TABLE SHOWING THE AMOUNTS OF READILY WATER SOLUBLE SALTS FOUND IN THE JANESVILLE LOAM, NEAR JANESVILLE, WISCONSIN, MAY 1, 1903.

	K.	Ca.	Mg.	No_3.	HPO_4.	SO_4.	HCO_3.	Cl.	SiO_2.
				In parts per million of dry soil.					
				Surface Foot.					
Nothing added	28.72	138.00	42.28	36.32	37.60	222.50	64.00	2.00	35.11
5 tons per acre stable manure	27.70	120.00	43.90	28.56	43.00	240.00	40,00	2.00	62.86
10 " " " " "	26.80	127.50	38.90	34.56	82.00	187.50	60.00	2.00	55.72
15 " " " " "	18.08	135.00	39.36	32.64	27.80	210.00	54.00	2.00	41.75
300 pounds guano	26.20	114.00	38.44	25.96	26.20	215.00	28.00	6.00	27.94
				Second Foot.					
Nothing added	48.80	96.00	34.24	46.88	18.40	178.00	6.00	2.00	68.14
5 tons per acre stable manure	24.16	100.00	36.42	24.24	19.00	185.00	12.00	2.00	68.75
10 " " " " "	31.52	66.00	36.04	28,56	34.80	162.50	22.00	2.00	63.78
15 " " " " "	27.84	86.00	32.64	28.00	24.40	200.00	22.00	2.00	28.13
300 pounds guano	28.72	94.00	34.24	23.44	8.60	200.00	24.00	2.00	36.43
				Third Foot.					
Nothing added	13.36	56.25	33.94	45.44	29.40	215.00	6.00	2.00	36.28
5 tons per acre stable manure	41.92	57.00	30.58	26.72	31.60	182.50	22.00	2.00	35.10
10 " " " " "	15.76	60.00	27.40	28.00	34.00	162.50	22.00	2.00	72.94
15 " " " " "	25.68	72.00	30.84	25.96	9.80	197.50	42.00	2.00	47.03
300 pounds guano	34.88	61.00	33.64	13.52	34.40	187.50	22.00	2.00	42.68
				Fourth Foot.					
Nothing added	27.84	53.00	33.28	42.72	17.20	195.00	12.00	2.00	26.38
5 tons per acre stable manure	26.01	51.00	26.34	30.88	72.40	190.00	14.00	2.00	39.27
10 " " " " "	29.12	57.00	26.74	26.40	56.40	160.00	12.00	2.00	87.53
15 " " " " "	28.40	58.00	25.18	25.04	28.40	167.50	12.00	2.00	56.34
300 pounds guano	18.56	55.00	30.58	20.16	80.60	215.00	14.00	2.00	25.80

illustrating a single day's work on a set of samples taken from the surface four feet.

It is not, of course, affirmed that the amounts of the different ingredients found in the soils examined are actually in solution in the soil moisture as the sample comes from the field, although in my judgment the observations indicate that this is likely to be the case for most of the ingredients at least, but observations sufficiently demonstrative have not yet been made to warrant such a statement as fact. The five sets of determinations in each group are, in a way, made on duplicate field samples; that is, they are taken at the same time from the same field but from alternating plots, one of which, as the table indicates, has received no treatment, the others having received the amounts of stable manure indicated, or the amount of guano. These samples were taken early in the spring, only a few days after the application of the stable manure and fertilizers.

Observations similiar to these are being carried through the growing season on eight types of soil in four different states, the samples being taken simultaneously in the four different localities. All of the different fields are under the same crop conditions, so that any differences in yield may be determined for comparison with the amounts of soil moisture and the amounts of readily water-soluble salts which the soils upon which the crops are growing are found to contain. F. H. KING.

BUREAU OF SOILS.
July 30, 1903.

CURRENT NOTES ON METEOROLOGY.

PRELIMINARY METEOROLOGICAL OBSERVATIONS FROM THE 'DISCOVERY' EXPEDITION.

DR. H. R. MILL, in *Symons's Meteorological Magazine* for May, publishes some preliminary results of the meteorological observations taken on the British Antarctic Expedition near Mt. Erebus. The *Discovery* was in winter quarters in a sheltered position twenty-one miles from Mt. Erebus, in lat. 77° 49′ S., long. 166° E. Among the observations three facts are of special interest by reason of their bearing upon the theory of the general circulation of the atmosphere, which is just now much in debate. Lieut. Royds, in charge of the meteorological observations, reports that

'northerly winds seem most prevalent during the summer months, and I do not think they were ever recorded in winter.' Another point concerns the direction of the upper currents, which was determined by watching the drift of the smoke from Mt. Erebus. It appeared, from these observations, that the upper winds were usually southwesterly or westerly, *i. e.*, they showed a marked tendency to blow out from the circumpolar region. A third characteristic phenomenon noted was the decided rise in temperature during southerly 'blizzards' in midwinter; a fall in temperature coming with a change in the wind direction to the eastward. As Dr. Mill points out, this rise in temperature should not be taken as an indication of higher temperatures farther south, but rather as a *fœhn* effect, resulting from the mechanical warming of descending air currents.

SCINTILLATION OF STARS AND WEATHER CONDITIONS.

Some attention has of late years been paid to the scintillation of the stars, especially from the point of view of the bearing of this scintillation upon the upper air currents. A recent study of these scintillations by Rosenthal, of the Central Observatory of St. Nicholas at St. Petersburg (*Meteorolog. Zeitsch.*, XX., 1893, 145–156), is directed towards the relation which these 'twinklings' have to weather conditions. As the basis for the investigation the writer takes the numbers (1 to 5) which indicate the quality of the seeing as noted in the observations of double stars through a refracting telescope at Domkino, 130 kilometers south of St. Petersburg, and at St. Petersburg. The observations were made on 142 evenings, from September, 1894, to November, 1900, and usually at about 9 o'clock. It appears that the least good seeing is noted on evenings with cyclonic conditions, while the best seeing is under neutral weather types. The relation of the seeing and the weather conditions has been so carefully determined by Rosenthal that he has been able to tabulate the probable seeing under a large number of different weather types at Domkino. It appears that the curve of the isobars is an important determining factor in this problem. The investigation is an interesting one, and is likely to lead to similar detailed studies elsewhere.

THUNDERSTORMS OVER MOUNTAINS AND LOWLANDS.

In the *Meteorologische Zeitschrift* for May, Hegyfoky points out that his observations of thunderstorms, carried on for a number of years in Hungary, show an earlier occurrence in mountainous districts than over lowlands. In mountains the maximum hours of occurrence were 11 A.M.–2 P.M., while, over the lowlands the period of maximum was 2–5 P.M. The studies of Héjas, on the thunderstorms of 1871–1895, in Hungary, brought out similar facts.

R. DeC. Ward.

THE BRAIN OF PROFESSOR LABORDE.

Professor Papillault* has published preliminary notes on the brain of the late Professor Laborde, the eminent French physiologist and anthropologist. The brain-weight was low, 1,234 gms., but whether this was due to atrophy from old age (seventy-three years) or disease is not stated. Dr. Laborde's notable powers of speech led Papillault to examine the subfrontal gyres of the two sides with especial care, and he found that the area in question was demonstrably larger and more differentiated on the left side (where the motor speech-centers lie in right-handed persons) than on the right. The same feature characterized the brain of Gambetta. Unfortunately, Papillault makes no mention of the degree of development of the left insula as compared with the right, for it is this region which is most concerned with the association of the receptive and emissary centers of the cortex and so constitutes the true psychic speech-center.

Papillault adds that, in general, the convolutions show an average degree of complexity.

E. A. Spitzka.

* *Rev. de l'Ecole d'Anthropol.*, 1903, p. 142.