THE HEAVENS IN APRIL, 1906.

BY HENRY NORRIS RUSSELL, PH.D.

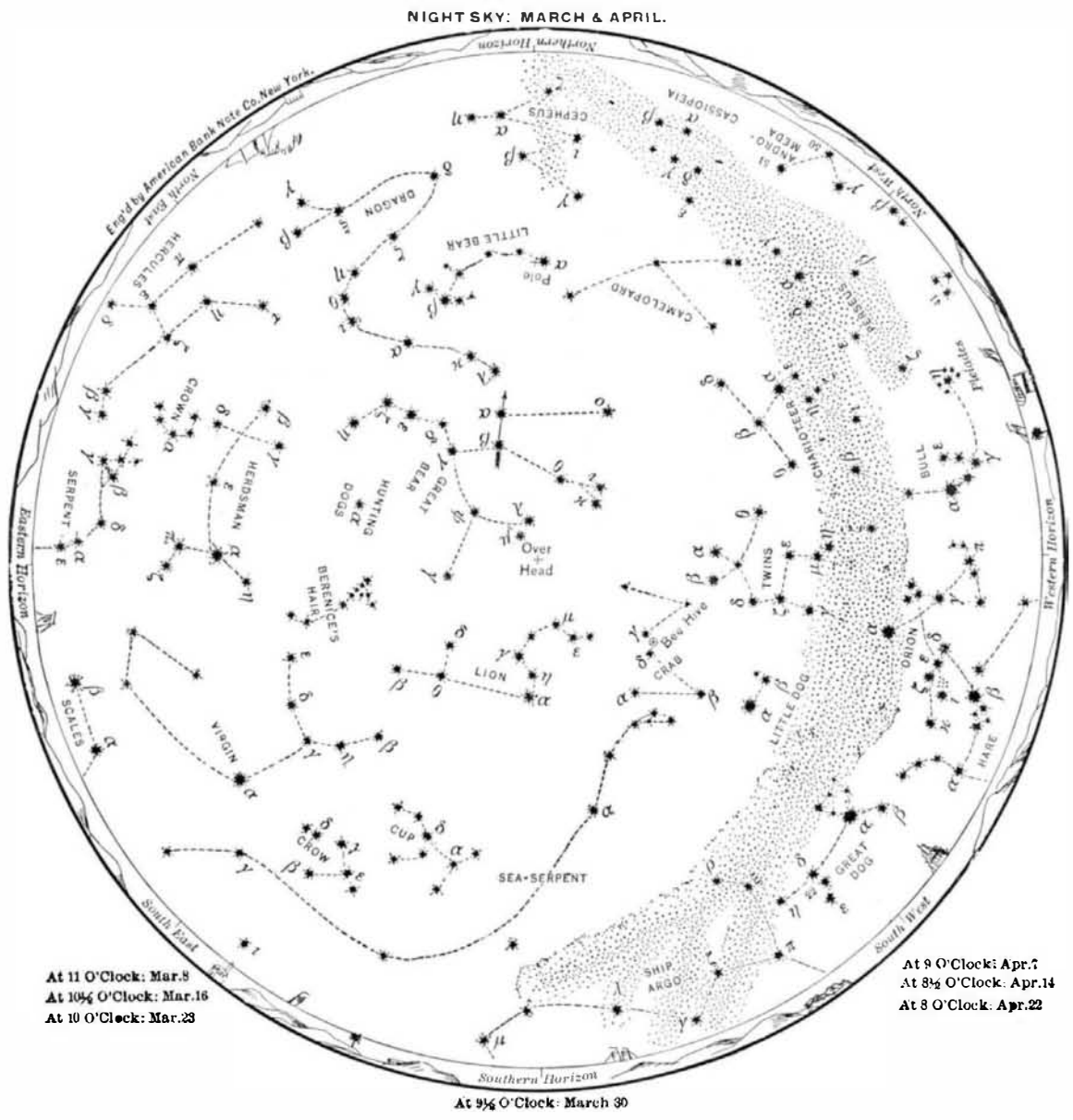
The star-map which accompanies this article was first published in this magazine just twenty years ago. But it is quite as useful now as it was then, for the aspect of the heavens has not changed enough in the interval to alter the place of any star on the map by as much as 1-200 of an inch. It represents the sky as it would be seen by an observer lying flat on his back with his feet toward the south and looking directly upward. This is hardly a convenient position, and for practical purposes it is best to hold the map vertical, and turn it so that the part of the margin which corresponds to the direction in which one is looking is at the bottom. It will then be a very easy matter to identify all the more conspicuous stars.

For example, if we face due west we will see Orion almost in front of us, low down near the horizon. To the right will be Taurus (the Bull) with the bright Aldebaran and the Pleiades and the still brighter planet Jupiter between them. On the opposite side of Orion is the Great Dog, Canis Major, with Sirius (denoted on the map by the Greek letter α, which is given it because it is the brightest star in the constellation). Above all these the Milky Way forms a great arch along the western sky. Following it from south to north we find first a few stars of the southern constellation Argo; then, after a blank space, the Little Dog, with Procyon; then Gemini, the Twins; then Auriga, the Charioteer; then Perseus, and finally the zig-zag line of Cassiopeia.

Turning our map now so that the south is at the bottom, we may identify Leo, high overhead; then Cancer, the Crab, to the right, with the fuzzy star cluster known as the Beehive (*Præsepe* in Latin). Below this is the head of the sea-serpent Hydra, whose ungainly length stretches far to the southeast, including many faint stars not shown on the map. On the back of Hydra stand the inconspicuous group of Crater, the Cup, and the more prominent one of Corvus, the crow.

The constellation of the Virgin is well visible in the southeast and to the left of it is the Herdsman (Boötes). The star α in this constellation is Arcturus, one of the brightest in the sky. Below this is the semi-circle of the Northern Crown and parts of Hercules and of Serpens, which are still rising.

North of the zenith is the Great Bear, now admirably displayed. The Dipper can be easily identified on the map. Its two brightest stars, α and β, point toward the Pole, as is shown by the arrow. The Little Bear lies to the right of the Pole, and Draco, the Dragon, enfolds it in his coils. Cepheus, one of the less prominent of the circumpolar constellations, lies below the Pole, but he is brilliant compared with Camelopard, a modern constellation invented to fill the great blank between Casseopeia and the Great Bear.



In the map, stars of the first magnitude are eight-pointed; second magnitude, six-pointed; third magnitude, five-pointed; fourth magnitude (a few), four-pointed; fifth magnitude (very few), three-pointed; counting the points only as shown in the solid outline, without the intermediate lines signifying star rays.

THE PLANETS.

Mercury is nominally evening star until the 4th and morning star after that date, but he is too near the sun to be seen until the latter part of the month, when he rises at about 4:30 A. M. and is visible before sunrise.

Venus is evening star and is once more becoming prominent in our evening skies. At the beginning of the month she is in Pisces and sets only about an hour later than the sun, but as the weeks go on she moves through Aries into Taurus and becomes steadily more conspicuous till at the end of the month she remains in sight until after 8 P. M.

Mars is also an evening star in Aries and Taurus, setting a little before 9 o'clock in the middle of the month. He is a long way from the Earth—about 220 million miles—but he still sends us as much light as a pretty bright star.

Jupiter is evening star, in Taurus, not far from Mars and Venus, which are rapidly overtaking him. On the 1st he remains in sight until 10:30 P. M., but on the 30th he sets a little after 9 o'clock.

Saturn is morning star in Aquarius, rising at 4 A. M. in the middle of the month. Uranus is in Sagittarius, and comes to the meridian about 5 A. M. on the 15th. Neptune is in Gemini and sets at about 8 P. M.

THE MOON.

First quarter occurs at 11 P. M. on the 1st, full moon at 1 A. M. on the 9th, last quarter at 3 P. M. on the 15th, and new moon at 11 A. M. on the 23d. The moon is nearest us on the 10th and farthest away on the 25th. She is in conjunction with Neptune on the 1st, Uranus on the 14th, Saturn on the 19th (when an occultation is visible in South America), Mercury on the 21st, Venus on the 24th, Mars on the 25th, Jupiter on the 26th, and Neptune again on the 28th.

A faint comet was discovered photographically by Kopff, of Heidelberg, on March 3. Calculation of its orbit shows that it is already moving away from the sun and from the earth, and that it will rapidly grow fainter and soon disappear.

Giacobini's comet and Brook's comet are also still in sight, but they are both growing fainter and are only of interest to telescopic observers. There is no other astronomical news of much interest.

Princeton, March 12, 1906.

PROPOSED BILL FOR THE EXTENSION OF PATENTS.

A bill which provides for the extension of patents has been introduced in both the House and the Senate through the efforts of the American Bar Association.

As most patent attorneys know, the Act of 1836 contained in one of its sections a provision for the extension of patents. During the twenty-five years of its life this provision afforded protection to many meritorious inventors who had failed to obtain a suitable reward from their invention during the terms of their patents. For some unknown reason this particular section providing for the extension of patents was repealed in 1861.

In the opinion of the American Bar Association's committee on patent, trade mark, and copyright law, a law permitting extension is an important requisite of our patent system. It is claimed that inventors are, as a class, in advance of their age. They enter a field already occupied by old devices, which in most cases must be displaced before the new invention can be introduced. This is a work of time, during which the patent is running. When the public has finally come to realize the value of the invention, the patent is often ready to expire. Or, if the invention goes sooner into use, the patent is infringed, and litigation must be begun and prosecuted to the end before the inventor can control the use of his invention and realize a profit from it. Sometimes infringement suits consume the entire term of seventeen years.

If the bill in question ever becomes a law it is obviously important that it should provide for extensions only in proper cases, and that the rights of the public should be carefully guarded so as to prevent the undue creation of oppressive monopolies. In the opinion of the American Bar Association, an application for an extension should require:

1. Evidence that the patent was valid when granted.
2. That the inventor has, through no fault of his own, reaped but a small reward from the invention, either because he was ahead of his age, or because the patent was infringed and that the litigation in which the validity of the patent was tested consumed many years of its life.
3. That no rights in others have arisen which would make it inequitable to extend the patent.
4. That the public will be benefited by the granting of the extension.
5. Application for extension should be published and everyone having an interest given an opportunity to oppose the extension if there is just cause for doing so. If an opposition is filed and on evidence the commissioner decides that the extension should be allowed or refused, the opponent or the patentee should be permitted to appeal to the Court of Appeals of the District of Columbia in usual course to review the decision of the commissioner.
6. The commissioner of patents should always exercise discretion as to the granting of extension, and should do so only in cases where the proofs conform to the foregoing requirements.

PEOPLE WHO HAVE EATEN BOOKS.

Among the causes that contribute to the destruction of books, says an Italian writer, Americo Scarlatti, there is one very curious one that may be called bibliophagia. No reference is intended to the mice that once destroyed in England an entire edition of Castell's "Lexicon Heptaglotton," but to human beings, who have literally devoured books.

In 1370 Barnabo Visconti compelled two papal delegates to eat the bull of excommunication which they had brought him, together with its silken cords and leaden seal. As the bull was written on parchment, not paper, it was all the more difficult to digest. A similar anecdote was related by Oelrich, in his "Dissertatio de Bibliothecarum et Librorum Fatis" (1756), of an Austrian general, who had signed a note for two thousand florins, and when it fell due, compelled his creditors to eat it. The Tartars, when books fall into their possession, eat them, that they may acquire the knowledge contained in them. A Scandinavian writer, the author of a political book, was compelled to choose between being beheaded or eating his manuscript boiled in broth. Isaac Volmar, who wrote some spicy satires against Bernard, Duke of Saxony, was not allowed the courtesy of the kitchen, but was forced to swallow them uncooked. Still worse was the fate of Philip Oldenburger, a jurist of great renown, who was condemned not only to eat a pamphlet of his writing, but also to be flogged duing his repast, with orders that the flogging should not cease until he had swallowed the last crumb.

The defects in the Italian railway service, instead of decreasing since the railways have been taken over by the State, are becoming more and more intolerable, says the Milan Times. Passenger trains are hours behind their schedule time, and the goods service simply baffles criticism. As an instance, one may state that it is now not an unusual occurrence for truckloads to take a month or more to get from Genoa to their Milan destination. At times the grain service to Switzerland has been practically suspended.