proper consideration of the allied sciences (Grenzgebiete). The single editor of the fourth volume (1883–1902/3), Dr. von Oettingen, has followed in the footsteps of his predecessors. In the fifth volume, edited by Dr. P. Weinmeister under the auspices of the Saxon Academy of Sciences in Leipzig and other academies, there are further limitations in the scope of the work. "To prevent the increase in the volume we have taken less consideration of the allied sciences." This policy of the editor and the academies which fathered the new volume is in my opinion a great mistake.

With the publication of Volume 5, the time had come not to limit but to widen the scope of the Handwörterbuch. Physical anthropology, biology (animal, botanical and human), comparative zoology, physiology, medical chemistry and entomology—these subjects should not have been omitted.

On the other hand, the new volume considered from a bibliographical standpoint deserves the highest praise and is a worthy successor to the previous volumes of this monumental work.

The policy of the previous editors to request scientists, especially those living outside of Germany, to prepare their own biographical statement was continued in this volume, without consideration of political boundaries. "Real science does not know political boundaries," says the editor. All the requests were answered and there will be found quite a number of original contributions by American, Belgian, English and French scholars.

In the preface of the fourth volume the editor recommends, in case the work should be continued, that for each branch of science to be dealt with an advisory board should be appointed to decide on the names to be included. It seemed that this suggestion was not carried out in the fifth volume. For the publication of future volumes I would like to recommend the election of such a board in each country, which would prevent regrettable omissions.

FELIX NEUMANN

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Eleventh Report of the Committee for the Investigation of Atmospheric Pollution. Observations in the Year ended March 31, 1925.

WE have in this report[1] a review of the work done by nineteen authorities cooperating in collecting data from forty-eight different stations. Forty-four of the forty-eight gave complete results.

Extensive tables give the deposits in grams per square dekameter for each month, or metric tons per hundred square kilometers.[2] It is noted first that Birmingham, farthest from the sea, has least chlorine both for the past year and in the general average for five years. A rather curious relation appears to exist between the amount of sulphate deposited from the air and the amount of total impurity. The greater the total impurity, the lower the percentage of sulphates. Also there appears to be an inverse relation between percentage of carbonaceous matter and sulphates.

The effect of wind on impurity is graphically brought out by plotting the mean values of the suspended matter for all observations at particular wind velocities against wind velocity in meters per second. The result is a curve, the equation of which is $I = \frac{0.55}{V} + 0.27$, I being the concentration in milligrams per cubic meter and V the velocity in meters per second.

It is remarkable that this curve indicates a variation of the concentration of impurity inversely as the first power of the wind and not as some higher power, which one would expect if there had been free lateral and vertical spread of the smoke as well as the stretching-out downwind. The actual results show what a profound effect wind has on concentration.

When the wind drops below one meter per second in winter, a smoke haze or fog in London appears almost inevitable under present conditions.

From some experiments made by Dr. Owens, assuming that the density of the particles is 1, and the average diameter 0.8 micron, the velocity of settlement will be 0.003 centimeters per second and the number falling on one square centimeter per minute should be 2880. Actual results are greatly in excess of the theoretical number, indicating that other factors are operative.

"London Particular," it appears, is found by a replacement of water particles by smoke and not by a dirtying of the condensed water by smoke.

A. MCADIE

BLUE HILL OBSERVATORY

SPECIAL ARTICLES

THE IONS OF INERT GASES AS CATALYSTS

IN SCIENCE of December 25, 1925, several gas reactions were reported in which we had found that the ions of certain inert gases, produced by radiating a mixture of inert and reactant gases with alpha rays,

[1] Abstracts of earlier reports are to be found in SCIENCE, August 8, 1924, June 2, 1922, April 22, 1921, and November 28, 1919.

[2] To convert metric tons per hundred square kilometers multiply by 0.0256 to get English tons per square mile; 0.09 to get pounds per acre.