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Steam on Canals.

The motive power to impel our canal boats is a subject liable to be neglected under the general impression that canals are antiquated and declining institutions; but the fact that for high speeds, wheels running on iron rails offer far the most desirable means of transportation, by no means proves that the great bulk of our regular internal freighting business is not, and will not continue to be, moved with a moderate speed, at a far less cost on canals. The Erie Canal is being enlarged to facilitate the communication between the east and west. It was formerly forty feet wide, with a depth of only about four feet of water; the enlarged canal will be at least seventy feet wide, with a depth of seven feet. The boats navigating it will be some ninety-five feet long, seventeen and a half wide, and will draw some five feet of water when loaded.

It is clear that the problem of applying steam power to these vessels is entirely different from that of propelling the smaller canal boats, heretofore employed, by such an agency. The old boats are somewhat smaller, and on that account less susceptible of carrying steam apparatus with all its complications and expense; but the main advantage of the new *regime* for steam engineering lies in the increased ratio of the canal to the boat, which allows the power to act on the water almost as if on a river. The objections anciently urged that the agitation would damage the banks of the canal, have been proved to be of little weight, and it may safely be assumed that what remains of this objection will be effectually overcome the moment steam is made to establish its supremacy.

Canals worked by horse-power do not, in economy, compare at all favorably with transportation on natural water courses and basins where steam is employed. McAlpine, the State Engineer's, researches show that the absolute cost of moving one ton of goods one mile on several of our great routes, is about as follows: five mills on the lakes, six mills on the lower Missisippi, seven mills on the Ohio, eight mills on the Hudson, nine mills on the Upper Missisippi, eleven mills on the Erie Canal, and from twenty-seven to thirty or forty mills on our various long lines of railroad. The results thus reduced and contrasted together, serve to show in a very strong light the great disparity in cost between railroad and other steam transportation, even with all the modern improvements in the former; but are presented chiefly to show the disadvantage of horse propulsion, as compared with the power employed on the great lakes and rivers.

G. Parker, of Norfolk, Va., the patentee of a "wave queller," or adjustable platform, behind a boat, to allay the agitation due to an ordinary paddle, has worked a wheel successfully in the center of boats, or rather in forked boats, hulls with single bows and double sterns. The floats of his paddle wheels do not project below the bottoms of the boats, but urge a current of water backward between the two sterns, which current is supplied by the constant rise of water from below. It is difficult to see the advantage of this construction over that of the twin boats—a wheel between two hulls—as formerly used on some of the ferries in this city and elsewere; but Mr. P.'s system seems to have established the practicability of steaming on canals to such an extent that without any sensible injury to the canals, trains of vessels and barges, with aggregate cargoes of 900 tuns, have been towed during the last four years through one canal, at a speed of three miles an hour, by one tug working about 35 horse power. This tug draws only two feet six inches water, has two high-pressure engines and one locomotive tubular boiler, with a wheel 12 feet diameter, 6 feet face and 15 inches dip—not dropping as low as the bottom of the boat by fifteen inches It makes, with this heavy tow, fourteen revolutions per minute, and consumes one-eleventh of a cord of pine wood per mile. Mr. P. reports that these boats have made eleven miles per hour when running without a tow. He holds that the true way of applying steam on canals is to concentrate the motive power in one large machine, instead of distributing it into many small ones, and take a great load in tow, moving with a very moderate speed.

It is evident that there is a great field for experiments, inventions and enterprise, in the adaption of steam power to canal purposes. All will agree that horses and mules must probably be always used at points where locks are plenty, but on the long levels which exist in every profitably worked canal, and especially on those of as large section and worked so fully up to its capacity as the Erie is destined to be, the superior economy of steam must compel its adoption in some form.

The National Hotel Disease.

We have on several occasions presented facts as they successively appeared relating to the endemic at the National Hotel, at Washington, last winter, and have remarked on the obviously great importance of a thorough understanding of its cause or causes, if possible. It is important to know how far slight exhalations in the atmosphere may affect health, and cases are very rarely presented so important in themselves as the one in question. The official report of the section of the New York Academy of Medicine on Theory and Practice and Medical Pathology, presented to that body at their last meeting a report in which they unanimously adopted the "foul air" theory. They set forth that the source was solely a poisonous atmosphere, probably engendered in the receptacles for offal and other filth, under the building or adjacent thereto, in the sewers, &c., these having been obstructed by ice or otherwise by neglect, until the accumulation of foul air and noxious gases involved the atmosphere in and around the building, and, as in other cases of malarial exhalation, severely and dangerously affecting its inmates.

The foul air, the report presents, is the one common cause, which exposed all who inhaled it to a predisposition to the malady, which itself was modified in individual cases by previous health, and developed with greater or less promptness and severity by excesses, or indiscretions in diet, drinks, exposure, &c., either of which might have been harmlessly indulged but for the universal predisposition induced by the atmospheric poison. And, in like manner, even the predisposition, as in other cases, was not followed by an attack in all such, because no exciting cause was applied of sufficient potency. And again, many who received this predisposition had no symptom of the malady until days or weeks after they had left the atmosphere of Washington and returned to their homes. Then, under some exciting cause, the disease was developed, their predisposition having remained latent meanwhile. These cases the report contends have been sufficiently numerous all over the country, and so well characterized as to be identified as originating at Washington by unequivocal pathognomic symptoms.

This view of the subject is unanimously believed to explain many of the circumstances reported by authority as marking the endemic, and which are wholly inconsistent with any theory of mineral poison. For example, while some persons sickened after a single meal, or a single drink taken at the bar, there were many others who ate, drank and slept exclusively in the hotel, throughout the whole endemic, without a single symptom. There were, besides, numbers who suffered an attack who neither ate nor drank in the house, but only visited it, or mayhap slept there. Yet it is remarkable that no case of the disease is alleged by anybody in which the patient had not been in the hotel and inhaled the air. This common cause, the poisoned atmosphere, having been present in all cases, while none of the other causes are known to have been present in many, and all are known to be absent in others, seems to render the conclusion rational and philosophical. And as "it is illogical to seek for more causes for any effect than are necessary for its production," the physicians signing the report are not willing to admit any other poison than that which the foul air of the hotel furnished as the common cause of all the endemic visitation which has been suffered by our Washington neighbors; and they commend to the civic authorities there and everywhere the sanitary lesson taught by this pestilential endemic.

Let none of them henceforth ignore the facts here exemplified, and at whatever season of the year filth of any kind is allowed to accumulate to an extent sufficient to pollute the atmosphere of any inhabited house, the health and lives are endangered, not merely of its inmates, but of its neighborhood, by the privation of pure air for lack of ventilation, no less than by the noxious and poisonous quality of the infected atmosphere itself.

Effect of the Increase of Gold.

M. Levasseur, a statistical writer in the *Revue Cotemporaine*, presents a long and able article on the general rise in price of all marketable commodities, due to the influx of precious metal from California and Australia. He holds that the rise has been favorable both to the merchant and the agriculturist, but that salaries do not increase in proportion to the price of provisions, consequently the rise has been detrimental to those who live upon fixed salaries; and in general those who live upon fixed incomes, daily become poorer, or at least do not accumulate property as rapidly as they would had not this rise occurred.

As a set-off to this evil, the author remarks upon the benefits arising from an increased influx of gold, and shows that, although in theory an article of commerce might be expected to rise in price exactly in proportion to the increase of the circulating medium, such is not practically the case, because this proportional rise meets with its check in the stimulus given to production by the increasing demand consequent upon a greater abundance of means.

The difference between the influx of the precious metal and the amount of rise which it has produced, therefore, constitutes a real increase in public wealth. Thus in England, deducting the effects of the scarcity, which are transitory, the largest rise does not exceed twenty-five per cent. In France, where the effects of bad harvests have been most severely felt, and may be stated at seventy-five per cent, the rise attributable to the influx of gold is also limited to twenty-five per cent. Now the influx of gold has, he holds, been upwards of fifty per cent; therefore an addition has been made to the permanent wealth of the country of at least one-half of the new amount of gold introduced.

Whether, and at what period, the civilized world will be saturated with the precious metal, M. Levasseur does not undertake to decide, but he thinks that that period is still far distant, and that the activity of our manufactures, the immense increase of our commercial intercourse, and the civilization which, through the instrumentality of gold, has so lately sprung up in California and Australia, will enable us, for many years to come, to absorb the produce of the gold fields without being made sensible of any material depreciation of the currency.

The production of gold appears inexhaustible at present; but, on the other hand, Humboldt has distinctly predicted, from personal observation and positive scientific data, that a day will come when the silver mines of America will be worked at a great profit. The production of silver depends on that of mercury. What if new mines of that metal, hitherto unsuspected, were shortly discovered? Since the discovery of mines of mercury in California, the price of that substance has fallen more than fifty per cent, and we have no positive assurance that the increase and consequent cheapening of silver may not be ultimately as great as that of gold.

The Beef Question.

The waste arising from the present practice of killing fine beeves on the Plains of South America, for their skins alone, is sufficient to induce a considerable effort to avoid it, and render the flesh of these thousands of animals available in the markets of our sea-board. A scheme which has recently received considerable attention is that of transporting the animals alive on swift propellers adapted to the trade, and as the cattle could be bought on the shore at the northernmost ports in South America for from $1 to $3 per head, and freighted to New York at a profit for from $10 to $15 more, the undertaking appeared quite promising. But an Indiana paper overthrows this scheme, and compels a return to the pastures of the west alone for beef, by showing that the cattle raised upon the Savannas of Venezuela never eat hay, nor can they be made to eat it by any degree of hunger; they are frightened at the sight of an ear of corn, nor will they drink water except from a "babbling brook." They will die of thirst and starvation before they will touch either on board vessel. The attempt to overcome these difficulties with the wild cattle in the bordering States of Mexico and in Texas, it appears, have proven they are not transportable in any voyages longer than they can be kept without food or water. Cannot the meat be imported at a profit in a salted or dried form, or better under some of the patent systems of excluding destructive influences? Where is "Mr. Marle, of Paris," who exhibited meats covered with a coating of what resembled glue, in the Crystal Palace, last autumn? Beef-steaks worth 18 cents a pound at wholesale in New York, are decaying in the fields at Venezuela, and there seems to be a fine opportunity for some operations in this matter on a large scale.

Crossing of Railroad Tracks.

The Court of Appeals, New York, lays it down as a rule of law that an individual on approaching a railroad track is bound to look if a train is approaching. It holds that railroads are among the best improvements of the great age of progress, and their permanent affairs are not to be postponed to the concerns of individuals. It holds that no one has a right to cross a railroad track without first taking every precaution to safety. The same reason that holds railroad companies to the strictest responsibility to the passengers, imposes upon every one who crosses the track of these great public thoroughfares, more than ordinary care not to jeopardize the lives of those who are availing themselves of the benefit of this great modern improvement in the mode of traveling.

This evidently refers to the danger of injury to the train as well as the carriage on the highway, in case of a collision between the moving masses, a fact which has been many times illustrated; one case occurring on the Camden and Amboy road a few months since, in consequence of backing against a pair of horses, and by which several cars were smashed and many lives lost. He who, without pausing or even looking, will drive upon a railroad track, is guilty of more than carelessness.

Sweet Odors.

Our readers have been favored for the past two years with many very interesting notes upon a variety of scientific subjects, from the pen of Septimus Piesse, of London. This gentleman is of the firm of Piesse & Lubin, well known manufacturers of perfumes and cosmetics, the result of much careful experiment in the field and laboratory. We cannot too highly extol the quality of their products, a fine sample of which we sometime since received from Mr. Piesse, through his agency here, Geo. E. Inger & Co., No. 399 Broadway.

Telegraph Cable.

A telegraph cable one mile long, was lately shipped from Buffalo to Detroit, to be used for the purpose of connecting the Western Union Telegraph Line with the Montreal Telegraph Line. It is to be laid across the river at Belleisle, a mile and a half above Detroit. It is a piece of the first submarine cable laid from Newfoundland, and which was lost in the ocean. Some portions of it were afterwards secured, and the piece described has been purchased for the purpose mentioned. It contains three wires.

One million barrels of palm oil are now exported annually from the Republic of Liberia.