

POSITION OF THE PLANETS IN AUGUST.

JUPITER

is evening star. He retains his place as first on the list during August, but when the month closes, he loses his pre-eminence, for the splendor of his fair rival in the west equals if it does not exceed his own. He will, however, at the close of the month be near the meridian when Venus sets, and shine brightly for hours after she has disappeared below the western horizon. The bright star on the southeast of Jupiter is Fomalhaut, the bright star on the northwest is Altair. Observers will note how much larger and more brilliant Jupiter is than either of these first magnitude stars.

Jupiter sets on the 1st at 4 h. 41 m. A. M. On the 31st, he sets at 2 h. 25 m. A. M. His diameter on the 1st is 46".2, and he is in the constellation Capricornus.

VENUS

is evening star. She shines with increasing luster as she makes her way toward the earth, becoming visible soon after sunset, and continuing above the horizon for about two hours. Her diameter at the close of the month is twice as large as it was at superior conjunction. When seen in the telescope, she takes on the gibbous phase, like that of the moon passing from the full to the last quarter. This beautiful planet is near Spica on the 30th, passing 1° north of the star. Observers will note her rapid movement southward. She passes during the month from 4° 53' north declination to 10° 14' south declination.

Venus sets on the 1st at 8 h. 55 m. P. M. On the 31st, she sets at 8 h. 4 m. P. M. Her diameter on the 1st is 15".8, and she is in the constellation Leo.

MERCURY

is evening star. As he moves eastward from the sun, he encounters Saturn moving westward toward the sun. The planets are in conjunction, on the 9th, at 11 h. 56 m. P. M., Mercury being 34' south. They are both too near the sun to be visible.

Mercury sets on the 1st at 7 h. 46 m. P. M. On the 31st, he sets at 7 h. 18 m. P. M. His diameter on the 1st is 5".0, and he is in the constellation Leo.

MARS

is evening star. He is in conjunction with Antares on the 14th, passing 1° 25' north of the star he so closely resembles. Observers will note the approach of Mars and Jupiter, as well as the decreasing luster of the ruddy planet.

Mars sets on the 1st at 11 h. 44 m. P. M. On the 31st, he sets at 10 h. 33 m. P. M. His diameter on the 1st is 15".0, and he is in the constellation Scorpio.

SATURN

is evening star until the 30th and then he becomes morning star. He is in conjunction with the sun on the 30th at 2 h. P. M., and is of little account during the month, being too near the sun to be visible.

Saturn sets on the 1st at 8 h. 21 m. P. M. On the 31st, he rises at 5 h. 17 m. A. M. His diameter on the 1st is 15".4, and he is in the constellation Leo.

NEPTUNE

is morning star. He is in quadrature with the sun on the 30th at 1 h. A. M.

Neptune rises on the 1st at 0 h. 20 m. A. M. On the 31st, he rises at 10 h. 21 m. P. M. His diameter on the 1st is 2".6, and he is in the constellation Taurus.

URANUS

is evening star. He sets on the 1st at 10 h. 11 m. P. M. On the 31st he sets at 8 h. 15 m. P. M. His diameter on the 1st is 3".5, and he is in the constellation Virgo.

Mercury, Venus, Uranus, Mars, and Jupiter are evening stars at the close of the month. Saturn and Neptune are morning stars.

Copyrights in Different Countries.

The duration of copyrights in various countries, according to a *resume* given some months ago by a writer in the *Westminster Review*, is as follows: In *Greece* the period during which an author can hold a copyright is restricted to fifteen years; and the writer indicates his estimate of the limitation in a business point of view by saying that the modern Greeks thus justify their reputation as the most acute of business men. The *Swiss* grant copyright during the life of the author or his heirs during thirty years from the date of publication of his work. His heirs can have a copyright in his posthumous work for thirty years from the date of his death, if they publish the works within ten years of his decease. In the *United States* copyright is accorded to authors during twenty-eight years from the time when the title is recorded, and for fourteen years more if the author, or certain representatives of the author, be living, and if the title of the work in question be recorded anew within six months before the expiration of the twenty-eight years—the period during which the copyright was already secured. In *Japan* the ordinary copyright is accorded for thirty years; but fifteen years may be added to that period in favor of works of great utility. According to *English* law, authors enjoy a copyright for a term of forty-two years from the date of publication of the work, or

during the life of the author and seven years from the date of his death, whichever may be the longer. In *Brazil* the author enjoys a copyright for life, and it is extended for ten years after his death. In *Venezuela* the copyright endures for the life of the author, and fourteen years after his death. In *Holland* and *Belgium* the copyright lasts during the life of the author, and during twenty years after his death. In *Germany*, *Austria Hungary* and *Portugal* copyright endures during the life of the author, and during thirty years after his death. The duration of copyright in *Italy* is regulated in a peculiar manner. It endures for the life of the author and forty years after his death, or for eighty years after the publication of the work; the term of years being divided into two periods of forty years each. If the author dies within the first period of forty years, the remainder of the term is enjoyed by his heirs or assigns. The second period of forty years begins at the death of the author, if he has died after the first period of forty years has elapsed; or if he has died before then, at the end of the first period of forty years. During the second period any one is at liberty to republish the work on payment to the owner of the copyright of a royalty of five per cent on the price, which must be marked on the book. *France*, *Norway*, *Sweden* and *Denmark* accord a copyright during the life of the author and during fifty years after his death. *Russia* not only gives copyright for life and during fifty years after, but also for ten additional years if an edition of the work is published within five years from the end of the first copyright term. The law of *Spain* accords a copyright during the life of the author, and for eighty years thereafter. Only in *Mexico* is copyright perpetual.

Carelessness in Construction.

If men persist in running the ends of floor beams into the flues of chimneys and leaving them so, out of sheer laziness or besotted stupidity, says the *Independent*, it must be expected that houses so built will take fire. If apartment houses are built with a wooden box from cellar to roof, kiln dried in course of time, with temptations added in the use of matches and hot coals, the house will be on fire from cellar to roof in a flash, if the start of a little fire comes, whether the first week or the thousandth. If people build, and other people occupy, such a dwelling in the cellar of which a baker fries crullers in hot fat before daybreak in the morning, just as soon as the slipping of the baker's foot or some other little slip spills the fat on the fire the whole structure will be in a roar of flame, although there may be a hundred little children dreaming in their cribs on every floor. If builders run up a church wall and leave it unsupported by floor beams or shoring, and a heavy gale comes, the wall will crash down on a dwelling alongside. The intention, the plan, the forethought or lack of forethought, are all immaterial. The poison does not observe it has been swallowed by mistake, and therefore omit to attack the stomach in the way natural to it. It is the act, and not the motive, which determines results. And if a tinder box shaft is put into a building, or if there is a furnace flue placed too near the wood, these things act precisely as if they had been planned to set buildings on fire as soon as they are brought into the right conditions, and if there are open air spaces, and connecting within walls and under floors and roofs—as there are in all buildings except perhaps one in ten thousand—the fire goes through those spaces to the top as readily and certainly as if they had been planned to be the flues they really are. Then when the train which bad building and bad habits have laid goes off and the fire breaks out we run and bring a fire department maintained at a heavy cost, which stops the burning with a water damage second only to that of the fire, then we look to the insurance companies and consider that there is no real loss if only we have been "covered."

Now just as long as these bad habits continue, fires and all the list of preventable calamities will follow them. That these reckless ways will continue indefinitely is not to be expected—they are too costly, their cost will compel reform. But is it not time to seriously undertake the reform and stop the cost from running up further?

Six Thousand Dollars for Astronomical Discoveries.

Miss C. W. Bruce offers the sum of six thousand dollars during the present year in aiding astronomical research. No restriction will be made likely to limit the usefulness of this gift. In the hope of making it of the greatest benefit to science, the entire sum will be divided, and in general the amount devoted to a single object will not exceed five hundred dollars. Precedence will be given to institutions and individuals whose work is already known through their publications, also to those cases which cannot otherwise be provided for, or where additional sums can be secured if a part of the cost is furnished. Applications are invited from astronomers of all countries, and should be made to Professor Edward C. Pickering, Harvard College Observatory, Cambridge, Mass., before October 1, 1890, giving complete information regarding the desired objects.

Applications not acted on favorably will be regarded as confidential. The unrestricted character of this gift should insure many important results to science, if judiciously expended. In that case it is hoped that others will be encouraged to follow this example, and that eventually it may lead to securing the needed means for any astronomer who could so use it as to make a real advance in astronomical science.—*Science*.

The Rabbit Plague in Australasia.

A recent report by the United States consul at Sydney, N. S. W., gives a vivid idea of the extent of the rabbit pest in Australia. The extraordinary fecundity of the animals under the climatic conditions there prevailing have caused the country to be completely overrun with them. Vast regions are devastated, and the grass and other herbage is devoured. The government has spent immense sums to destroy and repress them. New South Wales has spent nearly \$4,000,000. Several thousand miles of wire fencing has been erected, and large amounts in bounties for scalps have been paid. The bounty has varied from two cents a scalp to twenty-four cents, according to the number of rabbits in the district. The rabbit hunters have earned from \$20 up to \$50 a week. The natural consequence has been that the extermination of rabbits has been the last thing desired by some of these rabbit hunters, and the bounty began to take the form of a practical subsidy or protection for the very animals it was desired to destroy. The employment of the rabbit hunters was made compulsory on the owners of land. The determination has at last been reached to discontinue the payment of such bounties.

Wire fencing has been found of use. A height of 3 feet, with 1½ mesh and No. 17 wire, has been found effective in excluding them. A wooden picket fence is also noted as giving good results.

The figure of five millions is given as the possible increase of two pairs of rabbits in three years. Yet even this is a low estimate of the possibilities of reproduction of rabbits. The average life of a rabbit is put at about nine years. The doe may have young eight times in a year, averaging eight each time. The first litter is produced when but four months old. The progressions based on these figures lead to astonishing results. For three years the possible progeny of two rabbits has been calculated as over thirteen millions, and for seven years as fifteen hundred millions. Of course these estimates may exceed reality, but they indicate the impossibility of killing off the foreign invader. Fifteen million skins have been exported from New South Wales in one year, yet the rabbits are not diminished. The climate of Australia seems to be such that no extraneous limit is placed to their propagation. In other lands they do not increase to any extent, and in settled places often become extinct. Instances of their destructive power are only too frequent in the antipodes. At a place called Terganyia, in 1889, 60,000 acres of grass were destroyed by them, although a million were killed on this identical tract.

At present the southwestern part of the continent is most afflicted. Curiously enough, tame rabbits will not spread. In the early history of the country they were introduced, but did not thrive. The origin of the present evil is traced to a single pair of wild brown rabbits liberated in Victoria. The first enactments against them were passed in 1879.

While their destruction would seem hopeless, in view not only of the figures given above, but an account of the experience of the past decade, attempts are still in progress. Poisoning is extensively used, of course unfitting the animals for food. This is held to be an advantage, as any utilization of the animal is in the line of opposition to its extermination. It is largely on account of poisoning that many canning factories started to utilize rabbits as a food product have been abandoned. Ferrets are found useful, but they have already done much harm to poultry and some of the interesting indigenous birds. Traps that kill the rabbits kill ferrets also, so the use of wire pounds to capture them in quantities alive is advised.

It will be remembered that a reward was offered by the government of New South Wales for a method for the destruction of rabbits. Up to the end of last year about 1,500 methods had been proposed and examined, but none answered the requirements. No less than 115 were for the destruction by disease. One curious scheme consisted in the killing of the females and letting the males escape. This, it is claimed, will bring about a preponderance of the males, who will worry the females to death. This plan is actually under trial now.

M. Pasteur, the eminent French biologist, proposed to introduce chicken cholera by inoculation. He reserved as his secret the method of preparing the virus, which secret he agreed to divulge only if the reward was given him. The method was tried most carefully under the superintendence of M. Pasteur's own assistants. Rodd Island, near Sydney, was chosen for the work. The commission reported adversely, holding that practically the virus was little or no better than arsenic or other known poison. Thus the reward of \$25,000 remains in abeyance, while the rabbits continue to be as bad a plague as ever.