DISCUSSION AND CORRESPONDENCE

ATMOSPHERIC POLLUTION[1]

THE Advisory Committee on Atmospheric Pollution has published its fourth report summing up the observations in the year 1917–1918.

The full lists showing in detail the monthly deposit figures at various stations are not reproduced, inasmuch as these have been already published in the *Lancet;* but full returns from two stations, Newcastle and Malvern, are given; and these give the highest and lowest deposits.

Figures of total solids deposited monthly are given for all stations, 24 in number, the months being on a thirty-day basis.

In many instances the rainfall as measured at these stations did not agree with the amount obtained by the official Meteorological Office gauges but this is easily explained when it is remembered that the gauges of the committee are often on roofs and are thus elevated. The rainfall is given in millimeters, and it would be well if we in the United States would follow this example.

At a given London station the data for the half year, October to March, 1917–1918, were:

Rainfall 43 mm.; tar 0.14 metric ton per square kilometer; carbonaceous matter other than tar 2.18 tons; insoluble ash 3.50; soluble ash 4.15; or total solids 11.41 tons. Of the soluble matter there were 1.46 tons of sulphate, 0.63 tons of chlorine, and 0.05 of ammonia.

No relationship can be discovered between the deposit of insoluble matter and the amount of rainfall. With the soluble matter, however, it is different, and in general it may be said to vary directly as the rainfall. The relation may be roughly expressed by the formula, $S = 0.058\ R + 2.5$, where R is the rainfall in mm. and S the deposit of soluble matter in tons per square kilometer. It is not suggested that this expression can be used to find the soluble deposit when the rainfall is known but gives only the general nature of the relationship.

[1] Meteorological Office. Report on Observations 1917–18. Advisory Committee on Atmospheric Pollution, London, 1919.

The report also contains the results of analysis of the rainfall at Georgetown, British Guiana, the nearest land in the direction of the prevailing east-northeast trade winds being the shore of Morocco, distant 3,000 nautical miles. There can be little doubt that the solids contained in the rain waters collected are those normal to the rains of the trade winds, with perhaps some derived from the coastal sea-spray.

The average results over the two years 1916 and 1917 were as follows:

	Solids in Solution, mg./litre
Ca	7.95
Mg	3.44
K	2.77
Na	16.36
Al_2O_3	0.58
Fe_2O_3	1.97
SiO_2	0.20
Cl_2	33.93
SO_4	12.02
CO_3	9.78
NO_3	11.57
NH_4	0.12
	100.69

It is shown that 55 per cent. of the solids in solution in the rainfall are cyclic sea salts, while 45 per cent. must have been derived from atmospheric sources.

The report also contains an account of certain experiments made to determine the best method of measuring continuously the suspended impurity in the air. A. M.

CAROTINOIDS AS FAT-SOLUBLE VITAMINE

MY attention has been called to Steenbock's interesting observation, in SCIENCE of October 10, that yellow corn and the colored roots, such as carrots and sweet potatoes, are richer in fat-soluble vitamine than white corn and the pigmentless roots and tubers. A number of other instances are noted in which fat-soluble vitamine and carotinoid pigment occur simultaneously. The fact that these relations have led Steenbock to the provisional assumption that the fat-soluble vitamine is one of the carotinoid pigments has prompted me to call attention to a number of cases where this relation apparently breaks down.