Scientific American.

ESTABLISHED 1845.

MUNN & CO., Editors and Proprietors.

PUBLISHED WEEKLY AT
NO. 37 PARK ROW, NEW YORK.

O. D. MUNN. A. E. BEACH.

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VOL. XXXVII., No. 7. [NEW SERIES.] *Thirty-second Year.*

NEW YORK, SATURDAY, AUGUST 18, 1877.

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THE SCIENTIFIC AMERICAN SUPPLEMENT,
No. 85,
For the Week ending August 18, 1877.

Remit by postal order. Address

MUNN & CO., PUBLISHERS,
37 Park Row, New York.

☞ Single copies of any desired number of the SUPPLEMENT sent to any address on receipt of 10 cents.

POISON IVY AND ITS REMEDIES.

A correspondent asks: "Can you inform me by what characteristics I can determine the poisonous species of dogwood and ivy, and what simple remedy there is for their effect on the skin?"

Poisonous dogwood is a name improperly given in some parts of the United States to the rhus venenata, a species of poisonous sumach. It is sometimes called poison elder. It is a neat, graceful shrub growing from 6 to 18 feet high, and is found in swamps from Canada to Louisiana. The young shoots are purple or green clouded with purple, and marked by orange-colored dots which turn grayish; the leaves have 7 to 13 leaflets, which are dark green, pointed and entire on the margins; the greenish yellow flowers are in loose axillary panicles, and the greenish white fruit hangs in loose clusters on stems 6 to 8 inches long, and remains after the leaves have fallen; the juice is milky, and dries to a black varnish. This has poisonous qualities which are virulent. Its effect is an acute eczematous inflammation of the skin, often accompanied with much swelling.

The poison ivy or poison oak, in some places called mercury vine, the toxicodendron group of the botanists, includes two species with white or dun-colored berries in loose panicles and highly poisonous foilage. It has leaves of 3 leaflets, which are rhombic ovate, and variously notched, lobed, or even entire; its flowers are in loose slender axillary panicles; the smooth fruit is pale brown. It is found nearly all over the country, and especially in moist and shady places, and presents two forms, one erect and the other climbing. It clambers over rocks and fences, and by means of aerial rootlets ascends the trunks of the tallest trees, and adheres with great pertinacity. When wounded it exudes a milky juice, which becomes black on exposure to the air, and upon fabrics makes a stain indelible by all ordinary solvents. The leaves taken internally promote the secretions of the skin and kidneys. This plant is highly poisonous to some persons. Many can handle these plants without any unpleasant results, while others are seriously affected by touching them or even passing near them. The poisonous properties are due to a volatile acid, which has been called toxicodendric.

Many remedies are employed for poisoning by these plants, some of which will have beneficial effect on some persons, while on others have no effect at all. Water saturated with salt will often prove a cure, and at other times have no effect. The same may be said of sweet oil. There has been a remedy employed in some of the New England States that has been claimed to be effectual. It was this, the fat of the common black snake (*bascanion constrictor*) rendered into oil and applied to the parts affected. A strong lye made from wood ashes has been beneficially used, and so has an application of iodide of potassium. Another remedy is to take the fresh bark of the witchhazel (*Virginian hamamelis*), boil and apply the liquor as hot as the patients can bear it. A decoction made of the rattlesnake weed (*hieracium venosum*) applied to the parts afflicted will in most instances afford relief. Another remedy is to take one pint of the bark of the spotted alder, add one quart of water, and boil down to one pint; wash the parts poisoned several times a day. This remedy is said not to be injurious. Another remedy is to take the leaves of the poisonous nightshade (*belladonna*), boil them in milk to a poultice, bind it on the poisoned parts, and renew as often as it gets dry. A solution of belladonna, say a teaspoonful to a tumbler of water, with which bathe the parts freely. This has been used with signal success. Extract of lobelia or a poultice made from the fresh leaves may be used, but the external use of the plant in excess may produce vomiting and symptoms of poisoning. It ought to be applied under the advice of a physician. Another remedy is to bathe parts with spirits of niter. If the blisters are broken, so as to allow the niter to penetrate the cuticle, a simple application may effect a cure. Apply several times daily. Another remedy is to take three or four drops of the medicinal remedy known as rhus toxicodendron, drink two or three times daily in half a glass of water.

A NEW THEORY OF THE SOLAR SPECTRUM.

Since the invention of the spectroscope, and its application to the study of the solar spectrum, the dark lines in the latter have been considered as absorption bands, caused by a layer of ignited metallic vapors, which surrounded the photosphere of the sun and changed the luminous and continuous spectrum of the photosphere into one covered with a multitude of dark lines, corresponding with the bright lines which we can produce by the combustion of various metallic substances.

Professor Henry Draper now comes forward with a series of experiments and deductions from the same, and proves that we must change this theory and form another conception, namely, that the solar spectrum consists also of bright lines and bands superposed on a less luminous background of continuous spectrum. Such a conception, combined with observations in regard to these bright lines, opens the way to the discovery of metalloids, sulphur, phosphorus, selenium, chlorine, bromine, iodine, fluorine, carbon, etc., the lines of which thus far have not been discovered in the solar spectrum. At the same time many of the dark lines, not thus far accounted for, may be due to being merely intervals between very bright lines.

That an incandescent gas in the solar atmosphere should *not always* be subject to the law, that it absorbs rays of the same refrangibility as it emits, may, at first sight, be difficult to understand. But the fact is, the substances thus far investigated in the sun have been metallic vapors, to which, according to our present knowledge of chemistry, hydrogen also belongs. The metalloids may, and probably do, behave differently; the intensity of the light, from a great thickness of incandescent hydrogen, overpowers the effect of the photosphere; and instead of throwing a shadow of the rays of the same refrangibility, it increases the luminosity. It is as if a person looked through a yard thickness of ignited sodium vapor to a candle flame; he would see no dark sodium light, but a bright one; while looking at a very bright flame, he would see the comparatively dark sodium lines.

This would necessitate the supposition that some incandescent gases could give out more light than other substances in the sun, and why not? Has not Huggins shown that, in the outburst of the star τ *Coronæ Borealis*, hydrogen could give bright lines on a bright background of a similar nature to the background of the solar spectrum?

It is evident that bright lines on a less bright background make to ocular observations not so much impression upon the mind as the dark lines, and this is the simple reason that thus far they have been overlooked. If, however, the solar spectrum is photographed, such lines become very prominent; and the photograph being a permanent record, they may be easily compared with bright lines photographed from other spectra, such as those of air, oxygen, nitrogen, carbonic acid, etc., illuminated by means of the electric spark.

This is what Professor Henry Draper has been doing, and we call attention to the following article containing an account of the manner in which he demonstrated the presence of oxygen in the solar photosphere.

Frauenhofer who, about one century ago, first discovered the dark lines of the spectrum, which at the present day are named after him, also discovered that these lines are different when the light of some of the prominent fixed stars is investigated; and Berzelius, in remarking this, said in the beginning of this century that the study of these lines would at some future day lead us to the knowledge of the cause of the development of light in the heavenly bodies. This was a genuine prophecy, of which the world now begins to see the realization.

DISCOVERY OF OXYGEN IN THE SUN BY PHOTOGRAPHY.

Professor Henry Draper has announced the discovery of a series of bright lines or bands in the photograph of the solar spectrum, which correspond exactly with the principal bright lines or bands seen in photographs obtained by means of electric illumination in the spectrum of oxygen.

He has, in the *American Journal of Science and Arts*, published a paper and illustrated it with a photograph, in which he shows the perfect coincidence of certain bright lines. The photograph contains in its upper half the solar spectrum, and in its lower half the spectrum of air obtained by passing the spark of a Gramme induction machine (driven by Brayton's petroleum motor) from an iron to an aluminum point. The coincidence of the luminous oxygen and even of the nitrogen lines is really remarkable; and as the photograph is stated to be absolutely free from hand work or retouching, it places the subject in question beyond doubt. Thus the iron and aluminum lines, produced by the effect of the powerful electric current upon the electrodes, show themselves, and the first may be traced in the solar spectrum at the corresponding places, as might be expected.

We will only add that Professor Draper has made detailed comparison of these lines in the spectra of air, oxygen, nitrogen, hydrogen, carbonic acid, carburetted hydrogen, and cyanogen, so as to be sure of the luminous lines belonging to oxygen, and he has also made experiments with these gases at various pressures, as in some of them the lines vary with the pressure. It may be remarked as an important fact that the spectrum of oxygen is not subject to variation, but that its lines are constant at all pressures.

Science is already largely indebted to Professor Draper for the originality of his researches, and no doubt important results may be expected in the train of research he is now following. It is useless to speculate as yet on the nature of the sun, and it is better left to later times, when our knowledge of this remarkable body will be more complete; but one thing is certain, that the idea of Herschel that the sun may be an inhabited globe must be given up. It is undoubtedly a body at a temperature so high that the substances present there are dissociated and cannot enter into chemical combinations. However, that we will find there all the elements present on our globe may be anticipated if we adopt the theory of Kant and Laplace of a common origin of our whole planetary system out of one single nebula.

AN ELECTRIC FIRE.

A fire recently occurred at the Western Union Telegraph Office, in New York city, that was one of those incidental circumstances in the operation of a great enterprise that imparts a lesson of experience. The cause was defective insulation of wires that came in contact, in what is known as the "grand switch." This switch is situated in an upper story, and consists of a mahogany table about 25 feet long and 5 broad. It is of elegant cabinet work, placed vertically, and contains about 400 wires, which pass from the battery room through apertures in the ceiling into the switch. It also controls about 10,000 connections. It is, in fact, a systematized combination of all the wires issuing from the chief office to every part of the country.

These wires as they enter the switch are separated and insulated. By some means two of the wires, not sufficiently insulated, came in contact with each other. Electrical heat