THE WANING OF THE LIGHT OF EGYPT.

BY PROFESSOR EDGAR L. LARKIN.

"I am the light, the son of primeval light. I dwell in the land of light, (with me there is no night.)"—Book of the Dead.

"May he reach the horizon with his father the Sun. Thou see'st Ra in his setting, as Atun in the evening.

"Thou dost enter the horizon with the Sun. Thy face is illumined near the Sun;

"Anubis doth guard thee."—Grand Hymn of Isis to her brother Osiris, from Egyptian Book of Respiration, now in Museum in Berlin.

A VENERABLE man, fully sixty years of age, a man of vast learning and with intellect stamped on his face, stood in the distant and rear end of an enormous temple in a room which was an exact cube in form, its length, breadth and height being equal. He was clothed in royal purple and fine twined linen; and with cloth of gold. On his head rested a lofty mitre adorned with jewels, precious stones and insignia of his office. On his breast was a plate ten inches square, which was burdened with twelve splendid stones arranged in four rows of three each. These were symbols of the signs of the zodiac. These precious gems were sardius, topaz, carbuncle, emerald, sapphire, diamond, ligure, agate, amethyst, beryl, onyx and jasper, each set in a socket of gold. The diamond was in the center of the oracular breast plate and represented the constellation Leo, because the summer solstice occurred therein. The priest's waist was encircled by an abnet, a mystical or esoteric belt, or girdle, of the finest woven linen, dyed with three colors, blue, scarlet and purple. His ephod or tunic, "a brodered coat," was also of fine twined linen, beautiful with figures of gods, men, stars, the sun and animals, wrought in exquisite needlework. An entire leopard-skin was thrown over the shoulders of the man of mystery; while his feet were clothed in gem-laden sandals. He bore in his right hand a wand or scepter of wood and gold.
The center of the only door of the little room was exactly in the axis or central line of the temple, and opposite the front opening, 1,800 feet away. From front to rear long lines of gigantic columns supported the roof of stone. There were 134 pillars in 16 rows. Some were 9 feet in diameter, and 43 high; others 11 feet and 72, with capitals 22 feet square, adorned with delicate carvings. The columns and pillars were in the form of reeds and papyrus plants. The ceilings, architraves, walls and columns were everywhere engraved with figures of heroes, kings and high-priests,
together with hieroglyphics recounting their exploits,—all cut in the intaglio style of rock writing. These characters were painted in brilliant and enduring colors. Whatever the arrangement of pillars, side-doors, obelisks, or columns, not one was allowed to obscure an open line from front to back of the mighty building. The founders and builders had one supreme object,—to keep a straight line forever open in the mathematically exact center of the temple. In fact the edifice was built to enclose this axis leading straight through a thin aperture into the small room in the rear. This axis and room were the most important features. The mighty facade was penetrated by an ever open gateway or colossal door, having immense human figures in stone on either side,—towers of polished stone to the right and left, and avenues of sphinxes in front.

The building was the vast temple of the sun in Thebes, Egypt, on the eastern bank of the esoteric river,—the Nile; erected in honor of, and dedicated to the sun-god of the nation, Amen-ra. The man, whose name was Mesocharis, was the Grand High Priest, second in rank only to the reigning Pharaoh.

He descended from a long line of priests, his lineage extending to the remote past, even as far as the third dynasty. One of his ancestors officiated as high priest, with the king, in the elaborate ceremonies of dedication of this very temple, surrounded by a retinue of lesser priests of the sun, surpliced acolytes, singers, incense-bearers and attendants many centuries before the night, whose fateful events are herein narrated.

In the great library were records of the temple worship, unusual events, genealogies of his ancestors, histories of all preceding priests, and phenomena that from time to time appeared in the sky, or more particularly, those occurring in the zodiac.

The aim of the temple builders was to have a ray of light from the sun enter the Holy of Holies, at sunset on the day of the summer solstice, for all time. The angular diameter of the sun is slightly more than half a degree; too wide to merely light up a sapphire or diamond in the holy room. So a series of apertures, ever narrowing from front to back, along the axis of the building, cut down the broad band from the sun’s disk into a delicate and thin pencil. The effect was similar to that caused by diaphragms inside of a large telescope. Of course, this Egyptian arrangement did not magnify, as no lenses were employed.

When the sun crosses the equator of the earth in March and September, at the time of the equinoxes, it sets exactly in the west
with great accuracy, if the center of the sun is in the act of crossing at the moment of sunset. Distance measured on the horizon to the north or south of the equator is called amplitude and is measured in degrees, minutes and seconds of arc. Thus at the moment of sunset, the distance of the sun's center from the equator can be found with
precision by modern instruments. After crossing the equator the sun moves to the north, as far as possible; but stops and remains at its maximum amplitude for an instant only; and then starts again towards the equator. Now the most splendid, costly and magnificent building ever reared by human hands, had its central line directed toward the point where the sun set at the moment its center was at its greatest possible distance from the equator, in summer in the northern half of the earth.

This vast temple, whose cost must have taxed the people of Egypt for centuries,—each dynasty of kings kept adding splendors,—was erected in loving adoration and honor to the sun. The king and high priest determined the direction of the line and set the ends, with all the accuracy possible when this temple, and all others like it in Egypt, were founded. Egyptian records give minute details of the impressive ceremonies, rites and formulas, of founding temples to the sun.

So this, the temple of the sun-god at Thebes, presented its face to the northwest, and rear wall to the southeast. A straight line drawn from the exact places occupied by the center of the sun at the summer and winter solstices, would traverse the axis of this remarkable building. But, this imaginary line was in the exact plane of the orbit of the earth! It extended from the tropic of Cancer to that of Capricorn. Since this temple was made for the purpose of securing light from the sun in the sanctuary at sunset of the summer solstice, its northwest end was open, while its southeast was walled up completely. They did not care for the winter solstice. The reason of this was that drought was at a maximum in the valley of the Nile at that time; the river was as low as possible while agriculture and business were at a minimum.

For centuries, a high priest of Egypt had entered the Holy of Holies, once each year on the day of the summer solstice, to behold the rays from the setting sun, the sun of Egypt, come stealing into the dark and silent sanctuary. For when the tiny pencil appeared on a polished reflecting surface, in the darkened room, that supreme moment was the instant of New Year. This New Year's day was of far more importance to the Egyptians, than it is to us, for on an average, during thousands of years, the Nile began to rise on the solstitial day, the day of days. From lethargy, a nation wakened into activity in a day. Agriculture began from Philae to Memphis; and the entire country soon put on garments of living green. Feasts, festivals, giving of gifts, all manner of rejoicings held sway from the palaces of the king and high priest to the huts of the lowest
slaves. The day of the summer solstice was to the Egyptians as great as the winter solstice—Christmas—is to northern races.

SOUTH-EAST.

PLAN OF THE TEMPLE OF AMEN-RA AND THE SACRED LAKE. 4518

On this solstice, however, the High Priest came an hour earlier than usual to his beloved sanctuary. The first and entirely unusual
act of Mesocharisi was to make the thin opening in the door of the Holy of Holies narrower than before. The mark on the rear wall, where the central ray from the sun had fallen for more than 3,000 years, was inspected and the dust removed. During the day he had seen that all apertures along the axis of the temple were in order, and that no side light disturbed the straight band from the sun. Then the multitude was admitted. The vast temple of the sun, in area twice that of St. Peter's at Rome, was at once filled with people of every kind from courtier to slave. As many as possible crowded to the center, between the main rows of columns, to see the light when the priest opened the door of the holy place from within. The sun approached the horizon. Nearer it declined, and finally the critical moment arrived. The tension in the minds of the people was intense. The priest opened wide the door, held a diamond in the beam, flashed the light to all parts of the temple, and gave his annual blessing to the waiting thousands, and proclaimed the glad New Year. The people, with a mighty shout rushed into the streets, with trumpets, proclaiming "New Year, New Year, the Nile, the waters, joy and happiness!" The great festival was in progress, and goodwill reigned throughout the entire nation.

Everybody was happy except Mesocharisi, the august High Priest of Egypt, one of the most exalted dignitaries in the world. His mind was a tumultuous sea; a tempest raged within. Dismay, alarm, and fear, a nameless kind of dread, filled his very being with crushing power. The central solar ray did not fall on the ancient mark in the wall of Egypt's Holy of Holies; but to one side, towards the north! The deflection was unmistakable on this solstice. He had noticed it ten years before, but was not positive, the shifting being so slight. During five years, the king officiated, but did not detect the displacement. But during the last five, he himself had acted as New Year's priest, and made close watch of Egypt's rays departing from her central sanctuary. Now all doubts were removed; the bright spot on the metallic plate set in the rear wall was surely further toward the north than at any solstice for thirty-two centuries. His narrowing of the apertures had made greater accuracy possible. Therefore, the sun did not come as far north as usual.

When the crowds had vanished into the streets he entered a cloister that had been used by his ancestors for ages. He tried to collect his wandering thoughts and secure mental rest, but in vain. The shouts of joy and mirth in the city made his distress the more acute. This thought held dominion over all others: Amen-ra, their
chief god, was forsaking Egypt. With feverish impulse he hastened to the hall of records, on the other side of the temple. He searched the ancient annals and was filled with awe to read, that one thousand years before, the light was visible in the sanctuary during the descent of the column of water in the clepsydra, or water-clock, through two divisions, roughly, our minutes. But to-night, the bright spot was visible not quite half a minute, and not in the center of the temple!

Tempest-tossed, he remained absorbed in meditation, in the vast library containing the records of thirty centuries. At midnight, the din in the streets subsided, and then silence came on. He looked out; the city was deserted. The throngs had hurried to the river, pressing every boat into service, to see who should be first to detect the rise in the Nile, from Central African floods. Mesocharis was relieved somewhat and began to seek the cause for the shifting of the solar beam. Either the solid temple resting on a foundation of Herculean rocks was moving, or the sun. But the temple could not move unless the entire globe, the earth moved. This he thought would destroy the universe, and cause displacement of the sun likewise. He saw that in a few years the solar rays would not fall on the central point. This would have a vast effect on the nation; for both hierarchy and government would fall, after the gods had shown displeasure.

Should he tell the king in the morning? This troubled the priest. Since man appeared, no such questions had ever agitated the mind. No sleep came to calm his troubled spirit, and he beheld the sun rise in its usual glory. When it was high in the dome of the sky he walked toward the palace of Pharaoh. Traversing the winding walks, unutterable dismay filled his mind. He dreaded to approach the monarch with such an unheard-of message. When he came to the marble steps his courage failed and he turned away. He did not go to his own palace, but returned to the library in the temple. He was almost in collapse. He made every effort to calm his mind which was racing at terrific speed.

Finally, order came out of mental chaos. He came to a decision. This was to order the priests of the sun, from Memphis, Abydos and Heliopolis to come to Thebes, for counsel. He dispatched messengers and in due time they came. Trouble and care stood on their brows. They also had noticed the shifting of the sun's rays in their sanctuaries. Not one could offer a suggestion as to the cause. They had not told the king.

Pinotem, priest of Memphis, first advised that they visit the
VILLAGE OF KARNAK ON THE SITE OF ANCIENT THEBES.

From Ebers' Aegypten, II, 313.
monarch in a body and inform him of the departure of the light of Egypt. They agreed and told all to Pharaoh. He was filled with unutterable fear. It seemed to him that either the solid earth was unstable, or the sun, and, in either case, his throne. The hundreds of costly temples of the sun were becoming useless for their intended purposes. The king of Egypt was thrown into mental chaos. He dismissed his priests with commands to assemble again on the third day.

Every nation of antiquity from Gaul to India had esoteric mysteries, secret societies, whose members were received by solemn rites of initiation. The chief, or grand lodge of Egypt (also the chief one in the world) was due to meet in the great Labyrinth at Arsinoë, on the day of the first full moon after the summer solstice. On the third day the four priests came to counsel with their monarch. The approaching Grand Lodge was mentioned of which the king was grand master and must preside, while Mesocharis himself was grand warden. Meines, priest of the solar temple at Heliopolis, proposed that inquiry be made of all priests and delegates from the temples of Egypt and from temples in foreign countries to find whether their temples were turning. Hikten, priest of the nome of Abydos, agreed to the plan. Meanwhile, it was decided that this shifting of the solar rays should not be revealed to the people, and by no means to the army, save to its commanders who were initiates into the mysteries.

When the full moon appeared, the grand Labyrinth was a scene of animation. Hierophants, princes, scholars, literary men and the most intellectual men of the world filled the enormous rooms; traversed the mysterious subterranean ways and corridors, and held feasts of intellect amid surroundings of culture and refinement. Members of the mysteries of Isis and Osiris came from Ellora, Persepolis, Susa, Ecbatana, Nineveh, Babylon, Palmyra, Jerusalem, Tyre, Sidon, Athens, Dodona, Eleusis, Samothrace, Corinth and Rome. Many candidates from the temples in all these world-centers were in waiting to receive initiatory rites in the Labyrinth. When all business had been transacted, the subject of the shifting of solar temples was broached by the king. Pent-up excitement at once broke forth. Every priest present from every temple in the cities mentioned, had noticed the mystery. Not one could even suggest a cause.

Priests of many other types of religion were present also. Hierophants were in attendance who presided over sacrifices and rites in vast temples orientated towards the larger stars. Temples
in all parts of the world, of porphyry, marble and onyx, whose axes were directed to the stars, Sirius, Canopus, Aldebaran, Vega, Arcturus and others, were declared to be turning their Holy of Holies away from the tiny beams. Consternation filled the minds of all.

They realized that they were in the presence of an appalling awe-inspiring mystery. Could the gods be displeased with all mankind? And were all hierarchies and kingdoms to end? Were the gods
preparing to destroy man and the earth? These and many more dire forebodings were spreading in all quarters.

Of course, the mystics could not find the cause of the vanishing of solar light from all the sanctuaries in the world. This was reserved for the great mathematicians of modern times, beginning with Newton. All minute details are now known to astronomers, and an endeavor to explain some of them, is made in the cut herewith. The circle, in the adjoined diagram, is the earth showing its axis and equator. The temple of the sun in Thebes is shown with a ray of light entering its front straight from the sun, at sunset on the day of the summer solstice, B. C. 3700 years. The projection in the rear is the Holy of Holies. This line is shown as passing through this end of the building, but light never did. The line is imaginary and passes through the centers of the sun and earth, and therefore lies in the plane of the earth's orbit. Long before the temple was erected this plane had been slowly moving nearer to the plane of the earth's equator; and is still, and will for several thousand years to come. It will stop and slowly retrace its steps, thus rocking to and fro like a pendulum, to a distance of one and one-half degrees on each side of its middle position. The cause is the influence of attraction and motions of all the planets, Jupiter, Saturn, etc., on the earth. The line marked 500 B. C. is the position of the plane after the lapse of 3,200 years, but greatly exaggerated. The amplitudes of Egyptian temples have been measured with precision in recent years, the last mathematician to measure was T. Norman Lockyer, from whose book, the Dawn of Astronomy, the
data for this note were taken. His measurement shows the amplitude of the axis of the Theban temple to be $27^\circ 30'$.

From this it can be computed that the sun must have been $24^\circ 18'$ north of the equator, to set at that distance north of it, on the day of the summer solstice B. C. 3,700, the date of the temple. Last year, A. D. 1905, the sun was $23^\circ 26'56.38''$ north of the equator at the solstice in June; or $51'3.62''$ less than when a Pharaoh and his high priest stretched a line on the earth for the axis of the temple, 4,605 years ago. This is nearly twice the diameter of the sun. So now, the sun being that much displaced cannot send a ray anywhere near the long since ruined Holy of Holies. No wonder that priest Mesocharis was perturbed, for only a thin strip of the edge of the sun could be seen from his sanctuary on the night of the summer solstice B. C. 500, the time in which this story of a great event is placed.

[Note. A cause that produced far greater effects on the orientation of the temples, is an abstruse astronomical phenomenon, the precession of the Equinoxes. Another article would be required to explain it.]