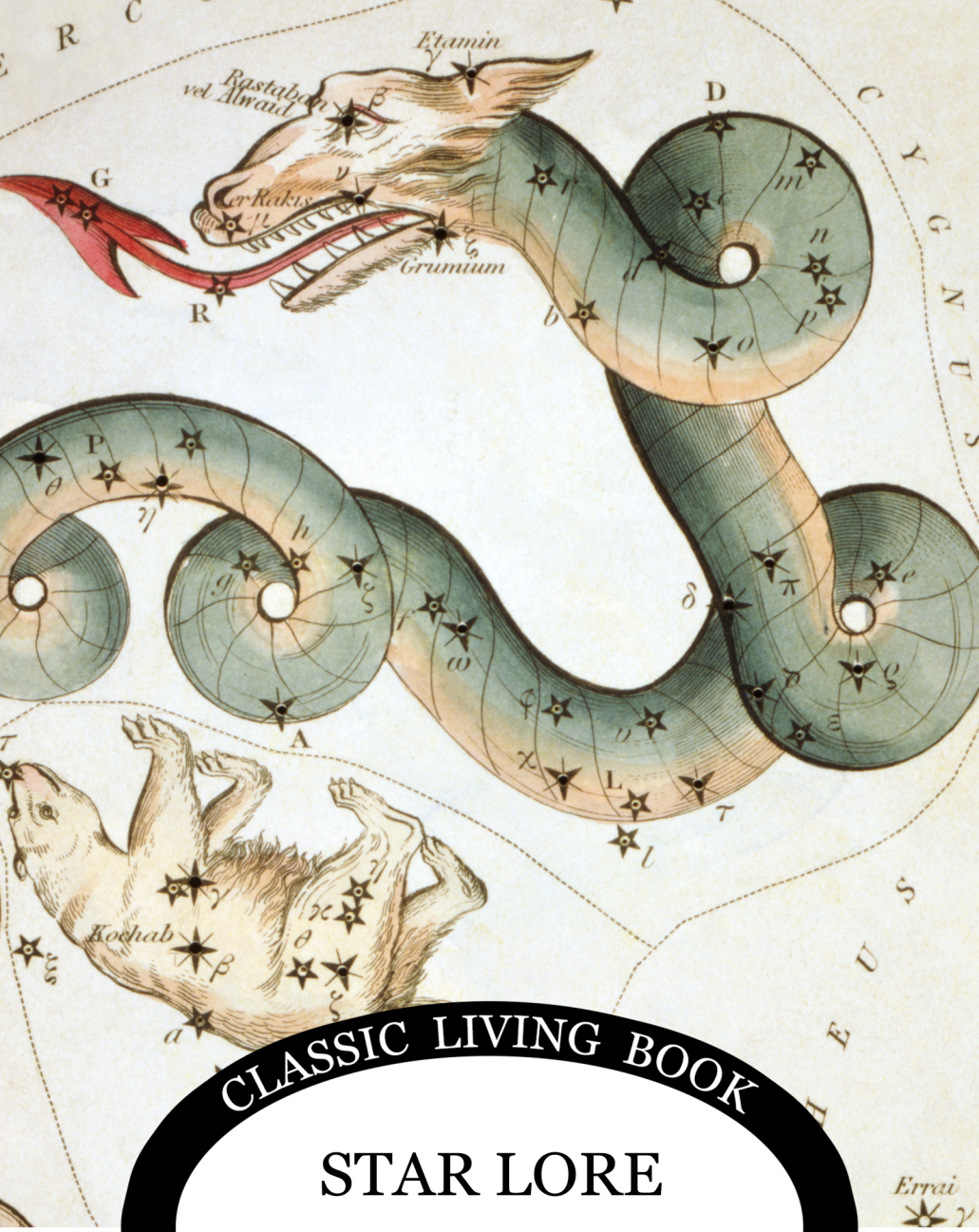

CLASSIC LIVING BOOK

STAR LORE

William Tyler Olcott

COMPLETE AND UNABRIDGED

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Star Lore

by

William Tyler Olcott

Photo by Anderson

The Creation of the Sun and Moon
(Michelangelo)

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PREFATORY NOTE

THE author's first book, *A Field Book of the Stars* was simply intended as a guide to the constellations. It was an effort on his part to acquaint the reader with the star groups and the individual star names. In his book, *In Starland with a Three-inch telescope* he sought to indicate to the amateur astronomer what could be seen of the stellar wonders with a modest telescopic equipment.

It follows naturally that having come to be on friendly terms with the stars, and having seen many of the beautiful sights that the night reveals, the tyro should wish to know more of the history of the stars and how the constellations came to be named, and the purpose of this book therefore is to satisfy that desire.

It is always a pleasure to trace back to their sources the traditions with which time has endowed the enduring, and thus the study of the myths and legends that surround the eternal stars possesses a surpassing charm for those who have learned to know them intimately and through nightly communion with them have come to love them.

The author quotes extensively from R. H. Allen's *Star Names and Their Meanings,* an exhaustive and scholarly work and an authority on the subject, and he here pays tribute to the author for the pleasure a close perusal of his book affords, and heartily commends it to all those who desire to make a closer study of the philology of the ancient star names.

INTRODUCTION

THERE are many persons who are familiar with the bright stars and constellations of these northern latitudes who are unaware of the beautiful myths and legends that time and fancy have woven about them.

As even a meagre knowledge of star lore has added greatly to the writer's pleasure in the study of the stars, and has served to render their appearance full of suggestion, he has been interested in collecting for this volume a portion of that varied history of the heavens that has been presented in terms imaginative by the peoples of all ages. Those who admire the beauty of the stars may learn to love them by reason of the literary and legendary associations recalled by their appearance.

Much that appears in these pages has been published from time to time in books on popular astronomy of comparatively recent date, but to the writer's knowledge no comprehensive story has as yet been presented of the constellations, and of the stars they contain.

In the compilation of this volume, the purpose has been to include all matter pertinent to the subject, in order that the history of the constellations, as known and as written by all nations in every age, might be arranged in convenient form for the benefit of those who only know the stars by sight.

A further aim has been to revive an interest in the mythology that twines about the stars. It has seemed but right that this wealth of star lore, buried deep in the treasury of the past, should once more see the light, and add its increased charm and interest to those who scan the skies.

Such a history must ever serve to keep bright the memory of the earliest times, and fanciful though the constellation

figures seem, our stars bear the same names that were given to them in the very dawn of civilisation.

In conclusion, it is hoped that the history of the heavens here set forth will awaken fresh interest in the stars, and will secure for them the attention that is their just due, on the part of all lovers of the beautiful.

W. T. O.
NORWICH, CONN, January, 1911.

And all the signs through which Night whirls her car,
From belted Orion back to Orion and his dauntless
Hound, And all Poseidon's, all high Zeus's stars, Bear on
their beams true messages to man.

Poste's Translation of Aratos,

The Origin and History of the Ancient Star Groups

THE ORIGIN AND HISTORY OF THE ANCIENT STAR GROUPS

Some man of yore
A nomenclature thought of and devised,
And forms sufficient found.
* * * * * * * *
So thought he good to make the stellar groups,
That each by other lying orderly,
They might display their forms. And thus the stars
At once took names and rise familiar now.

ARATOS.

THE origin of the constellations is still open to conjecture, for, though all nations since the dawn of history have recognised these ancient stellar configurations, and at one period or another employed them in some symbolic or representative capacity, the fact remains that the researches of archæologists have failed to yield definite proof as to who first designed them and where they were first known.

There is little doubt that the constellations were the result of a deliberate plan, as La Place affirms. Possibly they were an endeavour on the part of some patriarch of the ancient world to grave an imperishable record of a great event, or a series of noteworthy occurrences in the world's history, for all posterity to read, and although no Rosetta stone has been found as yet to enable the present race of man to decipher their meaning,

still the problem attacked by the ablest savants of all nations has yielded theories respecting the origin and purposes of the constellations that cannot be far from the truth.

In the very dawn of the world, when human instinct first inspired observation, primitive man began to look about him and take stock of his environment. The daily wants of nature supplied, the natural phenomena would claim man's attention, and first he would take cognisance of the sun, moon, and stars that provided life's chief essential, light.

For purposes of identification alone, there must have been at an early date certain designations for the individual stars that gave rise to all subsequent stellar nomenclature. The sun, moon, and planets, the brighter luminaries, would first excite man's interest and attention, and then the brightest stars would attract and mystify him.

As time went on, observation would soon indicate to human intelligence the relationship of the sun and moon to the fixed stars, and the seasonable difference in the appearance of the nocturnal skies.

All this would be in strict accord with the natural laws of the observational faculties. Such elementary knowledge of the heavenly bodies would presently lead to the establishment of certain facts relative to the stars, features concerning their apparent change in position, that if marked would render a service to the race.

Very early in the history of the world the stars must have served to record the passage of time, a service they have faithfully and accurately rendered mankind through all the ages to the present day.

The first tillers of the soil must have marked well the stars, and certain of them doubtless proclaimed the time of sowing and reaping. The circumpolar stars guided the rude crafts of the early navigators, and unquestionably in the earliest times they singled out "the star that never moves," Polaris, as an unfailing and reliable beacon to direct their course.

The rising and setting of the stars thus became matters of paramount importance, governing alike the actions of the husbandmen and those who sailed the seas. Certain stars were also indicative of impending meteorological changes, and their appearance at particular seasons was watched for with keenest interest.

The wonder and mystery the stars inspired, and their utility in daily life, soon led to their becoming objects of idolatry, and as their importance increased, astrology, that pseudo-science, Kepler's "foolish daughter of a wise mother," sprang into being, and for a time suppressed, discouraged, and hampered the legitimate and scientific study of the heavens.

Thus early in the history of man we find the stars all-important to his welfare. No course was pursued or plan adopted without first consulting the heavenly bodies. They governed alike the policies of nations and the actions of individuals. They ruled absolutely over the destinies of the high and lowly, the rich and poor, and horoscopes became a necessity of life, and divination the highest pursuit of man.

In Sabianism, or star worship, we have, therefore, the earliest form of religion, and in astrology and the adoration of the stars the progenitors of the modern science of astronomy.

From this universal attention to the stars, there sprang up the myriad fancies and peculiar notions, the products of imagination, that peopled the sky with animals and quaint figures, and gave rise to the constellated stellar groups that have come down to us, and figure on the modern charts of the heavens.

There are many traditions that have emerged from the mists that shroud the distant past respecting the origin of the constellations, and the science of astronomy, and as that origin is antediluvian, the knowledge that we have of the subject must perforce be largely traditional in its character.

An early tradition affirms that the immediate descendants of Adam cultivated a knowledge of the stars, and that Seth

and Enoch inscribed upon two pillars, one of brick, the other of stone, the names, meanings, secret virtues, and science of the stars, with the divisions of the zodiac.

Josephus states that he saw in Syria the pillar of stone, which alone remained in his day. The history of two mysterious pillars entwined with a serpent, the symbol of revolution, can be traced through all the ages, from remote antiquity until it reaches our dollar sign

Then there is a tradition that has survived the ages, that Noah, who was also known as Oannes and Janus, was the inventor of astronomy. It is certain that Noah and his family were soon worshipped and inextricably mixed with stars and gods.

The Chaldeans attributed their knowledge of the stars to Noah, who became a two-faced deity, as he could look backwards and forwards. He was known as "the God of Gates," as he opened the door which God shut, and Noah and the Ark became Janus and Jana, solar and lunar deities. Of all this tradition meets us everywhere.

It is a remarkable fact that, from the earliest times, as far as we can judge from the cuneiform inscriptions and hieroglyphics that have been deciphered, the sign for God was a star.

Astronomy unites with history and archæology in pointing to the Euphrates Valley, and, as we might expect, the region of Mt. Ararat, as the home of those who originated the ancient constellation figures.

Authorities agree, for the most part, that the originators of Sabianism and stellar lore in this region were not the Semitic Babylonians, but a people generally termed "Akkadians," a word meaning highlanders, or mountaineers, the most ancient race known to us, who came down from the mountainous region of Elam or Susiana, to the east of Assyria, bringing with them the rudiments of writing and civilisation.

The Babylonians, previous to the invasion of the Akkadai, unquestionably had some knowledge of the stars. It was

thought in those early times that the mountains on the east supported the firmament, and that the zenith was fixed over Elam. There were observatories established in all the large cities of Chaldea, many of the shrines on the topmost terraces being dedicated to this purpose, and at an early date the stars were named and numbered.

The Babylonian Tablets, the oldest records extant, reveal that the Akkadians introduced their sphere and zodiac into Babylonia before the year 3000 B.C., and the zodiac of the Akkadians corresponds almost exactly with the signs we know to-day.

It seems almost folly to endeavour to set the date of the invention of the constellations, for that period must approximate the age of the habitable world, and in all probability the stellar figures known to us were not designed at any one time, and lost their originality by the varying conditions that time has wrought in the past, for even in comparatively recent years there have been many attempts to alter them.

Bailly, a brilliant scholar and eminent astronomer, contends that the phenomena of astronomy had been closely observed before the great races of mankind separated from the parent stock. He claims, and few would dispute him, an antediluvian race as the originators of astronomical science. In proof of this he cites the fact that there are ancient Persian records which refer to the four famous "Royal Stars" as having marked the four colures (the meridian points of the solstices and equinoxes), a fact only possible in antediluvian times.

Maunder, who has made a very careful study of archæology in its relation to the constellational figures, has revealed many interesting features in connection with them. He writes:

"The first feature which the old constellation figures present to us is a very striking one. They cover only a portion of the heavens, and a large region roughly circular in the southern hemisphere is left entirely vacant. Swartz was the first to make the significant suggestion that this space was left

vacant because the inventors of the constellations lived too far north to permit of their viewing this part of the heavens."

Pursuing this line of thought, Maunder considers that the designers of the figures lived, in all probability, between 36° and 42° north latitude, so that the constellations did not originate in Egypt or Babylon. By computing where the centre of the vacant space coincided with the southern pole, we get the date 2800 B.C., which was probably the date when the ancient work of constellation making was completed.

It has been remarked that among the constellation figures conspicuous by their absence are the following animals: the elephant, the camel, the hippopotamus, the crocodile, and the tiger, so it is reasonably safe to assume that neither India, Arabia, nor Egypt was the birthplace of the sphere. Greece, Italy, and Spain may be excluded on the ground that the lion figures as one of the constellations. We have left Asia Minor and Armenia, a region bounded by the Black, Mediterranean, Caspian, and Ægean seas, as the logical birthplace of the stellar figures. The fact that we find a ship among the stars warrants us in believing that it is on the coast of this country, and not in its interior, that we should expect to find the land where the constellations were first known.

The division of the zodiac into twelve signs, the number of months in the year, is one of very great significance, for we infer from the fact that it was so arranged to assist in the observation of the position of the sun among the stars.

Many of the authorities hold that the zodiac was planned while the spring equinox fell in the constellation Taurus. In support of this claim it may be said that, if this is the case, the sun was ascending all through the signs that face the east, and was descending all through the signs that face the west, a significant and logical arrangement which could hardly be accidental.

The date of the zodiac is given as 3000 B.C., which agrees very well with the significant position of the four Royal Stars

previously mentioned which marked the four cardinal points, and were thus especially prominent.

A close inspection of the stellar groups yields many points of interest, notably the fact that everywhere there is indication of design and not chance in the arrangement and configuration. There seems to have been a definite idea in some one's mind respecting them, a desire to perpetuate a vitally important record. It may be of interest to mention a few of the facts that have inclined scholars to this belief:

To begin with, we find many figures duplicated, and in most cases the two figures are close together in the sky. Thus we see the figures of two Dogs, two Bears, two Giants subduing Serpents, each pair in close proximity. Then there are two Goats, two Crowns, two Streams, and two Fishes bound together.

The zodiacal constellations are often clearly connected with neighbouring figures. We observe the Bull attacked by the Giant Hunter Orion, Aquarius pouring a stream of water into the mouth of the Southern Fish, the Scorpion attempting to sting Ophiuchus, and the Ram pressing down the head of the Sea Monster.

Again, one portion of the sky was known to the ancients as "the Sea," and here we find, as we might expect, many marine creatures,—the Dolphin, the Whale, the Fishes, the Sea Goat, and the Southern Fish.

Other features in support of the theory of design are found in the half-figures, Pegasus, Taurus, and Argo, and the so-called Deluge group, comprising the Ship stranded on a rock, the Bird, the Altar, the Centaur offering a sacrifice, and the Bow set in the Cloud.

It is supposed that, at a time far remote, the Akkadians were conquered by the Semitic race, and that the conquerors imposed only their language on the conquered, adopting, it is said, the Akkadian mythology, laws, literature, and system of astronomy.

At an early date in the world's history we find astronomy and astrology flourishing in China, India, Arabia, and Egypt.

The early astronomical annals of the Chinese reveal the fact that, before the year 2357 B.C., the Emperor Yao had divided the twelve zodiacal signs by the twenty-eight mansions of the moon. [1]

The Arabians are said to have received their astronomical knowledge from India, and in China, Arabia, and India we find an almost identical system, *i.e.,* that of the Lunar Stations, or Lunar Mansions, employed to indicate the daily progress of the moon amid the stars.

India has been claimed as the birthplace of the constellation figures, but modern research, says Allen, finds little in Sanscrit literature to confirm this belief.

There is a controversy as to whether Indian astronomy was derived from Greece or independent of it. In support of the latter theory, it is said that the Brahmins were too proud to borrow their science from the Greeks or Arabs, and also that it was improbable that two rival Hindu sects, the Brahmins and Buddhists, should have adopted the same innovations in their calendars and religious symbolism. Again, the Greeks held Indian astronomy in high esteem, while the Hindus only bestowed a moderate praise on the Grecian science.

The Egyptians, on whose early monuments the twelve zodiacal signs are found, acknowledged that they derived their knowledge of the stars from the Chaldeans, and they were in turn the teachers of the Greeks as early as the time of Thales and Pythagoras.

Herodotus states that the Egyptians were the first of all mankind who invented the year and divided it into twelve parts, a statement much at variance to the accepted testimony of the Babylonian Tablets.

Of the constellations outside the zodiac, we find a few

1 It is of interest to note that the Chinese were called "Celestials" because their empire was divided after the Celestial spaces.

groups and stars mentioned at an early date, notably in the Old Testament, where, in the Book of Job, there are references to the Bear, Orion, and the Pleiades, names that have come down to us. Homer and Hesiod both mentioned the same constellations, which is indicative of the importance of these star groups in the eyes of the ancients. Hesiod also refers to the stars Arcturus and Sirius, and these two stars may well be considered the most ancient of all the stars from the standpoint of stellar nomenclature.

Authorities differ as to the source from which the Greek knowledge of the stars was derived, but in all probability it did not come from any one source but was imported from Egypt, Chaldea, and Phœnicia.

The founder of the science of astronomy in Greece was Thales, the head of the Ionic School of Philosophy, a citizen of Miletus, who lived about 540 B.C. It is said that he first taught the Greek navigators to steer by the Little instead of the Great Bear.

Eudoxus, a native of Cnidus, who lived about the fourth century B.C., a contemporary of Plato, was the first Greek who described the constellations with approximate completeness. He is reported to have visited Egypt and to have there received astronomical instruction. He wrote *The Enoption,* or *The Mirror,* and *The Phenomena* or *Appearances,* both prose works and unfortunately not extant, but Aratos, the Alexandrine poet, versified the latter work about 270 B.C., and it has descended to our day.

Aratos was a native of Soli in Cilicia, and Court Physician to Antigonus Gonatas, King of Macedonia. He was a contemporary of Aristophanes, Aristarchus, and Theocritus, and he always mentions the constellations as of unknown antiquity. His sphere accurately represented the heavens of about 2000 B.C. His poem has been considered an authority on stellar nomenclature, and has been closely followed by all subsequent delineators of the constellation figures.

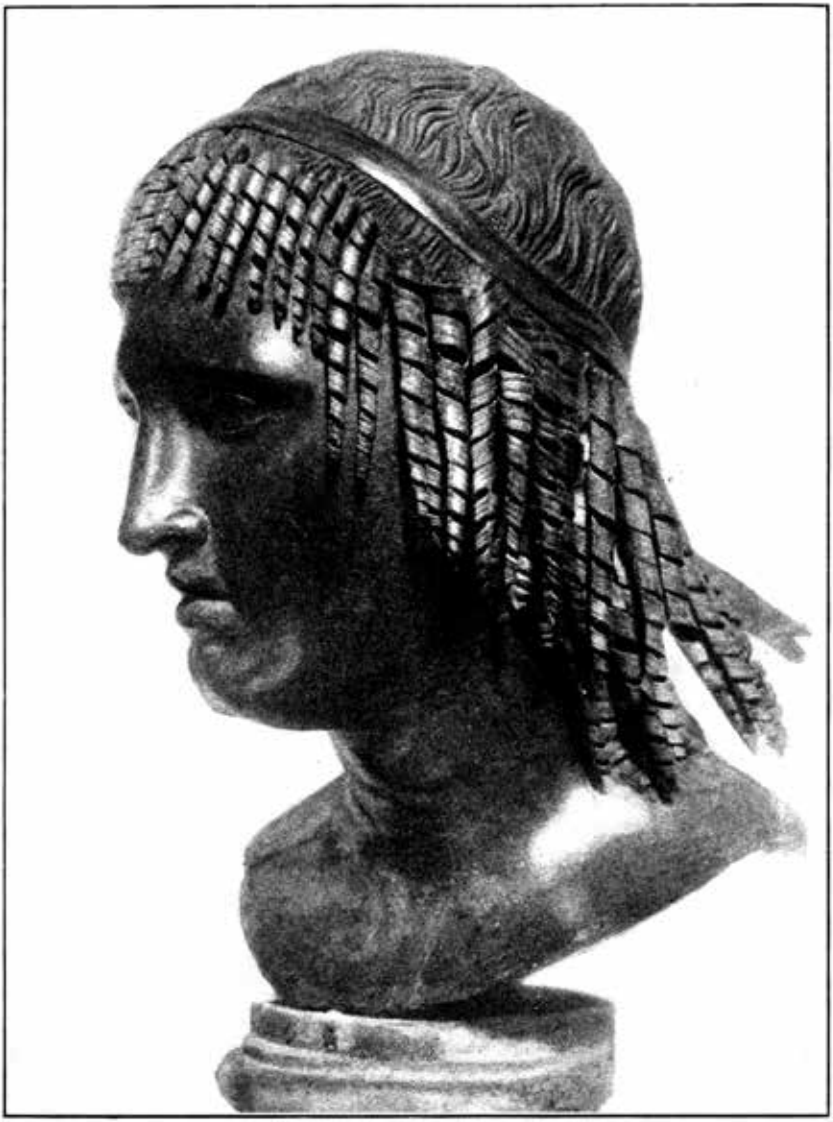
This sphere of Eudoxus, which has been transmitted to us through the verses of Aratos, contained forty-five constellations, twenty in the northern hemisphere, twelve in the southern, and thirteen in the zodiacal group, the Pleiades being considered as a separate constellation in addition to Taurus.

Allen makes the following interesting reference to this famous poem: "When the poem entitled *The Phenomena* of Aratos was introduced at Rome by Cicero and other leading characters, we read that it became the polite amusement of the Roman ladies to work the celestial forms in gold and silver on the most costly hangings, and this had previously been done at Athens, where concave ceilings were also emblazoned with the heavenly figures."

The Phenomena is the most ancient description of the constellations extant, and has been translated into all languages. Cicero and Germanicus Cæsar both made translations of it, and no less than thirty-five Greek commentaries on the work are known to us.

Eudoxus considered the heavens as divided up into constellations with recognised names. "He did not deal with the stars singly, but gave a sort of geographic description of their territorial position and limits, according to groups, distinguished by a common name." His work's chief value consists in the comprehensive view of the heavens it affords, and in the description of the constellated heavens in their entirety.

Although the contributions of Eudoxus and Aratos to astronomical literature are highly regarded and authoritative, the acknowledged founder of our scientific astronomy is Hipparchus, who was the first to discover the perpetual and apparent shifting of the stars known as the Precession of the Equinoxes. Only two of his works have come down to us, his *Commentary,* and the reproduction of his Star Catalogue by Ptolemy, who was known as "the Prince of Astronomers." This catalogue enumerated 1022 stars, of which 914 form constellations, and 108 are unformed. It is held in much respect



Ptolemy
National Museum, Naples

even by modern astronomers, and agrees in the main with the enumeration of Aratos. Procyon, however, appears as a constellation, and the asterism Equuleus, the foremost Horse, is added, an asterism that figures on modern star maps. The observations of Hipparchus were made between 162 and 127 B.C., while those of Ptolemy embodied in the *Syntaxis,* as his work was entitled, were made from 127 to 151 A.D.

The *Syntaxis* was practically an epitome of the results of the early star-gazers of Greece and Western Asia, and comprised a list of 1028 stars classified in forty-eight constellations. Each star is named by its position in the figure supposed to include the stars of the group. Thus the constellation Draco contains thirty-one stars, some of which received the following descriptive names: "the star upon the tongue," "the star in the mouth," "the star above the eye," etc. This method of naming the stars continued in use until the eighteenth century, when a letter or a number with the Latin genitive of the constellation was used. In Ptolemy's catalogue appears the first comparative list of stellar magnitudes.

The constellations of the Greeks were ultimately accepted and adopted by the Persians, Hindus, Arabs, the nations of Western Asia, and the Romans, from whom they have been borrowed by the modern world. To Greece, then, we are indebted for the figures now depicted on our celestial globes and the many interesting myths associated with them, notably the legend of Perseus and Andromeda, which is fully illustrated in the starry skies.

Although the savages of prehistoric times first bequeathed the stellar configurations to science, we listen to their harsh ideas, as Bacon puts it, "as they come to us blown softly through the flutes of the Grecians."

From the time of Ptolemy till the year 1252, no advance of importance was made in the matter of cataloguing the stars, but in this latter year there appeared the celebrated Alphonsine Tables compiled by Arabian or Moorish astronomers at

Toledo under the auspices of the subsequent King Alphonso X., known as "the Wise."

A correction of Ptolemy's sphere was published by the Arabian astronomer Ulugh Beg in 1420 A.D., in which there was a description of the constellations derived from Al-Sufi's translation of five centuries previously.

The catalogues of Copernicus and Tycho Brahe followed, the former's great work laying the foundations of modern astronomy. In 1603 the *Uranometria* of Johann Bayer appeared in Germany. This chart contained forty-eight constellations and a list of 709 stars. Bayer invented the system in vogue to-day of denoting each star by a letter of the Greek alphabet, the brightest star in each figure being designated Alpha with the Latin genitive of the constellation. It was soon found that the stars in many of the groups exceeded the number of letters in the alphabet, and such stars were denoted by the letters of the Roman alphabet.

Succeeding Bayer's catalogue there appeared consecutively the charts of Bartsch, Schiller, Kepler, Royer, Halley, and in 1690 that of Hevelius, who added the asterisms of the Hunting Dogs, the Giraffe, the Lizard, the Unicorn, the Lynx, the Sextant, Fox and Goose, and Sobieski's Shield, all recognised by modern astronomers.[2]

Flamsteed's catalogue, published in 1719, comprised fifty-four constellation figures, and exhibited a new method of stellar designation, the stars being consecutively numbered in the order of their right ascension, a method employed in modern charts for the fainter stars.

La Caille, known as "the true Columbus of the southern sky," in his publications of 1752 and 1763, invented fourteen

2 In the case of the charts of Bartsch and Schiller it is of interest to note that these astronomers endeavoured to do away for all time with the old constellation names, and Christianise, so to speak, the stellar hosts. On their charts the twelve Apostles were each represented by a constellation, and other Biblical names were substituted for the time-honoured figures. It is needless to add that this nomenclature was not popular and failed of general adoption.

new star groups which included the names of many instruments of the sciences and fine arts, the majority of which have been rejected by modern delineators of the constellations.

Subsequently Le Monnier, Bode, and Lalande published stellar catalogues, adding new asterisms, the latter's chart containing a total of eighty-eight constellations.

In 1840 the famous German astronomer Argelander published his star catalogue, the most complete that had appeared up to that time. It contained 210,000 stars. Argelander brought order where there had been much confusion, by separating one constellation from another by irregular boundary lines, so that all the stars would be embraced within the borders of some stellar figure. His system is employed in many of the modern charts of the heavens.[3]

To-day there are over a hundred large catalogues of the stars, but there is a discrepancy in the number of constellations accepted by astronomers. Prof. Young recognised sixty-seven as in ordinary use, and in these northern latitudes about fifty-five are generally known.

Allen tells us that "eighty or ninety may be considered as now more or less acknowledged, while probably a million stars are laid down on the various modern maps, and this is soon to be increased perhaps to forty million on the completion of the present photographic work for this object by the international association of eighteen observatories engaged upon it in different parts of the world."

In conclusion, it may be of interest to review briefly the conception of the firmament in vogue in ancient times among the different nations of the old world.

The Persians are said to have considered 3000 years ago that the whole heavens were divided up into four great districts,

3 Photography has played an important part in stellar catalogues of recent years, Kapteyn's chart made up from plates taken at Cape Town containing over 300,000 stars, and every year approximately 2000 plates of the heavens are taken by the astronomers in charge of the Harvard College Observatory Station at Arequipa, Peru.

each watched over by one of the "Royal Stars," Aldebaran, Antares, Regulus, and Fomalhaut.

The Assyrians looked upon the stars as divinities, endowed with beneficent or evil powers.

Among the Chaldeans the sky was regarded as a boat, shaped like a basket. The space below was the earth, which was flat and surrounded by water.

The Egyptians worshipped Osiris and Isis as ancestors, and showed Plutarch their graves, and the stars into which they had been metamorphosed.

The ancient Peruvians thought that there was not a beast or bird on earth whose shape or image did not shine in the sky. They considered the luminaries and stars guardian divinities and worshipped them. They also thought that the stars were the children of the sun and moon.

The Hebrews had a notion that the sun, moon, and stars danced before Adam in Paradise.

The Bushmen, or early inhabitants of Africa, regarded the more conspicuous stars as men, lions, tortoises, etc. They believed that the sun, moon, and stars were once mortals on earth, or even animals, or inorganic substances which happened to get translated to the skies.

In New Zealand heroes were thought to become stars of greater or less brightness according to the number of their victims slain in battle.

The North American Indians believed that many of the stars were living creatures, and knew Ursa Major as a Bear, the same figure known in the Far East.

The Tannese Islanders divided the heavens into constellations with definite traditions to account for the canoes, ducks, and children that they see in the skies.

In the South Pacific islands dying men will announce their intention of becoming a star, and even mention the particular part of the heavens where they are to be looked for.

The Eskimos thought that some of the stars had been men

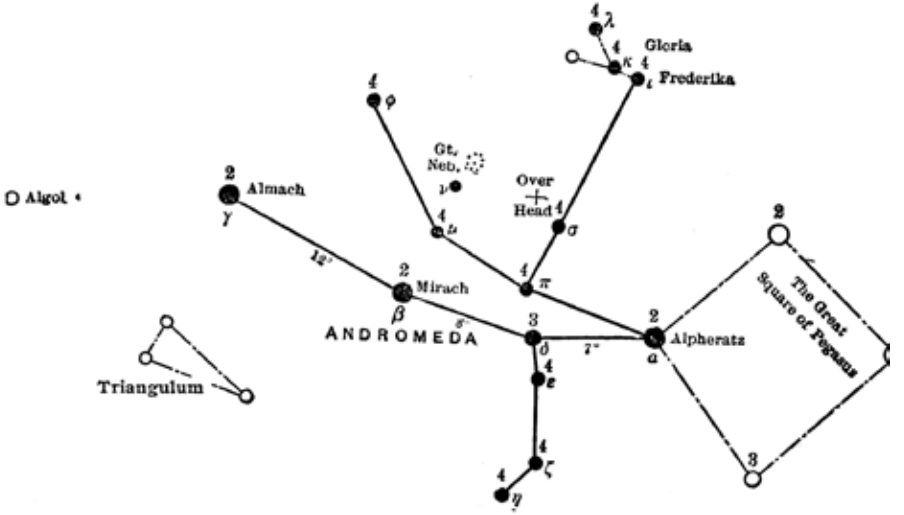
and others different sorts of animals and fishes, which was also the mythical belief of the Greeks and Romans.

According to Slavonic mythology the stars are regarded as living in habitual intercourse with men and their affairs.

An ancient legend was that there were no stars till the giants of old, throwing stones at the sun, pierced holes in the sky, and let the light of that orb shine through the holes which we call stars,—and Anaximenes thought that the stars were fixed in the dome of heaven like nails.

Thus we find, as some one has put it, that "astronomy like a golden thread runs through history and binds together all tribes and peoples of the earth," and the girdle of stars we view nightly remains as the most ancient monument of the work of intelligent man, "the oldest picture book of all."

Andromeda
The Chained Lady


Algol
Almach
γ
Gt. Neb.
Over Head
Gloria
Frederika
Mirach
β
ANDROMEDA
Alpheratz
α
The Great Square of Pegasus
Triangulum

Andromeda

ANDROMEDA
THE CHAINED LADY

And there revolves herself, image of woe,
Andromeda, beneath her mother shining.

ARATOS.

THE origin of the constellation known to us as Andromeda is lost in remote antiquity, but the myth that relates to Andromeda, the daughter of Cepheus and Cassiopeia, and associated with the constellation, is probably as well known to-day as any that has come down to us. According to this myth, Cassiopeia boasted that she was fairer than the sea nymphs. This attitude was offensive to Neptune, who despatched a monster of the deep to ravage the seacoast. Cassiopeia, terrified at the prospect, besought the aid of the all-powerful Zeus, who ruled that her daughter Andromeda must be sacrificed to appease the wrath of the sea god. Consequently Andromeda, amid great lamentation, was chained to a wave-washed rock, there to await the coming of the sea monster to devour her.

In accordance with this legend, we find the constellation Andromeda depicted in the old star atlases as a beautiful maiden chained to a rock, with Cetus the Whale or the sea monster represented near at hand about to devour her.

In Burritt's atlas,[4] Andromeda is represented with chains

4 *Geography of the Heavens,* by Elijah H. Burritt.

attached to her wrists and ankles. The rock to which she was said to have been bound does not appear in the picture.

In the edition of the Alphonsine tables, Allen tells us Andromeda is pictured with an unfastened chain around her body, and two fishes, one on her bosom and the other at her feet, showing an early connection with the neighbouring constellation Pisces.

In the Leyden Manuscript, Andromeda is represented as lying partly clothed on the sea beach, chained to rocks on either side, and on a map printed at Venice in 1488 she is pictured as bound by the wrists between two trees.

The legend further relates that Perseus, flying through the air on his steed Pegasus, fresh from his triumph over the Medusa, espied the maiden in distress, and like a true champion flew to her assistance.

> Chained to a rock she stood; young Perseus stay'd
> His rapid flight, to woo the beauteous maid.

Holding the Medusa's head before him, he assailed the sea monster that threatened Andromeda, and immediately the creature was turned to stone, and the hero had the pleasure of releasing the wretched maiden.

For the statement that Perseus when he freed Andromeda was mounted on his winged steed Pegasus, there is however no classical authority.

The constellation Andromeda is bounded on the west by Pegasus, and on the east by Perseus, and thus links the two constellations together. This doubtless accounts for the presence of Pegasus in the myth.

Brown[5] thinks that in this legend of Andromeda and Perseus we have but another version of the all-pervading solar myth. Perseus may be Bar-Sav, the solar Herakles, and Andromeda his bride Schachar (the morning red).

5 *Stellar Mythology,* by Robert Brown, Jr.

Photo by Hantstaengl — Perseus and Andromeda (Berlin)

The Hindus have almost the same story in their astronomical mythology, and almost the same names that have come down to us. They call the constellation "Antarmada." In an ancient Sanscrit work are found draw-ings of Antarmada chained to a rock with a fish beside her.

Sappho, the Greek poetess of the 7th century B.C., refers to Andromeda, and Euripides and Sophocles both wrote dramas about her,—but there is little doubt, as Allen states, that the constellation originated far back of classical times in the valley of the Euphrates.

Plunket [6] is of the opinion that the constellation of Andromeda dates from 3500 B.C. in accordance with the other constellations around it, and there is some ground for believing that its date goes back to 6000 B.C.

In Dr. Seiss's mythology, Andromeda was intended for a prophetic symbol of the Christian church. Sayce claims that she appeared in the great Babylonian Epic of Creation of more than two millenniums before our era, in connection with the story of Bel Marduk and the dragon Tiamat, which doubtless is the foundation of the story of Perseus and Andromeda.

The constellation Andromeda has borne the following names:

Mulier Catenata, the woman chained.

Persea, as the bride of Perseus.

Cepheis, from her father.

Alamac, from the title of the star Gamma.

Some authorities claim that Andromeda was a native of Æthiopia and regard her as a negress. The Arabian astronomers knew these stars as "Al mar'ah al musalsalah," and to them they represented a sea calf or seal with a chain around its neck that united it to one of the two fishes.

Allen states that according to Cæsius, Andromeda represented the biblical Abigail of the Books of Samuel, and Julius

6 *Ancient Calendars and Constellations,* by E. M. Plunket.

Schiller in 1627 made of these stars the Sepulchrum Christi, the new Sepulchre wherein was never man yet laid.

Milton in his *Paradise Lost* thus refers to Andromeda:

> the fleecy star that bears
> Andromeda far off Atlantic seas
> Beyond the horizon.

Kingsley's *Andromeda* is beautifully descriptive of the constellation.

Pluche [7] accounts for the names of the constellations Perseus, Andromeda, and Cepheus in the following ingenius way:

It was an ordinary turn of the Hebrew and Phoenician languages to say that a city or country was the daughter of the rocks, deserts, rivers, or mountains that surrounded her or that were enclosed within her walls. Thus Jerusalem is often called "the daughter of Sion," that is, the daughter of drought or daughter of the barren hills contained within its compass. Palestine originally was nothing more than a long maritime coast consisting of rocks and a sandy flat shore. It was proper to speak of this long coast as the daughter of Cepheus and Cassiope, Cepha signifying a stone. If you would say in Phœnician, a long coast or a long chain or ridge, you would call it Andromeda. Palestine would have been destroyed had it not been for the assistance of the barks and pilots that voyaged to Pharos and Sais to convey provisions. Strabo informs us that the Phoenicians were accustomed to paint the figure of a horse upon the stern of their barks, but there was beside the winged horse (the emblem of navigation) a horseman bearing a peculiar symbol, and, as it were, the arms of the city of Sais. This was the Medusa's head. Furthermore, a bark in the vulgar tongue was called Perseus, which means a runner or horseman. This then according to Pluche was the meaning of the fabled sacrifice of Andromeda:—Exposed to a cruel

7 *History of the Heavens,* by Abbé Pluche

monster on the rocks of Joppa, in Syria, Andromeda (or the coast towns of Palestine), owed her deliverance to a flying rider, Perseus (the Phœnician barks), to whom the goddess of Sais had lent the frightful head of Medusa to turn all her enemies into stone with terror. Josephus wrote that in his day the inhabitants of Joppa showed the links and remains of the chain that bound Andromeda to the rock, and the bones of the sea monster.

Burritt suggests that the fable of Andromeda might mean that the maiden was courted by some monster of a sea captain who attempted to carry her away, but was prevented by another more gallant and successful rival.

Maunder [8] claims that in the 12th chapter of the Apocalypse there is an allusion to what cannot be doubted are the constellations Andromeda, Cetus, and Eridanus: " And the serpent cast out of his mouth after the woman, water as a river, that he might cause her to be carried away by the stream." Andromeda is always represented as a woman in distress, and the sea monster has always been understood to be her persecutor, and from his mouth pours forth the stream Eridanus.

The constellation Andromeda presents a beautiful appearance rising in the eastern sky in the early evening during the months of autumn. Low over the hills twinkle her chain of stars, sweeping down in a long graceful curve from the Great Square of Pegasus, like tiny lamps swinging from an invisible wire, a chain of gold with which heroic Perseus holds in check his winged steed.

Astronomically speaking, the great feature of interest in the constellation is the famous nebula, the so-called " Queen of the Nebulæ," or Al Sufi's "Little Cloud," said to have been known as far back as A.D. 905. In the West it seems to have been first observed by Simon Marius, Dec. 15, 1612. It is the only naked eye nebula, and according to Marius it resembles

8 *The Astronomy of the Bible,* by E. M. Maunder.

"the diluted light from the flame of a candle seen through horn." An arc light glimpsed through a dense fog is also descriptive of its naked eye appearance. [9] It is an enormous body, estimated to be in length as much as thirty thousand times the distance of the earth from the sun (ninety-three million miles), a proportion inconceivable. Herschel thought that the nebula was resolvable into separate stars, although his glass failed to prove the fact. Later observations with more powerful telescopes confirmed his opinion. An examination made at Cambridge in 1848 proved the existence of upwards of fifteen hundred minute stars within the nebula, while the nebulous character of the whole was still apparent. In the spectroscope this nebula gives clearly a continuous spectrum, thus proving that it is not a mass of incandescent gas but rather a highly condensed cluster of stars. Recent and more reliable calculations of its distance give it a light journey of about nineteen years.

The star Alpha Andromedæ, or Alpheratz as it was called by the Arabs, was formerly associated with the constellation Pegasus, and called Delta Pegasi. The Arabs also knew this star as "Sirrah," and it represented to them the horse's navel. Alpheratz is situated at the north-eastern corner of the Great Square of Pegasus, a stellar landmark, and is known as one of the "Three Guides," marking the equinoctial colure, the prime meridian of the heavens, Beta Cassiopeiæ and Gamma Pegasi being the other two guides. In astrology Alpheratz portended honour and riches to all born under its influence. It culminates at 9 P.M., on the 10th of November. Alpheratz is situated in the head of the figure of Andromeda, and was familiarly known as "Andromeda's Head" in England two centuries ago. In all late Arabian astronomy taken from Ptolemy it was described as the "Head of the Woman in Chains." According to Prof. Russell, Alpheratz has a dark companion

9 While Serviss says it resembles a whirlwind of snow, and the appearance of swift motion and terrific force is startling.

Great Nebula in Andromeda

spectroscopically revealed, revolving about it in a highly eccentric orbit, in a period of about one hundred days.

Gamma Andromedæ was known to the Arabs as "Almach." Allen tells us this name was derived from a phrase meaning a small predatory animal similar to a badger. The propriety of such a designation here is not obvious in connection with Andromeda, and the name would indicate that it belonged to a very early Arab astronomy. In the astronomy of China, Gamma, with other stars in Andromeda and Triangulum, was "Tien Ta Tseang," "Heaven's Great General." Astrologically this star was "honourable and eminent." The duplicity of Almach according to Allen was discovered by Johann Tobias Mayer of Gottingen in 1778, and Wilhelm Struve in 1842 found that its companion was a close double. Herschel regarded Almach as one of the most beautiful objects in the heavens, and Webb, Proctor, and Serviss all speak in glowing terms of the beautiful contrast in colour between the gold and blue of the primary and its companion. Almach certainly vies in beauty with the famous double Beta Cygni, and is perhaps with this exception the most charming of all double stars. It is an easy double for small telescopes and is consequently a great favourite with amateur astronomers. It requires a 5" glass at least to split the blue companion star. The celebrated meteor shower known as "the Andromedes II.," the so-called Bielid meteors of November, radiate from the vicinity of this star. There was a wonderful display of these meteors in 1872 and 1885. Delta Andromedæ marks the radiant point of the Andromedes I., a meteor shower due the 21st of July.

The fourth magnitude stars λ, χ, ε Andromedæ and the fifth magnitude star Ψ Andromedæ form a "Y"-shaped figure which bears the name of "Gloria Frederica" or Frederick's Glory, an asterism formed by Bode in 1787 in honour of the great Frederick II., of Prussia, who died in 1786. The figure is thus described: "Below a nimbus the sign of royal

dignity hangs, wreathed with the imperishable laurel of fame, a sword, pen, and an olive branch, to distinguish this ever to be remembered monarch, as hero, sage, and peacemaker." This figure, with the exception of the nimbus, appears on Burritt's Atlas, but later atlases omit the asterism entirely, and it is seldom mentioned.

The remaining stars in this constellation require no special mention.