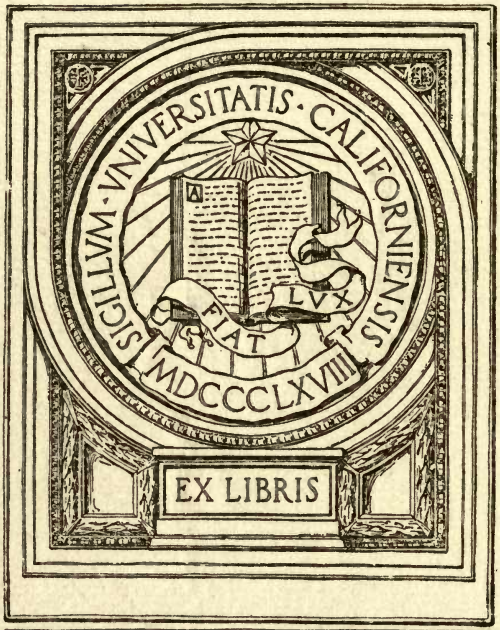
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THE ROAD MAP OF THE STARS

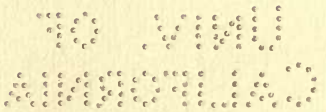
BY

ALBERT ROSS PARSONS

A pocket folding chart of the heavens, from horizon to zenith; its numbered sections showing, *in separate views* (North, East, South, and West, respectively), the positions of the stars *at any hour of any night in any year;* while, unfolded, it displays in one panoramic view the entire circle of the constellations visible in the Northern Hemisphere

The 48 star views specially drawn for this work by Annetta Weaver Peck

MITCHELL KENNERLEY
LONDON AND NEW YORK
MCMXI



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TO

HELEN W. SMITH

Patroness of Arts and Sciences

PREFACE

UNLIKE the planisphere, which requires to be adjusted to a given time before using, and must be held overhead for comparison with the sky, while its size and shape make it awkward to carry about; and unlike the celestial globe, which must be rectified and set for time and place, and even then shows a reversed view of the sky, as if reflected in water, — THE ROAD MAP OF THE STARS opens and is held like a book, while its small size and compact shape make it a handy pocket companion for library, private observatory, housetop, field, mountain, seashore, automobile, train or boat.

The earth is a huge observation car in which we are ceaselessly touring through the stars, while the sublime outlook, north, east, south and west is forever changing at the rate of one degree every four minutes, or 15 degrees per hour, by the daily rotation of the earth on its axis; and 30 degrees per month, at a given hour, by the annual revolution of the earth around the sun. With this Road Map in hand, no one need journey

past the stars unable to identify and name the shining orbs and storied constellations that adorn the expanse of the heavens. At any hour of any night in any year, whenever stars are visible, one has but to note the day of the month, consult his watch for the hour of the night, and refer to the said day and hour in Table B, in order instantly to find in the map, not only a brilliant picture of the sky at the time, but also the names of the stars and constellations, the latter being clearly defined by characteristic geometrical figures calculated to fix them permanently in mind. Unfolded and viewed as a whole, the Road Map gives a bird's-eye view of the star-groups as seen toward all points of the compass at once, with their motions arrested and crystallized around the meridians of the zodiacal signs; the panorama of the year thus formed disclosing an arabesque so alive with suggested motion that the stars and milky way — all that vast array of "life infusing suns of other worlds, that animate the sky" — fairly seem to live and move before our very eyes.

By way of adding knowledge to pleasure, the Road Map is supplied with a glossary of astronomical terms, and with index tables for locating planets, stars and constellations. The lines fixed

among the stars (ecliptic, equator, colures, north and south meridians) are given in the maps; also the 360 degrees of the annual course of the sun and planets around the ecliptic; the degrees of declination, north or south, on the colures and other hour-circles; and finally, on the equator, the points of intersection with the hour-circles, I–XXIV, respectively. Everything required to explain the maps has been tabulated for easy survey.

Thus THE ROAD MAP OF THE STARS will prove at once a key to the location and grouping of celestial objects, and an interesting introduction to the basic facts of the venerable system of the stars.

ALBERT ROSS PARSONS.

GARDEN CITY, LONG ISLAND.
December 21st, 1910.

GLOSSARY OF TERMS AND SIGNS

ARROWS. In North sections of the Road Map show the direction of motion of "circumpolar" stars; in East, the rising of stars; South, their course across the meridian; West, their setting. The arrow just over Polaris shows the direction in which the pole of the earth's axis describes a circle around the ecliptic pole. (See POLE, North.)

AXIS. The straight line on which a body revolves. It points to the pole of the orbit of revolution.

CELESTIAL SPHERE. The apparent surface of the heavens which everywhere seems part of a sphere.

COLURES. Two hour-circles intersecting at right angles at the poles of the equator. The *Equinoctial* colure coincides with hour-circles XXIV (*stars* of Pisces, Map 1, South), and XII (*stars* of Virgo, Map 1, South). The *Solstitial* colure coincides with hour-circles VI (between the *stars* of Gemini and Taurus, Map 4, South),

and XVIII (between the *stars* of Sagittarius and Scorpio, Map 10, South). (See Key to Table D.)

CONJUNCTION. Meeting of stars and planets in the same degree of the zodiac.

CONSTELLATIONS. Groups of fixed stars. The constellations of the zodiac have been known from the remotest antiquity both by names and by signs, as Aries (the constellation) and ♈ (the sign). (See SIGNS; also Table A.)

DAY. Period of one revolution of the earth on its axis, divided into 24 hours. The civil day begins at midnight and counts 12 hours A. M. (before noon) and 12 hours P. M. (after noon). The astronomical day begins at noon (therefore 12 hours later than the civil day of the same date) and counts the hours from 1 to 24, from one noon to the next (mean solar time). Thus civic December 25th at 6 o'clock, A.M., is astronomic December 24th at 18 o'clock.

DECLINATION. Angular distance from the celestial equator. *North* declination is marked on all hour-circles, at intervals of 15 degrees from 0 (on the equator) to 90 degrees (Polaris). *South* declination (from the equator down) is

indicated by adding S to the degree numbers. (Compare numbers above and below the equator on hour-circle XXIV, Map 1, South.)

DEGREE. The 360th part of the circumference of a circle.

ECLIPTIC. The apparent track of the sun, moon and planets as seen from the earth; the actual track of earth and planets if viewed from the sun. The great circle on or near which all eclipses occur. The pole of the ecliptic circle ("E. P.") is shown in all north sections of the Road Map.

EQUATOR. *Terrestrial.* A circle everywhere 90 degrees distant from the poles of the earth's axis. *Celestial.* A circle coinciding with the earth's equator, everywhere 90 degrees distant from the earth's pole extended to the star Polaris (shown in centre of all North maps, also in overlapping of all East and West maps). The celestial equator is often called the "equinoctial," because the sun crosses it at the equinoxes. But this "equinoctial" is at right angles with the equinoctial Colure.

EQUINOXES. The precise times when night and day are of equal length throughout the world,

viz.: (*a*) the *vernal* equinox (March 21), when the sun (ascending) enters the *sign* Aries (*stars* of Pisces, Map 1, South), or the beginning of Spring; (*b*) the autumnal equinox (September 21), when the sun (descending) enters the *sign* Libra (stars of Virgo, Map 7, South), or the beginning of Autumn. The point occupied by the sun at noon March 21 is visible at midnight September 21 and *vice versa*. Table B shows other times when the equinoctial points (Maps 1 and 7) may be seen at night, though of course not on the meridian.

Horizon. The apparent meeting of the earth and sky (*a*) *Sensible* horizon, a plane extending from the eye at right angles to the zenith; (*b*) *Rational*, or *Celestial* h., a plane parallel to the sensible horizon, but extending on every side from the center of the earth. *Dip* of the horizon, the vertical angle between the horizon of the eye and that from the center of the earth. The bottom of each map-section is the horizon of a zenith 90 degrees above. But the horizon of every place varies with its zenith.

Hour-Circles. Circles passing through the poles of the heavens, and intersecting the celestial equator at equidistant points, 15 de-

grees in space or one hour in time apart, and numbered I–XXIV from the point of the vernal equinox (Map 1, South). A numbered hour-circle coincides with the meridian in all North and South maps. (See COLURES.)

INCLINATION. An oblique angle between two planes. The ecliptic and equator are 23½ degrees apart on hour-circles VI (Map 4, South) and XVIII (Map 10, South); hence that number of degrees is the angle of inclination of ecliptic and equator at their points of intersection (Maps 1 and 12, South).

LATITUDE. *Celestial.* Angular distance of a body from the ecliptic. Degrees of latitude and declination coincide only on the equinoctial colures (hour-circles XII, Map 7, South; and XXIV, Map 1, South).

LONGITUDE. *Celestial.* Distance in degrees (0°–360°) on the ecliptic, measured from the vernal equinox (Map 1, South) to a line at right angles to it, passing through a heavenly body whose longitude is designated.

MAGNITUDES. The most conspicuous star-shapes in the Road Map represent stars of the first magnitude. Second magnitude stars have 8

points; third, 6 points; fourth, 5 points; fifth, 4 points.

MERIDIANS. Circles passing through the poles of the heavens and the zenith of a given place. From North to South they are vertical to the horizon (see middle vertical line in all North and South maps).

NADIR. Point directly underneath a given place. The opposite of Zenith.

POLES. (*a*) *Ecliptic.* The axis of the earth's annual revolution around the sun. The pole of the ecliptic ("E. P." in Draco) is shown in all North maps.

(*b*) *North.* The axis of the earth extended to the stars has for a thousand years and more been pointing ever nearer to Polaris (the "North Star"). After a couple of centuries it will point away from it towards another North Star (on the circle shown in Map 1, North, following the direction of the arrow above Polaris). As the inclination of the equator to the ecliptic, so is the distance of Polaris from the Ecliptic Pole (the centre of said circle), viz., 23½ degrees. The pole of the earth wanders around this circle at the rate of 1 degree every 71⅔ years (71⅔ × 360 degrees = 25,800 years).

Four thousand years ago the star Thuban in Draco was "North Star." Then the old Dragon "fell" from the heaven of the north, as the Little Bear (Ursa Minor) must in turn fall, and be supplanted by a star in Cepheus.

Precession of the Equinoxes. The revolution of the earth's celestial pole around the pole of the ecliptic (see Pole, North, above) causes the equinoctial points (viz., the intersections of equator and ecliptic, at hour XXIV, 360 degrees, and hour XII, 180 degrees) to shift their places among the stars, at the rate of 1 degree every 71⅔ years, carrying with them all the circles of both the equator and the ecliptic systems, circles that during the "threescore and ten years" of human life remain practically fixed and are so described and drawn in star-maps. Thus the equinoctial point called the "First point of Aries" (360th degree) has advanced or "preceded" the stars of Aries far through the stars of Pisces (Map 1, South). The Precession of the equinoxes with the *signs* of the zodiac is thus equivalent to the recession of the zodiacal *constellations*. (Table A.)

Right Ascension. The distance on the celestial equator (expressed usually in hours, minutes

and seconds) between the point of the vernal equinox and that point of the equator that comes to the meridian (South) with the star.

SIGNS. The ecliptic is divided into twelve parts of 30 degrees each, beginning at the point of the Vernal Equinox, and designated by the *signs* once used to designate constellations of like name. "They have been for signs, and for seasons, and for days and years." (Genesis i, 15.) (See Table A.)

SOLSTICES. The points in the ecliptic where the sun is farthest from the equator, either north (Summer solstice, June 21) or south (Winter solstice, December 21). At each point the sun seems to remain a few days before reversing its course. (*Sol*, sun, *sistere*, to cause to stand.)

VERTICAL LINES. Lines drawn from zenith towards the nadir through the horizon. The Prime Vertical intersects the horizon at the east and west points.

ZENITH. The point directly overhead at any place.

TABLE OF ZENITHS AND THEIR HORIZONS

A. Facing North				B. Facing South			
Zenith		Horizon		Zenith		Horizon	
0°	North	= 90°	North	0°	North	= 90°	South
15°	"	= 75°	"	15°	"	= 75°	"
30°	"	= 60°	"	30°	"	= 60°	"
45°	"	= 45°	"	45°	"	= 45°	"
60°	"	= 30°	"	60°	"	= 30°	"
75°	"	= 15°	"	75°	"	= 15°	"
90°	"	= 0°	"	90°	"	= 0°	"

ZODIAC. A belt 16 degrees wide extending along the ecliptic (8 degrees on each side), divided into 12 constellations mostly named after living creatures. Each constellation was represented both by a figure and a sign. (See SIGN.) The *constellation* names and figures remain attached to the same stars as of old; but the *signs* have followed the advance of the equinoctial and solstitial points; thus the sign ♈ no longer stands among the stars of Aries, but instead has advanced far through those of Pisces. (See PRECESSION; also Table A.)

TABLE A

Zodiacal Signs vs. Constellations

The signs still refer to equal spaces of 30 degrees each along the ecliptic; but the ancient boundaries of the constellations were lost, hence their present dimensions vary from 10 to 50 degrees, respectively.

Signs	Length on Ecliptic	Hour Circles	First Point	First Point	Constellations	Length on Ecliptic
♈ (Aries)	30°	XXIV	360°	350°	Pisces	50°
♉ (Taurus)	30°	II	30°	40°	Aries	10°
♊ (Gemini)	30°	IV	60°	50°	Taurus	38°
♋ (Cancer)	30°	VI	90°	88°	Gemini	30°
♌ (Leo)	30°	VIII	120°	118°	Cancer	21°
♍ (Virgo)	30°	X	150°	139°	Leo	31°
♎ (Libra)	30°	XII	180°	170°	Virgo	44°
♏ (Scorpio)	30°	XIV	210°	214°	Libra	23°
♐ (Sagittarius)	30°	XVI	240°	237°	Scorpio	28°
♑ (Capricornus)	30°	XVIII	270°	265°	Sagittarius	35°
♒ (Aquarius)	30°	XX	300°	300°	Capricornus	32°
♓ (Pisces)	30°	XXII	330°	332°	Aquarius	18°

TABLE B

To Find the Map-Section for a Given Date

(The numbers in the squares refer to correspondingly numbered sections of the Roadmaps. The map-sections are numbered from December 21st at VI P. M. as section 1. Numbers marked (*) enable one to locate planets seen as "evening stars" before other stars are visible, or as "morning stars" after others have become invisible.)

Months	Hours P. M.				Mid-night	Hours A. M.			
	IV	VI	VIII	X	XII	II	IV	VI	VIII
December 21	*12	1	2	3	4	5	6	7	*8
January 21	* 1	2	3	4	5	6	7	8	*9
February 21	...	3	4	5	6	7	8	9	...
March 21	...	4	5	6	7	8	9	10	...
April 21	...	5	6	7	8	9	10	11	...
May 21	...	6	7	8	9	10	11	12	...
June 21	...	7	8	9	10	11	12	1	...
July 21	...	8	9	10	11	12	1	2	...
August 21	...	9	10	11	12	1	2	3	...
September 21	.,.	10	11	12	1	2	3	4	...
October 21	*10	11	12	1	2	3	4	5	*6
November 21	*11	12	1	2	3	4	5	6	*7
December 21	*12	1	2	3	4	5	6	7	*8

Remark. — The centre of each of the map-sections numbered respectively from 1 north, 1 east, 1 south and 1 west, to 12 north, 12 east, 12 south and 12 west inclusive, is 30° (about 1 inch in these maps) from the centre of the next

section in numerical order. Owing to the daily rotation of the earth from west to east, the stars appear to move from east to west at the rate of 1° every 4 minutes or 30° every 2 hours. Hence in Table B, map-section 1 shows the stars at VI P. M.; 2 at VIII P. M., and so on through the night. Again, owing to the annual revolution of the rotating earth around the sun, the stars appear to rise 4 minutes (1°) earlier every night, or 30° earlier every month. Hence, in the Table, map-section 1 shows the stars December 21st at VI P. M.; section 2, January 21st at the same hour, and so on through the year. Hence the *Rule:* for times between the hours VI, VIII, etc., take the number given for the nearest hour; for days between December 21st and January 21st, take the number given for the nearest 21st. Thus, for January 2nd, take the number given for December 21st, which date is nearer to January 2nd than is January 21st; and for 8.30 P. M. take the number given for VIII P. M., which is nearer to 8.30 than is X P. M.

EXAMPLE. — Find the map-section showing the stars visible September 16th at 4:30 A. M. *Solution:* The nearest date to September 16th in Table B is September 21st; and the nearest hour is IV A. M. Looking along the squares on a

line with September 21st we find under IV the number 3; accordingly, the map-section marked 3 North, 3 East, 3 South and 3 West shows the stars for September 16th at 4:30 A. M.

To identify the stars without referring to the Table. Rule: Remember that map-section 1 applies to December 21st at VI P. M.; 2, to January 21st at the same hour, etc., through the year. Take the next following map-section for every month in turn until the desired date is reached, and then the next following map-section for every two hours after VI P. M. until the desired hour of the night is reached.

EXAMPLE. — Find mentally the map-section for September 16th at 4:30 A. M. *Solution:* Nearest date in Table B to September 16th, September 21st, nearest hour in Table B to 4:30 A. M., IV A. M.

December 21	VI P. M.	Section 1
January 21	" "	" 2
February 21	" "	" 3
March 21	" "	" 4
April 21	" "	" 5
May 21	" "	" 6
June 21	" "	" 7
July 21	" "	" 8

August 21	VI P. M.	Section	9
September 21	" "	"	10
" "	VIII "	"	11
" "	X "	"	12
" "	XII midnight	"	1
" "	II A. M.	"	2
" "	IV "	"	3

Therefore section 3 shows the stars for September 16th at 4.30 A. M.

TABLE C

To find a Given Star or Constellation in the Map-Sections

(Numbers refer to Sections; N, E, S, W, = North, East, South and West)

Aldebaran (Taurus). 1 E. 2–3 E, S. 4–5 S, W. 6–7 W. 12 E.
Algenib (Pegasus). 1 E, S. 2 S, W. 3–5 W. 10–11 E. 12 E, S.
Algol (Perseus). 1 N, E, S. 2 E, S. 3 S, W. 4 N, S, W. 5–7 N, W. 8–9 N. 10–12 N, E.
Almach (Andromeda). 1 E, S. 2 E, S, W. 3 S, W. 4–6 N, W. 7–9 N. 10–12 N, E.
Alphard (Hydra). 3 E. 4–5 E, S. 6 S. 7 S, W. 8 W.
Alphecca (Corona Borealis). 1 N. 4 N. 5–6 N, E. 7–8 E, S. 9–10 S, W. 11–12 W.
Alpherat (see Sirrah; Andromeda).
Altair (Aquila). 1 S, W. 2 W. 8, 9 E. 10 E, S. 11–12 S, W.
ANDROMEDA. 1 E, S. 2 E, S, W. 3 S, W. 4–6 N, W. 7–8 N. 9–12 N, E.
Antares (Scorpio). 8–10 S.
AQUARIUS. 1–2 S, W. 10–11 E, S. 12 S.
AQUILA. 1 S, W. 2 W. 8 E. 9–10 E, S. 11–12 S, W.
Arcturus (Bootes). 4–6 E. 7 E, S. 8 E, S, W. 9 S, W. 10–12 W.

ARGO. 4–6 S.
Arided (Cygnus). All north maps; also: 1 S, W. 2–4 W. 7–10 E. 11 E, S, W. 12 S, W.
ARIES. 1 E, S. 2 E, S, W. 3–4 S, W. 5–6 W. 11 E. 12 E, S.
AURIGA. All north maps; also: 1 E. 2–3 E, S. 4 E, S, W. 5 S, W. 6–8 W. 11–12 E.
Bellatrix (Orion). 1 E. 2–3 E, S. 4–5 S, W. 6–7 W.
Betelgeux (Orion). 1 E. 2–3 E, S. 4–6 S, W. 7 W.
BOOTES. 1 N, W. 2–3 N. 4–6 N, E. 7 E, S. 8 E, S, W. 9 S, W. 10 N, W. 11–12 N, W.
CAMELOPARDALIS. All north maps; also: 1–3 E. 4–5 E, W. 6–9 W. 10 E, W. 11–12 E.
CANCER. 2–3 E. 4–5 E, S. 6–7 S, W. 8–9 W.
CANES VENATICI. 1–2 N. 3–5 N, E. 6 N, E, S. 7 E, S. 8 S, W. 9–12 N, W.
CANIS MAJOR. 3–5 S. 6 S, W.
CANIS MINOR. 2 E. 3–4 E, S. 5–6 S, W. 7 W.
Capella (Auriga) All north maps; also: 1 E. 2–3 E, S. 4 E, S, W. 5 S, W. 6–8 W. 11–12 E.
CAPRICORNUS. 1 S, W. 10 E, S. 11–12 S.
CASSIOPEIA. All north maps; also: 1–2 E, S, W. 3–6 W. 9–12 E.
Castor (Gemini). 1–2 N, E. 3–4 E, S. 5 E, S, W. 6 S, W. 7 W. 8–9 N, W.
CENTAURUS. 9 S.
CEPHEUS. All north maps; also: 1–5 W. 7–11 E. 12 E, S, W.
CETUS. 1 E, S. 2 E, S, W. 3–4 S, W. 5 W. 11 E. 12 E, S.
COLUMBA. 4–5 S.
COMA BERENICES. 3–5 E. 6–7 E, S. 8–9 S, W. 10–11 W.
Cor Caroli (Canes Venatici). 1–2 N. 3–5 N, E. 6 N, E, S. 7 E, S. 8 S, W. 9–12 N, W.
CORONA AUSTRINA. 10–11 S.
CORONA BOREALIS. 1 N, W. 4 N. 5–6 N, E. 7–8 E, S. 9 E, S, W. 10 S, W. 11–12 W.
CORVUS. 6 E, S. 7–8 S. 9 S. W.
CRATER. 5–6 E, S. 7 S. 8 S, W. 9 W.
CYGNUS. 1 N, S, W. 2 N. 3 N, W. 4–6 N. 7–9 N, E. 10 N, E, S. 11 E, S, W. 12 S, W.

DELPHINUS. 1 S, W. 2–3 W. 8–9 E. 10–11 E, S. 12 S.
Denebola (Leo). 3–4 E. 5–6 E, S. 7–8 S, W. 9–10 W.
Diphda (Cetus). 1 S. 2–3 S, W. 4 W. 11 E. 12 E, S.
DRACO. All north maps; also: 1 W. 2–3 E, W. 4–6 E. 7–10 E, W. 11–12 W.
Dubhe (Ursa Major). All north maps; also: 2–5 E. 6 E, W. 7 E, S, W. 8–12 W.
ECLIPTIC POLE (E. P.). All north maps.
Enif (Pegasus). 1 S, W. 2–3 W. 10–11 S. 12 S, W.
ERIDANUS. 1–2 E, S. 3 S. 4–5 S, W. 6 W.
Fomalhaut (Pisces Austrinus). 1–2 S. 11–12 S.
GEMINI. 1 N, E. 2 E. 3–4 E, S. 5–6 S, W. 7 W. 8–9 N. W.
GRUS. 1 S. 11–12 S.
Hamal (Aries). 1–2 E, S. 3–4 S, W. 5–6 W. 11 E. 12 E, S.
HYADES. 1 E. 2–3 E, S. 4–5 S, W. 6–7 W. 12 E.
HERCULES. 1 N, W. 2–4 N. 5–7 N, E. 8 N, E, S. 9 E, S. 10–11 S, W. 12 N, W.
HYDRA. 3 E. 4–5 E, S. 6–8 S, W.
INDUS. 11 S.
LEO. 2–3 E. 4–5 E, S. 6 E, S. W. 7–8 S, W. 9 W. 10 N, W.
LEO MINOR. 2 N. 3–4 E. 5–6 E, S. 7–8 S, W. 9–10 N, W. 11–12 N.
LEPUS. 2–4 S. 5 S, W.
LIBRA. 7 E, S. 8–9 S. 10 S, W.
LUPUS. 9–10 S.
LYNX. All north maps; also: 1–3 E. 4 E, S. 5 E, S, W. 6–7 S, W. 8–9 W.
LYRA. 1–2 N, W. 3–5 N. 6–8 N, E. 9 E. 10 E, S, W. 11–12 S, W.
Markab (Pegasus). 1–2 S, W. 3–4 W. 9–10 E. 11–12 E, S.
Merak (Ursa Major). All north maps; also: 2–5 E. 6–7 E, S, W. 8–11 W.
Mira (Cetus). 1 E, S. 2 E, S, W. 3–4 S, W. 5 W. 11 E. 12 E, S.
MONOCEROS. 2 E. 3–4 E, S. 5–6 S, W. 7 W.
OPHIUCUS. 1 W. 7 E. 8–9 E, S. 10–11 S, W. 12 W.
ORION. 1 E. 2–3 E, S. 4–5 S, W. 6–7 W.
PEGASUS. 1–2 S, W. 3 W. 4–5 N, W. 9–10 E. 11–12 E, S.

PERSEUS. All north maps; also: 1–2 E, S. 3 E, S, W. 4 S, W. 5–7 W. 10–12 E.
Phact (Columba). 4–5 S.
PHOENIX. 1–2 S.
PISCES. 1 E, S, W. 2–3 S, W. 4–5 W. 10 E. 11–12 E, S.
PISCES AUSTRINIS. 1–2, 11–12 S.
PLEIADES. 1–2 E, S. 3 E, S, W. 4–5 S, W. 6–7 W. 11–12 E.
Polaris (Ursa Minor). All maps N, E, W.
Pollux (Gemini). 1 N, E. 2 E. 3–4 E, S. 5 E, S, W. 6 S, W. 7–8 W. 9 N, W.
Procyon (Canis Minor). 2 E. 3–4 E, S. 5–6 S, W. 7 W.
Regulus (Leo). 3–4 E. 5–6 E, S. 7–8 S. W. 9 W.
Rigel (Orion). 1 E. 2–3 E, S. 4–5 S, W. 6 W.
SAGITTARIUS. 9–11 S.
Scheat (Pegasus). 1–2 S, W. 3 W. 4 N, W. 9–10 E. 11–12 E, S.
SERPENS. 6 E. 7–8 E, S. 9–11 S, W. 12 W.
SCORPIO. 8–10 S.
Sirius (Canis Major). 2 E. 3 E, S. 4 S. 5–6 S, W.
Sirrah (Andromeda). 1 E, S, W. 2 S, W. 3 W. 4–5 N, W. 9–10 N, E. 11 E. 12 E, S.
Spica (Virgo). 6–7 E, S. 8 S. 9 S, W. 10 W.
TAURUS. 1 E. 2–3 E, S. 4–5 S, W. 6–7 W. 12 E.
Thuban (Draco). All north maps; also: 1 W. 3–7 E. 8 E, W. 9–12 W.
TRIANGULUM. 1 E, S. 2 E, S, W. 3 S, W. 4 W. 5–6 N, W. 7 N. 10–11 N, E. 12 E.
URSA MAJOR. All north maps; also: 1–4 E. 5 E, S. 6–8 E, S, W. 9–12 W.
URSA MINOR. All north maps; also: 1–2 W. 4–7 E. 8–9 E, W. 10–12 W.
Vega (Lyra). 1–2 N, W. 3–5 N. 6–8 N, E. 9 E. 10 E, S, W. 11–12 S, W.
Vindemiatrix (Virgo). 4–5 E. 6–7 E, S. 8–9 S, W. 10 W.
VIRGO. 4–5 E. 6–7 E, S. 8–9 S, W. 10 W.

TABLE D

The Positions of Venus, Mars, Jupiter and Saturn

	A. D. 1911				1912				1913				1914				1915			
	Venus	Mars	Jupiter	Saturn	Venus	Mars	Jupiter	Saturn	Venus	Mars	Jupiter	Saturn	Venus	Mars	Jupiter	Saturn	Venus	Mars	Jupiter	Saturn
Jan.	11	10	8	2	10	3	10	3	1	10	11	3	11	5	12	4	10	11	12	4
Feb.	1	10	8	2	11	3	10	3	2	11	11	3	12	5	12	4	11	12	1	4
Mar.	2	11	8	2	12	4	10	3	2	12	11	3	1	5	12	4	12	1	1	4
Apr.	3	12	8	2	1	4	10	3	3	1	11	3	3	5	12	4	1	2	1	4
May	4	1	9	3	3	5	10	3	2	1	11	3	4	6	12	4	2	2	1	4
June	6	1	9	3	4	6	10	3	3	2	11	4	5	6	12	4	3	3	1	4
July	7	2	9	3	5	6	10	3	3	3	11	4	6	7	12	4	4	4	1	4
Aug.	7	3	9	3	6	7	10	3	5	3	11	4	8	8	12	4	6	5	1	4
Sept.	7	3	9	3	8	7	10	3	6	4	11	4	9	8	12	4	7	5	1	4
Oct.	7	3	9	3	9	8	10	3	7	5	11	4	9	9	12	4	8	6	1	4
Nov.	7	3	10	3	10	9	10	3	8	5	11	4	9	10	12	4	10	6	1	4
Dec.	8	3	10	3	11	9	11	3	9	5	11	4	9	10	12	4	11	7	1	4

Key to Table D

Numbers in Table D	Map Sections indicated	Right Ascension on Ecliptic	Constellations (not *Signs* of like names)	Hour Circles
1	1 South	360°	In Pisces	XXIV
2	2 "	30°	Between Aries and Pisces	II
3	3 "	60°	In Taurus	IV
4	4 "	90°	Between Gemini and Taurus	VI
5	5 "	120°	Between Cancer and Gemini	VIII
6	6 "	150°	In Leo	X
7	7 "	180°	Between Virgo and Leo	XII
8	8 "	210°	In Virgo	XIV
9	9 "	240°	Between Scorpio and Libra	XVI
10	10 "	270°	Between Sagittarius and Scorpio	XVIII
11	11 "	300°	Between Capricornus and Sagittarius	XX
12	12 "	330°	In Aquarius	XXII

EXAMPLE. — Position of Venus in January 1911 (Table D and key) 11 South. Map-section 11 South, and key, place Venus on (or near) the meridian between Capricornus and Sagittarius (Right Ascension on ecliptic, 300 degrees). Capricornus is found (Table C) in Map-sections 1 South, 1 West, 10 East and South, 11 and 12 South; Sagittarius in 9, 10 and 11 South. Table B shows that of all these map-sections (1, 9, 10, 11, 12) 1 and 12 only appear in the sky in January, and then between V and VII P. M. Venus is thus seen as evening star only, in January, 1911. With the other planets (Mars 10, Jupiter 8, Saturn 2, in January, 1911) proceed in the same way; and similarly through all the months of the years 1911–1915 (Table D).

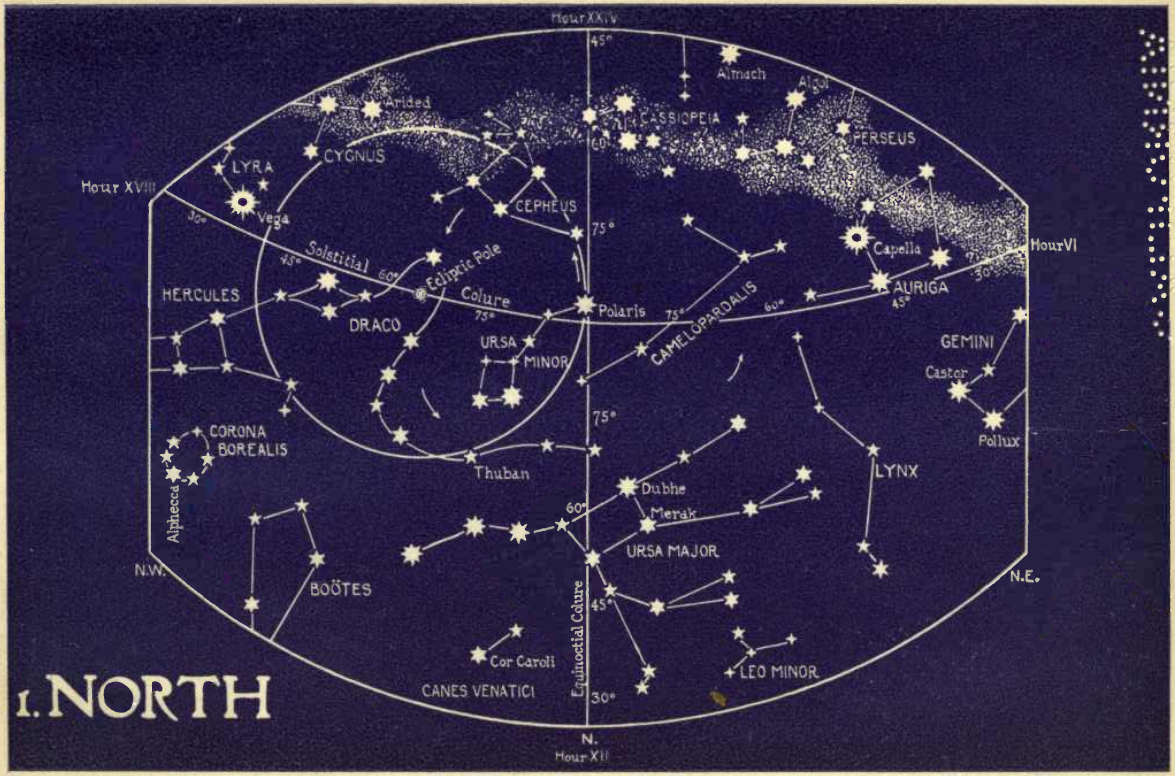
The planetary positions are calculated for the 15th of the month at midnight; earlier or later, in the night, or month, the quicker moving planets may be found 5 or 10 degrees (in an extreme case 15 degrees, or say ¾ of an inch in this map) to one side or the other of the locality given for midnight in the middle of the month.

Although the planets move regularly around the ecliptic, the motion of our earth causes us to see them from different angles, hence the apparent

irregularity indicated by the erratic changes of number below Venus and Mars.

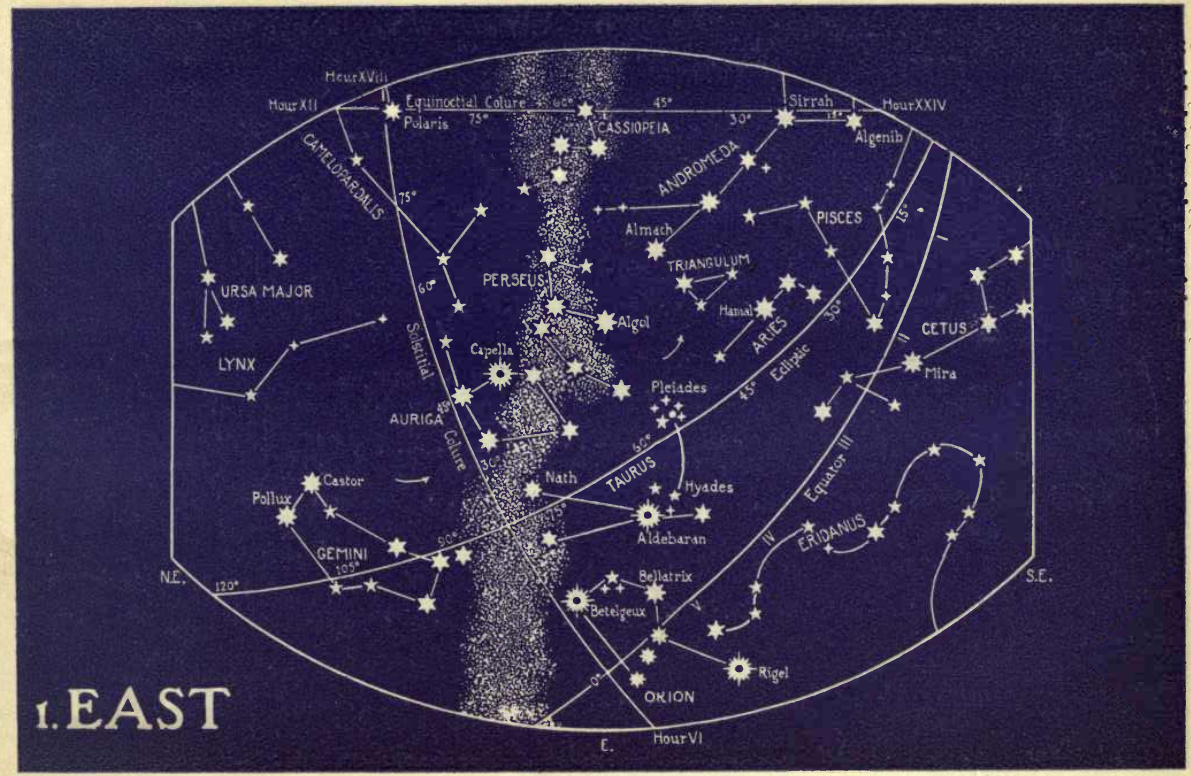
REMARK. — MERCURY changes place so fast that there is no room for its positions in Table D. Just above the *eastern* horizon before sunrise in August, September or October; and just above the *western*, after sunset in February, March or April, Mercury may be seen as a bright star twinkling violently. VENUS is the brightest object among the stars. JUPITER is brighter than any fixed star. MARS is brownish red in tint. SATURN shines like a star of the first magnitude.

NORTH


Hour XX.
45°
Almach
Algol
Arided
CASSIOPEIA
60°
PERSEUS
CYGNUS
LYRA
Hour XVIII
Vega
CEPHEUS
75°
30°
45°
Solstitial
60°
Ecliptic Pole
Colure
Capella
Hour VI
HERCULES
DRACO
75°
Polaris
75°
60°
AURIGA
45°
30°
URSA
MINOR
CAMELOPARDALIS
GEMINI
Castor
Pollux
75°
CORONA
BOREALIS
Thuban
Alphecca
Dubhe
Merak
60°
LYNX
URSA MAJOR
N.W.
BOÖTES
N.E.
45°
Equinoctial Colure
Cor Caroli
CANES VENATICI
LEO MINOR
30°
N.
Hour XII

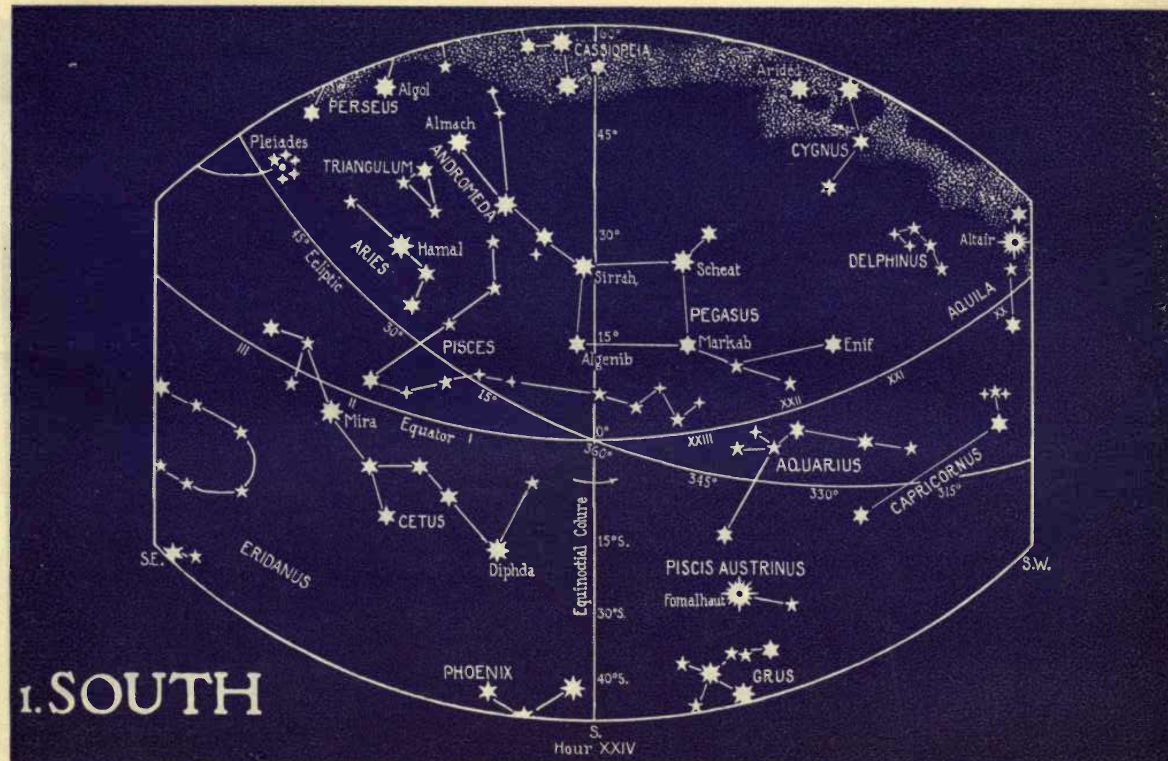
1. NORTH

EAST


Hour XVIII
Hour XII
Equinoctial Colure
Polaris
75°
45°
30°
Sirrah
Hour XXIV
Algenib
CASSIOPEIA
CAMELOPARDALIS
ANDROMEDA
Almach
PISCES
TRIANGULUM
URSA MAJOR
PERSEUS
Algol
Hamal
ARIES
Ecliptic
CETUS
Mira
LYNX
Solstitial Colure
Capella
Pleiades
AURIGA
TAURUS
Nath
Hyades
Castor
Pollux
Aldebaran
GEMINI
105°
120°
N.E.
Equator
ERIDANUS
Bellatrix
Betelgeux
Rigel
ORION
S.E.
E.
Hour VI

1. EAST

SOUTH

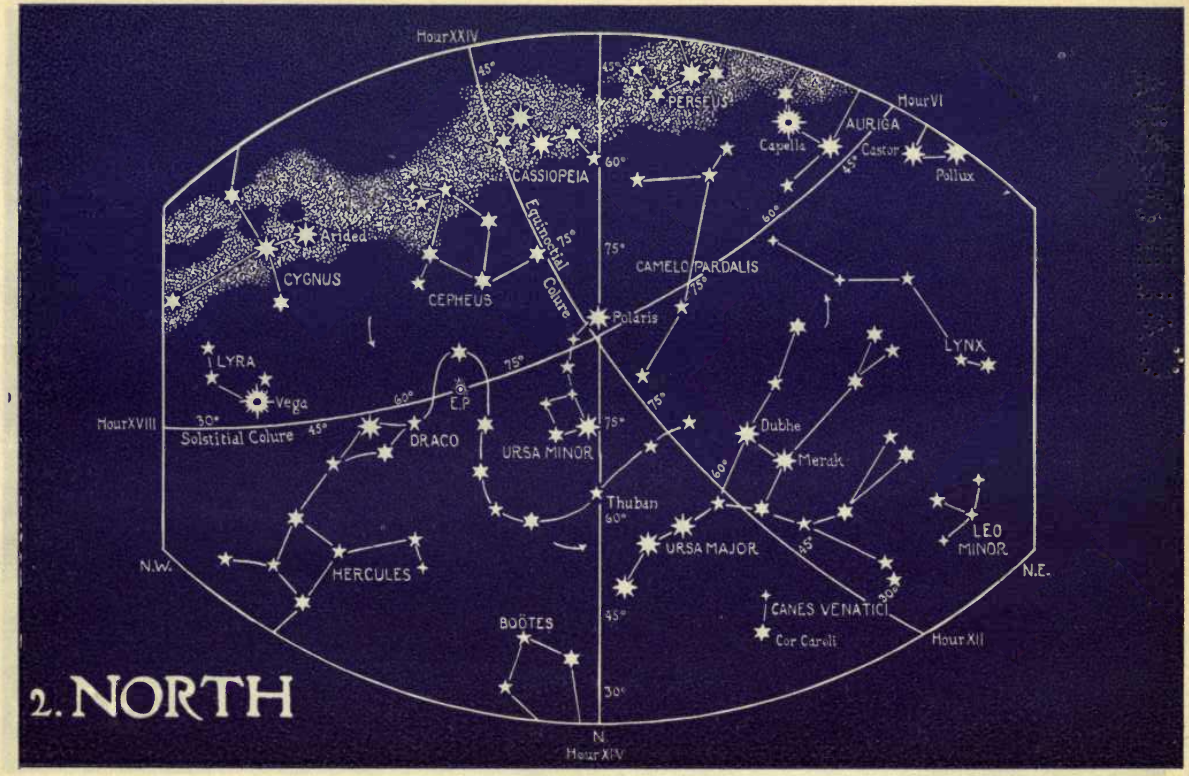

1. SOUTH
CASSIOPEIA
60°
45°
30°
15°
0°
360°
15°S.
30°S.
40°S.
S.
Hour XXIV
Equinoctial Colure
Arided
PERSEUS
Algol
Almach
Pleiades
TRIANGULUM
ANDROMEDA
ARIES
Hamal
45° Ecliptic
30°
15°
PISCES
III
II
I
Mira
Equator
CETUS
Diphda
ERIDANUS
SE.
PHOENIX
Sirrah
Algenib
Scheat
PEGASUS
Markab
Enif
CYGNUS
DELPHINUS
Altair
AQUILA
XX
XXI
XXII
XXIII
AQUARIUS
345°
330°
315°
CAPRICORNUS
PISCIS AUSTRINUS
Fomalhaut
GRUS
S.W.

TZAVA

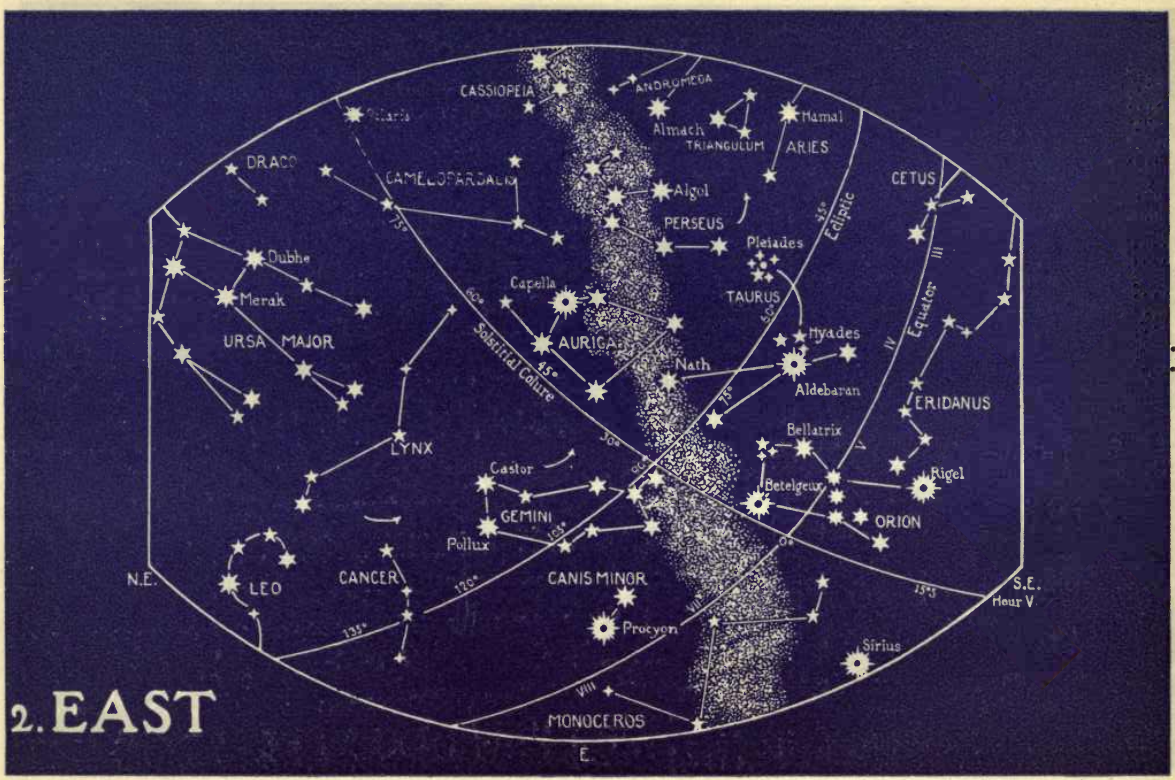

Hour XXIV
Sirrah
15°
30°
45°
CASSIOPEIA
60°
75°
Polaris
Hour XII
Equinoctial Colure
URSA MINOR
75°
Thuban
PISCES
Markab
Scheat
PEGASUS
CEPHEUS
345°
XXIII
AQUARIUS
330°
Ecliptic
XXII
Enif
E.P.
60°
DRACO
Arided
BOÖTES
DELPHINUS
CYGNUS
Equator
XXI
45°
Vega
HERCULES
315°
CAPRICORNUS
LYRA
30°
Altair
Solstitial Colure
CORONA BOREALIS
300°
S.W.
AQUILA
XIX
N.W.
OPHIUCHUS
XVII
Hour XVIII
W.

1. WEST

NORTH

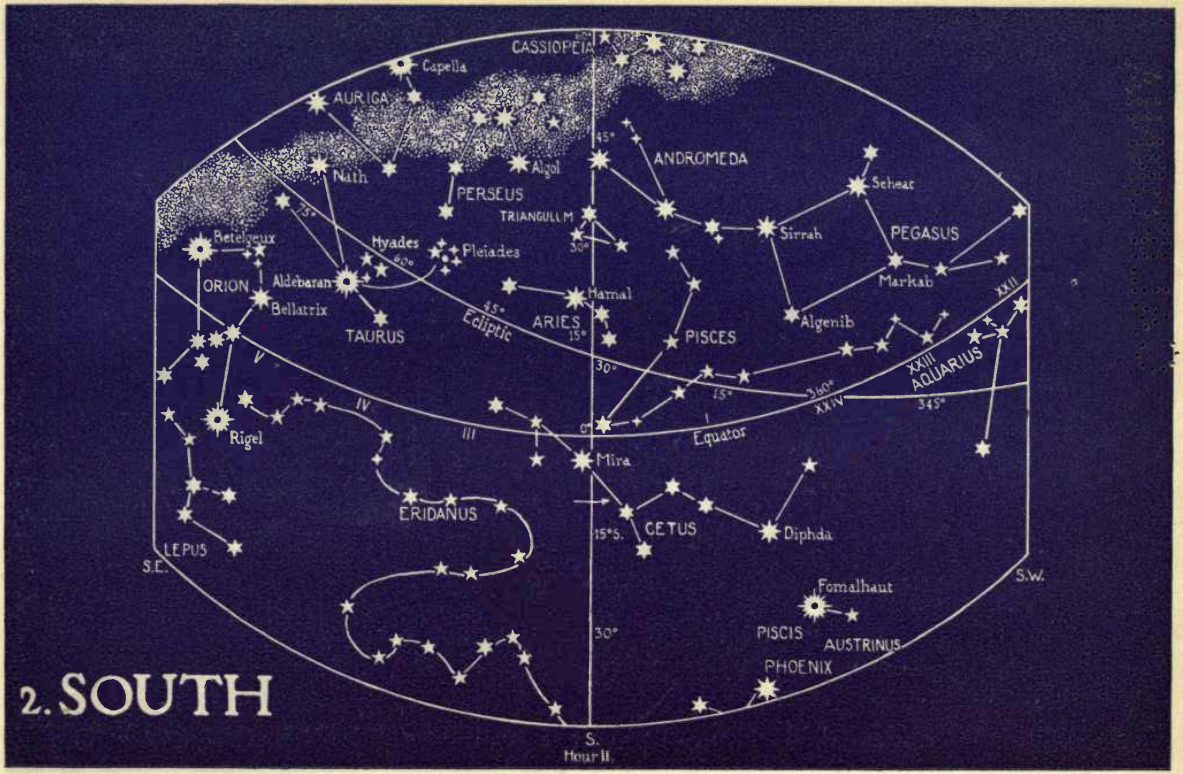

Hour XXIV
45°
45°
PERSEUS
Hour VI
AURIGA
Capella
Castor
Pollux
CASSIOPEIA
60°
Equinoctial Colure
75°
75°
Arided
CYGNUS
CEPHEUS
CAMELOPARDALIS
60°
75°
Polaris
LYNX
LYRA
Vega
75°
E.P
Hour XVIII
30°
60°
45°
Solstitial Colure
DRACO
URSA MINOR
75°
75°
Dubhe
Merak
Thuban
60°
60°
URSA MAJOR
45°
LEO MINOR
N.W.
HERCULES
CANES VENATICI
Cor Caroli
30°
N.E.
BOÖTES
45°
Hour XII
30°
N.
Hour XIV

2. NORTH


CASSIOPEIA
ANDROMEDA
Almach
TRIANGULUM
Hamal
ARIES
DRACO
CAMELOPARDALIS
Algol
PERSEUS
CETUS
Ecliptic
Pleiades
Dubhe
Merak
Capella
TAURUS
URSA MAJOR
AURIGA
Hyades
Solstitial Colure
Nath
Aldebaran
Equator
ERIDANUS
LYNX
Bellatrix
Castor
Rigel
Betelgeux
GEMINI
ORION
Pollux
N.E.
LEO
CANCER
CANIS MINOR
S.E.
Hour V
Procyon
Sirius
MONOCEROS
E.

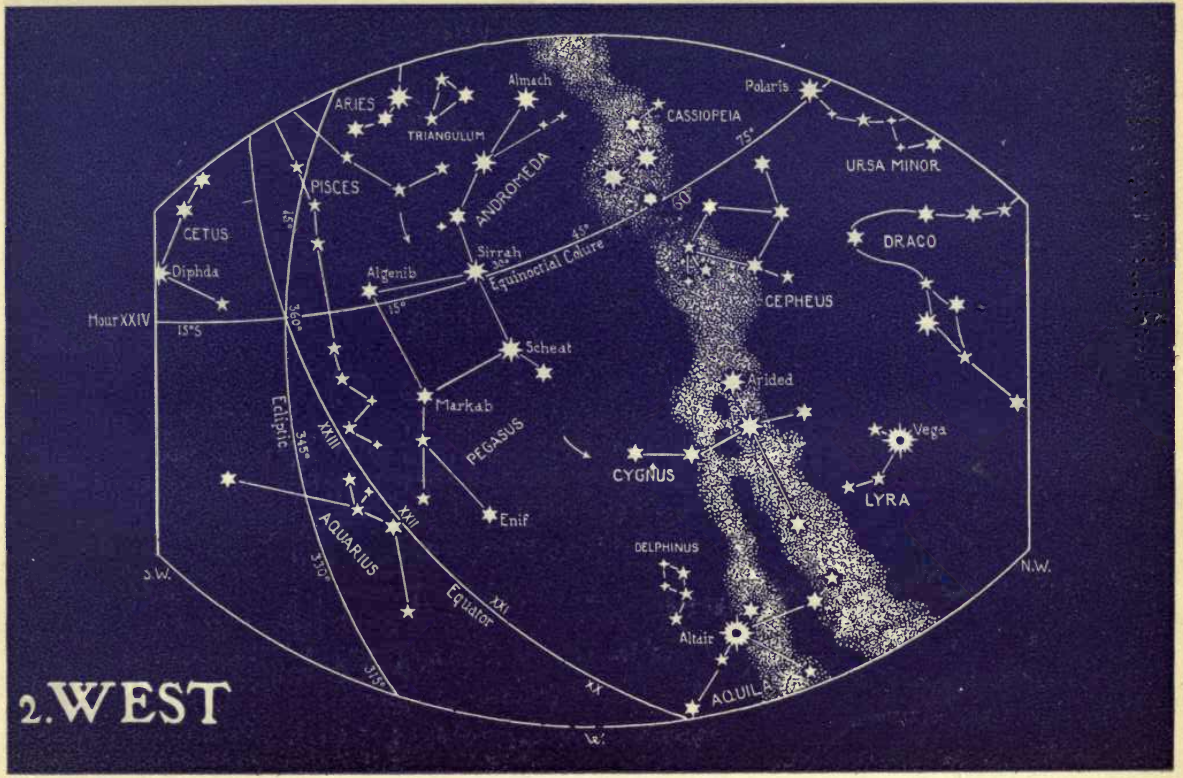
2. EAST

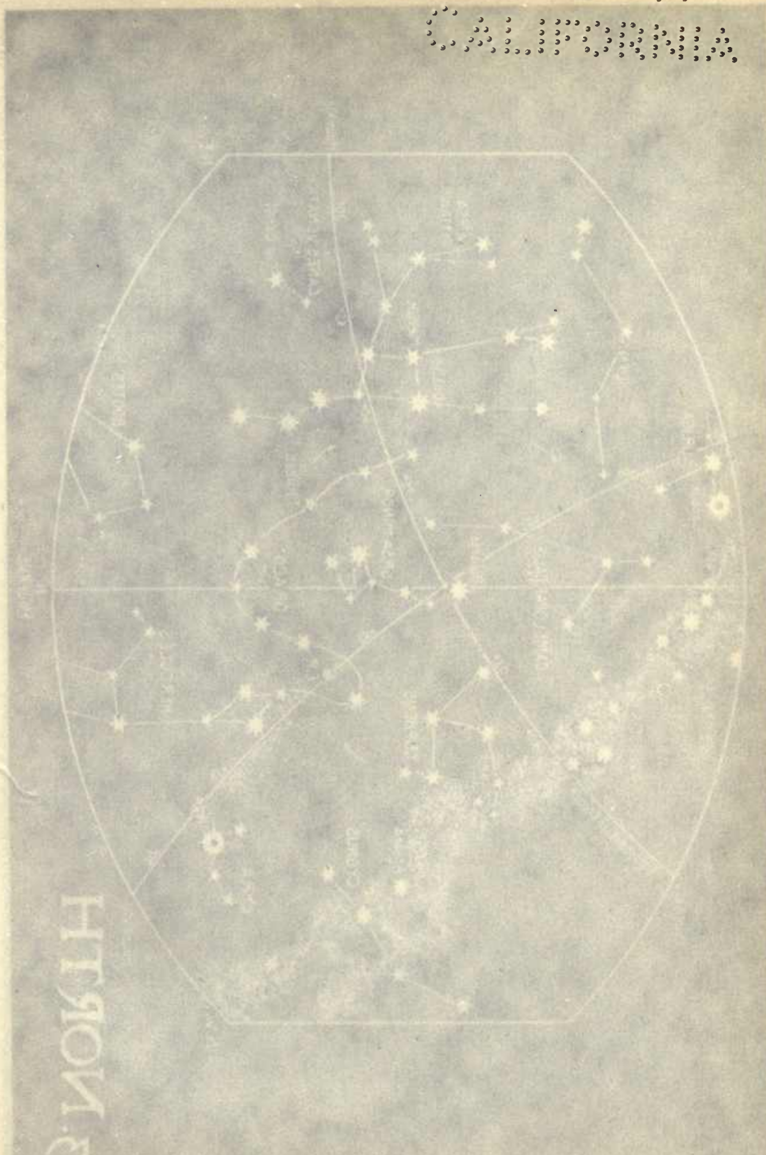
SOUTH

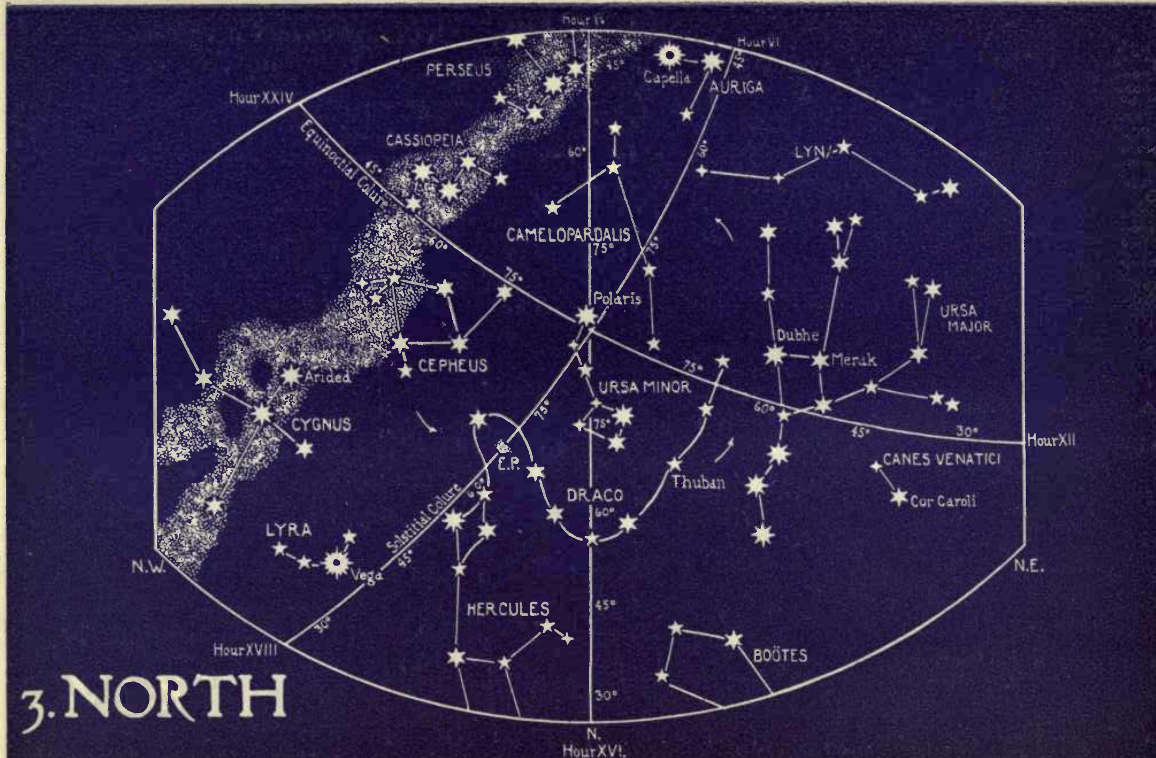

CASSIOPEIA
Capella
AURIGA
Nath
Algol
PERSEUS
ANDROMEDA
Scheat
Sirrah
PEGASUS
Markab
TRIANGULUM
Hamal
ARIES
Ecliptic
Betelgeux
Hyades
Pleiades
ORION
Aldebaran
Bellatrix
TAURUS
PISCES
Algenib
AQUARIUS
Rigel
Mira
ERIDANUS
CETUS
Diphda
LEPUS
S.E.
S.W.
Fomalhaut
PISCIS
AUSTRINUS
PHOENIX
Equator
S.
Hour II.

2. SOUTH

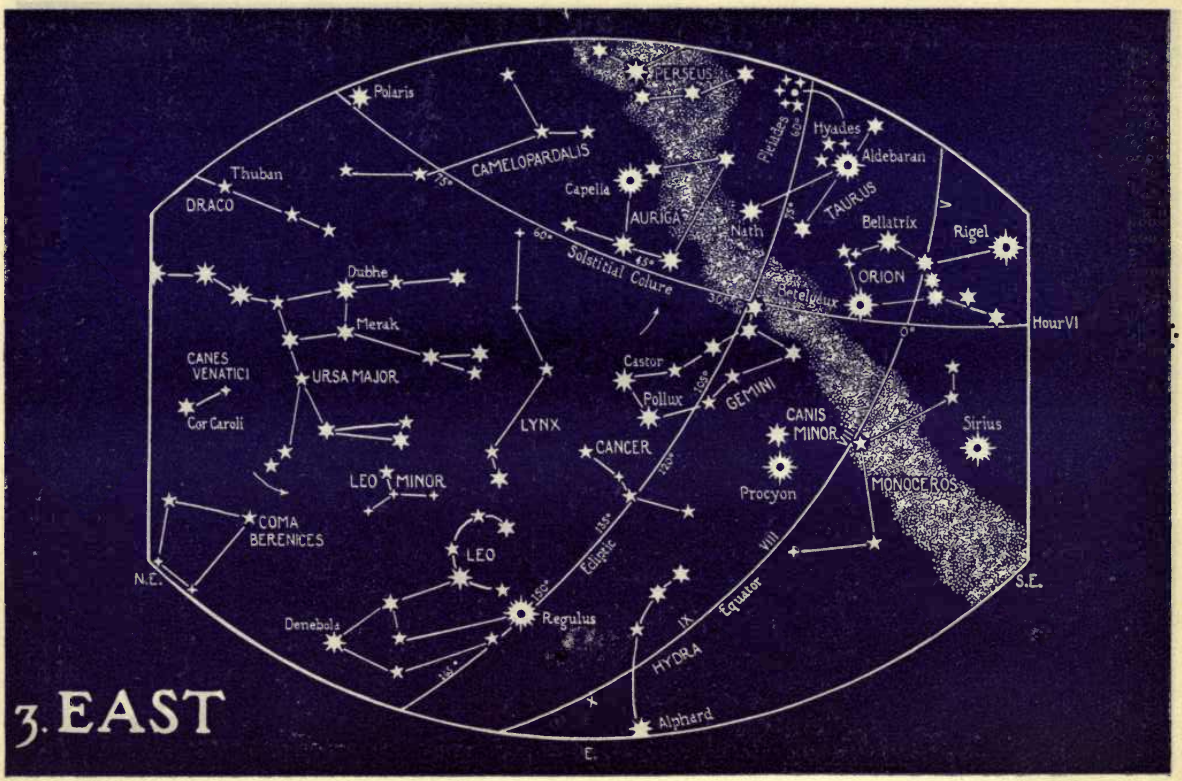
WEST


ARIES
TRIANGULUM
Almach
CASSIOPEIA
Polaris
URSA MINOR
PISCES
ANDROMEDA
CETUS
Diphda
Sirrah
Equinoctial Colure
Algenib
DRACO
CEPHEUS
Hour XXIV
15°S
Scheat
Arided
Markab
Ecliptic
PEGASUS
Vega
CYGNUS
LYRA
Enif
AQUARIUS
DELPHINUS
Equator
Altair
AQUILA
S.W.
N.W.
2. WEST



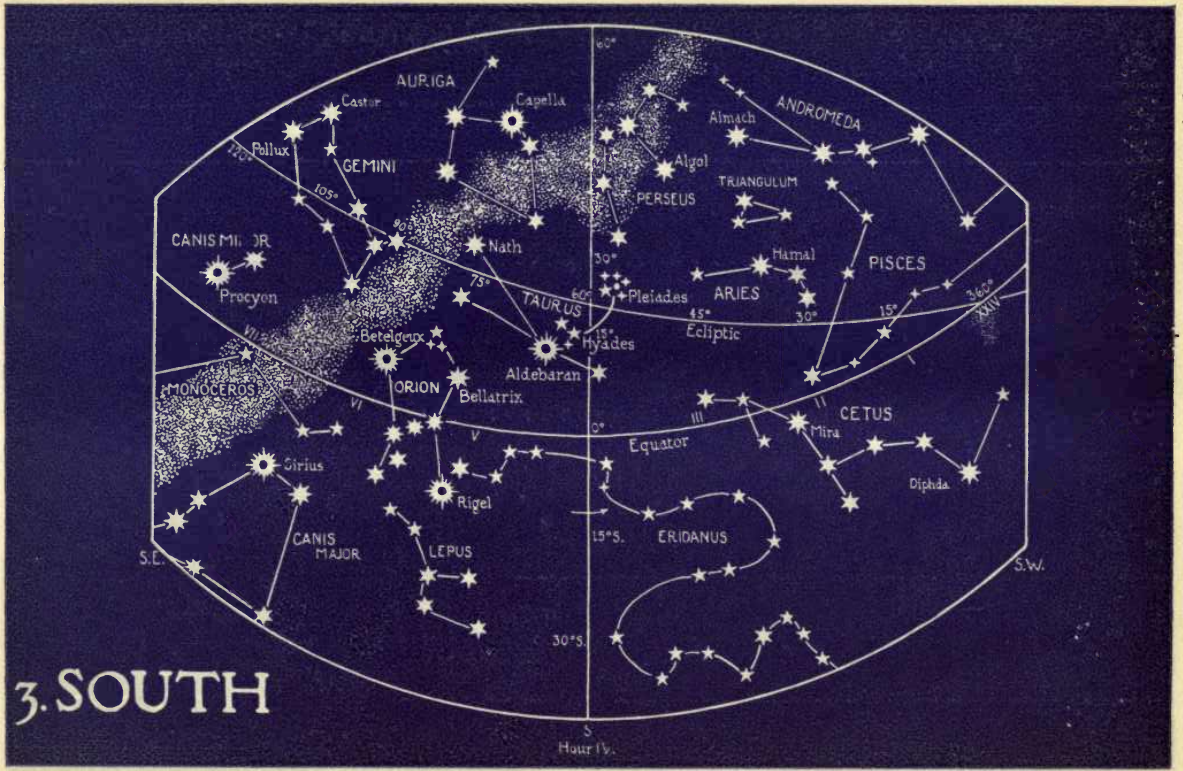

3. NORTH
Hour IV
Hour VI
Hour XXIV
Hour XII
Hour XVIII
N.
Hour XVI.
N.W.
N.E.
PERSEUS
CASSIOPEIA
Capella
AURIGA
LYNX
CAMELOPARDALIS
Polaris
Equinoctial Colure
Solstitial Colure
CEPHEUS
Arided
CYGNUS
LYRA
Vega
E.P.
DRACO
Thuban
URSA MINOR
Dubhe
Merak
URSA MAJOR
CANES VENATICI
Cor Caroli
HERCULES
BOÖTES

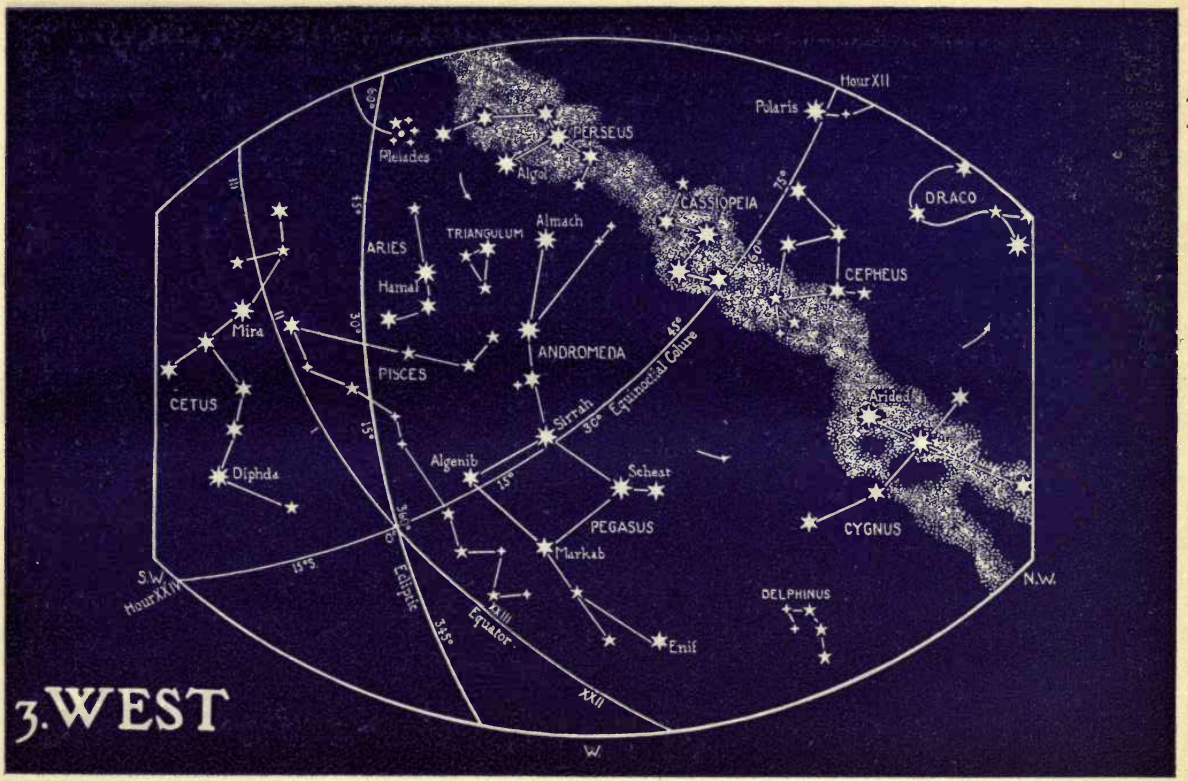
EAST

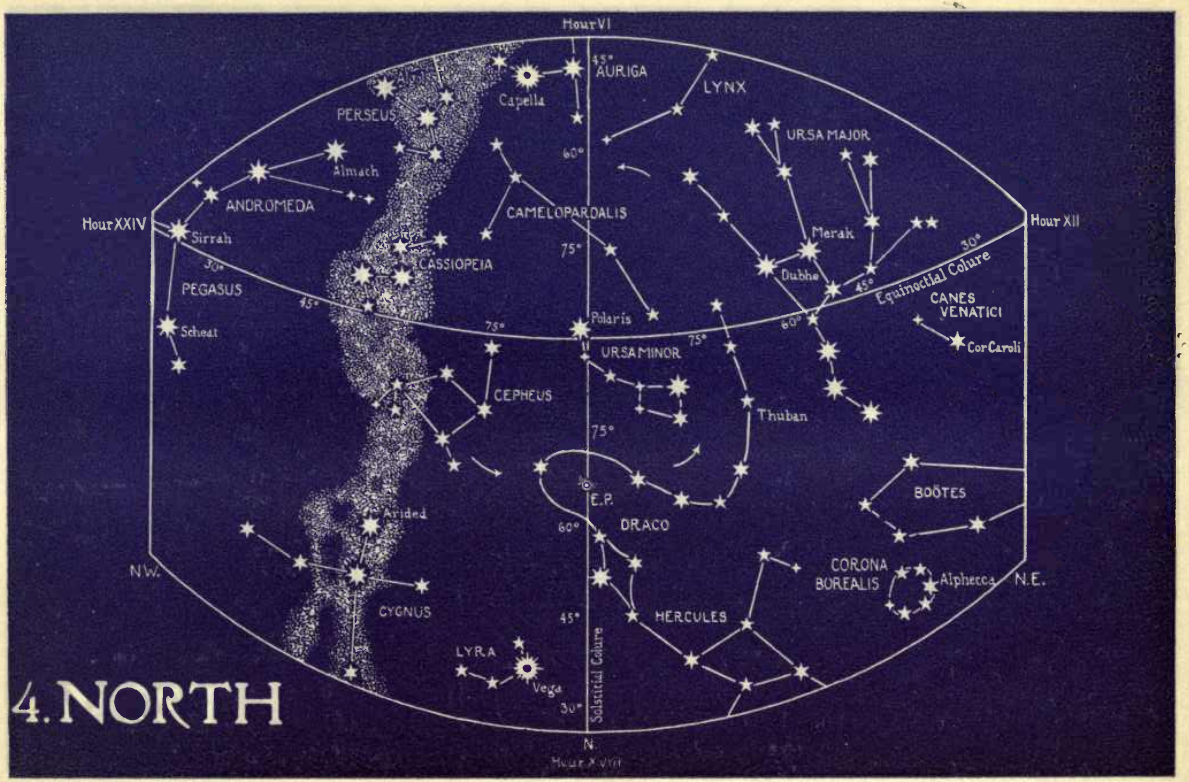

PERSEUS
Polaris
CAMELOPARDALIS
Thuban
DRACO
Capella
AURIGA
Pleiades
Hyades
Aldebaran
TAURUS
Nath
Bellatrix
Rigel
ORION
Solstitial Colure
Betelgeux
Hour VI
Dubhe
Merak
CANES VENATICI
URSA MAJOR
Cor Caroli
LYNX
Castor
Pollux
GEMINI
CANCER
CANIS MINOR
Procyon
Sirius
MONOCEROS
LEO MINOR
COMA BERENICES
LEO
Ecliptic
Equator
Regulus
Denebola
HYDRA
Alphard
N.E.
S.E.
E.

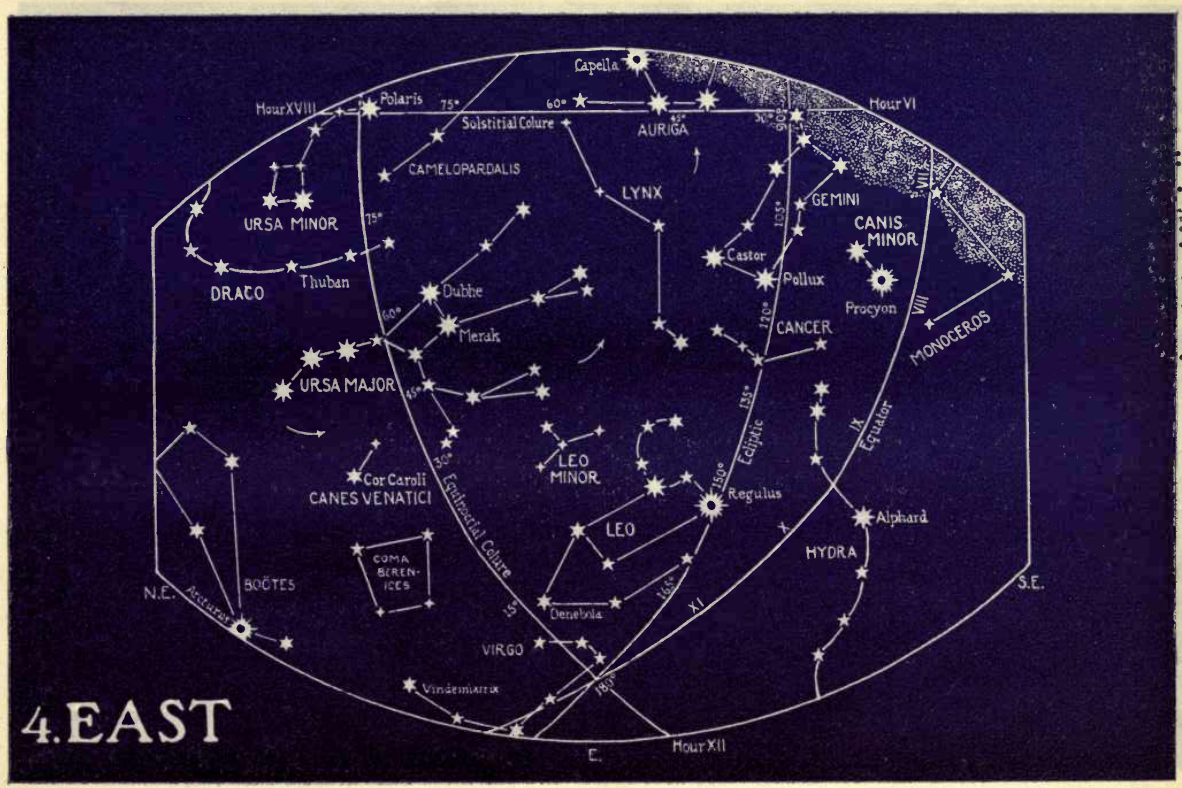
3. EAST

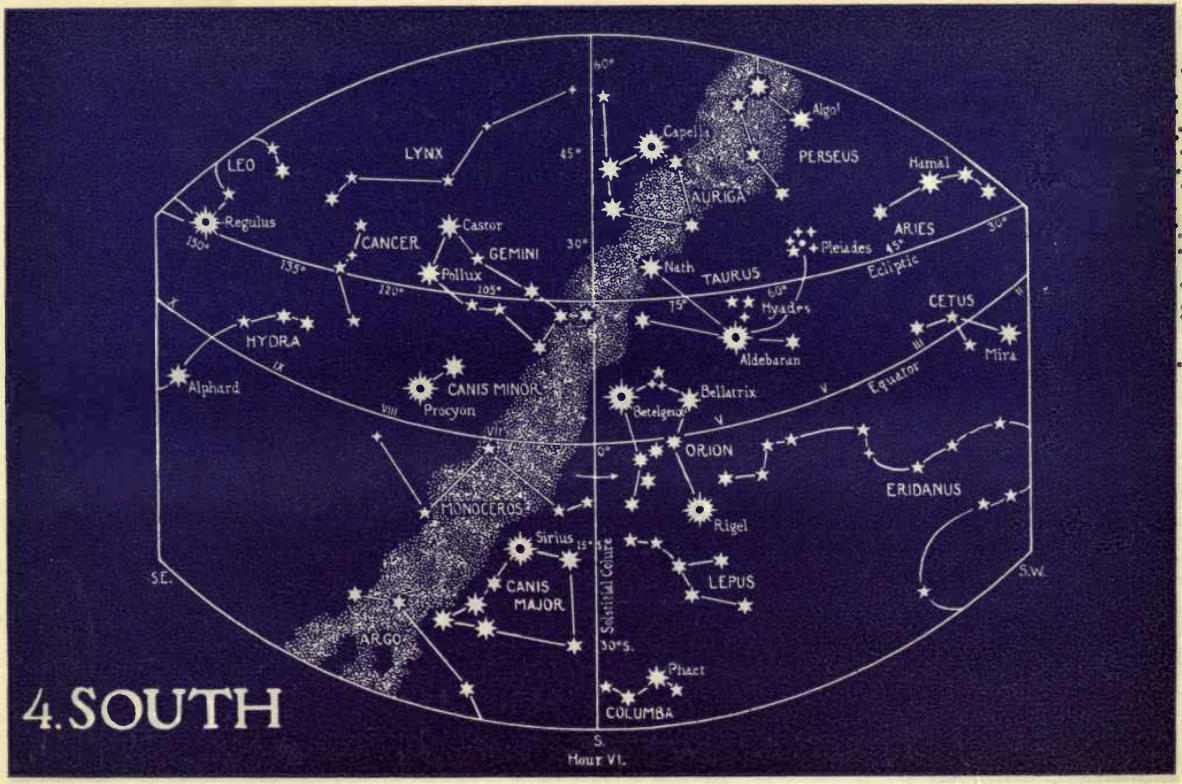
SOUTH

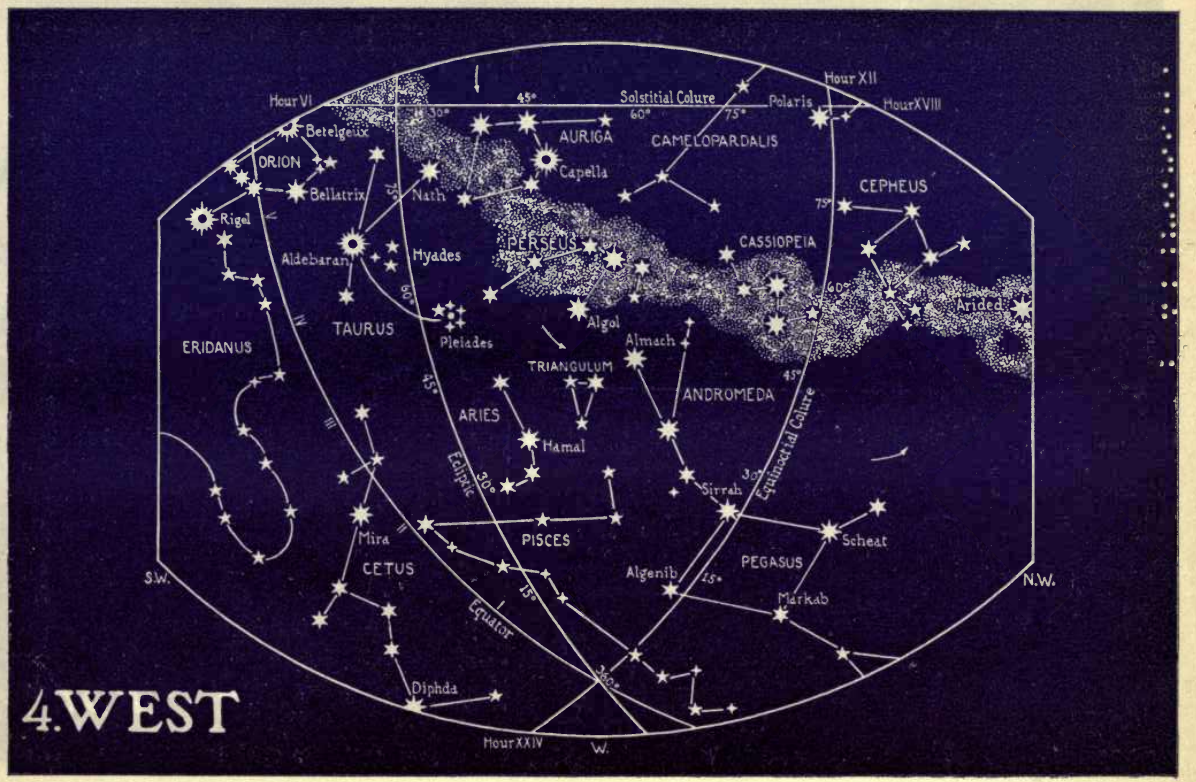

AURIGA
Capella
Castor
Pollux
GEMINI
120°
105°
90°
75°
60°
45°
30°
15°
0°
CANIS MINOR
Procyon
Nath
TAURUS
Pleiades
Hyades
Aldebaran
Betelgeux
ORION
Bellatrix
MONOCEROS
Sirius
CANIS MAJOR
Rigel
LEPUS
15°S.
30°S.
ERIDANUS
Equator
Ecliptic
ANDROMEDA
Almach
Algol
PERSEUS
TRIANGULUM
Hamal
ARIES
PISCES
CETUS
Mira
Diphda
S.E.
S.W.
S
Hour I'v.
3. SOUTH


Hour XII
Polaris
PERSEUS
Pleiades
Algol
CASSIOPEIA
DRACO
CEPHEUS
ARIES
TRIANGULUM
Almach
Hamal
Mira
ANDROMEDA
PISCES
CETUS
Sirrah
Equinoctial Colure
Arided
Diphda
Algenib
Scheat
PEGASUS
CYGNUS
Markab
Enif
DELPHINUS
S.W.
Hour XVIII
Ecliptic
Equator
N.W.
W
3. WEST

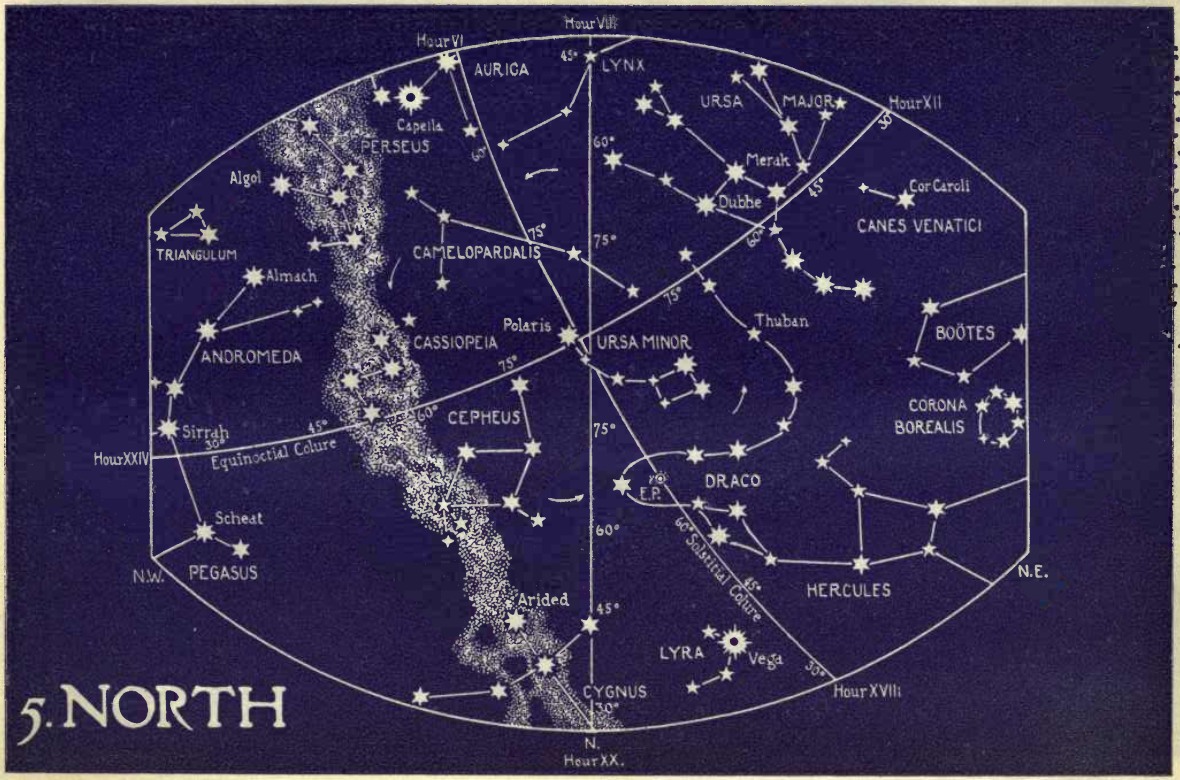

Hour VI
AURIGA
LYNX
PERSEUS
Capella
URSA MAJOR
Almach
ANDROMEDA
CAMELOPARDALIS
Hour XXIV
Sirrah
Merak
Hour XII
CASSIOPEIA
Dubhe
Equinoctial Colure
PEGASUS
CANES VENATICI
Scheat
Polaris
Cor Caroli
URSA MINOR
CEPHEUS
Thuban
E.P.
BOÖTES
Arided
DRACO
CORONA BOREALIS
Alphecca
N.W.
N.E.
CYGNUS
HERCULES
LYRA
Vega
Solstitial Colure
N.
Hour XVIII
4. NORTH


Capella
Hour XVIII
Polaris
75°
60°
Hour VI
Solstitial Colure
AURIGA
45°
30°
CAMELOPARDALIS
LYNX
GEMINI
CANIS MINOR
URSA MINOR
75°
105°
Castor
Pollux
Procyon
DRACO
Thuban
Dubhe
60°
120°
CANCER
MONOCEROS
Merak
URSA MAJOR
45°
135°
Ecliptic
Equator
30°
LEO MINOR
Cor Caroli
CANES VENATICI
Regulus
Alphard
LEO
HYDRA
COMA BERENICES
BOÖTES
N.E.
Arcturus
Equinoctial Colure
150°
165°
Denebola
XI
S.E.
VIRGO
Vindemiatrix
180°
E.
Hour XII
4. EAST

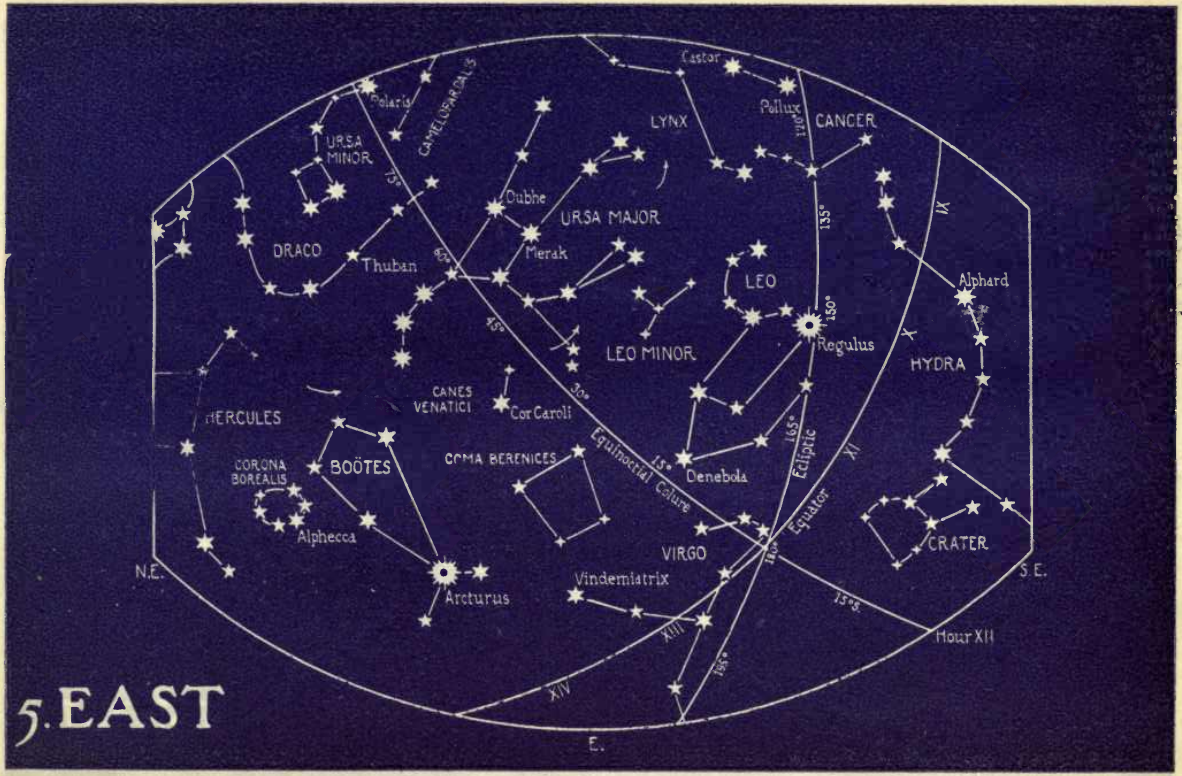

4. SOUTH
LEO
LYNX
Regulus
CANCER
Castor
GEMINI
Pollux
HYDRA
Alphard
CANIS MINOR
Procyon
MONOCEROS
Sirius
CANIS MAJOR
ARGO
Capella
Algol
PERSEUS
Hamal
AURIGA
ARIES
Pleiades
Nath
TAURUS
Ecliptic
Hyades
Aldebaran
CETUS
Mira
Equator
Bellatrix
Betelgeux
ORION
ERIDANUS
Rigel
LEPUS
Solstitial Colure
30°S.
Phact
COLUMBA
S.E.
S.W.
S.
Hour VI.


Hour VI
Hour XII
Hour XVIII
Hour XXIV
Solstitial Colure
Polaris
Betelgeux
ORION
Bellatrix
Rigel
Aldebaran
Hyades
Nath
AURIGA
Capella
CAMELOPARDALIS
CEPHEUS
PERSEUS
CASSIOPEIA
Arided
Algol
Pleiades
TAURUS
ERIDANUS
TRIANGULUM
Almach
ANDROMEDA
ARIES
Hamal
Equinoctial Colure
Sirrah
Ecliptic
Mira
CETUS
PISCES
Scheat
Algenib
PEGASUS
Markab
Equator
Diphda
S.W.
N.W.
W.
4.WEST

ЗИМНЯЯ НОЧЬ

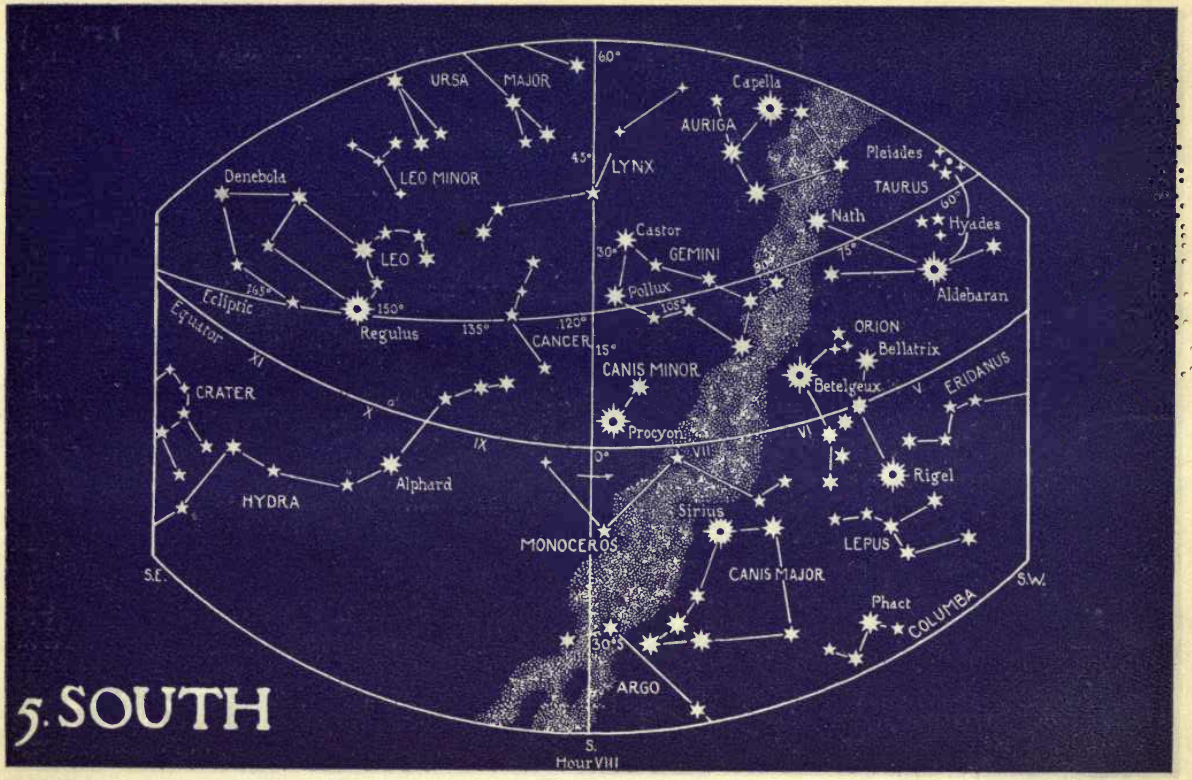

Hour VI
Hour VII
Hour XII
Hour XXIV
Hour XVIII
Hour XX.
AURIGA
LYNX
URSA MAJOR
Capella
PERSEUS
Algol
Merak
Dubhe
Cor Caroli
CANES VENATICI
TRIANGULUM
CAMELOPARDALIS
Almach
Polaris
Thuban
ANDROMEDA
CASSIOPEIA
URSA MINOR
BOÖTES
CEPHEUS
CORONA BOREALIS
Sirrah
Equinoctial Colure
DRACO
E.P.
Scheat
PEGASUS
60° Solstitial Colure
HERCULES
N.W.
N.E.
Arided
LYRA
Vega
CYGNUS
N.
45°
60°
75°
30°

5. NORTH


Castor
Pollux
Polaris
CAMELOPARDALIS
LYNX
CANCER
URSA MINOR
Dubhe
URSA MAJOR
DRACO
Thuban
Merak
LEO
Alphard
Regulus
LEO MINOR
HYDRA
CANES VENATICI
Cor Caroli
HERCULES
CORONA BOREALIS
BOÖTES
COMA BERENICES
Denebola
Equinoctial Colure
Ecliptic
Equator
Alphecca
VIRGO
CRATER
Vindemiatrix
Arcturus
N.E.
S.E.
E.
Hour XII
15°
30°
45°
60°
75°
90°
105°
120°
135°
150°
165°
180°
195°
XI
X
XII
XIII
XIV

5. EAST

SOUTH

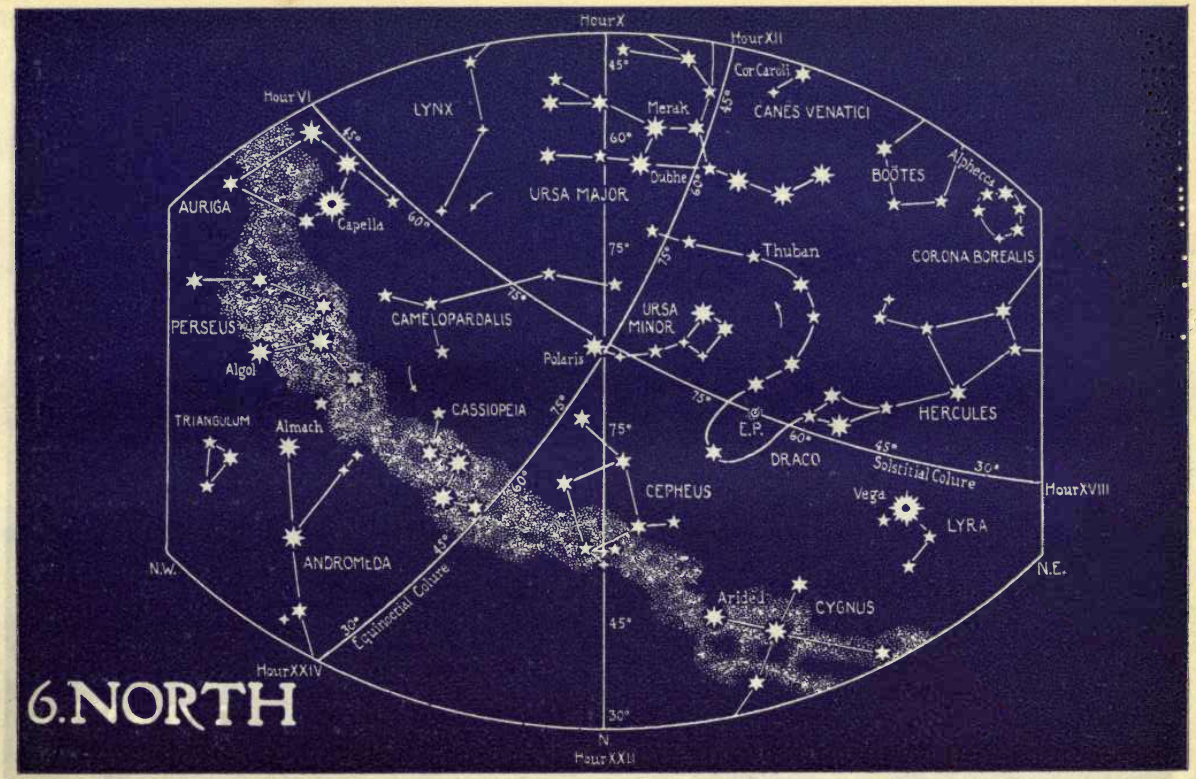

URSA MAJOR
Capella
AURIGA
60°
45°
LYNX
Pleiades
TAURUS
Denebola
LEO MINOR
Nath
Hyades
60°
Castor
30°
GEMINI
75°
LEO
90°
Aldebaran
165°
Ecliptic
150°
Pollux
105°
Regulus
135°
120°
CANCER
ORION
Bellatrix
15°
CANIS MINOR
Equator
XI
Betelgeux
ERIDANUS
CRATER
X
V
Procyon
VI
IX
0°
VII
Alphard
Rigel
HYDRA
Sirius
MONOCEROS
LEPUS
S.E.
CANIS MAJOR
S.W.
Phact
COLUMBA
30°S
ARGO
S.
Hour VIII

5. SOUTH

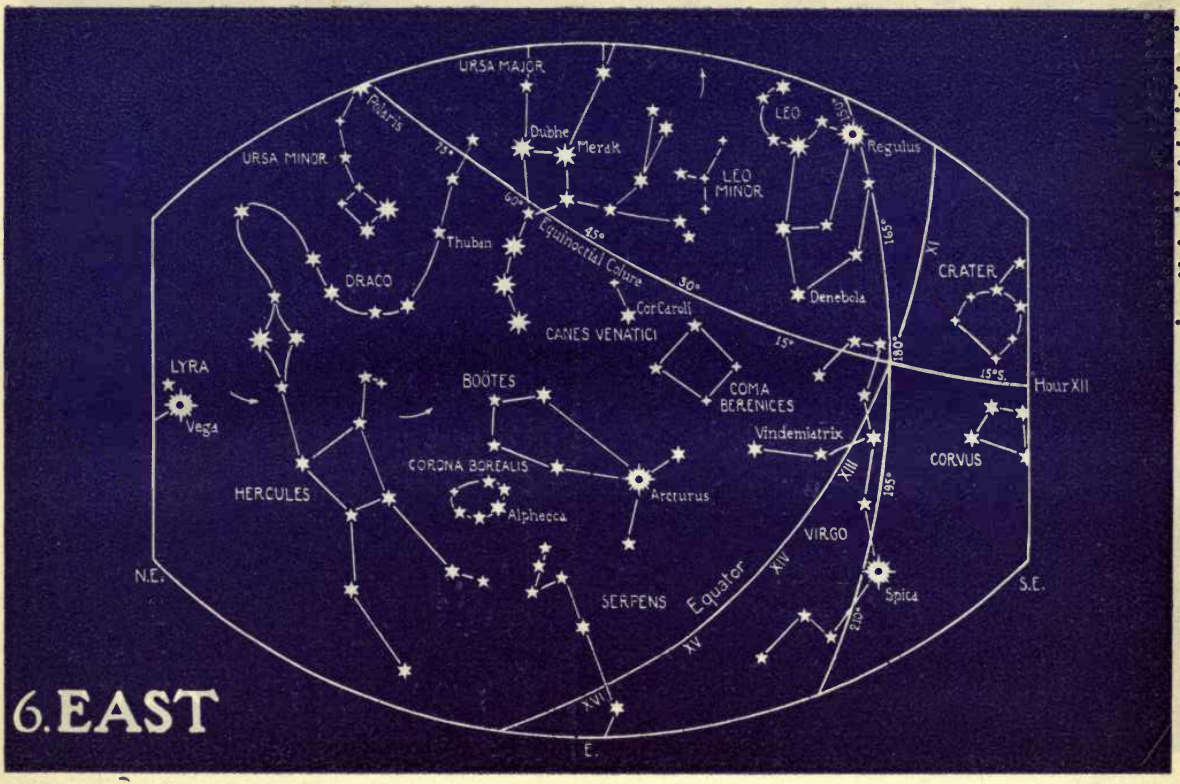
WEST


Hour XVIII
Procyon
Pollux
Castor
LYNX
Polaris
CANIS MINOR
GEMINI
Solstitial Colure
Sirius
CAMELOPARDALIS
CEPHEUS
MONOCEROS
Capella
CASSIOPEIA
Hour VI
Betelgeux
ORION
Nath
AURIGA
Bellatrix
Algol
Rigel
Hyades
PERSEUS
Almach
ANDROMEDA
Aldebaran
Scheat
LEPUS
Pleiades
TRIANGULUM
Sirrah
ERIDANUS
TAURUS
Hamal
S.W.
ARIES
PEGASUS
N.W.
Ecliptic
Algenib
PISCES
CETUS
Equator
Mira
W.

5. WEST

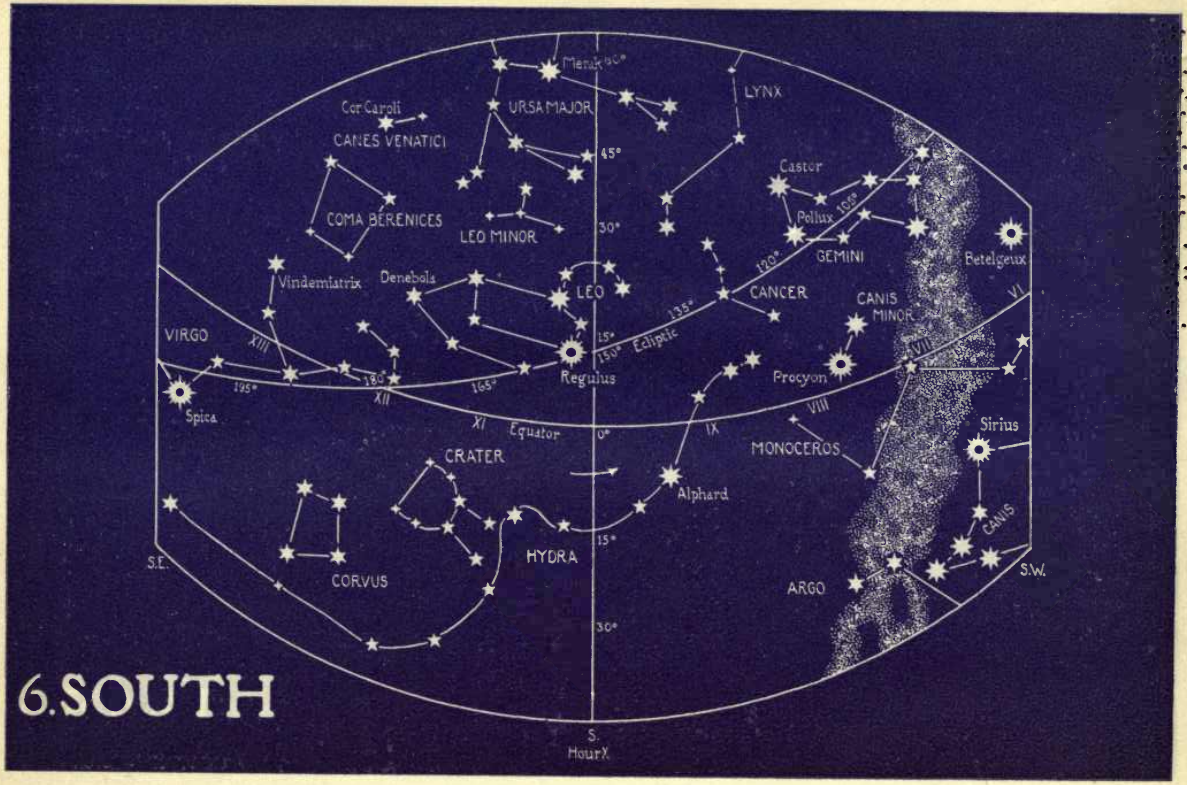

Hour X
Hour XII
Hour VI
Hour XVIII
Hour XXIV
Hour XXII
N.W.
N.E.
N
LYNX
Merak
Cor Caroli
CANES VENATICI
URSA MAJOR
Dubhe
BOÖTES
Alphecca
AURIGA
Capella
Thuban
CORONA BOREALIS
CAMELOPARDALIS
URSA MINOR
PERSEUS
Polaris
Algol
CASSIOPEIA
HERCULES
TRIANGULUM
Almach
E.P.
DRACO
Solstitial Colure
CEPHEUS
Vega
LYRA
ANDROMEDA
Equinoctial Colure
Aridel
CYGNUS
45°
60°
75°
30°

6. NORTH


URSA MAJOR
Polaris
Dubhe
Merak
LEO
Regulus
URSA MINOR
LEO MINOR
75°
90°
45°
Equinoctial Colure
Thuban
DRACO
30°
Denebola
CRATER
CorCaroli
CANES VENATICI
165°
XI
15°
180°
15°S.
Hour XII
LYRA
Vega
BOÖTES
COMA BERENICES
Vindemiatrix
CORVUS
CORONA BOREALIS
Arcturus
XIII
195°
HERCULES
Alphecca
VIRGO
Equator
XIV
Spica
N.E.
S.E.
SERPENS
XV
210°
XVI
E.

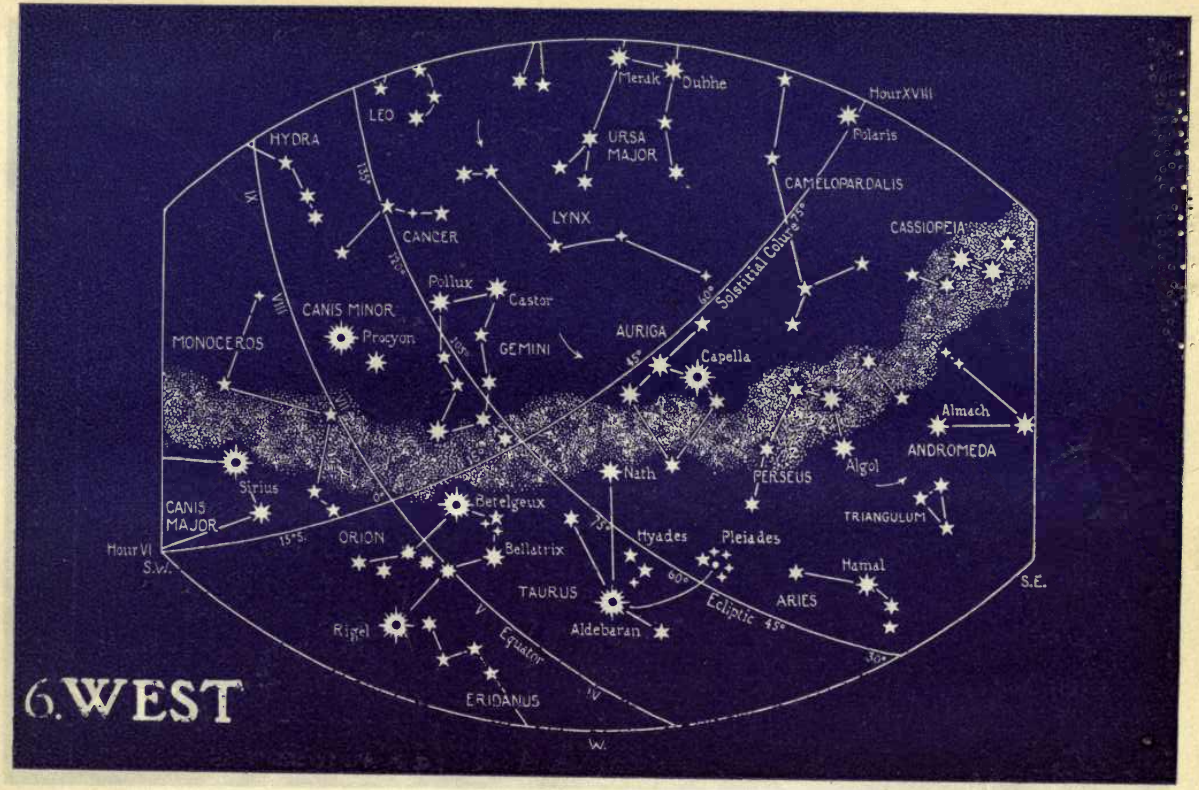
6. EAST

SOUTH


Meridian
Cor Caroli
CANES VENATICI
URSA MAJOR
LYNX
45°
Castor
COMA BERENICES
LEO MINOR
30°
Pollux
100°
120°
GEMINI
Betelgeux
Vindemiatrix
Denebola
LEO
CANCER
135°
CANIS MINOR
VI
VIRGO
XIII
15°
150° Ecliptic
Regulus
Procyon
VII
180°
195°
165°
XII
Spica
XI Equator
0°
IX
VIII
Sirius
CRATER
MONOCEROS
Alphard
15°
HYDRA
CANIS
S.E.
CORVUS
ARGO
S.W.
30°
S.
Hour X

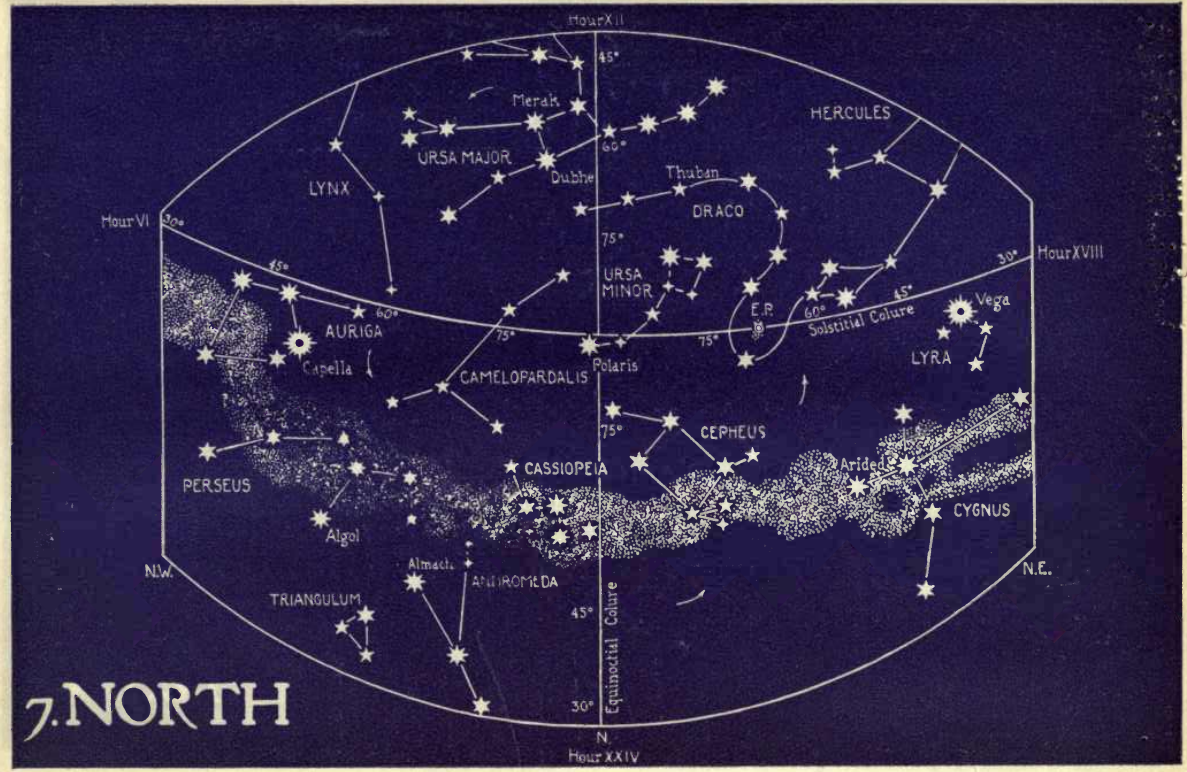
6. SOUTH

WEST

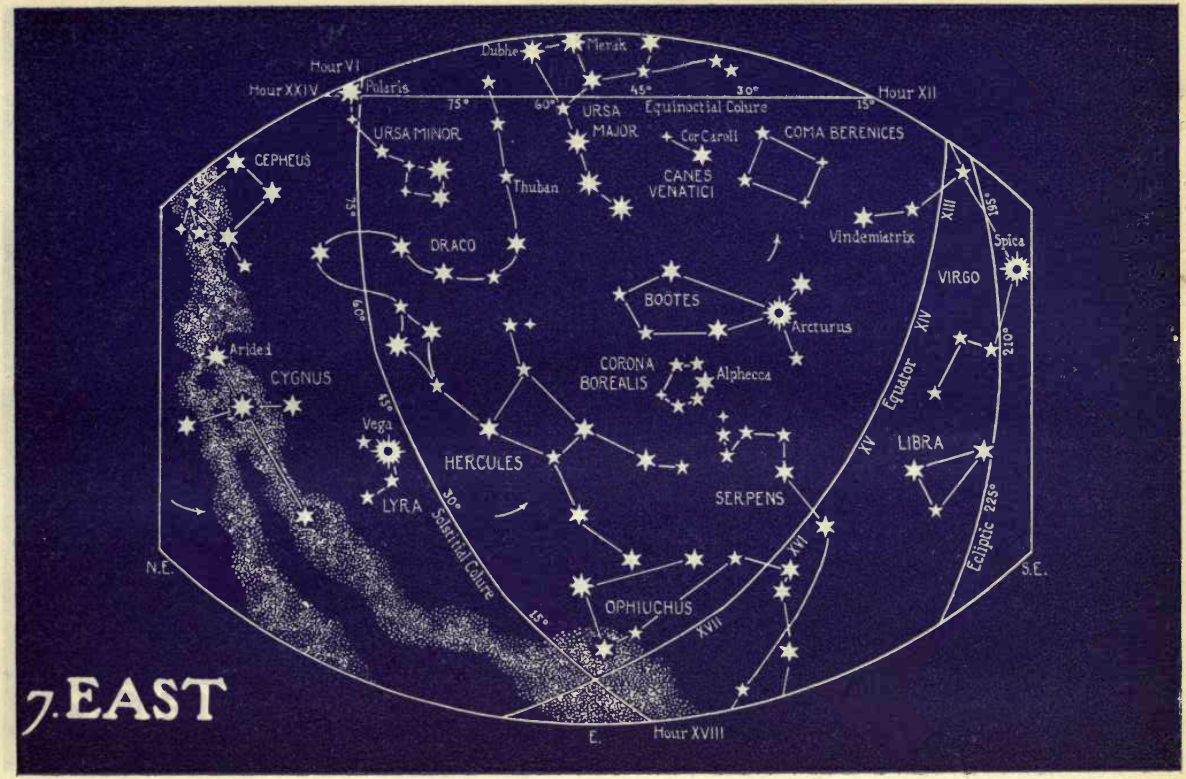

Merak
Dubhe
Hour XVIII
LEO
HYDRA
URSA MAJOR
Polaris
CAMELOPARDALIS
LYNX
CASSIOPEIA
CANCER
Solstitial Colure
Pollux
Castor
CANIS MINOR
MONOCEROS
Procyon
GEMINI
AURIGA
Capella
Almach
ANDROMEDA
Nath
PERSEUS
Algol
Sirius
Rerelgeux
CANIS MAJOR
TRIANGULUM
Hour VI
S.W.
ORION
Bellatrix
Hyades
Pleiades
Hamal
TAURUS
ARIES
Ecliptic
S.E.
Rigel
Aldebaran
Equator
ERIDANUS
W.

6. WEST

ЗИМНЯЯ

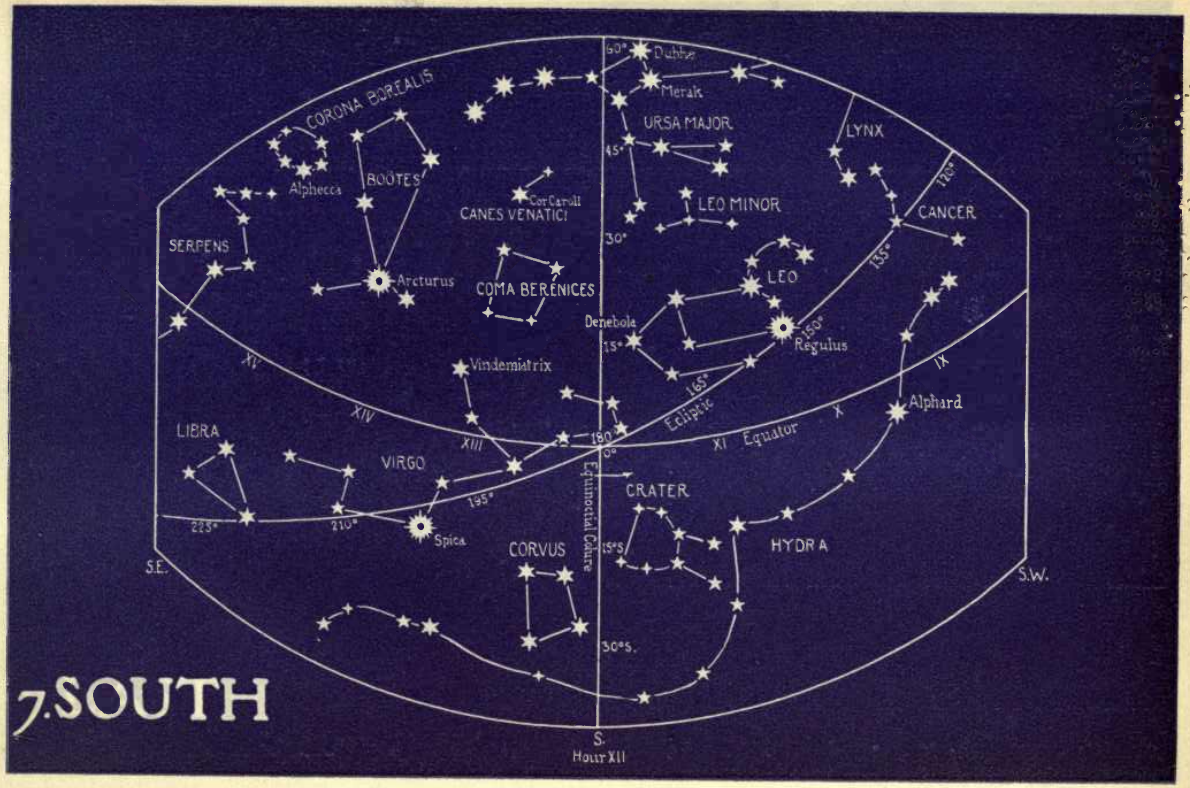

Hour XII
45°
Merak
URSA MAJOR
Dubhe
60°
HERCULES
LYNX
Thuban
DRACO
Hour VI
30°
75°
URSA MINOR
45°
Hour XVIII
30°
E.P.
60°
45°
Solstitial Colure
Vega
60°
AURIGA
75°
75°
LYRA
Capella
Polaris
CAMELOPARDALIS
75°
CEPHEUS
CASSIOPEIA
Aridel
PERSEUS
CYGNUS
Algol
N.W.
N.E.
Almach
ANDROMEDA
TRIANGULUM
45°
Equinoctial Colure
30°
N.
Hour XXIV

7. NORTH

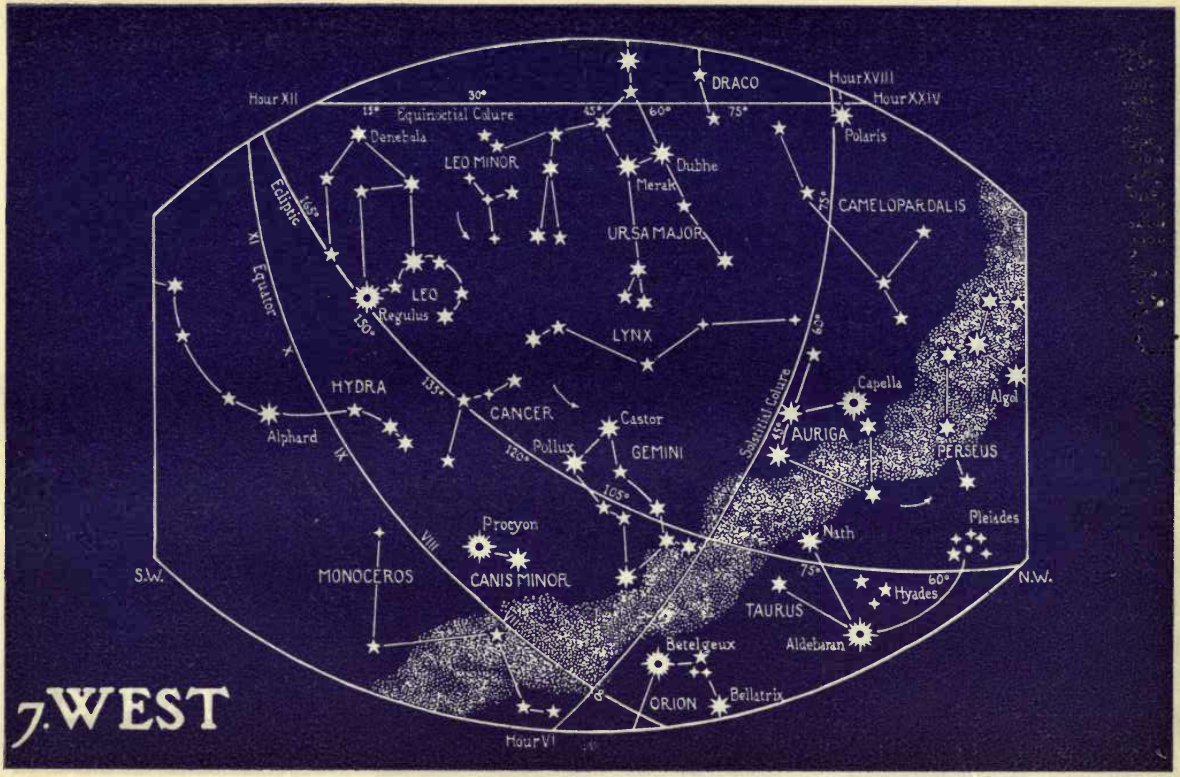

Hour VI
Hour XXIV
Polaris
Dubhe
Merak
75°
60°
URSA MINOR
URSA MAJOR
45°
30°
Equinoctial Colure
Hour XII
15°
Cor Caroli
COMA BERENICES
CEPHEUS
Thuban
CANES VENATICI
Vindemiatrix
XIII
135°
Spica
VIRGO
DRACO
BOOTES
Arcturus
Aridei
CYGNUS
CORONA BOREALIS
Alphecca
Equator
XIV
210°
Vega
HERCULES
LIBRA
LYRA
SERPENS
Solstitial Colure
XV
Ecliptic 23½°
N.E.
S.E.
OPHIUCHUS
XVI
XVII
E.
Hour XVIII

7. EAST

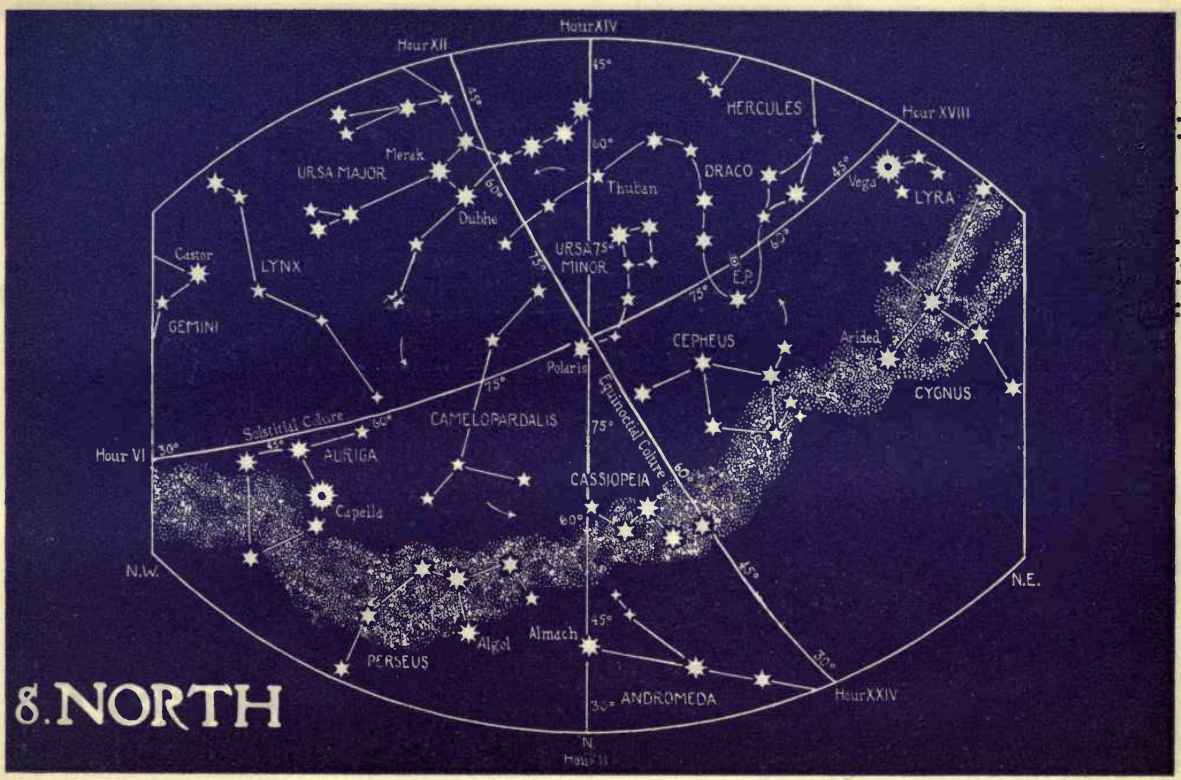
SOUTH


7. SOUTH
CORONA BOREALIS
Alphecca
BOÖTES
Arcturus
SERPENS
Cor Caroli
CANES VENATICI
COMA BERENICES
Vindemiatrix
LIBRA
VIRGO
Spica
CORVUS
CRATER
HYDRA
Alphard
Regulus
Denebola
LEO
LEO MINOR
URSA MAJOR
Dubhe
Merak
LYNX
CANCER
Ecliptic
Equator
Equinoctial Colure
90°
45°
30°
15°
0°
15°S.
30°S.
120°
135°
150°
165°
180
195°
210°
225°
XI
X
IX
XIII
XIV
XV
S.E.
S.W.
S.
Hour XII

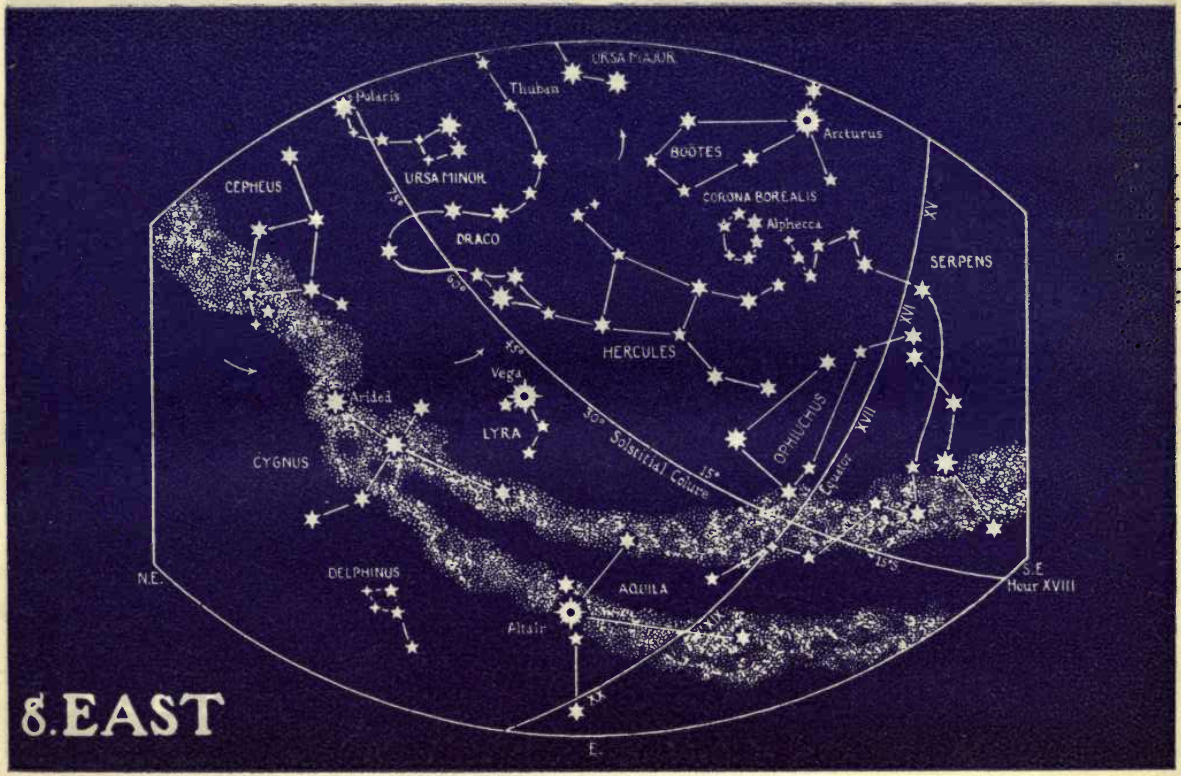
WEST


Hour XII
Hour XVIII
Hour XXIV
Hour VI
30°
15°
45°
60°
75°
Equinoctial Colure
DRACO
Polaris
Denebola
LEO MINOR
Dubhe
Merak
URSA MAJOR
CAMELOPARDALIS
Ecliptic
165°
XI
Equator
X
LEO
Regulus
150°
LYNX
HYDRA
135°
Alphard
CANCER
Castor
Pollux
GEMINI
120°
105°
Solstitial Colure
90°
Capella
AURIGA
Algol
PERSEUS
Pleiades
Nath
Hyades
TAURUS
Aldebaran
Procyon
CANIS MINOR
MONOCEROS
VIII
IX
Betelgeux
ORION
Bellatrix
S.W.
N.W.

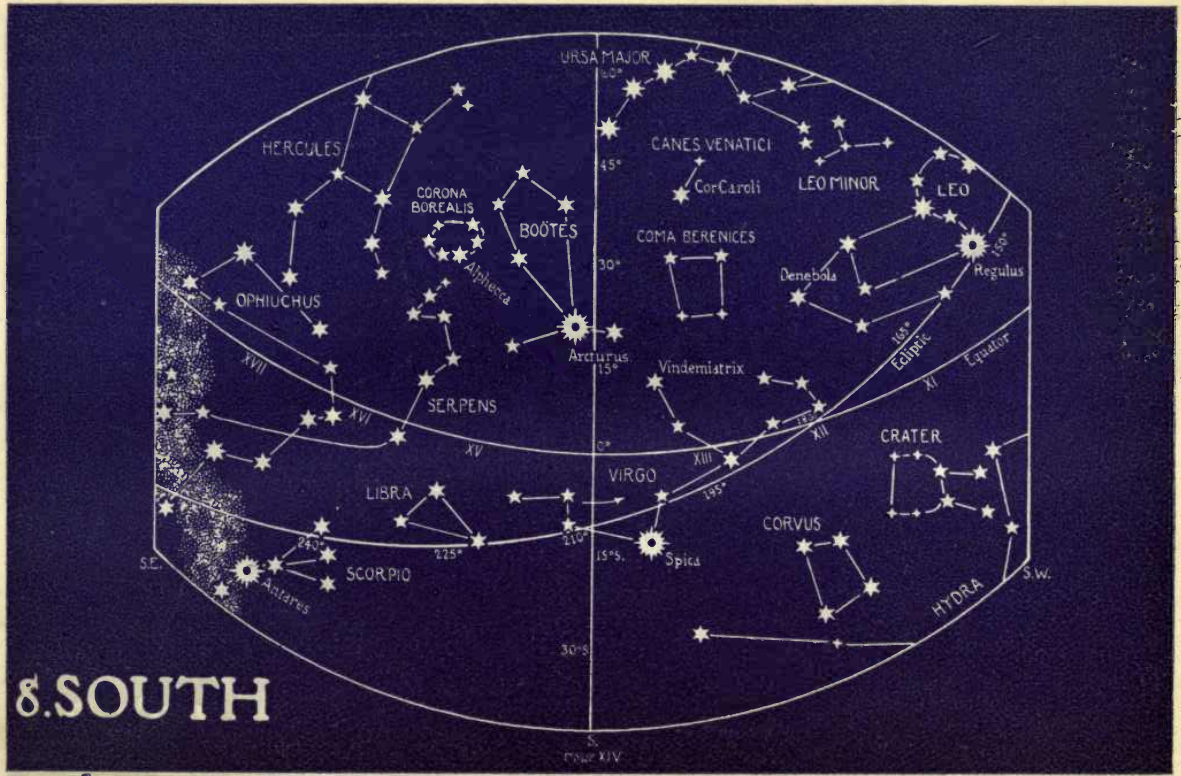
7. WEST


Hour XII
Hour XIV
Hour XVIII
Hour VI
Hour XXIV
N.W.
N.E.
N
HERCULES
URSA MAJOR
Merak
Dubhe
Thuban
DRACO
Vega
LYRA
Castor
LYNX
GEMINI
URSA MINOR
E.P.
CEPHEUS
Polaris
Arided
CYGNUS
Solstitial Colure
Equinoctial Colure
CAMELOPARDALIS
AURIGA
Capella
CASSIOPEIA
PERSEUS
Algol
Almach
ANDROMEDA
45°
60°
75°
30°

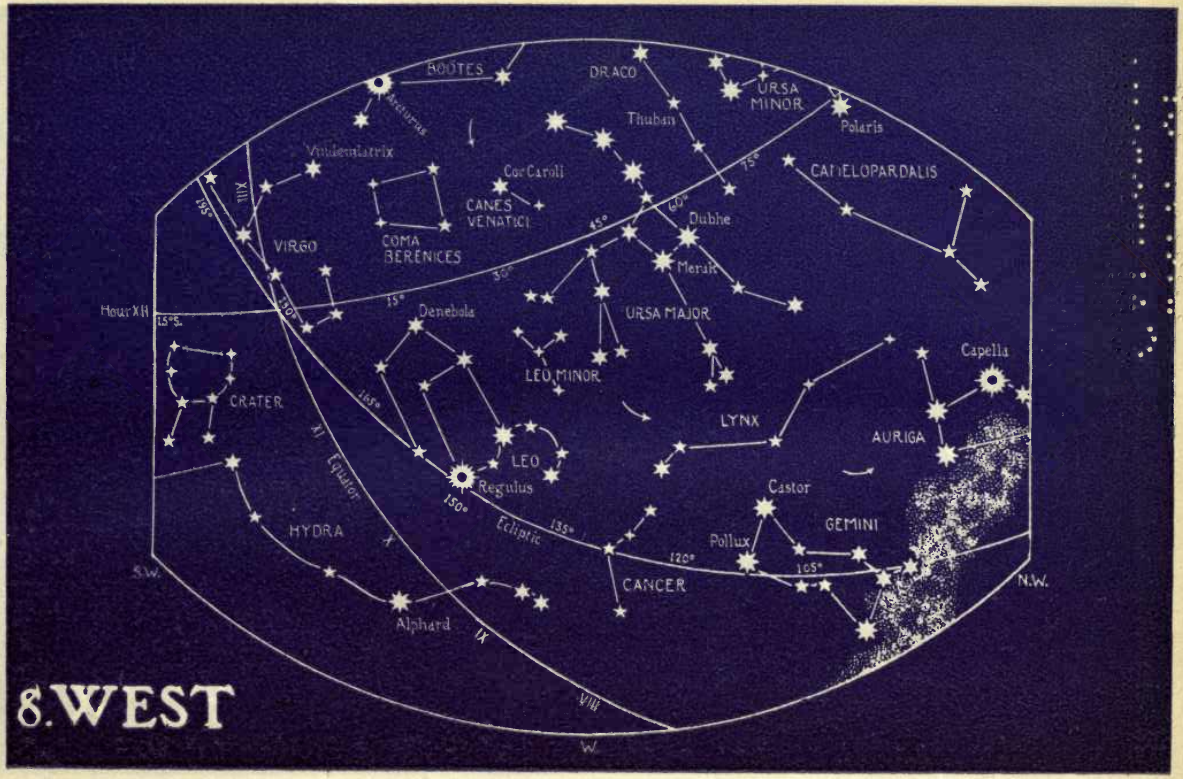
8. NORTH

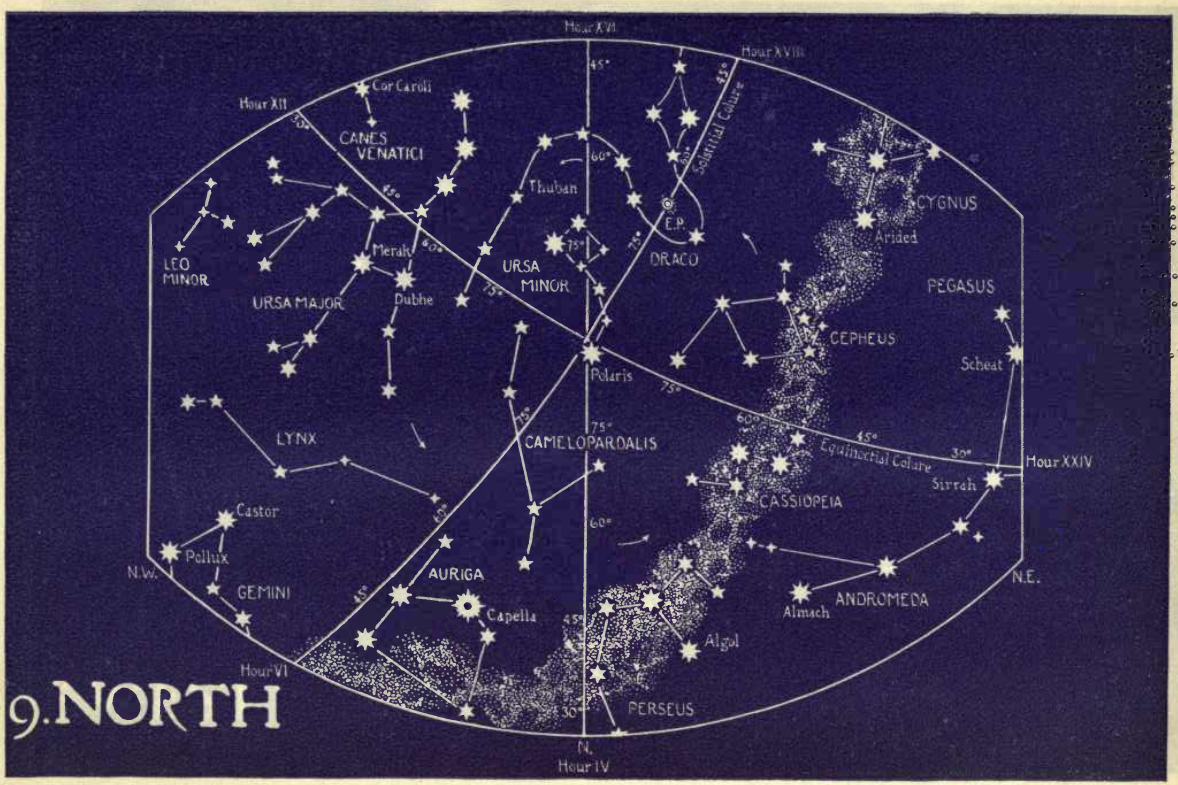

URSA MAJOR
Thuban
Polaris
Arcturus
BOÖTES
CEPHEUS
URSA MINOR
CORONA BOREALIS
Alphecca
DRACO
SERPENS
HERCULES
Vega
Aridel
LYRA
CYGNUS
OPHIUCHUS
Solstitial Colure
Equator
DELPHINUS
AQUILA
Altair
N.E.
S.E.
Hour XVIII
E.
8. EAST

SOUTH


URSA MAJOR
HERCULES
CANES VENATICI
CorCaroli
LEO MINOR
LEO
CORONA BOREALIS
BOÖTES
COMA BERENICES
Alphecca
Denebola
Regulus
OPHIUCHUS
Arcturus
Vindemiatrix
Ecliptic
Equator
SERPENS
CRATER
VIRGO
LIBRA
CORVUS
Spica
SCORPIO
Antares
HYDRA
S.E.
S.W.
S.
45°
30°
15°
0°
15°S.
30°S.
135°
150°
165°
180°
195°
210°
225°
240°
XVII
XVI
XV
XIII
XII
XI

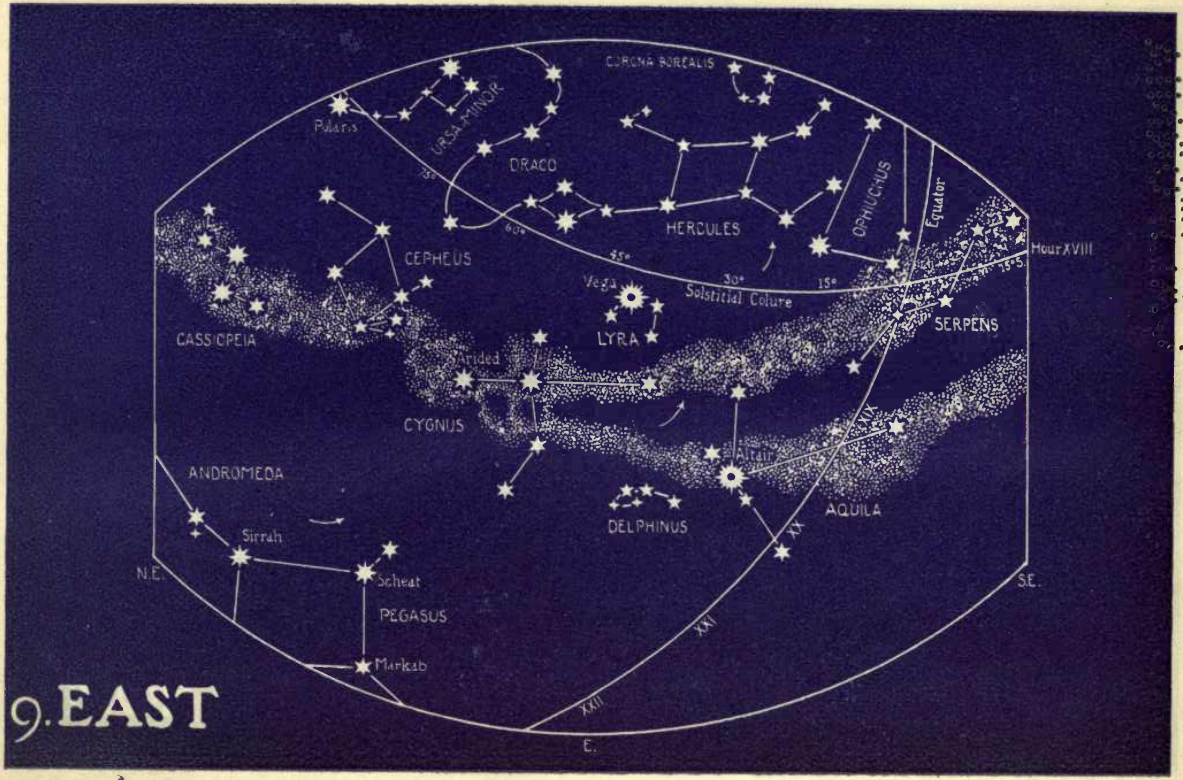
8. SOUTH

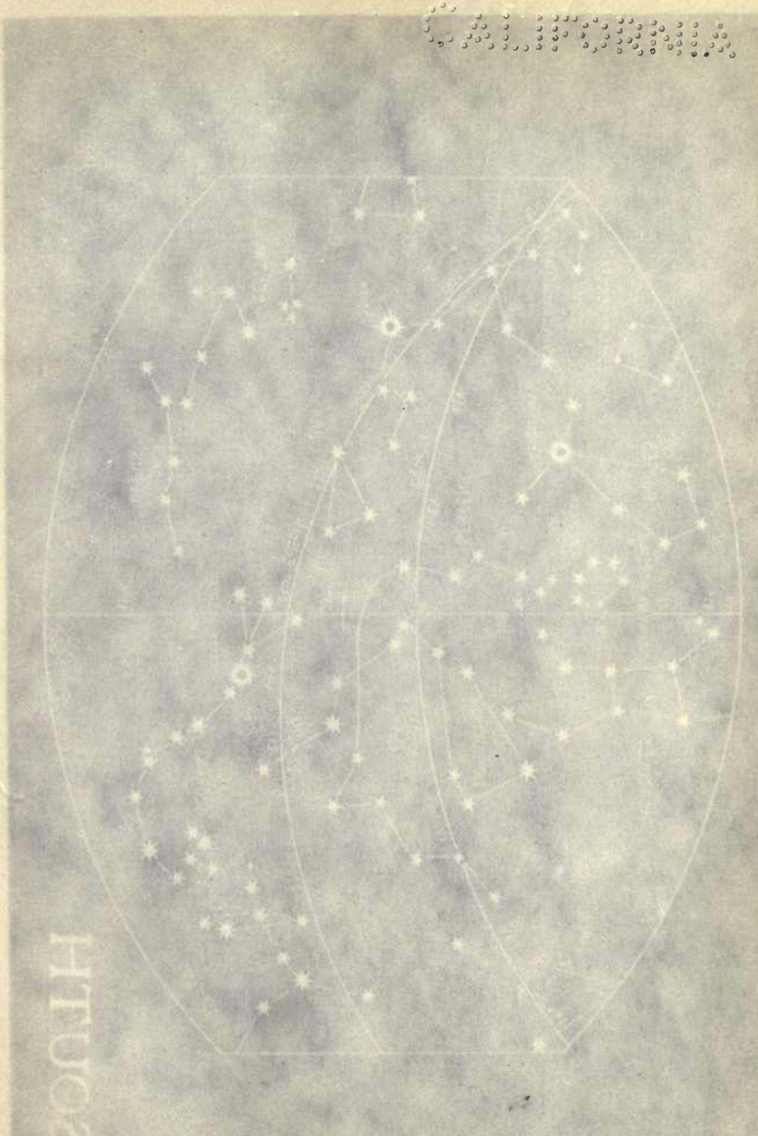

BOÖTES
Arcturus
DRACO
Thuban
URSA MINOR
Polaris
Vindemiatrix
Cor Caroli
CANES VENATICI
CAMELOPARDALIS
COMA BERENICES
VIRGO
Dubhe
Merak
Hour XII
15° S.
Denebola
URSA MAJOR
LEO MINOR
Capella
CRATER
LYNX
AURIGA
LEO
Regulus
Castor
Pollux
GEMINI
HYDRA
Equator
Ecliptic
CANCER
Alphard
S.W.
N.W.
W.
8. WEST

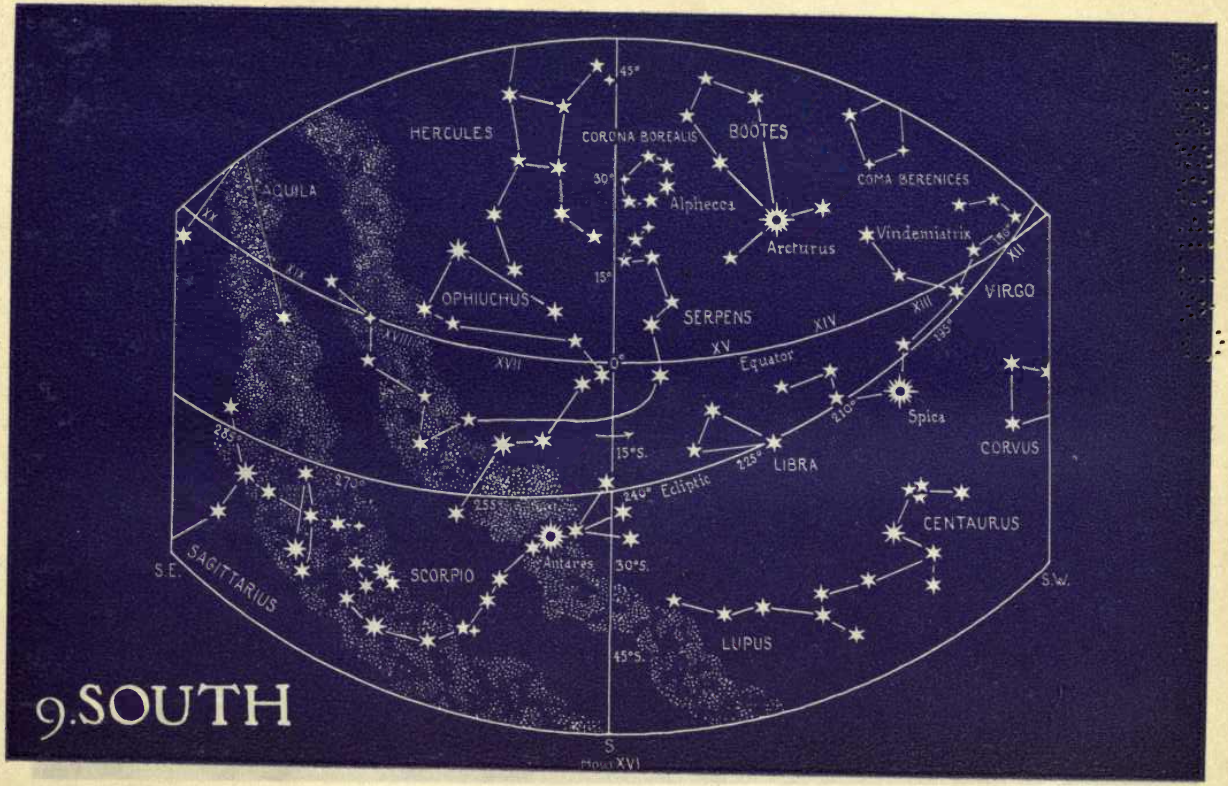

Hour XVII
Hour XVIII
Hour XII
Cor Caroli
CANES VENATICI
Thuban
Solstitial Colure
E.P.
CYGNUS
Arided
LEO MINOR
Merak
Dubhe
URSA MAJOR
URSA MINOR
DRACO
PEGASUS
CEPHEUS
Scheat
Polaris
LYNX
CAMELOPARDALIS
Equinoctial Colure
Hour XXIV
Sirrah
CASSIOPEIA
Castor
Pollux
N.W.
GEMINI
AURIGA
Capella
Almach
ANDROMEDA
N.E.
Algol
Hour VI
PERSEUS
N.
Hour IV

9. NORTH

© EASI


CORONA BOREALIS
Polaris
URSA MINOR
DRACO
HERCULES
OPHIUCHUS
Equator
Hour XVIII
CEPHEUS
Vega
Solstitial Colure
SERPENS
CASSIOPEIA
LYRA
Arided
CYGNUS
Altair
ANDROMEDA
DELPHINUS
AQUILA
Sirrah
Scheat
PEGASUS
Markab
N.E.
S.E.
E.
9. EAST




HERCULES
CORONA BOREALIS
BOOTES
COMA BERENICES
AQUILA
Alphecca
Arcturus
Vindemiatrix
OPHIUCHUS
SERPENS
VIRGO
Equator
Spica
CORVUS
LIBRA
Ecliptic
CENTAURUS
SCORPIO
Antares
SAGITTARIUS
LUPUS
S.E.
S.W.
S
45°
30°
15°
0°
15°S.
30°S.
45°S.
XII
XIII
XIV
XV
XVI
XVII
XVIII
XIX
XX
135°
210°
225°
240°
255°
270°
285°

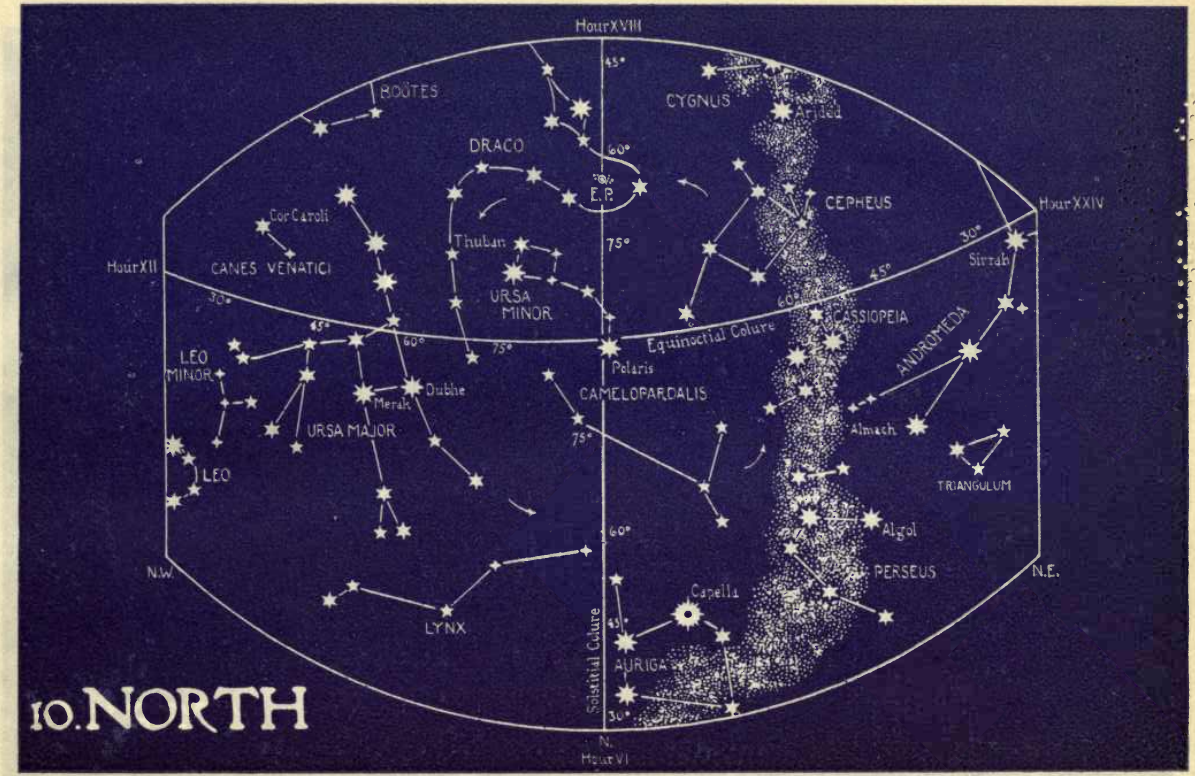
9. SOUTH

WEST
CASSIOPEIA

DRACO
URSA MINOR
Polaris
Trubam
CAMELOPARDALIS
CORONA BOREALIS
SERPENS
Alphecca
BOÖTES
Arcturus
XIV
210°
VIRGO
Spica 195°
XIII
Vindemiatrix
CANES VENATICI
Cor Caroli
COMA BERENICES
Equinoctial Colure
30°
45°
60°
75°
15°
Dubhe
URSA MAJOR
Merak
LYNX
Castor
GEMINI
Pollux
120°
LEO MINOR
Denebola
LEO
Regulus
150°
135°
CANCER
CORVUS
180°
15°S.
Equator
Ecliptic
165°
CRATER
XI
X
S.W.
Hour XII
N.W.
W.

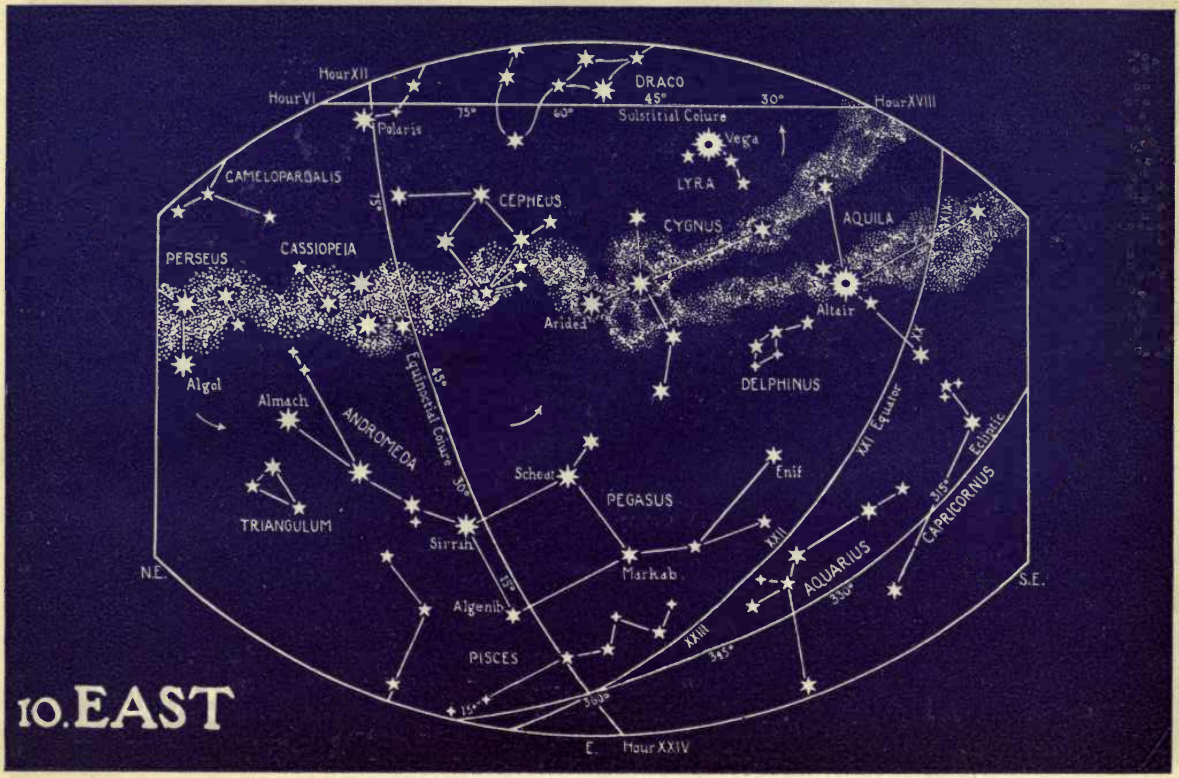
9. WEST

ЮЖНОЕ


Hour XVIII
45°
BOÖTES
CYGNUS
Arided
DRACO
60°
E.P.
CEPHEUS
Hour XXIV
Cor Caroli
75°
30°
Sirrah
Thuban
Hour XII
CANES VENATICI
URSA MINOR
45°
60°
CASSIOPEIA
30°
45°
Equinoctial Colure
75°
ANDROMEDA
LEO MINOR
Polaris
CAMELOPARDALIS
Dubhe
Merak
Almach
URSA MAJOR
75°
LEO
TRIANGULUM
60°
Algol
N.W.
PERSEUS
N.E.
Capella
45°
LYNX
Solstitial Colure
AURIGA
30°
N.
Hour VI

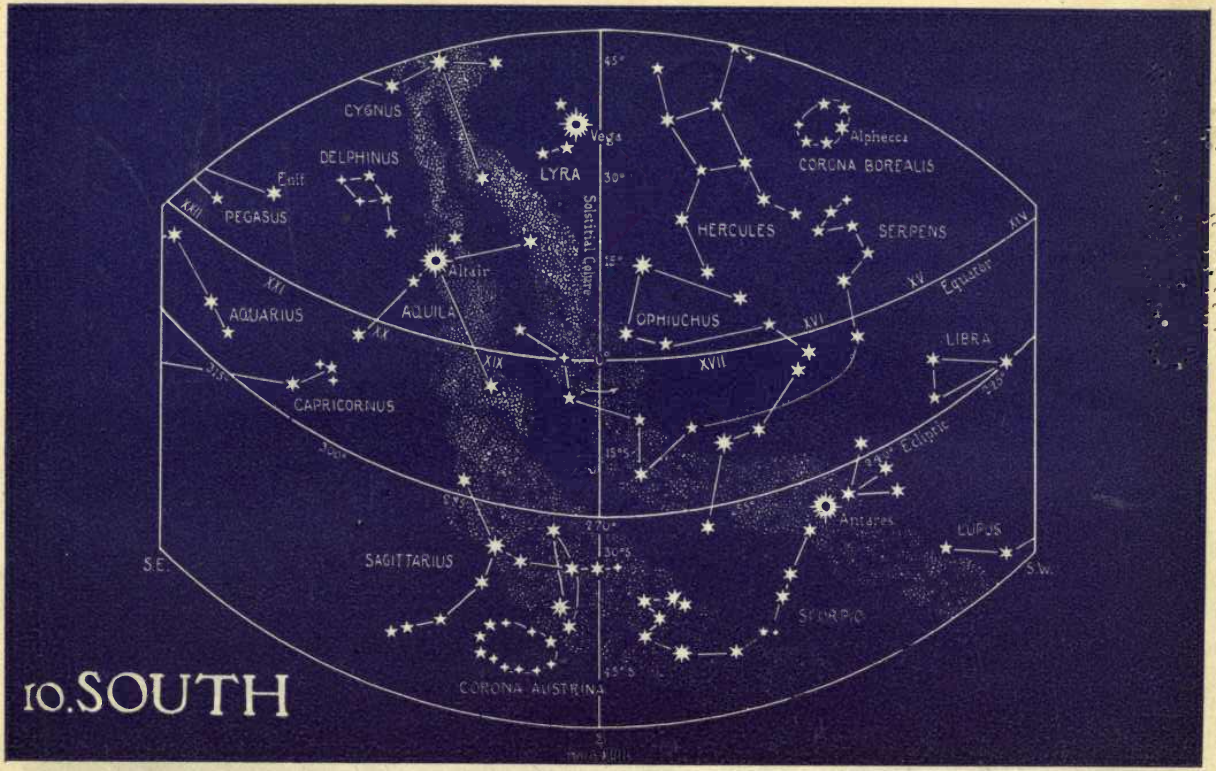
10. NORTH

EAST


Hour XII
Hour VI
Hour XVIII
DRACO
45°
30°
75°
60°
Solstitial Colure
Polaris
Vega
LYRA
CAMELOPARDALIS
CEPHEUS
CYGNUS
AQUILA
PERSEUS
CASSIOPEIA
Arided
Altair
Algol
Almach
ANDROMEDA
Equinoctial Colure
45°
DELPHINUS
XXI Equator
Ecliptic
Schedir
Enif
PEGASUS
TRIANGULUM
Sirrah
Markab
AQUARIUS
CAPRICORNUS
315°
330°
345°
Algenib
PISCES
15°
360°
N.E.
S.E.
E.
Hour XXIV

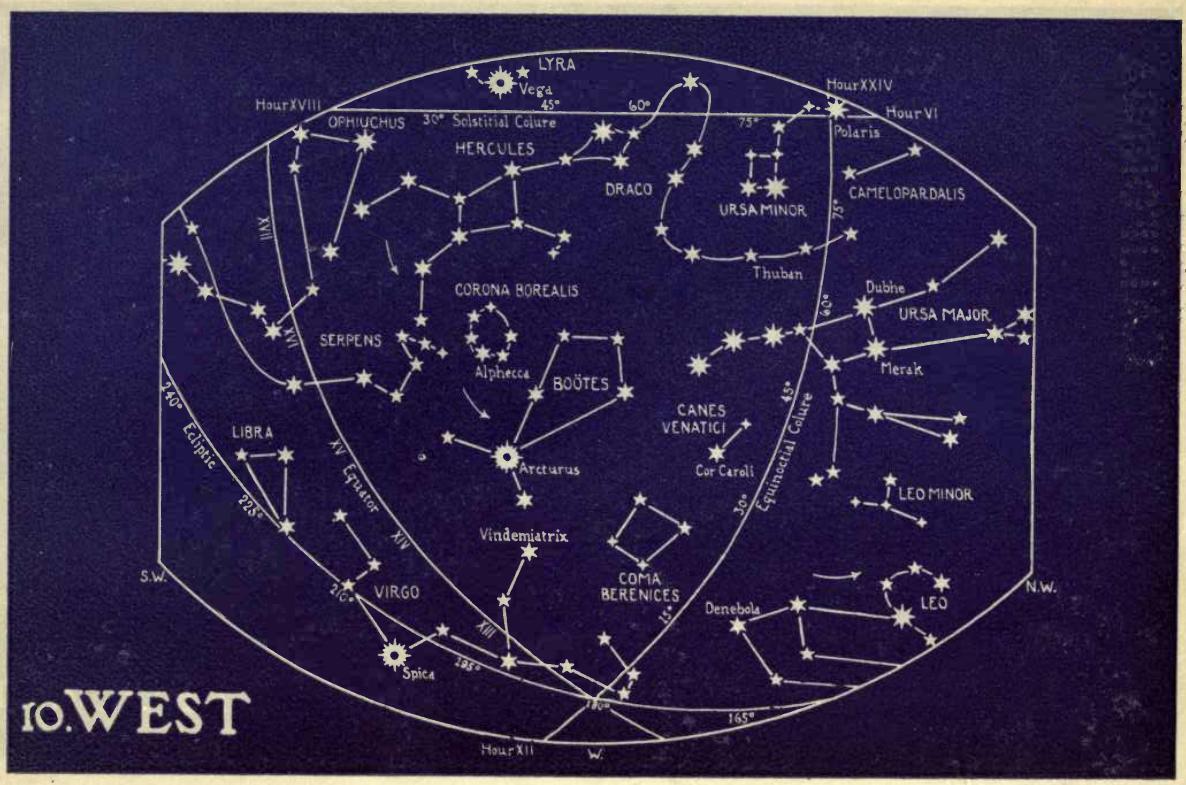
10. EAST

HYDRA

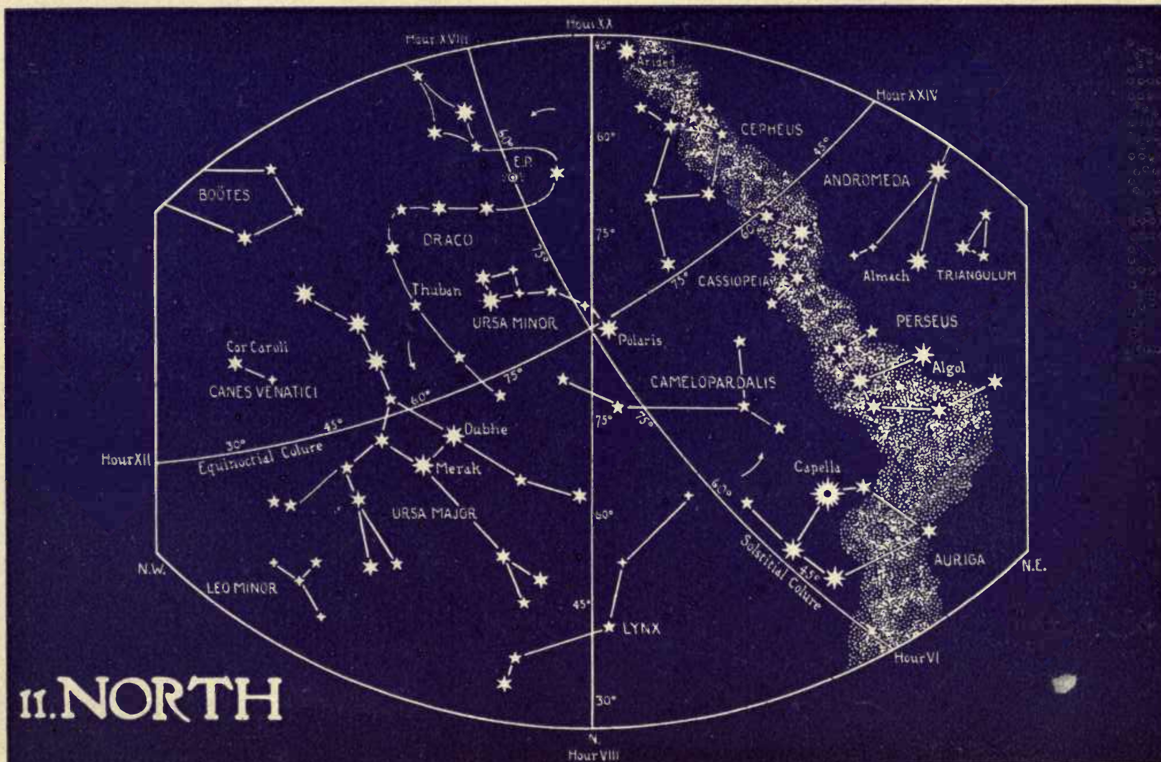

CYGNUS
Vega
DELPHINUS
Enif
LYRA
Alpheca
CORONA BOREALIS
PEGASUS
HERCULES
SERPENS
Altair
Equator
AQUARIUS
AQUILA
OPHIUCHUS
LIBRA
CAPRICORNUS
Ecliptic
Antares
LUPUS
SAGITTARIUS
SCORPIO
CORONA AUSTRINA
S.E.
S.W.

10. SOUTH

WEST

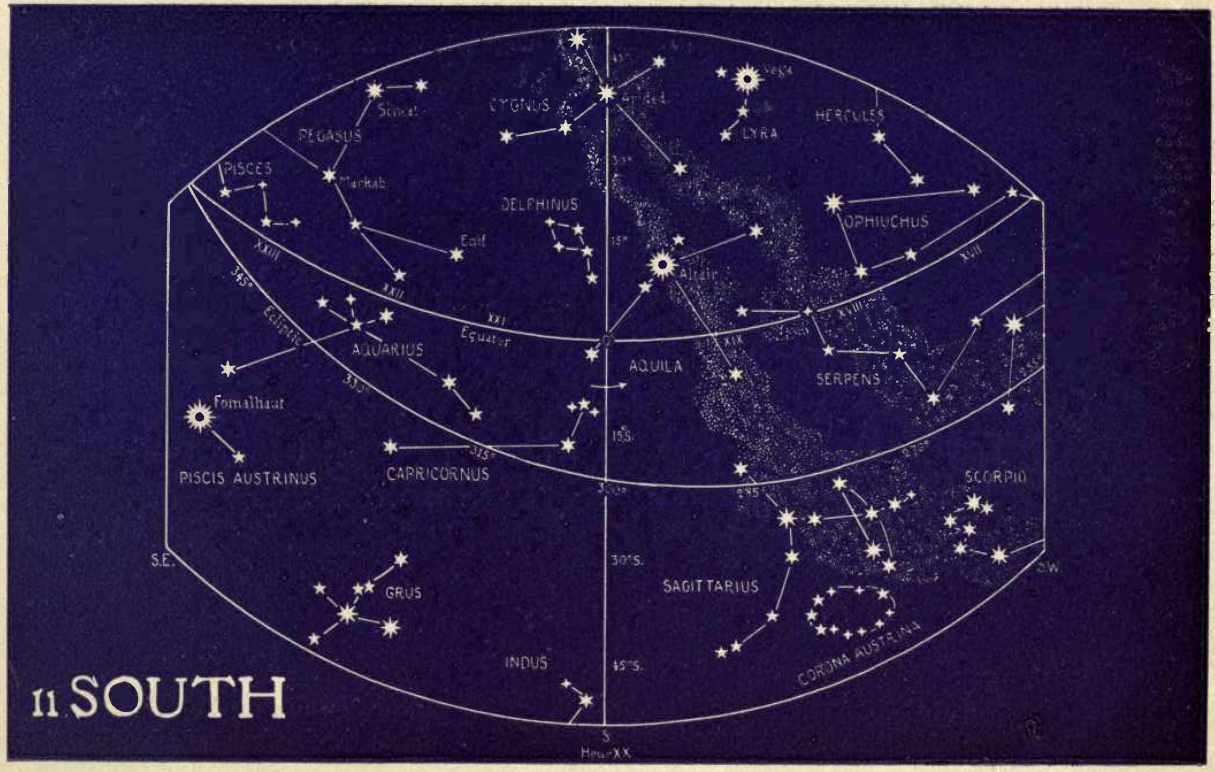

LYRA
Vega
Hour XVIII
OPHIUCHUS
30° Solstitial Colure
HERCULES
45°
60°
75°
Hour XXIV
Hour VI
Polaris
DRACO
URSA MINOR
CAMELOPARDALIS
Thuban
CORONA BOREALIS
Dubhe
URSA MAJOR
SERPENS
Alphecca
BOÖTES
Merak
240° Ecliptic
LIBRA
CANES VENATICI
45° Equinoctial Colure
Arcturus
Cor Caroli
LEO MINOR
Vindemiatrix
30°
Equator
S.W.
VIRGO
COMA BERENICES
Denebola
LEO
N.W.
Spica
15°
165°
Hour XII
W.

10. WEST


11. NORTH
Hour XX
Hour XVIII
Hour XXIV
Hour XII
Hour VI
N.
Hour VIII
N.W.
N.E.
E.P.
BOÖTES
DRACO
Thuban
URSA MINOR
Polaris
Cor Caroli
CANES VENATICI
Dubhe
Merak
URSA MAJOR
LEO MINOR
LYNX
CAMELOPARDALIS
Capella
AURIGA
Solstitial Colure
Equinoctial Colure
CEPHEUS
Arided
CASSIOPEIA
ANDROMEDA
Almach
TRIANGULUM
PERSEUS
Algol
45°
60°
75°
30°


Hour XII
Polaris
CEPHEUS
Equinoctial Colure
60°
45°
30°
15°
Aridel
CYGNUS
DELPHINUS
CAMELOPARDALIS
AURIGA
Capella
CASSIOPEIA
PERSEUS
Algol
ANDROMEDA
Almach
Sirrah
Scheat
PEGASUS
Enif
Markab
Algenib
XXI
XXII
XXIII
AQUARIUS
330°
345°
Ecliptic
360°
15°S.
S.E.
Hour XXIV
TRIANGULUM
Hamal
ARIES
PISCES
N.E.
60°
Pleiades
45°
30°
15°
Equator
I
II
Diphda
CETUS
Mira
E.

II. EAST


PEGASUS
Scheat
CYGNUS
Deneb
LYRA
Vega
HERCULES
PISCES
Markab
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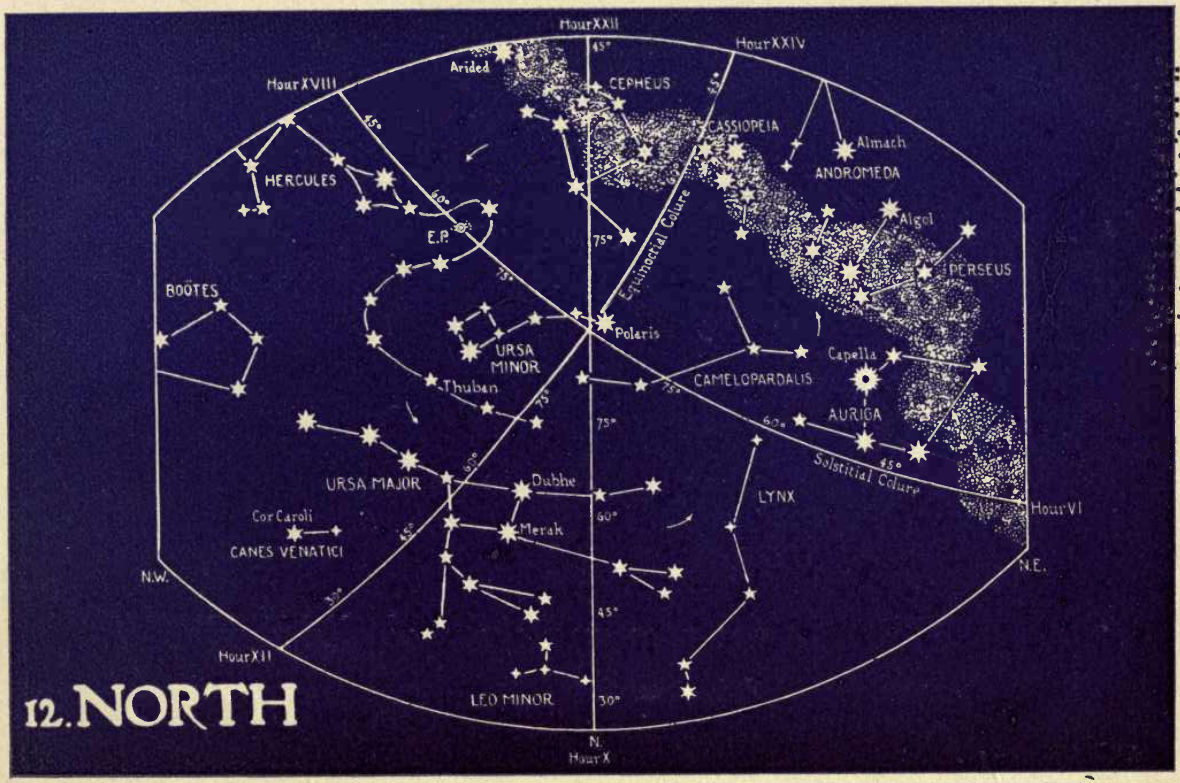
Enif
OPHIUCHUS
Altair
XVIII
XXII
XXI
Equator
Ecliptic
AQUARIUS
AQUILA
SERPENS
Fomalhaut
PISCIS AUSTRINUS
CAPRICORNUS
SCORPIO
S.E.
S.W.
GRUS
SAGITTARIUS
INDUS
CORONA AUSTRINA
S
Hour XX

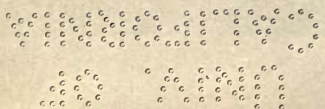
11 SOUTH

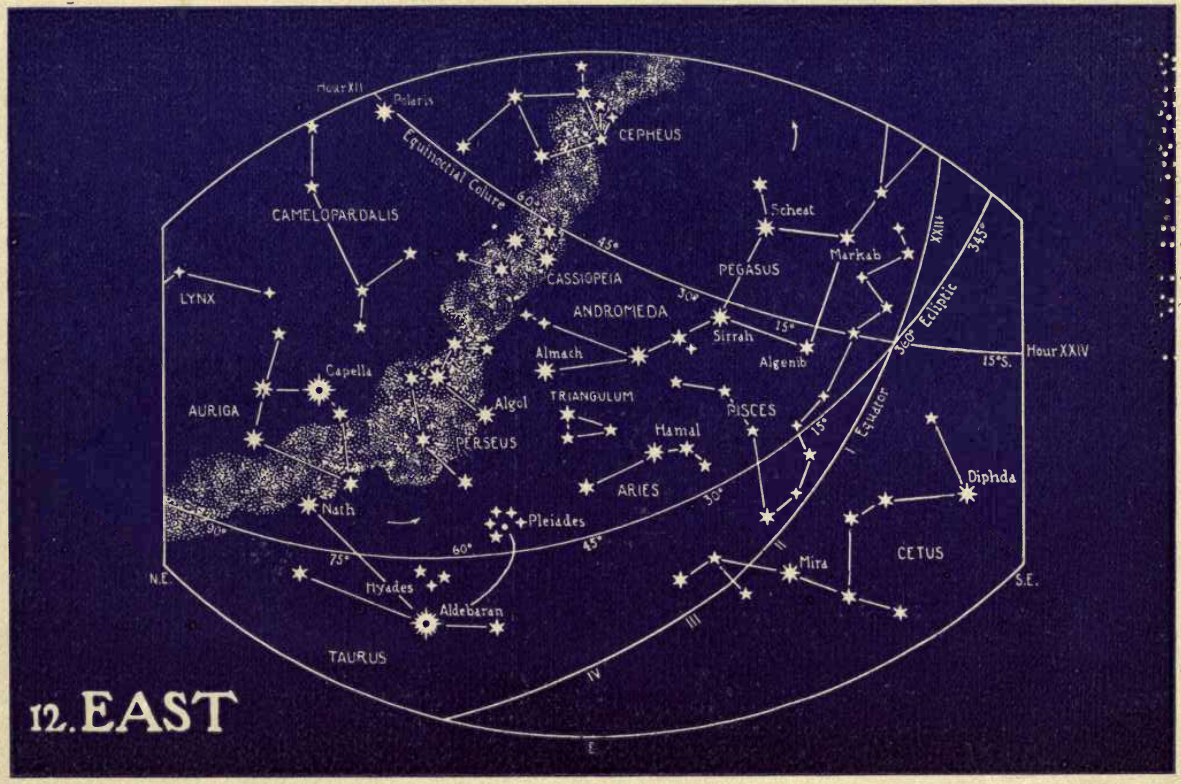

CYGNUS
AQUILA
Vega
LYRA
30°
45°
60°
75°
15°
Solstitial Colure
Polaris
URSA MINOR
DRACO
Thuban
Dubhe
Merak
URSA MAJOR
HERCULES
CORONA BOREALIS
Hour XVIII
15°S.
OPHIUCHUS
XVII
XVI
SERPENS
Alphecca
BOÖTES
Cor Caroli
CANES VENATICI
COMA BERENICES
Arcturus
S.W.
N.W.
XV Equator
XIV
W.

11. WEST

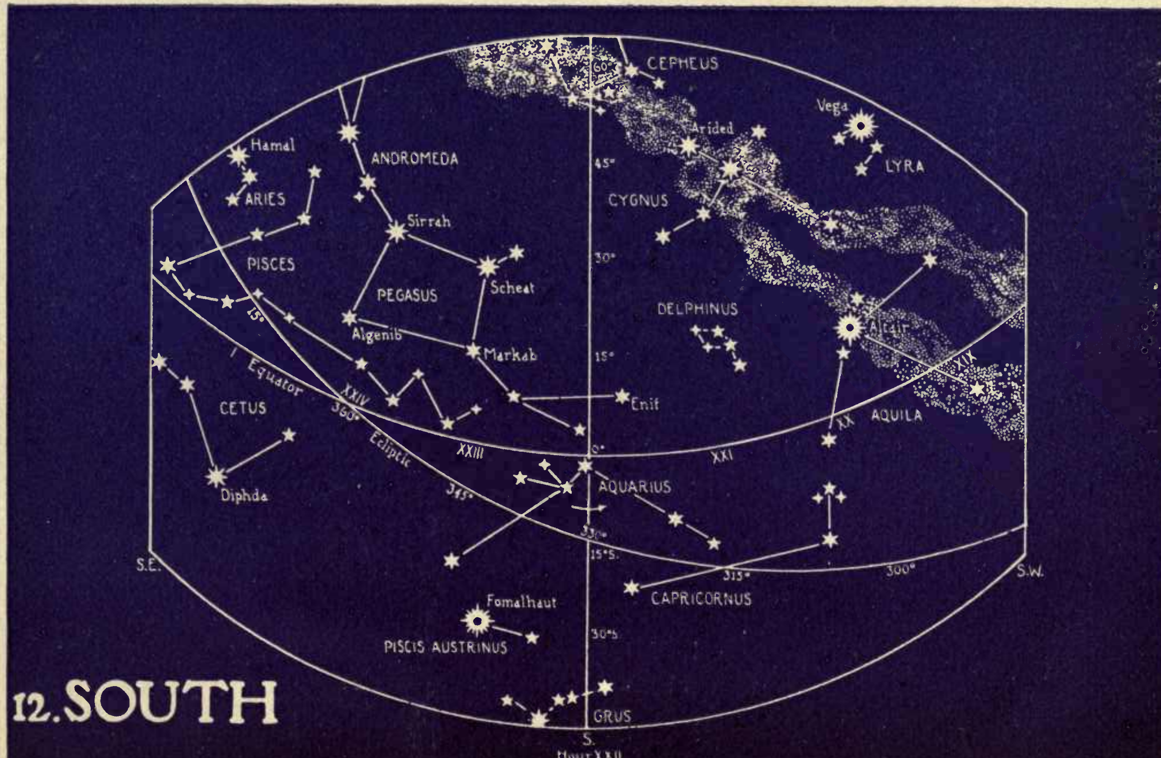

Hour XXII
Hour XXIV
Hour XVIII
Arided
CEPHEUS
CASSIOPEIA
Almach
ANDROMEDA
HERCULES
Algol
PERSEUS
E.P.
Equinoctial Colure
BOOTES
Polaris
URSA MINOR
Thuban
CAMELOPARDALIS
Capella
AURIGA
Solstitial Colure
Hour VI
URSA MAJOR
Dubhe
LYNX
Cor Caroli
Merak
CANES VENATICI
N.W.
N.E.
Hour XII
LEO MINOR
N.
Hour X
45°
60°
75°
30°

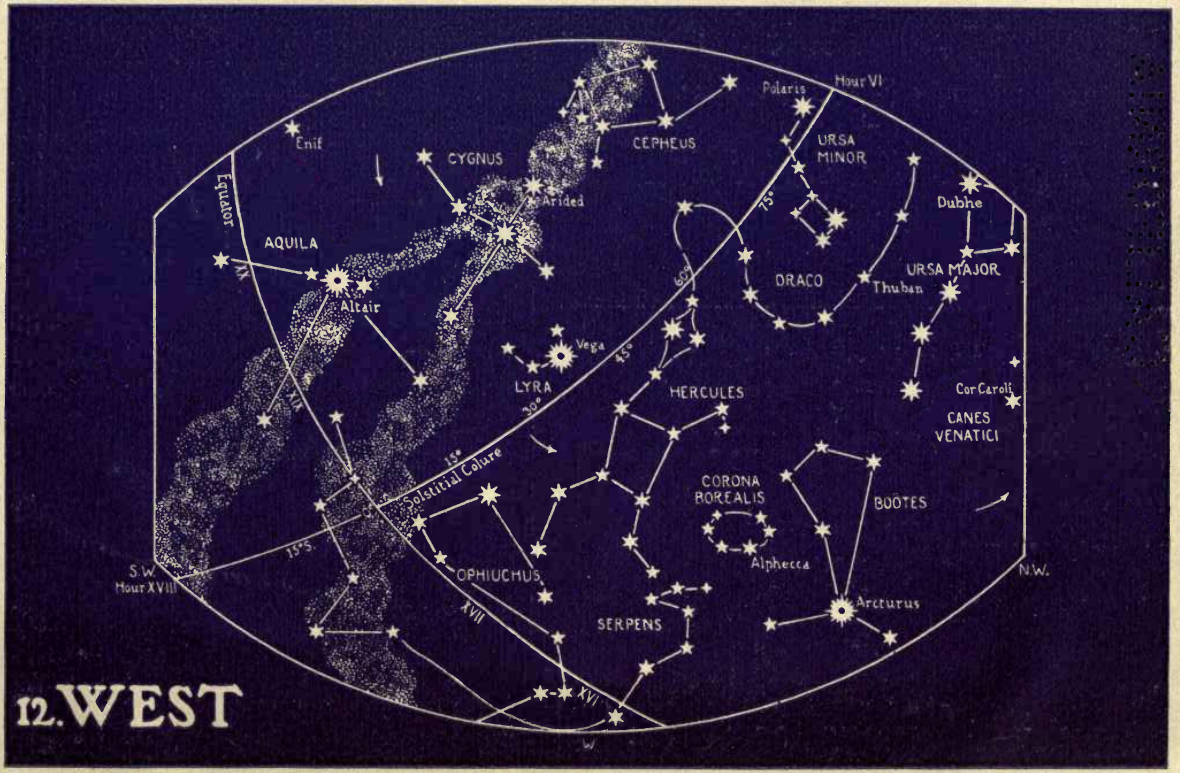
12. NORTH




Hour XII
Polaris
CEPHEUS
Equinoctial Colure
60°
45°
30°
15°
CAMELOPARDALIS
LYNX
CASSIOPEIA
ANDROMEDA
PEGASUS
Scheat
Markab
XXIII°
345°
Ecliptic
360°
Hour XXIV
15°S.
Sirrah
Algenib
Almach
Capella
AURIGA
Algol
TRIANGULUM
PISCES
Hamal
PERSEUS
ARIES
Nath
Pleiades
Diphda
90°
75°
60°
45°
30°
15°
Hyades
Aldebaran
TAURUS
Mira
CETUS
N.E.
S.E.
I
II
III
IV
E

12. EAST


12. SOUTH
CEPHEUS
Vega
LYRA
Arided
CYGNUS
Hamal
ARIES
ANDROMEDA
Sirrah
PISCES
PEGASUS
Scheat
Algenib
Markab
DELPHINUS
Altair
AQUILA
Enif
CETUS
Equator
Ecliptic
Diphda
AQUARIUS
CAPRICORNUS
Fomalhaut
PISCIS AUSTRINUS
GRUS
S.E.
S.W.
S.
Hour XXII
60°
45°
30°
15°
0°
15°S.
30°S.
360°
345°
330°
315°
300°
XIX
XX
XXI
XXIII
XXIV


Enif
CYGNUS
CEPHEUS
Polaris
Hour VI
URSA MINOR
Dubhe
Equator
AQUILA
Altair
Arided
DRACO
Thuban
URSA MAJOR
Vega
LYRA
HERCULES
Cor Caroli
CANES VENATICI
Solstitial Colure
CORONA BOREALIS
BOÖTES
Alphecca
S.W.
Hour XVIII
OPHIUCHUS
SERPENS
Arcturus
N.W.
XVII
XVI
W
12. WEST