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ASTRONOMY AND ASTROLOGY.

NUMEROUS ILLUSTRATIONS.

AN ACCOUNT OF THE SUN, PLANETS, COMETS, STARS,
AND THE CAUSE OF ECLIPSES, WITH THE
MYSTIC OF A BELIEF IN THE FETTERED
SCIENCE OF ASTROLOGY.



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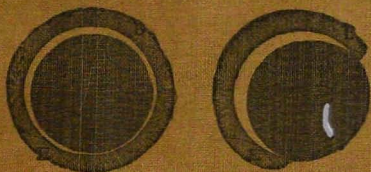
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ASTRONOMY AND ASTROLOGY.

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"Be not dismayed at the signs of heaven; for the heathen are
dismayed at them."

The Bible.



Eclipses of the Sun.

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ASTRONOMY AND ASTROLOGY.

INTRODUCTION.

ASTRONOMY is the science which treats of the sun, moon, stars and other heavenly bodies. It is the grandest of the natural sciences. The most glorious sights in nature are the sun shining in its strength by day, and the starry heavens by night.

Astronomy is useful to sailors, enabling them to guide their course over the pathless ocean. It should be studied by all persons as showing the power and wisdom of the great Creator. The sun, which appears small to us, is shown to be a vast globe more than twelve lakhs of times larger than the earth on which we live. The stars, which sparkle at night like little diamonds, are great suns, probably with worlds circling round them. The faint streak of light seen across the sky by night at certain seasons, called the Milky Way, is shown to be composed of innumerable suns.

ASTROLOGY pretends to foretell events from the position of the heavenly bodies. This is a false science, very mischievous in its effects.

It is generally supposed that the fertility of the seasons, success in every undertaking, health and sickness, depend upon the planets. Hence many persons always consult astrologers for an auspicious hour before commencing any business. Ryots inquire when they should begin ploughing or sowing; people leaving home on a journey ask when they should set out; a sick man wishes to know the best time for taking medicine. Astrologers are especially consulted about marriages, and suitable matches are often broken off, because they say the planets are unpropitious. Almanacs, professing to give the lucky and unlucky days and hours of the year, are the constant companions and guides of many persons able to read. Thus the Hindus are put

to never-ending expenses in consulting astrologers, and are kept in constant fear, lest they should be ruined by the evil influences of some of the planets.

It is desirable that all persons should have some knowledge of astronomy to keep them from such superstitious fears, and save them from suffering so much in other ways.

The accounts of the heavenly bodies given in the Puranas will generally first be mentioned, that they may be compared with those of astronomers.

Hindu System of the Universe.—According to Manu, Brahma, the first male, was formed in a golden egg, bright as the sun, laid upon the waters. Having continued a year in the egg, Brahma divided it into two parts, and with the two shells he formed the heavens and the earth.

The Puranas assert that there are seven island continents, surrounded by seven seas. The central continent,



in which we are said to live, is called Jambudwipa. In the navel, or middle, of Jambudwipa is the golden Mount Meru. Its height is 84,000 yojanas, or 756,000

miles; its depth below the surface of the earth 16,000 *yojanas*. Its diameter, or measure across, at the summit is 32,000 *yojanas*, and at its foot 16,000; so that this mountain is like the seed-cup of the lotus. On the top is situated *Swarga*, the heaven of *Indra*. *Jambudwipa* is said to be surrounded by a salt sea, *Lavana*. Both *Jambudwipa* and *Lavana* are each said to be 100,000 *yojanas* in breadth.

Plaksha, the next island continent, is surrounded by *Ikshu*, a sea of sugar-cane juice. Both are 200,000 *yojanas* in breadth. Each successive continent is supposed to be twice the breadth of the preceding one. *Salmali*, the third continent, has a sea of wine, *Sura*. *Kusa*, the fourth has a sea of ghee, *Sarpi*. *Krauncha*, the fifth, has a sea of curds, *Dadhi*. *Saka*, the sixth, has a sea of milk, *Dugdhi*. *Pushkara*, the seventh, has a sea of fresh-water, *Jala*. Beyond is a country of gold, *Swarna Bhumi*, which prevents the waters of the furthestmost ocean from flowing off in all directions. Outside this golden country is a circular chain of mountains, called *Lókalóka*. Beyond is the land of darkness, encompassed by the shell of the mundane egg.

The *Srimat Bhagavata* gives the following account of the origin of the seven seas. In the early part of the *Satya Yuga* all the continents were united. *Priyavrata*, the son of *Swayambhu*, had a splendid car, with one wheel. He drove this seven times round, and the furrows which the wheel of his car made on the earth became the seven mighty seas. Where the seas came from, is not mentioned.

The depth of the earth beneath its surface is said to be 70,000 *yojanas*, each of the seven regions of *Pátála* extending downwards 10,000. The seven *Pátálas* are said to rest upon the thousand-headed snake, *Ananta Shesha*, which bears the whole world as a diadem. When the yawns, the earth trembles, or earthquakes happen.

According to some accounts, *Ananta* stands on the back of a tortoise, which, in its turn, is supported by eight elephants, standing on eight sides. What supports the elephants is not stated. Another account places *Ananta* at the lower extremity.

The writers of the Puranas, who gave such wonderful accounts of the universe, were guided only by their fancy. Observation was thought unimportant and useless. Truth had no charm in their sight. They framed marvellous stories, fit only, like fairy tales, for the amusement of children.

The case is very different with European Geographers and Astronomers. Ships are fitted out to go to all parts of the earth; careful measurements are made and maps are drawn; the depth of the sea is ascertained; rocks and shoals are marked.

SHAPE OF THE EARTH.

If we stand upon a hill in the midst of a level country, we look down upon a plain, stretching far out in all directions, and bounded by the sky. We might suppose the earth to be nearly flat. But let us try the surface of the sea. If we watch a ship sailing away from us, its hull or body, will first disappear, and then the masts will gradually sink below the boundary line of the sea. On the



other land, when a ship is sailing towards the shore, we see the top of the masts first; then the sails, and lastly the body of the ship. This is because the sea is

not really flat, but lies round the earth like the peel upon an orange. When you are on the top of a hill, particularly when the hill is smooth and round, if a person walks up to you, you will first see his turban, then his face, his shoulders, and so on to his feet; and when he goes down the hill, you will lose sight of his feet first. When we observe that ships appear and disappear in the way described, we conclude that the earth must be round. A small part of it appears flat, as in the case of a small piece of a large pumpkin.

If an ant were to crawl with its head in the same direction over the surface of an orange, it would come at last to the place from which it set out. In like manner, many ships sail round the world every year, starting at one point, and coming round to it again without turning back.

We see also that the sun and moon are round, and this of itself would make it very likely that the earth would be round too.

As the earth is round, there is some part exactly opposite to that on which we stand, and the people who live there must be standing with their feet towards ours. At first this may seem strange, and we may fancy that these people are standing head downward; but we must remember that the world is round, and that no part is really more up or down than another, — all the people in the world stand with their feet toward its centre, and with their heads raised toward the sky. This earth, then, is a large globe, with the heavens all round it, and in all parts of the heavens there are shining stars. The earth floats in the sky like the moon.

The size of the earth has been carefully measured. Its diameter, or measure through the middle, is 7,912 miles; its circumference, or measure round, is 24,566 miles. A swift ship could sail round the earth in about three months.

It should be mentioned that good Hindu Astronomers do not credit the fabulous accounts given in the Puranas. The author of the *Siddhanta Siromani* was of opinion "that the earth is suspended in the air by the hand of the Deity."

If earthquakes were caused by the great Serpent n

head, they would occur over the whole world, whereas they are confined to districts, sometimes even to single places.

OPTICAL INSTRUMENTS.

Before describing the Sun, Moon and Stars, it may be well to give an account of two instruments which have enabled us to learn much more about them.

The Telescope.—It is well known that the cat can see much better in the dark than we can. How is this? If



you look at the eye of a cat in sunshine the central part, through which the light passes, seems like a narrow slit. At night, on the other hand, the pupil, or dark part in the eye, is large and round, thus allowing much more light to enter, and enabling the cat to see when it is nearly dark.

The glass of a telescope collects the rays of light into a large eye. Most telescopes are small; but there are some like a forty or fifty feet long, costing lakhs of rupees. By the use of one of the latter, a man can see as well as if he had an eye six feet in diameter.

Galileo, an Italian astronomer, was the first to use the telescope about three hundred years ago. Even with a small telescope we can see much better than with the naked eye. It is plain therefore that with large telescopes many things may be visible which would otherwise be unknown.

The Spectroscope.—This instrument is one of the most remarkable inventions of this century. The telescope enables us to see the heavenly bodies with greater distinctness; the spectroscope tells us, to some extent, *what they are made of*, and whether they shine by their own light, like the sun, or from light obtained from other bodies, like the moon.

In 1675, Sir Isaac Newton discovered that white light is composed of a mixture of yellow, red, and blue rays. The different colours can be seen in a rainbow, the drops of rain separating them. Green is caused by a mixture of yellow and blue. By means of a triangular piece of glass, called a prism, the rays can be separated as in the rainbow; presenting the appearance in the margin, called a *spectrum*. The different rays may also be seen on the glass drops of chandeliers when light shines upon them.



It has been found out that the colours of the spectrum differ according to the nature of the light. An ordinary lamp gives one kind of spectrum. Put a little salt on the wick, and a bright yellow line is seen where there was none before. Other substances give other lines. To enable the lines to be seen clearly, a telescope is used. The lines produced by different substances have been very carefully drawn. Thus from an examination of the light, learned men are able to know, in some measure, the nature of the object from which it is sent forth.

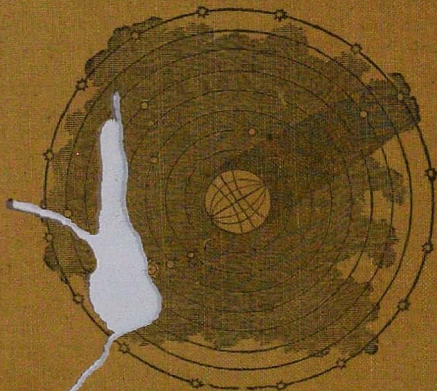
The different heavenly bodies will now be described.

THE SOLAR SYSTEM.

Hindu System.—The earth is supposed to be the centre round which revolve, in regular succession, the sun, the moon, the lunar constellations, planets, &c.

The sun is said to be a lakh of yojanas from the earth. Above this 100,000 yojanas, is the moon; 100,000 more are the lunar constellations; 200,000 more, Budha or Mercury; 200,000 more, Sukra or Venus; 200,000 more, Mangala or Mars; 200,000 more, Brihaspati or Jupiter; 200,000 more, Sani or Saturn. Above this, at the distance of 100,000 yojanas, is the region of the Seven Rishis; and still 100,000 above that, is the world of Dhruva, the Polar star. Several other worlds are supposed to be above even these.

The Ptolemaic System.—It was known to a few learned men in Europe more than 2000 years ago that the earth goes round the sun; but until modern times it was the common opinion that the earth was the centre of the universe. The moon was thought to be nearest the earth;

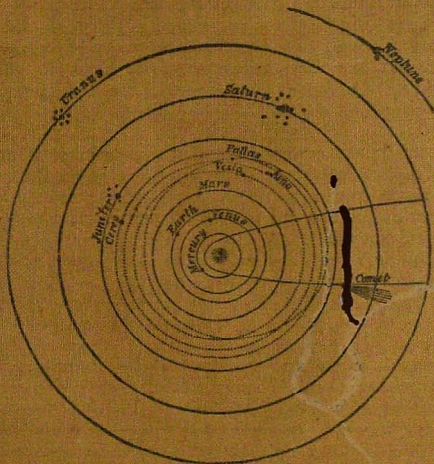


The Earth in the Centre.

then Mercury, Venus, the Sun, Mars, Jupiter, and Saturn. A learned Egyptian, called Ptolemy, wrote a famous work on astronomy, in which this system is described. Hence it was called the Ptolemaic System.

The Modern System.—Instead of the sun, moon, planets and innumerable stars going round the earth every day, learned men now give a different explanation.

Suppose we wished to roast a fowl equally well on all sides. This might be done in two ways. The fowl might remain at rest, and the fire be carried round it. This, however, would give a great deal of trouble. It can be done quite as well in a very easy way. The fowl can be hung up by a string, and turned round. Thus every part would be equally heated in turn. The fire represents the sun, and the fowl, the earth. Instead of the sun and crores of stars



The Sun in the Centre.

going round the earth, the earth simply turns round, like a top, and thus every part gets light and heat. It is day on the half of the earth turned towards the sun, and night on the other half.

It may be said that we do not feel the earth moving, while the heavenly bodies appear to move round the sky. But our senses sometimes deceive us. When sailing in a ship very steadily, we do not feel the motion of the vessel. We sit and walk as if we were on land; if we drop a knife, it falls at our feet; insects buzz around us as on shore. The water and the land appear to move, while we seem to be at rest. It is somewhat the same in a railway. If there are two trains at a station, one moving, the other at rest, the people in them cannot tell which is moving, except by looking at the ground or the station building.

What an immense circuit the sun and stars would make daily if they really moved! Why should such enormous globes travel such an immensity of space merely to prevent the earth turning round? No cook would be so stupid as to make a fire move round a fowl to roast it. Can we suppose that the all-wise Creator would do such a thing?

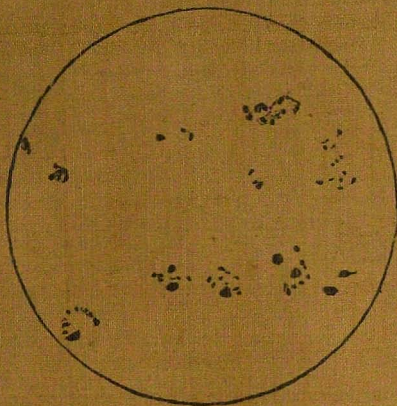
The sun is the centre around which our earth and the other planets revolve. This is represented in the picture on the preceding page.

Copernicus, a famous German astronomer, who died in 1543 A.D., showed that the earth goes round the sun. Hence this is sometimes called the Copernican system as opposed to the Ptolemaic system.

SURYA, THE SUN.

The sun is one of the grandest sights in nature. It is not surprising that in early times it should have been regarded as a divinity. Dyans and Prithivi, heaven and earth, are in many passages of the Rig-Veda described as the parents of the gods. Surya is called the son of Dyans, and is represented as moving daily across the sky, in a gold car, drawn by seven white horses. The worship of the

Vedic gods was gradually given up, and new deities rose into notice. Surya is now little worshipped, though the Gayatri, considered the holiest verse of the Veda, is a short prayer to the sun.



Sun Spots.

The sun will now be described, as ascertained by modern astronomers, by means of instruments unknown to the ancients.

The sun is a globe of immense size. It would take nearly thirteen lakhs of world like ours to make one as large as the sun. In size the earth is like a grain of sand compared with an orange. The sun is 500 times larger than all the planets taken together.

If the earth were placed in the centre of the sun, the outer surface of the sun would be as far beyond the moon as the moon is from the earth. The sun looks small on account of its vast distance—about 92 millions of miles. If there was a railway from the earth to the sun, a train would take about 400 years to travel from one end to the other.

The sun is a globe of the fiercest fire. On earth fire changes water into steam. The heat of the sun is so great that even iron is changed into vapour. Its surface is an immense ocean of blazing clouds. Sometimes the flames shoot up to the height of two lakhs of miles.

In our heavens great masses of cloud are sometimes seen, with places where the blue sky is visible. It is somewhat



Sun Spots.

the same in the sun. Occasionally the blazing clouds on the sun's surface are piled up, forming spots of peculiar brightness. At other times there are openings in them, called sun-spots.

The sun is so dazzling that the naked eye cannot look on it when it is shining in its brightness. When it is examined through a telescope, with dark green glass, the spots can be seen.

The spots vary in number and size. Some years they are comparatively few; in others they are more numerous. Spots have been seen 180,000 miles in length. A magnified view of two spots is given above.

When these spots were watched, it was seen that they appeared to cross the sun's face from east to west. After disappearing for a fortnight, they came round again to the eastern edge, and crossed the sun's face as before. It was thus found out that the sun revolves once in 25 days.

THE PLANETS.

According to the Hindu account, there are nine Planets, Surya, Chandra, Mangala, Budha, Brihaspati, Sukra, Sani, Rahu and Ketu. The Sanskrit word for planet means to seize or grasp, from Rahu and Ketu, supposed red and black serpents, trying to seize the sun and moon during eclipses. The English word planet means a *wanderer*. The planets move slowly through the sky, while the stars do not change their positions.

The Sun is not a planet. It is like the mother of the planets; they are like her daughters moving round her.

Instead of there being only nine planets, by means of the telescope about three hundred planets have already been discovered.

The principal planets will be briefly described in turn.

BUDHA, OR MERCURY.

According to the Puranas, Budha, or Mercury, is the son of Soma, the moon, by the wife of Brihaspati. It is the planet nearest the sun yet known with certainty, its distance from it being about 35 millions of miles. Mercury is generally hidden by the sun's rays, and is seldom visible to the naked eye. It is a small planet; the earth is seventeen times larger. Mercury goes round the sun in about three months, which is the length of its year.

SUKRA, OR VENUS.

Sukra is said to be the son of the Rishi Bhrigu. European astronomers say that it is a world a little smaller than ours. To a person on Venus, the earth would look like a bright star just as Venus appears to us. Next to the moon, Venus is the heavenly body nearest the earth. Hence it is the brightest of all the planets, and shines like a little moon. When examined by the telescope, it also changes somewhat like the moon according as the sun shines on it. In the picture some parts appear darker than others. These are supposed to be breaks in the clouds through which the planet itself is seen. Venus is about 66 millions of miles from the sun, and its year is equal to about $7\frac{1}{2}$ of our months.

*Venus.*

Mercury and Venus are nearer the sun than our earth. Hence they are never seen right over head. Mercury always appears near the sun; Venus is seen either in the west as the Evening Star or in the east as the Morning Star.

THE EARTH.

We live on a planet called the Earth. Its shape and size have already been explained. Seen through a telescope from Venus, it would have the appearance in the picture.

*The Earth as a Planet.*

The brighter parts denote land, which reflects more of the sun-light than water.

The earth is about 92 millions of miles from the sun.

CHANDRA, OR THE MOON.

In the Puranas, Chandra, or Soma, is said to be the son of the Rishi Atri. The chariot of the moon has three wheels, and is drawn by ten horses of the whiteness of the jasmine.

The Padma Purana gives the following explanation of the changes of the moon: Chandra is said to have married the twenty-seven daughters of Daksha. His favorite among them was Rohini. The other daughters having complained to their father, he cursed Chandra, who became affected by consumption. The wives of Chandra then interceded with their father, who pronounced that the decay should be only for a time. Hence the successive wane and increase of the moon.

The Vishnu Purana gives another account. The Sun



fills the Moon every month with nectar. 36,333 gods drink of it during the light fortnight, and the Pitris, or ancestors, during the dark fortnight.

European astronomers give the following description of the moon.

Planets are divided into two classes. Those of the first

class, like our Earth and Venus, move only round the sun. Planets of the second class move also round larger planets. Our moon is a planet of the second class, moving round the earth once a month. If planets of the first class may be likened to the sun's daughters, those of the second class may be compared to her granddaughters.

The moon seems about the same size as the sun, although it is many million times smaller. The moon looks so large, because it is the heavenly body nearest the earth. The earth is almost fifty times larger than the moon. The distance of the moon from us is nearly $2\frac{1}{2}$ lakhs of miles. A railway train would take about a year to travel over the same space.

Though the moon looks bright and shining, it is dark in itself. At night it looks like molten silver, because all round is dark; when seen by day, it is not brighter than a white cloud. The moon gets all its light from the sun. If it shone by its own light, like the sun, it would always have a round appearance. The moon does not change in size, but only the side upon which the sun shines can be seen.



The Moon's Surface.

At new moon the dark side is towards us; at full moon, the bright side.

Some parts of the moon seem brighter than others.

When examined through a telescope, it is found that the bright spots are the tops of mountains, and the shady spots are plains, or hollow places, which do not receive so much of the sun's light. The moon's surface seems torn and rugged. There are no signs of water in the moon. All is dry and barren.

MANGALA, OR MARS.

MANGALA, or MARS, the planet next the earth, is remarkable for its reddish light. The ancient Romans gave it the name of Mars, their god of war, from its red colour, some-



Mars.

what resembling the blood shed in battle. Hindus had somewhat the same idea, for the regent of the planet is supposed to be Kartikeya, a son of Siva, and god of war. When seen through a telescope, a part appears reddish, supposed to be land; a part, greenish, supposed to be water. Mars is only about one-eighth of the size of our earth. It has two very small moons.

The picture represents its different appearances. When it is farthest from the earth it looks smaller than when it is nearest.

ASTEROIDS.

An asteroid is a very small planet. Between Mars and Jupiter there is a large number of planets, nearly all so

small that they can be seen only with telescopes. Ceres, Pallas, Juno and Vesta, the largest, were discovered about the beginning of the present century. Since that time, nearly three hundred more have been seen. One or two are added to the list every year. The largest is supposed to be only two or three hundred miles in diameter, while others are less than twenty miles. It is possible that there may be thousands of them so small that they cannot be seen even by telescopes.

BRIHASPATI, OR JUPITER.

BRIHASPATI, or Vrihaspati, is said to have been a Rishi, the teacher of the gods. As regent of the planet, he is represented as drawn in a car by eight pale horses.

JUPITER, is the largest of all the planets. It is about 1,300 times the size of the earth, and is larger than all the



other planets taken together. When examined through a telescope, it is seen to be covered with changing belts, supposed to be openings in its cloudy atmosphere. Jupiter has four moons which can be seen even by small telescopes, sparkling like little diamonds. This planet is about 476 millions of miles from the sun, and its year is equal to twelve of ours.

SANI, OR SATURN.

According to one account, Sani was the son of Surya. He is sometimes represented as clad in a black mantle, with an angry look, riding on a raven. His chariot is said to move slowly, drawn by eight piebald horses. Saturn was the most distant planet known to the ancients. It is about 880 millions of miles from the sun. Hence its light is dull, and it moves slowly. This led it to be regarded as a gloomy body, whose influence was hurtful.

Saturn is next in size to Jupiter, and is about 750 times

larger than the earth, but it is as light as wood. By means of the telescope, this planet is shown to be surrounded by flat rings, and to have eight moons. The appearance of the rings varies according to the position of the planet.



Saturn.

The year of Saturn is equal to about thirty of ours.

URANUS.

This planet was discovered in 1781 by Sir William Herschell. It is about 70 times larger than the earth, and has four moons. It is about 1750 millions of miles from the sun, and its year is equal to 84 of ours.

NEPTUNE.

This is the most distant planet yet known. It was discovered in 1846 in a remarkable way. Two astronomers, one English and the other French, ascertained that Uranus sometimes moved faster sometimes slower than usual. They thought that this must arise from the attraction of some planet, and calculated where it ought to be found. A German astronomer, who had the best star map, looked at the place and saw the planet. Neptune is about 100 times larger than the earth. It is 2746 millions of miles from the sun, and its year is equal to about 164 of ours. Only one moon has yet been discovered belonging to this planet.

RAHU AND KETU.

These are called planets in the Puranas. Rahu rides in a dusky chariot, drawn by eight black horses; Ketu has eight horses of a dark red colour. A further account of them will be given in the next section.

According to the Vishnu Purana, the chariots of the planets are kept in their places by aerial cords, fastened to Dhruva, the polar star.

WHAT CAUSE ECLIPSES?

An eclipse is a darkening of the light of the sun or moon. Usually only a part of the sun is hidden by an eclipse, and then one would suppose it to be merely a passing cloud. Sometimes, however, the sun is wholly concealed, or the eclipse is said to be *total*. The effects then are wonderful. The shadow cast upon the earth has a strange appearance, neither resembling the darkness of night, nor the gloom of twilight. Bright stars become visible; bats sometimes fly about as at dusk; birds betake themselves to their resting places. A long time ago, when two great armies were fighting, an eclipse of the sun took place, which so frightened the soldiers that the battle was stopped, and peace was concluded. When an eclipse takes place, the people of this country suppose themselves to be rendered impure by it. Hence they fast, bathe, and offer alms to remove its fancied evil influences.

The causes of eclipses will be explained, and it will be shown if any thing should be done when they happen.

SUPPOSED CAUSES OF ECLIPSES.

Among the ignorant, eclipses have been a cause of great fear. A traveller in Africa thus describes the effect of an eclipse of the moon on the negroes:—

One evening the full moon had arisen with uncommon brightness, and many of the people were out enjoying the cool breeze. But when the moon gradually became darkened, fear overcame every one. All ran, in great distress,

to inform their king, for there was not a single cloud to cast a shadow, and they could not understand the nature of an eclipse. Some men shouted; some blew trumpets or bullock's horns; others beat drums. This was done to scare away the monster supposed to be attacking the moon. As the light increased, the people broke out into shouts of joy. Those who had been making a noise boasted, saying, "Aha! did not we frighten the great serpent!"

Some people in old times had a curious notion about eclipses of the moon. They thought the moon was a goddess, and that when an eclipse took place she was labouring with child. To help her, they offered sacrifices.

The Peruvians of America supposed that during an eclipse the moon was suffering from some disease, and were afraid, lest she should burst open and fall upon them. To avoid such a terrible calamity and awaken her, they would sound loud instruments, shout at the top of their voices, and beat the dogs to make them howl. The Mexicans imagined that eclipses occurred in consequence of a family squabble between the sun and the moon, and that the moon was wounded in the fray. The frightened men observed rigorous fasts, the women inflicted corporal punishments on themselves, and young girls drew blood from their arms.

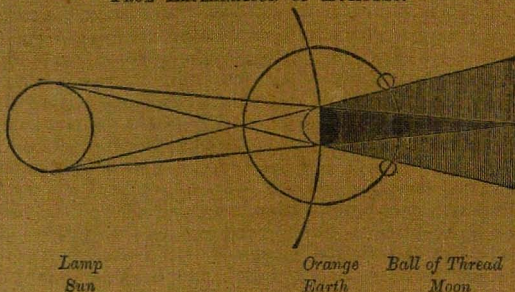
The following explanation of eclipses, given in the Puránas, is believed by most people in this country:—

Rahu was supposed to be a great demon, with four arms, and a tail, like that of a dragon, instead of feet. When the gods had obtained Amrita, the water of immortality, by churning the Milk Sea, Rahu stole among them, and drank a portion secretly. The Sun and Moon, observing the theft, told Vishnu, who threw his chakra at Rahu, and severed his head and two arms from the rest of his monstrous body. As Rahu had swallowed some of the Amrita, both parts remained alive. They are regarded as the eighth and ninth planets, named Rahu and Ketu, and are said, every now and then, to take revenge on the Sun and Moon by swallowing them for a short time, thus causing eclipses.

Rahu and Ketu are generally supposed to be large black and red serpents.

The Chinese also think that eclipses are caused by dragons attempting to swallow the sun and moon. On this account they shout, beat tom-toms, and make a great noise to frighten them away.

TRUE EXPLANATION OF ECLIPSES.



Eclipse of Moon.

Eclipses can easily be understood by making a large lamp at night represent the sun, an orange represent the earth, and a ball of white thread represent the moon.

Hang the orange about two cubits from the lamp, and the ball of thread about half a cubit from the orange. Half of the orange is bright from the light of the lamp, while the other half is in shade. This represents day and night on earth. Turn the orange round, and the part that was dark becomes light, as night is followed by day.

Move the hanging ball of thread slowly round the orange. Look at it carefully, and you will see that it changes exactly like the moon. When the orange is between the lamp and the ball of thread, the bright side of the ball is seen, like full moon; when the ball comes between the lamp and the orange, its dark side is seen, like new moon. As it moves round, more and more of its bright side comes into view.

It will be seen that the orange casts a shadow. If the ball of thread is held exactly behind the orange, it is darkened by the shadow of the orange. If held partly above or

below the shadow, only a part of the ball is darkened. The darkened part is round, like the shape of the orange. If the ball is held above or below the shadow, none of it is darkened.

Eclipses of the moon are caused precisely in this way. If you stand in the sunshine, your body casts a shadow. The earth also casts a shadow towards that side which is farthest from the sun. The moon moves round the earth once in about four weeks. If it passes through the shadow of the earth at full moon, it is said to be eclipsed. It has then a reddish-brown appearance. If the moon is only partly in the earth's shadow, it is what is called a *partial* eclipse. If the moon is above or below the earth's shadow, there is no eclipse.

The earth being round, casts a round shadow. The dark circle C D in the picture below represents the shadow of the earth falling upon A the moon. In partial eclipses of the moon, the darkened part is round, another proof showing that the earth itself is round.



Partial Eclipse of Moon.

To represent an eclipse of the sun, hold the ball of thread exactly between the orange and the lamp. The light will then be hidden. If held nearly in the same line, part of the light will be concealed. If the ball is held a little above or below, the light will not be affected.

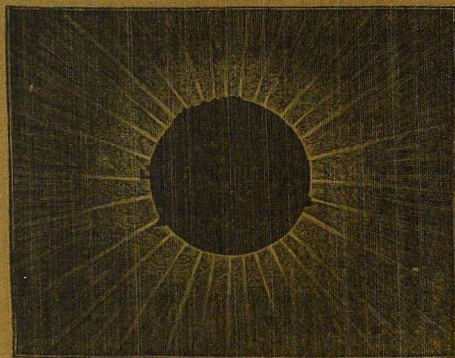


Sun

Moon Earth.

Eclipse of Sun.

If the moon, when going round the earth once a month, comes exactly between the earth and the sun, the latter is *totally* eclipsed. If the whole of the sun is not concealed,

*The Sun during a Total Eclipse.*

the eclipse is said to be *partial*. Eclipses of the sun can happen only at new moon. They do not take place every month, because the moon is often not exactly between the earth and the sun.

Before an eclipse of the sun, the moon is seen on one side of the sun, and after it on the other. By means of a good telescope, its gradual approach can be watched.

The moon and the sun can be best seen with a telescope during an eclipse. In a total eclipse, the appearance is like that in the picture. The sun is hidden by the round solid body of the moon, but its bright outer covering is visible. Appearances, like red mountains of fire rising from the sun, are also sometimes seen during an eclipse.

An eclipse of the moon is caused only by the earth's shadow. On this account it has a reddish-brown appearance. But in an eclipse of the sun, the latter is hidden by the dark, solid body of the moon, and therefore appears black. Hence the fable of red and black serpents.

Learned men can tell, hundreds of years before, exactly when eclipses will take place, how long they will last, and how much of each body will be obscured. If they were caused by red and black serpents, who could tell when they would open their mouths and how much they would try to swallow? Such an explanation is fit only for children.

Long ago Varahamihira, in a learned Sanskrit treatise, called Brihat Saṃhita, gave the true explanation.

FEAR OF ECLIPSES.

It will be seen by those who understand the foregoing explanation that eclipses do no more harm to us than a cloud passing over the sun or moon. It is no more necessary to fast and bathe in the one case than in the other. The ceremonies of the Hindus and the beating of tom-toms by the negroes, arise from the same ignorance. The people of Europe have now no fear of eclipses. They only look at them, taking pleasure in the strange sight. God's Holy Book says, "Be not dismayed at the signs of heaven; for the heathen are dismayed at them."

The one true God is the Creator of the universe. The sun, moon, earth, and planets are under His control. He governs all things. "Seek Him that maketh the day dark with night. The Lord is His name." Worship the one true God alone, and do not bow down to dumb idols or lifeless planets.

There is a far more glorious Sun than that which gives

light to our bodies. The Lord Jesus Christ, the only Son of God, who became man to save us, is called the *Sun of Righteousness*. Night is chased away by the rising of the natural sun; so the darkness of ignorance disappears before the bright rays of the Sun of Righteousness. The rays of the sun are necessary for the fruitfulness of the earth; all the fruits of righteousness are produced by Christ.

The Sun of Righteousness is always shining, ready to bless us; but to most men He is eclipsed by the cares and pleasures of this world. Let Jesus have the first place in your heart. Receive Him as your Saviour; love Him, obey Him. Then will His bright beams fall constantly upon you, filling you with peace and joy.

COMETS.

Sometimes a strange-looking body is seen in the sky, like a star with a faint tail of light streaming behind it. Such an object is called a *comet* in English, from a word meaning *hair*, the tail being supposed to resemble hair. In this country, some people call it a tail-star; others, a smoke-star.

Comets differ very much in appearance. Most of them look only like small faint clouds, which ordinary observers never notice. Astronomers, who look carefully at the sky with their glasses, called telescopes, see every year one or more comets.

Occasionally very bright comets are seen. A few are so bright that they are visible by day.

Such bright comets are rarely seen. From their sudden and curious appearance, they were looked upon with great terror by the ancients. All kinds of calamities were attributed to them, as the death of princes, wars, famines, and pestilences.

Astronomers in Europe have carefully examined comets with their glasses. The following are some of the facts they have ascertained.

The planets move round the sun nearly in circles. Comets, on the other hand, approach near the sun at one time and then go off immense distances. The course of a comet

*Bright Comets.*

is given at page 9 in the representation of the Solar System.

The planets move from west to east. This causes the sun to appear to rise in the east and set in the west. Some comets, however, move in a contrary direction, from east to west.

The planets are confined to a part of the sky, appearing to move through certain constellations, or clusters of stars; comets travel in all directions.

No two comets are exactly alike. Their shapes are almost as various as those of the clouds. Some comets have immense single tails; a few have been seen with double tails, or several tails spread out like a fan. Most of the smaller comets, however, have no tails. The greater number of comets are invisible to the naked eye.

An English astronomer, called Halley, about two centuries ago, first calculated the course of a comet. In the year 1682 a comet was seen, which one has since been called Halley's comet.

From observing the motion of the comet, Halley calculated that the comet took 76 years to go round the sun. It returned, as he foretold, in 1759, and again in 1835. The comet goes within about 5 crores of miles from the sun, and



Halley's Comet.

then recedes to the distance of 300 crores. Its next appearance will be in the year 1911.



Comet.

Another small comet, called Encke's comet after the astronomer who calculated its course, goes round the sun in about three years. Several comets complete their circuit in five years. Some comets take thousands of years to go round the sun; others, it is supposed, go off and never return.

The paths of about fifty comets have been calculated. The total number of comets is estimated at several millions.

Some comets have a bright head, shining by its own light; but generally they get their light from the sun. The substance of which comets are composed must be inconceivably thin. A small cloud or a puff of smoke will hide a star, but faint stars are seen through the head of a comet. It has been estimated that a man could bear on his shoulder the weight of some comets. Comets have no more influence on human affairs than the clouds in the sky. The fears of the ignorant respecting them are quite groundless.

SHOOTING AND FALLING STARS.

Every one who has watched the sky in a clear night must at times have been a bright point, like a star, shoot quickly across the heavens, leaving a bright streak for a second or two behind it. Bodies of this kind are commonly called *shooting* or *falling* stars. The scientific name is *meteors*, which means, things high in the air.

Most meteors are small, not appearing larger than an ordinary star. A few, however, have been seen appearing as large and as bright as the moon, traversing the sky some seconds, and leaving a shining track behind them. Occasionally the larger ones burst into a number of pieces.

Several shooting stars may generally be seen every clear night, but twice a year they are more numerous than usual, about the 10th August and the 13th November. Every 33½ years they are seen in great showers. The picture on the next page gives the appearance seen in Greenland in 1799.

They were again seen in America in 1833. A planter says that at night he was alarmed by the shrieks and cries of the negroes employed on his estate. One besought him to rise, saying, "Oh! master, the world is on fire." The



Shower of Meteors.

sky was full of shooting stars like drops of rain. The same meteoric shower was seen in London in 1866.

Various explanations have been given of falling stars. The ignorant suppose them to be bad omens.

The Koran describes the falling stars as flames hurled by good angels at evil spirits when they come too near.

Learned men in Europe were at first doubtful about the nature of falling stars. Some thought that they were formed in the air like lightning ; but it is now well understood what they are.

Occasionally it happens that meteors fall to the ground. They can thus be examined like any other stones. Those which fall are called *meteorites*. Collections of them may be seen in large museums.

Meteorites are composed of substances found in our earth. Iron is the principal. In the Paris Museum there is a block of nearly pure iron, weighing about 20 maunds, which fell

from the sky. Some are composed chiefly of stone. Such are properly called *aerolites*, air stones. The black stone at Mecca, called the Kibleh, which Muhammedans say fell from heaven, is perhaps an aerolite.

Besides the planets, there are countless numbers of small bodies which move round the sun. They vary in size from a few grains to masses weighing several maunds. Some go singly; some are in showers. The speed at which they move is immense—about ten times quicker than a cannon ball.

Friction produces heat. Take a piece of brass button and rub it on a board. It will soon become too hot to hold. Fire is sometimes obtained by rubbing together dry sticks. When the small bodies, mentioned above, rush through the air, they become so heated that they burn. The small ones are entirely consumed. The larger ones are melted on the surface and reduced in size, but they pass off. Only rarely do any fall to the earth. Sometimes they burst in pieces; sometimes they come down in one mass.

It has been found that some of these showers of meteors have the same track as comets. Hence it has been thought that some comets are clouds of meteors.

THE STARS.

Apparently countless stars can be seen in the sky at night, sparkling like diamonds. There are as many stars in the sky by day, but they are hidden by the bright light of the sun.

The stars appear to rise and set like the sun and moon. Look at some stars in the east of the sky about seven in the evening, and then look at them again at ten o'clock. It will be found that they have risen, just like the sun. But they only seem to move. It is the earth that turns round.

The stars are distinguished from the planets, by keeping apparently the same places in the heavens, while the planets seem to wander. The word *planet* means *wanderer*. There is another difference. The planets give a steady light; the stars twinkle. When the planets are examined

by a good telescope, they seem larger; but with the best telescopes the stars remain glittering points.

Our sun is the nearest star. A railway train would take 400 years to travel the distance between the earth and the sun. But the stars that we see in the sky are so distant that a railway train would take about nine crores of years to reach the nearest of them.

The seemingly little twinkling stars are great suns, giving out light and heat. It is supposed that some of them are many hundred times larger than our sun. There is reason also to believe that each star, like our sun, is surrounded by its family of planets.

The stars are divided into classes according to their apparent magnitude. The brightest are said to be of the *first* magnitude. The next of the *second* magnitude, and so on to the *sixteenth*, which can be seen only with the most powerful telescopes. The brighter stars, in most cases, are those which are nearest us.

The stars have been arranged into groups, called constellations, and named after objects to which they were supposed to have a resemblance. In this way the position of any star may be easily pointed out.

The twelve constellations, through which the sun appears to pass yearly, are given in the following rhyme :—

“The Ram, the Bull, the Heavenly Twins,
And next the Crab, the Lion shines,
The Virgin, and the Scales,
The Scorpion, Archer, and He-goat,
The Man that holds the watering-pot,
The Fish with glittering tails.”

One of the most beautiful constellations is called Orion. It is known by three stars in a line at nearly equal distances. To the east, the three stars point to Sirius, the Dog-Star, the brightest star in the sky. To the west, the three stars point to a cluster of stars, called the *Pleiades*. The *Pleiades* were supposed to contain seven stars, but through the telescope a large number can be seen. The Bible thus refers to them in the book of Job : “Canst thou bind the sweet influences of *Pleiades*, or loose the bands of Orion?”



Some stars that appear single to the naked eye, when examined through telescopes, are found to consist of two or more stars revolving round each other.

The picture below shows one group of three revolving suns, and another of five suns.



Multiple Stars.

Most stars are white; but some are reddish, others yellow. Among the double stars are found all the colours of the rainbow. One star is orange, the other blue; sometimes one is yellow, the other purple. The planets, in such cases, have two suns, one orange, the other blue, etc.

On clear dark nights a band of faint light may be seen stretching across the heavens, called the *Milky Way*. When looked at with the telescope, it is found to consist of countless stars, closely crowded together. They are so distant that they look simply like a cloud.

A few faint patches can be seen in other parts of the sky. When examined through the telescope, most are found to



Star Cluster.

consist of clusters of stars. Thousands of such star-clusters are scattered through space.

Some of the patches retain their cloud-like appearance when the most powerful telescopes are brought to bear upon them. These are called *nebulae*, clouds. They consist of vast clouds of shining gas, and are perhaps suns in the course of formation.

Of late years much knowledge of the heavenly bodies has been gained by examining their light through the instrument called the spectroscope, already described.

The more powerful telescopes are, the more they show the immensity of creation. There are countless millions of suns, with their attendant worlds. Well may we say, "The heavens declare the glory of God, and the firmament sheweth His handywork." "Great and marvellous are Thy works, Lord God Almighty." God "telleteth the number of the stars, He calleth them all by their names." All are under His control.

How foolish and sinful it is to liken the great Creator to an image made like a man! We should worship the one true God alone, and not bow down to any image.

A good man in old times said, "When I consider the

*Nebula.*

heavens, the work of Thy fingers, the moon and the stars, which Thou hast ordained, what is man, that Thou art mindful of him?"

Though God is the Lord of innumerable worlds, He has not forgotten us. The earth is full of His goodness. He is ever present, ever watchful. The very hairs of our head are all numbered. But the greatest proof of His love is shown in our redemption. Our first parents were created holy, but soon they sinned against God, and we have all followed in the same evil course. To save us from the punishment due to sin, God gave up His only Son Jesus Christ to die in our room. Salvation is freely offered to all who trust in Jesus as their Saviour. Believe in Him and your sins will be forgiven, your heart will be purified, and you will become an adopted son of the great Lord of the universe.

THE STARS.

Child of the earth! oh! lift thy glance
To yon bright firmament's expanse;
The glories of its realm explore;
And gaze, and wonder, and adore!

Mark well each little star, whose rays
In distant splendour meet thy gaze;
Each is a world by God sustain'd,
Who from eternity hath reign'd.

What then art thou, O child of clay ?

Amid creation's grandeur, say !

E'en as an insect on the breeze,

E'en as a dew-drop lost in seas !

Yet fear thou not ! the sovereign hand

Which spread the ocean and the land,

And hung the rolling spheres in air,

Hath e'en for thee a Father's care !

ASTROLOGY.

Sir Madava Rao, the well-known Indian statesman, says, "The longer one lives, observes, and thinks, the more deeply does he feel there is no community on the face of the earth which suffers less from political evils, and more from self-inflicted or self-accepted or self-created, and therefore avoidable evils than the Hindu community !"

Caste is the worst form of slavery to which the Hindus voluntarily subject themselves. Next to it, perhaps, should rank astrology. It is the occasion of never-ending expenses and the fruitful source of unceasing anxieties to all classes.

Wide Influence of Astrology.—"Among a superstitious people having an insatiable longing for the marvellous, and a money-loving people more concerned for this world than the next, it is easy to see how the *Jyoti* Shastra is more prized than the Veda. Nothing, in fact, of any importance in any position or relation of life is done without the permission of the astrologer. When a woman becomes pregnant, the astrologer is sent for to say, whether it will be a male or a female child ; when it will be born ; whether it will live or die ; and what sort of child it will be. And he, with all the assurance of a true prophet, describes these things in detail, and a certain class even write the horoscope before the child is born. When a child is born the presence of the astrologer is again necessary, to find out the birth-star, to write the horoscope, to describe his character, to foretell the events of his life, and to fix the period of its duration. When a man wishes to have his son or daughter married, the astrologer is the only true counsellor and guide. He must exam-

ine the nativities ; decide the proper conjunctions of the 27 principal stars of the constellations of the Zodiac necessary to produce a happy union ; fix the fortunate days for the great ceremony ; and arrange all the details of the marriage. Does a merchant wish to speculate in a quantity of goods ? Is a man about to undertake a journey ? Does a rich man desire to dig a well or build a tank for merit ? The astrologer must fix the lucky day and hour. The proper days for celebrating feasts, the auspicious days for shaving the head, the best time for putting on the sacred thread, and a thousand other important events and periods are all fixed by the astrologer.*

Origin of Astrology.—In very early times the sun, moon and stars were looked upon as gods and worshipped. First they were considered to preside over the days of the week. Sunday was under the Sun ; Monday, the Moon ; Tuesday, Mercury ; Wednesday, Mars ; Thursday, Jupiter ; Friday, Venus ; Saturday, Saturn. By degrees the system became more complex. Rahu and Ketu were added, the Twelve Houses, &c.

Astrology False.—This may first be shown by a parable. There was a large and populous city in the dominions of a wise and good king. Some crafty men, to gain a livelihood, tried to deceive the people of the city. They said that nine hills around the city were powerful gods, by whom the good or bad fortune of the inhabitants was regulated. One hill had a good influence ; another, an evil effect. It depended upon the direction on which the hills lay when a child was born, what would be his future lot in life. The people were told that if they wished to be successful in any undertaking, they must first ask the crafty men as to the effects of the hills, and reward them for telling them. Thus the ignorant people had to make frequent payments, and were kept in continual fear.

You can easily understand this parable. The city is this world ; the hills represent the planets ; the cunning men are the astrologers. The sun, as already described, is a vast

globe of fire." The world on which we live is a planet, and the other planets, like it, are composed of earth and stone. The planets no more regulate human affairs than some rocks round a city determine the fortune of its inhabitants.

The wise and good King is God. It is said that the planets are His ministers. Would any king in his senses appoint nine stones as his ministers to govern his kingdom? Can we suppose the all-wise God to be guilty of such folly?

Astrology can easily be proved to be false. People sometimes ask for fortunate hours to commence a lawsuit. If both parties consult an astrologer at the same time, they will receive the same answer, although one of them must lose and the other gain. If a queen and a sweeper woman each give birth to a child at the same moment, both will be born under the same planets. Their horoscopes should be the same, but how different will be their future lots!

Some things written in horoscopes come to pass. It may be said of every one born in this world, that if he live he will have sickness at some time or other, and that if he recover, he will not then die; that he will have seasons of prosperity and adversity; that he will have friends and enemies. These things may be safely written in every horoscope. But when astrologers pretend to tell how long a person will live, or such things, they are merely right in a few cases by chance.

A Brahman in Mysore, holding an important position, had his daughter's horoscope written out carefully. Her age was fixed at 60, but she died when 16 years old.

Two intelligent gentlemen, good Sanskrit scholars, went to consult a famous astrologer in Madras, who makes a good income by his pretended science. The walls of the astrologer's room were covered with pictures of gods and goddesses, and he had a box full of books. After giving the astrologer presents of fruit, &c., and a currency note for Rs. 5, they asked him some questions. He pretended to give answers from Sanskrit books. Each verse contained three or four contradictory verbs, and might be made to mean anything and everything. The astrologer knew that one of the gentlemen was coming, and had made inquiries

about him beforehand. He could tell some things about him which were well known, but when asked about private matters, he failed. The astrologer did not know that the other gentleman was coming, and his answers to him were altogether wrong.

Astrologers are consulted about digging wells. They say that certain signs are watery, others half-watery, others one quarter watery, and others without water. According as wells are dug in each sign, so will be the supply of water. The man must be a fool who does not know that the supply of water depends upon the nature of the ground, and not upon the planets when the well was commenced. The same remarks apply to the building of houses.

A book called the Visvaguṇādarsa says:—

विलिखति मदमदा जन्मपत्रं जननाम्
फलति यदि तदानीं दर्शयत्यात्मदाक्ष्यम् ।
न फलति यदि लग्नद्रष्टुरैवाह मे महम्
हरति धनमिहैवं हन देवज्ञपाशः ॥

“An astrologer prepares a nativity containing some beneficial or mischievous future event for the people, and if he does not fail in the statement which he wrote in it, he boasts of himself; but if he fails, he alleges that it is the mistake of the man who observed the birth-time. Thus the contemptible astrologer draws money (from the people).”

Astrology Hurtful.—The Hindus themselves on urgent occasions do not consult astrologers. They do not wait for an auspicious hour in cholera, or when a man is bitten by a snake. There is a proverb in Hindi, which says,

घर में घर जले और नव घड़ी भद्रा ।

That is, a man should not wait for an auspicious hour to extinguish his house when on fire, knowing that it is improper to begin as long as the Bhadrā (one of the unfavourable hours) continues, but he should commence at once to put out the fire.

Success in business often depends upon doing things at the right time. A little water will quench a fire at the beginning; but if allowed to go on, all efforts to put it out may be useless. It is somewhat the same with the work of a farmer, merchant, and every other employment. God has given to each one reason to guide him; but if instead of using that, he consult an ignorant astrologer, it is not surprising that he should fail.

Compare the different nations—those that are guided by astrologers and those that are guided by reason. Look at a Hindu almanac. It is filled with directions about lucky and unlucky days and hours. Look, on the other hand, at an English almanac. From beginning to end, there is not a single word about lucky or unlucky times.

Long ago, the English, like the Hindus, believed in astrology. They were then comparatively poor, and had not attained the vast wealth and power they now possess. Wise men found out by careful examination that horoscopes written by the best astrologers were only right now and then by chance; the true nature of the planets came by degrees to be understood.

When the English believed in astrology, they had not a foot of land in this country. Now the Queen of England, as Empress of India, receives the homage of 150 Indian princes and chiefs. The Queen of England has no astrologer; each of the native princes was guided by astrologers. Let every wise Hindu reflect on this, and consider what it teaches.

Sir Madava Rao thus shows the evil effects of astrology in the case of marriages:—

“The difficulties attendant upon the choice of suitable husbands for the girls of a Hindu family are generally many and great, and I am bound to say that these difficulties are enormously aggravated by Hindu *Astrology*.

The anxious parents and relatives of a girl, after much inquiry and research, make a choice, good in many respects,—in respect of age, health, appearance, education and circumstances.

The horoscopes of the boy and girl are placed in the hands

of the astrologer, and he is asked for his opinion as to the proposed match.

After much inspection, study and calculation—or rather the appearance of the same—the astrologer, perhaps says,

(1) The two horoscopes are not in accord; as they ought to be.

(2) The horoscope of the boy shows that he will be short-lived; and this means that the girl married to him will before long become a widow!

(3) The horoscope of the boy shows that he is destined to lose his first wife and to marry a second; and this means that the girl married to him will die ere long!

(4) The horoscope of the girl shows that she will not have a father-in-law or mother-in-law; and this means that, not long after marriage, the parents of the boy will die!

Such predictions cause alarm to the parents of the girl, and also to the parents of the boy; and the proposed alliance is abandoned.

The parents of the girl begin again their inquiries and researches for a husband for her. It having become known that her horoscope has been declared objectionable in the way above stated, nobody will accept her in marriage.

Similarly the parents of the boy renew their inquiries and researches for a wife for him. It having become known that his horoscope has been declared objectionable in the way above stated, nobody is willing to offer him a girl in marriage.

Such embarrassments, and the unhappiness thereby caused, afflict Hindu society in many and various forms.

It is lamentable what a deal of mischief the astrologer does.

The astrologer may be a real believer in the science which he professes to know. The mischief he does is not the less on that account.

He may be utterly ignorant of that science. The mischief is all the same.

It is consolatory to think that very often he is a downright humbug, who desires to extort money from either

side. In this case it is a consolation that the fellow might be bribed to refrain from mischief!

But the fact of his being open to bribery soon becomes known, and he is rejected as a referee in favour of the more honest and, therefore, the less tractable mischief-maker!

The fact is, the root of the evil lies in the general or prevailing belief in astrology—the belief prevailing among men, and especially among women, who take a large part in arranging marriages.

Show this belief to be quite unfounded, and you will apply the axe to the root of the evil.

Here then is a large and virgin field presented for the labours of social reformers.

I feel it a duty to avail myself of this opportunity to declare my own profound conviction that Hindu astrology, as it is now employed in connection with proposed marriages is utterly false and purely mischievous. I trust that the educated portion of my countrymen will accept this conviction to some extent at least. If they are not prepared to do so, I would entreat them to at least make the necessary inquiries in view to ascertain the truth. The necessary inquiries may be made by individuals or by associations. Some of the many existing associations might well divert a portion of their time and attention from barren politics to such social reforms as the one under advertence.

If educated natives are unable to discover new physical truths and extend the boundaries of science, ought they not to do the important service of at least discovering and exposing the falsehoods and shams which infest native social life and curtail or destroy human happiness?"

A gentleman in Mysore gives the following illustrations of which he had personal knowledge. A rich Brahman in the Fort wanted a wife for one of his sons; but he had to write letters without end; and to search for *five* years in about a *hundred* families before he could find a girl whose natal star would fulfil the required conditions. Another respectable man in Mysore had three daughters. For one daughter he

searched for a husband about two years in 22 families; for the next he made inquiries three years; and for the last one he has been writing, looking and seeking in vain for the last four years. A Brahman, 32 years of age, wandered about for more than two years with Rs. 500 in his hand looking for a wife; and he has now only succeeded in obtaining a girl of four years old by giving a dowry of Rs. 700.*

Suppose a man asks an astrologer whether he will gain or lose in a certain undertaking. If the astrologer say he will lose, he will become dispirited and relax his efforts; whereas if he had been earnest and active, he might have been prosperous. If you wish to be successful in business, ask God's blessing, use the reason he has given you, be industrious, and do not consult astrologers.

Horoscopes pretend to tell how long a person will live. A person promised old age will be unmindful of death, while one whose years are said to be few will be kept in constant fear of the dreaded hour.

Omens.—These are another kind of fortune-telling as foolish and false as astrology.

Some omens are taken from birds. Crows are favourite prophets.

A man was assured that if he saw a couple of crows the first thing after waking from sleep, he would be lucky the whole day. He therefore ordered his servant to call him as soon as he saw two crows together. The next morning finding two crows near each other, the servant ran and awoke his master; but before he could come and see them, one of the crows flew away. For this the master whipped the servant, saying, "Ass, why did you not call me before one flew away?" "Sir," replied the man, "I saw two crows and have received a whipping by way of luck. What would have happened to you, I wonder, if you had seen the pair!"

The lizard also bears a high reputation. An Indian treatise on divination says that if a lizard fall on the head, it prognosticates death; if on the right ear, good; on the

left ear, evil; on the nose, disease; on the neck, joy, &c. Its chirp is also a certain sign. There is, however, a Tamil proverb, "The lizard which was the oracle of the whole village has fallen into the broth-pot."

The ass likewise appropriately holds a place. If an ass bray in the east, success will be delayed; in the south-east, it forebodes death; in the south, it denotes gain of money; in the south-west, good news; in the west, disturbance, &c.

Sneezing, the howling of dogs, &c., are considered to forebode evil tidings.

Another false kind of fortune-telling is by looking at the hand.

Even after marriages have been arranged with great trouble, they are sometimes broken off on account of supposed bad omens. The parents on starting upon a marriage expedition carefully watch the omens for about half a mile, as if they were infallible indications of the future. If the omens are bad, they return; and if they are bad a second and third time, the match is entirely abandoned as one that would be ruinous.

Through being guided by omens, favourable times for going on a journey or commencing an undertaking are often lost, and failure is the result.

Omens are childish superstitions. There is not the slightest connexion between meeting a horse or a Brahman and the good success or bad success of any business. A lizard is not a prophet to foretell future events. Can we suppose that God makes known to a dog, a creature without a soul and without reason, what He does not reveal to the wisest men? If the plaintiff and defendant in a suit went to court together, they would meet the same omens, yet one would lose and the other gain the case.

Punishment of Fortune-Telling in England.—Astrology and fortune-telling are so well known to be a cheat, that in England any persons taking money in this way are regarded as "rogues and vagabonds," and may be sentenced by a magistrate to imprisonment for three months with hard labour.

A True Horoscope.—Although the horoscopes of astrolo-

gers are right only in a few cases by chance, the following sayings by a very wise ancient king, called Solomon, will be found true:—

1. A child left himself bringeth his mother to shame.
2. Train up a child in the way he should go, and when he is old he will not depart from it.
3. He that walketh with wise men shall be wise ; but a companion of fools shall be destroyed.
4. He that loveth pleasure shall be a poor man.
5. The hands of the diligent maketh rich ; but drowsiness shall clothe a man with rags.
6. The curse of the Lord is in the house of the wicked ; but He blesseth the habitation of the just.

The Sin of Astrology.—The great evil of astrology is, that it is a sin against God. It is placing inanimate planets in the room of their Creator.

The one true God is King. He is Lord of heaven above, and of the earth beneath. Agriculture, commerce, government, &c., are all dependent upon His control. Mercury, Mars, Venus, Jupiter, Saturn, the Sun and Moon, are all His servants. They have no authority, not even over the most insignificant things. They are but lifeless bodies, and faith in them is not of the slightest advantage. Let us worship Him alone, who is their and our Creator, the Most High, the Almighty, the Omniscient, the All-holy, the infinitely Just, the All-merciful God.

God never changes, never ceases to reign. No one can usurp His authority. No time is more lucky or unlucky than another. Any time is proper for what ought to be done ; but any thing wrong is equally forbidden at all times, and the guilty must suffer the consequence.

God has given two great lights to guide us through life—the light of reason and the light of His holy Word, called the Bible.

In the ordinary affairs of life, as the time for ploughing, sowing, &c., we should be guided by reason, after seeking

God's direction and blessing. In our moral conduct and in religion, we should be guided by the Bible. It shows how we may be truly happy both in this life and in that which is to come.

The Happiness of the True Christian.—It is sin which is the cause of the calamities from which we suffer—not the supposed evil influences of lifeless bodies. God, in His great love, has provided a way of deliverance. His only Son, Jesus Christ, became man, that He might die in our room. On the third day He rose from the dead and is now in heaven. Pardon, holiness, and happiness, are offered to all freely who receive Jesus as their Saviour.

Sin makes us rebels against God ; by accepting His offered mercy through Jesus Christ, we become His reconciled and adopted children. God watches over us with a father's love. Nothing can happen to us without His permission, and He overrules all for our good in the end. The true Christian, trusting in His Father's wisdom and love, is "not afraid of evil tidings;" he is freed from the superstitious fears and anxieties by which so many are troubled in this country. God may indeed send affliction to purify him, as gold is tried in the fire ; but it will soon be over, and he looks forward to an eternity of unspeakable joy in the glorious mansion of his heavenly Father.

Duty of Intelligent Men—It has been justly said, "The capacity of an uneducated Hindu for believing the grossest absurdities and accepting the most monstrous fictions as realities, is apparently unlimited." Persons who have been more highly favoured should do every thing in their power to enlighten the ignorant around them. Their first duty is not to take part themselves in superstitious practices, and next they should do what they can to show their folly and sin to those who are still enslaved by them.