THE ENGRAVER WILLEM A CRUCE ($\mathbb{W}\,\wedge$) AND THE DEVELOPMENT OF THE CHAIN-WALE

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Introduction

In the fifteenth century shipbuilding techniques current in southern Europe gained influence in Flanders and the northern Netherlands. The best-known of these techniques was the method of planking, smooth carvel planking largely replacing the overlapping clinker strakes which were traditional in northern Europe. Reygersbergh recorded in 1551 that the shipwright 'Juliaen de Bretoen' built the first carvel-planked ship in the Netherlands in Zierikzee in 1459.[1] The new method spread rapidly to the north, presumably because it was much better adapted to the construction of large ships than clinker planking.

One may wonder whether the technique had not already been in use for some decades in Flanders. In 1439 Philip of Burgundy ordered, as Count of Flanders, the construction of a *nao* and a *carvel* in Brussels from the Portuguese shipwright 'Jehan Perouse'. The distinctive features of these variously named ships are still imperfectly known, but it is more than probable that they were carvel-built, the method of construction and the one type of ship both being named after the Iberian *caravella*. The connection between Portugal and Burgundian Flanders had been confirmed on the dynastic level by the marriage of Duke Philip to the Portuguese Princess Isabella; there is nothing unexpected about Duke Philip employing a Portuguese shipwright.

Direct trade between the two regions may have been enhanced by the extension of Hanseatic trade southward, and by the turbulent final phase of the Hundred Years' War between England and France, during which Normandy was occupied by the British (1415-1435). These events may have been important factors in creating a demand for larger ships, as purely coastal shipping had to be replaced by shipping over longer distances. We must bear in mind, however, that this is merely a guess, as we simply do not know what motivated shipowners in those distant times to take the risk of building larger ships.

The growth in tonnage of sailing ships has been the object of relatively recent archival studies, from which it is clear that in the second half of the fifteenth century the limit of c. 200 tons of the preceding period was raised fairly rapidly. Asaert

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[1] J. van Beylen, "Scheepstypen," in *Maritieme Geschiedenis der Nederlanden*, Deel 1, ed. G. Asaert, J. van Beylen and H.P.H. Jansen (Bussum, 1976), pp. 108-179.

mentions a *nef* of 300 tons built in Dieppe in 1466-1467,[2] while the *hulk* reached some 600 tons maximum capacity in the period 1470-1530. According to van Beylen the largest ships built around 1480 were *carracks* of 600 to 1000 tons.

The new method of planking disposed of what was probably the most important technological obstacle to increasing the tonnage of ships. It is certain, however, that a number of other, hardly less important problems concerning construction of the hull, masting and rigging had also to be solved. These secondary technological problems are not explicitly documented and often not even recognized: they have to be deduced mostly from the iconography by technological considerations.

The problem

The late fifteenth century anonymous engraver who signed his pictures as ᵂᴬ, appears to be one of the very few artists who recorded in their work the evolution of the technological response to a specific problem caused by the changes in the construction of sailing ships. As a result the increase in the forces transmitted by the shrouds the hull had to be reinforced locally by chain-wales or chain-plates where the shrouds were set up, as illustrated in the diagram reproduced here as Figure 1.
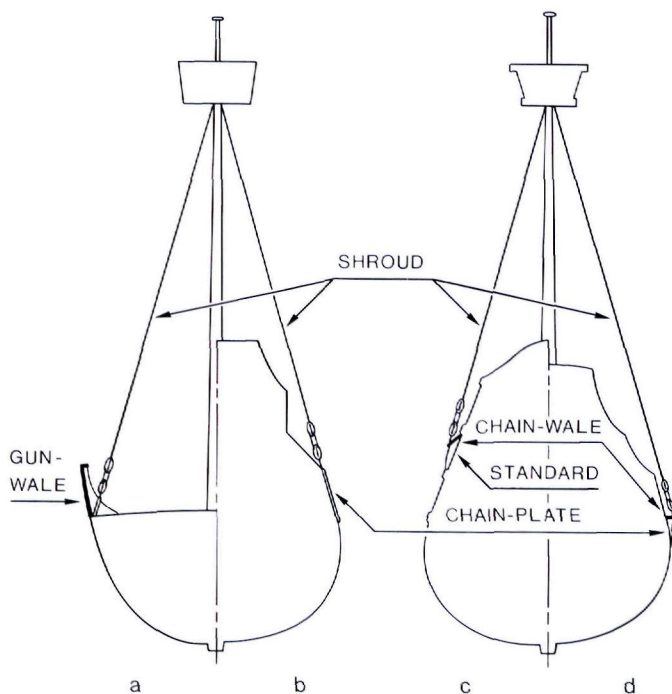
Figure 1 – Diagram illustrating the various methods for setting up the shrouds in a sailing ship, c. 1500, and the associated terminology. a. Within the gunwales, b. On chain-plates reinforcing the hull, c. On inclined chain-wales mounted on standards, d. On horizontal chain-wales.

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[2] G. Asaert, *Westeuropese scheepvaart in de middeleeuwen* (Bussum, 1976), pp. 101-113.
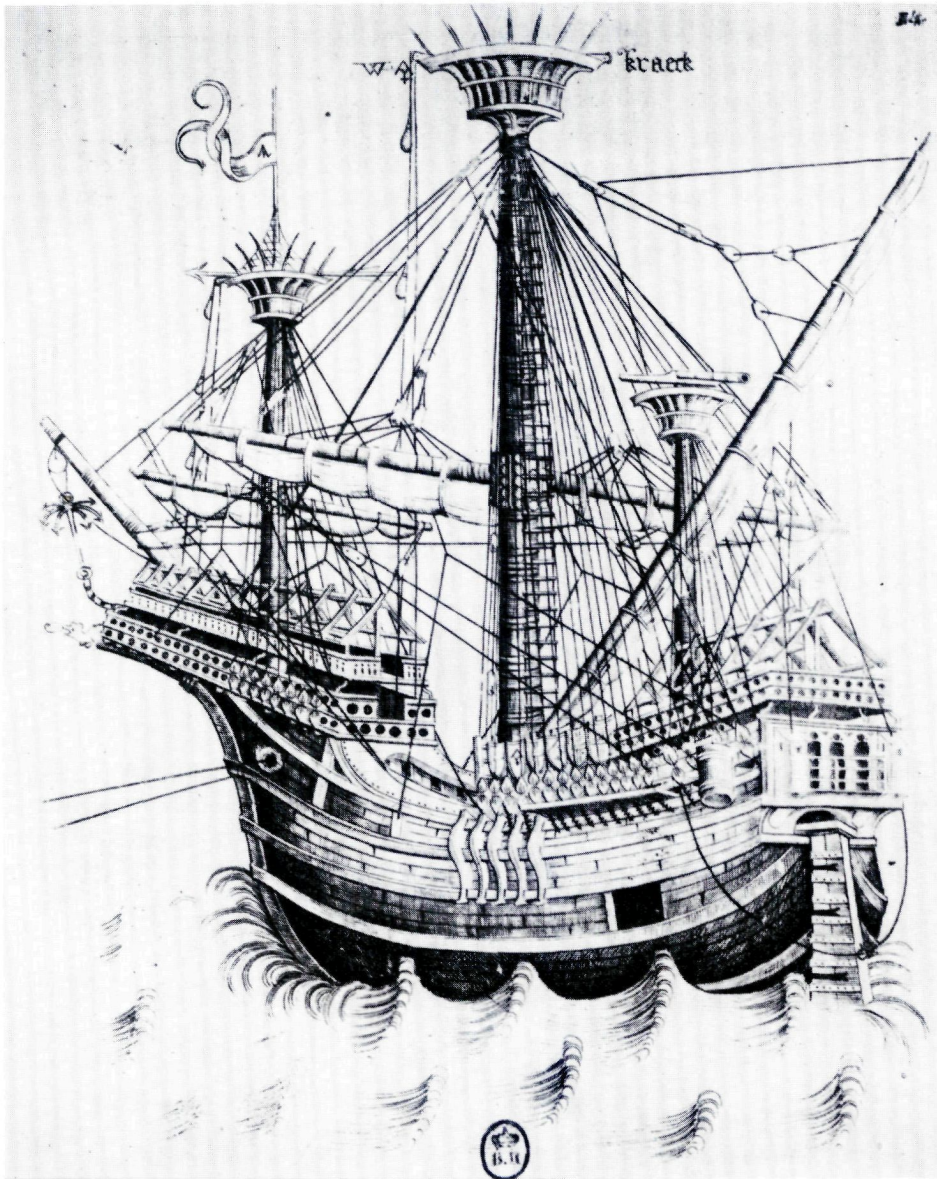
Figure 2 – The *carrack* (kraeck)

It might perhaps seem that the growth in size of the ships should not have caused any problem in setting up the shrouds. If all dimensions of a ship are increased by a certain scale factor, the forces exerted on the shrouds increase as the square of that factor, but so do their cross-sectional areas: there is no increase in the stress. However, in parallel to the growing tonnage, the proportions of the ships developed towards greater slenderness of the hulls. The simplest explanation for this is that the larger ships still had to use the same harbours, slipways and sluices as the smaller and older ones. The increasing slenderness caused the forces exerted on the shrouds to grow, as they were spread over a relatively smaller basis than before.

An examination of the ship's engravings of WA suggested yet another parallelism: it seemed that both the chain-wales and the artistic skill of the master had evolved side by side. But at this point a problem appeared, because although excellent work had been published on the artistic development of the master in general, so far the marine aspect of it had scarcely been considered. Closer study showed that particular development accorded well with what had been deduced earlier concerning the other aspects of his work. Associated with the problem of his development as an artist was the one of dating his work.

The starting point for the investigation of these problem was the best-known ship's engraving by WA which was entitled by him 'kraeck', i.e. *carrack* (Fig. 2).[3] It is a representation of what appears to be a fairly large, three-masted sailing ship. Morton Nance thought that WA "made his engraving not from an actual vessel, but from a drawing of a church ship model."[4] Although that seemed to me somewhat far-fetched, the observation inspired an investigation in a direction which apparently had not been considered before: was the engraving perhaps made in connection with the feast celebrating the marriage of Charles the Bold to Margaret of York in 1468, when during one of the banquets the roast meats were served on a few dozen large *carrack* models? Did the engraving represent one of these models rather than a full-sized ship? After all, Lehrs had suggested that the master WA had been employed by the Burgundian court.[5]

The entremets of Bruges and beyond

The known engravings of the master WA were published by Max Lehrs in 1895 in the book which we alluded to above, which still is an indispensable reference to the work of this important early engraver. His findings were later incorporated in a slightly expanded and updated version in his monumental work on German, French and Dutch engravers of the fifteenth century.[6,7] Lehrs was able to provide approximate datings for two of them, but one of the two is no longer attributed to the master WA.

It concerns a representation of St. Quirinus,[8] patron Saint of the small town of Neuss near Düsseldorf which in 1474-1475 was unsuccessfully besieged for 46 weeks by Charles the Bold and his army, reputedly the strongest in all Europe. The relief of the town caused a considerable stir at the time, and several engravers produced prints in celebration of the event in 1475. Lehrs attributed one of these to WA, but Kirschbaum-Braunfels give the Dutch master 'M';[9] if that refers to the master IAM

[3] M. Lehrs, *Der Meister WA. Ein Kupferstecher aus der Zeit Karls des Kühnen* (Leipzig, 1895), Pl. 30.

[4] R. Morton Nance, "A fifteenth century trader," *The Mariner's Mirror* 43, 1955, pp. 65-67.

[5] Lehrs (n. 3), *Der Meister WA.*, p. 16.

[6] M. Lehrs, *Geschichte und kritischer Katalog des Deutschen, Niederländischen und Französischen Stichs des XV Jahrhundert*, Band IX (Katalogband) (Wien, 1934), pp. 384, 492.

[7] Lehrs (n. 6), *Geschichte und Kritischer Katalog*, Band VII (Textband) (Wien, 1930), pp. 1-23.

[8] Lehrs (n. 3), *Der Meister WA.*, Pl. 19.

[9] E. Kirschbaum & W. Braunfels, *Lexicon der Christlichen Ikonografie*, Band VIII (Rom, Freiburg, Basel, Wien, 1976).

from Zwolle, he would indeed appear to be the more likely candidate.

The second engraving which Lehrs could date is a large representation of the arms of Charles the Bold,[10] which are surrounded by the arms of possessions of his House as they were before 1472. Alvin was of the opinion that these arms reflected Charles' position before he succeeded as Duke of Burgundy to his father Philip the Good, who died 15 June 1467.[11] It is only recently that Jongkees and Gras showed that that opinion was based on a misunderstanding concerning the heraldry.[12]

Wittert argued that the engraving was made in connection with the marriage of Charles to Margaret of York, sister of Edward IV, King of England, which was celebrated with great pomp in Bruges on 3 July 1468.[13] The arms of Charles of Burgundy were used on a large scale on that occasion for decoration. However, Lehrs did not take over Wittert's suggestion that the engraving had been made for the marriage, no doubt because he thought that at that time the arms as engraved were probably already outdated. Clearly, Wittert and Lehrs were not aware of the evidence that Charles originally had intended to celebrate the marriage one year earlier, when his father was still alive.

Preparations for the sumptuous festivities, which were on an unheard-of scale, were made in great haste during March and April 1467, and continued, after an interval of exactly one year, in April, May and June 1468, again in great haste. Their costs were recorded in a special account opened by Fastre Hollet, 'Contreroleur de la despense ordinaire de l'ostel' of Charles of Burgundy, of which a large part was published by de Laborde.[14] The reason for opening this special account was no doubt the expectation of heavy expenditure. In the event, the total cost of the preparations was 12,698 l. 12 s. 3d. [pounds Parisis], a gigantic sum of money for those times.

Hollet recorded twice that messengers were dispatched to towns in the Burgundian possessions "to cause the best workmen of the country to come, not only painters, but others as well." The first time was early in March 1467,[15] and it resulted in some two hundred artists and workmen coming to Bruges, but on 16 April 1467 the majority were paid off and dismissed and the festivities postponed.

This interlude lasted for precisely one year. On 17 April 1468 work for the preparations was resumed with full force, and Hollet again recorded the cost of sending "urgently two messengers on horseback to a number of towns, because there were not nearly enough workmen."[16] The urgency appears to have been even more acute than the year before.

Earlier commentators are silent on the suspension of the preparations. Nevertheless, it is perfectly clear from Hollet's account that it really took place. After the first payment on 16 April 1467 "before Easter" (which fell on 19-20 April 1467, and on 3-4 April in 1468), he carefully indicated the period for which the second payment

[10] Lehrs (n. 3), *Der Meister WA.*, Pl. 44.

[11] L.J. Alvin, "Les grandes Armoiries du Duc Charles de Bourgogne, gravées vers 1467," *Revue Universelle des Arts* IX, 1859, pp. 5-21.

[12] Private comm. G.A. Jongkees and P. Gras.

[13] A. Wittert, *Les Gravures de 1468* (Liège, 1877).

[14] L.E.S.J. Comte de Laborde, *Les Ducs de Bourgogne*, 2me Partie, Tome II (Paris, 1852).

[15] *Ibid.*, p. 342.

[16] *Ibid.*, p. 375.

was made: "du xvij^e jour d'Avril jusques au sept^e jour de May, l'an Lxviij."[17] None of the artists paid on the latter date had worked for more than 13 days, so there is no reason to doubt that the date of 17 April really refers to 1468. The reason for the suspension of the work is given in the account of 16 April 1467: "pour ce que le jour de la feste des noepces a esté continué [i.e. postponed] ..."[18]

The underlying reason for these extraordinary proceedings must probably be sought in Charles' impetuous rashness and inability to take advice. In the first instance the postponement was not due to any expectation of the death of Duke Philip – who died two months later after an illness of a few days –, but to the – foreseeable – time it took for the Pope to issue a dispensation for the marriage, and to the financial situation of Edward IV, who experienced some difficulty in amassing the dowry for his sister's marriage.[19] Regarding the engraving of the arms of Charles of Burgundy, the best explanation seems that it was made in 1467 as part of the preparations for the marriage. The decorations also served for the 11th Chapter of the Order of the Golden Fleece, which was held in Bruges on May 8, 1468.

An important part of the marriage festivities were the six banquets held on the eight days from the day of the marriage, Sunday 3 July 1468, to Monday 11 July. To us, the various displays that accompanied the courses or were presented in-between, the 'entremets', are of particular interest.

These have been described in the memoirs of a number of participants in the festivities. We shall use only Hollet's rather matter-of-fact descriptions of some of these entremets in which our master engraver may have had a hand. During the banquet at the end of the first day the roast meats were brought in on thirty models "of carracks which were about seven feet long and of a height which was in proportion ... which were made of wainscot boards, each having her main mast and her mizzen and foremast with all their rigging; and also the anchors and sails, the afore-mentioned masts and rigging and the shelters of the fore- and aftercastles were gilded with fine gold; the said castles bordered with blue, the hulls of the said ships painted black and nailed, with the heads of the nails gilded, and below were bobbing the waves of the sea made the colour of silver ... these ships were sitting on platforms of five feet in length ..."[20]

On the banquet of the second day the roasts were served in thirty tents and the pies were served in "thirty pavillions, built in wood by joiners and covered by fine taffeta of various colours, and all enriched by painting in gold, silver and blue, and at each pavillion there was a pennon with the arms of ML and at each tent two banners, and in addition each tent had four coats of arms of the great barons, vassals of ML ..."[21]

The carracks and tents find their counterparts in the work of the engraver WA, who depicted a *carrack* or 'kraeck' (Fig. 2) – perhaps the most famous of all his engravings – and who also made two engravings of tents,[22] one of them actually

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[17] *Ibid.*, p. 332.

[18] *Ibid.*, p. 342.

[19] R. Vaughan, *Charles the Bold* (London, 1973) p. 48.

[20] de Laborde (n. 13), "Les grandes Armoiries," p. 322.

[21] *Ibid.*, p. 325.

[22] Lehrs (n. 3), *Der Meister WA.*, Pl. 22-23.

bearing the arms of Burgundy. This parallelism supports the idea that the master WA was employed in the preparations of the marriage of Charles the Bold and Margaret of York. Among the 74 other engravings from his hand, a set of four designs of blank alliance coats of arms with helmets and mantlings[23] may reasonably be supposed to have been also made in connection with the marriage festivities.

The circumstances of the preparations in March-April 1467 would explain the use of engravings. These possessed the advantage that they could be printed in any desired number of copies, which enabled the artists and workmen to work simultaneously on a number of similar objects without too large differences resulting between them.

It is highly probable that the thirty *carracks* were produced simultaneously in parallel batches. The woodwork was made by a special team of 48 workmen who were ordered from the town of Sluys to go to Bruges. Among them were twenty shipwrights, and two sawyers for producing the wainscot boards, while the remainder were joiners. Together they worked approximately 150 man-days over a period of eight days. Thus, making the woodwork of one model *carrack* took these craftsmen some 5 man-days, which seems credible. As they were among the workmen dismissed on 16 April 1467 and as they were not reemployed, we know that the job had been finished by then.

The number of men working simultaneously on one model cannot have been more than about seven or eight. A reasonable supposition would be that the artisans formed groups working simultaneously on different models; for instance, six groups producing five models each, requiring at least one print of the desired result for each of the groups. Indications of the major dimensions together with the prints would have enabled an acceptable uniformity of these *carracks* to be attained.

The conclusion is that not only the large engraving of the arms of Charles the Bold should be associated with the preparations which were made in 1467 for the festivities of his marriage to Margaret of York, but that seven other engravings, of the *carrack*, the tents and the alliance coats of arms, were made for this occasion too.

Lehrs suggested that the master WA was employed by the Burgundian court at least temporarily for some years after the ducal marriage of 1468. A number of engravings[24] apparently showing exercises of cavalry, pikemen, halberdiers, etc. were regarded by him as possibly being connected with the Burgundian war of c. 1473. However, these scenes do not show actual combat, but are much more reminiscent of military drill. Possibly they were intended to illustrate the military ordinances of which Charles the Bold wrote a number. He was writing ordinances for his army (apparently for the first time) during the night before the battle of Saint-Trond against the army of the citizens of Liège on 28 October 1467 as Olivier de la Marche reported in his memoirs.[25] Consequently, the scenes of military exercises may well date from this time.

Important in the present context is Charles' policy of cowing into submission some of the towns of Flanders in which rebellion had been endemic for a long time. After having destroyed Liège in 1467 he caused the charters of the privileges of the

[23] *Ibid.*, Pl. 40-43.

[24] *Ibid.*, Pl. 25-29.

[25] H. Beaune et J. d'Arbaumont, *Mémoires d'Olivier de la Marche*, Tome 3 (Paris, 1886) p. 64.

town of Ghent to be cut to ribbons by the public executioner. Regarding Bruges, it appears that its guilds were not allowed to have any part in the preparations for the marriage, hence the employment of shipwrights and joiners from the town of Sluys. Moreover, in Hollet's account no direct payment is recorded to any artist or work-man from Bruges.
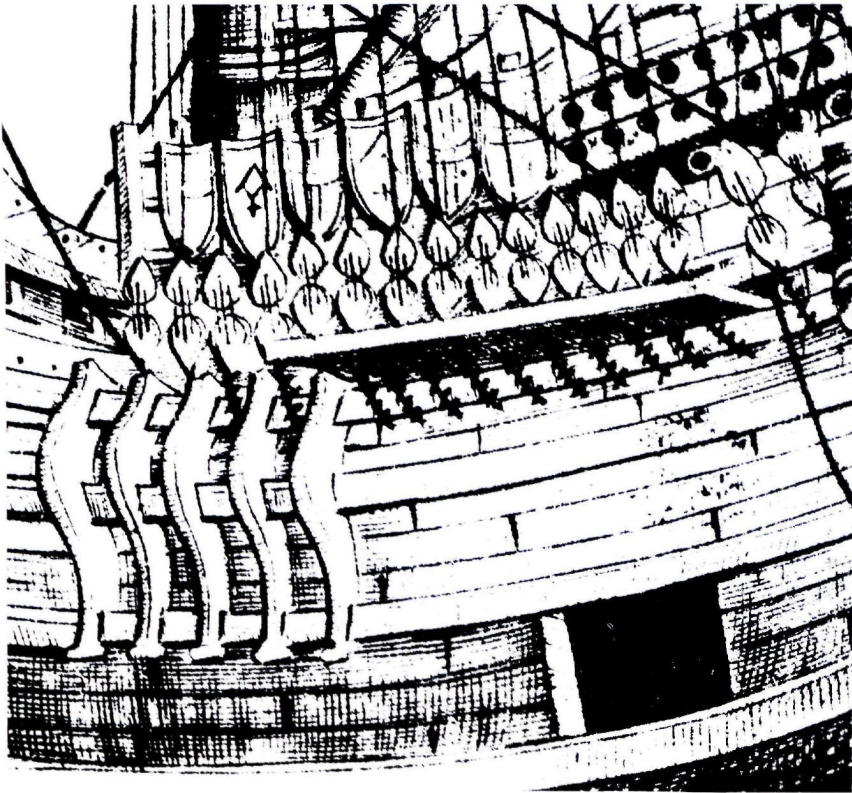

Figure 3 – Enlarged detail from Figure 1, showing the pavesade and the horizontal chain-wale of the large *carrack*.

Search for the identity of WA

Max Lehrs' comparative study of the watermarks in the paper on which the engrav-ings of WA were printed showed that most of them were characteristic of the Netherlands and the Rhineland.[26] Three of these watermarks, however, were as-sociated not only with the master WA, but specifically with other engravers who worked in Bruges. For example, the watermark representing a running dog with a flower is otherwise only found in the paper used by the anonymous illustrator of the Boccaccio edition published by the Brugian printer Colard Mansion in 1476. There

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[26] Lehrs (n. 7), *Geschichte und kritischer Katalog*, Textband VII, pp. 20-23.

is no reason to doubt Lehrs' generally accepted conclusion that the master WA lived for at least part of his professional life in the town of Bruges, although it would seem likely that he came to live in Bruges only after 1467 if he was involved in the preparations for the marriage feast.

A number of documents from the fifteenth century in which one may reasonably expect to encounter his name are extant. The special account kept by the Burgundian court official Fastre Hollet for the preparation of the entremets of Bruges has already been mentioned. The essential points in the published version were checked against the original which is in the Belgian State Archives in Brussels.[27]

In addition, the 'Régistres aux Renouvellements de la Loi de Bruges et des Serments des Corporations' constitute a valuable source which gives the names of the principal guild officers for each year. Extracts of those of the Painter's Guild have been published by vanden Haute,[28] together with the Entry Register of New Masters and Apprentices, and an Obituary of the Masters of the Guild. The yearly register of names of the officers of the Silversmiths' Guild – which included the goldsmiths as well – have been entered in a card index system by the Municipal Archives of Bruges which is available for consultation.

If the master was originally not from Bruges, he would have been registered in the 'Poortersboek' (Register of Admission of Burgesses) covering the period when he was admitted as a burgess. The 'Poortersboeken' from 1430 onward – with a few gaps – are still extant, and useful summaries of them have been published by Parmentier.[29]

The investigation of WA's identity commenced with a scrutiny of the sources for persons whose names correspond to the initials WA or AW, and who lived in Bruges in the second half of the fifteenth century. That yielded a few names, none of which occurred in more than one source. Clearly, the attempt to match names mentioned in these sources to the initials WA or AW does not lead anywhere, which explains, incidentally, why no identification has been proposed earlier.[30]

This negative conclusion instigated a search in a different direction, viz. one based on the elementary heraldry (Fig. 3) exhibited on the six shields on the pavesade of the engraving of the *carrack* or 'kraeck'. The arms depicted on three of the shields contain no more than a large cross. One of the others repeats the master's monogram ⚹ , as first remarked by Lehrs, one consists of a chevron with a small cross underneath, and one is a large cross with a dot in the centre of each quarter. Comparison of these arms with those in the volumes of both the *Dictionnaire des Figures Héraldiques* of de Renesse[31] and the 'Planches' of the *Armorial Général* by Rietstap[32] gives the following results, which are illustrated in Fig. 4:

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[27] No. B 1934.

[28] Ch. vanden Haute, *La Corporation des Peintres de Bruges* (Bruges, Courtrai, 1913).

[29] R.A. Parmentier, *Indices op de Brugsche Poortersboeken* (Brugge, 1938).

[30] Lehrs (no. 7), *Geschichte und kritischer Katalog*, Textband VII, p. 1.

[31] Th. Comte de Renesse, *Dictionnaire des Figures Héraldiques*, 7 Tomes (Bruxelles, 1897-1903).

[32] H.V. Rolland (J.-B. Rietstap), *Planches de L'Armorial Général de J.-B. Rietstap* (La Haye, 1926).

(i) Arms with a large central cross and crosses in the quarters (a) were carried by the family van Cruyshoek and Kruysse;

(ii) Arms with a large central cross and sixpointed stars or five-pointed rowels in the quarters (b) were carried by the family vanden Cruce (using the most common variation on the name only);

(iii) Arms with a chevron and only one small St. George's cross underneath are not to be found in these volumes, but a chevron with one small St. John's cross underneath (c) was carried by the family Verbis, and by the Austrian family Glan;

(iv) Arms with a chevron over a small St. George's cross, with two small superior St. Andrew's crosses (d), were carried by the family Vercruyssen;

(v) Similar arms, but with two St. George's crosses above the chevron, one on each side (e), were carried by fifteen families: Auvray de Meurville, Bacilly, Croix, Croisy ... de Schacht, Vauxmarcus;

(vi) Arms with a large central cross were carried by the families Kruys, Crucius etc., and also by innumerable other families.
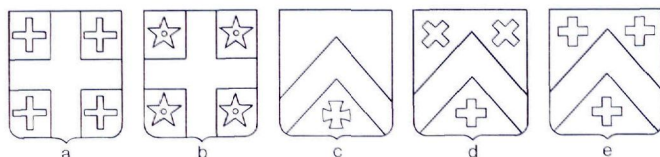

Figure 4 – Coats of arms, copied from Rolland (1926) for comparison with those visible in Figure 3.

From this scrutiny, three tentative conclusions may be formulated:

1. The master WA's family name was something like 'Vercruyssen', 'vanden Cruce', 'Kruys', or 'Croix', all indicating an origin from a place called 'Kruis' (Eng. Cross), perhaps St. Kruis near Bruges, although in the case of the family vander Cruyce it is known that they originated from ter Kruis (Croix), a small village between Rijssel (Lille) and Robeke (Roubaix).

2. He had no right to carry the arms of any of the above-mentioned families, so he placed his own initial △ in one of the shields.

3. We should perhaps read that initial not as a decorated 'A', but as a cross to which an 'A' was affixed, as when it would have carried the meaning 'a Cruce', which would be the Latin rendering of 'Vercruyssen' or 'vanden Cruce'.

Although no 'vanden Cruce' is mentioned in Hollet's account of the preparation of the entremets of Bruges, the name does occur a number of times both in the list of officers of the Goldsmiths' Guild at Bruges, and in the Register of Admission of Burgesses. In the latter, amongst several entries of vanden Cruces with different Christian names, there is only one which corresponds to the initial 'W'. This concerns: "CRUCE (VAN DEN), Willem, filius Gillis," born in "Curtrycke" (Courtrai), admitted on 24 July 1480, "omme bevryt te zine int ambocht vanden goudsmeden ... ende dat zelve metter hand te doene" (to be franchised for the goldsmiths' trade ...

and to perform the same by his own hand).[33]

The name 'Gillis vanden Cruce' also occurs eleven years earlier in the same Register. Is it probable that that person was identical to Willem's father, mentioned in 1480? In order to answer this question, a sample of approximately three hundred names was culled from the sources which were available for this period. It was found that the name Gillis, including variants, such as Giles and Gilleken, occurs with a frequency of about one in fifty, which implies that it is highly probable that the burgess newly admitted in 1469 was indeed Willem's father. He was registered as "CRUCE (VANDER) Gillis, filius Lodewycx," on September 1469[34]. His place of birth is indicated as follows: "vander Cruce by Ryssele," i.e. he hailed from the village ter Kruis near Rijssel (Lille). His occupation is not mentioned.

Variants of the name 'vanden Cruce' were registered earlier in the 'Poorters-boeken' of Bruges but these referred to persons who did not originate from ter Kruis or its vicinity, so they probably did not relate to Gillis and Willem.

The interesting point is that Gillis apparently called himself after his place of birth when he was enrolled as a burgess of Bruges. He was consequently probably not born with that family name, but with another, and started calling himself 'vander Cruce' only some time after he had moved away from his native village. Such a change of name was not at all uncommon in those days. If it occurred around the time when Gillis' son Willem started his career as an engraver, the latter could have been mentioned in Hollet's account under the earlier name, while he signed his plates already as WA.

Is there an indication in Fastre Hollet's account that there was a 'Willem' working in 1467 on the entremets, who did not as yet call himself 'vanden Cruce'? There were, in fact, five 'Willems' in the books, who were all paid on 16 April 1467: W. Colleman, W. up de Zwanne, W. Lescouffle, W. van Ronce and W. de Vuwe. Only the last two were employed later, while W. Colleman had two assistants, viz. Pietre Zwanart and Hans van Heulle,[35] for whom he received payments.

This is about as far as this line of search can bring us. However, the engraving of the 'kraeck' contains one more clue which may help in identifying WA. The pennant on the foremast includes a monogram (Fig. 5) which can be read as 'PvA' in the most plausible way, and as 'AvP' somewhat less so. Earlier, Winter (1956)[36] thought that this monogram was formed by the capitals 'W' and 'A', but it appears that this assumption is based on poor observation, or on a poor reproduction of the print.

It is in this connection of interest that Morton Nance thought that the *carrack* was different from the other ship's engravings by WA: "being engraved probably, from a drawing by a different hand ..."[37] Does the monogram 'PvA' (or 'AvP') stand for that 'different hand'?

There is only one name of a painter in fifteenth-century Bruges that would fit

[33] Parmentier (n. 28), *Indices Brugsche Poortersboeken*, Deel I, pp. 754-755.

[34] *Ibid.*, pp. 552-553.

[35] de Laborde (n. 13), *Les Ducs de Bourgogne*, p. 334, whose reading 'Hans van Treulle' has been corrected on the basis of the MS of Hollet.

[36] H. Winter, *Die Katalanische Nao von 1450* (Burg bei Magdeburg, 1956), p. 32.

[37] R. Morton Nance, "A fifteenth century trader," *The Mariner's Mirror* 1, 1911, pp. 65-67.

the monogram; it is that of Pieter van Aerde, who is mentioned several times in the Entry Register of the Painter's Guild. In 1458-1459 he was admitted as a master painter, in 1459-1460 he is mentioned as the patron of the apprentice Cornelken Willaert, and in 1461-1462 he was one of the six 'vinders' (inspectors) of the guild.
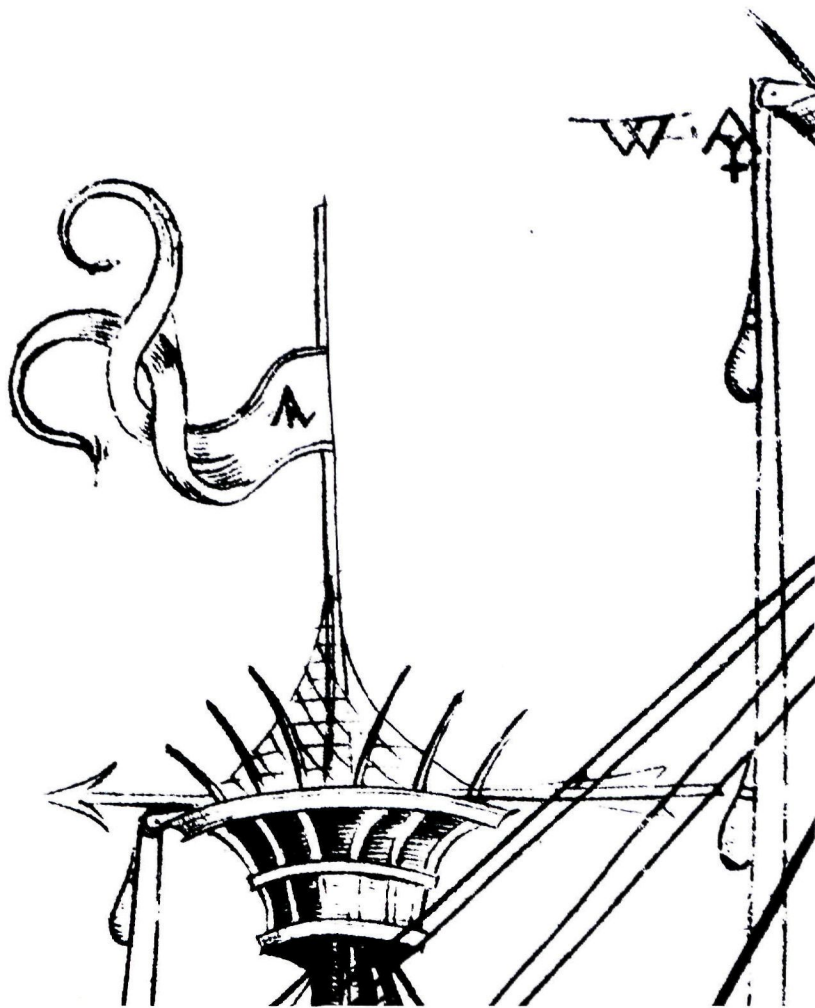
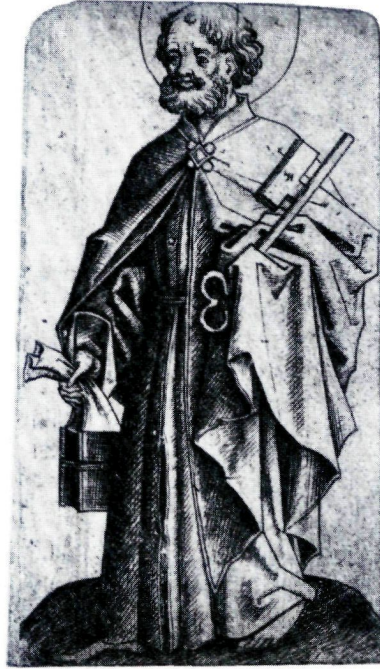**Figure 5** – Enlargement of the pennant of the *carrack*.

Figure 6 - Small picture of St. Peter, unsigned, but engraved in WA's typical style.

No 'Pieter van Aerde' figures as such in Hollet's account, but it seems possible that a version of his name, viz., 'Petrus van Aerd' was written down phonetically by Fastre Hollet as 'Pietre Zwanart', one of persons for whom Willem Colleman received payment. It was verified that the name 'Zwanart' does not occur elsewhere in our sources.

If no Brugian guild member was allowed to take part in the preparations, Hollet's phonetic spelling of the name may have been intentional. It may also help in explaining why the master painter van Aerd was entered in the books as a helper of the probably youthful engraver WA, while his role was more probably that of a tutor. In any case, if Pieter van Aerd was identical to 'PvA' and to 'Pietre Zwanart', it implies that the original name of Willem vanden Cruce' was 'Willem Colleman'.

Circumstantial evidence supports this tentative conclusion: among the artists who worked for the entremets in 1467 there was a 'Giles Colleman' who was not temporarily retained, as was Willem, but who was paid off and sent back immediately after 16 April 1467.[38] He was listed as one of the "paintres et autres ouvriers de Cambray, Arras et Douay," while in the case of Willem his provenance was not stated by Hollet. (It must be noted that these towns are not birthplaces, as in the 'Poorters-boeken'.) It is not certain, of course, that Gillis Colleman was the father of Willem, but the infrequent combination of the two first names Willem and Gillis of the Collemans and the vanden Cruces does constitute an additional argument that they were identical.

It is of interest that not only Pieter van Aerde, but Hans van Heulle too, may have had his monogram appearing in one of WA's prints. A systematic scrutiny of all engravings yielded another monogram of tiny size on the huge key which St. Peter carries, in an engraving (Figs. 6 and 6a) which does not seem to form part of any

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[38] de Laborde (n. 13) *Les Ducs de Bourgogne*, p. 344.

series, but stands alone. WA made one other engraving of St. Peter which forms part of a series of pictures of the apostles. The 'JvH' in the monogram probably refers to Hans (Johannes) van Heulle.

Figure 6a – Enlargement of the small monogram in the previous engraving.

In contrast to the case of Pieter van Aerde, there are other names of painters in the books of the Painter's Guild which would fit the initials too. These names are given below with the status of the artist in the guild, if known, and, between brackets, the date of the first mention: Jan van Haps, apprentice (1473), Jacob van Hazenhiele, apprentice (1476), Jan van Hazenhiele (1474), Jan van Heecke, apprentice (1477-1478) and Joos van Heecke, apprentice (1480). It is unlikely, of course, that apprentices admitted in the 1470's could have been employed in the preparations for the entremets in 1467. This consideration leaves us, besides Hans van Heulle, only Jan van Hazenhiele – of which we do not know for certain that he was an apprentice, although it seems very probable, because he is not mentioned earlier.

Presumably, the artist JvH provided the drawing from which WA produced the engraving. He may have made it around 1467, when Hans van Heulle and he worked together for the entremets, implying once again that WA was identical to Willem Colleman.

It seems then, that we may at least provisionally conclude that just around the time that they worked on the entremets of Bruges, Willem and Gillis Colleman started calling themselves 'vanden Cruce', and Willem began signing his engravings as ᴡ⩑, i.e. Willem a Cruce, his Latin 'nom d'artiste'. The picture of the 'kraeck' was engraved after a sketch made by the painter Pieter van Aerde who used the monogram 'PvA', and that of St. Peter after one by Hans van Heulle, who used the monogram 'JvH'. Eventually, first Gillis vanden Cruce returned to Bruges, where he was admitted as a burgess in 1469, then Willem vanden Cruce did the same in 1480.

A number of years after his admission as a burgess of Bruges, on 2 September

1496, Willem vanden Cruce became a 'vinder' (inspector) of the Goldsmiths' Guild, and presumably he performed the same function in 1501, when he is simply mentioned as a 'goldsmith'. In 1513 he is registered as a 'waranderer' (certifier), and he is thrice mentioned as a dean of the guild: in 1508, in 1517 and in 1527. Moreover, 'Willem vanden Cruce goudsmet' is mentioned in a charter issued by the Magistrate of Bruges on 18 October 1493, as a person who was obliged henceforth to pay a dividend of 12 s. per annum on the mortgage on two stone houses in his possession to the Foundation for the Poor of the Church of Our Lady endowed by the guardians of the young Pieter Lanchals on his behalf.[39]

The long active life of our master, who must already have had a reputation as an engraver in 1467, and who was a dean of the Goldsmiths' Guild in 1527 is certainly exceptional, but not impossible. If he was a sort of prodigy in engraving, about twenty years old in 1467 (which may perhaps partly account for his early fame) he lived to be eighty in 1527, which was not unheard of. We may recall here that his older contemporary Thomas a Kempis died in his ninety-second year in 1471. The possibility that there were two goldsmiths Willen vanden Cruce may be ruled out, as the documents do not contain any indication of an older or younger contemporary of the same name and profession.

A Cruce's development as a marine artist

An analysis of WA's work from the viewpoint of the historian of art was presented in a thesis by Boerner.[40] He characterized WA as a "richtiger gotischer Vorlagestecher für das Handwerk," (characteristic gothic engraver of exemplary designs for the crafts). That accords well with our conclusion concerning the function of the prints as being probably made for the entremets of Bruges, although these were not taken into account by Boerner, who merely tried to answer the question as to what purposes the models depicted in the engravings might have served, and to what craft the master might have belonged.

He could not answer the latter question entirely successfully, but Lehrs later argued convincingly that the particular skill of the master WA in the crafts was that of the goldsmith. This is not at all unexpected: the early engravers of the fifteenth century were often goldsmiths, such as WA's contemporary Israhel van Meckenem,[41] who produced an enormous number of engravings, partly consisting of copies of work by others, including WA. He also somewhat unscrupulously affixed WA's initials to earlier engravings of the anonymous master ES, presumably in order to obtain better sales of these. This episode implies that the master WA was at least a well-known artist by that date, which Boerner estimated at 1475-1480.

Boerner subdivided WA's graphical work on stylistic grounds into three periods: an early period from 1465 to 1470, a main period centred around 1480, and a late period, characterized by a certain virtuosity, in both representation and execution,

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[39] J. Gailliard, *Inscriptions funéraires & monumentales de la Flandre Occidentale, avec des données historiques et généalogiques*, Tome 1, 2me Partie (Bruges, 1861), pp. 444, 451.

[40] W. Boerner, *Der Meister WA* (Thesis Univ. Bonn) (Borna, Leipzig, 1927).

[41] A. Warburg, *Israhel van Meckenem* (Bonn, 1930).

around 1485. This scheme was intended as an improvement on Lehrs' iconographical ordering in which prints on the same theme were arranged together. Unfortunately, Boerner did not handle his stylistic analysis entirely consistently. Thus we find the ship's engravings treated as one category to which a date around 1475 is assigned, although the engraver's development as an artist is evident if we compare some of the engravings within this category.

The hull of the ship at anchor (Fig. 7),[42] for instance, is drawn rather poorly, suggesting curious distortions in the hull, and the same is true of the ship of which the yard, which carries a sail, has been let down, while the engraving of a vessel under sail (Fig. 8)[43] is a much more skillful rendering of a ship. Differences of the same sort appear also in the details of these engravings, as, for instance, in the manner of representing the waves. Evidently, the engraving of the ship under sail is from the late period, while those of the ship riding at anchor and of the ship with the yard let down must be assigned to the early one.
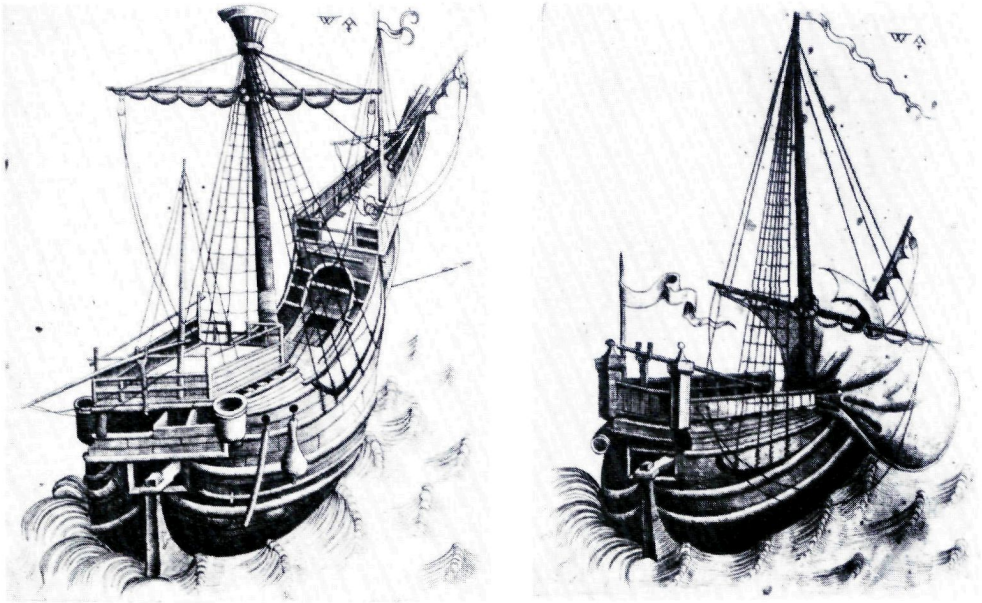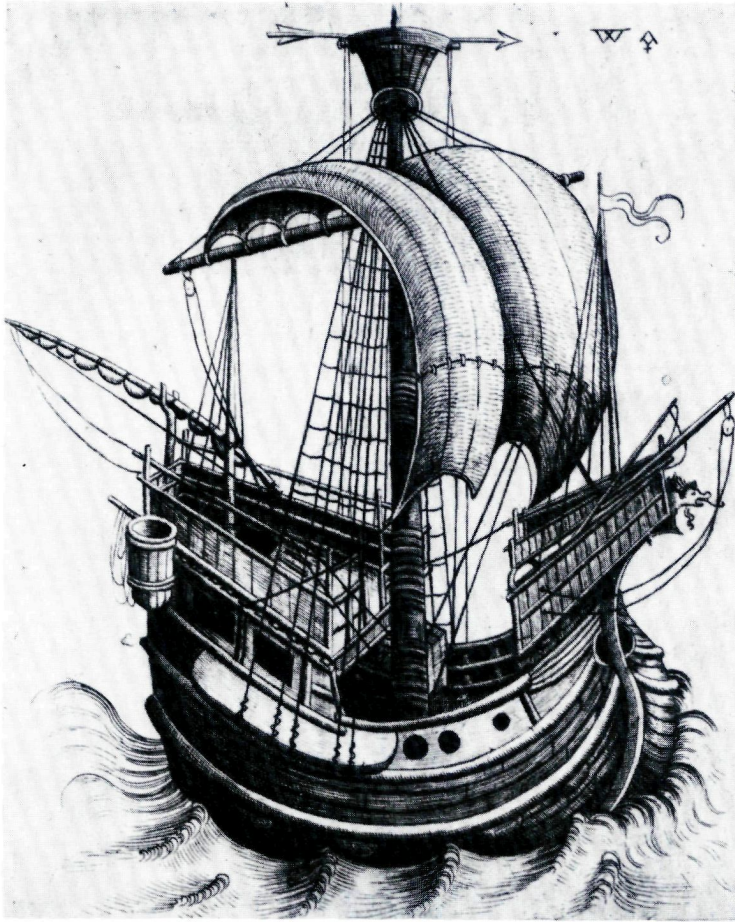

Figure 7 – Left: Small roundship at anchor. Right: Ship, probably a herring buss, with lowered yard. The chain-wales in these engravings appear to consist of a doubling of the strake where the shrouds were set up.

[42] Lehrs (n. 3), *Der Meister WA.*, Pl. 32 and Pl. 34.

[43] *Ibid.*, Pl. 33.

Figure 8 – *Small roundship under sail. The chain-wale is clearly a board projecting sideways.*

It seems that the original engraving of a fishing vessel by WA of which Israhel van Meckenem made a mirror image copy (Fig. 9)[44] is now lost. In 1934 Lehrs was obliged to state "it was the only instance where it was not possible for me to indicate the differences between Israhel's copy and the original by the master WA, because I was not allowed to reproduce the unique copy which I saw in 1881 in Militsch (Silesia), while the 'Maltzan' collection has since become entirely inaccessible." The whereabouts of this collection, if it still exists, are presently not known. The type of ship in Israhel's copy may be identified because it is very similar to one entitled 'harinck buys' depicted in the map fragment of the 'Caerte van der oosterscher Zee', engraved by Jan de Beeldsnijder van Hoirne in 1520.[45]

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[44] *Ibid.*, Pl. 35a.

[45] B. van 't Hof, *Het Boek XXXI* (Groningen, 1953).
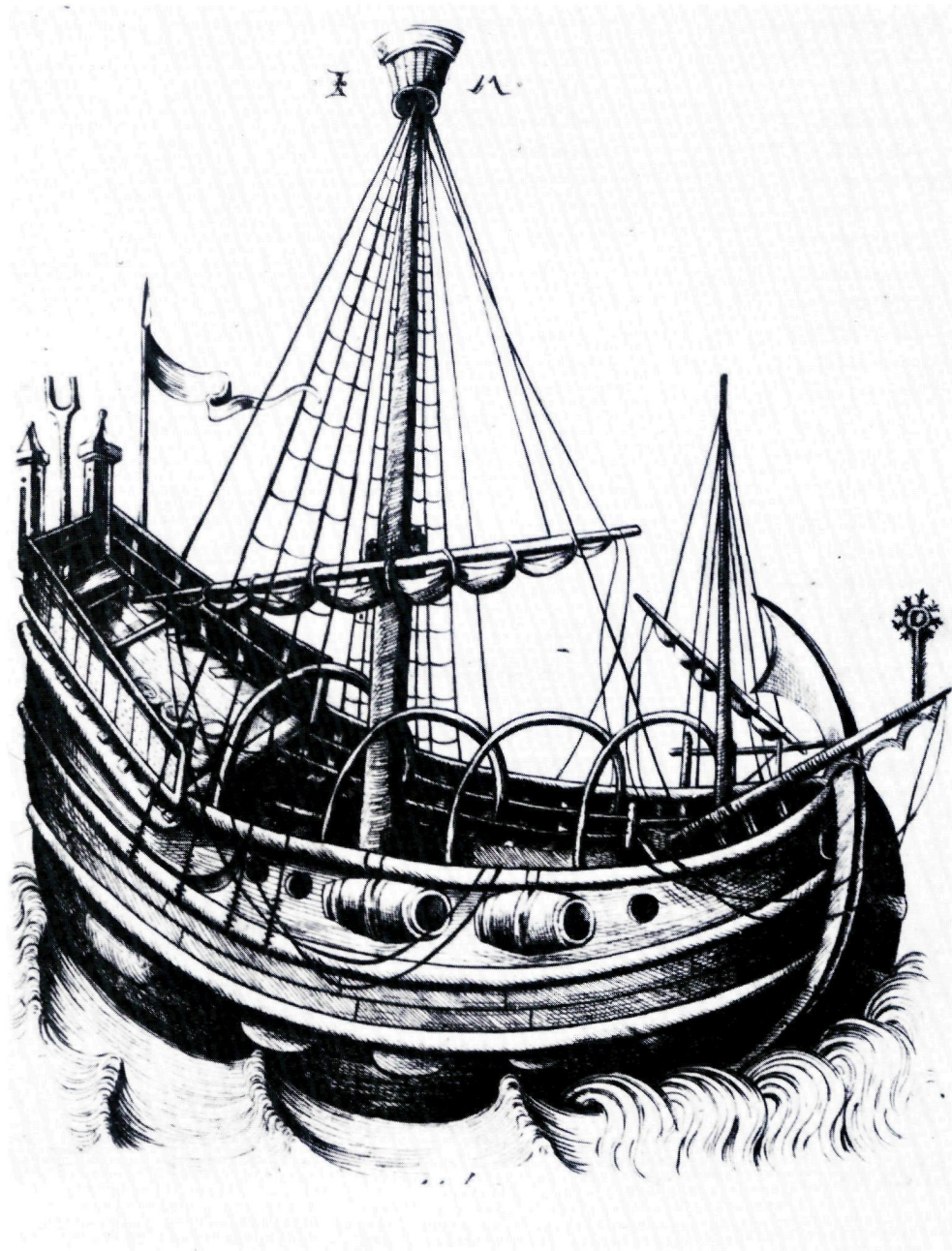
Figure 9 – Reverse image copy by Israhel van Meckenem of WA's picture of a herring buss. It is not entirely clear whether the locally doubled strake was intended as a chain-wale; this uncertainty is probably due to Israhel's copying.

Lehrs should no longer be followed in his attribution of two unsigned and crudely executed engravings of ships[46] to the master WA; these are more probably by a different engraver. That leaves us the following ship's engravings – all signed – by our master: the engraving of the 'kraeck' (Fig. 2), of the shipwrecked 'baerdze' (Fig. 10),[47] the two engravings discussed earlier in connection with the master's development (Fig. 7), together with a picture of a sailing vessel under a billowing mainsail (Fig. 8), which, with its skilfully drawn hull must be assigned to the late period of his artistic development.

Dating the engraving of the 'baerdze' (Fig. 10) causes no problem. On stylistic grounds one would assign it to the main period of the master's engraving activity, i.e. around 1480, and there are no arguments to the contrary. The picture of the herring *buss* copied by van Meckenem (Fig. 9), should be placed in the period immediately following.
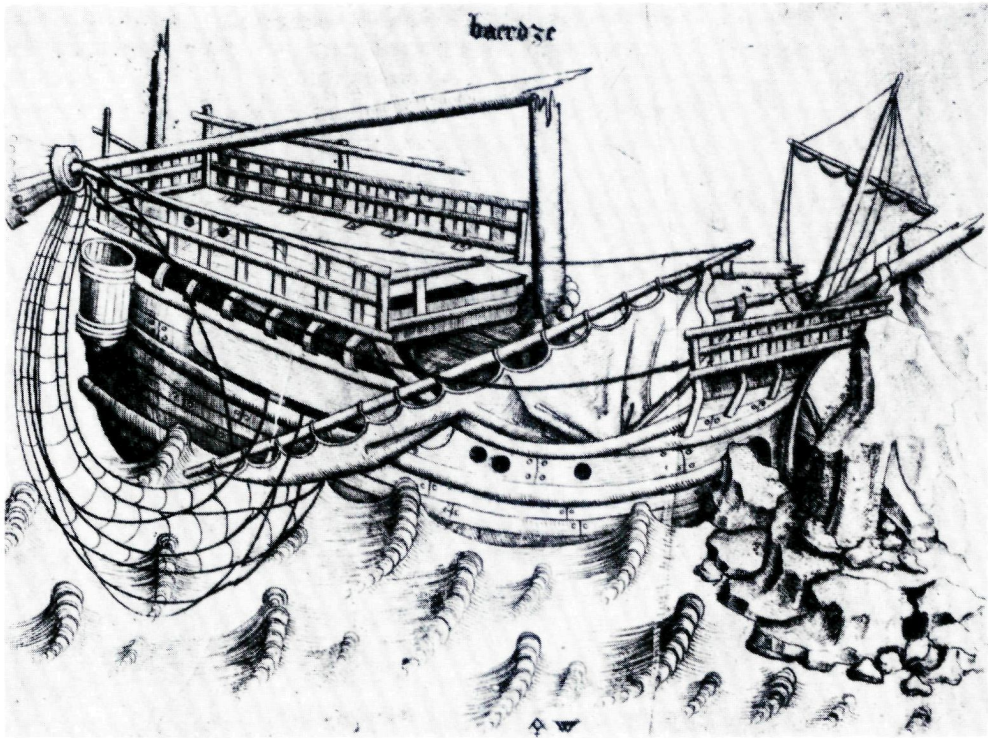
Figure 10 – Baerdze (barge). The chain-wale is separate, but nearly parallel to the strake underneath it.

Assigning these ship's engravings to different periods on the basis of their stylistic qualities leads only in the case of the 'kraeck' to a difficulty. We have already argued that the engraving was made for the entremets of Bruges in 1467, but there is much in this particular engraving which exhibits the virtuosity of a Cruce's later period of

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[46] Lehrs (n. 3), *Der Meister WA.*, Pl. 36 and Pl. 37.

[47] *Ibid.*, Pl. 31.

c. 1485. In addition, the chain-wales are of a type which would accord much better with a date around 1490 or later than with 1467, as we shall see.

The problem could be resolved because it appeared that the original engraving was worked over at a later date. What seem to be traces of not entirely obliterated detail from an earlier state of the engraving are clearly visible in the enlargement (Fig. 3), between the rectangular loading port in the side and the chain-wale above it. It seems that the partly removed detail depicted a loading port which was situated somewhat higher and more aft than the one shown.

The reason for moving the loading port to a lower position after the chain-wale had been added is readily understood. Goods entering a loading port were often suspended from the great yard, which was used as a crane. A chain-wale as broad as the one in the engraving and situated immediately above that port would have rendered this way of loading the ship an impossibility. This problem, which would have been obvious to a Cruce and his contemporaries was obviated by the new location of the port.

The early stages of development of the chain-wale documented in a Cruce's prints were assigned approximate dates in the foregoing which were based on Boerner's historical analysis of the development of his artistic skills.[48] This development began in 1465, and it reached its final stage around 1485. The appearance of the horizontal form of the chain-wale in the engravings of the late period would synchronize somewhat better with other dated documentation if the master's final period of activity would have extended to c. 1495.

The assumption modifies Boerner's periodization scheme, which is entirely based on the implicit hypothesis that a Cruce's style of engraving followed the changing trends in that art. But if his style of engraving became stationary after c. 1485, Boerner's artistic criteria cannot be used for determining dates beyond that time. The reason why a Cruce's artistic development may have stagnated after c. 1485 can perhaps be sought in the impoverishment of Bruges after c. 1486, when most foreign merchants left the town during the last stage of its violent conflict with Maximilian of Habsburg, Prefect of Burgungy.[49] Their moving away became permanent because sea-going shipping found it increasingly difficult to reach Bruges. The Zwin, the natural waterway linking the town to the sea, rapidly silted up in that period. Desperation about this threat to the prosperity and might of Bruges may have contributed to the episode of Maximilian's captivity in 1488. In the subsequent period Bruges began to resemble a ghost town, 'Bruges la morte', as it was known later.

Setting up the shrouds

In pictures of ships dating from the second half of the fifteenth century chain-wales are still seldom to be seen. The shrouds were mostly set up on deck between the gunwales for the larger ships, or on the gunwales for the smaller ones. Our engraver is exceptional in that in all his ship's engravings the shrouds are set up on chain-wales, although it is only in the engraving of the *carrack* that the method by which

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[48] Boerner (n. 39), *Der Meister WA*, pp. 81-83.

[49] J. Gailliard, *De Ambachten en Neringen van Brugge* (Brugge, 1854), pp. 127-131.

the shrouds were set up taut can be recognized. In the other engravings the only indication of such a method is a doubling of the lower end of the shroud by a rather meaningless zigzag line.
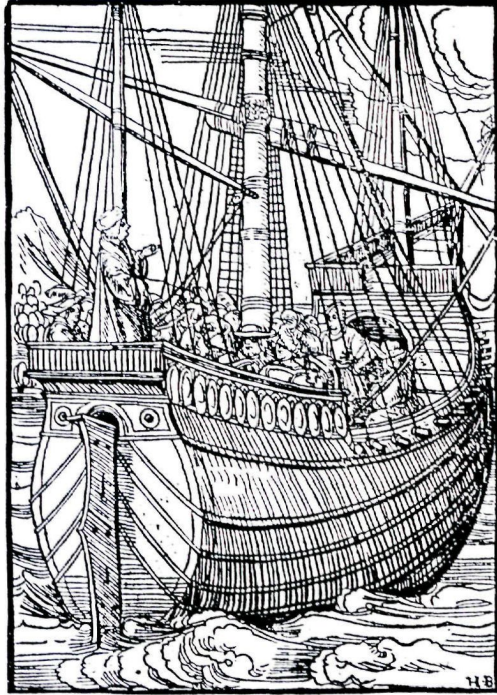

Figure 11 – Ship by Hans Burgmair (1511).

The greater forces on the shrouds in the larger ships required new methods of setting them up taut. As far as we can judge from the available evidence, at least three different methods were widely used earlier in medieval times. One appears to have been a large-scale version of the keys which were used in musical instruments for tensioning the strings: in this case large pegs, probably slightly conical, around which the ends of the shrouds were wound. These pegs were probably turned by hand-spokes. A late (1551) woodcut (Fig. 11) by Hans Burgkmair gives a good illustration of the method. Brindley suggested that the pegs were equipped with ratchets and pawls,[50] but it seems equally possible that they were held in position by friction, which is definitely more in the style of the technology of the time.

Another method appears to have been twisting the ropes of which the shrouds consisted by means of toggles fastened at their ends. The toggles were held against the gunwale, near the holes through which the shrouds passed. Twisting the end of right hand laid rope to the left caused the rope to shorten, or, failing that possibility, to develop a tensile force (Fig. 12). Twisting left hand laid rope to the right would have had the same effect. Some medieval miniatures actually show the toggles, although not often in a workable manner, but they are found in a most interesting model-in-the-round, the silver 'Schlüsselfelder' ship of Nuremberg (Fig. 13), dating from c.

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[50] H.H. Brindley, "A ship of Hans Burgkmair," *The Mariner's Mirror*, 3, 1913, pp. 81-84.

1503.[51]

It was argued by Kohlhausen that the master silversmith who made the 'Schlüsselfelder' ship (perhaps Albrecht Dürer Sr.) used WA's 'kraeck' as an example. In fact, the similarity of many details convincingly supports that idea; concerning the differences, Kohlhausen remarks that the silversmith omitted constructions which were added to the hull and which interfered with the curvature of its lines. It would seem that this refers primarily to the chain-wales, although the change is more than merely an omission. Is it possible that the silversmith had an earlier state of WA's print at his disposal and simply followed it as regards the method of setting up the shrouds and backstays?

Figure 12 – Rope, right-hand laid (a), which can be shortened (b), or lengthened (c) by twisting or untwisting.
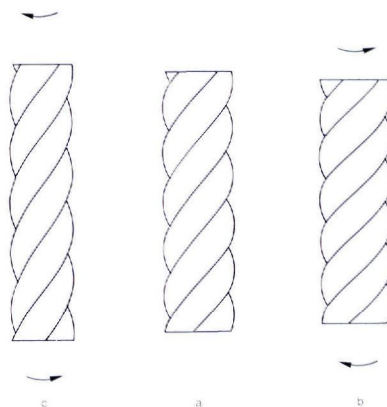
A third method consisted of hauling down the shroud by a purchase, using a block with one sheave or a euphroe (block without sheave), which gave a mechanical advantage of 2. The newer method using lanyards and a pair of deadeyes is a development from this early method (Fig. 14). If the deadeyes contained three holes each, as they customarily did, the mechanical advantage was 5. The method seems to appear around the same time as the chain-wale, often in conjunction with it. The reason may be that the new tensioning device was much more effective in generating a tensile force in the shrouds than the earlier ones. If that large force was allowed to act on a point of the sides which were planked by the new carvel method, the risk of opening the strakes was considerable: local reinforcements were needed.

As an alternative to the chain-wale, approximately vertical long wooden chain-plates were sometimes used to reinforce the hull (Fig. 1b), as in the *carracks* depicted by Hans Memling in 1480 in his painting 'The Seven Joys of the Virgin'.[52] The use of this type of reinforcement was probably limited by the requirement that the inclination of the sides should be more or less in line with that of the shrouds.

The interesting point is that the chain-wales depicted in the two ship's engravings which must belong to the master's early period (Fig. 7) or from the first part of his main period (Fig. 9) are apparently no more than localized extra thicknesses of wood on top of the strake below which the shrouds were set up. In one picture of a

[51] H. Kohlhausen, *Nürnberger Goldschmiedekunst des Mittelalters und der Dürerzeit 1240 bis 1540* (Berlin, 1968).

[52] B. Lane, *Hans Memling: Werkverzeichnis* (Frankfurt/Main, Berlin, Wien, 1980), p. 36.
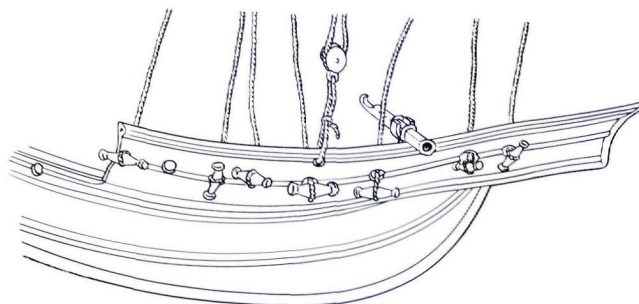
Figure 13 – Shrouds and backstays on the silver 'Schlüsserfelder' ship of 1503, illustrating the method of setting them up taut by twisting the shrouds.

small roundship, which was engraved with all the virtuosity of the master's late period, around 1485 or later (Fig. 8), the chain-wale is definitely a projecting platform, although it is perhaps not as yet horizontal. Chain-wales as inclined platforms are depicted in beautiful detail in the anonymous painting 'The embarcation of Henry VIII' at Hampton Court, dating from 1520, in which it is shown that these chain-wales were supported on wooden *standards*[53] projecting downwards to the next wale (Fig. 1c). The earliest accurately dated representation of the early type of chain-wale seems to be the woodcut by Michael Wolgemut of Ulysses and Circe in Hartmann Schedel's 'Buch der Chroniken',[54] published in Nuremberg in 1493. Of the same date, the seal of Maximilian of Habsburg as Prefect of Burgundy[55] shows shrouds set up by means of deadeyes on what appears to be a horizontal chain-wale, which renders it very likely that the inclined chain-wale, an earlier form, originated a number of years previously.

The conclusion is, once again, that the horizontal chain-wales in the engraving of the *carrack* must stem from a Cruce's late period of development. Their being a later addition to an earlier plate would explain the curious arrangement of the shrouds of the mainmast, which are set up partly between the skids at the side, and partly aft of these on a large horizontal chain-wale. While the latter must be a later addition, the skids were a feature of the original engraving.

The celebrated engraving of the 'kraeck' is thus found to span the period of activity of a Cruce as a marine artist, from 1467 to perhaps c. 1495. He faithfully recorded in his ship's engravings the evolution of the chain-wale which took place in this period, from a reinforced strake to its modern form, a horizontal board.

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[53] W. Falconer, *An Universal Dictionary of the Marine* (London, 1768), p. 138.

[54] H. Schedel, *Das Buch der Chroniken* (Nürnberg, 1493).

[55] H. Ewe, *Schiffe auf Siegeln* (Berlin, 1972), p. 71.

SHROUD

DEADEYE

LANYARD

DEADEYE

CHAIN WALE

CHAIN PLATE
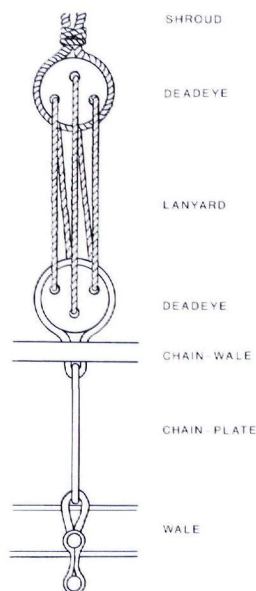
WALE

Figure 14 – Method of setting up the shrouds on the chain-wales by means of lanyards and deadeyes.

Summary

The important early engraver known as 'the master WA' produced a series of ship's engravings in the second half of the fifteenth century which are unique for that period. Early work of the master was associated with the marriage of Charles the Bold in Bruges in 1468. Analysis of the elementary heraldry in his '*carrack*' engraving, combined with the bookkeeper's account of the ducal marriage and data from the archives of Bruges leads to his identification as 'Willem a Cruce', the goldsmith Willem vanden Cruce who was registered in 1480 as a burgess, and who later served several times as Dean of the Guild of Silversmiths of Bruges. He worked for the marriage festivities under the name 'Willem Coleman' but later called himself after his farther's birth-place ter Kruis near Lille. His helper or tutor Pieter van Aerde probably furnished the original drawing for the *carrack* of which a pennon carries the monogram 'PvA'. The ship's engravings record the development of the chain-wale – the exterior reinforcement of the hull of a sailing ship where the standing rigging is set up – from the 1460's to c. 1490.

Acknowledgements

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