tion there is nothing to show their content. Some of the terms used in insect bionomics might have been included without greatly adding to the bulk of the work; these are not exclusively applicable to insects, but it is in entomological literature that they are chiefly to be met with. It might also have been well to add references in the case of the less usual terms.

The derivations will be welcomed by many; they are sometimes omitted, as under "coenogonous." Two incompatible derivations are given for "caterpillar," but the author does not help us to decide between them. A few misprints may be noted; "carneous" for "corneous," under "cranium"; "unbra" for "umbra"; "tergum," under "anal angle," probably for "termen," though the latter is insufficiently explained. Other slips occur, but on the whole the book is well suited for its purpose.

LETTERS TO THE EDITOR.

[*The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts intended for this or any other part of* NATURE. *No notice is taken of anonymous communications.*]

Antarctic Barometric Pressure.

THE reduction of the barometric readings taken during the first year of Capt. Scott's Antarctic expedition has shown what I imagine to be an unprecedented rise of barometer from one month to the next. The mean barometer during November was higher than during October by 0·81 in. at Cape Evans, 0·80 in. at Cape Adare, and 0·87 in. at the Norwegian winter quarters. The rise continued into the next month, and the mean value at all three stations for December was approximately one inch higher than that for October.

The instability of the atmosphere shown by such a change has a melancholy interest in view of the sad disaster caused by the weather, and is further of great meteorological importance. I should therefore be grateful for any information of similar large changes, so that they may be considered in my discussion of the meteorological results of the expedition.

The following table gives the mean height of the barometer at the three stations. The data have been reduced to sea-level and normal temperature and gravity. The large difference between the mean values at Framheim and Cape Evans is being investigated.

	Framheim	Cape Evans	Cape Adare
Lat. ...	78° 38′ S.	77° 35′ S.	73° 27′ S.
Long. ...	195° 30′ E.	166° 33′ E.	170° 15′ E.
1911			
February ...	—	29·31	—
March ...	—	29·21	29·12
April ...	29·08	29·32	29·25
May ...	29·02	29·23	29·05
June ...	28·88	29·11	29·11
July ...	28·86	29·08	29.01
August ...	28·94	29·19	29·06
September ...	28·90	29·16	28·98
October ...	28·61	28·82	28·76
November ...	29·49	29 63	29·56
December ...	29·66	29·75	29·72
1912			
January ...	29·36	29·43	—

GEORGE C. SIMPSON.

Simla, March 20.

X-Ray Spectra.

WE have recently been carrying out some experiments with the object of finding whether spectra of heterogeneous beams of X-rays can be obtained by letting the rays fall on a crystal surface which would serve as a diffraction grating.

A beam of rays from a Röntgen bulb was directed on to the cleavage surface of a crystal of selenite at almost grazing incidence, the beam being made practically parallel by means of suitable lead stops. All the photographs taken of the reflected beam show exceedingly well-defined lines, which are not equally spaced, their number and distances apart varying according to the particular bulb used. These lines are parallel to each other and to the slit. The hardness of the bulb affects the relative intensity of the lines, but apparently makes no difference to their relative positions. Using the same bulb, crystals of different thicknesses all give the same lines.

The accompanying figure represents diagrammatically the lines obtained in one of the photographs. The direct beam strikes the plate at x, and in the reflected beam are seen three well-defined lines, x_1, x_2, and x_3 (in addition to what appear to be interference bands, not shown in the figure). When the bulb was

soft the line x_1 was very intense, whilst the other two lines were comparatively faint. Another photograph taken with the same bulb after it had been hardened shows the line x_1 very much less intense than formerly, whilst the lines x_2 and x_3 have increased in intensity. It appears, therefore, that the line x_1 is due to the softer constituents of the beam, and the lines x_2 and x_3 are due to the harder constituents. That is to say, the rays of longer wave-length are less deviated than the rays of shorter wave-length.

The results suggest that the lines obtained may be spectral lines in the spectra of the beams emitted from the respective bulbs. Further experiments are being carried on.

E. A. OWEN.
G. G. BLAKE.

Teddington, Middlesex, April 7.

X-Rays and Crystals.

ON repeating the experiments of Laue, Friedrichs, and Knipping on the transmission of X-rays through crystals, I have found that the transmitted rays may easily be made visible by means of an ordinary fluorescent screen, if we use a sufficiently large pencil of rays, and the crystals are sufficiently transparent to the incident ray.

The X-ray tube used was a Müller-tube of 20 cm. diameter, with water-cooling; the current was supplied by a Toepler influence machine with sixty plates. The diameter of the pencil of rays was 0·5–1·0 cm. The crystals examined were borax, alum, mica, fluorspar, rock-salt, rock-crystal, cane-sugar, &c., the thickness varying from 4 mm. to 1 cm. The transmitted rays show numerous detached fluorescent spots of elongated shape. If we rotate the crystal about an axis perpendicular to the incident ray, the spots move generally across the central spot caused by the incident ray, but we may choose the axis of rotation such that some of these spots remain stationary while the crystal is rotated.

Groups of detached pencils are arranged, as it were,