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Direct Conversion of Fuel Into Power

Developments now in progress may make possible a direct conversion of energy into electrical power without the wasteful steps now used. One possibility is the use of static electrical devices to extract energy from the kinetic energy of the gases of combustion, without the intervention of rotary electrical machinery. Whereas natural improvements have reduced the amount of fuel needed to produce a kw. hr. to one fourth of that needed twenty years ago, this new possible scheme of converting energy, if really effective, would make the present efficiency in fuel seem very small.

Inventors have long dreamed of eliminating the wasteful intermediate steps in the generation of power. With increasing knowledge of the fundamental properties of matter, of the conduction of electricity through gases, of calculations and experimental work, it seems that it is not such a remote dream.

Discoveries which may have as far-reaching influence on the electrical industry as the discovery of the electron are expected to be made in the realm of nuclear physics. The radiations of radio-active substances may be used in place of X-rays in radiography and for radium in the treatment of disease, but far more likely is the use of these radiations for studying certain atomic reactions and structures. For instance, by the use of electrical detection, it appears feasible to follow the migrations of electrons through a metal during heat treatment, and to follow the movement of radio-active substances through a plant or animal and thus learn more about how and where these substances are assimilated, which opens up a new field. Another improvement accomplished by the disintegration of the atom would be better lighting, since less than five per cent of the energy supplied produces light in our modern incandescent lamps.