A lively discussion followed Mr. W. V. Thompson's paper on the official relation of agricultural colleges and the proposed national university. He believed that this relation should be one of sympathy and cooperation only.

We repeat that by admitting to the privileges of the departments in Washington only holders of the degree of doctor of philosophy or doctor of science—degrees that are obtained by good work in original research—the Government will at once stimulate the colleges and the students and better assure the future progress of science. The progress of arts, navigation, agriculture, meteorology, and every feature of modern civilization depends upon the steady prosecution of research.—*C. A.*

INTERNATIONAL METEOROLOGICAL COMMITTEE.

The Secretary, H. H. Hildebrandsson announces that as a result of a recent ballot the international meteorological committee has decided to meet during the second week of September, 1903, in the city where the British association will hold its sessions.—*H. H. K.*

THE VARIATION OF THE DIURNAL RANGE OF TEMPERATURE WITH THE LATITUDE AND LOCALITY.

A correspondent makes the following inquiry regarding the diurnal range or amplitude of the temperature at different parts of the earth, in the surface layers of the atmosphere:

"On page 37 of Waldo's Elementary Meteorology the following paragraph occurs: 'The amplitude or regular oscillation of the diurnal temperature (or the difference between the extreme maximum and minimum during the twenty-four hours) is, in general, greatest at the equatorial regions and decreases toward the poles, *for the same exposure.*' I have been unable to reconcile the above statement with the general belief in this section [Missouri] that the temperature of the equatorial regions is more nearly constant, and that the maximum temperatures are lower than the maximum temperatures of this latitude during the summer, and the minimum temperatures are higher than the minimum temperatures for this latitude. If this is true, the amplitude of the equatorial regions would appear to be less than for this latitude. An authoritative statement covering the above point is requested."

The above quoted sentence from Waldo is rather vague. Undoubtedly the author had in mind the *average amplitude* of the diurnal temperature oscillation. This is quite different from the *extreme amplitude* which our correspondent evidently has in mind, and which at certain seasons of the year may be greater in Missouri than in the Tropics. The following remarks relate to the average amplitude:

This subject is explained fully in Dr. J. Hann's new Handbook of Meteorology, pages 56–68, and from it the data of this note are extracted. The general law is that the amplitude diminishes from the Tropics to the polar regions, where it disappears, and from the surface of the earth upward, where the diurnal change of temperature vanishes at altitudes of 2,000 or 3,000 meters in the Tropics, and at less altitudes in high latitudes. All comparisons must be divided into two classes, (1) those over the ocean areas, and (2) those over the land areas. The chief cause of difference between these is the greater conductivity of the ground to solar insolation than that of the water, by which the land absorbs heat more rapidly during the day, and cools more quickly during the night, so that the variation of temperature is greater in the ground. This produces a wider amplitude in the temperature of the layers of air in contact with the surface of the land, than is the case with those which touch upon the surface of the ocean. It will not do to compare land amplitudes with ocean amplitudes in the same or in different latitudes, but these two classes of data must be kept entirely separate. The following examples show the range of the amplitude over the ocean in degrees centigrade:

Diurnal amplitude of temperature over the ocean.

	Latitude.	Air or water.	Departure from normal.		Amplitude.
			4 a. m.	2 p. m.	
			°C.	°C.	°C.
Equatorial regions, Atlantic Ocean	0°–10° N.	Water.	−0.31	+0.36	0.67
		Air.	−0.70	+0.81	1.51
North Atlantic Ocean	30° N.	Air.			1.80
South Atlantic Ocean	36° S.	Air.			1.40
North Pacific Ocean	37° N.	Air.			1.70
South Pacific Ocean	36° S.	Air.			2.20
Pacific Ocean (in higher latitudes)		Air.			0.65
North Atlantic Ocean	30° N.	Water.			0.50
Do		Air.			1.70
European North Sea	63–73° N.	Water.			0.37
Do		Air.			0.82

The following examples show the amplitudes over the land areas:

Amplitude in middle Europe.—January, 3.4; February, 4.7; March, 6.6; April, 8.3; May, 8.9; June, 8.5; July, 8.8; August, 8.5; September, 8.3; October, 6.0; November, 3.7; December, 2.8.

Amplitude in northern India.—January, 13.4; February, 14.1; March, 14.8; April, 14.7; May, 12.3; June, 7.9; July, 5.1; August, 4.9; September, 6.9; October, 11.1; November, 13.4; December, 13.5.

Variation of the amplitude in latitude.

Stations.	Latitude.	Amplitude.
	°	°C.
Lady Franklin Bay	81.7	1.4
Ssagastyr	73.4	2.3
Fort Rae	62.6	5.3
Katharinenburg and Bogoslowsk	58.6	6.9
Barnaul	53.3	8.1
Nukuss	42.5	11.8
Lahore	31.6	12.4
Allahabad and Lucknow	26.2	12.1
Nagpur and Jubbulpur	22.1	11.7

In extreme cases the diurnal range may amount to 14°, 16°, or even to 30° centigrade.

Amplitude on mountains and in high valleys for summer months.

Stations.	Height.	Amplitude.
	Meters.	°C.
Chaumont	1130	6.0
b. Gais	1150	2.9
Rigikulm	1790	2.7
Obirgipfel	2140	3.8
Sonnblickgipfel	3106	2.0
Mont Blanc	4359	3.5
Schuls (valley)	1240	9.5
Reckingen (valley)	1350	10.9
Bevers (valley)	1710	10.1

A cloudy atmosphere diminishes the amplitude by a very large amount.

It is seen that the amplitude diminishes with the latitude, and with the altitude; also that the presence of water in large bodies lessens the variation of the diurnal range, and that valleys have a larger amplitude than do the elevated portions of the surface of the earth. As a rule, when the locality, either in its topography, location or constitution, favors the rapid accumulation of heat during the day by its conductivity, and for the same reason quickly gives up its heat at night, there will be a large amplitude. In the polar regions the twenty-four hours are irregularly divided, being all daylight in summer and all darkness in winter, so that there is no contrast in relation to the sun's diurnal radiation, and therefore the amplitude is very small; in the Tropics the day is much more evenly divided, and the resulting effect is greater accession of heat by day and loss by night, with a wide range in amplitude, especially over the land.—*F. H. B.*