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THE NEW YORK GAS MONOPOLIES.

New York has, like most large cities in the United States, suffered from the extortions of gas companies until the public at last revolts against their impositions.

These companies have sustained prices far above that for which good gas can be made and furnished; but not content with this extortion, they have persistently furnished inferior gas without decreasing the price.

For a period of about fifteen years, inventors have grappled with the problem of how to make illuminating gas from the light products of petroleum distillation.

In Memphis, Tenn., there have been put into operation, on a large scale, works which manufacture gas from naphtha, and which are, according to the accounts that reach us, furnishing gas of far better quality than the ordinary coal gas.

We are glad to learn that an organized effort to introduce here the system in use at Memphis is in progress, and that a company, composed of citizens among our heaviest capitalists, has purchased a site, and is erecting works on Avenue D, between 11th and 12th streets.

The company have a charter, granted at the last session of the State Legislature, which permits them to lay mains, to open streets, etc., and they are now vigorously engaged laying their main pipes in various parts of the city.

The process used at Memphis, and which is to be adopted by the new mutual company here, is, so far as we have been able to ascertain its character, extremely simple, consisting in the conversion of the naphtha into gas by heat in retorts, and diluting it with atmospheric air to the proper degree for burning without smoking.

THE REPETITION OF EXPERIMENTS.

The importance of experimental investigation, so strongly insisted upon by Bacon and practiced since by scientists as the basis of the true scientific method in physical researches, is now so generally admitted as to need no argument.

The prestige of name and attainments goes far to influence belief, but those who think for themselves need a surer foundation than this in matters where accuracy is essential. Libraries of reference contain tables which are relied upon by engineers and constructors in making their computations.

There are not wanting recent illustrations of the truth of this proposition. Among these may be cited the remarkable experiments, of Professor Ogden W. Rood, of Columbia College, New York, on the amount of time necessary for vision, in which Wheatstone's conclusions from his experiments on the duration of the discharge of a Leyden jar, are found to be immensely far from the truth.

Professor Rood also has determined the possible duration, of the discharge from a Leyden jar, to be as short as nineteen hundred-millionths of a second.

Even the experiments of Regnault have been recently revised by Mr. Alexander Morton, with results from which he deduces formulae that show the relation between the temperature, pressure, and density of steam.

Recent experiments have shown room for doubt as to the full reliability of the tables in common use for computing the strength of beams and girders.

Boiler explosions are now being brought under systematic experiment, at Sandy Hook, which will doubtless throw much light on this important subject.

In short, there yet remain many things in science and mechanics to be definitely determined. The experiments of General Morin on friction might be revised, we think, with profit, and carried further than he went with them, to show how the compounding of motion on cylindrical surfaces modifies friction, and what part of the power is absorbed by friction in each of the components of the resultant.

The use of air compressors has shown that we are far from knowing the real laws of the friction of gases in tubes; and herein is a most important and profitable field of investigation, as the use of air as a motive power in mines and tunnels is only in its infancy.

THE CONDEMNATION OF THE HALL OF PUBLIC RECORDS FOR THE CITY AND COUNTY OF NEW YORK.

In the Court of General Sessions, December 5th, Judge Bedford presiding, the Grand Jury made a formal presentment relating to the unsafe and filthy condition of the above building, a condition which, we believe, we were the first of the New York press to notice publicly.

In view of this decided action, it will probably interest our readers to know in what way important records of untold millions are kept (or rather not kept), as ascertained by a personal inspection of all parts of the building.

The building stands by itself in the northeast part of the City Hall Park, but not so far removed from other buildings as to be protected from fire by its isolation, unless it were thoroughly fireproof. Sparks would find easy access through numerous broken panes, only a portion of which were, at the time of our visit, stopped with books labeled "conveyances," newspapers, or whatever other makeshift could be extemporized by the clerks to keep out wind and rain.

Entering thus, the sparks would find sport ready to hand in loosely folded and dusty, cobwebby papers, which crowned the tops of nearly all of the cases, and in bundles of paper, loose shavings, small pieces of lath, etc., etc., which, dried by long protection from weather, are profusely scattered in the upper unoccupied rooms left in an unfinished state by the carpenters and masons.

The cases for containing the books of conveyance and records of mortgages are most perfectly designed fire traps. They are double, so that books are placed in them from both

sides, the partitions which separate the books being boarded on their inner edges, leaving a wooden flue the whole length of each case, and about six inches wide, running from bottom to top, and open above and below.

No walls of any railway round house can exceed in grimy squalor the walls and ceilings of the Hall of Records. They look like chimney flues. One of the clerks told us that, during a term of fourteen years service, he had never seen a whitewash brush in the building. Leaky soil pipes and fetid sinks lend odors to the air, which is so sickening in some parts of the building that, we were told, some of the clerks have been made ill by it.

The numerous paper stuffed holes and crannies form a favorite haunt for troops of mice that, in the absence of other food, gnaw at the leather of the bindings to get at the paste and gum, and destroy the papers and maps without let or hindrance. We did see one or two tin boxes designed to spoil the literary recreations of these rodents, but the great mass of documents are entirely open to their ravages. In one place we were shown a great pile of what once were maps, thrown in a confused heap together, the mice having so disfigured and torn them that they are rendered illegible. In other places ledgers were reduced to mere bundles of unbound and displaced pages by the same destructive vermin. Everything spoke of ruin and rottenness. But sadder than all, the destruction and decay visible in the records and in the building were the evidences of the moral decay and the misrule which has so long corrupted our city government, and which has thus carelessly and criminally neglected public interests, and failed to provide for the security of the public records. We trust that, as we are now emancipated from this reign of disorder, the action of the grand jury will lead to measures that will so place public documents that they will no longer be food for mice, nor remain likely to become a prey to the first severe fire that shall take place within a hundred yards of the building where they are kept.

A MARE'S NEST—MORE ABOUT THE GAS QUESTION.

In another column will be found an editorial containing the announcement that gas works are in process of erection on Avenue D, between 11th and 12th streets, by the Mutual Gas Light Company, to supply gas made from naphtha. A correspondent in the New York Herald, of Dec. 4, states that the gas to be supplied will be compounded of naphtha vapor, common illuminating gas, and atmospheric air. He sounds, (to the uninitiated), a fearful warning that a gas thus composed is "as explosive as gunpowder or nitro-glycerin, and far more terrible in its effects." He further says:

The dreadful disaster of the Westfield excited the just indignation of the public, but this calamity was only a faint intimation of what may be expected if this compound is allowed to be made. The oxygen necessary for its combustion is mingled with the gas not only in the holders, but also in the supply pipes; and if an explosion should occur it would take place instantaneously, throughout the entire body of the gas not only in the holders but also in the pipes in all parts of the city wherever they are laid, and every building in the vicinity of these pipes would be blown into atoms instantly, and every human being therein or near by would suddenly perish.

The destruction would be more terrible than an earthquake or the explosion of a powder magazine.

Now, mark, it will be claimed by those interested in this death process that it has been in successful operation in Saratoga and other places, and that no accidents have occurred from its use. Well, the Saratogians have been truly fortunate in escaping a terrible calamity; but let this compound be ignited by the breakage of a street main, or in any other of the thousand ways that may happen any moment, and if the result is not more terrible than here indicated, then it will be because Providence interposes a miracle to save the people.

A year or two since a new gas burner was invented for burning a mixture of coal gas and oxygen gas. This burner was denominated the "safety burner." It was tried and worked well for months. No accident occurred until a defective burner was used, when an explosion took place. There was not more than one cubic foot of the mixed gases in a small holder, when the accident occurred which sent part of the holder down through two ceilings and the other part upwards through one ceiling and the roof of a building in Broadway, producing a frightful noise and great consternation among the people in the block. Thousands were attracted to the scene of the accident in a few moments. Now, this mixture, so far as its explosive properties are concerned, was precisely the same as that proposed to be made by the Mutual Gaslight Company and supplied to consumers.

All of this terribly sensational statement is pure, unmitigated bosh, having no more foundation in fact than the stories of Munchausen or Gulliver. It is calculated to frighten those ignorant of the subject, and to injure the Mutual Gas Light Company. The statement, that the naphtha gas is the same mixture as that which exploded on Broadway, is without truth. Any kind of combustible gas will explode when mixed with enough air or oxygen to entirely consume it. The explosion, cited by the Herald correspondent, was with coal gas and oxygen so mixed, as is always the case when coal gas and oxygen are used in the so called magnesia, or lime light. The mixture is ordinarily made with minute quantities of the gases, just before they reach the pencil of lime, or magnesia, which in their combustion they heat, and render luminous. It has long been known that common illuminating gas, mixed with common air in the proper proportions, will explode, yet when conveyed in pipes it is so impossible that such a mixture can occur in the conduits, that gas is acknowledged the safest illuminating agent in use. The explosions that have occurred with it have been caused by its escape into closed apartments where, after a time, the proper proportions of gas and air have been mingled, and subsequently ignited by contact with flame, through carelessness.

When any illuminating gas is mixed with air in sufficient