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An Easy Guide to the Constellations

WITH

A Miniature Atlas of the Stars

By

James Gall

Author of "Primeval Man Unveiled," "The People's
Atlas of the Stars," etc.

New and Enlarged Edition



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PREFACE TO NEW EDITION

THIS edition of the *Easy Guide to the Constellations* has been thoroughly revised, and five additional plates have been added, so as to include all the constellations of the Zodiac, and render the book complete for Southern Europe and the United States of America.

The letterpress accompanying each map indicates the months during which these constellations may be observed at 9 P.M.; but they may be seen earlier in the year by going out later in the evening; two hours later enabling them to be seen a month earlier, four hours later, two months earlier, and so on. Thus the constellations of SCORPIO and LIBRA, visible during June and July at 9 P.M., are seen about midnight in April and May.

Similarly, by going out about two hours earlier in the evening, the constellations may be observed that were visible at 9 P.M. a month previously.

The less important constellations, not given in previous editions, are marked with a dagger.

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AN EASY GUIDE TO THE
CONSTELLATIONS

THE UNIVERSITY OF CHICAGO
PHOTODUPLICATION SERVICE



An Easy Guide to the Constellations

INTRODUCTION

Is it not strange that the constellations should be so little known even to men of education and refinement?—men whose eye can scarcely turn to any object around them whose history they do not know, and with whose nature they are not intimately acquainted. And yet *Vega* and *Capella* look down upon them night after night, and year after year, holding on their majestic course, not perhaps unnoticed, but unrecognized and unknown. These two bright lamps of the night, revolving in their orbits round the Pole Star, without ever setting, are often pointed to with admiration, as singular objects of beauty; and yet those who do so,

although they know about Neptune and Uranus, the moons of Jupiter, and the rings of Saturn—objects which probably they never saw—do not know these two stars which are almost always seen, and cannot tell where either of them is to be found.

And yet, what can be more interesting than to look up into the deep blue sky, and to name the brilliant groups as they stretch out around and above us, or to watch the eastern horizon for the rising of some bright star which we expect soon to appear! Surely our evening walks would partake of more intellectual and refined enjoyment, if we could hold converse with these silent but glorious witnesses of their Creator's power—

“Forever singing, as they shine,
“The hand that made us is divine.’”

As the almost utter want of knowledge of the constellations is largely due to the absence of some simple guide to the subject, this little book has been written to assist those who wish to pursue this interesting study.

1. The author begins with one well-known constellation, URSA MAJOR, part of which is popularly known as Charles's Wain, or The Plough; and from that leads on to all the others, one at a time.

2. Selecting four prominent constellations, which never set in latitudes north of 50° N., he uses these, situated over four quarters of the heavens, as guides to the others. This introduces order, and order makes everything easy.

3. He observes the appearance which each constellation presents in the sky, and uses this as the key. When this is done, the pupil finds no difficulty in recognizing in the heavens what he has seen on the paper.

4. By representing only one constellation in each diagram, he is able to present it on a large scale, and *without appreciable distortion*, which could not be done if a large portion of the heavens were mapped on the same sheet. Further, by concentrating attention upon one constellation, without disturbing the eye with more, the impression becomes more easy and more distinct.

5. Instead of confusing the eye by making large figures of stars, with black rays coming from a white centre, a small white star gives greater brilliancy and more distinctness.

6. The stars are unencumbered with names, or with those imaginary figures of men or beasts, which give names to the constellations, but which are apt to bury the constellations themselves from our sight. These figures are necessary, but they are confined to the maps at the end of the work, where both the names and figures are given.

THE ATLAS

The maps of the Atlas at the end of the book are constructed on the following plan: The first four contain the stars of the equatorial regions, divided into four quarters, each headed by the constellation or star which distinguishes it. The dates at the bottom of each map are those on which the portion of the sky represented above is due south at 9 P.M.

The stars round the South Pole, never visible north of latitude 40° N., are given on the last

page, while those round the North Pole are given in Map 29.

By means of these advantages, the author indulges a fond hope that he will make this fascinating study level with the capacity even of children, and thus provide teachers with a new recreative study for their pupils, which will not only interest, but refine, and enlarge, and elevate their minds.

MOTIONS OF THE STARS

1. The whole heavens appear to turn round the earth every day. The motion of the Sun is sufficiently evident, but the stars being scattered over the sky, unless we distinguish particular constellations, their motion is not so observable; yet they move in the same direction, and with almost the same velocity. This is caused, not by the heavens moving, but by the earth turning round on its own axis.

2. If we look toward the south, and observe the motion of the stars, we will find that they all appear to rise from the east, on the left hand, and after passing in our front—reaching

their greatest height above the horizon when due south—go down again in the west, like the Sun, towards our right.

3. If we look towards the north, we will find that there is a point in the heavens high up, and directly north, round which all the stars appear to move in circles which get larger and larger the farther they are away from it; and there is a bright star very near that point, called on that account the Pole Star, which is pointed out on page 14.

4. If we turn our faces towards the south, and lean back against some support, half lying and half standing, our heads would nearly point to the Pole Star, and the heavens would appear to revolve round our body as if it were the axle. This will enable us to understand how the motion of the stars is the same as that of the Sun, when it rises in the east, and, passing along the southern heavens, sets in the west.

5. The stars near the Pole Star are so high up in the heavens, and have so little motion, that they never set. All the constellations, therefore, for a considerable distance around the Pole Star may be seen in a clear evening

at any time, and by them we most easily find the others.

6. There are four constellations in the north which it is very desirable to know, because they mark out four different quarters of the heavens, and are themselves very conspicuous. These are URSA MAJOR, AURIGA, CASSIOPEIA, and LYRA. Of these four, URSA MAJOR and CASSIOPEIA are opposite each other. AURIGA lies between them on one side, and LYRA lies between them on the other. These will be pointed out in the first lessons, though not by the same names.

7. All the stars move completely round the heavens once, and a little more, every day. This little more is the $\frac{1}{365}$ th part of a whole revolution; so that after 365 days they are nearly in the same place where they were a year before, having made 366 revolutions.

8. If we go out, say, at 9 o'clock to-night, and observe the position of the stars, to-morrow at 9 P.M. they will not be exactly in the same place—they will have moved on a little farther towards the west, and to see them in the same place, we must go out 4 minutes

before 9. In this manner we find that 4 minutes of the day produces about the same change as one day produces in the revolution of the year, because 4 minutes \times 365 is 1460 minutes, which is very little over 24 hours. In like manner, a week of the year produces nearly the same change as half an hour of the day. Three months are equal to 6 hours, and 6 months to 12 hours.

9. For this reason, those who are very anxious to see stars that will be visible in the evenings several months later, may do so by rising very early in the morning, some time before sunrise; they will then be seen high up in the heavens.

THE SIGNS OF THE ZODIAC

The twelve signs of the Zodiac may be explained as the constellations through which the Sun passes every year. They are as follows:

1. ARIES; 2. TAURUS; 3. GEMINI; 4. CANCER; 5. LEO; 6. VIRGO; 7. LIBRA; 8. SCORPIO; 9. SAGITTARIUS; 10. CAPRICORNUS; 11. AQUARIUS; 12. PISCES; the following rhyme embodies them:

The RAM, the BULL, the Heavenly TWINS,
And next the CRAB the LION shines;
The VIRGIN and the SCALES,
The SCORPION, ARCHER, and the GOAT,
The MAN THAT POURS THE WATER OUT,
And FISH with glittering tails.

THE CONSTELLATION FIGURES

The constellation names and figures have been handed down from the remotest antiquity, but few of them bear the slightest resemblance to the figures of men or beasts after which they are named. Of the many theories that have been formed as to their origin and meaning, the most interesting, perhaps, is that which connects the twelve signs of the Zodiac—supposed to be the oldest of all—with a primeval attempt to perpetuate the story of the Fall of Man, and the coming Deliverer. SCORPIO, for instance, whose sting is represented as wounding the heel of Ophiuchus, who has his foot on its head, would commemorate the prophecy in Genesis: "It shall bruise thy head, and thou shalt bruise his heel."

Other theories would connect the signs of

the Zodiac with the ancient seasons of the year, LIBRA, the Balances, for instance, as heralding the springtime, when day and night were equally balanced. Others again see in it the period when the year's account of gain or loss after harvest was made up. AQUARIUS has been connected with Egypt as, perhaps, having marked the season when the Nile began to rise. The constellation figures are shown in the Atlas.

Besides the names of the constellations, or groups of stars, some of the brighter stars have names of their own, such as *Sirius*, *Vega*, etc., which have also been handed down to us. But, as many fairly bright stars had no names, about three hundred years ago, for convenience of identification, the brightest stars of each constellation had letters of the Greek alphabet assigned to them, α , β , γ , etc. Thus *Vega*, in the constellation of LYRA, is also known as α LYRÆ.

In this book names printed in italics, as *Sirius*, are *always the names of single stars*; while those in small capitals, as AURIGA, are the *names of constellations*, that is, groups of stars.

The brightest stars are called "1st magnitude," those not so bright, "2d magnitude," those still less bright, "3d magnitude," and so on, the 6th being the faintest visible to the naked eye. Each magnitude is slightly less than half as bright as the one above it, the ratios being as follows: 1st, 1; 2d, .4; 3d, 1.15; 4th, .06; 5th, .03; 6th, .01.

The Milky Way is an interesting study on any clear, moonless night. It forms a complete circle round the heavens, and may be traced through SCORPIO, AQUILA, CYGNUS, CASSIOPEIA, PERSEUS, ORION, and CANIS MAJOR. It is composed of myriads of minute stars, too small to be distinguished without a powerful telescope.

Sometimes a bright star appears slowly to wander among the constellations of the Zodiac, or those adjoining them, without belonging to them. The strange star must be one of the planets. If very bright, it is either Venus or Jupiter. If it be in the south, it is Jupiter, for Venus is seen only in the east or west, being near the Sun. If it be a pale star, it is Saturn; if ruddy in its appearance, it is Mars.

Saturn and Mars are about as bright as the brightest fixed stars, but Jupiter and Venus are considerably brighter.

Another distinction between the planets and the fixed stars will be found in the planets giving a steady light, while the fixed stars twinkle.

Sometimes Comets appear, and may visit any part of the heavens. They are rather large in size, but not bright. They do not twinkle like the fixed stars, and generally have long tails.

THE MAPS

The following 24 diagrams represent the constellations, or parts of constellations, visible in northern latitudes, as they appear when directly north or south. When they are rising in the east, their position will be represented in the book by tilting up the right side; when they are setting in the west, by tilting up the left side (that is, the side of the book to our left).

For the sake of simplicity, only the most conspicuous stars of each constellation are given in the diagrams, or only those that are necessary to form the imaginary figures by which their positions are taught. For the others, see Maps 25-30.

I. THE PLOUGH (*Charles's Wain*)

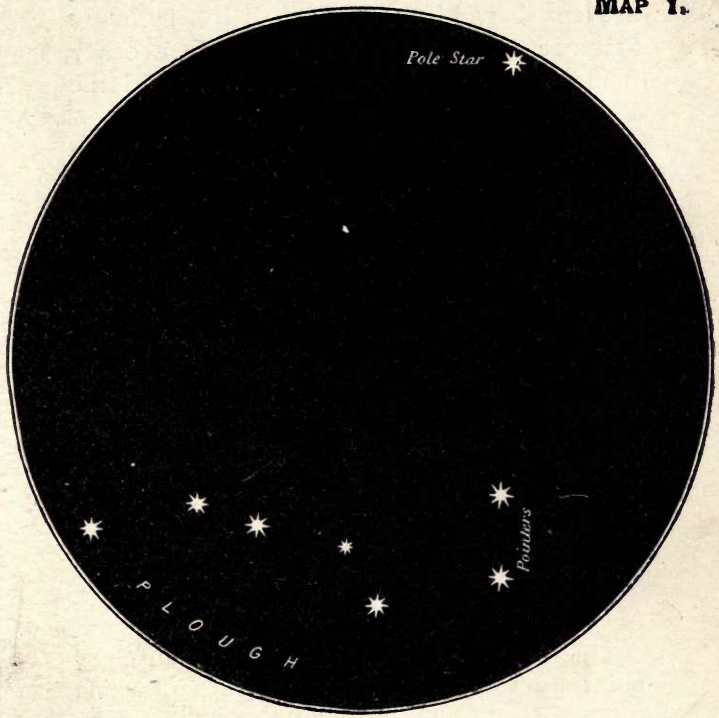
The constellation which is best known in this country is called by astronomers URSA MAJOR. Its chief stars suggest the form of a plough, which is the name popularly given to it. In the United States it is more commonly known as the DIPPER.

The PLOUGH is represented on the opposite page. The two foremost stars (called the *Pointers*) always point to the Pole Star, which is scarcely observed to move, and round which all the constellations turn, a very little more than once every day; see page 9.

In Britain, and countries north of 40° North Latitude (Southern Europe, Canada, and United States), the PLOUGH never sets, being too high up ever to reach the horizon. On autumn evenings it is low down in the north, directly under the Pole Star, as shown in the opposite diagram. On winter evenings it is in the northeast, with the handle turned down. In spring it is nearly over our heads; and in summer it is in the northwest, with the handle turned up. In some places CHARLES'S WAIN is the name given to it.

The PLOUGH is part of a constellation called the GREAT BEAR, which is represented in Map 4.

MAP 1.



2.

CASSIOPEIA

This beautiful constellation appears in the heavens shaped like a W—one half being more flattened than the other. Its place is easily found when we know the Pole Star and the PLOUGH.

The Pole Star is about half way between the PLOUGH and CASSIOPEIA. That is to say, CASSIOPEIA is on the other side of the Pole Star, nearly opposite, so that they, as it were, balance each other. If the PLOUGH be low down in the north, CASSIOPEIA is over our heads; and if the PLOUGH be over our heads, CASSIOPEIA is in the north. In short, wherever we see the one, the other is directly opposite, as shown in Map No. 3.

Cassiopeia was the wife of Cepheus, King of Ethiopia, and mother of Andromeda, the maiden who was rescued from the sea-monster by Perseus, as narrated on page 32.

† CEPHEUS

The two right-hand stars of CASSIOPEIA point up to two stars close together, which form part of the constellation of CEPHEUS, who was the husband of Cassiopeia. Other stars belonging to this constellation are shown in the diagram.

MAP 2.



3.

CAPELLA AND VEGA

When the PLOUGH and CASSIOPEIA are known, we have two valuable guides, one on each side of the heavens. But there is a large space on each side, which is distinguished respectively by two very bright stars, *Capella* and *Vega*, nearly midway between the PLOUGH and CASSIOPEIA, one on each side.

Capella is in the vacancy toward which the PLOUGH appears to be going, and is distinguished from *Vega* by having another bright star near it.

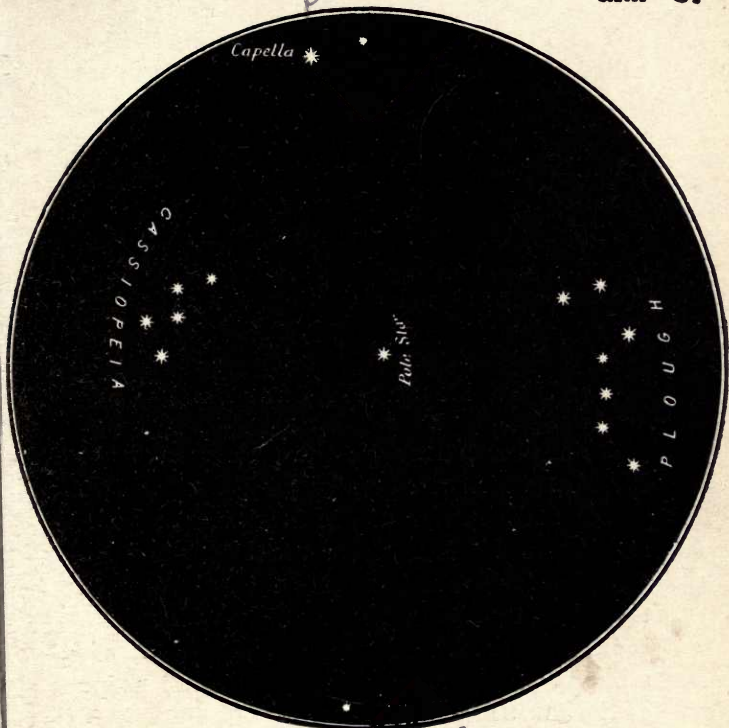
Vega is on the opposite side of the heavens, in the constellation LYRA, a solitary star of remarkable brilliancy. It is in the vacancy from which the PLOUGH appears to be going.

Capella belongs to the constellation AURIGA, the Charioteer, and *Vega* to the constellation LYRA, the Lyre.

These four constellations—the PLOUGH, CASSIOPEIA, AURIGA, and LYRA—occupy, as it were, the upper portions of the four quarters of the heavens, and by these we may find the place of all the others.

in Cassiopea

MAP 3.



Vega Lyra



4. URSA MAJOR (*The Great Bear*)

The PLOUGH is only part of a constellation called URSA MAJOR, the Great Bear. It forms the loins and tail of the Great Bear; the rest of the body is composed of little stars. The head is represented by one bright star, forming the snout, behind which two diverging lines of little stars show the outline of the head and throat. The fore-feet have each two little stars at the toes, as also the hind-legs, both of which are very long.

URSA MINOR (*The Little Bear*)

A line drawn through the two stars of the PLOUGH which are parallel with the *Pointers* passes between two of the brightest stars belonging to URSA MINOR, the Little Bear, a constellation which is close to the Pole; indeed the Pole Star itself forms the tip of the tail.

Between these two stars and the Pole Star is a line of fainter stars, somewhat in the shape of the PLOUGH.

MAP 4.



Egg

Star

Rump

5.

DRACO (*The Dragon*)

The constellation of DRACO, the Dragon, is a beautiful line of stars sweeping gracefully round between the PLOUGH and URSA MINOR.

This line begins not far from the line that joins the Pole Star with the *Pointers*, and runs nearly parallel with the PLOUGH, till, when nearly opposite the end of the handle, it turns round and bends towards CASSIOPEIA. Then, after twice turning, it terminates in two stars—not far from *Vega*—which represent the head of the Dragon. A third star, which seems to form the snout of the Dragon, belongs to the constellation of HERCULES; see Map 19.

In some positions, the body of the Dragon has the appearance of a great necklace hanging round the Little Bear (Map 4).

MAP 5.



6. AURIGA (*The Charioteer*)

Capella is the brightest star of the constellation of AURIGA, which contains three other bright stars, as shown in the opposite diagram.

PERSEUS

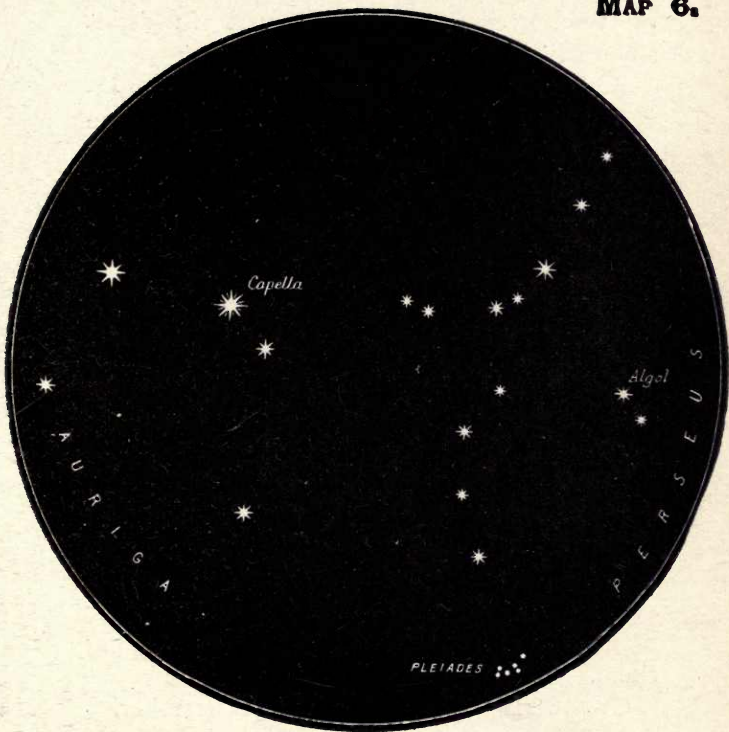
Curving round from *Capella* towards CASIOPEIA is a bright streak of stars which form part of the constellation of PERSEUS.

Two bright stars will be seen a short distance below the middle of this streak, and the top-most of these, called *Algol*, is remarkable for its great decrease in brightness—from the 2d to the 4th magnitude—for a short period, every 69 hours.

Other fainter stars stretch in an indistinct curve until it reaches the bright little cluster called the Pleiades, in TAURUS (see Map 12).

Perseus is fabled to have been a son of Jupiter. His mother's father feared him, and tried to make away with him by sending him to slay the Gorgon Medusa, to look at whom was to be turned into stone. Perseus avoided this fate by looking at her through a mirror, and returned in triumph with her head. Afterwards he slew the monster which was about to devour Andromeda (see page 32).

MAP 6.



7.

CYGNUS (*The Swan*)

Close to *Vega*, on the left, there is a very pretty constellation, the upper part of which is shaped like the half of a wheel.

Four of the brightest stars—forming an inverted T—together with a long, irregular line of fainter stars, which ends in a bright one almost under *Vega*, form a large cross, which lies diagonally in the sky.

The bright star in the middle of the cross has a half-circle of fainter stars round it, which in some positions presents the appearance of the upper part of an arched window.

At the left side of the semicircle is another star, which commences another, but less regular, semicircle of faint stars, having for its centre the star forming the left-hand arm of the cross, and for its right extremity, the middle star of the cross.

The Milky Way is very bright in this part of the sky, and breaks up into two streams or branches, with occasional bands connecting them.

CYGNUS is visible from May to December.

MAP 7.



8.

AQUILA (*The Eagle*)

We now come to constellations which are not always to be seen, and we shall suppose that we begin about the month of October. CASSIOPEIA is high up in the heavens, nearly over our heads, while the PLOUGH is far down in the north.

Some distance below *Vega*, and somewhat to the left, are three stars close together, forming a straight line which points up to *Vega*. The middle star is the brightest, and is called *Altair*. These stars belong to the constellation of AQUILA, the Eagle, which is represented on the opposite page. It is very useful for finding other constellations in the autumn, as it is prominent in the southern sky from July to November.

To the left of AQUILA, a faint cluster of stars will be noticed; these form the constellation of DELPHINUS, the Dolphin.

† CAPRICORNUS (*The Sea-Goat*)

Altair and his two companions point downwards to the two stars shown at the foot of the map, which belong to the zodiacal constellation of CAPRICORNUS (see Map 24).

MAP 8.



9. PEGASUS (*The Flying Horse*)

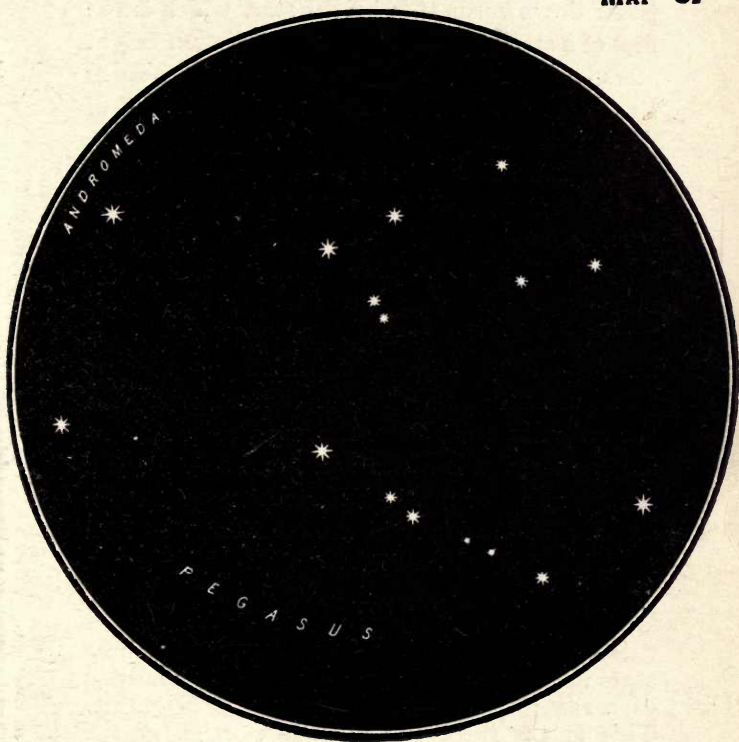
If the line joining the Pole Star with the right-hand star of CASSIOPEIA is prolonged downwards for a little more than its own length, it passes through two stars which form the left-hand top and bottom corners of a great square.

From the two right-hand stars of this square two lines of stars shoot out to the right, the upper line shooting upwards from the uppermost star, and the lower line downwards from the lower star. These form the constellation of PEGASUS. The top left-hand corner of the square does not belong to PEGASUS, but to ANDROMEDA (Map 10).

PEGASUS, the Flying Horse, is seen upside down in our latitudes. The higher line is the fore-leg, the lower line is the neck. A star at the nostril forms an angle with the neck, and the little stars under the upper line represent the other fore-leg.

Pegasus appeared from the body of the Medusa when her head was struck off by Perseus (see page 24). He rose up to heaven, and was employed to carry thunder and lightning for Jupiter. Bellerophon tried to ride up to heaven on his back, but Pegasus threw him off in mid-air.

MAP 9.



10.

ANDROMEDA

The two right-hand stars of CASSIOPEIA point downwards to a bright star, which is the first of a straight line of three equidistant bright stars, which bear away to the right towards PEGASUS. These form the constellation of ANDROMEDA.

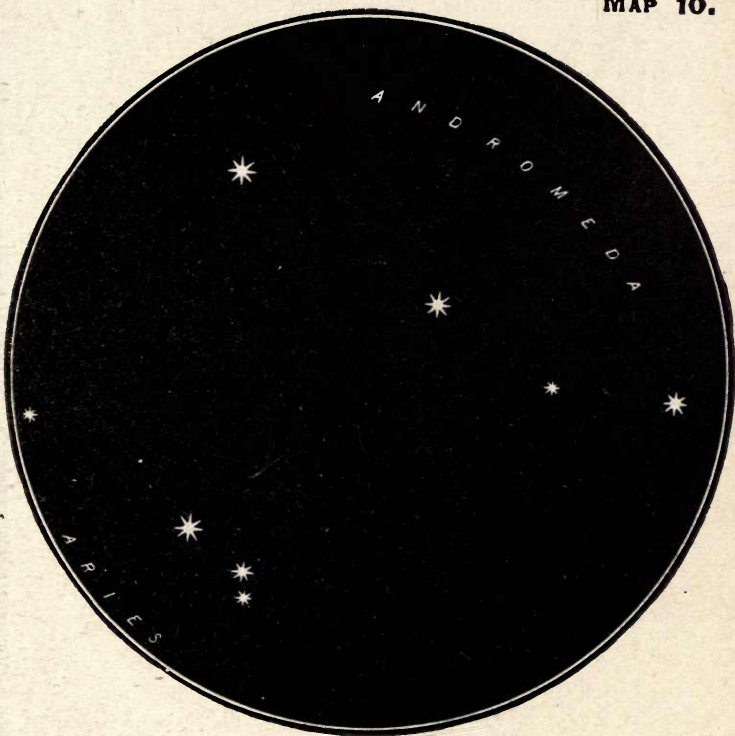
The third star is one of the corners of the "Great Square of Pegasus" (see Map 9).

Andromeda was the daughter of Cepheus, King of Ethiopia. Her mother, Cassiopeia, boasted that her daughter was more beautiful than the Nereids, or Nymphs of the Mediterranean, and to punish her pride Neptune sent a sea monster to devastate the country. As the only way to appease the angry god, Andromeda was chained to a rock, and left for the monster to devour, but Perseus came on the scene, and, having slain the monster, obtained Andromeda for his wife.

ARIES (*The Ram*)

Some distance below ANDROMEDA are three stars in a crooked line resembling the hind-leg of a ram; the two highest are the brightest. This is the most conspicuous portion of the RAM, which is the first of the signs of the Zodiac. It is seen from October to February.

MAP 10.



Directly under ARIES and PEGASUS is an irregular line of small stars, stretching horizontally. This is the constellation of PISCES, the Fishes, which is the last of the signs of the Zodiac. A second and less distinct line of stars strikes off from the first, at an acute angle, in the direction of ANDROMEDA.

CETUS (*The Whale*)

Close below PISCES, but more to the left, is the bright constellation CETUS, the Whale, or Sea Monster. It is shaped like a chair, with the back falling backwards.

It is composed chiefly of nine bright stars in two curved lines, one long, the other short.

Mira, the third star from the top, is remarkable from its being variable in brightness—being sometimes as bright as *Castor*, in GEMINI (see Map 13), and at other times quite invisible to the naked eye. These changes take place in a period of about 332 days.

CETUS is visible from October to February.

MAP 11.



The Pleiades have already been pointed out (Map 6). They belong to the constellation of the BULL, the second of the signs of the Zodiac, which lies directly underneath AURIGA.

In this constellation there are two very bright stars. The brightest, a reddish star called *Aldebaran*, is the Bull's eye, and is low down among a V-shaped cluster of little stars called the Hyades; the other, pointing from it towards AURIGA (Map 6), is the Bull's upper horn, and has another bright star below it, the tip of the other horn.

The Pleiades were seven daughters of Atlas, whom the gods placed among the stars near their sisters, the Hyades. At first all seven were visible to men, but one faded away with grief, and only six of the sisters were afterwards seen.

Six only of the stars in the Pleiades can be made out by the naked eye; it is not unlikely that the seventh, which can easily be distinguished with the aid of an opera-glass, may once have been brighter, as indicated in the above legend.

It has been ascertained that our Sun, with all the planets, is revolving round a great centre, somewhere in the direction of the Pleiades (see page 54).



13.

GEMINI (*The Twins*)

A line drawn from *Aldebaran* between the horns of the Bull leads to two bright stars belonging to the constellation of GEMINI. The upper one is called *Castor*, and the lower one, the brighter of the two, is called *Pollux*.

The other stars belonging to GEMINI form three lines parallel to *Castor* and *Pollux*, and stretch away to the right, in the direction of ORION.

GEMINI is the third sign of the Zodiac, and is seen from December to May.

Castor and Pollux were the two youths who, at the battle of Lake Regillus, suddenly appeared on milk-white horses to aid the hard-pressed Romans. After the battle they disappeared, and not till then did the Romans realize that it was the "Heavenly Twins" themselves who had helped them.

CANIS MINOR (*The Little Dog*)

A line leading from the Pole Star, through *Castor* and *Pollux*, brings us, a little lower down, to a bright star, *Procyon*, in CANIS MINOR. *Procyon* and its companion star very much resemble *Castor* and *Pollux*, but the latter do not differ so much in brightness.

MAP 13.



A line passing from the Pole Star through *Capella* (Map 3) leads us down to ORION—*Capella* being half-way—one of the most splendid constellations in the heavens. The BULL and the TWINS are immediately above it, one on each side.

The four bright stars at the four corners are the shoulders and limbs of the hunter. The three little stars above the shoulders are the head. The three bright stars in a diagonal line in the centre are the girdle, and the stripe of stars hanging down from that are the sword.

The star forming ORION'S left shoulder is called *Betelgeux*, and that forming the left foot, *Rigel*.

Orion was a giant hunter, whom some have identified with Nimrod. He was slain, either by accident or in jealousy, by an arrow shot by Artemis, or Diana, but after his death Jupiter placed him among the stars.

ORION is seen from December to end of March.

† LEPUS (*The Hare*)

Directly below ORION a graceful curve of faint stars, with two others on the right, forms a figure which resembles CETUS. These belong to the constellation of LEPUS, the Hare.



15. CANIS MAJOR (*The Great Dog*)

A line drawn downwards through ORION'S girdle brings us to the brightest fixed star in the heavens, *Sirius*, the "blazing Dog-star."

Beside *Sirius* there is another bright star to the right, and below these two are a number of other stars, some of which sweep round in a curve to the right; these, however, being rather near the horizon, are not well seen in the latitude of Britain.

The GREAT DOG, together with the LESSER DOG, which lies just above, were placed among the stars to attend on their master ORION, in his hunting of the GREAT BEAR.

Sirius is seen from January to March.

MAP 15.



16.

LEO (*The Lion*)

The winter season, or rather the spring, being supposed to be now far advanced, and the PLOUGH having travelled to the east, we must now take it for our guide.

A straight line from the Pole Star passing through the *Pointers* in the PLOUGH (Map 1) will bring us to the constellation of LEO, the Lion.

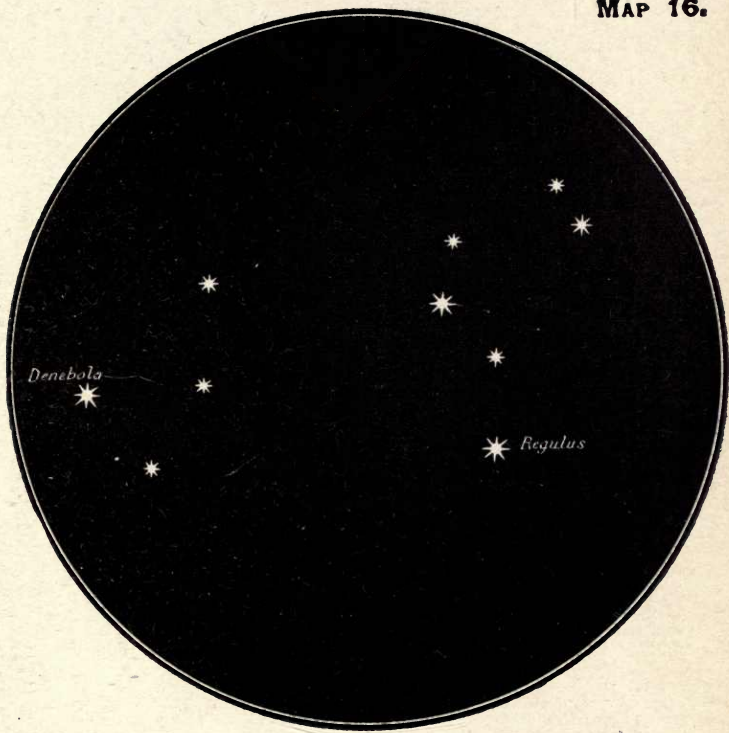
The front of the LION is shaped like a reaping-hook, the brightest star of which is called *Regulus*. Behind that, two stars, one above the other, represent the loins, and one star behind them, called *Denebola*, represents the tail.

The hind-paws of the GREAT BEAR (Map 4) come down near the back of the LION.

LEO is the fifth sign of the Zodiac, and is best seen from February to the end of June.

In the centre of the "reaping-hook" is the point from which the meteor showers in the middle of November appear to radiate.

MAP 16.



17. † CANCER (*The Crab*)

Half-way between *Procyon* and *Regulus*, and just above the line joining these two stars, a triangle of faint stars will be seen. These form part of the constellation of CANCER, the Crab, the fourth sign of the Zodiac. Another star belonging to this constellation is shown at the top of the map.

† HYDRA (*The Water-Snake*)

Below CANCER, and in line with the two brightest stars of the "reaping-hook" in LEO, is the bright star *Alphard*, the brightest star in HYDRA, the Water-Snake.

The head and neck of the Snake are formed by a graceful curve of small stars, ending just under CANCER, while the tail trails along below LEO and CORVUS, ending at last near LIBRA (see Map 22). *Alphard* is sometimes called *Cor Hydræ*, "The heart of Hydra."

These two constellations are visible from February to June.



18.

VIRGO (*The Virgin*)

Behind the LION (Map 16) is the constellation called the VIRGIN, the principal stars of which have the appearance of the letter Y. The part next the LION is composed of six stars, which appear like a basin. A little distant, and farther down, is a very bright star called *Spica* ("an ear of corn").

VIRGO is the sixth sign of the Zodiac, and is best seen from April to July.

† CORVUS (*The Crow*)

Directly below VIRGO, on a clear night, four stars will be seen rather low down near the horizon, forming a rough square. They belong to the constellation of CORVUS, the Crow.

MAP 18.



19. BOÖTES (*The Herdsman*)

The tail of the GREAT BEAR (or we may call it the handle of the PLOUGH) points to a magnificent triangle of stars, with one star near the centre.

Of the three stars that make the triangle, the brightest is the lowest on the right hand. This brilliant star is called *Arcturus*, which, with the upper and centre stars of the triangle, and other smaller stars, form the constellation BOÖTES.

The little star to the left of the top star of the triangle is the head of BOÖTES, and to the right of it, three stars, in a straight line, form his staff. His left arm, raised high above his head, ends in three little stars close to the PLOUGH, while the small stars on each side of *Arcturus* are his right foot and left knee.

CORONA BOREALIS

The third star of the triangle on the left belongs to the constellation called the NORTHERN CROWN (CORONA BOREALIS), and in a clear evening it will be found to be the centre of a beautiful semicircle of faint stars which form the Crown.

BOÖTES is seen from April to September.



20.

† SERPENS (*The Serpent*)

A short distance below the CROWN a little triangle of stars will be seen, from which a long line of stars curves downwards in a rough semi-circle in the direction of *Altair*.

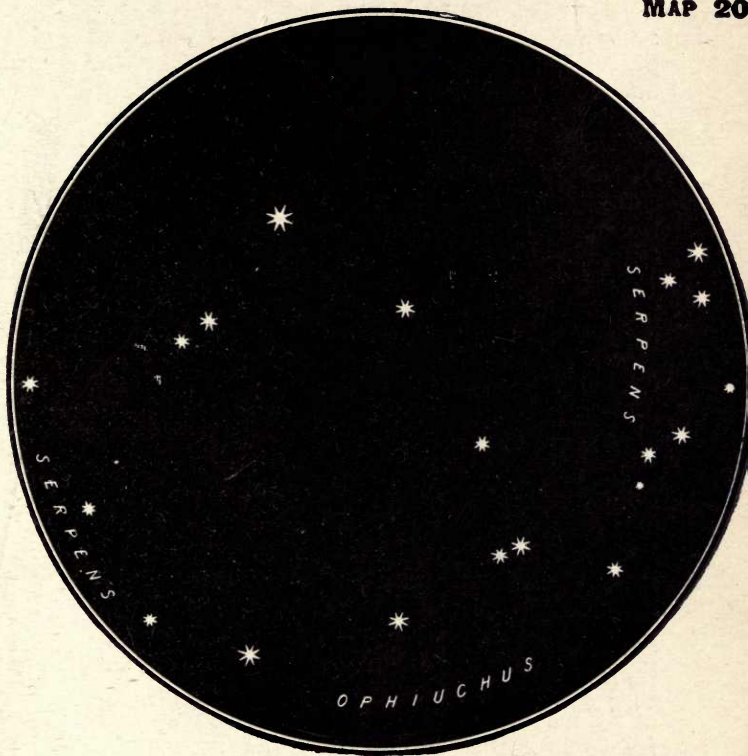
The triangle forms the head of SERPENS, the Serpent, and the first few stars below it, and two near the EAGLE, form its body and tail. The intermediate stars belong to another constellation, OPHIUCHUS, but probably they originally represented the body of the SERPENT.

† OPHIUCHUS (*The Serpent Bearer*)

Half-way between the CROWN and *Altair*, two fairly bright stars will be seen close together. The brighter of the two—that to the left—is the head of OPHIUCHUS, the Serpent Bearer, a man who is represented as grappling with the SERPENT. His right foot is planted on the head of the SCORPION (Map 22), while his left heel is close to the SCORPION'S tail.

The other stars of OPHIUCHUS are rather faint, forming a rough circle, as shown in the opposite diagram.

OPHIUCHUS and SERPENS are seen from May to September.



Between *Vega* and the CROWN lies the constellation HERCULES. It has the form of a great lily; its stalk bends under the CROWN, and slopes upwards to the left, opening its cup toward *Vega*.

The kneeling figure of Hercules is seen upside down in the Northern Hemisphere. The star at the foot of the map is his head, close to the head of OPHIUCHUS; the horizontal line of stars above it is his arm; the three stars next *Vega* form his bent leg, while the long curved line on the left shows the outline of his other leg and his back.

It is in the direction of HERCULES that the Sun is at present slowly travelling in his great orbit, probably round the Pleiades (Map 12).

HERCULES is best seen from May to October.

Hercules, the most celebrated hero of antiquity, was a son of Jupiter, and a grandson of Perseus. He was promised immortality if he performed twelve difficult tasks for King Eurystheus, and these "labors of Hercules" led him into many a strange adventure and into many far-off lands. Some time after completing them, he unwittingly put on a garment that had been steeped in the poisonous blood of a Centaur he had slain. It caused him fearful torture, to escape which he ascended a funeral pile and caused it to be set on fire. But a cloud descended, which, amid peals of



Vega

HERCULES

CROWN

OPHIUCHUS

HERCULES—*Continued*

thunder, carried him up to heaven, where he became immortal, and dwelt among the gods.

22. † LIBRA (*The Balances*)

LIBRA, the seventh constellation of the Zodiac, lies half-way between *Spica* and OPHIUCHUS. It is found by drawing a line from *Spica* towards *Altair*, which brings us, just under the head of the SERPENT (Map 20), to the top star of a triangle of faint stars, the brightest in the group.

† SCORPIO (*The Scorpion*)

SCORPIO lies directly below OPHIUCHUS, and may be found by drawing a downward line at right angles to *Altair* and his two companions. This leads us to the bright star *Antares*, the heart of the SCORPION, below which its tail sweeps round in a magnificent curve of bright stars. Three stars on the right of *Antares* are the SCORPION'S head.

SCORPIO is the eighth sign of the Zodiac. Its lower stars do not rise above the horizon of Britain, and it is seen in June and July only.

MAP 22.



23. † SAGITTARIUS (*The Archer*)

This constellation, which lies just left of SCORPIO, is also not well seen in the latitude of Britain, as it does not rise very far above the horizon, and is blotted out by the long twilight of summer evenings.

SAGITTARIUS may be found by drawing a line from the left arm of the cross in CYGNUS (Map 7) to the star above *Altair*, and continuing it for a little more than its own length; this will bring us to the brightest star in the constellation of KAUS AUSTRALIS.

SAGITTARIUS is represented as a strange creature, with the head and shoulders of a man, and the body and legs of a horse, who is shooting an arrow at the heart of the SCORPION. Four stars in a perpendicular line on the right form his bow, and a little triangle of stars to the right of them forms the point of the arrow.

SAGITTARIUS is the ninth sign of the Zodiac. It is seen during July and August, and in the earlier hours of the evening in September.

MAP 23.



24. † AQUARIUS (*The Water-Bearer*)

We have now come round to the autumn groups again, when PEGASUS is high overhead.

Close below the head of PEGASUS, a zig-zag line of four stars close together will be seen, with another star some distance to the right, lower down; these are the principal stars of AQUARIUS, the eleventh sign of the Zodiac.

† CAPRICORNUS (*The Sea-Goat*)

Some distance below these stars are two stars close together; they belong to the tenth constellation of the Zodiac, CAPRICORNUS, the Sea-Goat. From these, a line of fainter stars curves round to the right, ending in the two stars that have already been pointed out as being most easily found from *Altair*.

The above two constellations are seen from August to October.

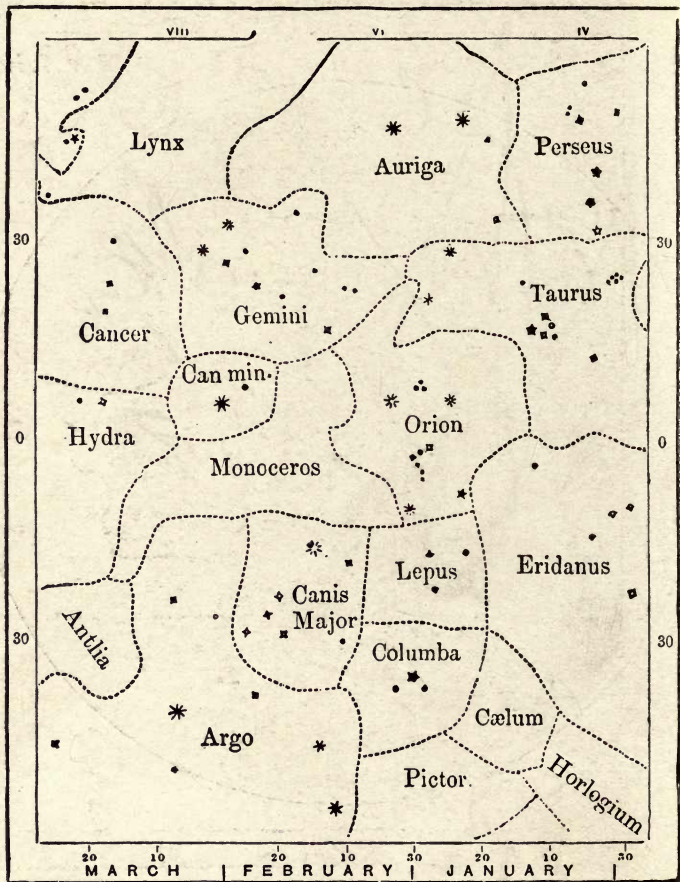
† PISCIS AUSTRALIS (*The Southern Fish*)

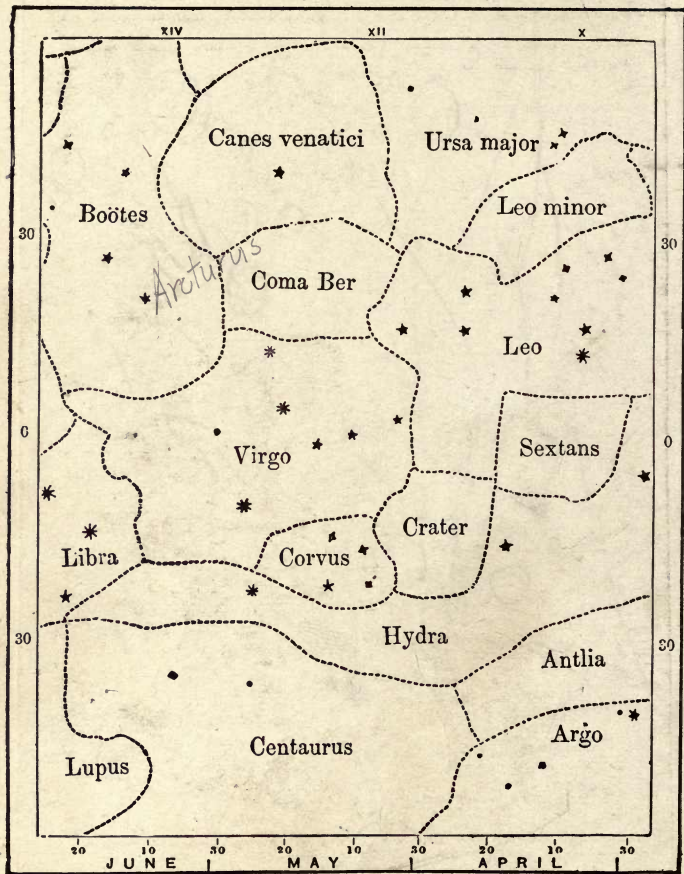
The three right-hand stars of CETUS point down to a bright star,—below AQUARIUS, and not far above the horizon,—called *Fomalhaut*, in the constellation of PISCIS AUSTRALIS. Being so low down, it is not well seen in the latitude of Britain, and is best seen during October.

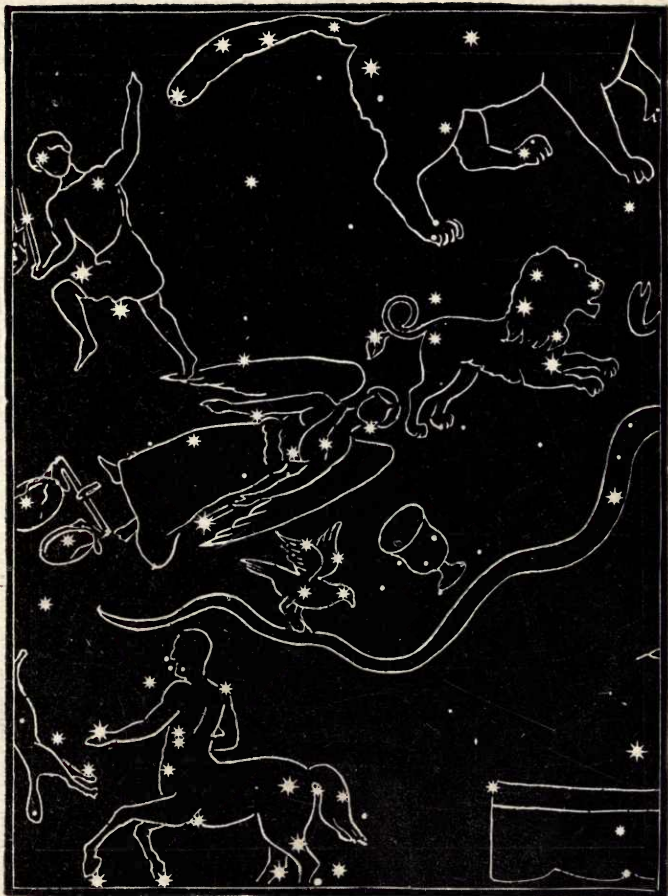


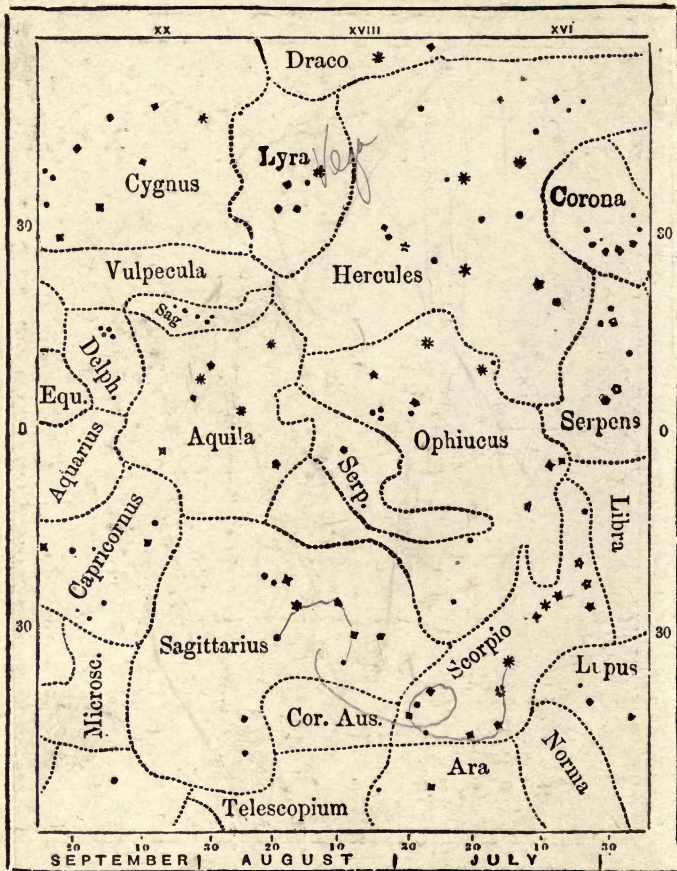
MAP 24.



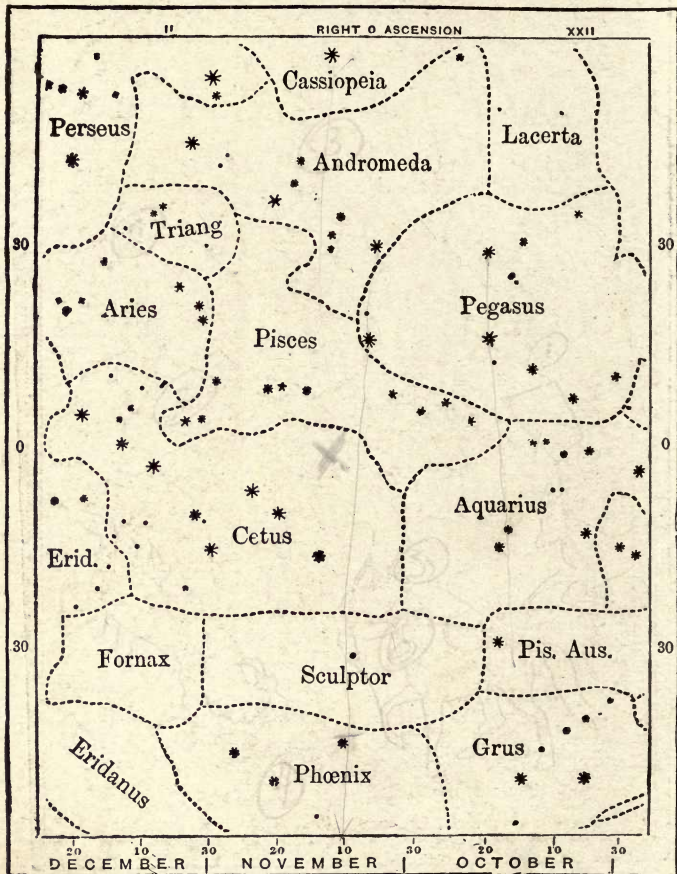


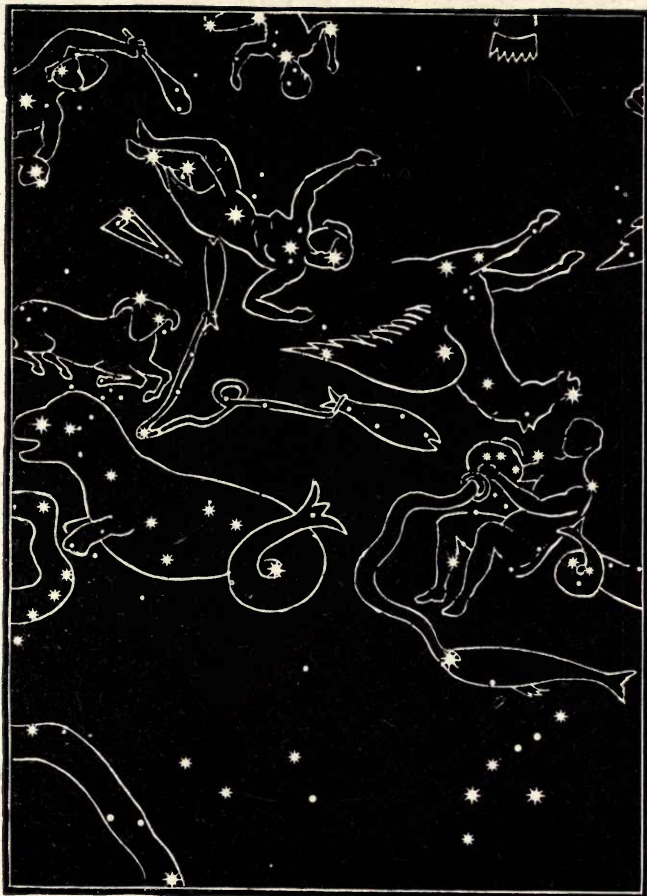




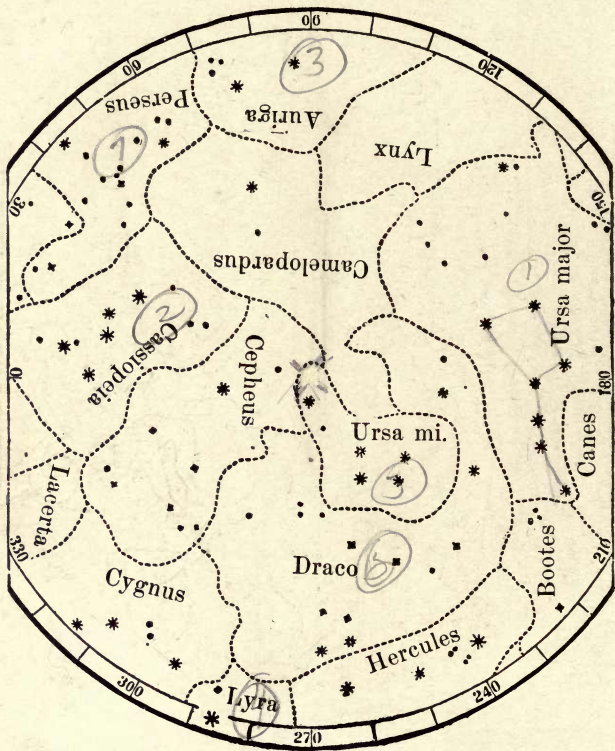


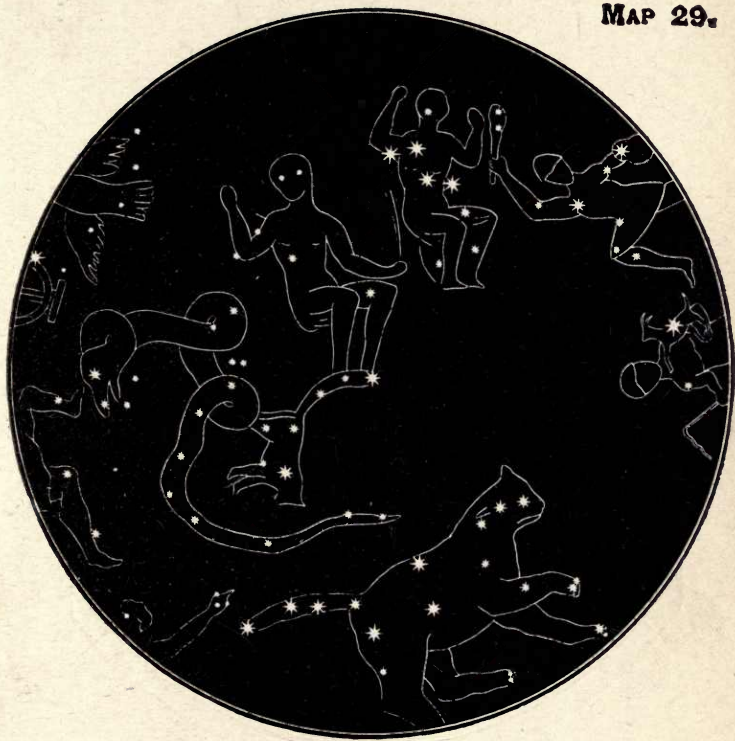




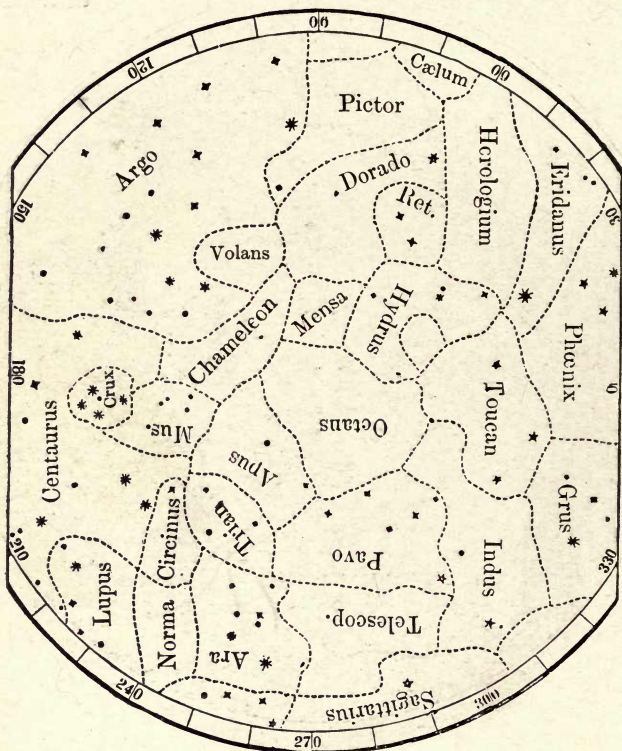


MAP 29. NORTH POLAR STARS.





MAP 30. SOUTH POLAR STARS.



No corresponding plate of constellation figures is given for this map, as all the constellations in it are of modern origin, except ARGO, CENTAURUS, LUPUS, SAGITTARIUS, ERIDANUS, and ARA.

MAP 30.







20

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