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SQUARE-RIGGED VESSELS WITH TWO MASTS.

BY H. H. BRINDLEY AND ALAN MOORE.

THE illustration facing this page reproduces a suggestion as to the lines of descent of the modern brigantine and brig which was shown in a course of lectures by one of us to naval officers at Cambridge during last summer. It was then and is now offered only provisionally, and no doubt facts will come to light necessitating its modification ; but at the moment it may serve as a basis for some further notes on a subject whose difficulties are manifest in the several articles which have already been devoted to it in *THE MARINER'S MIRROR*. This scheme of descent will be referred to as " the Pedigree."

The history of two masted square rigged vessels is very nearly that of the snow and brigantine : very nearly, but not quite. It may be that when the evidence has been discovered we shall be able to trace the pedigree of the snow back to the sixteenth century or even to the fifteenth, but at present, before the year 1700, to take a convenient date, we are on uncertain ground, or let us say in an uncharted sea.

We have records of two-masters before 1600, some almost certainly trustworthy, others doubtful. But granting the ships existed, we cannot yet show that they were the ancestors of the snow. Nevertheless, even though the lines of descent are uncertain, it is not unreasonable to regard these early forms as relations ; for the evolution of ships—as of land architecture—is a process of the human mind, and whatever influenced that mind in the direction of the forms we are studying is a part of that process.

If in the sixteenth or seventeenth century a man standing at one of those points on the south coast where ships approach the land and seem to collect—Dungeness is one such point—were to have counted all the square-rigged vessels that he saw in a morning, by far the larger number would be found to have three masts. Before 1650 he would very likely not chance to see one without a mizenmast. If, however, a hundred years after the first Dutch war a man with similar tastes were making a count,

SUGGESTED PEDIGREE OF BRIG AND BRIGANTINE.

the snows and brigantines would very likely outnumber the three-masters.

The general use of the two-master is surprisingly late. At first sight it seems natural that the single-masted mediæval ship should have developed into a two-master and that from this the three-masted ship should have arisen; but it was not so. The one-master passed almost directly to a triple-masted form that became almost as usual as its parent, and as it were fixed the rig of most sea-going ships for a hundred and fifty years.

Probably, almost certainly, the two-masted rig was tried, but the form of hull and the established position amidships of the mainmast, conservatively unchanged, were against its adoption.

The "little mast" of Henry IV.'s "*nief appelle la Carake*"* was, there is little doubt, a foremast. The foresail was probably introduced to give a steadier helm when off the wind. Doubtless an attempt was made to carry it on a wind. With what result? Consider the position of the XV. century foremast, when we first meet it, stepped in the overhang. Think of the rake of the stem, and how little gripe there was. The great, short-keeled, high-ended fabric would have fallen off and gone headlong down wind even faster than its usual lee way. So to balance the foresail the mizen was introduced and all seemed well, except perhaps when the master cast his eye on the wake over the weather quarter.

Now and then a two-master may have been seen. The fifteenth century was a time of change. All ships were not built on the same model. Here and there one may have been found not to require a mizen. Now was the XV. century trader described by Mr. Morton Nance in 1911 ("*M.M.*" I., p. 66) such a one? Certainly no mizen is shown, but is the omission accidental? In admitting the possibility of her being a two-master, we are supported not only by Mr. Nance, but by the then editor, who with a sense of fitness used the picture for a tail piece to an article on the snow.

A vessel from Pedro de Medina's *l'Arte del Navegar*, Cordova, 1545, which shows no mizen is here reproduced (Fig. 1). Perhaps the artist thought the omission sufficiently covered by the main-sail. By itself the picture has little weight, but one must beware of the danger of imputing error to artists merely because they show or do not show seems improbable in the light of what we believe of their time.

Unmistakeable and much less likely to be due to error is

* Accounts and Inventories of John Starlyng, *M.M.* iv., p. 168.

the two-masted ship at the head of the accompanying Pedigree. She is from the *Cosmographie Universelle*, 1555/6, of Guillaume le Testu, on which Dr. Jules Sottas published an article in the "M. M.," Vol. II., p. 65. Le Testu's ships are so convincing that his evidence cannot be put aside without good reason. Further, the unusual stern of this vessel suggests the possibility of her uncommon rig.†

Juan Martinez' map of Brazil and neighbouring regions made at Messina in 1582, now in the Bibliothèque de l'Arsenal, shows three two-masted square-riggers, if we may rely on the reproduction by Paul de la Croix in his *Science et Lettres au Moyen Age*, Paris, 1877, p. 320. The coloured plate is presumably drawn, and certainly not entirely reproduced by photography, but the three two-masters are so large that it seems very improbable that the copyist omitted their mizens. Their general appearance is shown by Fig. 2.

Further, in Wagenaer's *Speculum Nauticum* of 1586, three unmistakable two-masters are represented. One is in a chart of part of the East Coast of England that includes Orfordness. Fig. 3, though not a proportionately exact copy, gives a very fair idea of her. It will be noticed that her stern is much like that of Le Testu's ship. Whether or not she has tops is uncertain, but if not she has prominent cross-trees. Her foretopsail is not set and the yard is not crossed. This suggests that the topsails were not furled aloft. Perhaps she is a Fleming. Each masthead is surmounted by a cross, so it is improbable that she is Dutch.

Fig. 4 is from a chart of the coasts of Norfolk and Suffolk, and again is not an exact copy. Whether or not she is supposed to have a bowsprit we cannot tell. No stays are shown, and the fore braces lead to the gunwale. Like the former ship she appears to have a maintop, but at her stumpy foremast head is an irregular fitting, which may be intended to represent a tub lashed abaft the mast, with some sort of wind screen forward. In Anthony Ashley's *Mariner's Mirrour* of 1588, the same ship is shown with round bowl tops. This is not the only instance of an apparently unusual fitting being altered to something with which the editor of the English edition was perhaps more familiar.

This ship, and one very much like her in a chart of East Friesland (Fig. 5) have square sterns. This last seems to have a main top, but has nothing of the kind at the fore masthead. In

† This is the two-master referred to in an article on the Snow in M.M., II, p. 39. Dr. Sottas' article had not then been published and so the instance was not definitely quoted.

both the main topsail braces lead, fifteenth century fashion, into the top, if top it be. It is curious that in both only the starboard topsail brace is certainly represented, though in Fig. 4 a line that looks like a yardarm clewline is probably meant for the port brace.

A chart of the mouths of the Maas shows a larger kind of ship with no mizen visible, but her mainsail bellies so that the stern is hidden and she is useless for evidence.

Here then are records, certainly authentic, save possibly one, of two-masters before the year 1600. All are doubtful, some more, some less; Le Testu's and Wagenaer's are doubtful only because of their rarity. Did we *know* that such vessels existed we should accept them at once.

We are on surer ground because the records are more continuous, when we consider not the ordinary merchant man or man-of-war, but that very important craft the herring buss.

We know little of her appearance before the last quarter of the sixteenth century, but she is plentifully portrayed in *Speculum Nauticum*, and in the seventeenth century books were written about her.

The buss was long on the keel, narrow for her length and bluff bowed, and consequently had not the same need of after canvas as a vessel with great overhang. She had, as a rule, three masts, but *would* sail as a two-master. The little square mizen or "back saile" (to call a square sail a mizen would have sounded contradictory) was set as a riding sail when the buss was lying to her nets with fore and mainmasts lowered, and though it was doubtless set sometimes when making a passage, its real purpose was to make the ship ride easily, *e.g.*, Fig. 3, in "M. M.," I., p. 106. If a buss were taken over for some other trade or purpose than fishing, it is highly probable that her mizen mast would have been left on shore.

It was suggested in a previous article (*loc. cit. footnote ante*), that the snow might have been derived from the buss, but the suggestion was made only to be set aside. Mr. Carr Laughton, however, has called attention to documents at the Admiralty which support the notion. They are a series of water colour drawings of the attack on St. Louis, Senegal, made in 1758 by Lieut. Phillip Orsbridge, R.N. (Adm. Libr. Portfolio A). Two orthodox snows with trysails are portrayed, and though they were officially sloops, Lieut. Orsbridge calls them each time, for they appear more than once, the "London Buss" and the "Portsmouth Buss."

Whether this view is correct or not we know that at the end of the seventeenth century the buss rig without a mizen was a common one for small craft. In the Pedigree the vessel shown has a small main topsail. Fore topsails were also carried. These topsails were light flying sails and the whole rig was not a standing square rig, so to speak, with heavy lower and topmast rigging and tops, but, topsails and all, was exactly like that which the modern Humber keel carries on one mast. The sails were not furled aloft, but were lowered.

Now these buss-rigged vessels were not all exactly alike in sail plan. Some had deep courses and shallow topsails; in others the sail area was more evenly divided between the upper and lower sails. Probably the reason for this was the same as for the similar change in proportion in the sails of large ships. All types of vessel tend to grow larger till their customary sail

plan becomes unsuitable. In the days before wire was dreamt of the tall narrow square sail must have been tiresome to set properly in a wind even with bowlines. And did the buss use bowlines? For her foresail she could not because she had nowhere to lead them. So it is probable that the courses were proportionally reduced, and the topsails therefore enlarged, that the lower canvas might set better and be more easily handled.

Perhaps the tendency was to alter the sail-plan of the foremast first. This is pure speculation, but it is tempting to suppose that the impossibility of using a fore bowline in the absence of a bowsprit led to the adoption of a shallower and therefore better setting foresail. The bowsprit came later and doubtless the bowline too when required as the rig developed into what we should at once recognise as that of a snow or brig; if, that is to say, it did so develop. We have evidence of this use of the shallow foresail along with the deep mainsail in Kip's picture of Harwich of about the year 1700 ("M. M.," II., p. 40, Fig. 4) but the step was not universal.

Many, perhaps most, of these small two-masters as they grew altered the sail plan of both masts together. Probably men were hardly aware of the change, while the rig remained essentially the light buss rig, without tops and with the sails lowered for furling.

With little more change than this the true fishing buss went on till the end of her career and her rig became one of the chief factors, but probably not the only one, in the development of the lugger.

The real gap to be bridged, if this was the line of descent, is that between the light rig we have been discussing and the true standing square rig of the later snows. The problem may be simplified by putting the question thus: when did the two-masted square rigged vessel, buss, snow, or whatever she may have been called, acquire tops?

Perhaps some had them all the time. Perhaps Le Testu's and Wagenaer's ships had descendants, in some distant waters may be, and from these came the eighteenth century snow.

A picture in the Liverpool Public Museum of the town and its shipping supports this hypothesis. From the *Transactions of the Historic Society of Lancashire and Cheshire*.† we learn that

† This reproduction and description occur in some specimen pages bearing on their cover vol. LXI—new series vol. XXV—they are not however in that actual volume.

" J. Wallace, the anonymous writer of *A General and Descriptive History of Liverpool* (1795) was well acquainted with the picture . . . which he dates 1680." The volume contains a reproduction of a photograph of the original. Even if wrongly attributed to 1680, the picture cannot be later than the very first years of the XVIII century, for the ships still fly the St. George's Jack and Ensign.

A number of ships are shown and two quite unmistakeable two masters, one with a bowsprit and jib clearly shown, as in Fig. 6, which, however, is not an exact copy. In the other the bowsprit is perhaps hidden by the foresail. Yet another vessel, with a bowsprit, but no jib set and her mainsail furled is almost certainly a two-master also, and another, apparently without a bowsprit, very likely has only two masts, judging from her resemblance to the craft last mentioned. She might, however, have a mizen mast hidden by her mainsail. These vessels appear to have tops or at any rate prominent cross-trees.

Besides these there is at anchor, with jack and ensign flying, a vessel with a beak head, spritsail and spritsail topsail, and a main topgallant sail, and the ordinary tops of the period. Whether she has a fore topgallant sail is uncertain. One of the doubtful snows is just behind and obscures the view. This ship appears to have no mizenmast! Most unfortunately the foremast of a ship in the foreground comes where one would almost, though not quite, expect the mizenmast (Fig. 7). If the mizenmast were placed so as to be eclipsed, it would be farther forward relatively than the mizenmasts of the other ships in the picture. Nor is there any sign of a mizen yard. The other ships show the lateen yard and furled sail very prominently. On the whole, the balance is in favour of this vessel being a two-master, but it is not certain. An examination of the original picture would probably decide the matter. If she was a two-master the fact is strongly in favour of what may be called the " ship descent " of the snow as against " buss descent."

The vessel shown in Fig. 8 may be used in support of either buss descent or ship descent. The original occurs on page 220 of Vol. II. of the *Lettres* describing the *Costes de Guinée* of J. Barbot (MS. in Admiralty Library). Some of the letters are dated 1682. J. Barbot appears to be the man of that name described in *Biographie Portrative Universelle*, Paris, 1851, as " Inspecteur des établissements de la Compagnie française des Indes-Orientales, force de se réfugier en Angleterre lors de la révocation de l'édit de Nantes " (1685). The *Biographie* goes on to say that " his

curious description of the west coast of Africa" was published in Churchill's *Collection of Voyages and Travels* (London, 1704).

Barbot's script is exquisite and his sepia wash sketches are delicate and careful. Fig. 8 shows one of his vessels whose hull and sail plan suggest ship descent, while the absence of tops agrees better with an origin from the buss rig. The stay sails are noteworthy.

Staysails in ships are known as early as 1531, and the fore-topmast staysail was in use in 1665; nevertheless the number of staysails in Barbot's sketches is large for their date, thus in more than one of his full rigged ships under weigh we see fore-topmast, main, main topmast, and mizen staysails. Two of his brigantines have main staysails, and one of them sets a jib with a spritsail.

Late in the seventeenth century we find pictures of what we may with more confidence regard as snows.

Exquemelin's (Esquemeling, *Eng.*, Oexmelin, *Fr.*) *De Americaensche Zee-Rovers*, published at Amsterdam in 1678, achieved so great a popularity that numerous later editions appeared in Dutch, French, English, and Spanish during the seventeenth and eighteenth centuries. An English version formed one of Walker's British Classics, 12 mo., in 1810. Quite early other voyages were added to Exquemelin's narrative: thus in the *Historie der Boecaniers of Vrybuyters van America* . . . "met figuren" . . . printed at Amsterdam in 1700, the voyage of Montauban to the coasts of Guinea, 1695, is included. Among the copper plates that opposite p. 126 shows two snows without topsails in close action, one blowing up. This illustrates Montauban's account of his fight off the Coast of Angola with the English guard ship, according to which, after much mutual boarding, the English captain finding himself beaten, set a slow match to his powder in the hope of escaping with his two attendant "shalloops." The outcome was that Montauban's ship also blew up with "the most horrible crack that was ever heard" (English edition of 1810, p. 644), and apparently only Montauban and about fifteen of his men survived from this "horrid spectacle." Montauban does not specify the rig of his own vessel, and only mentions her as carrying 34 guns and the guard ship only as "the largest the English had in those seas," a 54 gun vessel, though the preface, in the form of "A Letter to Monsieur ——" from "B——," mentions her as a frigate. It seems unlikely enough that the English ship was a snow, whatever Montauban's may have been, and so we may suppose

that the Dutch artist disregarded the narrative and sketched a rig with which he was familiar. This plate and the two others showing full rigged ships and a lateener evince a certain acquaintance with vessels and rigging.

Very interesting and suggestive is a sketch by the (presumably) younger Van de Velde belonging to the Rev. F. C. Prideaux Naish who has very kindly copied part of it for this article (Fig. 9—Frontispiece). Here we have an example of a transitional type. The rig of the vessel shown broadside on is the logical development of the buss rig following the suggested tendency to modify the foremast before the main. Here the foremast has the full standing square rig, top and all, while the main mast still carries the light yard and deep mainsail of the buss. The fact that this sail is not shown set does, it is true, justify a slight degree of uncertainty, but the probability is that we have here the square buss sail. The yard being inside the rigging is not in the least against this. So deep a sail would be inconvenient to stow athwartships. The Humber keel habitually carries her yard in this fashion when alongside, and it is said that the single-masted square-rigged Nordlands Jaegts used to do so too.

Though this would have been the logical development of the buss rig it is by no means certain that in fact it was so *directly* so derived. It may have been an experiment, inspired as much by the brigantine as the buss.

For what were these little ships that Van de Velde drew? There are five of them in the original picture. Two have the light square mainsail. The mainsails of the other three are not shown. They look like men of war. They are all of a class. What was their official rate, and what were they called by those who manned them? The answer might give us the key to the ancestry of two rigs. Were they called busses, or snows or brigantines? Except possibly yacht or sloop, no other contemporary names seem at all applicable.

If they were called brigantines it would show that the fore and aft mainsail, already (1690-1710) in general use in similar vessels, had not yet established its inseparable connection with the name. *Brigantin* and *Brigantine*†† were not yet wedded though certainly betrothed.

†† Un brigantin, a brigantine. Une brigantine, a gaff sail v. Dr. Dingley's article on Brigantines, M.M. vi p. 292. Mr. Balsen's article, vol. vi., p. 79, we must postpone reference to for the present.

If they were called snows, their buss mainsail would tend to show that the snow descended from the buss. And if they were called busses, being so like what afterwards were called snows, the name would point the same way.

One may say this of them : that either they represent a stage in the direct development of the snow (though that stage had been passed) or else they were a " sport " in the pedigree of the brigantine, a sport due to buss-snow influence. If this were so the rig was not repeated and, so to say, merged again with the main brigantine line. Snow or brigantine, there were no other rigs with which they could blend or to which they could give origin.

This may seem rather reckless speculation, but consider the possibilities.

The foremast had the full standing square rig, and though, warned by what happened to the ketch's mainmast, one cannot say that further fundamental development was impossible, it is reasonable nevertheless to maintain that what did occur was a change in degree only. A topgallant sail, later a royal, and studding sails, nay in the last days double topsails, might be added, but the foremast in its essential features remained the same.

Not so the mainmast. Here the sail was (literally) less closely attached to the mast, and the tall mainmast would have permitted an easy change from the square to the gaff sail. Either this substitution was made in subsequent vessels of the class, or else the mainmast acquired the heavy standing square rig to match the foremast.

We have dwelt at length on these vessels because we know that they really existed, these actual craft. Van de Velde's pencil is final evidence. It is profitable to discuss whence they came and to what forms they handed on the experience gained in them. It is to be hoped that their identity may be discovered. To sum up, we have in the very first years of the XVIII. century, and probably before, highly developed square rigged two-masters needing little more than the trysail to make them at once recognisable as typical snows of the middle and end of the century. These may have descended with little change from some early two-masted form such as *Le Testu's* large XVI. century vessel ; or they may have developed from the buss or similar small craft along the lines on which, as we have shown, there is reason for believing such small craft were still developing round about the year 1700.

The snow of 1703 in the pedigree is based on a note of Mr. R. C. Anderson's on the *Snyava* (snow) *Munker* in Veselago's Russian Naval History. ("M. M.," II., p. 186). The illustration in that work was from a contemporary Russian drawing. In the light of what has been discovered since a bowsprit, which the Russian vessel may very well have carried, might have been added.

The next step in the development of the snow was the introduction of the main trysail. The earliest trysail we have been able to discover is in a print of Charlestown, Carolina, of 1749. This was mentioned in a previous article ("M. M.," II., p. 176.) In a document at the Admiralty Library of about five years earlier, to which Mr. Carr Laughton called our attention, is a representation of a vessel known to have been called a snow. She has no trysail. It is fair, however, to say that the portrait was small, and it is just possible that in reality a trysail was carried. Unfortunately the reference has been mislaid, and we were unable to examine the drawing again for this paper.

After 1750 the trysail is always mentioned as a chief feature of the rig.

No other important change was made in the rig, which became blended with the brig in a vessel carrying both square and boom mainsails. (The trysail, of course, had no boom.) This combined rig (*v. Pedigree*) appears to have arisen between 1780 and 1790. It lasted in the Navy till the abolition of sailing training in 1902.

With this blending the name snow tended to fall into disuse and to be replaced by the name brig. The original distinction between snow and brig, the possession respectively of a square or a boom mainsail, was forgotten and the name snow became attached to an unimportant fitting, the main trysail mast, which some snows and brigs continued to carry. We say brigs deliberately for in the last days vessels were to be seen with a trysail mast, but no main course. These brigs were sometimes called snows.

In fact though not in name the true snow rig lasted till the recent war, and perhaps longer, for in the twentieth century most so-called brigs carried a square mainsail. It is worth noting that in merchant brigs the gaff sail whether with or without a boom was commonly called a trysail, a name which suggests descent from the snow rather than the brigantine.

The nomenclature became confused because the blending of the two stocks was so complete.