

winds usually are confined to rather narrow belts, and are not exceptionally severe. However, when the difference in air pressure is unusually great between the plateau region and southern California, the flow of air overtakes the capacity of the passes, and the dry desert air pours into the valleys directly over the mountain ranges. Under such conditions the wind damage is likely to be serious and wide-spread. . . .

Anton Deraga, who maintains the Deraga geophysical observatory at Balboa, Calif., has gathered some interesting statistics on these winds, which often attain a velocity of 60 miles per hour or higher at the observatory. Airplane pilots report to the observatory that they have found the wind velocity undiminished at an altitude of 5,000 feet, and the dust in the air as great at that elevation as near the ground. Heavy dust has been observed as much as 70 miles from shore over the Pacific Ocean, and great numbers of butterflies have been seen from 35 to 50 miles from the coast. Mr. Deraga has recorded relative humidities of 22 per cent 15 miles from the coast at only eight feet above the surface of the water. . . .

Undoubtedly the planting of trees throughout the valleys of southern California, and the construction of buildings and other obstructions to the free movement of the wind, has materially reduced the wind velocity near the ground, as well as the damage resulting from the winds.

Two stations were set up for the study. Of these,

One station was established in an orange grove owned by W. W. Perry, near Orange, Calif., 165 feet west of a windbreak 1,280 feet long, extending north and south. Approximately one-half the length of the windbreak is made up of Eucalyptus (blue gum), about 95 feet high, and one-half Monterey cypress, about 70 feet high. . . . Another station was placed in another orange grove, about one mile to the eastward, in a large citrus area without windbreaks. Both wind recording instruments were placed 18 feet above the ground, or about two feet above the tops of the trees. It was planned to find to what extent the wind velocity was reduced at a distance of 165 feet from the windbreak, and to move the anemometer farther to the westward, away from the windbreak, before the winter season of 1926-27.

After presenting the statistics thus far available from the study, Mr. Young writes as follows:

It can be concluded therefore that a windbreak such as that on the Perry Ranch will reduce the velocity of the wind at a point 165 feet from the windbreak and at the elevation of the tops of the orange trees to one-half the velocity at the same elevation in an orange grove unprotected by a windbreak, if the wind is blowing approximately at right angles to the windbreak. . . . The study of the effects of windbreaks on the wind velocity behind them, at varying distances from the windbreak, will be continued until all possible data of value or interest in connection with desert winds have been secured.

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### VAGARIES OF THE SPIRIT THERMOMETER

Don't rely too confidently upon the unverified readings of your spirit thermometer! How very tricky this instrument may become, is indicated by the quotation below, from *Nature* (London), Sept. 11, 1926.

The August issue of the *Journal of Scientific Instruments* contains an article by Mr. W. F. Higgins, of the National Physical Laboratory, of considerable importance to the makers and users of spirit thermometers. It has been noticed that the readings of certain spirit thermometers when placed in melting ice have decreased with age at rates of the order of 1° F. per month. Experiment has shown that the decrease is

not due to loss of spirit, through minute cracks in the glass or to change of volume of the glass, but to the presence of small quantities of acetone in the methyl or ethyl alcohol used in the instrument. Ten per cent of this impurity is sufficient to cause a lowering of the ice point at the rate of 1° F. every ten days for the first few months after the thermometer is made. The effect appears to be due to the polymerisation of the acetone under the influence of light.

The moral is plain: Compare the behavior of your instrument with that of a standard mercurial thermometer (or other which you know to be accurate, or of which you know the errors) *under identical conditions*. Which, being interpreted, means: Place the spirit thermometer within a few inches of the mercurial, and, of course, both in as perfect a shade exposure as possible. You may be surprised!—*B. M. V.*

## NOTES ON WEATHER AND BUSINESS IN LATIN AMERICA

(Excerpts from weekly Commerce Reports)

*Argentina.* (Cable Sept. 11)—Climatic conditions continue favorable for agriculture, and optimism is felt for the development of crops. A revised official estimate gives the exportable surplus of wheat on August 21 as 1,042,000 metric tons. Railway communication with Chile, which has been interrupted for some weeks by reason of heavy snowstorms in the Andes Mountains, has been re-established.

(Cable Sept. 25)—Weather conditions favorable to growing crops continued throughout the month. The new wheat crop is unusually advanced for this season, but is somewhat affected by pests; prospects are good, provided no exceptionally heavy frosts occur in October. At this time all crops are in excellent condition—although this is the period when sudden changes may be looked for. Most winter pasturage is in excellent condition. Commercial firms in the Argentine frontier district of the Territory of Misiones, adjacent to Encarnacion, Paraguay, suffered considerable loss from the tornado which partially destroyed that town in the latter part of September. Corn exports are rising with the advent of dry weather and improved condition of the roads from harvesting points to rail connections with the seaboard.

*British Guiana.* (Cable Sept. 23)—An excellent rice crop is now forecast as a result of favorable weather conditions.

*Chile.* (Cable Sept. 27)—Crop reports are favorable and indicate an increase in cereal acreage sown.

*Colombia.* (Cable Sept. 20)—The impossibility of moving foodstuffs from the coast to interior points during the drought [causing serious interruption of navigation on the Magdalena River—Ed.] caused the cost of living to rise, resulting in agitation started by the newspapers to have the Government reduce the import duty on such articles.

(Cable Sept. 27)—The Magdalena River is again very low and navigation is almost suspended on both upper and lower rivers. Five boats are aground just below the important river transfer point of Puerto Berrio. Merchants are hesitant in placing orders for new merchandise on account of the transportation problem and for fear Christmas goods would arrive too late.

*Jamaica.* (Cable Sept. 26)—Continued rains have inspired confidence in the future.

*Mexico.* (Cable Sept. 24)—Unusually heavy rains in central, northern, and western Mexico make communication difficult.

*Peru.* (Cable Sept. 25)—Reports showing exports through Iquitos for the first half of this year indicate a decrease to one-third of the total