

SOLSTITIAL TEMPLES ACCORDING TO LOCKYER.

BY THE EDITOR.

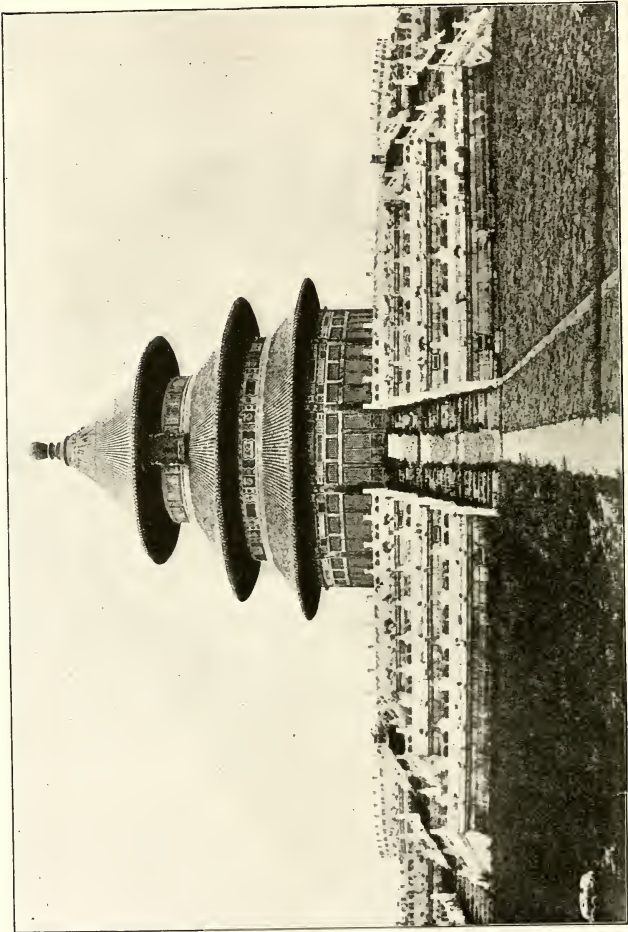
PROFESSOR Edgar L. Larkin, Director of the Lowe Observatory on Echo Mountain in the Sierra Madre Range, well known through his interesting book on *Radiant Energy*, and a man of broad interests also in fields not astronomical, describes in his sketch on "The Waning of the Light of Egypt" a striking episode in human history. The progression of the sun's position in the ecliptic causes a change in the direction of the solar light which in ancient days figured prominently in man's religious ritual. Solar worship was all but universal in ancient times and Professor J. Norman Lockyer has devoted an elaborate and voluminous work to its astronomical phase, published under the title *The Dawn of Astronomy* by the Macmillan Company. He says:

"The great temple of the sun at Peking is oriented to the winter solstice. The ceremonials which take place there are thus described by Edkins:

"The most important of all the State observances of China is the sacrifice at the winter solstice, performed in the open air at the south altar of the Temple of Heaven, December 21. The altar is called Nan-Tan, "south mound," or Yuenkieu, "round hillock"—both names of the greatest antiquity.

"Here also are offered prayers for rain in the early summer. The altar is a beautiful marble structure, ascended by twenty-seven steps, and ornamented by circular balustrades on each of its three terraces. There is another on the north side of somewhat smaller dimensions, called the Ch'i-ku-t'an, or altar for prayer on behalf of grain. On it is raised a magnificent triple-roofed circular structure 99 feet in height, which constitutes the most conspicuous object in the *tout ensemble*, and is that which is called by foreigners the

Temple of Heaven. It is the hall of prayer for a propitious year, and here, early in the spring, the prayer and sacrifice for that object



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THE TEMPLE OF HEAVEN IN PEKING.

are prosecuted. These structures are deeply enshrined in a thick cypress grove, reminding the visitor of the custom which formerly

prevailed among the heathen nations of the Old Testament, and of the solemn shade which surrounded some celebrated temples of ancient Greece.'

"The Temple of Heaven is thus described:

"The south altar, the most important of all Chinese religious structures, has the following dimensions: It consists of a triple circular terrace, 210 feet wide at the base, 150 in the middle, and 90 at the top. In these, notice the multiples of three: $3 \times 3 = 9$, $3 \times 5 = 15$, $3 \times 7 = 21$. The heights of the three terraces, upper, middle, and lower, are 5.72 feet, 6.23 feet, and 5 feet respectively. At the times of sacrificing, the tablets to heaven and the Emperor's ancestors are placed on the top; they are 2 feet 5 inches long and 5 inches wide. The title is in gilt letters; that of heaven faces the south, and those of the ancestors east and west. The Emperor, with his immediate suite, kneels in front of the tablet of Shang-Ti and faces the north. The platform is laid with marble stones, forming nine concentric circles; the inner circle consists of nine stones, cut so as to fit with close edges round the central stone, which is a perfect circle. Here the Emperor kneels, and is surrounded first by the circles of the terraces and their enclosing walls, and then by the circle of the horizon. He thus seems to himself and his court to be in the center of the universe, and turning to the north, assuming the attitude of a subject, he acknowledges in prayer and by his position that he is inferior to heaven, and to heaven alone. Round him on the pavement are the nine circles of as many heavens, consisting of nine stones, then eighteen, then twenty-seven, and so on in successive multiples of nine till the square of nine, the favorite number of Chinese philosophy, is reached in the outermost circle of eighty-one stones.

"The same symbolism is carried throughout the balustrades, the steps, and two lower terraces of the altar. Four flights of steps of nine each lead down to the middle terrace, where are placed the tablets to the spirits of the sun, moon, and stars and the year-god Tai-Sui. The sun and stars take the east, and the moon and Tai-sui the west: the stars are the twenty-eight constellations of the Chinese zodiac, borrowed by the Hindoos soon after the Christian era, and called by them the Naksha-tras; the Tai-sui is a deification of the sixty-year cycle.'

"We find, then, that the most important temple in China is oriented to the winter solstice.

"To mention another instance. It has long been known that Stonehenge is oriented to the rising of the sun at the summer solstice.

Its amplitude instead of being 26° is 40° N. of E.; with a latitude of 51° , the 26° azimuth of Thebes is represented by an amplitude of 40° at Stonehenge.

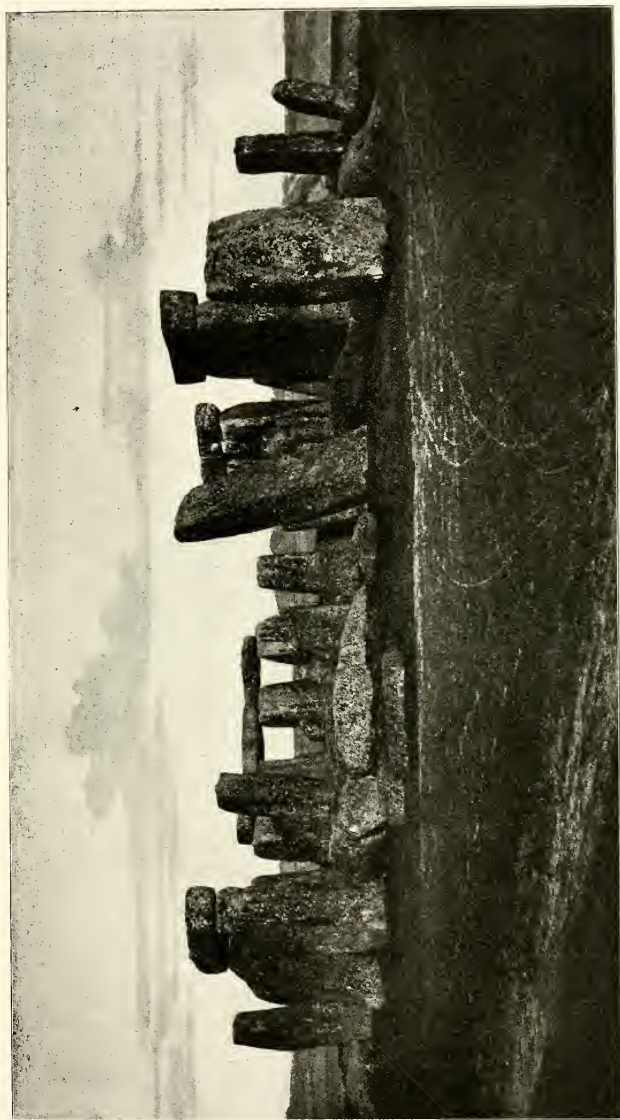
"The structure consists of a double circle of stones, with a sort of naos composed of large stones facing a so-called avenue, which is a sunken way between two parallel banks. This avenue stretches away from the naos in the direction of the solstitial sunrise.

"But this is not all. In the avenue, but not in the center of its width, there is a stone called the 'Friar's Heel,' so located in relation to the horizon that, according to Mr. Flinders Petrie, who has made careful measurements of the whole structure, it aligned the coming sunrise from a point behind the naos or trilithon. The horizon is invisible at the entrance of the circle, the peak of the heel rising far above it; from behind the circles the peak is below the horizon. Now, from considerations which I shall state at length further on, Mr. Petrie concludes that Stonehenge existed 2000 B. C. It must not be forgotten that structures more or less similar to Stonehenge are found along a line from the east on both sides of the Mediterranean.

"It will be seen that the use of the marking stone to indicate the direction in which the sun will rise answers exactly the same purpose as the long avenue of majestic columns and pylons in the Egyptian temples. In both cases we had a means of determining the commencement and the succession of years.

"Hence, just as sure as the temple of Karnak once pointed to the sun *setting* at the summer solstice, the temple at Stonehenge pointed nearly to the sun *rising* at the summer solstice. Stonehenge, there is little doubt, was so constructed that at sunrise at the same solstice the shadow of one stone fell exactly on the stone in the center; that observation indicated to the priests that the New Year had begun, and possibly also fires were lighted to flash the news through the country. And in this way it is possible that we have the ultimate origin of the midsummer fires, which have been referred to by so many authors."

Professor Larkin draws a vivid picture of the consternation which must have seized the priests of Egypt when they began to notice the deviations of the solar rays. It meant to them a change in the constitution of the world involving the ruin of Egypt, and if we consider that the dreaded catastrophe actually came, that Egypt, the land of civilization, lost her eminent position among the nations, became a prey to foreign invaders and had to yield her leadership to other races, we seem to be confronted with a fulfillment of the



STONEHENGE.

astrological prophecies of a superstitious past. Yet, after all, the reverses of the land of the Pharaohs are only the result of a general principle underlying the views of both the world-conception of primitive mankind and that of modern science, which is the truth that there is a universal world-order and that changes set in according to immutable laws. The leadership among the nations has been constantly shifting and so far the saying has proved true, at least in general outline, that the course of empire has been toward the west. Though the change of place is perhaps not determinable in geographical data, we know that great revolutions are constantly taking place and that even for us the time may come when we shall cease to be the representatives of progressive humanity.