a structure, that is, with "ether dipoles." By such a concept, we would obtain an explanation of "electric forces acting at a distance," something that has been very vague, or lacking, since the discard of the Maxwell ether displacement theory of electric charges and electric forces. The discovery of the electron disproved the ether displacement theory of electric charges, but it did not remove (for many physicists) the need of the ether concept in explaining electric waves, whether luminous or non-luminous. The actual structure of the ether will be a speculative problem until experiments have given us more facts in ether physics; but in view of the above, we can think of the ether as having an indefinitely large number of infinitesimal "ether dipoles." It is possible to think of these ether dipoles as ether concentration points, or some other hypothesis of their constitution may be assumed. Further, it may well be a question whether the ether is a continuous or a discontinuous medium. Indeed the quantum theory suggests the possibility of a discontinuous ether.

The "dipole ether hypothesis," while thus suggested by dielectric phenomena, should explain other phenomena if it is to gain acceptance. It seems to give a plausible explanation of the puzzle of how the electron can be at the same time a particle and a wave. A free electron, due to its electrical field, is surrounded by directed ether dipoles, an envelop of ether dipoles. The waves can be thought of as due to vibrations in this envelop of ether dipoles. The vibrations in the dipole envelop would arise from motions and changes of motions of the electron, these vibrations being transmitted to the surrounding ether atmosphere as waves. A free proton in motion, and possibly a moving atom, would also show wave characteristics for similar reasons.

We should also expect every material body to be surrounded by an atmosphere of ether dipoles, an atmosphere characteristic of the particular kind of matter. This follows of course from the fact that each kind of matter has its distinctive numbers of electrons and protons, and hence its field. We may find in these distinctive ether enveloping atmospheres possible explanations of various boundary electrical phenomena, such as electromotive forces of contact, electrosmosis, etc.

From the above, it is natural to ask about the possibilities of detecting ether structure by methods using X-rays or other short waves. The "grain" of ether structure may be too fine for ordinary X-ray methods, but there is always a possibility of some method giving results, and positive results would be important indeed for ether physics.

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AUDITORY NERVE IMPULSES

BY placing an electrode on the cat's auditory nerve near the medulla, with a grounded electrode elsewhere on the body, and leading the action currents through an amplifier to a telephone receiver, the writers have found that sound stimuli applied to the ear of the animal are reproduced in the receiver with great fidelity. Speech is easily understandable. Simple tones, as from tuning forks, are received at frequencies which, so far as the observer can determine by ear, are identical with the original. Frequencies as high as 3,300 cycles per second are audible.

Numerous checks have been used to guard against the possibility of artifact. No response was obtained when the active electrode was placed on any other tissue. After destruction by pithing of the cochlea on the electrode side, the intensity of the response was diminished; after destruction of the cochlea on the other side as well, the response ceased. However, the possibility is still conceivable that these results are due to purely mechanical action of the nerve, which is brought about by mechanical vibrations transmitted from the cochlear structure acting as a special receptor and transmitter.

Further experiments are in progress.

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SCIENTIFIC NAMES

THE problem of scientific names, and it is no small one, has been brought to attention once more by Professor James G. Needham, of Cornell University,[1] some twenty years after an earlier presentation along similar lines. He certainly can not be accused of being precipitate or of lacking patience. His main plea in both cases is for something more workable. This latter communication was evidently stimulated by an extremely long and to our mind presumably distinctive generic combination, namely, *Brachyuropushkydermatogammarus,* and another nearly equally long name. The author of this generic term evidently failed to live up to possibilities or it might have been prefixed by any one of several very popular combinations such as *eu-, pseud-* or *acanth-*, the last permitting thirty-six letters in the name, and this could be increased considerably by combinations of two or three prefixes. In other words, there is no limit to this sort of multiplication, and if our little crayfish had several related genera, it would easily be possible to bring together an unrivaled assemblage of generic names which under present conditions would be handed down and presumably used by countless generations, provided writer's cramp did not incapacitate

[1] SCIENCE, 71: 26–28, 1930.