

ASTRONOMY-ENGINEERING

Solar Energy Now Caught With 15 Per Cent. Efficiency

Dr. C. G. Abbot Increases Sun Power Machine Efficiency To About Half That of Coal-Steam Plant

PRACTICAL utilization of the sun's rays to do the work of the world is forecast by a sun power machine exhibited by Dr. C. G. Abbot, secretary of the Smithsonian Institution, Washington, D. C., before the American Association for the Advancement of Science.

Within the last few months Dr. Abbot has greatly increased the efficiency of his sun power plant until now experiments indicate that fifteen per cent. of the solar energy falling on the ray-gathering mirrors may be converted through a steam engine into mechanical work. Since double that efficiency or 30 per cent. is considered good accomplishment for a conventional coal fired steam power plant, Dr. Abbot's arrangement of mirrors promises to attract the practical attention of power engineers in the near future.

The fuel of the sun power plant is free whenever and wherever the sun shines. It is not necessary to mine and transport coal, take oil from the ground or chop down fire wood. Sun power has the possibility of making waste deserts with their sunshine sources of power.

There is presented the spectacle of great batteries of mirrors covering waste land providing energy convertible into electricity for transmission to centers of population.

Not Expensive

Dr. Abbot's new solar power plant is simple and inexpensive to build. He uses parabolic aluminum alloy mirrors which stay bright and untarnished. These focus the rays upon a dark opaque liquid that absorbs the heat and is thus raised to a temperature of 350 degrees. This sun-fired boiler could provide steam to run an engine that could generate electricity. No expensive and unusual constructions are needed in Dr. Abbot's device and no costly mechanical movements are needed to follow the sun, which were a feature of earlier and less efficient sun power plants.

Reports from Russia, Dr. Abbot said, indicate that an attempt to utilize solar heat practically is being made by Soviet engineers. Twenty to thirty years ago

sun power plants were attempted in California, Arizona and Egypt but they were far less efficient. Dr. Abbot has made earlier experiments with solar heat, particularly for cooking purposes.

The fact that power can not be generated at night or when clouds cut off the sun's rays will prevent the sun plant from producing power continuously. Dr. Abbot suggests that in sunny hours surplus power could be stored in giant storage batteries or by pumping water into a reservoir.

If the solar power plants were to be installed over an area equal to that flooded by Boulder Dam Lake, the total capacity would be about 5,000,000 horsepower, Dr. Abbot estimated. It takes

about six of the units for each horsepower, and about 72 square feet area would be required for the six units. At present, these units can be built for about ten dollars apiece, but with mass production methods, the cost could be reduced materially. Each one consists of simple machine-built parts that could be economically produced in large quantities.

Science News Letter, January 11, 1936

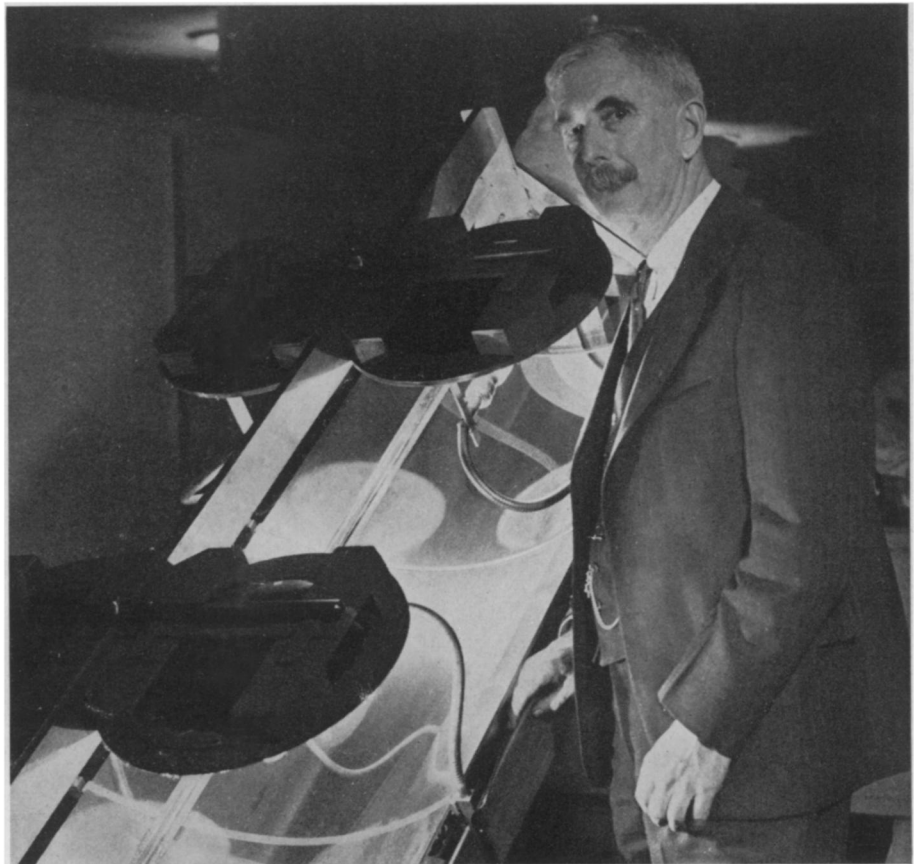
Canadian scientists are testing the relative value of durum wheat varieties for the macaroni industry.

RADIO

January 14, 4:30 p. m., E.S.T.
MYSTERIES OF RADIO FADING—Dr. J. H. Dellinger, Chief of the Radio Division, National Bureau of Standards.

January 21, 4:30 p. m., E.S.T.
REMEMBERING WHILE YOU SLEEP—Dr. Harry M. Johnson, American University.

In the Science Service series of radio discussions led by Watson Davis Director, over the Columbia Broadcasting System.



SOLAR POWER PLANT

Dr. C. G. Abbot demonstrates his device for catching the sun's energy to scientists at the meeting of the American Association for the Advancement of Science.