

determine its origin. The impression which had previously prevailed that this remarkable butte, found in Arizona near to the Canyon Diablo, was caused by the fall of a meteorite, gave way before a volcanic theory which was established as correct.

The next annual meeting of the A. A. S. will be held in August, 1893, at Madison, Wis. Prof. William Harkness, of Washington, D. C., was elected president; Prof. F. W. Putnam, of Cambridge, Mass., permanent secretary; T. H. Norton, of Cincinnati, general secretary; and H. L. Fairchild, of Rochester, secretary of the council. Officers were also chosen for the various sections. It was announced that an anthropological congress would be held at the Columbian Exposition during the week following the next annual meeting of the A. A. S. with representatives of every American tribe, from Terra del Fuego to the Esquimaux of the Arctic zone. As an outgrowth of this congress, it is meant to found a museum of ethnology at Chicago, materials for which are now being collected by the ship load in Yucatan, Ecuador, Peru, Chile and elsewhere. A committee was appointed to secure rooms for the various sections of the A. A. S. to be used as headquarters during the entire period of the exposition, each room to be in the building the contents of which are most closely allied to the branch of science represented.

In connection with, and at the close of, the Rochester meeting, delightful excursions were made to Niagara Falls, Watkins Glen, Stony Brook Glen, the State Fish Hatchery near Mumford, to Mount Morris, Portage, and other localities. At the closing session Secretary Putnam announced that 65 members had been made fellows at this meeting; that 175 new members had been elected, and that 456 members and fellows had been registered as in attendance.

In our SUPPLEMENT this week will be found an interesting paper read before the association on explorations at Copan, Honduras, by Mr. M. H. Saville, and also a paper on mineralogical exhibits at the World's Fair, by Mr. Geo. F. Kunz.

POSITIONS OF THE PLANETS IN SEPTEMBER.

MARS

is evening star. His great work is accomplished, for the opposition of 1892 is an event of the past. He made his neighborly call, nearly a month since, and is now speeding his course away from the earth, while his ruddy luster is fading, and his marvelous size is diminishing. We place him first on the September annals on account of the widespread popular interest aroused by his unusual appearance. It is to be hoped that full reports may speedily be received from all the observatories that have made a specialty of the study of the Martian planet, and that thus all unreasonable expectations may be laid to rest. There are two points among the problems concerning Mars that are of special interest. One is the solution of the question regarding the nature of the so-called canals and their doubling. The other is the displacement of Mars among the stars at the time of opposition, in order to determine the solar parallax. When the observatories on both sides of the Atlantic have made full reports, and when these reports have been corrected, compared, and made into maps, we may hope to learn something of what was really seen on the face of Mars in the opposition of 1892. The earliest time to look for reliable tidings is in October, and the addition to our knowledge of the Martian planet will probably be small.

Mars contributes an important event to the record of the month. He is in perihelion, or nearest the sun, on the 7th at 3 h. 53 m. P. M., when he is 13,000,000 miles nearer the sun than when he is in aphelion or most distant from the sun. If perihelion and opposition had occurred together, Mars would have been a more distinguished object, but the most perfect conditions united are rare in celestial phenomena. The war god was satisfactory, though not arrayed in his most gorgeous garments.

Mars is stationary on the 4th, and then changes his course, moving eastward or in direct motion for the rest of the year.

OCCULTATION OF MARS.

The moon, two days before the full, occults Mars on the 4th, the planet disappearing on the dark edge of the moon. The phenomenon will be visible in Washington and vicinity. The immersion in Washington mean time takes place, on the 4th, at 1 h. 22 m. A. M., and the emersion at 2 h. 6 m. A. M., the occultation continuing 44 m.

The moon is in conjunction with Mars on the 4th at 0 h. 50 m. A. M., being 44' north.

The right ascension of Mars on the 1st is 20° 45', his declination is 24° 17' south, his diameter is 24".0, and he is in the constellation Capricornus.

Mars sets on the 1st at 2 h. 26 m. A. M. On the 30th he sets at 1 h. 1 m. A. M.

VENUS

is morning star. She will be superb in the September morning sky, rising about four hours before the sun. Her luster is, however, fading, though it will take bright eyes to perceive it. She reaches her greatest

western elongation on the 19th, at 1 h. A. M., when she is 46° 5' west of the sun. Henceforth, she will approach him, rise later, change from retrograde to direct motion, and slowly make her way toward the sun, until she is lost in his brilliant beams. When the year closes, she is still morning star.

The moon, four days before her change, is in conjunction with Venus, on the 16th, at 4 h. 56 m. P. M., being 7° 36' north.

The right ascension of Venus on the 1st is 7 h. 44 m., her declination is 17° 25' north, her diameter is 29".8, and she is in the constellation Gemini.

Venus rises on the 1st at 1 h. 53 m. A. M. On the 30th she rises at 2 h. 7 m. A. M.

JUPITER

is morning star. If Mars takes the first place on account of the great expectations aroused in the popular mind that important discoveries were obtained during his recent opposition, and Venus wins the second place from her exceeding beauty as morning star, Jupiter merits the third place, for he is lord of the ascendant in the solar community. He shines with increasing luster every night as he looms grandly above the horizon, appearing on the middle of the month at 7 o'clock, outshining Mars in his decadence, and reigning supreme over the star-lit sky, until Venus rises to bear him company. September is the month preceding his opposition, which occurs on October 12. The month before and the month after culmination include the best conditions for the observation of planets. This is eminently true of Mars, but in the case of Jupiter needs to be modified, for this giant planet is bright as long as he can be seen, shining with a radiant luster that seems never to grow dim. Jupiter will be the starry gem of the September nights, as, rising with majestic grace, he makes his way to the zenith, and slowly descends in the western sky until his light is lost beneath the western hills.

The moon makes a close conjunction with Jupiter on the 9th, at 7 h. 57 m. A. M., being 15' north. The conjunction is invisible, occurring in the daytime, but moon and planet will be near together on the evening of the 8th, and the celestial exhibition will be passing fair. The conjunction will be an occultation for observers who see the moon in her geocentric position, and who are within the limiting parallels of 56° north and 30° south latitude.

The right ascension of Jupiter on the 1st is 1 h. 32 m., his declination is 8° 0' north, his diameter is 45".2, and he is in the constellation Pisces.

Jupiter rises on the 1st at 8 h. 2 m. P. M. On the 30th he rises at 6 h. 12 m. P. M.

SATURN

is evening star until the 25th, and then morning star. He is in conjunction with the sun on the 25th, at 5 h. 25 m. P. M., when he passes from the eastern side of the sun to the western. This, according to astronomical calculation, ranks him as morning star. The law is that planets on the western side of the sun rise before him and are called morning stars, while planets on the eastern side of the sun set after the sun, and are called evening stars.

The moon the day after her change is in conjunction with Saturn, on the 21st, at 3 h. 48 m. A. M., being 1° 1' north.

The right ascension of Saturn on the 1st is 12 h. 5 m., his declination is 1° 49' north, his diameter is 15".0, and he is in the constellation Virgo.

Saturn sets on the 1st at 7 h. 21 m. P. M. On the 30th he rises at 5 h. 32 m. A. M.

MERCURY

is morning star. He reaches his greatest western elongation on the 11th, at 8 h. A. M., when he is 17° 55' west of the sun, and may be visible to the naked eye under favoring weather conditions.

The right ascension of Mercury on the 1st is 9 h. 59 m., his declination is 9° 46' north, his diameter is 9".6, and he is in the constellation Leo.

Mercury rises on the 1st at 4 h. 36 m. A. M. On the 30th he rises at 5 h. 24 m. A. M.

NEPTUNE

is morning star. He is in quadrature with the sun on the 3d, at 5 h. A. M., being 90° west of the sun. His right ascension on the 1st is 4 h. 40 m., his declination is 20° 36' north, his diameter is 2".6, and he is in the constellation Taurus.

Neptune rises on the 1st at 10 h. 32 m. P. M. On the 30th he rises at 8 h. 38 m. P. M.

URANUS

is evening star. The moon makes a very close conjunction with Uranus on the 23d, at 8 h. 10 m. P. M., being 5' south. The moon occults the planet for observers who see her in her geocentric position. Jupiter is occulted under the same conditions. The moon therefore occults four planets, Mars, Jupiter, Saturn, and Uranus, during the month.

The right ascension of Uranus on the 1st is 14 h. 4 m., his declination is 12° 8' south, his diameter is 3".5, and he is in the constellation Virgo.

Uranus sets on the 1st at 8 h. 32 m. P. M. On the 30th he sets at 6 h. 41 m. P. M.

Venus, Jupiter, Mercury and Neptune are morning stars or on the sun's western side at the beginning of the month. Mars, Saturn and Uranus are evening stars or on the sun's eastern side.

A New Hybrid Oak.

A glance at the last edition of Gray's "Manual of Botany" will show a list of hybrid oaks, and it will be observed that *Quercus nigra*, the black jack oak, has given rise, as one of the parents, to two forms, and that *Quercus ilicifolia*, the black scrub oak, has given rise to one. Thus *nigra* crosses with the shingle and the willow oaks and *ilicifolia* probably with the scarlet oak. These forms are recognizable, particularly the first two, which have in consequence received names. The fact that *nigra* crosses with *ilicifolia*, however, has not been recorded, but a number of interesting trees of this parentage may be seen on the sandy soil at Watchogue, on Staten Island.

*Quercus nigra* is plentiful there, and so is *Quercus ilicifolia*, and among these trees, which are easily separated, stand a number of forms that have in part the characters of each. They resemble *nigra* in being erect in growth, in the abruptly tapering branches, and in having the leaves rusty-pubescent beneath. They resemble *ilicifolia* in being small, in their smooth, light-colored bark, and in the retention of their catkins throughout the summer. Occasionally a *Q. nigra* will retain its catkins late into the year, but it is not a usual feature of the tree, as with *ilicifolia*.

These trees vary considerably individually, and are as interesting in this respect as the hybrid oaks reported from Richmond Valley, Staten Island, in the SCIENTIFIC AMERICAN of November 10, 1888. A more extended account is being prepared, but this will serve to give an idea of this interesting hybrid. As it is a recognizable form, I wish to propose for it the name of *Quercus brittoni*, after Dr. N. L. Britton, who was born on the island, and who, with Mr. Arthur Hollick, has done so much in making known its flora.

WILLIAM T. DAVIS.

A Mountain Search Light.

A splendid electrical search light has lately been installed at the little hotel on the summit of Mt. Washington, N. H., and several very interesting experiments have been tried with it recently. By throwing the light toward the sky at an angle of about 45° the reflection was seen in the air above Portland, Me., a distance, air line, of 85 miles; but the angle transversed by the light flashes was 110 miles. Telegraphic messages by means of these flashes were sent from Mt. Washington to the Western Union Office in Portland, and answers returned by wire.

It would be an interesting experiment to locate another flash light of equal power on some elevated point far distant from Mt. Washington, and thus establish flash light communication in both directions. Long distance signaling by sunlight by means of mirrors has been practiced for military purposes. But this requires the signaling stations shall both be in the line of vision. Moreover, the system can only be worked during sunshine. With the electric system it is not necessary the stations shall be in the direct line of vision, as the sky above the objective station receives the illumination.

Precautions Against Cholera.

Official information having been received of an epidemic of cholera in Russia, and in view of the large immigration into the United States from said country, and of the danger that exists of the introduction of cholera into the United States through the medium of personal effects and baggage of said immigrants, it is by the Treasury Department ordered that on and after September 18, 1892, no vessel having on board personal baggage, bedding, clothing, etc., belonging to immigrants from Russia or belonging to immigrants from any cholera-infected district, shall be admitted entry into the United States unless accompanied by a certificate from the consular officer at the port of embarkation to the effect that said personal effects, baggage, etc., have been disinfected in accordance with the methods hereinafter described.

For the disinfection of said articles one or more of the following methods will be used, all articles to be unpacked and freely exposed for disinfection:

1. Boiling in water not less than one hour.
  2. Exposure to steam not less than one hour, the steam to be of a temperature not less than 100 degrees Centigrade (212 degrees Fah.), nor greater than 115 degrees Centigrade (239 degrees Fah.), and unmixed with air.
  3. Solution of carbolic acid of a 2 per cent strength.
- This method (No. 3) may be applied *only* to leather goods, such as trunks, satchels, boots, shoes, to rubber goods, etc., the articles to be saturated with the solution.

ACCORDING to the *Street Railway Review*, there are now nearly 1,000 street railway companies in the United States, of which fully 400 are electrically operated, in whole or in part.