

ON THE DIVISION OF THE EARTH'S SURFACE INTO ZONES OF ILLUMINATION.

by

R. PUTNINS.

(Publication of the Geographical Society of Latvia, Riga, 1935).

This book, published in English, studies by means of geometrical considerations the duration of illumination by the Sun of the different zones of the Earth. It gives for the different latitudes the total duration of day, night and twilight for the different times of the year. The results are indicated in the form of graphs for the different zones and the writer discusses the advisability of the application of summer time in the various zones.

The work is accompanied by a historical notice and numerous bibliographical citations.

TIDAL ATLAS FOR KARA STRAIT.

U.S.S.R.:

The International Hydrographic Bureau has recently received from the Arctic Institute of the U.S.S.R. an *Atlas of Constant and Tidal Currents in the Kara Strait*.

As stated in the Introduction thereto, as the Tidal Currents in the Strait are not absolutely predominant, the total current likely to be experienced can only be calculated by combining the Tidal Current, the Drift Current due to the Wind and the Constant Current. To enable this to be done the Atlas contains 24 charts showing the Tidal Currents at various positions in Kara Strait for each hour before and after High Water at Kamenka Bay, 12 for a depth of 2 metres and 12 for 10 metres; also 2 charts of Constant Currents, one showing the sets and velocities at the points of observation and one showing the general scheme based on the above. A Table of Drift Currents calculated for the different directions and velocities of the Wind is also given, and a set of blank charts for tabulating same and plotting the resulting total current is also included.

A table of coefficients and instructions to enable the mariner to recalculate the velocity of the Tidal Current if necessary is also given.

Other tables give the periods of High Water in Kamenka Bay, the principal elements of the Tide at some positions in Kara Strait and harmonic constants for various positions in that Strait.

The Atlas is very well produced and the Introduction and Instructions, which are in Russian and English, are concise and clear.

J. D. N.

CURRENTS IN NARRAGANSETT BAY, BUZZARDS BAY AND NANTUCKET & VINEYARD SOUNDS.

(Special Publication N° 208 of the Coast and Geodetic Survey by F.J. HAIGHT, Associate Mathematician, Division of Tides and Currents, Washington, D.C. 1936).

Special Publication N° 208 adds to the already numerous publications brought out by the U.S. Coast and Geodetic Survey on the subject of the tides and currents of the American coasts.

In the course of the last few years the Coast and Geodetic Survey in collaboration with the U.S. Army Engineer Corps and the Lighthouse Service, has collected a very large number of observations on the tides and currents in the most important navigable waterways leading to the ports of the United States. The present volume deals with the region of Narragansett Bay, that of Buzzards Bay and finally with Nantucket and Vineyard Sounds.

The first part of the volume reproduces the definitions and the general information on the subject of reversing currents and rotary currents previously published in Special Publication N° 111 of the Coast and Geodetic Survey.

In the succeeding chapters are given, for the three zones indicated above, data concerning observations collected, the apparatus utilized for the observations and the methods of reducing the observations.

For each of these zones, the accompanying charts indicate in a very practical manner the direction and the strength of the currents with relation to the times of high water and low water at certain reference ports. The charts are given for every hour of the tide, those for Narragansett Bay being based on high water at Newport, those of Buzzards Bay on high water at Clark Point and those of the Nantucket and Vineyard Sounds on either the time of high water or low water at Boston.

During the past few years the U.S. Coast and Geodetic Survey has furnished information of particular importance in its special publications dealing with tides and currents. In 1925 there was published for the first time special publication N° 111, dealing with the tides and currents of the port of New-York; a revised edition of this publication was brought out under the direction of H.A. MARMER, Assistant Chief of the Division of Tides and Currents. We have given a brief review of this work in the Hydrographic Review, Vol. XIII, N° 2 of November 1936, page 181.

Special Publication N° 124 of the Coast and Geodetic Survey: "Instructions for Tidal Current Surveys" by Lieutenant L.M. ZESKIND describes the different methods of procedure, the instruments employed for this kind of determination and especially the Price and Pettersson current meters.

For the coasts of the United States the information concerning currents has been collated in the following special publications which we enumerate here in geographical order:— Special Publication N° 150: *Tides and Currents in Portsmouth Harbor*, by A.J. HOSKINSON & E.A. LE LACHEUR (1929); Special Publication N° 142: *Tides and Currents in Boston Harbor* by Paul SCHUREMAN (1928); Special Publication N° 208: *Currents in Narragansett Bay, Buzzards Bay & Nantucket and Vineyard Sounds*, by F.J. HAIGHT (1936); Special Publication N° 174: *Tides and Currents in Long Island and Block Island Sounds* by E.A. LE LACHEUR & J.C. SAMMONS; Special Publication N° 111: *Tides and Currents in New York Harbor* by H.A. MARMER (revised edition in 1935); Special Publication N° 180: *Tides and Currents in Hudson River* by Paul SCHUREMAN (1934); Special Publication N° 123: *Tides and Currents in Delaware Bay and River* by L.M. ZESKIND & E.A. LE LACHEUR (1926); Special Publication N° 162: *Tides and Currents in Chesapeake Bay and Tributaries* by F.J. HAIGHT & H.E. FINNEGAN and G.L. ANDERSON (1930).

For the west coast of the United States of America, the information concerning the currents is contained in the following special publications classified in geographical order: 1° Special Publication N° 115: *Tides and Currents in San Francisco Bay* by D.P. DISNEY & W.H. OVERSHINER (1925); 2° Special Publication N° 121: *Coastal Currents along the Pacific Coast of the United States* by HA. MARMER (1926). This publication deals with the observations collated by the lightships at San Francisco, Blunts Reef, Columbia River, Umatilla Reef and Swiftsure Bank. 3° Special Publication N° 127: *Tides and Currents in Southeast Alaska* by R.H. WOODWORTH & F.J. HAIGHT (1927).

The data has been collected by the following stations:

Portland Canal
 Revillagigedo Channel
 Ketchikan, Tongass Narrows
 Behm Canal
 Clarence Strait
 Sumner Strait
 Wrangell Narrows
 Keku Strait
 Frederick Sound
 Chatham Strait
 Peril Strait
 Stephen's Passage
 Lynn Canal
 Icy Strait
 Cross Sound
 Glacier Bay

To these various works should be added also the following publications which give the diagrams for the tidal currents at the entrance to certain ports: *Tidal Current Charts, Boston Harbor* (1937); *Tidal Current Charts, Long Island Sound and Block Island Sound*

(1934); *Tidal Current Charts, New York Harbor* (1932); *Current Diagram N° 2 Chesapeake Bay*; *Tidal Current Charts, San Francisco Bay* (1930).

We cite also the Current Tables, Atlantic Coast of North America; and the Current Tables, Pacific Coast, North America and Philippine Islands, edited in advance for each year and which supplement the Tide Tables by giving predictions for the time of slack water and the maximum strength of current for numerous points along the coast of the U.S.A. Additional general information is contained in the two following publications of the Coast and Geodetic Survey :—

N° 351. *Tidal Currents and Investigations.*

N° 280. *Tidal and Current Service, Methods, Instruments and Purposes* (Revised in 1934).

H. B.

ATLAS OF OCEANOGRAPHIC AND METEOROLOGICAL OBSERVATIONS IN THE CHINA SEAS AND IN THE WESTERN PART OF THE NORTH PACIFIC OCEAN.

The Netherlands Meteorological Institute published in 1936 the second part of its publication N° 115 entitled :—

OCEANOGRAPHISCHE EN METEOROLOGISCHE WAARNEMINGEN
IN DE CHINEESCHE ZEEËN EN IN HET WESTELIJK DEEL VAN
DEN NOORD STILLEN OCEAAN —

II — MAANDKAARTEN VOOR JULI-DECEMBER (1910-1930).

*Oceanographic and Meteorological Observations in the China Seas
and in the Western Part of the North Pacific Ocean —*

II — *Monthly Charts for July-December* (1910-1930)
Rijksuitgeverij — 's Gravenhage, 1936.

This work completes for the China Seas and the Western Part of the North Pacific Ocean the group of publications issued by the Royal Netherlands Meteorological Institute for the various oceans, which comprises especially Publication N° 104 giving the data for the Indian Ocean and Publication N° 110, completed in 1910 for the Atlantic.

The different synoptic charts derived from the scrutiny of a mass of observations collated from the ships' logs of different nationalities include information on surface currents, on the prevailing winds, the atmospheric pressure, the temperature of the air and the temperature of the sea at the surface. One may obtain some idea of the magnitude of the task involved in the publication of this work by noting for instance the number of observations which were used by the Royal Netherlands Meteorological Institute for Publication N° 110 relating to the Atlantic Ocean :— the total number of collated observations obtained through international cooperation was 7,300. In order to classify, reduce and tabulate such a large mass of data, the Institute in the preparation of its new Atlas just published employed, as it did with the preceding volumes, the *Hollerith* machines used for the rapid sorting and calculation of the perforated cards on which are recorded the data extracted from the log books of the vessels. The periodical entitled "*The Marine Observer*", published under the auspices of the Air Ministry of London, in its Vol. XIV N° 125 of January, 1937 gives the principles of this method of extracting data in an interesting article by H.T. SMITH entitled :— *The Extraction and compilation of Marine Meteorological Data by Mechanical Methods* which we recommend the reader to consult.

In the present publication, in addition to the usual data cited above, we find information on the frequency of fog, of storms, the paths of cyclones, the paths of depressions and general information regarding the monsoons and the trade winds. This important publication, edited by Professor E. van EVERDINGEN is on sale at the Rijksuitgeverij, at 's-Gravenhage, price 7.50 florins.

H. B.
