

Models of Sailing Ships in the Science Museum.¹

ONE of the rarest sights at sea to-day is a ship under full sail. According to Lloyd's Register there are at present only 125 iron and steel sailing vessels owned in Europe which are occupied on long voyages, and only five of these fly the Red Ensign. A hundred years ago steam tonnage was insignificant; fifty years ago it nearly equalled our sailing tonnage, but to-day steam and oil have practically driven the sailing ship from the ocean. Moreover, sails disappeared from fighting ships some thirty years ago,

machinery; (ix.) harbours and docks; (x.) rivers and canals. It is, however, apparently not intended to issue catalogues for each of these sections, for though that under notice is confined to sailing ships, the next catalogue will deal with steam ships of war, and will no doubt treat of both ships and machinery.

Beginning with primitive craft and early ships, the Catalogue then refers to fifteenth- and sixteenth-century ships, seventeenth- and eighteenth-century ships of war, nineteenth-century sailing ships of war,

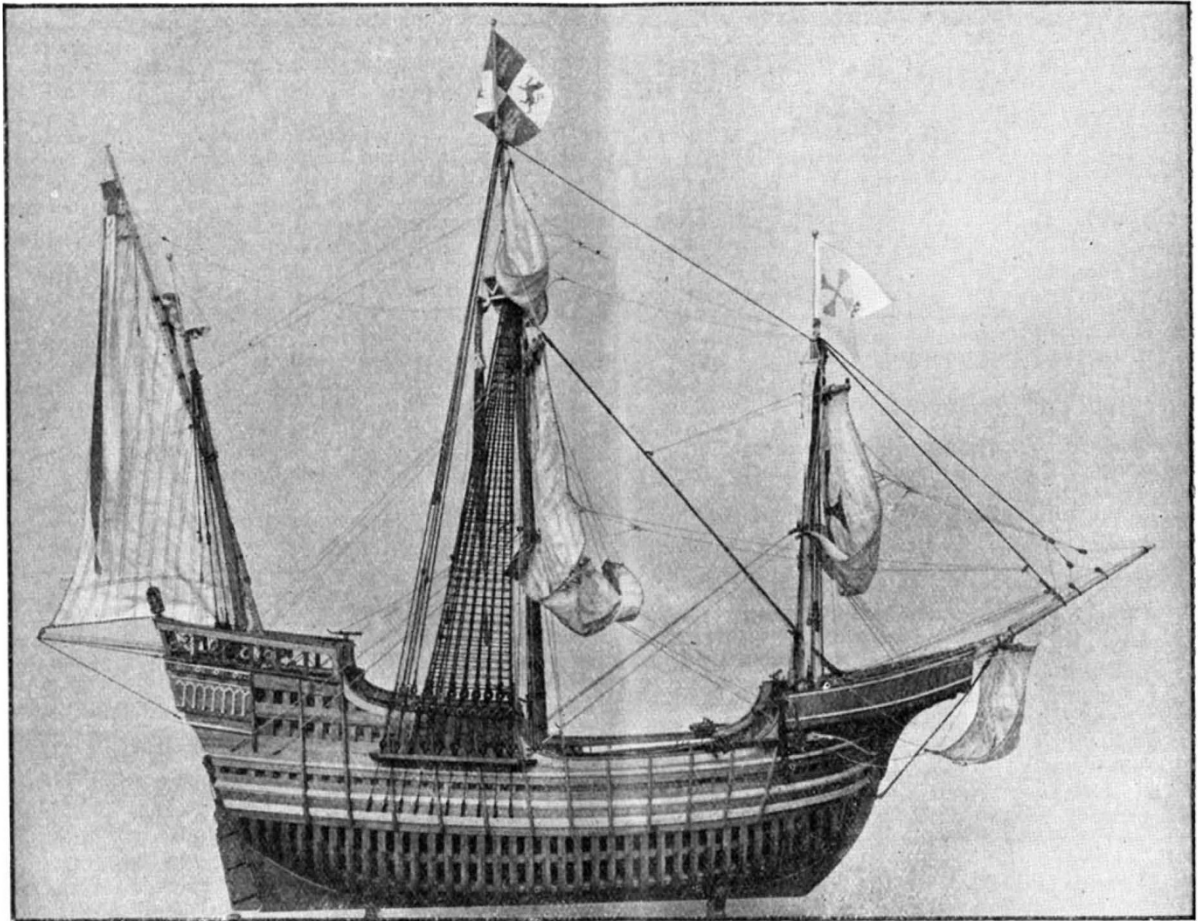


FIG. 1.—*S. Santa Maria* (1492). From "Catalogue of the Collections in the Science Museum, South Kensington. Water Transport: 1. Sailing Ships." By permission of the Controller of H. M. Stationery Office.

and not a single able seaman now in the Navy was trained in the fine old school of masts and yards.

These considerations lend peculiar interest to the beautiful models of notable sailing vessels preserved at the Science Museum at South Kensington, and to the new Catalogue of them, recently issued by the Board of Education. In the Museum the collection illustrating water transport is divided into ten sections: (i.) Sailing ships; (ii.) mechanically propelled vessels; (iii.) smaller vessels; (iv.) ship design and construction; (v.) marine engines; (vi.) marine boilers; (vii.) propellers; (viii.) marine auxiliary

¹ Board of Education. Catalogue of the Collections in the Science Museum, South Kensington, with Descriptive and Historical Notes and Illustrations. Water Transport. 1. Sailing Ships. Compiled by G. L. Overton. Pp. 71+12 plates. (London: H.M. Stationery Office, and the Science Museum, 1923.) 1s. net.

and finally merchant sailing ships. Altogether some 232 exhibits are described, and twenty-three are illustrated, the photographs fortunately being placed among the text and not grouped at the end as in some of the museum catalogues. One illustration of surpassing interest is that of the fine rigged model of the *Santa Maria* (Fig. 1), the flagship of Columbus on his epoch-making voyage of 1492, the model being a present from the Spanish Government. Other illustrations include H.M.S. *Prince*, built by Phineas Pett at Chatham in 1670, H.M.S. *Vanguard*, a famous *Symondite* ship of 1835, the clipper *Stonehouse* of 1863, and the four-masted barque-rigged ship *California*, the last and the largest of the sailing vessels of the White Star Line. Of 3099 tons gross register and 329 feet long, she was surpassed in size

by a few other vessels, and Mr. Keble Chatterton in his fascinating book on "The Sailing Ship" says the largest of all such ships is the German five-master, the *Preussen*, 407·8 feet long, 53·6 feet broad, and 27·1 feet deep.

Besides the descriptions and illustrations, the Catalogue contains short articles on the progress of ship construction, and here we meet with such names as Peter and Phineas Pett, Anthony Deane, Bouguer, to whom we owe the discovery of the metacentre, Sir Robert Seppings, and Admiral Sir William Symonds, the last Surveyor of the Navy to design and build a purely sailing ship. These notes will be of considerable assistance to the student, and should be read in conjunction with the opening chapter of the late Engineer-Commander F. L. Robertson's "The Evolution of Naval Armament."

While the Museum contains models of many notable ships, it is still without one of Nelson's *Victory*. There is an engraving of the ship dated 1781, but now that through the untiring efforts of Admiral Sir Doveton Sturdee the famous flagship is in a fair way to be preserved to the nation, it is to be hoped this blank will be filled. In future editions of the Catalogue we should like to see a spirited sketch of the *Victory* on the cover. This we feel would prove far more attractive to the youthful visitors to the Museum than the "blue book" style of binding nearly always adopted for Government publications. Eng.-Capt. E. C. Smith, who has just been appointed guide lecturer to the Science Museum, will have few more interesting subjects to talk upon than that dealt with in this Catalogue.

Forests and Rainfall.

THE question of the influence of woodland upon rainfall is a very old one, yet it cannot be said even now to be fully answered. While there is indisputable evidence from all parts of the globe that the reckless destruction of forest-growth has brought progressive desiccation in its train, it has only comparatively recently come to be realised that the problem is essentially hydrological rather than meteorological. When, indeed, one reflects that a forest is itself primarily an adaptation to rainfall and other climatic conditions, it is somewhat surprising that the earlier investigators should have expected to find anything more than a secondary reaction of the forest upon rainfall. No doubt the characteristic type of forest prevailing in moist regions like Europe helps by maintaining the humidity of the atmosphere to equalise, if not slightly to increase, the rainfall over the year as compared with denuded tracts; but, on the other hand, recent research by Quayle in Australia (*Proc. Roy. Soc. Victoria*, vols. 33 and 34, 1921 and 1922) has shown that where forest and scrub are composed of drought-resisting species, reducing transpiration to a minimum, a distinct increase of rainfall has followed deforestation in the interests of settlement and the replacement of xerophilous vegetation by grass and crops.

It is, however, as a hydrological agent that forest plays an immensely important part in conserving moisture in the soil, regulating its discharge into rivers, and in general modifying the natural drainage of a country—though the precise effect must vary with the nature of the country and the climate. It is satisfactory to find that this deeper understanding of what is in reality a very complex problem in physical geography is leading to investigations abroad, as in Italy, where, according to Prof. Filippo Eredia, the various hydrological services are studying the relation between rainfall and woodlands in all its aspects

("Boschi e precipitazioni acque," *La Meteorologia pratica*, N. 1, 1922).

One very important fact bearing upon this subject remains to be pointed out. It was shown by that eminent climatologist, Julius von Hann, that there is a way in which forests do very decidedly increase "rainfall" in the broader sense of the term, namely, by collecting the moisture of fog. This is especially true of hill-fog and mountain-mist. Upland fog is, by its different mode of origin, normally wetter than lowland fog, and on drifting across wooded mountain slopes deposits large quantities of moisture. Even in the drier lowland fogs produced by radiation on cold nights, it is a familiar fact of observation that there is a constant dripping of water beneath trees, which, when the temperature is below freezing-point, become heavily decked with rime, often collecting on the ground like a light snowfall.

In this connexion, the experiments of Dr. Marloth on Table Mountain in the opening years of this century, and published in the *South African Journal of Science* and elsewhere, deserve to be more widely known. He showed that the vegetation of the mountain, as well as rain-gauges fitted with wire-netting, collected large quantities of water from the hill-mists produced in the moisture-laden S.E. Trade. L. C. W. B.

University and Educational Intelligence.

CAMBRIDGE.—F. P. Ramsey, scholar of Trinity College, has been elected to the Allen scholarship.

LONDON.—Prof. A. E. Jolliffe has been appointed as from August 1 to the University chair of mathematics tenable at King's College. As a scholar of Balliol College, Oxford, he won the Junior and Senior University Scholarships in Mathematics, and in 1892 he was elected to a fellowship at Corpus. Since 1920 Prof. Jolliffe has been University professor of mathematics at Royal Holloway College, and he has published papers in various learned journals. Mr. J. Dover Wilson has been appointed as from August 1 to the University chair of education tenable at King's College. From 1906 to 1909 Mr. Wilson was Lecturer in English language and literature at the University of Helsingfors, and since 1912 he has been special inspector in English, history, and economics under the Board of Education.

Having learned that the Board of Education proposes to revive this year the scheme for the award of State scholarships to assist scholars from grant-aided Secondary Schools in England and Wales to attend university institutions, the Senate has resolved to inform the president of the Board of Education that it welcomes the revival of the scheme and will make the necessary arrangements for the nomination of candidates. The Senate has appointed a committee to advise the Board of Education as to the amount of grant which shall be awarded in aid of fees and students' maintenance.

Grants have been made from the Publication Fund as follows:—Mr. H. Frankfort: 40*l.* in aid of the publication by the Royal Anthropological Society of his M.A. thesis entitled "Studies in Early Pottery of the Near East." Mr. R. H. Tawney and Miss E. E. Power: 100*l.* in aid of the publication of their book on "Documents illustrating Tudor Economic and Social History." Prof. R. C. Priebsch: 45*l.* in aid of the publication of his work on "The Heliand Manuscript." Prof. H. H. Dixon: 30*l.* in aid of the publication by the University of London Press of his advanced lectures on "The Transpiration Stream."

The degree of D.Sc. (*Economics*) has been conferred