

Scientific American.

MUNN & CO., Editors and Proprietors.

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

O. D. MUNN.

A. E. BEACH.

TERMS.

Table with 2 columns: Description of subscription terms and Price. Includes 'One copy, one year', 'One copy, six months', and 'CLUB RATES'.

VOLUME XXX, No. 25. [NEW SERIES.] Twenty-ninth Year.

NEW YORK, SATURDAY, JUNE 20, 1874.

Contents:

(Illustrated articles are marked with an asterisk.)

Table listing various articles and their page numbers, including 'Acoustics in public buildings', 'Aerial navigation', 'Anæsthetic, new local', etc.

WATER AS FUEL.

Among the attractions at the Colosseum in this city, where the wonderful views of London and Paris are exhibited, are certain practical demonstrations of scientific phenomena, conducted in the side rooms.

During one of his recent lectures, we heard him expound the idea that, at a future time, when all the wood and coal have given out, we shall use water as fuel, as it contains large amounts of the combustible hydrogen, and is every where present in unlimited quantities.

In fact, the waters on the surface of our earth are nothing more nor less than the result of the burnt hydrogen, which gave out its heat at the time of its combustion. We know at present that this heat pre-existed in the gaseous hydrogen, stored up in its atoms or molecules.

A pound of ice-cold hydrogen gas possesses, therefore, an internal energy as great as that of a pound ball moving 6,100 feet per second; and it is this energy which is taken from it when changed from its gaseous state, to which, in the case of combustion, is added the internal energy of the oxygen;

It is evident that this energy cannot be developed for the second time from the hydrogen in the water; but, on the contrary, it must be given back in case we wish to separate the two elements composing the water. One of the means of effecting the separation is great heat. By passing steam through a white hot platinum tube, it is decomposed into its elements, while a part of the heat applied totally disappears, to be changed into the molecular motion of the gases.

It is evident from the above that it is as impossible to burn the hydrogen in the water, or in its vapor, as it is to burn the carbon in the lime rock or in the atmospheric carbonic acid. No fuel can be burnt up twice; and as the hydrogen contained in water has been once burned, and has thus lost its heat, any hope of obtaining heat out of it again, without first introducing heat, must be vain.

THE HORSE IN MARKET.

Modern life broadens in two ways: by the development of new customs and by the revival of old ones. Whenever the causes which led to the abandonment of the customs of former times seem insufficient or inoperative under present conditions, there is a tendency to re-establish them, thus giving to our civilization a scope and variety never before enjoyed.

One of the most important revivals of late years is the use of horse flesh, which for centuries has been under ecclesiastical ban except among the sturdy people just now preparing to celebrate their first millenium.

Curiously it was through the people whose prejudice against horseflesh remains most intense that the revival began. During the siege of Copenhagen by the English, in 1807, the scarcity of provisions compelled the Danes to eat their horses; and the practical knowledge of the quality of the meat thus gained led them to continue its use after the original necessity had passed away.

The first State to imitate the example of Denmark was Wurtemberg, which legalized the sale of horseflesh in 1841. Bavaria followed in 1842, Baden in 1846, and Hanover, Bohemia, Saxony, Austria, and Belgium the year after.

The struggle against religious prejudice was continued eleven years longer in France, though an impression prevailed that the revival is a Gallic eccentricity, rather than the result of Germanic good sense.

At one time the feeling against the use of this heretical diet must have been exceedingly intense in the land of good cooking, for it is on record that as late as 1629 a man was condemned to death and executed in France for the crime of eating horseflesh on a Saturday in Lent.

A hundred and fifty years later, the use of the abhorred flesh was publicly advocated by a French physician. Not many converts to the doctrine were made, however, until the retreat from Moscow. During that terrible march, when the alternative was starvation, the French soldiery ventured to eat their disabled horses, and discovered that horse flesh would not only sustain life, but was really savory and inviting.

More strenuous efforts were made by French savants after the surrounding countries had demonstrated the advantages of the change, and a grand hippophagic banquet was celebrated at the Grand Hotel in Paris early in 1865. In the meantime, the meat had begun to appear in the markets as beef, and the government was forced to authorize its sale under proper restrictions to prevent the exposure of unsuspected cuts.

The English, like ourselves, occupy an extremely absurd position in regard to the use of horse flesh. We both eat it in large quantities, yet profess to consider it unfit for food.

It is true that, of the thousands who give the meal a place on their tables as an imported delicacy, very few are aware that it is horse flesh. Possibly the most of those who use it would reject it if they knew its real character; nevertheless the fact remains that horse flesh is largely eaten here and enjoyed, and the inference is legitimate that the flesh of American horses would be found just as savory and just as wholesome.

We call the article, which is kept for sale by every first class grocer, Bologna sausage: so called for the excellent reason that it is manufactured at—not the Italian city of the name—but at Boulogne.

Originally the basis of Bologna sausage was asses' flesh, a more delicate meat than that of the horse, though not less obnoxious to common prejudice. Latterly, however, horse flesh has been its chief component, not used secretly, but openly, since at the place of manufacture the sale and use of horse flesh is as legitimate as the sale and use of mutton or beef.

To a greater extent than here the abominated meat is eaten in England, and under less favorable conditions; for in addition to the wholesome Bologna, large quantities of suspicious horse flesh disappear—down the throats of deceived humanity, doubtless—every day in London and other English cities. The animals—broken down hacks and the like—are known to be killed, ostensibly for cats' and dogs' meat, but the amounts sold by the hawkers of that sort of stuff fall far short of the supply.

HOW TO TREAT FRUIT TREES.

In considering the growth of organisms, the action of the alkalis is to be looked upon as scarcely less important than that of air and water. Lime is the great animal alkali, and potash the vegetable one; its old name of vegetable kali expressed that fact, and all the potash of commerce is well known to be derived from wood ashes.

The point to which we now call attention is that our farmers and fruit growers have ignored, or rather been ignorant of, the importance of wood ashes as a vegetable stimulant and as the leading constituent of plants. Even coal ashes, now thrown away as useless, have been shown, both by experiment and analysis, to possess a fair share of alkaline value.

We will relate only one experiment. Some twenty-five years ago, we treated an old hollow pippin apple tree as follows: The hollow, to the height of eight feet, was filled and rammed with a compost of wood ashes, garden mold, and a little waste lime (carbonate). This filling was securely fastened in by boards. The next year, the crop of sound fruit was sixteen bushels from an old shell of a tree that had borne nothing of any account for some time.

Let us call attention to still another point of importance in fruit-raising. This is the bearing year for apples and fruit in general in New England; probably it is also in some other parts. Now when such years come, the farmers rejoice too much at their prosperity and abuse it, as nearly all people do the gifts of fortune. We should be temperate as to the quantity of our fruit as well as of our fruit juices. By proper trimming and plucking, the apple crop in bearing years may be reduced to but little more than half a crop as to number, but the improvement in size and price, and in the future effect, will more than balance the loss.