

**Review: The Power of Light: The Epic Story of Man's Quest to  
Harness the Sun**  
By Frank T. Kryza

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Frank T. Kryza. *The Power of Light: The Epic Story of Man's Quest to  
Harness the Sun*. New York: McGraw Hill, 2003. 299 pp. ISBN 0-07-140021-  
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In *The Power of Light*, former energy industry professional and reporter Frank T. Kryza tells the historical story of inventor Frank Shuman's attempt to create viable solar energy technology. The work focuses on Kryza's failed attempt to convince the world to go to solar around the turn of the 20th century, resulting in the perpetuation of the use of coal and the advent of the Petroleum Age.

The book does cover previous inventors like Greek philosopher Archimedes who is said to have suggested the use of solar power as a weapon (with mirrors) to burn approaching Roman ships, and Leonardo da Vinci, who advised the use of solar power for peaceful uses. Also recounted are the efforts of other solar power inventors: Athanasius Kircher, Abu Ali al-Hasan al-Haitham, Augustin Eneas, Aubrey Eneas, John Ericsson, William Adams, and others. Although the story goes back and forth in time showing how some inventors built on the work of others, the historical tale does not continue into our modern use of solar energy to power space probes.

Much of the action takes place in turn-of-the-century Egypt where Frank Shuman designed a solar steam engine which "produced up to 75 horsepower, enough to pump 6000 gallons of Nile river water a minute into the cotton fields, work previously done by platoons of weary workers. The solar collectors caught 40 percent of the available solar energy, exhibiting much better efficiency than earlier models" (p. 241).

The world though, in the advent of World War I, made the switch from coal to petroleum rather than to solar. In the historical analysis, petroleum was found to be more efficient and dependable, especially for the war effort, with Britain making the change from coal to oil for their warships. Kryza writes that Winston Churchill was instrumental in making the transition. "Oil is a much more flexible fuel than coal and holds within it a denser concentration of energy. Because it can flow, it is more easily transported. It is cleaner when burned. Much of the time, it was cheaper than coal. Three barrels of oil have the heating capacity of 1 ton of coal and at the prevailing prices early

in the century, the oil usually cost only half as much as coal. Because of oil, the number of men tending the furnaces on a steamship could be reduced from 100 to four. Loading a ship with coal had taken 100 men toiling for a week; now one man in one day could load a ship with enough bunker fuel to cross an ocean" (p. 251).

Shuman who died early, at age 56, in 1918 conceded that, "Although the heat is obtained for nothing, so expensive and complex is the concentration apparatus that solar steam is many times more costly than steam produced by burning coal. ... This is the rock upon which, thus far, all sun-power propositions have been wrecked" (p. 262). Solar energy has since taken root, but has not been widely adopted. Kryza is optimistic that solar will be more widely adopted in the future, and future solar inventors are on the way. He estimates: "the amount of solar energy falling on 1 square mile of Midwestern farmland at noon on a cloudless day ... would have enough power to serve a community of 35,000 typical U.S. residential customers. ... factoring in 20 percent conversion and only 4 hours of sunlight per day, an area the size of a tennis court could easily supply all the energy needs of two or three American households on a continuous basis" (p. 263).

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