

been published which does not draw upon the Lehrbuch for facts and data. His other great work, "Handbuch der Klimatologie" was written while he was still director of the Central-Anstalt. This book with its masterly descriptions of climatic conditions all over the world is regarded by authorities as the standard work upon this subject. These books are Hann's largest individual works but his extensive contributions to the *Meteorologische Zeitschrift* of which he was the editor or joint-editor from 1866 to 1920 are voluminous and cannot be passed by unnoticed.

Hann received many honors, national and international and without doubt was the leading meteorologist and climatologist of the age and by his death a "long life, a full life, and a life for which every meteorologist has cause to be grateful" was brought to a close.—Abstract from *Meteorological Magazine*, November, 1921, pp 300-302.

NEED FOR METEOROLOGY

On page 662 of the *American Review of Reviews* for December appears an article on "Engineering and Legal Aspects of Bad Odors" in which there is a quotation from the "Proceedings of the American Society of Civil Engineers" which reads as follows:

"Rather curiously, although twenty-four-hour operations were maintained, (in garbage reduction works) these peripatetic smells became more offensive after sundown. Evidently the sun's rays possessed a deodorizing power which was joyfully welcomed by the burdened population through those months of torment."

Coming from a scientific source this article would suggest to the mind of the casual lay reader that the sun actually does kill bad odors in the atmosphere, as it kills disease germs, when, as a matter of fact, the reason why bad odors are more noticeable at night than during the daytime is due to the fact that during the day the sun warms the surface of the earth, which in turn warms the air next to it, and the air when so warmed becomes lighter than the air above it which has not been warmed and consequently rises, taking with it the objectionable odors which it may contain, and when the surface air reaches the higher levels it is soon carried away by upper air currents and the odors it may contain are dissipated.

During the night, however, the sun does not warm the earth, but instead the earth gives off heat by radiation and its surface becomes colder than the air above it. Then it takes heat from the surface air, thereby cooling it and causing such surface air to become heavier than the air above that. This surface air, being heavier than the air over it, clings to the earth with all its odors, and if a gentle breeze is blowing it is carried along the earth's surface without being mixed to any considerable extent with the upper and purer air, and therefore at night the odors may travel a great distance before they disappear.

A civil engineer must come into contact with meteorological phenomena almost constantly in the course of his work, and it seems strange that an elementary knowledge of meteorology is not made a necessary part of an engineering course.

And it is not only civil engineers that would find a knowledge of meteorology a useful adjunct to their education. In nearly every walk of life we

must come into contact with meteorological phenomena, and if we know nothing of its principles we are apt to make wild guesses as to what is taking place in the air around us.

It would seem that the American Meteorological Society could do a great good to mankind by pointing out the necessity for teaching elementary meteorology in every public school in the land, thereby giving the coming generation a working knowledge of the everyday phenomena of the air.—*Cola W. Shepard.*

NOTES

By Science Service

Odors from the Lake Island garbage plant, formerly operated near New York City, were seriously offensive at a distance of 8 miles. The smells were generally much stronger by night than by day.

The oldest record of weather observations now extant was kept by William Merle, first at Oxford and afterward at Driby, England, during the years 1337-1344.

Thousands of almanacs have published "Herschel's Weather Table" for predicting the weather from the time of day the moon "changes." This table is sheer nonsense and the astronomer whose name it bears had nothing to do with concocting it.

What is believed to be the highest temperature for growth in plants of higher order was recorded at Tuscon, Arizona, and shows that some joints of prickly pear continued to elongate at a temperature of 133.7 degrees Fahrenheit. When the temperature rose higher, elongation ceased, but resumed when later the temperature dropped again.

It is estimated that one-third of an inch is removed from the surface of marble monuments in a century by the acid-laden rain of towns.

It takes a big block of fog to make one good swallow of water, says Dr. W. J. Humphreys of the U. S. Weather Bureau. The densest fog off Newfoundland Banks contains some 20,000 droplets in a cubic inch, Drs. Wells and Thuras of the Bureau of Standards, found. To get one gulp of water, enough fog to fill a space three feet by six feet by a hundred feet long would have to be condensed. In a fog of that size there are 60,000,000,000,000—pronounce it sixty trillion—particles of water, or three times as many particles as the number of dollars spent by the United States during the World War.

"It would take about a half-hour to count an inch of fog particles," says Dr. Humphreys. "Placed side by side 2500 to 3000 droplets would be needed to fill that length."

The droplets in a cloud have been found to be, on the average, twice the size of fog particles.

Helium Dirigible Sails Better, as well as Safer, Than Hydrogen-Filled Ships—Paradoxical though it may seem, the helium gas, twice as heavy as hydrogen with 92 per cent of its lifting power, acts, in an airship, just as a heavy automobile on a road at high speed, in comparison with a light car. Wind currents do not deflect it easily from its path and after it gets under way it travels more smoothly.

Dirigibles, in flying, pick up static electricity from the atmosphere. With hydrogen ships there was always danger, in landing, since when the ship touched the ground an electric spark of considerable power resulted. If this spark touched the envelope, fire and an explosion was extremely likely to result. Helium being absolutely non-inflammable, does away with this danger.