



The *Rodney*, the first of the two-decker 90s built in response to the American '74s'. She was not a spectacular sailer, but was a strong and stable ship, and this was regarded as important by her designers.

National Maritime Museum

Nevertheless, the American programme had a profound effect on the British Admiralty, still living in the shadow of the War of 1812. In 1826 the Cabinet called the Controller of the Navy, Sir Byam Martin, to ask him 'whether I thought our three-deckers equal to the *Ohio*, the large American ship with guns on spar deck.' Martin was of the opinion that the British ships would prevail, but it was agreed that the First Rates needed greater breadth and more armament to make sure. Furthermore, it was planned to build some new ships with the American threat in mind.¹⁶

There was no question of simply copying the Americans, for they, even more than the French, had different defence needs from the British. 'Not having any distant colonies, or the nature of their warfare likely to require any perseverance at sea, they feel no inconvenience from their enormous weight of arming, but employed as the British fleet were last war, when many ships were at sea eleven months out of the twelve, the American ships would tear themselves to pieces.' It was therefore proposed to build 'three ships of similar force to the *Ohio*, but to be constructed on a better principle.'¹⁷ These were the first two-decker 90s, the only class of large warship designed by Seppings. At first it was proposed to give them priority in construction so that they would be ready to meet the American threat, but eventually they were built at the very slow peacetime rate, so that the first, the *Rodney*, was not launched until 1833, and the last, the

London, in 1840. They were of rather greater dimensions than the *Ohio* - 205 feet long and 54 feet broad - and their armament was of course distributed very differently, with 32 guns on the lower deck, 34 on the upper deck, and 26 on the quarterdeck.

Even before the American ships came to the notice of the British government, a fundamental change in the system of arming ships had been under consideration. Ever since the Robins proposals of 1747 it had been recognised that the 32-pounder was the most efficient gun in the Navy, but, beyond extending its use to the lower decks of all ships of the line, nothing had been done to bring it into more universal use, for it was feared that the increase of weight on the upper decks would reduce the stability of the ships. For a long time it was not realised how much the proportions of the guns themselves, settled long ago on traditional lines, could be altered, although the Robins proposals had pointed the way towards a revision of this, and the carronade had shown that a new design of gun could produce a remarkable increase in efficiency. But now the French and Americans were fitting 32-pounders on all the decks of their ships of the line, of varying lengths of bore and thicknesses of metal according to the strength of the deck on which they were intended to rest. Lighter weights of guns were placed on the upper positions, so that the actual weight of the gun was little more than that of the lighter calibre weapon which had formerly resided there, and the stability of the ships was not drastically affected. This could of course greatly increase the power of the ship, especially at the short ranges which the British tended to favour; and so they were forced to follow suit.¹⁸

THE SHIP OF THE LINE

The midship section of Seppings' *Rodney* (top), compared with that of Symonds' *Vanguard*. The steeply rising floors of the *Vanguard* are obvious enough.

The Science Museum

tributed the *Orestes* and *Sapphire*, designed by the School of Naval Architecture. Hayes designed the *Champion* and *Challenger* and Symonds the *Columbine*. The old type of artisan shipwright was represented by the *Pylades* and *Tyne*, designed by Seppings. The scientific school was to claim that these tests were meaningless, that 'not a single fact was established by these trials, conducive to improvement in naval architecture'²⁴, for too much emphasis was placed on fair weather speed; but, on the face of it, victory

went to Symonds, whose ship was apparently faster than any of the others. The ships designed by Seppings and by the School of Naval Architecture were not regarded as having acquitted themselves well, and the scientific approach suffered a considerable setback. Symonds was given the opportunity to design a much larger ship to the same principles and 'free from the prescribed limit of tonnage'. As a result, the 50-gun frigate *Vernon* was launched in 1832, and she too was capable of good fair weather performance.

By this time, reform was in the air, in the country at large as well as in the naval administration. The old order of government, virtually unchanged since 1688, was being challenged by a new and powerful class of men who had risen in the Industrial Revolution. The Reform Bill of 1832 altered the electoral system, and gave more power to the new middle class. The Whig government, elected on a programme of reform, began to have its effect on some of the more traditional areas of British administration, and the Navy Board, long hated by the sea officers, was an obvious target. The Prime Minister, Lord Grey, had briefly served as First Lord of the Admiralty in the early 1800s, and had then conceived a dislike of the division of responsibility between Admiralty and Navy Board, and had resolved to end it as soon as possible. His chance came in 1832, when activities of the Navy Board were placed directly under Admiralty control, with heads of departments to supervise the various functions.

As part of this reform, Seppings was retired. He had held the post of Surveyor of the Navy since 1813, but had always been the junior Surveyor until the retirement of Tucker in 1831, though he was by far the more influential on ship design and construction. In view of his great work in reforming the structure of ships, it would seem that he had been rather shabbily treated, in being retired after only one year as senior Surveyor.

His successor was Symonds, whose success with fast ships had established him, in the eyes of the government and of a strong faction among the sea officers, as the leading ship designer of the time. He was given greater powers than any previous surveyor, for he 'had liberty for the exercise of judgement and talent in designing ships, which had not been granted to the commissioners or surveyors of the navy before; so that he might at once build ships on the best conditions of excellence, that both science and practice had yet indicated.'²² He intended to apply his own principles of ship design, not only to the sloops and frigates with which he had already established his reputation, but even to the largest ships of the line. The School of Naval Architecture, his rival in many sailing contests, was abolished.

In essence Symonds' plan was to abandon the flat-floored, round-bilged midship section which had hitherto been traditional for British ships of the line. In the 1790s one Beaufoy, on behalf of the Society for the Improvement of Naval Architecture, had conducted experiments on the movements of different shapes through the water, and he had shown that a triangular section was in several respects the most efficient, in that it moved easily through the water, but was able to resist tendencies to sideways motion. A ship built on this principle, then, would be both

