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**THE TECH, BOSTON, MASS., JANUARY 21, 1914.**

**ENGINEERING AND SCIENTIFIC NOTES**

The world's coal supply represents the results of thousands of years of geographical evolution, and yet with its present rate of consumption, this supply bids fair to become exhausted within a few decades. This important fact has received considerable attention from engineers and others who are wise enough to look into the future, and several remedies for such an approaching calamity have been devised, as, for example, the utilization of the millions of horse power which are daily going to waste in the courses of our inland waterways.

In another field also engineers have sought to obtain power without the use of the exhaustible coal pile, namely by utilizing the energy of the sun's rays. The enormous amount of energy which is received on the surface of the earth in the form of heat from the sun is very evident to all of us who are familiar with the intense heat of the sun's rays in tropical latitudes or even with the "hot spells" which occasionally visit our New England latitudes. Now, of course, this energy is not "going to waste." Without it the earth would be a frigid, lifeless sphere. Our coal beds, wood piles, river currents, etc., all came originally, although indirectly, from the sun's energy; but for some time men have considered the problem: Why cannot this energy be used directly, why cannot the sun's rays themselves be harnessed to the steam engine? Numerous successful experiments have been carried on to study the manufacture of steam by concentrating the sun's rays upon a suitable boiler by means of a "burning glass" or large curved mirrors, and it has been found possible, by concentrating the energy received on a large surface, to boil water even under a considerable pressure and so obtain a steady supply of steam without any cost for fuel.

But is all this practicable? Would a sun plant be commercially efficient? Some figures and calculations recently compiled by experts upon this matter show very clearly that, in tropical regions at least, one may answer these questions in the affirmative. The figures concern a sun plant which is to be erected in Cairo, Egypt, the boiler for driving a fifty horsepower low pressure engine being heated directly by the rays of the sun. The construction of such a plant there would cost $7,800, and the expense of running it ten hours a day for 365 days, including depreciation and interest on capital, would amount to $780 dollars per annum. Now to construct a coal-burning plant of the same capacity at Cairo, the capital would amount to $3,800, but to operate it for the same time for $780 would require coal to be delivered at the furnace door at a cost of only $2.40 per ton. As the price of coal is high in the tropics and indeed in some of the more inaccessible regions it runs over $25 per ton, it requires no extensive economic calculations to show the superior efficiency of the sun power plant. This field of engineering is still in its infancy but it is not without serious consideration. When Robert Fulton's pony steamboat first crept slowly up the Hudson many naysayers shook their heads and declared: "It cannot be done." But now the pioneers, adherents of theirs, were alive and could point to any of our big liners as she steams along propelled by her mighty turbines and reply, "I told you so." Perhaps those who now regard the sun power plant with too much skepticism will some day receive a similar reply.

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