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Power's Good Safety Score Can Be Further Improved

THIS COLUMN is often addressed to lofty questions of cosmic, or at least global, significance. A few weeks ago, it had to do with the assessment of nuclear hazards, and this opened the back door to a comparison with the homely problem of electric shock.

Quite by coincidence, I encountered an article by Prof. Charles F. Dalziel in this month's issue of electrical engineers magazine Spectrum. He is emeritus professor of electrical engineering at the University of California, Berkeley. A brief telephone conversation confirmed the suspicion that he occupied a somewhat lonely place in the academic world for teaching about designing for safety at a professional level.

It is not obvious where we can find the skilled manpower to meet the resurgent public and regulatory interest in promoting the safety of domestic products. Certainly it is not a high-priority issue in contemproary engineering education, no more than preventive health and nutrition in the medical schools.

ABOUT 1100 people a year are electrocuted in the United States, more than a quarter of them in their homes and an equal proportion by 110-volt shocks at work. (The rest are high-voltage, mostly occupational, accidents.) This ought to be judged as an outstanding safety record: less than 2 per cent of the number of fatalities from auto accidents and an even smaller proportionate cost for nonfatal injuries. The result is even more remarkable when we consider that a 25-watt bulb consumes much more than a lethal level of electric power.

We could then be proud of the standards of the power appliance industries, and of the local building codes for safe wiring, and of the public sophistication in handling this dangerous instrument the watt. (We have all experienced unpleasant jolts that rapidly condition us to an aversion to raw electricity, which we then handle with a respect that we sometimes deny to a projectile like an automobile on the highway.)

Many deaths from electric shock are , however, preventable by simple technical devices. Auto safety experts have begun to advocate a similar approach but still have to develop public confidence in, for example, the reliability of protective gadgets like the shock-sensitive air bag.

THE DEVICE discussed by Prof. Dalziel is the GFI, or "ground fault interrupter." Lethal electric shocks are rarely caused by currents that complete a circuit to both wires of a power outlet. Usually, the person contacts only one wire and the circuit is completed to ground through wet floors, pipes or the like.

The GFI is a transistor device that can detect even small currents to ground against the background of the much larger currents of normal electrical service. The GFI can then trip a circuit breaker to shut off the main power in time to prevent serious injury, fire or other hazard.

At the moment, the GFI is much more expensive than conventional fuses and circuit breakers. Were it standardized in general use, however, it certainly could be mass-produced to cost little more than present-day installations.

Our greatest need is for public awareness of these and similar technical possibilities to create a market for a safety-oriented industry that could attract the most sophisticated thinking into new approaches to these problems. Safety begins at home, but should permeate our economy.