

and the iris will be in the centre of the whole of the eyeball, so that the portrait preserves all the characters of a figure looking at the spectator, and must necessarily do so wherever he stands."

Sir David Brewster was one of the most gifted and eminent scientists of the past century. Although he was accustomed and well qualified to write profoundly on subjects which only scientists like himself could understand, he could also write in a way to delight children.

Two of these lighter books: "Natural Magic," from which the above quotation was taken, and "Martyrs of Science," proved very popular. He was the inventor of the kaleidoscope, which was a great novelty for many years, and as he succeeded in adapting it so that it multiplied images and threw them on a screen, it may be said to have been a forerunner of the cinematograph. He also greatly improved the stereoscope.

A prolific writer, he wrote the "Life of Sir Isaac Newton," and successfully defended that great English philosopher against all foreign attempts to claim the credit of his discoveries. Sir David Brewster was a Scotsman, born at Jedburgh. Most of his life was spent in Edinburgh. He was a neighbour of Sir Walter Scott, his country home being close to Abbotsford, and Sir Walter makes a sympathetic reference in his diary to Brewster's loss of one of his sons, by drowning, in the Tweed.

BRICKS. The story of bricks carries us back to those far-off days when men first made use of "mud pies" by shaping moist earth into rough blocks, allowing them to dry, first in the shade, and afterwards in the sun, until they became hard enough to use as bricks. Such sun-baked bricks would be useless in a country like ours, where there is so much rain and frost, but in countries like Assyria they proved so durable that some of the sun-baked bricks used more than 6,000 years ago to build the city of Babylon still remain. In some parts of Devon-

shire and Leicestershire, cottages made of sun-dried earth are still inhabited, and are very warm and comfortable in winter, as well as cool and pleasant in summer.

A few years ago, when skilled labour was short and fuel was costly, the use of dried earth for building was revived again, though most people would prefer properly baked bricks, as they are so much more durable than air-dried earth. Sun-dried bricks are still made in many Eastern

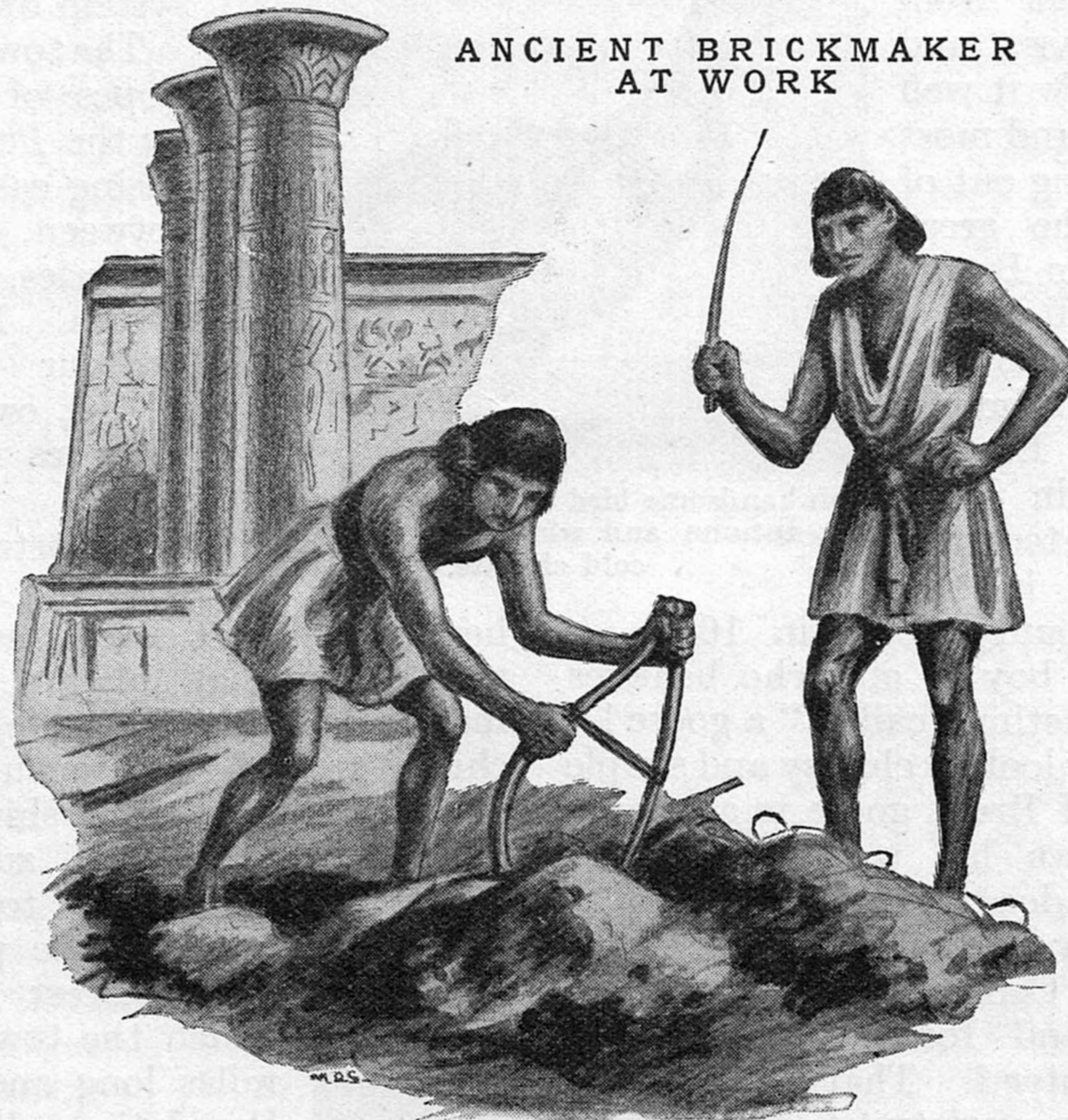
countries, the same methods being used as those adopted thousands of years ago. Some of the best accounts of these early methods of brickmaking are those of the ancient Egyptians, who not only left written records, but also many remarkable pictures of men engaged in making bricks and pottery. The Nile mud, which they used for this purpose, shrinks greatly when dried, and, unless the greatest possible care is taken to protect the freshly made bricks from the sun and wind, the bricks will crack and fall to pieces. So as to reduce

the shrinkage and consequent cracking, the Egyptians used to mix chopped straw or reeds with the mud.

Cruel Taskmasters of Old Egypt

Each brickmaker had to make a certain number of bricks each day or he would be severely punished, so when the cruel taskmaster ordered the children of Israel to "make bricks without straw," it was a double hardship; if they had to spend time in finding and preparing the straw, they could not make the required number of bricks, whilst if they did not use any straw, they would have to make twice as many bricks, because so many of them would crack and fall to pieces before the end of the day, and only good bricks were counted by the taskmasters.

Bricks made of earth which has merely been dried or exposed to the heat of the sun, cannot long resist rain and frost, as the particles of which they are composed are not sufficiently



This Egyptian slave of the days of Rameses the Great is shown mixing the Nile clay with chopped straw to make the building material for some great temple. He is using a primitive type of hoe, while a slave-driver stands over him with a whip.