

Thus the graph expressing the r_p 's, which is much smoother than that of the u 's, may be used to read off the character of the natural periods of the u 's; further various relationships are found between the amplitude of the corresponding terms in the Fourier periods and those of the correlation coefficients.

The analysis is illustrated by applying it to the quarterly values of pressure at Port Darwin, a key center of world weather, which proves to have a strong persistence and to show evidence of not very strongly developed periods of about $3\frac{1}{2}$ months and of about four times this length or $11\frac{1}{2}$ years; the series of data is not long enough to settle whether the former oscillations are damped and are free oscillations, but the latter appear to be imposed from without and are presumably solar in origin.

WULF AND MELVIN ON THE EFFECT OF TEMPERATURE UPON THE ULTRA-VIOLET BAND SPECTRUM OF OZONE AND THE STRUCTURE OF THIS SPECTRUM

The ultra-violet absorption of ozone in the region 3400–2300 Å consists of a large number of bands appearing against a background of continuous absorption. The effect of temperature upon this spectrum has been studied over the range -78° to 250° C. A definite though small effect has been observed. Grossly it manifests itself as an increase in contrast with decreasing temperature. Photometric results show this to be chiefly a decrease in absorption between the band edges, all of the bands appearing to come from normal vibrational levels of very low if not the lowest energy. Though somewhat diffuse, the bands tend to degrade to the red. The observed influence of temperature can be explained as the decrease of intensity in the higher rotational absorption of the bands, and possibly also in the continuous background, with decreasing temperature. Discontinuities in the intensity relations and the regular spacing of certain of the bands have led to a partial vibrational analysis indicating two active vibrational degrees of freedom in the excited electronic state. The observed change in the absorption with temperature may effect somewhat the estimates which have been made of the amount of ozone existing in the upper atmosphere.—(*Bulletin of the American Physical Society, Program of the Washington Meeting, April 16, 1931, volume 6, No. 2, page 42.*)

FATHER E. GHERZI, S. J., ON THE WINDS AND UPPER AIR CURRENTS ALONG THE CHINA COAST AND IN THE YANGTSE VALLEY¹

The publication under review comes from the well known observatory of Zi-Ka-Wei, near Shanghai, organized more than half a century ago and operated in the interest of meteorology with special application to storm warnings for navigators of the adjacent seas. The present publication has its special appeal to navigators of the air in the Far East.

The upper air data available to Father Gherzi are far too few to afford definite results; nevertheless those at hand in connection with the movement of the clouds and the surface winds, statistics of which are abundant, enable the author to present a picture of free air conditions that is of much value in air navigation.

His pilot-balloon material consists of ascents made at Chefoo by the U. S. S. *Jason* in May, June, July, August, and September, 1928; pilot-balloon ascents were also contributed by H. M. S. *Argus* at Shanghai made in October, November, and December, a few ascents in

each month. These ascents though few in number serve to indicate the direction and force of the winter monsoon winds along the China coast. As might be expected these winds are due essentially to the presence and the intensity of the so-called Siberian cold season anticyclone; the center of which may be over the Province of Shantung in China, rather than in Siberia. Father Gherzi concludes that for winter monsoon days the winds aloft back with increase in altitude above the surface. Data for the summer monsoon are much too few to permit the drawing of definite conclusions. Conditions during the summer monsoon are much less ready than during the winter monsoon.

The statistical data of surface winds are given in very great detail for a number of stations on the China coast. The 240 quarto pages comprised in the report are mostly taken up with data of cloud movement and surface air movement printed in detail for a number of years of record. Appropriate charts and diagrams add to the interpretation of the statistics. The price of the work is \$4.50.—*A. J. Henry.*

RESULTS OF RAINFALL OBSERVATIONS IN WESTERN AUSTRALIA¹

The present volume is the fifth of a series published by the bureau. Volumes for Victoria (1910), N. S. Wales (1914), Queen Island and South Pacific (1913), South and North Australia (1917) have already been published. The last volume, discussing Tasmania, is under preparation. As soon as the series is completed supplementary volumes are to be published to bring the early issues up to date.

The present volume contains a concise history of the rainfall and weather of western Australia, from the time records began up to the end of 1927. A few of the records go back as far as 1877 and even earlier. The number of stations is 1,374.

The work contains a written tabular history of rainfall by months from 1877 to 1926; a short note on the climate of western Australia; a discussion of the relationships between wheat yield and rainfall; a record of notable meteorological events in the State, e. g., auroræ australis, bush fires, earthquakes, floods, etc. These occupy half of the volume. The second part of the volume contains the annual rainfall data of all stations in western Australia. At the end of the volume annual rainfall maps for western Australia from 1886 to 1927 are published, and also a revised annual rainfall map of Australia.

This publication is valuable to all those interested in the climate of western Australia, but especially to agriculturists and sailors. It lacks a thorough discussion of the rainfall and weather but it is an excellent source book containing the available data and written history of the weather in western Australia. Especially valuable are the numerous maps and charts included in the 387 pages of text.—*Sigismond R. Dietrich.*

PROF. ALEXANDER McADIE RETIRES FROM BLUE HILL OBSERVATORY

After sabbatical leave for the first semester of the coming academic year, Alexander McAdie, Abbot Lawrence Rotch professor of meteorology, Harvard University, and director of Blue Hill Observatory, will become professor emeritus.

¹ The winds and upper air currents along the China coast and in the Yangtse Valley Zi-Ka-Wei Observatory, Shanghai, 1931.

¹ Results of rainfall observations made in western Australia, Commonwealth of Australia, Bureau of Meteorology, under the direction of H. A. Hunt, Commonwealth meteorologist, 1929, p. 387.