

current in bifurcation, as the temperature  
could then be better regulated.

This has an air of shockingly  
violating Ohm's law, so the effect would be very  
slight, if any. I fancy somebody named  
Des Conduys has had a try at whisking the  
conductor carrying a current, which  
could hardly be in it, in comparison.

The suggestion to apply these doctrines  
to a current in a conductor was started  
by you: my idea was that far too little  
definite is known about conduction in such  
a case to warrant any safe conclusion.  
And if the result is wholly negative, I  
shall take refuge in that opinion again.

Still I think there is a chance  
of a positive result: and if you think  
it is worth trying for, Lodge has  
expressed his willingness to try any  
outlandish suggestion within limits. That

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Dear Mr. G. S. S. S.

24/44

The centrifugal force in a current  
going round a corner must be electrostatic,  
not electromagnetic. Taking my formula  
for the energy of a nucleus of charge  $e$  and  
radius  $a$  moving with velocity  $v$

$$\frac{1}{2} \cdot \frac{8a}{3\pi} (ev)^2, \text{ this force would be } \frac{8a}{3\pi} \frac{(ev)^2}{R}$$

where  $R$  is the radius of curvature of  
the path. Thus for a current  $i$   
carrying a sheet of copper  $d$  centimeters  
wide &  $t$  centimeters thick, the  
electrostatic force between it two sides (in

$$\text{+ out) is } \frac{8\pi}{3c} \left( \frac{i}{td} \right)^2 \cdot \frac{d}{R} \text{ c.s.}$$

$$\text{or } \frac{8\pi}{3a} \frac{i^2}{t^2 d R} 10^{-8} \text{ volts, which if } a = 10^{-6}$$

$$\text{then } a = k \cdot 10^{-6}, \text{ is } \frac{8\pi}{3k} \frac{i^2 \cdot 10^2}{t^2 d R} \text{ Thus}$$

is an ampere ( $= 10^{-1}$ ), so that the

of potential is  $\frac{164}{td}$  volts per centimeter

the transverse slope of potential would

$$\text{be } \frac{8\pi}{3k} \cdot \frac{1}{tdR} / \frac{164}{td} \text{ of this}$$

$$\text{or } \frac{\pi}{63k} \cdot \frac{1}{tdR} \text{ of it.}$$

Say,  $t = \frac{1}{4}$ ,  $d = 1$ ,  $R = 1$ , it is  $\frac{\pi}{16k}$  of it.

so that the deflection of the lines of force might be <sup>very (much) than</sup> considerable.

The transverse difference of potential would then be

$$\frac{8\pi}{3k} \cdot \frac{1}{tdR} \text{ ~~times~~ } = \frac{130}{k} \text{ volts}$$

as against a slope along the current of 670.

The values of  $k$  and various other things are vague. Especially is the way in which the current is carried by discharge from molecules to molecular unburns,

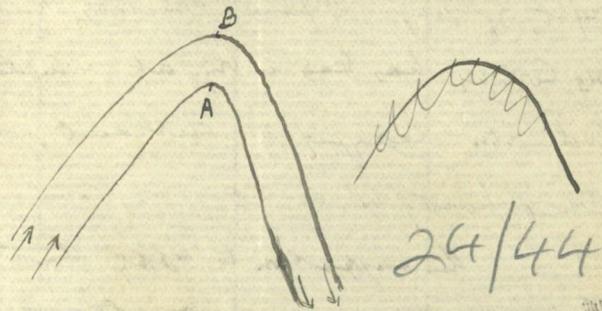
so that the above estimate may be (most certainly is) very excessive.

A similar argument would lead

to an explanation of the Hall effect, though the numbers would be too great.

Still, I think it is worth while to try whether the above effect <sup>(or rather a tendency to it)</sup> exists.

e.g.



a current of 1 ampere flowing round

a copper strip with a sharp corner

has the 1 cm thickness  $\frac{1}{4}$  cm. say

First by <sup>aid of</sup> a small current mark off

two pts. at equal potential A and B

then put on the big one, and see

whether they remain at exactly

equal potential. Or I suppose the

best plan would be to use very thin

foil or electrodeposit on a smaller

is, supposing you don't want to  
be bothered with it.

<sup>is electrolysing</sup>  
You want to know why H<sub>2</sub> is  
combined with H<sub>2</sub> to form H<sub>2</sub>O.

What's the molecule? And somebody  
else. Very thing will be ready with

An answer in form as a jumble  
Some. In fact they would be teaching

about - the stuff of which atoms are  
made - and being away also

that, as well as the relations  
between rays in vacuum tubes

All which covers of the  
transmutation of the elements.  
In my opinion

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