

PORTUGALIAE MONUMENTA CARTOGRAPHICA (*)

Review prepared by J. Rennard DEAN (IHB)

In the annals of the great discoveries and in the long history of navigation the achievements of the Portuguese have been outstanding. An illuminated planisphere displayed in the Assembly Hall of the Geographical Society in Lisbon and showing the routes followed by the early Portuguese navigators is in itself a vivid reminder of the vast extent of these epic voyages begun some 500 years ago.

As recorded in the history of the discoveries, the banks of the Tagus, like those of the Guadalquivir, were the natural places from which to set sail and face the challenge of the Atlantic, still largely unknown. This was, in fact, the challenge accepted by the Portuguese sea-Captains, inspired by Prince Henry, whose discoveries we find commemorated in the marble pavement leading to the Dom Henrique Memorial (The Monument to the Discoveries) at Belém. This fine mosaic in the form of a wind rose (Figs 1 & 2), a gift of the Government of South Africa, shows cartographically and in chronological order the principal steps in the discovery of the African coast, the Indian Ocean, India and the Far East as well as parts of America — all by the Portuguese.

Pursuing the same analogy, it is clear that each progressive step in the art of navigation, so aptly described as the haven-finding art, is marked by the achievement of individual explorers, scientists, seamen and pioneers whose names we often find engraved on the maps and charts of their day. That these names, so many of them Portuguese, should be thus recorded for posterity is just reward for the new knowledge they gave to all who followed them. Moreover, in the finding of the best havens, the names of many of the finest harbours dotted along the coast of Africa, (to give but one example), themselves pay tribute to Portugal.

Nautical charts similarly and quite often record by name the surveys made by hydrographers or are identified by the name of the ship engaged in the survey. Of this there are many examples in the North Atlantic, such as the D. João de Castro Bank ⁽¹⁾ between the islands of Terceira and São Miguel in the Azores Archipelago (Fig. 3). It was in this same region that Prince Albert of Monaco made extensive surveys during his many voyages in the *Princesse Alice* and the *Hirondelle*, proof of which we find in the

(*) *Portugaliae Monumenta Cartographica*. (Comemorações do V centenario da morte do Infante D. Henrique). Armando CORTESÃO and AVELINO TEIXEIRA DA MOTA. Five volumes. Lisbon, 1960. 62 × 48 cm.

(1) See Volume XXI, August 1944, *International Hydrographic Review*.



FIG. 1. — Wind rose mosaic at Belém (detail).

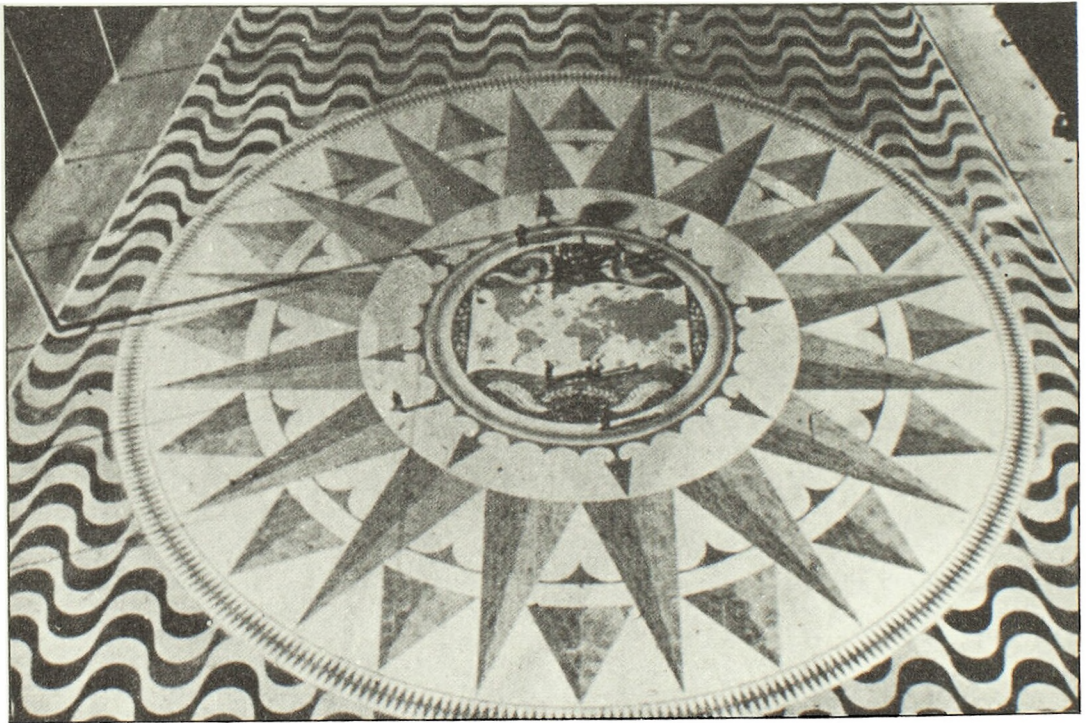


FIG. 2. — Wind rose mosaic at Belém (ensemble).

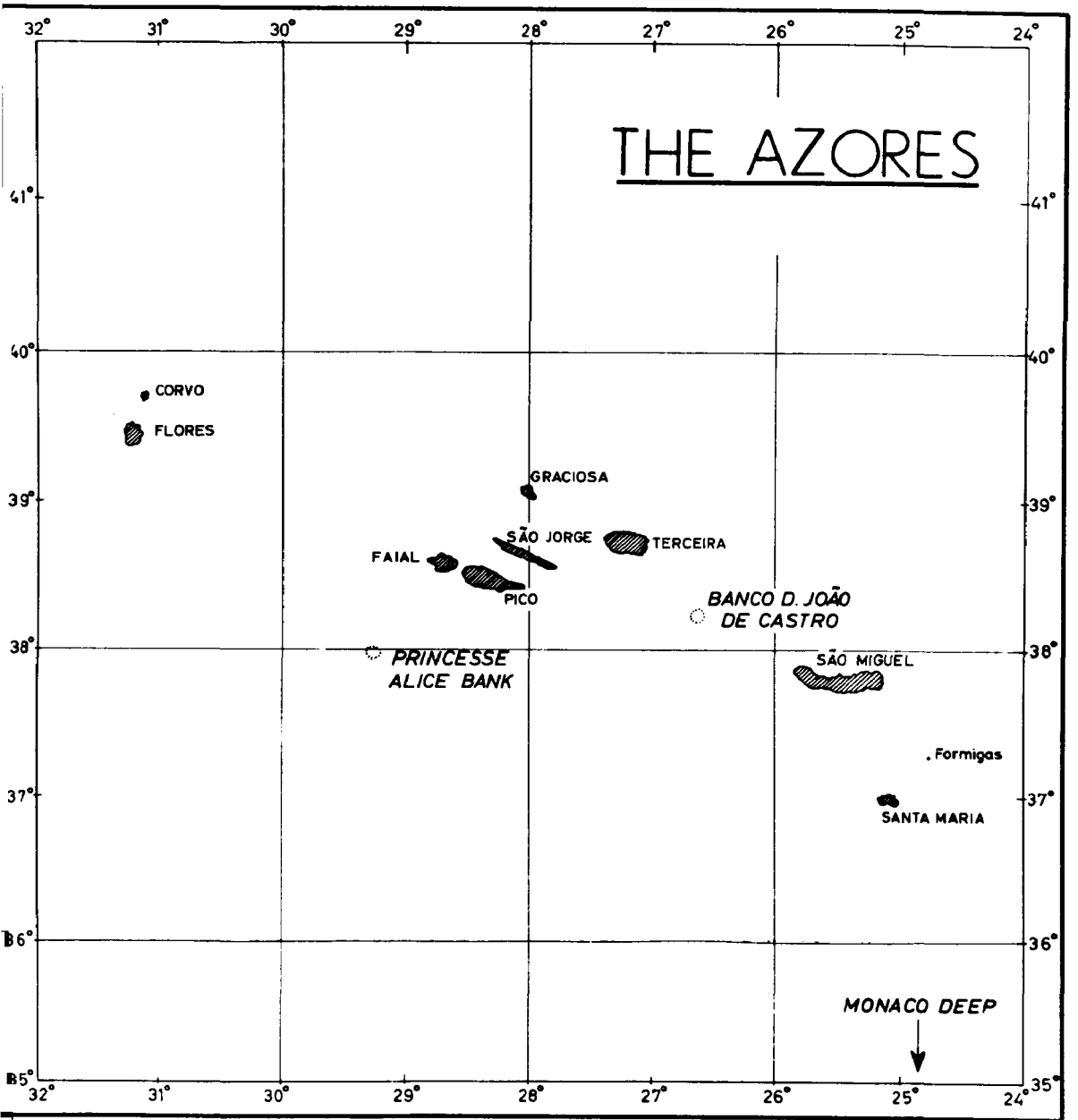


FIG. 3. — The Azores Archipelago.

naming by him of the deeps and shoals he charted near the Azores. Prince Albert maintained the closest friendship with the Portuguese and this mutual esteem found expression at the brilliant ceremonies accompanying the opening of the Oceanographical Museum in Monaco. Indeed, as was fitting on this auspicious and truly naval occasion, Count de Souza-Rosa,

representing King Manuel II, in a most eloquent speech, spoke in the following terms of the intense personal interest taken by the late King of Portugal in oceanographical research : " One might say that the unfortunate king, jealous of his ancestors who had formerly caused the surface of the oceans to be explored by the valiant Portuguese navigators, had devoted himself to the still more difficult enterprise of exploring the most inaccessible depths ".

In 1920, Prince Albert of Monaco paid an official visit to Portugal and his yacht anchored in the Tagus estuary near the historic shores of Belém from which many of the early Portuguese navigators set sail. On this memorable occasion, one of the celebrations arranged in his honour was a special session of the Geographical Society of Lisbon.

Among the many great names that appear in the chronicle of those who have contributed most to navigation, either by the odyssey in which they took part or by their inspiring leadership, Prince Henry of Portugal (1394-1460), the illustrious son of King João and Queen Philippa ⁽²⁾, is the only one to be given the appellation " the Navigator ".

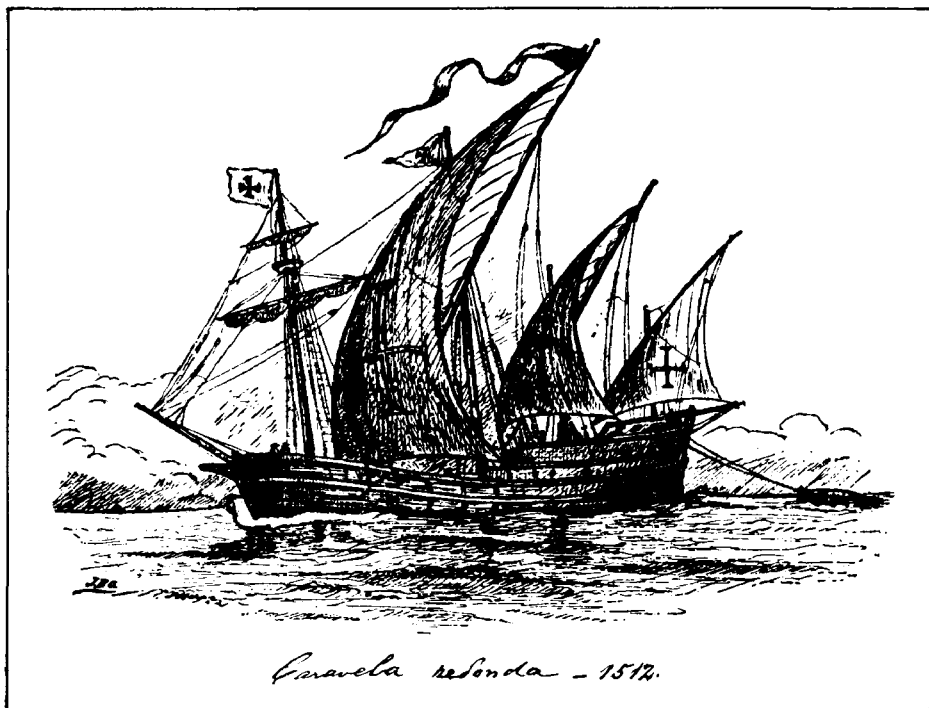


FIG. 4. — The Caravel.

With Prince Henry, a man of genius, we see the plans for exploration take practical shape, and at the same time the extraordinarily seaworthy craft known as the caravel (Fig. 4) was developed, a model of which is to be seen in the Museu da Marinha, adjoining the Jerónimos Monastery in Lisbon. This monastery, with Vasco da Gama's tomb, and the nearby Tower

(2) The daughter of John of Gaunt, Duke of Lancaster.

of Belém are perfect examples of Manueline architecture, both of them on the historic ground bordering the Tagus and forever to be associated with the early Portuguese discoveries. Their significance is all the greater owing to their being among the few buildings to escape damage during the 1755 earthquake.

The inspiration of Prince Henry during the Great Age of Discovery, which took place in the fifteenth century and was initiated by the Portuguese, can never be forgotten and, quite apart from the enduring landmarks to his memory at Belém and on the Sagres Promontory (Fig. 5), no

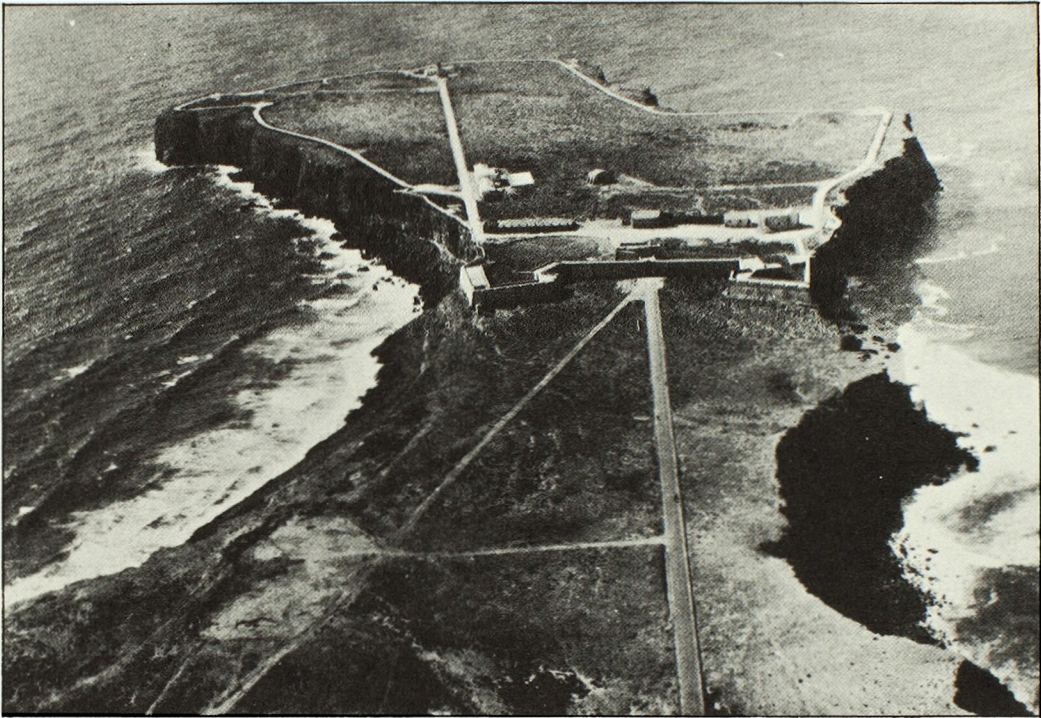


FIG. 5. — The Sagres Promontory.

memorial to him could equal the map itself. It is here that is manifest the inspiration and genius of the Portuguese of to-day, for the concept of the *Portugaliae Monumenta Cartographica* (hereinafter referred to as the P.M.C.), as a memorial to Prince Henry and bearing his name, cannot but confirm these same qualities in the scholars, craftsmen and artisans of Lusitania who brought this great work into being.

The desire to give concrete form to this memorial was, in fact, in the eyes of the Executive Commission for the Commemoration of the Vth Centenary of the Death of the Infante D. Henrique, the *raison d'être* of the P.M.C., which was to be a publication of monumental proportions dedicated to Prince Henry. This magnificent atlas, comprising five folio volumes, includes more than 600 plates, of which 50 are in colour, and reproductions, mostly in colotype, of over 1 600 specimens of early Portuguese cartography

from c. 1485 to the end of the XVII century. The completion of such a *magnum opus* is proof of the eminence and scholarship of its two authors : Dr. Armando Cortesão, Professor at the University of Coimbra and Lieut.-Commander A. Teixeira da Mota, Professor at the Naval School, Lisbon.

It is fitting to place on record, as is acknowledged in the preface, the remarkable degree of international cooperation which contributed to the realisation of this work.

APPRECIATION OF THE ATLAS

Binding

In the acknowledgements which normally appear in the introduction to a special publication, it is all too common to overlook or ignore the individual craftsman and artist. In the P.M.C. this oversight did not occur, and it is gratifying to find frequent acknowledgement of those whose labours contributed so greatly to the execution of the work. Thus, we are informed in each volume that the man who did the binding — superb binding indeed — was Frederico de Almeida of Lisbon.

Careful observers will note the quality of the paper, specially made by the Fábrica de Porto de Cavaleiros, Tomar. Each sheet bears a distinctive watermark in the form of a ship surmounted by the initials P.M.C.

Endpapers

On turning back the cover of any volume of the P.M.C. one is immediately struck by the beauty and originality of the endpapers. These have as their *motif* the main characteristics of the early XIII century portolan-charts, namely a close network of straight lines drawn in distinctive colours and radiating from several centres, later named wind roses. The coloured lines correspond, in fact, to the rhumb lines from the wind rose, itself always oriented to the north, as indicated by the *fleur-de-lis* often found surmounting the disc or rose representing the compass.

It is interesting to record that the *fleur-de-lis* was a stylistic innovation of Portuguese map-makers to indicate the North. Appearing for the first time in Portuguese charts of the late XV century it was subsequently copied in other countries.

Introduction and Explanatory Text

Both the General Introduction in Volume I, containing a masterly *exposé* of the general history of cartography, and the historical and critical commentary accompanying each plate, are given in parallel columns in Portuguese and English. It is here that those experienced in the drafting of equivalent texts in two different languages will appreciate the remarkable

achievement of the authors in making these two texts correspond in exact juxtaposition, paragraph by paragraph, throughout the work. The English text is most skilfully written and often achieves remarkable elegance in style as the following striking passage shows :

“ ... Thus little Portugal, who for more than a century had been preparing for the sea, was practically alone in the field during the fifteenth century. In this period, perhaps the most brilliant of her history, she was led by exceptionally capable rulers, who, making full use of the meagre national resources, took advantage of a unique situation — when, at the peak of a social, cultural and scientific revolution, the other European countries, either bleeding in internal or external struggles or simply for lack of preparation or maturity, were unable to undertake so formidable a project. The transformation wrought by the Portuguese geographical discoveries (culminating in Columbus's discovery of America and in Gama's voyage to India) and the invention of the printing press were perhaps the two most powerful factors in the Renaissance... ”.

Grateful acknowledgement for the excellent work achieved in the composition and printing of the text is given by the authors in the closing paragraph of the Introduction to the Imprensa de Coimbra, printers for the University of Coimbra.

The authors also expressly acknowledge the exceptional assistance received from Mr. R. A. Skelton, Superintendent of the Map Room, British Museum, who read all the original English text.

The Monochrome Plates

To the Neogravura firm in Lisbon was entrusted the task of engraving and printing the hundreds of monochrome plates which form the major part of all volumes of the atlas.

The Reproductions in colour

The exceptionally delicate task of producing all the colour plates, which add such lustre to the collection, was entrusted to the Litografia de Portugal in Lisbon. The inclusion of some fifty of these colour plates adds immeasurably to the value of the atlas and demonstrates to perfection the illuminator's art and his attention to minute detail — as much in the definition of coastline as in the ornamentation so liberally used to make the map a true work of art.

Litografia de Portugal in the reproduction of each colour plate took as its first requirement a good diapositive. Most of the diapositives supplied from abroad met the strict requirements imposed, but for those that did not various tests were made to select the best materials, chemical products and filters needed to eliminate irregularities in the transparencies. All negatives were then adapted to standard size 13 × 18 cm (Figs 6 & 7).

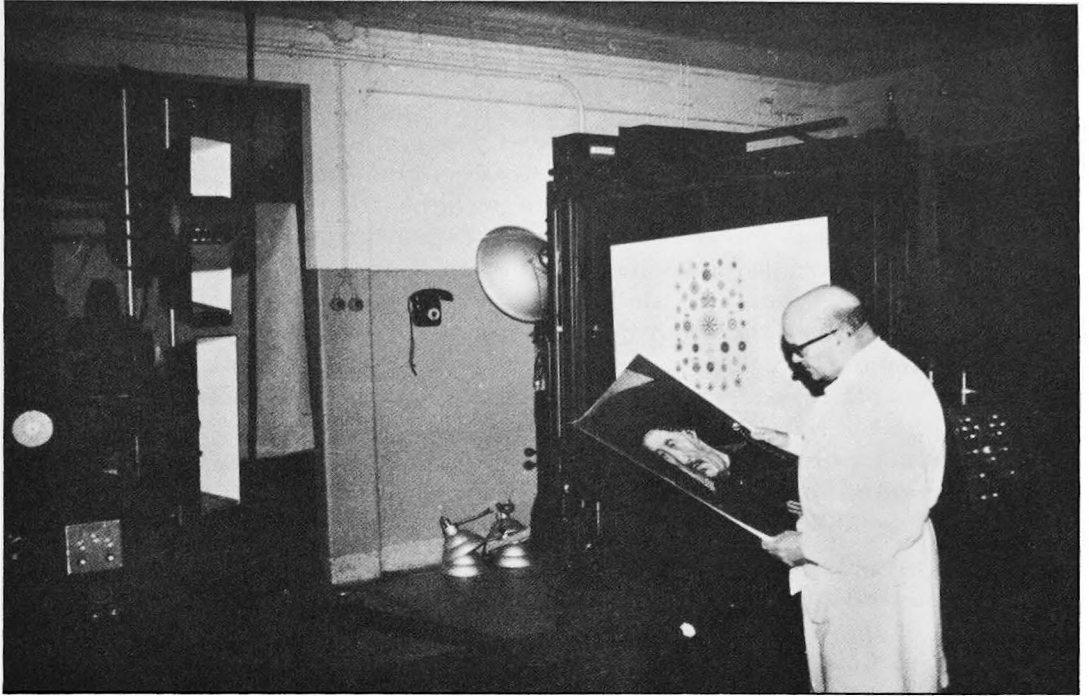


FIG. 6. — The printing of the colour plates.

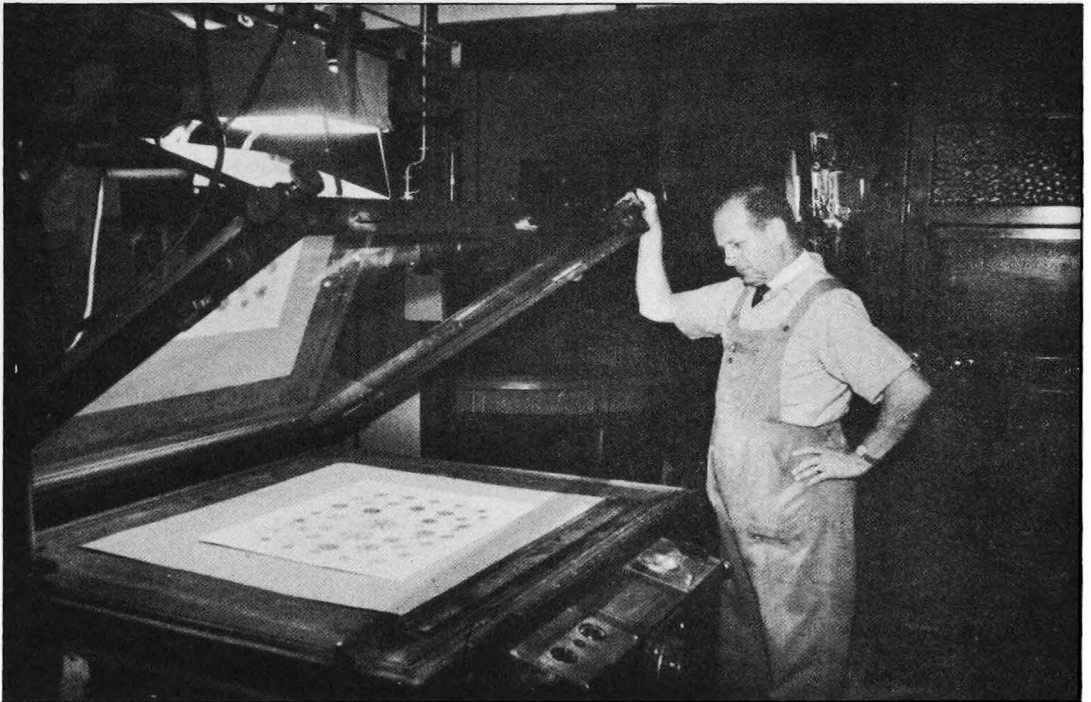


FIG. 7. — The printing of the colour plates.

Positives were made by using a magenta diffraction screen, with 150 line density, which was specially acquired for this work.

Great pains were taken to make sure that the place-names on the charts should be legible. This often entailed the retouching by hand of the plate containing the toponymy and symbols.

Nothing was left undone to ensure both the perfect appearance and the durability of the reproductions in colour. The best inks were used to guarantee perennial freshness and, after the printing of the plates using a special "purpurina ouro" (golden bronze), each one received special treatment to conserve the original brilliance of the impression.

PORTUGALIAE MONUMENTA CARTOGRAPHICA - Volumes I-VI

The five volumes comprising the atlas and covering over two centuries of Portuguese cartography are so comprehensive and detailed that only an analysis of similar scope could do them justice. Furthermore, bibliographical references in the text are so extensive that little could usefully be added by way of illustration or example. Suffice it therefore to concentrate mainly on the actual production of the work, and to give a short appreciation of the contents of each volume of the atlas with notes on each outstanding Portuguese cartographer whose life's work, so far as it is known to-day, is so faithfully reproduced in the atlas.

Volume VI comprises the complete Index to the whole atlas.

Volume I

Contains the only two ⁽³⁾ known Portuguese charts dating from the XV century (Plates 2 and 3). Then follows that most precious jewel of Portuguese cartography, the great anonymous planisphere of 1502, known as the "Cantino" chart, very probably a copy of the standard map in the *Armazém* of the *Casa da Índia*, which was the official centre of Portuguese cartography.

All the charts by or attributed to Pedro Reinel and his son Jorge are given. Particular mention should be made of the beautifully illuminated chart of c. 1540 (Plate 15). The Reinels were also engaged by Lopo Homen, King Manuel's official cartographer, to help with the preparation of the splendid atlas showing all the Portuguese discoveries. This collection known as the Lopo Homem-Reinels Atlas of 1519 contains many beautifully illuminated charts (Plates 16, 17, 19, 22 and 24).

Several works by Diogo Ribeiro are included in this first volume, followed finally by the three "roteiros" or rutters of D. João de Castro (1500-1548), which demonstrate the skill of this eminent pioneer in hydrographic

(3) See Volume V for details of the Pedro Reinel chart of c. 1485.

work. His name will always be associated with the introduction of the coastal profile relief drawings of such great assistance to sailors and which formed an important part of all the Pilots and Sailing Directions published by maritime countries.

Volume II

Deals with nine cartographers, and more than half of the 143 charts here reproduced are works signed by Diogo Homem. They range in date from 1557 to 1576 and many of them, including the five in colour, are among the most beautiful specimens of early Portuguese cartography.

Special mention must be made of Diogo Homem's beautiful atlas of 1558, since it is here reproduced as a whole for the first time. This famous chart-maker lived in England during the reigns of Edward VI and Mary and the careful and luxurious execution of this atlas shows that it was made for the Queen herself.

The atlas of 1568, here reproduced as it is now, after being irretrievably damaged in a flooded library basement during the war, provides for posterity another precious cartographic document.

The splendid planisphere of André Homem, a relative of Diogo Homem, is the only surviving work of this "prince of cosmographers". When the ten pieces into which it was cut are assembled together we may fully appreciate the perfection of its drawing and arrangement.

Bartolomeu Velho was a cartographer and cosmographer who held a unique place in XVI century Portuguese cartography. He was particularly renowned for the precision of his representation of the interior of the continents, as so graphically shown in the Group of Four Charts of 1561.

The works of the well-known XVI century cartographer Lázaro Luís are included in this volume. Many of them represent in great detail the oriental regions. His atlas of 1563, at the Academy of Sciences in Lisbon, has become internationally known, mainly due to the excellent colour reproductions.

Volume III

The greater part of this volume is devoted to the work of one of the most outstanding Portuguese cartographers — Fernão Vaz Dourado, whose six atlases are here assembled for the first time. These are described by the authors of the P.M.C. as "a magnificent and homogeneous group of atlases without parallel in the history of cartography".

The work of Vaz Dourado will always be renowned for the beauty of the illumination, which may be appreciated from the reproductions of nine plates in colour among the 107 by him included in this volume.

Luís Teixeira, one of a family of cartographers that followed this profession over five or six generations, founded a new school of Portuguese

cartography and established an elegant style in drawing, lettering and colouring. His work was also highly valued in foreign countries, particularly in the Netherlands, and all the charts produced by or ascribed to him are reproduced in this volume. One outstanding chart (c. 1600) reproduced both in monochrome and in colour (Plate 360), is of great importance in the history of Portuguese cartography and, indeed, in the history of Portugal. It portrays for the first time the great empire of Brazil as well as the territories in West Africa with which it maintained the closest relations.

Bartolomeu Lasso, a contemporary of Luis Teixeira, also had an influence in foreign countries where his work left its mark, particularly in the cartography of the Low Countries. The atlas of 1590 is a fine example of his work.

Volume IV

The first part of this volume is devoted to the work of a great cartographer — Sebastião Lopes, who belongs exclusively to the second half of the XVI century. His charts are remarkable not only from the geographical point of view but also for their beauty, for as a cartographer-illuminator he may be compared to Vaz Dourado.

A jewel in the collection, now preserved at the British Museum and belonging to this period, is the Sebastião Lopes chart of 1558 which bears his signature. The exquisite ornamentation in the form of wind roses, flags and escutcheons is matched by other pictorial representations, quite uncommon at this period, and it is indeed surprising that the chart has for so long remained practically unknown.

Virtually the same observations made on the 1558 chart apply to the Anonymous — Sebastião Lopes World Atlas of c. 1565 — a very beautiful atlas and one of the most precious specimens of early Portuguese cartography.

João Baptista Lavanha, one of the most prominent learned men in Iberia during the late XVI century and beginning of the XVII, was noted not only as a cartographer - cosmographer and engineer, but also for the wealth of technical treatises he produced relating to nautical science. All the surviving charts ascribed to him are here reproduced including the Atlas-Cosmography, 1597 and 1612 (Anonymous : João Baptista Lavanha - Luis Teixeira).

João Teixeira Albernaz I was the most notable Portuguese cartographer of his day and, as a pupil of his father, Luis Teixeira, his style for long did not show any distinctive features. His output was remarkable as the total of 439 charts signed by or attributed to him bears witness; his charts of Brazil are particularly noteworthy as are the many atlases here reproduced in their entirety.

Volume V

This fifth volume of the P.M.C., over and above the four originally planned, contains a great number of cartographic specimens from the XVII century and some of earlier date discovered after the first four volumes had been published. One outstanding example of the latter is the Pedro Reinel chart of c. 1485 — the earliest known example of Portuguese cartography.

Other early XVII century cartographers whose works are included here are : Domingo Sanches, Antonio Sanches and Pascoal Roiz. Those belonging to the second half of the century are André Pereira dos Reis, João da Costa Miranda and João Teixeira Albernaz II (the grandson of João Teixeira Albernaz I).

Plates 575 to 591 included here reproduce Books and Atlases of the "State of Oriental India", which extended from the Cape of Good Hope to Macao. They contain a wealth of cartographic information beautifully shown in a series of monochrome maps and plans.

To complete the enumeration and description of Portuguese XVII century cartography, the concluding part of this volume (with about 50 examples) deals with four regional groups : 1) the Atlantic Islands, 2) Brazil, 3) Africa and 4) Asia-and-Insulindia.

Seven Appendices complete the work :

- I. Valentim Fernandes' sketches of the Atlantic Islands, 1506-1510.
- II. Three Luso-French Atlases.
- III. Cartography of Metropolitan Portugal in the XVII century.
- IV. Two new documents about the Reinels.
- V. Iconography of D. João de Castro.
- VI. Study of the evolution of the early cartographic representation of some regions of the world : Terra Nova and Japan. (The huge table giving the nomenclature of Terra Nova took over six months to prepare and, incredible though it may seem, the 53 sketches in the accompanying table are all reduced to the same scale).
- VII. Portuguese Cartographers of whom no signed works are known.

The review of Volume V would not be complete without special mention of Plate 613 showing a most imposing arrangement of the brilliantly ornamented wind roses used on the colour charts found in the five volumes of the atlas (Fig. 7).

Volume VI - Index

In addition to reproducing the tables of contents which appear at the beginning of each of the five volumes this index contains three important lists :

- 1) Alphabetical list of Portuguese cartographers earlier than the XVIII century and their known works.
- 2) Chronological list of Portuguese cartographic works known.

- 3) List of institutions in which Portuguese cartographic works are known to be preserved.

Storage of the Atlases

Cultural and scientific institutions possessing complete sets of the P.M.C. may welcome information on the suggested method of storing such bulky and heavy volumes. Fig. 8 shows in perspective and cross-section the recommended cabinet provided with eight sliding shelves, and with an adjustable top so that it may be used as a lectern.

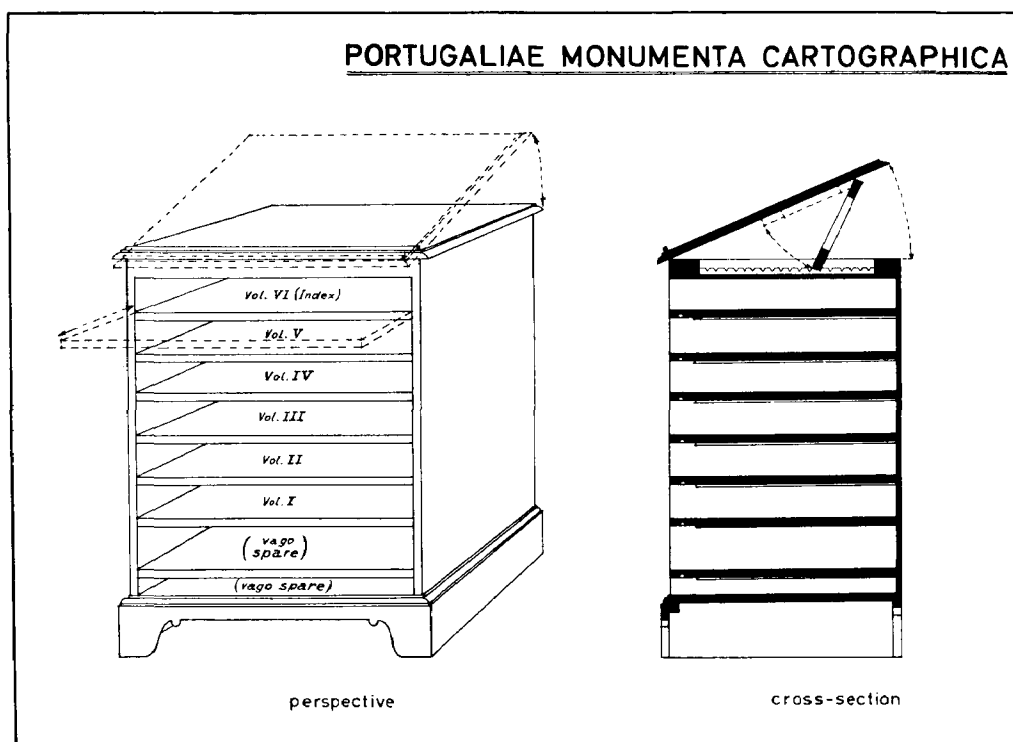


FIG. 8. — Cabinet specially designed for the Atlases.

The cabinet itself should be made of light but strong wood and the shelves of plywood. A refinement that cannot be too strongly recommended is the fitting of glass-panelled doors; this will afford good protection for the atlases and will greatly enhance the appearance of the cabinet ⁽⁴⁾.

(4) See illustration in Vol. XL, *International Hydrographic Review*, January 1963, page 154.

BIBLIOGRAPHY

- RICHARD J. (1900) : Campagnes Scientifiques de S.A.S. le Prince Albert I de Monaco.
- CORTESÃO A. (1960) : Cartografia Portuguesa Antiga. Coleção Henriquina, Lisboa.
- CORTESÃO A. (1961) : The Portuguese Discovery and Exploration of Africa.
- TEIXEIRA DA MOTA A. (1961) : A Evolução da Ciência náutica durante os Séculos XV-XVI na Cartografia Portuguesa da Epoca.
- CANIS L. : Petit Dictionnaire des Rues de Monaco ⁽⁵⁾.
- Ilustração Portuguesa*, No. 769, Lisboa, November 1920.
- Geographical Journal*, Vol. XXXV, London 1910, pp. 558-565 : The Opening of the Oceanographical Museum at Monaco.

(5) In Monaco, there is a street named Rue des Açores. Its name commemorates the visit made to the Azores by Prince Albert I of Monaco in his yacht « Hirondele » in the course of his scientific expeditions.