very sensitive to climatic conditions, so sensitive indeed that some of them will predict a change in weather unfailingly. They will tell you they can feel it in their bones and it may be, with people so situated, that actual changes in humidity or temperature can scarcely be invoked as causative factors, that they are directly susceptible to barometric fluctuations.

The suggestion might be checked if a group were willing to allow the experimentalist to subject them to slight variations in pressure.

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Jan. 7.

IN his letter dealing with 'raw' weather, Dr. Dobson[1] has raised a question of considerable human interest which will probably require the combined experience of physicists and physiologists for its solution.

One explanation has already been mooted by Sir Leonard Hill[2], but apparently rests on the misapprehension that: "Cold moist air has a much higher conductivity than cold dry air." Reference to the "International Critical Tables" shows that, so far as information relating to the thermal conductivity of water vapour is available, this is not likely to be the case. At 46° C. the conductivity of water vapour is 12 per cent less than that of dry air, and there is no apparent reason why it should be greater at lower temperatures. It is difficult to imagine, therefore, how the admixture of a comparatively small proportion of water vapour with air could result in an *increased* thermal conductivity of the mixture.

Although the explanation of 'rawness' based upon the effect of moisture in the atmosphere appears to be untenable, it may be that the moisture content of clothing is important. There is evidence that even a small quantity of water adsorbed on the fibres of a textile material causes a considerable reduction in its insulating efficiency. Cold weather in England—at any rate in the south-eastern part of it—is usually dry enough to allow free transpiration of water vapour through the clothing. In 'raw' weather, however, the water excreted by the skin is retained in the clothing, with consequent feelings of chill and discomfort.

Another physical condition which may prove significant is the ionic content of the atmosphere. Work now proceeding on the Continent and in the United States[3, 4, 5] indicates that this factor, which is very variable, can produce remarkable physiological effects. In a cold environment the feeling of 'rawness' may well be one of them.

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Garston, Herts.
Jan. 17.

[1] NATURE, 121, 28, Jan. 7, 1933.
[2] *Ibid.*
[3] *Acta Rheumatolog.*, 4, 12; 1932.
[4] *Heating, Piping and Air Conditioning*, 3, 865; 1931.
[5] *Aerologist*, 8, 26; 1932.

## Molecular Fluorescence of Antimony

WE have obtained a rather strong fluorescence of diatomic vapour of antimony illuminated by a mercury arc of high luminosity; the temperature was about 950° C. and the pressure corresponded to a temperature of about 650° C.

There are four mercury lines which certainly excite a resonance spectrum and two other probable ones; the results are given in the accompanying table.

| | Exciting Hg lines | No. of negative terms. | No. of positive terms |
|---|---|---|---|
| Certain | 2967 A. | 1 | 13 |
| | 3022 | 2 | 11 |
| | 3126 | 2 | 6 |
| | 3132 | 4 | 7 |
| Probable | 2925·5 | 1 | 1 |
| | 3342 | 1 | 5 |

The frequencies of the resonance terms can be accounted for by the equation

$$\nu = \nu_0 - 277\ (v'' + \tfrac{1}{2}) + 0{\cdot}68\ (v'' + \tfrac{1}{2})^2$$

Details of the investigation will be published shortly in *Bull. Soc. Roy. Sci.*, Liège, Belgium.

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## Absorption of Light in Cæsium Vapour

WE have measured the absorption of light in cæsium vapour, by photographic photometry, from the series limit (λ 3184 A.) to λ 1935 A. The absorption cell was a quartz tube two metres in

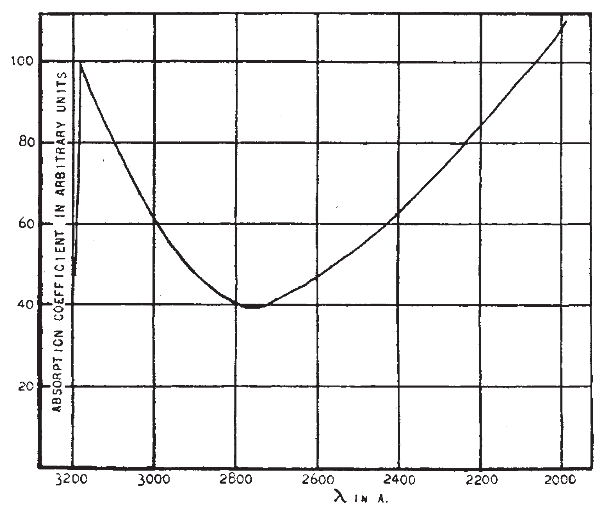


FIG. 1.

length. The vapour was superheated to about 270° C. and the vapour pressure was varied from 0·15 mm. to 0·6 mm.

The absorption at any one wave-length appears to be directly proportional to the pressure, and the variation with wave-length is shown in Fig. 1.

The results may be compared with those obtained for the photo-ionisation of cæsium vapour[1, 2, 3, 4]. Mohler and Boeckner[1] made absolute measurements of the photo-ionisation for λ 3130 A. and obtained a value corresponding to an atomic absorption coefficient of $1{\cdot}85 \times 10^{-19}$ cm.$^{-1}$. Our experiments give, as a preliminary value[5] for the total absorption at the same wave-length $1{\cdot}92\ (\pm\ 0{\cdot}1) \times 10^{-19}$ cm.$^{-1}$. These agree within the limits of error and indicate that the whole absorption at this wave-length is photo-electric.

The form of the curve agrees more closely with the curve obtained by Little[2] and by Cooke[4] than with that obtained by the other workers[1, 3]. The rise in the absorption in the far ultra-violet is interesting and