Weekly Variation in the Intensity of Ultra-Violet Waves of Sunlight in an Industrial Town.

DAILY records of the intensity of the ultra-violet radiation were made in Huddersfield between 1925 and 1928 by the acetone methylene-blue method.[1] While as a quantitative method this only gives approximate values, comparisons may be made in a qualitative way. The figures obtained here have now been analysed for weekly variations. Since this is one of the very few so-called smoky towns in which such records have been taken, the results may be of wider interest.

The subjoined table shows the mean daily intensity

Season.	Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
June—Aug. .	3·6	3·0	3·1	3·2	3·2	3·1	3·4
Sept.—Nov. .	1·2	0·8	0·9	1·0	0·9	1·1	1·1
Dec.—Feb. .	0·5	0·4	0·4	0·6	0·4	0·4	0·3
Mar.—May .	1·8	1·7	1·7	1·7	1·6	1·5	1·6
Annual mean .	1·78	1·45	1·53	1·61	1·55	1·57	1·63

on each day in the week for the four seasons and also an annual mean. One 'degree' is approximately sufficient to produce a moderate erythema of a white skin. There is a fairly pronounced maximum intensity on Sunday in all seasons except winter, giving indication of the effect of smoke-screening. The loss on week-days in summer amounts to nearly 15 per cent. Actually it seems that industrial smoke may here be responsible for a greater loss than this: there is an increase in the output of smoke from domestic sources on Sundays which will effect a lowering of the Sunday excess of radiation by an amount not easily ascertainable. The fair constancy of the mid-week figures probably shows that the effect of purely meteorological changes has been mainly eliminated in the analysis.

A similar summary for a country station would form an interesting comparison.

S. MORRIS BOWER.

Climatological Station,
Oakes, Huddersfield,
June 20.

[1] *Vide* Hill: *Proc. Roy. Soc.*, A, vol. 116, p. 268; 1927.

Blood-Groups among Australian Merino Sheep.

IN this laboratory, from time to time, we come across an anti-sheep cell hæmolytic serum from rabbits which causes rapid agglutination and sedimentation of sheep red blood cells. This is undesirable from the serologist's point of view. A sample of such serum was recently tested against fifteen random samples of sheep cells, and the latter, on the basis of agglutinability, could be sharply divided into two groups. We do not, of course, regard this observation as original, but merely wish to stress its importance for serologists and especially also for commercial firms dealing in bacteriological laboratory material. It might be well to define the group to which belonged the red cell antigen used in preparing a given hæmolysin, two or more groups having been determined on the basis of response to immune agglutinin. Incidentally, we pursued the line suggested by the above observation, and found that there are at least two 'blood groups' amongst pure-bred Australian merino sheep.

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(Director).

Brisbane and District Laboratory,
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Brisbane, Queensland,
April 23.

Infra-Red Absorption Spectrum of Sulphur Dioxide.

DICKINSON and West (*Phys. Rev.*, **35**, 1126; 1930) have determined the Raman spectrum of sulphur dioxide; they obtained displacements of 524 (weak), 1146 (strong), and 1340 (medium) cm.$^{-1}$. We had already examined the infra-red absorption spectrum of sulphur dioxide between 2 μ and 20 μ with a Hilger *D.* 42 spectrometer, using quartz, fluorite, rocksalt, and sylvine prisms, and found bands at 2498, 2321, 1871 (very weak), 1355, 1152, and 606 cm.$^{-1}$; of these the band at 1355 cm.$^{-1}$ is most intense and seems to possess a complicated structure. The fundamental frequencies are probably $\nu_1 = 1355$, $\nu_2 = 1152$, and $\nu_3 = 606$ cm.$^{-1}$. The two larger frequencies are in good agreement with those deduced from the Raman spectrum, although the scattered line at 524 cm.$^{-1}$ agrees more closely with the difference between ν_2 and ν_3 ($1152 - 606 = 546$ cm.$^{-1}$) than with ν_3 itself. The other bands can be accounted for as combination- and over-tones.

Careful examination failed to reveal bands reported by Coblentz ("Investigations of Infra-Red Spectra", p. 52; 1905) at 3·18 and 10·4 μ.

A detailed account of the investigation will be published shortly.

C. R. BAILEY.
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Sir William Ramsay Laboratories of Inorganic and Physical Chemistry,
University College, London, June 3.

Effect of Magnetic Fields on Dielectrics.

IN a paper by S. Whitehead on dipoles in relation to the anomalous properties of dielectrics (*Phil. Mag.*, May 1930) there is a slight reference to the effect of magnetic field on dielectrics, but no details of any experiments or results. Experiments which we have carried out show clearly that when a constant magnetic field is superimposed on a dielectric which is being subjected to an alternating electric stress, so that magnetic and electric fields are normal to one another, then the presence of the magnetic field causes a change in the power factor of the dielectric and hence in the losses occurring therein. The nature of the results indicates that the effect of the magnetic field is to decrease the power factor.

PHILIP L. BURNS.

Faculty of Applied Science and Technology,
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Belfast, May 22.

The Acquired Characters of *Alytes*.

IN reply to the letter of Dr. Walker on Alytes which appears in NATURE of June 14, he is right in saying that I assume that potentialities of growth are altered by the environment and that the result is handed on to succeeding generations. Proof that it is so exists and could be given in detail were not space in NATURE so precious. Przibram gave five or six such cases when he was in London two years ago.

Dr. Walker's alternative explanation is hard to follow, namely, that 'variations' (produced by chance?) survive. The superstition that selection can call into existence something that was not previously there is hard to kill.

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June 17.