

THE SUN.

See the Sun !

God's crest upon his azure shield, the heavens.—*Bailey.*

ALILY there rises from out the purrling east, a resplendent orb which with god-like power bids hence the darkling shadows that shroud the bosom of the sleeping earth, and sends the life blood throbbing through the veins of dormant Nature with this heart-gladdening message, "Arise, the day is here."

When sin had clouded his intellect, man, yet a stranger on our grey old planet, as he gazed upon this marvellous transformation first wondered, then adored. Divine mercy has long since shown him his error and has taught him to look upon the sun as but one of the myriad manifestations of almighty goodness and power to be found in the universe. Long since, then, man has ceased to kneel in adoration before the glorious god of day, but it is only in our own time that he has forced him to reveal a few of the secrets which for ages untold he has carried locked up in his glowing bosom. Not content with this, man now speaks of chaining the mighty forces of his former deity, and proposes to make of him a hewer of wood and drawer of water for the human race when the present servants—wood and coal—shall have been done to death by the strain put upon them.

To impart briefly those secrets which have been already wrung from his jealous guardianship, is the main object of the present paper, but that this information may constitute a harmonious whole, a succinct review of the history of solar discoveries will be given, and a glance cast at the possibility of utilizing in the future some of the sun's enormous energy for the benefit of mankind. What will be presented concerning his composition is mainly an imperfect digest of the work entitled "*Le Soleil*," by Father Secchi, a name synonymous with solar physics.

Very apt illustrations of the size and distance of the sun have been given by Mr. Langley, of Alleghany Observatory. "If," he says, "we could hollow out the sun's globe and place the earth in the centre, there would still be so much room that the moon might go on moving in her present orbit at two hundred and forty thousand miles from the earth—all within the globe of the sun itself—and still have plenty of room to spare." For the distance, he has the following: "It has been found that sensation is not absolutely instantaneous, but that it occupies a very minute time in travelling along the nerves; so that if a child puts his finger into a candle, there is a certain almost inconceivable time before he feels the heat. In case, then, the child's arm were long enough to reach the sun, it is calculated from the known rate of transmission that the infant would have to live to be a man of over a hundred years of age before he knew he was being burnt"—by which time we may safely conclude it would be hardly worth his while to take his hand out. Across such an immense void must the scientist peer ere he can catch a glimpse of the features of the lord of day.

Little wonder, then, that although man ceased to adore him, he long regarded him as being subjected to some immense, but vaguely conceived, conflagration and despaired of ever being able to scan his face with sufficient exactness to give an inkling of the soul that animated him within. Such immense spots occur upon it, however, that during the interval from the time of adoration to that of scientific investigation in which we now are, they were occasionally observed with the naked eye, but were believed to be planets passing over the sun. This explanation was naturally suggested by the eclipses of the sun, the cause of which was known. Galileo was the first to give the lie to this theory by the invention of the telescope. By observations made with this instrument he concluded beyond doubt that spots really