I. Ancient Times

Spruce Tree House cliff dwelling at Mesa Verde
Ref: www.solcomhouse.com

Map of Priene, Ancient Greece
Archimedes credited with saving Syracuse (Sicily) from a Roman seige with burning mirrors in 213 B.C.

A large Roman window facing south to collect solar heat.
II. Renaissance to 1700s

da Vinci drawings suggesting knowledge of solar optics, parabolic reflectors

“Burning Mirror” used by scientists in 1500s and 1600s
Salomon de Caux (Caus) (1576–1626) was a French engineer and physicist with an English education. He is renowned for his exposition *Les Raisons des Forces Mouvantes avec Diverses Machines* (1615), in which he describes some of the basic principles of the steam engine. De Caux also constructed one of the first solar devices: a solar engine. His device was made of glass lenses, a supporting frame, and an airtight metal vessel containing water and air. When the air is heated during operation, a small water fountain is produced. (Ref: Encyclopedia of Earth)

Horace Benedict de Saussure
1740-1799

Cross-section of Langley's hot box, which was similar to de Saussure's later models. A thermometer penetrating the walls at right was used to measure the air temperature inside the inner box.
III. Solar Thermal Power

Augustin Mochot, Professor of Mathematics, 1860
"Eventually industry will no longer find in Europe the resources to satisfy its prodigious expansion...Coal will undoubtedly be used up. What will industry do then?"

6 August 1882: The operation of a solar-powered printing press, which produced copies of Le Chaleur Solaire by Augustin Mouchot, a newspaper that he created especially for the event. The press rattled off 500 copies an hour. The experiment was conducted in the Garden of Tuileries, Paris, for the festival of L'Union Francaises de la Jeunesse
An undated illustration (circa 1870) of Captain John Ericsson's new solar engine, which used concave mirrors to gather sun radiation strong enough to run an engine.

Frank Shuman’s Solar Engine, 1907
The Utilization of the Sun's Energy

It has been given to astronomers to measure the heat generated by the sun and calculate the force emanating from it. We know that the surface of our luminous body emits about 6,000 calories, and that its light equals that of 72,000,000,000 candles per square inch of the earth. The heat which the earth receives from the sun in the course of a year would suffice to melt a body of ice about 53 yards in thickness extending clear around the earth. Only the 2,734 millionth part of the total energy given off by the sun reaches our earth, and if this energy were harnessed, with all its thousandfold life, its staple food and fruitful plains, would turn into a dead, rigid ball of rock, for the average annual temperature, which is now one of 11° centigrade of warmth for Europe, would, without the heat of the sun, sink to 21° centigrade of frost, it is calculated.

Every sort of life with which we illuminate our homes when the greater light has sunk beneath the horizon, every fire that warms us when the solar rays can no longer do so, is a product originating in the sun. The chip of wood with which

Shuman's parabolic trough power plant, Egypt
IV. Domestic Solar Water Heating

Clarence Kemp (1891): *Climax* solar water heater

Modern “Batch” collector
William Bailey (1909) *Day and Night* solar water heater
Jimmy Carter at White House, 1979 (removed 1986)