

many meteorologists looked to an increase in the amount of upper-air data available, to help to solve their riddles. There has unquestionably been a considerable increase in the amount of upper-air data available every day, but it is doubtful whether they have proved as useful as was anticipated some 16 years ago. In practical forecasting the use which can be made of upper-air data is relatively small. At times an observation of temperature in the upper air may facilitate the forecasting of thunderstorms or of rainfall, but there are many days when the practical use made of the upper-air data is only slight. The present writer is well aware that some will differ from this view, but that others will undoubtedly agree. It may be that the advance for which we are looking will come from the application of thermodynamical reasoning to upper-air data, along the lines laid down by Shaw, Normand, Rossby, and Stuve, but at the moment it is not clear how far the methods of these workers can be of real use in day-to-day synoptic analysis.

There is a well-established fact which accounts for the difficulty of making fuller use of upper-air data, namely that such atmospheric features as cyclonic depressions, wedges of high pressure, and anticyclones, which travel from west to east, manifest them-

selves at low levels earlier than at high levels, to an observer at a fixed place.

One writer in a recent number of the *Quarterly Journal* expressed his belief that no obvious factor or line of attack could have escaped notice, in view of the large number of able young men now actively engaged in meteorological work. But it will be recalled that the ideas underlying the "polar front" methods were only very thinly disguised in Shaw and Lempfert's "Life-History of Surface Air Currents," and yet they did not attain full development until many years had elapsed. Many much older papers than that of Shaw and Lempfert may contain ideas which could now be elaborated with great profit in the light of our present knowledge of the physics of the atmosphere.

But whatever the future may bring, it is hoped that the statements of the present position with regard to certain aspects of meteorology which are contained in the series here reproduced may help to advance the science by clearing the ground of some obscurity, and helping to develop in the reader the right attitude of healthy scepticism.

BIBLIOGRAPHY

C. FITZHUGH TALMAN, *in charge of Library*

RECENT ADDITIONS

The following have been selected from among the titles of books recently received as representing those most likely to be useful to Weather Bureau officials in their meteorological work and studies:

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Airship investigation. Report of Col. Henry Breckinridge, counsel for the Joint committee to investigate dirigible disasters. Printed for the use of the Joint committee, Wash., D. C. 1933. v, 177 p. fold. pl., fold. charts. 23½ cm. At head of title: 73d Congress, 1st session, Committee print. A report relating to the crash of the Navy dirigible *Akron*.

Gregg, Willis Ray.

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Houghton, H. G.

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The wettest spots in the world. Indianapolis. 1934. 139 p. illus., maps, tables. 18 cm.