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FIRE WATER

Something new under the sun has been developed recently by O. H. Mohr of Concord, California. In his laboratory, burns a perpetual flame which is supplied only with water and sunlight, two of the most abundant quantities known. The principle behind the perpetual flames is fairly simple.

Under normal conditions the sun casts about five B. T. U. of heat per minute on every square foot of the earth's surface. One gallon of water, which contains about 175 cubic feet of hydrogen is poured into an insulated, glass-topped box filled with a good heat absorbent. When the box is placed in the sun, the water is gradually vaporized, speed of vaporization depending, of course, upon how brightly the sun is shining.

Meanwhile, some means must be used to generate electricity to break up the water vapor into its two components, oxygen and hydrogen. As students of physics know, if dissimilar metals are coupled together, heated at one end and cooled at the other, an electric current is generated in the thermocouple. To heat the upper ends of the thermocouple, Mr. Mohr encloses a number of them in a spherical, glass, vacuum bulb about the size of a cabbage, and exposes them to the sun. The lower ends are cooled by little metal fins in the cooler outside air.

To condition the water vapor so that it will conduct electricity, it is run through a small chamber containing an activating agent. This agent is permanently sealed and no part is lost. Thus conditioned, the water vapor is electrolyzed as the electric current passes between two electrodes. The oxygen gas separates at one electrode, the hydrogen gas at the other. The hydrogen is then stored in a tank. The plant does not run at night nor does it generate as much gas on cloudy days as on bright ones, but the storage tank averages it all and the hydrogen flame burns continuously.

Mr. Mohr estimates that a unit large enough to consume three gallons of water a day would be sufficient to supply the ordinary household with gas for cooking, water heating, lighting, air-conditioning and for operation of a refrigerator. A unit of this capacity would be about the size of the average refrigerator. By insulation, the vaporizing box can be made to operate efficiently regardless of atmospheric temperature.

Mr. Mohr has already been commissioned to install a plant in a Nevada gold mine. Soon he plans to install all his solar contrivances in a model home. He does not regard his development as a cure-all but as an auxiliary in power industry, benefiting those who are out of reach of public utilities.