

there is no question of a steady state.

I say further that if the Earth's atmosphere consisted of pure oxygen and nitrogen, the temperature of its surface would be as low as you like to imagine: that the gas would neither radiate nor absorb when there is no aqueous vapour present to help dissociation.

[Chlorine is not to the point.  
disturbance. they do dissociate easily.]

My "Solar system molecule" I don't mean a loose confederation of planets, but rather a "stellar system" and I am not afraid of dissociation which moreover I say <sup>practically</sup> won't happen because the molecules don't get at each other close enough.

How do you know that a molecule has a "moment of inertia"

24/2

ST JOHN'S COLLEGE,  
CAMBRIDGE.

9. ii. 95.

My dear Fitzfield

I cannot see how, by your postulate of action-constraint, you are not admitting my position fully and completely. The bond is very strong, but it is not infinitely strong, and following you enough I ask "why may not the distribution theorem hold" when these previous alcs are included in it.

There is nothing new in my stand-point: Boltzmann himself concluded that a polyatomic molecule behaves thermally just as if it were a rigid body. Surely this means that its vibrations do not enter

into the thermal balance of energy.  
All that I claim is that my notion  
of action and matter makes it  
intelligible and reasonable that  
this should be so : it does not  
demonstrate that it is so, but  
to my mind it leaves the ways  
on the other side of proving that  
it is not so.

I am very sceptical about  
generalized aspects of the distribution  
theorem. Once the peculiar steady  
state is established on a grand  
energy scale it will no doubt  
persist. But I cannot see in the  
least e.g. how it is ever going to  
get established, in a gaseous system  
for interatomic coordinates

in a steady state of dissociation  
& recombination after the manner of  
Drville. I don't see that any one  
pretend that it ~~will~~ be such a  
case at all. Of course as you  
say a general trend towards  
degradation of energy is universal,  
but that is different from a  
quantitative statement as to energy  
distribution.

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I say that when a  
molecule ~~comes~~ is ~~measured~~, i.e. dissociated  
it does radiate away all the  
fair-gained or electric part of  
the disturbance, and that this  
process comes to an end, and so  
far as that molecule is concerned

I am quite unable to see how you  
can explain kinetic phenomena  
in a medium in terms of a  
statistical stress function, - unless  
they are of a very restricted and  
steady character.

Yours ever sincerely

Charman

Ps. I am still unable to see that I violate  
the principle of energy for moving electrons.  
I derive something from that principle in  
Laplace's manner : how can that violate it?

Thus, in the Action equation, varying the  
<sup>and positions</sup> velocities of the electrons = varying the currents;  
while varying the coordinates of the conductors  
varies the position of a "force scale" which the  
<sup>velocity</sup> electrical forces have to travel along, and  
thus leads to the force which they exert on matter.

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ST JOHN'S COLLEGE,  
CAMBRIDGE.

under experiment is really carried  
by moving electrons. If you disprove  
my stress by experiment, you prove  
that this latter hypothesis is  
not true. And I cannot imagine  
what the alternative will be.

Apply your argument to  
show that "in every system of forces  
varying with the velocity they must  
be at right angles to the velocity"  
to the case of two spheres moving  
in an infinite fluid, and  
exerting forces on each other by  
means of it, — and see what  
you get out. A similar matter

was thrashed out between Helmholtz  
and W. Weber 25<sup>o</sup> years ago.

before this handy illustration  
was available.

In the field surrounding a closed  
solenoid where there is no magnetic  
force,  $Fdx + Gdy + Hdz = d\phi$   
so that the components of the force  
on the ends of a current, are. both  
very zero.

$$^{\text{de}}/dx, ^{\text{de}}/dy, ^{\text{de}}/dz$$

Thus the aggregate force on a complete  
current circuit is null: but not  
so on an element of it. I have  
tried to explain in paper § 110  
how induction can take place across  
a space in which there is no magnetic

force: the same applies mutatis  
mutandis here.

But I must write out  
my case decently and in order as  
for press - I hope next week -  
and then submit it to your  
criticism.

24/2

This material stuff business  
is the obscuresst thing in the subject -  
of course, as it involves constantly  
the relation of action to inertia of  
matter.

I don't know where your  
reference to Bravaiside for a proof  
of the Ampere force rule, etc., etc.  
is, unless you mean his static  
paper. That's quite beyond me,

~~for~~ implies nothing as to the  
armor distribution of energy in these  
far more numerous simple  
harmonic groups which represent  
spectral lines.

The radiation is not emitted  
as a spectrum : it requires an analyzer  
(e.g. a prism) to <sup>convert</sup> reduce it into a  
spectrum. The spectral lines are not  
representations of <sup>separate</sup> coordinates of the emitter:  
they are far too numerous for that,  
as the illustration above shows.

It seems to me that the above  
is quite clear & definite, and precludes  
the limitations (at any rate the <sup>calm</sup>)  
of any distribution theorem of the D. A.  
type. Ask Culverwell's opinion.

24/2 J.K.

P.S. The above translates into the following:-

The waves emitted by a vibrating ~~object~~  
system made of elections, are ~~not~~ <sup>in fact, elliptical motion,</sup>  
simple harmonic type <sup>in space or time, but their</sup> ~~and are of~~  
~~type (though not their fundamental period of the disturbance is small)~~  
~~fundamental depends on the intensity of~~  
~~disturbance of the shd. motion~~  
the ~~convention~~ there go carrying  
across space all right until they

come upon our prism or passing a  
eye (but color blind)  
which insists that they shall ~~not~~  
declare their constitutionality  
~~not one and chewing up their minor~~  
constituents. The number of  
independent variables specifying the  
course of the vibration for all time  
is 3 times the number of elections;  
and possibly you may define so as to  
associate a definite amount of the  
energy of vibration with each of these  
in constituents, and prove that these  
portions are in the average all equal  
but whether you can do so or not

Q4/2