

ECONOMY OF GAS.

The Result of a Number of Experiments With Different Motors.

In a paper read before the Incorporated Institute of Gas Engineers at their recent meeting in London, Mr. B. B. Donkin gave a number of facts as to the extent to which gas engines are used, and the degree of economy they have attained. At "Clifton Lodge," Ontario, gas engines for electric lighting, developing about 7,000 horse-power, had been sold in England, and Otto engines for 11,000 horse-power in Germany. Messrs. Crossley informed him that the number of Otto gas engines in use in England was about 20,000, and he might assume that there were a not nearly double this number for all kinds of gas engines. At "Clifton Lodge," Ontario, gas engine fueling about 650 glow lamp, consumed 12 pounds of fuel per indicated horse-power hour for the manufacture of its Dawson gas. At the Chelsea Flour Mill, a 60 nominal horse-power two-cylinder gas motor with Dawson gas, used during a full load test about 67 pounds of anthracite and coke per indicated horse-power per hour. The engine had a cylinder 17 inches in diameter by 32 inch stroke, and made 156 revolutions per minute. It had been at work about two years.

At the Leven Tread Mills there were, he said, four gas engines with Dawson gas, developing about 200 horse-power. These engines used, during a six days' test, 14 pounds of anthracite per brake horse-power per hour. With coke from the gas works the consumption was 12 pounds per hour. At G-daining Paper Mills there were gas engines giving 400 indicated horse-power with an average consumption of 1 pound of fuel per indicated horse-power per hour. At a weaving mill in Halifax, there were four gas engines of about 200 indicated horse-power, using 14 pounds of gas coke per horse-power per hour. At the Uxbridge water works a water-pumping test was made in February, 1892, using generator gas. The consumption was 1 pound of coal per indicated horse-power, or 14 pounds per horse-power of water lifted per hour. The approximate power was 162 indicated horse-power.

The whole of Messrs. Crossley Brothers' large works are driven by gas engines, using Dawson gas, made from anthracite coal. There are eight gas motors from 12 to 80 nominal horse-power, indicating collectively about 325 horse-power. The firm stated that the consumption was from 1 pound to 14 pounds of gas per indicated horse-power hour. The net cost to them of the anthracite fuel, labor, interest on capital and repairs, worked out at about 24 1/2 pence per thousand cubic feet. Comparing this with average town gas, and allowing for the difference in thermal value, the equivalent cost would be about 10d. per thousand cubic feet. A single-cylinder gas motor, indicating 280 horse-power, driving a large flour mill in France, was lately sent by Mr. Donkin working with generator gas from French coal. The preliminary trials gave about 2 pound per indicated horse-power per hour. The engine will give a maximum of 320 indicated horse-power.

Why do They Drown?

The attention of the public has been called to this year's crop of reckless swimmers by a series of casualties almost unprecedented. On Sunday men who are described as expert swimmers were drowned in New York, Long Island, B. sea, and Philadelphia, while there were a large number of cases of death from overturned rowboats and sailboats. Probably the people who do not know how to sail a boat! but who think they do, will continue to take out parties of conflicting friends as long as the world exists, and accidents will continue to follow as a matter of course. These things are easily understood. But the mystery of a strong, skillful swimmer's death is always inexplicable to men who consider themselves good swimmers. One theory after another is put forth, the most common one being that the swimmer was attacked by cramps. But no satisfactory explanation has ever been offered for the extraordinary number of such accidents. To men who understand how to swim it would seem to be the easiest thing in the world to avoid any accident of such a character as that which occurred in the East river on Sunday, when a man who was known to be a powerful swimmer, and who was capable under ordinary circumstances of swimming several miles in the river, went down like a shot in sight of his friends, and was never seen again. He was not subject to cramps, had not eaten heavily before going into the water, had no heart trouble, and was swimming powerfully and composedly out toward the middle of the river when he suddenly disappeared. One of the most expert life-savers on Long Island, a man who was known to be asthmatic, and who was in perfect physical condition, went down in a similar way before a number of spectators. There are no theories which fit such cases. Nothing is easier for a swimmer to do than to turn on his back and float, if he be tired, until he is thoroughly rested, and testimony has been given by hundreds of men that cramps in the water are not necessarily dangerous. Some swimmers have suffered from cramps so severely that they have been doubled up for hours after being taken out of the water, while their toes, fingers, ankles and wrists have been twisted so that they were entirely crippled and in great pain for hours. Yet they have always said they had no difficulty in keeping themselves afloat until rescued. It has often been found, when the bodies of swimmers who have gone down suddenly have been recovered, that there was nothing about the conditions of the joints to indicate that they had suffered in any way from cramps.—New York Sun.

Poetry That Tells.

No poet in the United States has the same hold upon the minds of the people as Riley. He is the poet of the plain American. They bought thirty thousand dollars' worth of his verse last year, and he is also one of the most successful lecturers on the platform. He gives the lie to the old saying, for he is a prophet in his own country. The people of Indiana are justly proud of him, for he has written "Poems from the Heart." He is read by people who never before read poetry in their lives, and he appeals equally well to the man who is heart sick of the hollow conventional verse in imitation of some classic. He is also a true American in every line he writes. His schooling has been in the school of realities. He takes things at first hand. He considers his success to be due to the fact that he is one of the people, and has written of the things he liked and they liked. The time will come when his work will be seen to be something more than the faades of a man's art.—McClure's.

LOCKJAW BACILLUS.

Lurking Everywhere, but Thriving Only in the Absence of Oxygen.

Among the well-known diseases whose bacterial origin is already placed beyond reasonable doubt, are erysipelas, tetanus, diphtheria, tetanus, typhoid fever, croupous pneumonia and influenza.

The fact discovered regarding some of these during the past fifteen years are among the strangest of the "true fairy tales" of modern science. For example, the micrococcus of croupous pneumonia, as discovered by Dr. Sternberg, lurks in the muck, and is harmless there, awaiting, as it were, an opportunity when a condition of lower vitality of the system, as from exposure to cold, shall enable it to take up its active abode in the lungs and begin a development whose results will be manifest in an inflammation of those organs.

Again, it appears that the bacillus of tetanus, or lockjaw, is abundant everywhere in the soil, and may rest on the surface of the human body or be taken into the stomach without producing injury. Even on the surface of an open wound it cannot develop, it being one of the bacteria that cannot grow in the presence of free oxygen. But if introduced into a deeper wound away from the air, it may develop rapidly and produce the painful and often fatal disease tetanus. Thus is explained the fact, always before a mystery, that even slight and seemingly insignificant puncture wounds are more likely to produce this disease than are open lesions that otherwise are for the most part serious.

Wine Tanks in France.

The railway tank is introduced in France for the conveyance and distribution of wine from the vineyards, after the manner in which petroleum is in this country been conveyed from the wells to market. The vineyards would be lucky if they could likewise adopt a system of pipe lines as the oil producers have done, and so diffuse their clanking product with the maximum of security and at a minimum of cost. A network of pipes spreading under the soil from the Pyrenees to the British Channel, running full with the crimson tide of St. Eulion, Hunt Bascac, Hermitage, and Chabertin, with spurts and gargles, according to the fluctuations of demand, would be a subterranean development of extraordinary interest, and would be almost certain to be tapped by the thirsty here and there, but it is not likely to come about, and the railway tank represents what is probably the final reach of economy in distribution. The vine-grower gets little for his product, the profits being consumed by the middlemen, who take tribute from it at every step, from the time it trickles out of the press till it goes down the throat of its consumer; and the industry which is one of the most important in France, is reaching out here and there for remedies. Wine at the press is now sold at 8c. a quart; last year the production was so abundant that the ordinary storage receptacles were unequal to it, and anybody who would bring barrels might carry away the overplus free. Such an abundant harvest is rare, and it comes now and then, and in such cases the railway tanks will be a god-send, as they will doubtless be useful in all times to the normal movements and operations of the trade.—New York Tribune.

A Surgeon's Tender Spot.

"No matter how hardened a doctor may be, he is sure to feel much suffering," said a physician recently, "there is one thing that will always make him weak, that is if he has any heart at all. Now, I have been cutting off men's legs and arms and doing all kinds of severe operations for years, yet in all that time sense of business duty did not allow my sympathy to interfere with my work, except in the cases of children. I can never perform an operation on a child without feeling sick to my heart. In my practice I avoid this kind of work as much as possible, so that the cases to me other doctor when it is possible. Why, it even hinders me to be compelled to score the gums of a teething child. I would ten times rather cut off a man's leg than do it. There is something about a child—that innocent, sweet expression—which goes to my very heart. This may sound absurd coming from a man, as some people would put it, who has done as much cutting and carving as I have, but it is the truth, nevertheless. It is something about which other doctors have spoken to me, and I know it is quite a general feeling. The other afternoon I was compelled to cut off the foot of a young baby. It was a simple operation, and some people might say that on account of chloroform and the age of the child she would not have felt or realized what had been done. Well, I accompanied that operation, but it was the hardest work I have ever done. When it was finished I was so unstrung that, like a woman, I commenced to weep. Of course, I was ashamed of myself, but sometimes when the tears begin to flow it is difficult to check them."—Pittsburg Dispatch.

Antiquities.

Egyptian monuments represent hats in nearly the shape of the Mexican sombrero.

It is estimated that one of the largest stones in the pyramids weighs fully eighty-eight tons.

The "rock corks" mentioned by Pliny and other ancient writers is thought to have been asbestos.

In an old Indian burying-ground in St. Siman, Ga., the remains of a warrior over eight feet long were excavated recently.

A prehistoric human skull found at Anniston, Ala., in 1890, measured 34 inches in circumference just above the ears.

Petrified horse tracks are among the curiosities attributed to Missouri. They are said to be found in the bottom of a creek in Ray county.

Officials of the Smithsonian institute have discovered evidence which lead them to believe that the mound-builders were the progenitors of the modern Indians.

Pliny says that bricks and tiles so light as to swim in water were made in Italy, Spain and Greece. The peculiar art of this manufacture was recently discovered by an Italian gentleman.

A Possible Solution.

Robbie (at the museum)—Mamma, that little dwarf was never washed right, was he?

Mamma—Why, dear?

Robbie—Well, isn't that what made him shrink so awfully?—Chicago Inter-Ocean.

A NEW FORAGE PLANT.

CRIMSON CLOVER DEEMED OF GREAT VALUE IN MANY SECTIONS.

Adaptability to Light Soil—It is a Nitrogen Gatherer and Will Redden a Good Deal of Land in Jersey, Delaware and Maryland This Year.

Within the past five years there has been quite a revolution in methods of farming due to the innovation of scarlet (or crimson) clover in some sections, and its advantages cannot easily be estimated. Red clover, as is well known, is biennial. The seed is sown in the spring, on wheat or some other shading crop, the land being occupied by it until the following summer, when it is mowed for hay, the second growth being for a late production of seed. Crimson clover is an annual, the seed being sown in August, or even as late as September, and the crop mowed in May or June. The advantage of this is that while the red clover must be seeded down early in the spring, and on certain plots of ground, the crimson variety may be seeded on nearly all kinds of soils, and on wheat, corn, rye, or oats land after the grain crop has been removed. It also acts as a purifier "soil," and may be reseeded should the plants be thin, and as it starts off early in the spring it may be mowed and gotten out of the way early for another crop of some kind.

CRIMSON CLOVER ON LIGHT SOILS.

Crimson clover, though belonging to the legumes, is better adapted to light soils than is the red. While it gives the best results on rich land, and especially on well prepared soil, yet this season has demonstrated that it will grow almost anywhere unless in pure white sand, out on light, and soil that has been limed, or given an application of wood ashes, it has produced crops where a growth of red clover would be impossible. It produces from one to three tons of hay per acre, according to the soil, and on rich land even more. From 10 to 15 quarts of seed per acre may be sown and it is advisable to use plenty of seed. It has excellent qualities as hay, and is more easily cured without damage from dew or dampness than the red. It is not superior to the red, but may be grown where the red variety will fail, and as it is an excellent green manure crop, its value in that respect is great. It may be sown in a wheat or other work is nearly over and is out of the way in spring to permit of the most important crops to be attended to.

REVOLUTION IN FARMING.

In Delaware, Maryland, Eastern Virginia and portions of Pennsylvania and New Jersey farmers are preparing for large crops this fall. It may be seeded down on wheat stubble land or on corn after the last working of the crop. While thriving best if sown on prepared land yet crops were grown this year on land that was in corn last year, the crimson turned under, and the land put in corn or potatoes this year. It is a "nitrogen gatherer," and serves to enrich the soil. The lands that have been devoted to peach orchards which have been injured are being sown in crimson clover, and cattle, sheep and hogs are receiving attention in sections that formerly were not profitable stock farms. The greatest advantage of crimson clover is that it will produce a crop of green manure in time to be turned under for corn or the hay may be secured and the stubble plowed under. It is ready to be mowed by the middle of May, thus being out of the way for corn before June. Such a force plant, being a legume and which can occupy the land after corn is taken off, and which comes so quickly in the spring, is sure to revolutionize the methods now in vogue on farms that have only light sandy soils.

WHILE CORN GROWS.

Practical Hints Conveyed in Pithy Paragraphs.

Irrigations holds a very important place in agriculture, and will lead to improved methods in the future. By irrigation India has reclaimed 23,000,000 acres of land, Egypt has brought 6,000,000 under cultivation and in Europe 5,000,000 acres have been rendered serviceable. In the country over 4,000,000 acres of waste land have been brought to a high degree of fertility and productiveness by irrigation.

The cost of keeping one extra horse for a year, in order to perform useless labor on a bad road, which might be avoided with good roads, is more than the tax that would be paid by its owner to assist in having the road put in good order and kept in excellent condition for five years. The consequences of inferior roads in speed and avoidance of accidents are strong inducements in favor of good roads.

Eggs are low at this season they at least cost nothing, as the hens can pick up all the food they require on the range.

Flies worry the cattle and hogs very much in warm weather, and the horses also are great sufferers from the pest. Spray or sponge them with a solution made by adding a gill of carbolic acid to three gallons of water. This is about a one per cent. solution, by volume, and may be used without danger, though care should be exercised in applying it so as to avoid getting the solution in the eyes of the animals.

Sore places on animals, caused by flies, may be annointed with a mixture of one pint of crude petroleum, one tablespoonful of wood tar, and one teaspoonful of carbolic acid, well mixed.

Plant turnip seed this month, and prepare the ground thoroughly in order to have it fine and to kill the weeds.

The hoe, used between the plants, may be more laborious than the horse hoe between the rows, but it prevents many weeds from appearing next year.

Melons will need but little cultivation after they begin to run. They should not be disturbed in the hills, but have the ground well worked before the runners. If the vines are not thrifty apply nitrate of soda around them, but a complete fertilizer is also excellent.

Bran is rich in mineral elements, and for that reason should be made a portion of the ration of all classes of stock. Can taming, as it is called, a large proportion of some forming material, it is well adapted for young stock. Middings may be fed with profit also, as such food is nearly of the same quality and composition as bran.

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He Was a Mere Skeleton.

He had no appetite, and it was hard work to make him eat enough to keep him alive. A few weeks later we had his hip lanced, and following this five other eruptions broke out, making eight running sores in all. We did all we could for him, but he grew weaker every day, although we had three of the best physicians. As a last resort we were prevailed upon by relatives who had taken Hood's Sarsaparilla with beneficial results to give the medicine a trial. We got one bottle about the first of March, 1892, and he had taken the medicine only a few days when his appetite began to improve. When he had taken one bottle he could move about a little with his crutches, which he had not been able to use for the preceding three months. We continued faithfully with Hood's Sarsaparilla, and in 6 months he was

able to be dressed and go about the house without the crutches. He has now taken Hood's Sarsaparilla regularly for eighteen months, and for the past six months has been without the crutches, which he has outgrown by several inches. The sores have all rapidly closed, only the scars and an occasional limp remaining as reminders of his suffering.

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