

ATOMS TROUBLED BY GHOSTS

PHYSICS

Photons Called the Ghosts Of the Physical Laboratory

GHOSTS have often been suspected of being at the bottom of strange happenings on this earth. But the main claim of the modern scientist is that he has dispensed with such supernatural explanations for earthly events. In the world of modern science a ghost would indeed be a lonely individual!

Nevertheless, some of those fundamental entities of which the material world is believed to be composed behave in a very, very strange way. Those "bundles of energy" called photons are perhaps the worst offenders. Even the physicist is somewhat at a loss when it comes to explaining the antics of a photon. And as far as the layman is concerned—well, perhaps a photon is as much like an old-fashioned ghost as it is like anything else.

Such seems to be—for purposes of popular explanation anyway—the view of Dr. W. F. G. Swann of the Bartol Research Foundation who, speaking informally at the Franklin Institute recently, said:

"A bullet is a kind of thing which can only be at one place at once and which strikes where it is. The electrons and protons (material particles)

are like bullets. A ghost is a creepy kind of thing which can be everywhere always, which only strikes at one place at a time but which can strike anywhere." And this unpredictable, ghostly kind of behavior, Dr. Swann went on to say, is characteristic of a photon.

Carrying the analogy still further, the speaker went on to describe how these photon-ghosts terrify the inhabitants of the atomic world. Particularly potent in this respect are the high-powered ones which accompany the cosmic rays. A picture on this page is one which Dr. Swann used to illustrate his talk. It shows what happens when an especially horrendous photon-ghost meets up with an unsuspecting atom.

Except for receiving a severe "mathematical fright" the atom comes through the ordeal without serious harm. But the ghost himself may be so dreadfully annoyed that he actually materializes—comes to life—in the form of particles of matter. New-born "particles with a punch" are formed which tear through the atmosphere, ripping the outer structure off other atoms.

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temperature. This slower method seems to give the hydrogen in the rail a better chance to escape.

Every time you hear the "click-click" of the wheels of a railroad train passing over the rail joints you are coming into audible contact with another problem being studied in Professor Moore's laboratory.

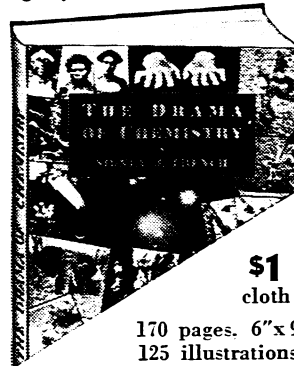
Special efforts have been made to develop methods for hardening rail ends so that the battering of the joints will be decreased. Just as parents put metal heel plates on the shoes of their active children to decrease wear, so too do the railroads try to find a means for reducing rail end batter.

Rail manufacturers are now equipped to harden the ends of rails by cooling them with an air blast immediately after rolling. They can also be hardened as they lie in place in the track. Some railroads build up battered ends by welding.

From time to time consideration has been given to very long rails, 100 feet in length, but the difficulty of manufacture and transportation have so far precluded their adoption.

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