.[26] Again, it might have suffered such damage that its removal was the most

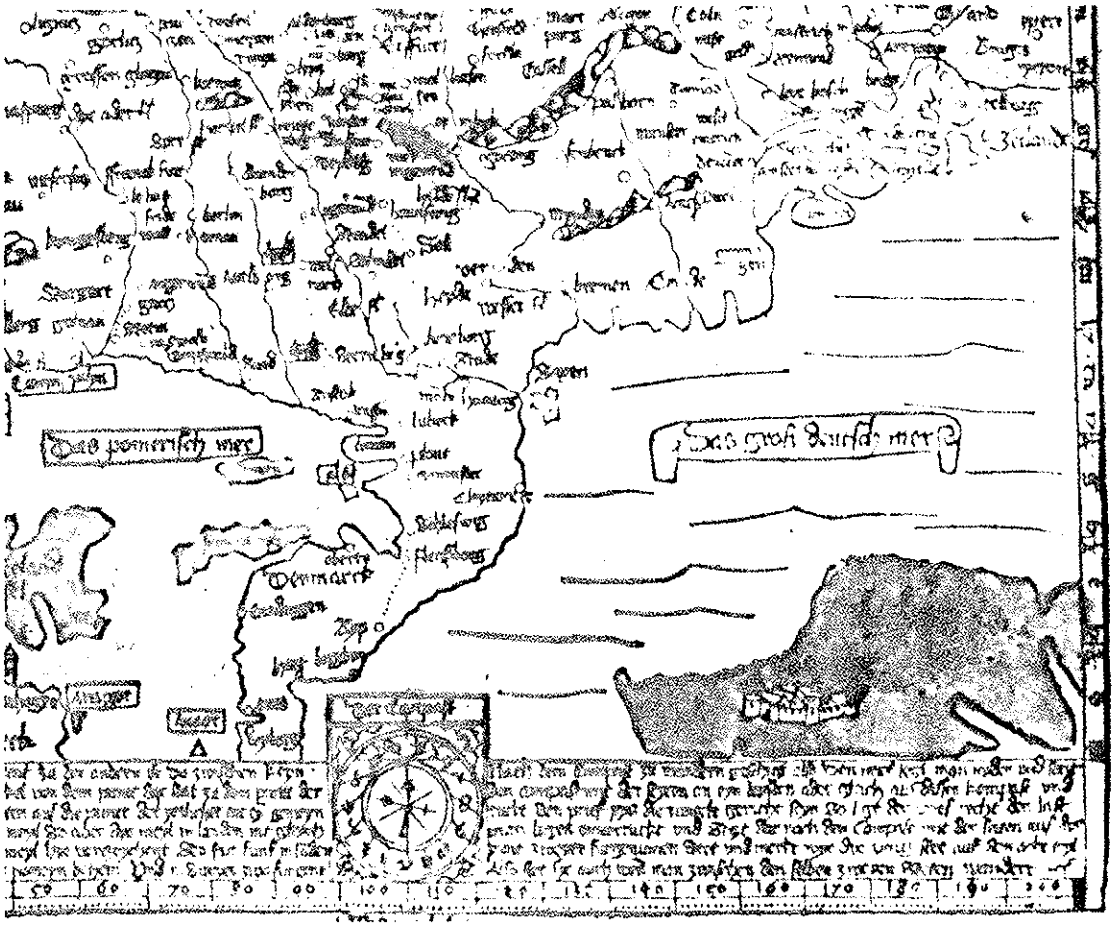
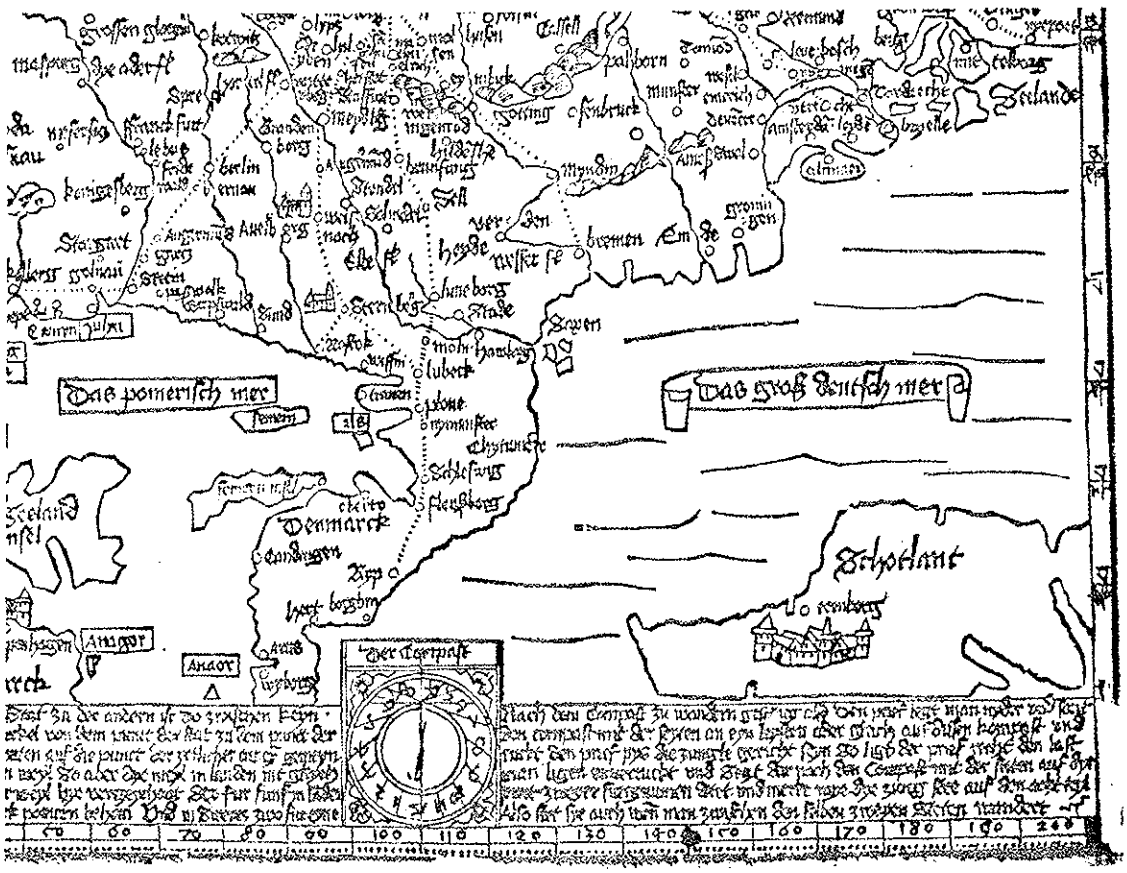


Fig. 3
a. The earliest form.
By courtesy of the Bayerische Staatsbibliothek, Munich



b. An intermediate form.
By courtesy of the National Gallery of Art, Washington, D.C. (Rosenwald Collection).

c. The latest form.

By courtesy of the Houghton Library, Harvard University.

Comparative details of the bottom right-hand corner (north-west section) of the *Rom Weg* map, to illustrate progressive damage.

sensible solution, like the name *Geth* on Breydenbach's map. Similarly, the truncated *Compast*, whose ornate centre is only found on the Munich impression, might represent a rationalisation in the face of partial damage. This must remain mere conjecture but we can confidently distinguish these intentional, or partially intentional, alterations from the totally random accidentals that allow us to differentiate between the other surviving impressions.

It is known that a woodblock can split, warp or be attacked by woodworm.[27] There is no evidence that the *Rom Weg* map's block was ever allowed to crack open but it seems reasonable to ascribe some of its faults to warping and others to worm activity. Discernible already on the London sheet and becoming more marked thereafter, is an area of smudginess west of Bohemia where the paper has accepted too much ink with a resultant thickening of the lines. The most likely explanation for this is that the block had warped at this point. An even clearer instance of this involves the area immediately to the east of Trieste. The blurring of this region would naturally have been supposed a unique error in the printing of that particular example had it not occurred in quite the same way on the three latest impressions.

The presence of woodworm activity is harder to establish, but as additional evidence towards the establishing of a printing sequence should not be overlooked. If a worm attacks the block's raised outlines, its passage will leave a characteristic round hole in the printed area. Albrecht Dürer's woodblocks often suffered in this way and the number of these holes present on a particular print has long been used by those studying the artist's work as the best indicator to the lateness of the impression.[28] There are a number of small items of damage on the *Rom Weg* map where worms might have been the culprits rather than careless workmen—for example, four holes in the top outer rule of the Washington sheet which later turn into complete line breaks—but we cannot be sure of this. There are stronger grounds, perhaps, for identifying as worm-holes the nick into the town circle of *Candigen* (Denmark), which is first visible after the Dresden impression, and a small hole in the scroll above the final

letter of *deutsch* in the inscription, *das gross deutsch mer*, introduced on the Nuremberg sheet. Now that the broad course of the *Rom Weg* map's physical development has been sketched in, we should consider ways in which the material can be interpreted. In the first place we must refute Krüger's explanation for two particular pieces of evidence. He maintained that the idea of the *Compast* (which was very much the signature of the compass-maker Etzlaub) had grown from a simple north-south pointing arm into the elaborate Munich form.[29] However, as we have shown, the Munich version preserves the earliest known state of the map, rather than its mature form. Because he was working from an inverted printing sequence, Krüger detected other false signs of improvement to the *Rom Weg* map. These related both to the presence of publisher's colour and to the separate *Register* (or explanatory sheet) which describes the various colours to be applied to the countries surrounding Germany. Krüger believed that the provision of this separate printed sheet, and the application of colour to the map in accordance with its instructions, were the result of feed-back from returning pilgrims.[30] While it is no doubt attractive to think of a publisher being responsive to popular needs in this way, the evidence contradicts it. The unique surviving example of this printed sheet was found inserted into Hartmann Schedel's own copy of his *Nuremberg Chronicle* of 1493 and it is bound next to the old-coloured Munich example we have been discussing.[31] Presumably the two arrived there together. Since the second earliest impression (the Dresden sheet) was also coloured, while the other seven were not, it is clear that neither the *Register* nor the colouring it describes can be seen as later developments. The use of colour was hardly new to Etzlaub anyway: his 1492 map of Nuremburg's environs refers specifically to its red town dots ('roten punttlein').[32]

Another way in which the physical evidence can be considered is collectively, rather than through selected details. In all, some eighty-five damaged features were considered, and it might prove useful to anyone engaged in a similar study in the future to know the most vulnerable points on a map woodblock. Lines, and particularly extended ones, suffered the most: of the sixty line breaks detected on the *Rom Weg* map, precisely half involved the continuous outer rule. Also liable to be affected were the lines denoting the sea; indeed, breaks in these would have been enough on their own to define all but one of the variant forms. By contrast, only twenty damaged letters and numbers were detected. It is comforting, then, that most of the damage—at least in this case—occurs where it is most readily visible.

It would be a valuable bonus if the tabulated damage could provide any pointers to the actual dates of issue. Unfortunately, no documentary evidence has yet been produced which might provide any definite answers, and it would be quite unjustifiable to suppose that we could arrive at the date of any particular impression by calculations based either on a steady flow of sheets through the press or on an assumption that damage to the block occurred at a constant rate. Also, we have no idea of how representative the nine survivors are of the hundreds of prints that were presumably taken from the block.[33] However, it would seem fair to suppose that impressions which exhibit a similar amount of damage were close to each other, either in terms of date, or in relation to the total number of pulls taken from the block, or both. If there were gaps between periods of printing, successive impressions that spanned a pause might be quite different. Warping, for example, could well have happened during a period of inactivity when the block was badly stored. The corollary, that the greater the damage between one surviving impression and the next the greater the intervening period or the number of pulls, seems equally valid. The progressive deterioration of the *Rom Weg* map can be quantified with reference to the number of items of fresh damage as follows:

> Munich (11), Dresden (10), Paris, London and Ehrman considered together (20), Washington (1), Nuremberg (28), Göttingen (13), and Harvard (2).

Significantly, the two instances of probable warping occur at the points of greatest general damage: London and Nuremberg.

As another way of trying to utilise the physical evidence, we might ask the question: how long did the *Rom Weg* map remain available to the public? Or, in other words, can we attach any kind of date to the last of the nine surviving impressions? Once again we are forced back onto the sheets themselves, and specifically to the paper on which they are printed.

As yet, no watermark has been precisely identified in any impression of the *Rom Weg* map, but there are indications that the woodblock may have had a fairly extended life. We are fortunate that the Harvard copy, the latest of the nine survivors, has a legible watermark, featuring a twin-tower motif with two initials (J.M. or M.L.) set into the base. Bricquet does not reproduce this actual mark but he does describe a number which are very similar, and these exactly span the second half of the sixteenth-century.[34] An earlier commentator, Erwin Rosenthal, had suggested that the Washington sheet, which comes sixth in our chronological sequence, was printed on sixteenth-century paper.[35] Of the survivors, the seventh in order of printing is the Nuremberg example and, while no watermark is visible, the curator expressed the feeling that the paper was closer to 1550 than 1500.[36] The London impression has no watermark and the Dresden map no longer exists but there is still a possibility that watermarks may be identified on one or more of the others. Alternatively, it might prove feasible for a paper specialist to provide rough dates for the paper on which the various impressions are printed. Until either of those things happens, we are left with an imperfectly identified watermark of just one example. Yet there does seem to be a reasonable likelihood that the *Rom Weg* map's original block was still being printed from in the middle of the sixteenth century. Indeed, it might be even later than this since the Bricquet mark closest to that found on the Harvard sheet is the very latest in the group, identified on a publication of 1599.[37] Even if Krüger was right in believing that the *Rom Weg* map was prompted originally by the needs of the Holy Year of 1500 (and there have been those who disagreed with this, Erwin Rosenthal considering that the map first appeared about 1485[38] and Albert Ehrman favouring a date between 1494 and 1499)[39] there is a strong possibility that Etzlaub's map continued to serve the needs of travellers for a further half a century at least. If this were the case, it is almost certain that other printers besides Glogkendon were involved in publishing the map. The uneven deterioration rate, as it has been identified from the surviving impressions, might possibly indicate different periods of printing activity, with lulls in between.

The final service which the physical evidence can perform is to allow us to relate the second, copied block to the first, on the basis of the printing sequence already established for the nine impressions taken off the original block. The second woodblock, represented by the example in Linz, one of those in Paris, and the currently unlocated copy,[40] has so far been excluded from discussion. It can be readily distinguished from the other, firstly because the towns appear as black dots rather than as hollow circles, and secondly because the course of each road is denoted by dashes instead of dots.[41] Earlier scholars considered it to be the original version, although this theory was rightly refuted by Krüger.[42] It certainly displays the characteristics of a copy in that its workmanship, and particularly that of its lettering, is inferior to that of the other block. But we can make the point more convincingly by showing the precise stage in the development of the original at which the copy was taken.

The imitation was presumably achieved by transferring an impression of the original map directly onto the new woodblock.[43] Since the copy reproduces the marginal notes that are found only on the Munich form of the original block, while at the same time it omits the name *Laum* and reproduces the damaged *Compast* centre, it was evidently cut from an original impression that falls between the Munich and Dresden forms, the two earliest that we know. Because the copy exhibits features of both the Munich and Dresden sheets, it allows us to posit a further variant form of the original block, intermediate between these two. We can also assert with some confidence that the second block was a copy (almost certainly unauthorised or 'pirated') made at a relatively early stage, rather than a replacement for a badly worn block that had been finally discarded.

In his detailed study of the woodcut map David Woodward concluded that, 'one of the surprisingly undeveloped skills of historians of cartography, as evidenced by the literature, is that of accurate, precise, and systematic description of the printed map as a physical object . . . In the case of the woodcut technique, where written manuals and original map woodblocks are scarce, the map itself may be the only evidence available for certain aspects of the technique.'[44] Hopefully, this article about one specific map will be seen to have some broader application to woodcut maps in general, and will at the same time have demonstrated the delights awaiting

those whose study of early printed maps is backed up with some technical understanding of the processes involved. But it may also warn those whose quite understandable concern is with a map's content or context, that they ignore the physical evidence at their peril.

References

1. This article is an amended and expanded version of a paper delivered at the Seventh International Conference on the History of Cartography, Washington, D.C. 7th-11th August, 1977. It forms part of a general study on fifteenth-century printed maps, currently nearing completion.
2. For example, Woodward, David (ed.), *Five Centuries of Map Printing* (Chicago, 1975), and Hodson, D., *The Printed Maps of Hertfordshire 1577–1900* (London, 1974).
3. See particularly Verner, Coolie, *Copperplate printing*. In, Woodward, *op. cit.*, 51–75.
4. *Ibid.*, 48, Fig. 2.14.
5. Giuseppe Scolari (fl. Vincenza c.1580), an artist from a later period, made frequent large-scale alterations to his woodcut prints, but he appears to have been exceptional in this respect.
6. We are talking here of the block itself and not necessarily of the lettering. The latter was often printed from inserts of movable type, which could have a history independent of the block itself, as, for example, with the map of central Europe in the reduced version of Schedel's *Nuremberg Chronicle* (1496, 1497 and 1500).
7. A weak impression of a woodblock will be a fault of the press work, not of the block.
8. Naturally, art historians and incunabulists have been well aware of these problems. A recent study used six stages of damage to William Caxton's woodcut publisher's device as a way of ascribing his undated works to their correct period. See Painter, G. D., *William Caxton: a quincentenary biography* (London, 1976) 215.
9. Bagrow, L., Rüst and Sporer's world maps. *Imago Mundi* VII (1950) 32–6. Bagrow's theories were refuted by Rosenthal, E., Concerning the dating of Rüst's and Sporer's world maps. *Papers of the Bibliographical Society of America* 47 (New York, 1953) 156–8. See also Stopp, K., Relation between the circular maps of the world of Hans Rüst and Hans Sporer. *Imago Mundi* XVIII (1964) 81.
10. *The World Encompassed* No. 23. Repeated in Destombes, M., *Catalogue des cartes gravées au XV^e Siècle* (Paris, 1952) No. 58, and Bagrow, L. (ed. Skelton), *The History of Cartography* (London, 1964) 93, 273.
11. Bagrow, *op. cit.*, 33.
12. The earliest appears to be: Krüger, H., Deutschland älteste Strassenkarten Erhard Etzlaubs aus dem XV. und XVI. Jahrhunderts. *Bausteine zur historischen Strassenforschung* 1 (Berlin, 1942). After that, Krüger published at least a further fourteen articles on this one map.
13. Movable type inserts were used for a number of fifteenth-century woodcut maps, most noticeably those in the *Rudimentum Novitiorum* (Lübeck, 1475) and the reduced form of Schedel's *Nuremberg Chronicle* (Augsburg, editions of 1496, 1497 and 1500).
14. Destombes, M., *Catalogue des cartes gravées au XV^e Siècle* (Paris, 1952) Nos. 53–66.
15. The full locations are: Göttingen (Geographisches Institut der Universität), Harvard University (Houghton Library), Linz (Studienbibliothek), London (The Map Library, The British Library—formerly the British Museum), Munich (Bayerische Staatsbibliothek), Nuremberg (Germanisches Nationalmuseum), Paris (Département des Cartes et Plans, Bibliothèque Nationale), Washington (National Gallery of Art, Lessing J. Rosenwald Collection), Mr. J. P. W. Ehrman (on deposit at the Bodleian Library, Oxford), and Dresden (Sachsische Staatsbibliothek). The twelfth example was described and illustrated in L'Art Ancien, Zürich *Catalogue 44* (1954) No. 137.
16. Krüger, H., Erhard Etzlaub's Romweg Map and Its Dating in the Holy Year of 1500. *Imago Mundi* VIII (1951) 23–4. His major study on this map appeared as: Des Nürnberger Meisters Erhard Etzlaub älteste Strassenkarten von Deutschland. *Jahrbuch für fränkische Landesforschung* 18 (Kallmünz-Opt. 1958) 1–286, 379–407.
17. Krüger, *Imago Mundi* VIII, *op. cit.*, 24.
18. *Ibid.*
19. Reproduced in Schnelbögl, F., Life and work of the Nuremberg Cartographer Erhard Etzlaub. *Imago Mundi* XX (1966) Fig. 2.
20. The *Register* was reproduced and translated by Krüger. See *Imago Mundi* VIII, *op. cit.*, 22.
21. *Ibid.*, 25.
22. *Ibid.*
23. *Ibid.*, 24.
24. Reproductions of the other seven forms (in the order in which they were printed) are available as follows: The British Museum, *Six early printed maps* (London, 1928) P1.1 (London sheet); Gallois, L., *Les géographes allemands de la Renaissance* (Paris, 1890) P1.1 (Paris sheet *Rés Ge* D7686); Pollard, G. & A. Ehrman, *The Distribution of books by catalogue* (Roxburghe Club, 1965) Fig. 9 (Ehrman sheet); Krüger, H., *Imago Mundi* VIII, *op. cit.*, Fig. 2 (Washington sheet, wrongly captioned as London); Lehmann, E., *Alte deutsche Landkarten* (Leipzig, 1935) p. 40 (Nuremberg sheet); a separate facsimile of the Göttingen sheet was published by Willy Grösschen, Dortmund 1971; there was apparently no reproduction of the destroyed Dresden sheet. Working from reproductions is hazardous at the best of times but is made worse in this case by the fact that a number of illustrations of the London copy had the broken lines filled in. This started in Bagrow, L., *Geschichte der Kartographie* (Berlin, 1951) p. 103) and was repeated in several subsequent works.

25. Krüger, *Imago Mundi* VIII, *op. cit.*, 25.
26. It does reappear, though, on Etzlaub's road-map of 1501, this time written as *Laun*, not *Laum*.
27. The Yale woodblock, an unsigned map of England and Wales provisionally dated to the very end of the eighteenth-century, provides a classic illustration of almost all kinds of possible damage. See the partial reproduction in Woodward, David (ed.), *Five Centuries of Map Printing* (Chicago, 1975) Fig. 2.7.
28. See, for example, Meder, J., *Dürer-Katalog* (Vienna, 1932).
29. Krüger, *Imago Mundi* VIII, *op. cit.*, 24.
30. *Ibid.*, 25.
31. This was identified by A. Ruland in 1854. While noting this fact in a footnote (*Ibid.*, 22–3), Krüger strangely failed to record that it was the Munich example of the *Rom Weg* map that was involved.
32. See the reproduction in Krüger, *Imago Mundi* VIII, *op. cit.*, Fig. 1. The reference to red dots occurs in the fourth line of the text beneath the map.
33. A parallel instance is that of Martin Waldseemüller's twelve-sheet woodcut world map of 1507. This was printed in 1000 copies but only one is known today.
34. Bricquet, C. M., *Les Filigranes* (Paris &c 1907) Nos. 15925–15950, ranging in date from 1549 to 1599.
35. Cited in Field, R. S., *Fifteenth Century Woodcuts and Metalcuts from the National Gallery of Art* (Washington, 1965) 281.
36. Dr. Monika Hefels of the Germanisches Nationalmuseum in a private communication.
37. Bricquet, *op. cit.*, No. 15950.
38. Rosenthal, E., The German Ptolemy and its world map. *Bulletin of the New York Public Library* 48 (New York, 1944) 143.
39. Pollard, G. & A. Ehrman, *The Distribution of books by catalogue* (Roxburghe Club, 1965) 18. It must also be considered a possibility that the Munich impression of the *Rom Weg* map was inserted at the time onto one of the blank sheets of Schedel's proof copy of his *Nuremberg Chronicle* (to be published in 1493). Etzlaub and Schedel were both working in Nuremberg during this period. Since the *Rom Weg* map has been identified as the one sent to Konrad Celtis in the summer of 1500 (Schnelbögl, F., Life and work of the Nuremberg Cartographer Erhard Etzlaub. *Imago Mundi* XX, 1966, 12) it could not have been first issued any *later* than that date.
40. Studienbibliothek, Linz, and Département des Cartes et Plans, Bibliothèque Nationale, Paris, *Rés Ge* D7686 bis. The third example, clearly distinct from the other two, was described and illustrated in L'Art Ancien, Zürich *Catalogue 44* (1954) No. 137.
41. The poorly preserved and heavily coloured Linz impression was reproduced by Gugenbauer, G., Kupferstiche und Einzelformischnitte des fünfzehnten Jahrhunderts in der K.K. Studienbibliothek zu Linz a. Donau. In, Heitz, P., *Einblattdrucke des fünfzehnten Jahrhunderts* 28 (Strasbourg, 1912) Pl.25.
42. Krüger, *Imago Mundi* VIII, *op. cit.*, 25.
43. For a description of the methods used see Woodward, David (ed.), *Five Centuries of Map Printing* (Chicago, 1975) 43.
44. *Ibid.*, 42. David Woodward's own chapter, *The Woodcut Technique*, has proved of great value in the preparation of this article. For anyone studying woodcut maps it is essential reading.

Nebenzahl Prize

The Hermon Dunlap Smith Center for the History of Cartography announces the establishment of the Nebenzahl Prize, to be given to the winner of the annual competition for the best scholarly, book-length manuscript written in English on any topic in the history of cartography. The prize provides an award of $US1,500 and publication by the University of Chicago Press. A manuscript may not be in contention for any other award that entails publication or under consideration by another publisher while it is being considered by the Nebenzahl Prize committee. The first competition is in 1978. There will be no award in those years when the prize committee judges that none of the manuscripts submitted to it are worthy of the Prize. This prize is separate and distinct from the Kenneth Nebenzahl, Jr., Lectures in the History of Cartography. For details please write to the Director, The Hermon Dunlap Smith Center for the History of Cartography, The Newberry Library, 60 W. Walton St., Chicago, IL 60610.