

THE HEAVENS FOR SEPTEMBER.

BY WILLIAM R. BROOKS, M.A., F.R.A.S.

THE SUN.

The sun's right ascension on September 1 is 10 h. 44 m. 11 s.; and its declination north 8 deg. 1 m. 15 s.

Its right ascension on September 30 is 12 h. 28 m. 37 s.; and its declination south 3 deg. 5 m. 32 s.

On September 22, at 2 h., the sun enters Libra and autumn commences. It will repay the interested student of solar phenomena to watch the sun for sun spots. A very large group has been visible through the early part of July, and this group will doubtless appear again by the sun's rotation early in September. Other spots are also likely to make their appearance.

MERCURY.

Mercury is evening star during the early part of the month. On September 22, at 7 h., it comes into inferior conjunction with the sun and changes to morning star.

On September 8 Mercury is stationary as evening star, and again on September 30 as morning star.

On September 11 Mercury reaches its greatest heliocentric latitude south; and on September 30 it is at its ascending node.

On September 25, at 9 h. 37 m., Mercury will be in conjunction with the moon, when the planet will be 2 deg. 35 m. north of the moon. On September 27, at 6 h., Mercury will be in conjunction with Jupiter, with Mercury 2 deg. 17 m. south of Jupiter.

The right ascension of Mercury on the first of the month is 12 h. 16 m. 19 s.; and its declination south 5 deg. 11 m. 15 s. On the last of the month its right ascension is 11 h. 36 m. 52 s., and its declination north 2 deg. 39 m. 22 s.

VENUS.

Venus is morning star. On September 11, at 11 h., it is at its ascending node. On September 23, at 6 h. 54 m., Venus is in conjunction with the moon, when Venus will be 2 deg. 48 m. north of the moon.

On the first of the month Venus rises at 2 h. 15 m., and crosses the meridian at 9 h. 27 m. A. M. On the last of the month Venus rises at 3 h. 12 m., and crosses the meridian at 9 h. 50 m. A. M.

The right ascension of Venus on the fifteenth of the month is 9 h. 22 m. 4 s., and its declination north 15 deg. 41 m. 4 s.

MARS.

Mars is evening star. It will be in conjunction with the moon on September 27 at 5 h. 51 m., when Mars will be 5 deg. 44 m. north of the moon. On September 1 Mars crosses the meridian at 1 h. 33 m. and sets at 7 h. 33 m. P. M. On the last of the month Mars crosses the meridian at 0 h. 50 m. and sets at 6 h. 20 m. P. M.

The right ascension of Mars on the fifteenth of the month is 12 h. 50 m. 27 s., and its declination south 4 deg. 55 m. 15 s.

JUPITER.

Jupiter is evening star during the early part of the month. On September 13 Jupiter is in conjunction with the sun, and after that date will be morning star. On September 25, at 7 h. 4 m., Jupiter will be in conjunction with the moon, when the planet will be 5 deg. 27 m. north of the moon. The conjunction of Jupiter and Mercury on September 27 has been already mentioned in the section on Mercury. Jupiter will be too near the sun for observations of its satellites during September.

On September 1 Jupiter crosses the meridian at 84 minutes past noon and sets at 6 h. 54 m. P. M. On the last of the month Jupiter rises at 4 h. 50 m. A. M. and crosses the meridian at 11 h. A. M.

The right ascension of Jupiter on the fifteenth of the month is 11 h. 29 m. 14 s., and its declination north 4 deg. 27 m. 50 s.

SATURN.

Saturn is evening star, and fairly well placed for observation as soon as it is dusk.

Saturn will be in conjunction with the moon on September 2 at 5 h. 4 m., when the planet will be 6 deg. 58 m. north of the moon. Saturn will be again in conjunction with the moon on September 30, at 2 h. 33 m., when Saturn will be 6 deg. 36 m. north of the moon.

On the first of the month Saturn crosses the meridian at 4 h. 48 m. and sets at 9 h. 47 m. P. M. On the last of the month Saturn crosses the meridian at 3 h. 2 m. and sets at 8 h. P. M.

The right ascension of Saturn on the fifteenth of the month is 15 h. 36 m. 33 s., and its declination south 17 deg. 26 m. 38 s.

URANUS.

Uranus is in the southwestern evening sky, in the vicinity of Saturn and just below that planet. The right ascension of Uranus on September 10 is 15 h. 33 m. 18 s., and its declination south 18 deg. 58 m. 59 s.

NEPTUNE.

Neptune is in the morning sky. On September 14 it is in quadrature with the sun, or ninety degrees west thereof. On September 25 Neptune is stationary. The right ascension of Neptune on the fifteenth of the month is 5 h. 27 m. 48 s., and its declination north 21 deg. 52 m. 46 s.

Smith Observatory, Geneva, N. Y., August 17, 1897.

Burial Places and Causes of Death of Our Presidents.

1. George Washington died from a cold which brought on laryngitis; buried on his estate at Mount Vernon, Va.

2. John Adams died from senile debility; buried at Quincy, Mass.

3. Thomas Jefferson died from chronic diarrhea; buried on his estate at Monticello, Va.

4. James Madison died of old age; buried on his estate at Montpelier, Va.

5. James Monroe died of general debility; buried in Marble Cemetery, New York City.

6. John Quincy Adams died of paralysis, the fatal attack overtaking him in the House of Representatives; buried at Quincy, Mass.

7. Andrew Jackson died of consumption and dropsy; buried on his estate, the Hermitage, near Nashville, Tenn.

8. Martin Van Buren died of catarrh of the throat and lungs; buried at Kinderhook, N. Y.

9. William Henry Harrison died of pleurisy, induced by a cold taken on the day of his inauguration; buried near North Bend, Ohio.

10. John Tyler died from a mysterious disorder like a bilious attack; buried at Richmond, Va.

11. James K. Polk died from weakness, caused by cholera; buried on his estate in Nashville, Tenn.

12. Zachary Taylor died from cholera morbus, induced by improper diet; buried on his estate near Louisville, Ky.

13. Millard Fillmore died from paralysis; buried in Forest Hill Cemetery, Buffalo, N. Y.

14. Franklin Pierce died of inflammation of the stomach; buried at Concord, N. H.

15. James Buchanan died of rheumatism and gout; buried near Lancaster, Pa.

16. Abraham Lincoln, assassinated by J. Wilkes Booth; buried at Springfield, Ill.

17. Andrew Johnson died from paralysis; buried at Greenville, Tenn.

18. Ulysses S. Grant died from cancer of the throat; buried in Riverside Park, New York City.

19. Rutherford B. Hayes died from paralysis of the heart; buried at Fremont, Ohio.

20. James A. Garfield, assassinated by Charles J. Guiteau; buried at Cleveland, Ohio.

21. Chester A. Arthur died from Bright's disease; buried in Rural Cemetery, Albany, N. Y.—Medical and Surgical Reporter.

How to Make a Dark Room Lamp.

Make a box of half inch wood of sufficient size to accommodate a paraffin lamp which you may have, and have about one inch all round or more to spare. Fix a ledge all round the inside of the box half an inch high and half an inch down the box from the open end. Then fit a frame on hinges to one side of the box, and so made that, when shut, it closes up tight against the ledge, and its upper surface is flush with the edges of the box. Then on the opposite side of the box attach another similar frame, hinged to the edge of the box; so that when the first frame is shut down the other frame can be shut over it, fitting flat on the edges of the box. The frames are to be made of half inch wood and about one inch wide, each side. Then fasten buttons on the box to fasten each frame when shut down.

In the top of the box cut a small hole, and arrange a piece of tin over it, so as to let air out, but not light. Similarly with about six small half inch holes in a row at the back of box, along the bottom. This is all the ventilation required. A small hole, say three inches by two inches, at one side is useful, if glazed with ruby glass, both to see how the lamp is going on and to shed a side light over your table, so that you can see where your dishes, etc., are. All you have now to do is to paste one thickness of canary fabric over the first (inner) frame and two thicknesses of ruby fabric over the outer frame. This will give a perfectly safe light for isochromatic plates when both frames are shut, and if you open the outer frame you have a yellow light that is delightful for bromide paper work. Of course, the thicknesses of the fabrics depend on the brightness of the lamp, but the above are safe with a four candle power lamp.

A shade is a very desirable and yet easily made addition. Make one of tin, fastened with a pin at each side and a side stay, so that you can fix it in any position you like, say very far down at the commencement of developing, and move it higher and higher as it goes on. The shade also acts as a protection to the front of the lamp, if it is put away with the shade shut right down. It is also a good plan to wax the fabrics before pasting them on. It secures them from splashes of developer, etc. With a simple arrangement of a projecting pin you can regulate the wick from the outside. For white light, to print bromides or other things, you simply open both doors, and take lamp out if you wish through the front.

You can put a reflector in by getting a piece of sheet tin and cleaning it well; bend it in a semicircle, push it through the front of lamp, and let it go, when it will spring out and fit tightly inside the box. A couple of

screws through the back of the box makes this a firmer job, and you will have to cut a hole in the tin if you have a side light as suggested above.—"Hypop," in Photographic News.

Motor Cycles Break Records.

The race from Paris to Trouville, on August 14, was witnessed by a large number of people. There were sixty-four starters who left St. Germain at 10 o'clock. The conditions were as favorable to speed making as the record established three weeks before in the race from Paris to Dieppe. The distance of 173 kilometers (107 miles) which separated St. Germain from Trouville was covered by M. Jannin, upon the Bollée tricycle, in three hours and fifty-one minutes. M. Jannin also won the Paris-Dieppe race in four hours and thirteen minutes. He therefore managed to cover the distance of three kilometers longer in twenty-two minutes less time.

The winner of the race for carriages was also the winner of the same event in the Paris-Dieppe contest—that is, M. Gilles Hourgieres. Here is an abbreviated list of arrivals in the motorcycle class:

	Hours.	Minutes.
First, M. Jannin.....	3	51
Second, M. Pean.....	4	28
Third, M. Tetu.....	4	48
Fourth, M. Comiot.....	5	25

Carriage class arrivals were:

First, M. Gilles Hourgieres.....	4	20
Second, M. Lemaitre.....	4	21
Third, the Comte de Dion.....	4	30
Fourth, M. Knyff.....	4	34

Perfume in Flowers.

The great leading object in nature in providing nectar and fragrance in flowers is still a subject of discussion in scientific journals, says The Independent. That some flowers are unable to fertilize themselves and must have the aid of insects is certain; and it is also certain that in many cases this fertilization is accomplished by the insect while on foraging expeditions for the sweets which flowers furnish. But these well-ascertained facts cover but a small portion of the ground. The fertilization is as often accomplished by insects in search of pollen as in search of honey; but it is not contended that pollen is given to flowers in order to make them attractive to insects, as is said of the sweet secretions. It is believed that nectar must be of some direct value to the plant, as well as the pollen; and the effort is to find out what is the chief office of nectar in the life history of the flower. Since thought has been turned in this direction a new class of facts is being recorded. In California grows a lupine (*Lupinus confertus*) which often takes exclusive possession of large tracts of land. It does not yield a particle of nectar. It has bright crimson-violet flowers, and these are produced in such abundance that the color of the mass may be noted at long distances. But it has fragrance. This is so powerful that the traveler notes it long before he meets with the growing plants. The pollen-collecting insects visit the flowers in great numbers. It is believed that cross fertilization can be effected by these pollen-collecting intruders. At any rate, the fragrance would be thrown away if it were provided for the mere sake of advertising for insect aid—as the other numerous species of lupine which have no fragrance are as freely visited by bees for the sake of the pollen as is this species. The cross fertilization is effected as freely without fragrance as with it. This point has been made before, though with no reference to the philosophical questions involved. Fragrant flowers are the exception, not the rule. In some families of plants where there may be several scores of species only one or two are fragrant. This has been especially noted among the wild species of violet. But no one has so far been able to note the slightest advantage in life economy which the sweet-scented ones possess over the odorless ones.

The Meeting of the British Association.

The first session of the British Association for the Advancement of Science was held at Toronto on August 18, at which time the president elect, Sir John Evans, delivered an address. The visitors were welcomed in the afternoon at the Horticultural Gardens. Among those present were Lord Lister, the retiring president, Sir John Evans and Lord Kelvin. The Earl of Aberdeen made brief remarks and was followed by Mayor Shaw. Lord Lister, Sir John Evans and Lord Kelvin responded briefly but appropriately. The address in the evening was listened to by an audience of twelve hundred. After allusions to the large number of Americans present, to the return of the Mayflower's log, to the death of Prof. Cope, Sir John announced that he would undertake no general review of recent scientific progress, but would discuss a question belonging to his own field of study—archæology. At the close of the interesting address, the Governor-General moved a vote of thanks, and Lord Kelvin in seconding the motion paid a handsome tribute to Sir John Evans, and expressed his admiration of Canada's splendid empire. The audience sang "God Save the Queen" before dispersing.