for extrapolation to infinite dilution seems unnecessary: the ordinary square root formula holds over a considerable concentration range when applied to Shedlovsky's results[9] for KCl, NaCl, and HCl at 25°. Further, the Shedlovsky equation is of limited applicability (it breaks down for KNO_3, chlorates and iodates) and the values for Λ_0 deduced from it for NaCl and KCl at 18° have actually been exceeded at experimental concentrations by Kohlrausch and Maltby[10] and by Wieland[11] respectively.

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[1] NATURE, 130, 774, Nov. 19, 1932.
[2] NATURE, 130, 435, Sept. 17, 1932.
[3] *J. Amer. Chem. Soc.*, 46, 312; 1923.
[4] *Wiss. Abh. Techn. Reichsanst.*, 3, 156; 1900. *Ges. Abh.*, 2, 826; 1911.
[5] *J. Chem. Soc.*, 1715; 1931.
[6] *J. Amer. Chem. Soc.*, 53, 1357; 1931.
[7] *Ibid.*, 54, 2741; 1932.
[8] *Ibid.*, 54, 1405; 1932.
[9] *Ibid.*, 54, 1429; 1932.
[10] *Ges. Abh.*, 2, 886; 1911.
[11] *J. Amer. Chem. Soc.*, 40, 146; 1918.

'Raw' Weather

WITH the return of winter the following physico-physiological question once more calls for solution :—Very hot but dry weather may be tolerable, while moderately hot but very damp weather may be almost unbearable. The explanation of this in terms of cooling by evaporation is known to everyone. Again, while very cold dry conditions may be pleasant and invigorating, damp and rather cold weather—what is generally described as raw weather—is very unpleasant even to normal people, while it is peculiarly bad for those suffering from rheumatism and the like. So far as I know no explanation of this last effect has been generally accepted; indeed, inquiries of many physicists and not a few physiologists have failed to produce any suggestions regarding even the general lines along which a solution might be found. Any complete explanation must also account for the fact that damp air with a moderate temperature is far from unpleasant, as exemplified by the mild south-westerly conditions often occurring in the British Isles.

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HEAT expands and softens the tissues, bringing more blood and lymph into the parts: cold tightens them up. It is, I suggest, this change which leads to pain in rheumatic people. A sudden thaw is most trying.

Cold moist air has a much higher conductivity than cold dry air, and acting on the skin produces the raw feeling and excites the nerve endings which reflexly cause the tightening-up effect.

The action of certain infra-red rays in producing reflexly congestion of the nasal air way or the opposite affords a striking example of how skin stimulation produces reflex effects on deeper organs.

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Isotope Effect in the Spectrum of Cadmium Hydride

IN an earlier paper[1], I dealt with the structure of different band systems in the spectrum of cadmium hydride. In several respects, however, my analysis suffered from incomplete resolution of the spectrum, especially regarding the isotope splitting of the band lines. Recently I repeated the investigation, using a large concave grating in the third order (0·6 A./mm.). Much work was devoted to the analysis of an extensive system $^2\Sigma^* \rightarrow {}^2\Sigma$, covering a wide range of vibrational levels ($v' = 0$ to 13, $v'' = 0$ to 6) and thus forming a favourable case for an examination of the isotope effect. The band lines are here split into components belonging to Cd (114, 112, 110, 116), already known from the work of Aston.[2] Besides this, faint components appear belonging to isotopes Cd (118, 108), which have not been reported before. These components were found in every rotational line-group of a great number of bands, falling exactly in the position calculated (± 0·02 cm.$^{-1}$). I was not able to detect the components of the odd isotopes Cd (111, 113), due to their positions between the intense lines of Cd (110, 112, 114). Only in favourable cases could a diffuse blackening be distinguished between the components of Cd (110, 112), which may be related to Cd (111).

There are some peculiarities regarding the intensity distribution among the isotope components which may be of interest to mention. In bands belonging to the transitions $v' \rightarrow 0$, the lines of Cd (114) are somewhat more intense than those of Cd (112), while there is a considerable intensity difference between the lines of Cd (110) and Cd (116), in agreement with Aston's values. In transitions $0 \rightarrow v''$, the intensity distribution is changed in favour of the heavier isotopes. Due to this, I was able to trace Cd (118) only in the latter case, where it appeared stronger than Cd (108), while in transitions $v' \rightarrow 0$ only Cd (108) could be observed. These relations can be accounted for partly[3] by influences of the Boltzmann factor $e^{-h\nu/kT}$

Detailed account of the analysis of this spectrum will be given shortly.

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[1] E. Svensson, *Z. Phys.*, 59, 333; 1930.
[2] F. W. Aston, *Phil. Mag.*, 49, 1191; 1925.
[3] G. Stenvinkel, NATURE, 126, 649; 1930.

Chlorination of Sodium Benzoate

THE chlorination of benzoic acid in alkaline solution by means of sodium hypochlorite is often quoted as an example of the effect of ionisation on orientation. Lossen's experiments[1] have been repeated, and it is now found that the product of chlorination contains 48 per cent ortho-, 32 per cent meta- and 20 per cent para-chlorobenzoic acid. This is an unusual type of orientation.

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[1] Friedländer, 7, 115; 1903.