doing any work, and in this restricted sense they are termed 'free'.

Now if these 'free electrons' are really responsible for electrical and thermal conductivity, it is only natural to expect a relationship between the ionisation potential and electrical (or thermal) conductivity of any metal atom. The following table shows the relationship, where N represents the atomic number, K the electrical conductivity, and I the ionisation potential. The values of K are taken at 0° C.

Group.	Element.	Structure of Crystal.	$\frac{1}{KNI} \times 10^8$.
I.	Na	Body centred cube	7·8
	K	,,	8·0
	Rb	,,	8·1
	Cs	,,	8·5
II.	Zn	Hex. close packed	2·0
	Cd	,,	1·8
III.	Al	Face centred	3·3
	In	,,	3·0
	Tl	,,	3·5
IV.	Sn	Tetragonal cube	3·5
	Pb	Face centred	3·3
V.	As	Body centred	9·2
	Sb	,,	9·0
	Bi	(?)	18·0(?)
VI.	Cr	Body centred	1·6
	Mo	,,	1·4
VIII.	Fe	Body or face centred	4·7
	Ru	Hex. close packed	4·3
	Co	Face centred or hex. close packed	4·24
	Rh	Face centred	1·34(?)
	Ni	Face centred	2·74
	Pd	,,	2·70

The above table shows that in any group of elements, *if the metals possess the same crystal structure, the product of electrical conductivity and ionisation potential* ($K \times I$) *varies inversely as the atomic number* (N). Discrepancies occur in the cases of magnesium, calcium, strontium, rhodium, and bismuth. A fuller treatment of the subject will be published shortly.

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Dew: Does it Rise or Fall?

WHEN I was studying the subject of dew-ponds, I made many hundreds of experiments on dew, and these went to show that under suitable conditions there may be upward dew or downward dew. In his "Essay on Dew", 1814, republished in 1866, Wells stated that dew was formed from moisture already existing in the air and was deposited on the tops of good radiators. Blythe, however, said in 1836, in his edition of "Selborne", that "the true theory of dew is that it rises from the ground and does not fall, as is the common opinion".

This view was also demonstrated by Aitken, and in certain circumstances I found that it is true. On some nights an inverted tray was found to be bedewed only on the underside, and the undersides of stones were also moist with dew. This dew must have been formed from the moisture which had arisen from the soil with radiant heat after nightfall. But the fact remains that most of the dew is found on the upper-sides of radiating materials, and it seems to follow that it 'falls', although the distance through which it falls cannot be great. It is where there is the greatest radiation of heat that it is deposited, and this is as a rule on the uppermost sides of grass, stones, feathers, or cotton wool, etc.

It seems to stand to reason that the moisture already in the atmosphere near the soil will be the first to fall below dew-point, although this may be difficult of proof. My point in writing is to suggest that according to the conditions prevailing either theory is correct.

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The Translator of Newton's "System of the World".

NEWTON'S book, the "System of the World", has laboured under two uncertainties, the first as to its authorship, the second as to the translator of it into English. The first uncertainty, raised by De Morgan in his "Budget of Paradoxes" (1872, p. 83), has been removed, but the second still prevails, according to G. J. Gray's "Bibliography of the Works of Sir Isaac Newton", second edition, 1907, p. 20. I wish to prove that it was translated by Andrew Motte, the translator of the "Principia". This follows conclusively from a comparison of the translation of a practically identical passage of about 850 words in the "Principia" and in the "System of the World". No two independent translators could use language so very nearly identical. Consider, in particular, a critical phrase in that passage ("Principia", Bk. 3, Prop. 41, Example; "System of the World", Paragraph 67): "Nam quod dicitur Fixas ab Aegyptiis comatas nonnunquam visas fuisse". The translation of "comatas" caused trouble and was rendered in both books by the use of three words, "coma or capillitium", the whole phrase being translated, "For as to what is alleged that the fixed stars have been sometimes seen by the Egyptians, environed with a coma or capillitium". Such singular coincidence in a free translation makes it certain that both books are rendered into English by the same translator.

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Structure of Trebly Ionised Chlorine.

WHILE investigating the nature of spectra given by halogens in their different states of ionisation, I came across certain lines of chlorine which I found as arising from its trebly ionised state, due to the transition $M_2(N_1 - N_2)$. The fundamental transition has been investigated by Bowen and the differences are taken from his paper (*Phy. Rev.*, **31**, 36; 1928). The differences are ${}^3P_0 - {}^3P_1 = 362$; ${}^3P_0 - {}^3P_2 = 1434$. The chief lines of the group $M_2(N_1 - N_2)$ have been thus located: ${}^3P_2{}^3D_3$ at $\nu = 34918$; ${}^3P_2{}^3P_2$ at $\nu = 37227$; and ${}^3P_2{}^3S_1$ at $\nu = 38554$. The singlet system and the intercombinations have also been obtained: thus ${}^1P_1{}^1P_1$ at $\nu = 38088$. The difference ${}^3P_0{}^1P_1 = 1643$.

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Conocephalum conicum.

I HAVE just come across a rather fine quantity of this interesting hepatic in the fruiting condition. The plant is well established in that particular place, and I shall be delighted to forward the material to anyone who is engaged in the working out of the cytology, etc., of the fructifications.

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