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Contents:

(Illustrated articles are marked with an asterisk.)

Table listing various articles such as 'Improvement in Brick Making', 'The Poison of the Cobra-di-Capella', 'The Opal', etc., with corresponding page numbers.

PETROLEUM FOR FUEL--ITS ECONOMY CONSIDERED.

In last week's issue we determined the amount and the cost of the heat generated by the combustion of petroleum. The following is a resumé of our conclusions: Petroleum, weight for weight, has 50 per cent. more heating power than coal, a fact expressed by the ratio 21 to 14, or 3 to 2.

It should be observed that the figures used in the discussion are as favorable to petroleum as could be chosen; to avoid the inconvenience of fractions, we have selected the nearest simple expressions which would make the best case for petroleum. Thus we have reckoned the gallon of oil at 7 pounds, the coal of \$6 per ton as 1/4 cent per pound, and we have assumed that actual practice in burning oil and coal was fairly conformable to the ratio 3 to 2.

As the matter now stands, the use of oil for steam fuel seems almost chimerical; the discussion of such a question here seems a waste of good ink and paper. But petroleum fuel for ocean navigation has been so much praised, that, deprecating the patience of our intelligent readers, we devote a few lines to its showing up. We use the simple figures which we have adopted above.

Table comparing costs: Cost of oil (\$54,000), Deduct 375 tons extra freight (\$5 per ton, 1,875), Cost of oil trip (\$52,125), Cost of coal trip (\$11,400), Loss by oil (\$40,725).

It is said that petroleum can be had in California at \$3 per

barrel (7 1/2 cents per gallon), while coal is dearer than here. Interpolating this cost of oil in the above statement, the loss by using the oil would be a loss of only a little over \$7,000 per trip. Unfortunately for this most hopeful estimate, no petroleum has yet been found in California.

WHAT IS LABOR?

To its present inhabitants, at least, this is a new country. The wildness and luxuriance of nature must be tamed and pruned to fit it for the highest needs of the race. One result is that as a people we are practical; we praise labor; we admire muscle; we reward it with political honors; our preachers preach "muscular Christianity;" our young men--nay our old men--contest for the meed of victory in base ball; the race is to the swift and the battle to the strong; gymnasia and calisthenic schools are a part of our educational institutions, and brain work is at a discount, or rather, muscle rules.

So long as this pride of bodily strength and physical energy, is kept in its proper place, all is well, but are we not encouraging a sentiment which is unjust to the brain workers of the race? Is it true that the crowning glory of a man is his physique? Are the laborers, the muscle men, the only ones who labor? Do not others who stand in the pulpit or on the rostrum, who study in libraries, experiment in laboratories, think, investigate, and write in parlor and sanctum, actually labor?

The inventor knows how often his nights are passed in sleeplessness, and his days in abstractedness, in order to elucidate and perfect his unformed ideal. The editor knows how hand and brain become exhausted in the effort to lead, or even to keep up with the never ceasing march of improvement. The mind and body are too intimately connected for the exercise of one not to weary the other.

But apart from the bodily weariness induced by the bodily exertion, the overstrained brain reacts on the body and produces a sense of physical strain not at all different from that experienced by the muscle worker. The enforced action of the will, which compels concentration of thought on one subject, produces intense weariness and pain of body.

Except for those who perform the simplest and most mechanical labor, there must be brain work with muscular exertion. The unthinking worker only half works. His is the labor of the slave or the ox, with no incentive but the hour of release and the gratification of appetite.

To return to the mental laborers, who among the people age faster? Their hair grows gray and their bodily functions refuse their office sooner than those of the merely mechanical laborer. Theirs is the harder lot, for the mind driven for hours in one track, refuses to stop at beck or call, and it becomes master of the enervated body and denies it rest; while the mere muscle worker finds repose as soon as the strain on the muscles is relaxed.

He is the hardest laborer who drives the brain only, and he is the most reasonable worker who judiciously divides the responsibilities and duties of life between brain and muscle.

RECENT PROMOTIONS AT THE PATENT OFFICE.

For many months the Commissioner of Patents has been promising, promising, to use the authority vested in him by law, to augment the working force of the Patent office, and thus relieve applicants for patents from the grievous delays to which they have so long been subjected.

The following is the list of promotions:--Assistant examiners Schœpf, Thatcher, Stewart, Deane, Peters and Gregory, have been promoted to be Primary Examiners. Second assistant examiners Thayer, Coombs, Nolen, Hayes, Mygott, Tasker, Curle, Bovee, Spear, Mitchell, and Grinnell, have been appointed first assistant examiners.

But their promotions have added nothing to the working forces, though they may perhaps pave the way for such addition. Now, Mr. Commissioner, fill up the ranks with active men, bring up the work at once, and don't wait to be urged and complained about from one end of the country to the other.

NITRO-GLYCERIN--IMPORTANT DECISION.

None of us can ever forget those fearful explosions of nitro-glycerin which took place about three years since. They were heralded by the disaster of the Wyoming Hotel in this city. A small box which had been left in the baggage-room was discovered to be on fire, and was lifted into the street at the edge of the sidewalk, when immediately it exploded with such force that it shook the ground for many blocks; the sound was heard in the most distant parts of the city, the buildings in range were greatly injured, and no vestige of the box and its contents was afterwards discovered.

On the 3d of April, 1865, nitro-glycerin exploded in the hold of the European while at her dock at Aspinwall. The European was a powerful iron steamer, and had cost nearly \$200,000. She was literally torn in pieces. A dock four hundred feet in length was destroyed, and great damage was done to the shipping and buildings of the neighborhood.

Then came in quick succession the details of still more fearful nitro-glycerin explosions in other quarters of the globe--from San Francisco and Sidney. In a few months we had paid tribute to this demon, hundreds of lives and millions of property. Then vengeance and punishment were ready for the guilty abettors of the destruction, if they could be found. But the efforts of justice were slow, and it may be that many years more will elapse before the law can give the demanded relief.

One of the most important cases now pending in the courts is growing out of the Panama explosion. As the event of this suit will determine others of similar character we give the latest information about it, which came by the Atlantic Telegraph.

THE NITRO-GLYCERIN EXPLOSION AT ASPINWALL--IMPORTANT LEGAL DECISION.

LIVERPOOL, Wednesday, Aug. 21. The important suit of the West India and Pacific Steamship Company vs. WILLIAMS & GUION, just tried in the Liverpool Court of Assizes, has resulted in a judgement for the plaintiffs, with damages assessed at £130,000 sterling. The suit grew out of the nitro-glycerin explosion at Aspinwall, New Granada on the third of April, 1866, by which the steamship European, belonging to the plaintiffs, was badly damaged while lying at her wharf in the above-named port.

The explosion also resulted in the loss of sixty lives, including those of the Captain and other officers of the steamer. The steamship Caribbean, of the same line, being in port at the time also sustained serious damages. The ship was valued at from £36,000 to £40,000. Her cargo was insured for about £80,000. The damage to the Caribbean was estimated at nearly £10,000.

The owners of several buildings on shore, which were demolished, put in their claims for damages to a considerable amount additional. The underwriters declined to make good the losses, and threw the responsibility upon the owners of the European, upon the ground that they were culpable in carrying explosive matter on their ship, and below deck.

The plaintiffs in turn brought suit against Williams & Guion, as the shippers of the nitro-glycerin, claiming that they were guilty of deception in shipping the article under the name of "glonoin oil," (a substance unknown to chemists and to commerce,) and thus involved the plaintiffs in their great losses and liabilities.

The defendants replied that they acted in the matter only as "forwarders;" that the explosive material came to them from a Hamburg house, with instructions to forward to BANDMAN, NEILSON, & Co., San Francisco, via. plaintiff's line; that they themselves were deceived by the descriptive title of glonoin oil in the manifest, and had no knowledge or suspicion of the dangerous character of the freight which thus passed through their hands in the usual course of their business.

The judgement rendered is understood to definitely settle the fact that the plaintiffs are entitled to damages, and that they cannot recover their losses from the underwriters; but the question whether the defendants are ultimately liable, or whether the plaintiffs must look to the original shippers at Hamburg, the originators of the fraud, goes to a higher tribunal for argument and decision.

Large Issue of Patents.

The patents issued for the week ending Aug. 20, numbers, exclusive of designs and reissues, one hundred and ninety. Of these, seventy-five were secured through the home office of the SCIENTIFIC AMERICAN Patent Agency, exclusive of quite a number obtained through our Washington office. Who can say that genius is dormant, if business is generally dull?