

Scientific.

WATER AS FUEL.

Says the San Francisco Alta: A large number of citizens by invitation have visited the brass foundry on Fremont Street for the purpose of witnessing some experiments with a new fuel recently invented. They were shown into that portion of the establishment occupied by the furnaces and in one corner found a brick furnace, some eight feet long and six feet high. On the top of this was an iron tank holding about ten gallons, filled with crude petroleum. From this tank a pipe, about an inch and a half in diameter, led into the side of the furnace. A small jet of oil, not larger than a small goose-quill, was permitted to flow out of this tube; a light is placed beneath this jet, and it immediately ignites. Another pipe, about an inch in diameter, leads from a steam boiler stationed some fifteen feet away. This pipe leads a small jet of steam upon the burning oil, and the moment the steam strikes the oil the oxygen in the water is set free and ignites with a tremendous roar, generating in a very few moments a most intense white heat.

From this small source, the entire chamber of the furnace, which is some two feet by five feet, is filled with a flame so brilliant and dazzling, that one cannot gaze on it for more than a moment at a time. This flame possesses all the heat of an oxyhydrogen flame, and beneath its fierce power the hardest metals melt in a few moments. The inventor of the apparatus by which the elements of heat, which nature so generally provides, can be utilized, is a very modest man, saying that he did not want to bring his discovery before the public until he had fully demonstrated that it would do all he claimed for it. He says that the cost of the furnaces will be only a nominal sum; that they will be within the reach of all who own quartz ledges, while the amount of oil consumed in twenty-four hours will not exceed ten gallons, at a cost of \$2.

The doctor has every confidence in his discovery, and declares his ability to furnish fuel for a voyage of one of the Panama steamers, to and from Panama, for the insignificant sum of \$20, while the entire quantity will not weigh to exceed twenty-five tons. He further says that, at an expense of \$5 per day, he can run furnaces that will melt one ton of ore every thirty minutes. If only one-half of what is claimed can be accomplished, the discovery will prove of incalculable advantage to the mining interests of the Pacific coast, and will create a revolution in steam travel throughout the world.

[And why not also be made use of for all household and domestic purposes?—Ed. C. M.]

A PERFECT WATER PROOF.—A writer in an English paper says: "By the way, speaking of water proofs, I think I can give travelers a valuable hint or two. For many years I have worn India rubber water proofs, but will buy no more, for I have learned that good Scottish tweed can be made entirely impervious to rain, and, moreover, I have learned how to make it so, and for the benefit of readers I will give the recipe: In a bucket of soft water put half a pound of sugar of lead and half a pound of powdered alum; stir this at intervals until it becomes clear, then pour it off into another bucket, and put the garment therein, and let it be in for twenty-four hours, and then hang it up to dry without wringing it. Two of my party—a lady and gentleman—have worn garments thus treated in the wildest storms of wind and rain without getting wet. The rain hangs upon the cloth in globules. In short, they are really water proof. The gentleman, a fortnight ago, walked nine miles in a storm of rain and wind, such as you rarely see in the South, and when he slipped off his over coat his underclothes were dry as when he put them on. This, I think, a secret worth knowing; for cloth, if it can be made to keep out wet, is in every way better than what we know as water-proofs."

CONCERNING THE HAIR.—Dr. Benjamin Godfrey has written a book on the 'Diseases of the Hair.' He says that a woman's hair may grow to the length of six feet, and that a young lady of Massachusetts refused a thousand dollars for her cranial covering, which was only one inch short of this measurement. Four hundred hairs of

average thickness would cover an inch of space. The blonde belle has about one hundred and forty thousand filaments to comb and brush, while the red-haired damsel has to be satisfied with eighty-eight thousand; the brown-haired damsel may have one hundred and nine thousand, the black-haired but one hundred and two thousand. Few ladies consider that they carry some forty or fifty miles of hair on their head; the fair-haired may have to dress seventy miles of threads of gold every morning. A German experimentalist has proven that a single hair will suspend four ounces without breaking, stretching under the process and contracting again. But the hair thus heavily weighed must be dark brown, for the blonde breaks down under two and a half ounces.

Agriculture.

MEASUREMENT OF HAY.

Many farmers who are far from scales sometimes have difficulty in estimating hay.

We allow for timothy, red top, and similar grasses, four hundred and fifty cubic feet to a ton at the bottom or lower half of a "bay," that extends from the floor to the barn beams, and five hundred and fifty cubic feet for a ton at the top or upper half of such a bay, after it has lain a few weeks and settled. Of clover hay on a scaffold it will take about six hundred cubic feet for a ton after it has lain, say three months. It will be seen that the average of the bay full of red top and timothy will not be far from five hundred cubic feet to the ton, varying of course somewhat by the circumstances alluded to, that is, the season, the time of cutting, the thoroughness with which it was cured, the time it was settled, etc.

A farmer in Freeport, Me., says: "For a mow forty feet long, sixteen feet wide, and fourteen feet deep, well settled, the common estimate is 425 feet to 500 cubic feet to the ton. For some fifteen successive years I have pressed hay in my own barn for a mow less than the above, and the average number of feet required, including tare, which is above five per cent., has been about 425 feet per ton."

It will appear from these statements that as a general average rule a cube of eight feet will make a ton of timothy and we should allow about a quarter more for clover. If there is a considerable mixture of clover, as there frequently is, the proper allowance must be made for it, and it will require the exercise of some judgment and skill to get at it. So if the hay is very fine and unusually solid, it will require a less number of feet to the ton.

Now to make a calculation as to how many head of cattle it will do to attempt to winter, farmers call it in the rough about two tons to a cow, and making allowance, of course, for other stock according to the age and size, and for other feeding substances, like roots, etc. As a general rule it is well to stock pretty well up to your capacity and if likely to come a little short, buy grain.

AN EXCELLENT FERTILIZER.—As a top dressing for fruit trees, vines, grain crops, or garden crops of any sort, on ground that has been somewhat exhausted by cultivation, the preparation described below will be found very useful. It would improve the mixture, however, to add to the ashes about a peck of good, newly-slacked lime, which would bring the potash of the ashes to a caustic state, and enable it more speedily to soften and dissolve the bones, which, when lime is thus used, need not be necessary in the absence of the quicklime. With its use in this way, and with a sufficiency of good unleached wood ashes, the bones, which have been merely cracked up with the hammer, may be easily softened.

Take one barrel of pure, finely-ground bone, and mix it with a barrel of good wood ashes; during the mixing, add gradually about three pailsful of water. The heap may be made upon the floor of an out-building, or upon the barn floor; and, by the use of the hoe, the bone and ashes must be thoroughly blended together. The water added is just sufficient to liberate the caustic alkalies, potash and soda; and the react upon the gelatine of the bone, dissolving the little atoms forming and fitting it for the plant aliment. It must be used in small quantities, or in about the same way as the so-called superphosphates. A barrel

of this mixture is worth any two of the commercial fertilizers, and the cost will be but about half as much. If the bone meal and ashes are very dry four pailsful of water may be required, but care must be exercised not to have it inconveniently moist. It may be ready for use in a week after it is made. Pure, raw, finely-ground bone and the best of ashes should be employed.—Journal of Chemistry.

A young lady in \_\_\_\_\_ carries in a locket suspended around her neck a portrait of the person she loves best. It is a portrait of herself.

AN ESTABLISHED FACT!!!—One year's trial has proved the wonderful benefits arising from the use of the Nutritious Condiment of "THE NORTH BRITISH CATTLE-FOOD COMPANY OF LONDON AND GLASGOW," hundreds throughout this Province who have used it, testify that it is decidedly the best thing for seasoning the food of animals, especially HORSES, COWS and OXEN, during this season of the year, it is also the cheapest—one cent's worth seasons one meal, and effects a saving of twenty-five per cent, on the ordinary food. Get a small bag, and try it, and you will be satisfied. Sold in bags, at \$1, \$2, \$4, and \$8—a Pamphlet with full directions for use in each bag.

Address, GEORGE FRASER, Manager, North British Cattle Food Co., 83 Lower Water Street, Halifax, March 26.

UNIFYING.—Of all dreary places, deliver me from the farm houses which many people call home. Bars for a front gate, chickens wallowing before the door, pig pens elbowing the house in the rear, scraggy trees never cared for or no trees at all, no cheering shrubs, no neatness, no trimness. And yet a lawn and trees and a neat walk don't cost a great deal.

PROGRESS BACKWARD.—Mouly's Richview Democrat (Illinois) says: "Farms that were selling in this vicinity, six years ago, for \$50 an acre, can now be bought at from \$15 to \$20 dollars per acre. So we go."

Joyful news for the Afflicted.

GATES' Life of Man Bitters.

CALEB GATES, Esq., Aylesford, Feb 7th, 1872.

Mr. Caleb Gates—Dear Sir:—This is to certify that I have been troubled with the dyspepsia for about three years and have taken almost every kind of medicine within my reach that has been prescribed for the disease, but could find no relief. I took one bottle of your Bitters and one bottle of your Invigorating Syrup which effected a complete cure.

You are at liberty to publish this for the benefit of other sufferers. I am, sir, respectfully yours, Mrs. W. H. GRAVES.

Sworn to before me, TUPPER, J. P.

Lunenburg, Nova Scotia, Sept. 1871. Mr. Caleb Gates—Dear Sir, I have very much pleasure in writing to you so that all may receive the same benefit from your Life of Man Bitters and Invigorating Syrup. I was much troubled last winter with a severe cold which continued to get worse until I feared it would settle upon my lungs. My cough was incessant. I could get no relief from any quarter or from any medicine man, until I accidentally fell in with your valuable Syrup. I now honestly on my oath state that one bottle of it gave me instant relief. I use it continually in my family and would not be without it on any account.

Several other persons with whom I am acquainted have also been cured by your valuable medicines. I shall be happy to give any further information concerning your medicines at any time. I have also been cured of palpitation of the heart by the use of Gates' medicines. One of my daughters was in a fearful state as regards a cough or cold, and she received immediate relief and a perfect cure, and can honestly recommend it to all young and old.

JAMES YOUNG. Sworn before me—one of her Majesty's Justices of the Peace for the County of Lunenburg. JAMES D. SELIG, J. P.

PRICE.—Bitters \$1 per quart; Syrup 50 cents per pint bottle; Lotion 20 cents per bottle and the ointment 30 cents per box.

Address CALEB GATES & CO., Farmington, Wilmot, Annapolis Co.

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GENERAL AGENT, JOHN K. BENT, 126 Granville Street, Halifax. April 9.

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HALIFAX, N. S., MAY 7, 1873.

MESSENGER ALMANACH. MAY, 1873.

First Quarter, May 4th, 8h. 19a. morning. Full Moon, " 12th, 7h. 3m. morning. Last Quarter, " 19th, 6h. 43m. morning. New Moon, " 26th, 5h. 6m. morning.

Table with columns: Day, SUN., MOON., High Tide, Low Tide. Rows for days of the month from 1st to 31st.

THE TIDES.—The column of the Moon's Southings gives the time of high water at Parrsboro', Cornwallis, Horton, Hantsport, Windsor, Newport, and Truro.

High water at Pictou and Cape Tormentine, 2 hours and 11 minutes later than at Halifax. At Annapolis, St. John, N. B., and Portland Maine, 3 hours and 25 minutes later, and at St. John's, Newfoundland 30 minutes earlier, than at Halifax. At Charlottetown, 2 hours 56 minutes later. At Westport, 2 hours 54 minutes later. At Yarmouth, 2 hours 20 minutes later.

FOR THE LENGTH OF THE DAY.—Add 12 hours to the time of the sun's setting, and from the sum subtract the time of rising.

FOR THE LENGTH OF THE NIGHT.—Subtract the time of the sun's setting from 12 hours, and to the remainder add the time of rising on morning.

WINDSOR & ANNAPOLIS RAILWAY. CONDENSED TIME TABLE. DECEMBER, 1872.

HALIFAX TO ST. JOHN.

Table with columns: MILES, STATIONS, Exp., Pass., P.S. Rows for stations from Halifax to St. John.

ST. JOHN TO HALIFAX.

Table with columns: MILES, STATIONS, Exp., Pass., P.S. Rows for stations from St. John to Halifax.

N. B.—The Express Trains run on Monday, Wednesday, and Saturday only.

Steamer "Scud" leave St. John on Monday, Wednesday, and Saturday, at 8 a. m., for Annapolis, and return same day on arrival of 8 a. m. Express Train from Halifax.

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P. INNES, Manager. Kentville, 16th Dec., 1872. Jan. 1.

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