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NEW YORK, SATURDAY, JUNE 2, 1900.

PRELIMINARY HEARING OF THE PRESIDENT'S CANAL COMMISSION.

The Senate has shown a proper appreciation of the gravity of the Isthmian Canal question by refusing to take up the bill for the immediate construction of the Nicaragua, which was passed in such unseemly haste by the House. Its refusal to enter upon a premature debate was no doubt largely due to facts brought out at a preliminary hearing of the engineers of the canal commission by the Senate Committee on Interoceanic Canals, of which Mr. Morgan is chairman.

Although the members of the commission very properly refused to commit themselves, at the present stage of their incomplete investigations, to any exact statement of the relative cost or feasibility of the Nicaragua and Panama routes, enough information of a general nature was presented to prove that the question of the best route is yet an open one, and that the passage of the Hepburn bill by the House was precipitate, and contrary to the dictates of prudence and forethought by which the discussion of this great national project should be governed.

It is impossible to review the interesting report of this hearing at any length, and it must suffice to quote a few of the salient features of the testimony. In the first place, then, it is the opinion of every member of the commission that both canals are feasible; and while no exact estimate of cost was given, Col. Ernest stated that in his opinion "it would cost less money to finish the Panama Canal than to build the Nicaragua Canal." There was a consensus of opinion that the present plans of the French engineers had solved the three great problems of the Culebra cut, the summit water supply, and the control of the Chagres River, and the impression produced upon the committee was voiced by Senator Sewell (of the committee), who said: "We have been educated for the last ten years with the idea that the Panama Canal was an impracticable thing, and it has only been within the last month or two that we have heard from your commission, not officially, but from individual members, that it is an open question whether the Panama Canal could not be finished just as cheaply as the Nicaragua Canal could be built."

On the question of harbors, Admiral Walker stated that it would be easier to make a harbor at Colon (Panama) than at Greytown (Nicaragua), while at the Bay of Panama, on the Pacific, there would be "really no necessity for a harbor." Speaking on the same subject, Mr. Morison testified that the construction of Greytown Harbor (Nicaragua) would be a "work of unusual difficulty and magnitude," and in common with the great dam across the San Juan, "must be considered a very great obstruction in an engineering sense." At the same time he considers that these engineering difficulties can be surmounted, since "everything is feasible in construction to an engineer, provided he has sufficient time and money."

The imperative necessity of waiting for the report of the commission is shown by the fact that, as regards Nicaragua, the Walker survey, according to Colonel Hains (a member of the Walker commission), was a "paper location," whereas the present commission are "locating the canal on the ground itself." Hence it is not surprising that the new estimate of cost will be greater than that of the Walker commission. The more rigid examination has revealed among other things the fact that the dam on the San Juan will be a far more costly affair than was supposed. According to Mr. Morison, it will be necessary to go down 100 feet below the low water level of the river to secure rock foundation, and work at this depth will involve the use of the pneumatic process. This is deeper than the foundations of the Mississippi bridge at Memphis, which measured 60 by 100 feet. As the foundation of the dam will be 120 feet wide by 1,500 feet long, we can appreciate Mr. Morison's statement that "it is going to cost an enormous amount of money."

We could quote at further length from this report; but we think enough has been said to show that the question as to which is the best canal for the United States Government to construct and own is still very much "in the air;" especially when we bear in mind that other possible routes, such as that at Atrato, are also under consideration and may yet prove to have superior advantages over the two great rival routes above considered.

MUTUALLY PROFITABLE.

We have on more than one occasion referred to the frankness, unusual in transportation companies of this character, which characterizes the annual statements of the operation of the Metropolitan Street Railway Company of this city; and the figures disclosed by President Vreeland at a recent meeting of the shareholders are, as usual, full of valuable and instructive facts which have a general public interest. The operations of this, the largest street railway company in the world, are shown by these statistics to have been as profitable to the general public as they have been to the shareholders themselves, and this result is an endorsement of the liberal policy which, with few exceptions, has governed the attitude of the company toward the public.

The following is a digest of the comparative figures given by the president for the years 1894 and 1899:

	1894	1899
Miles operated track	131	224
Car mileage	17,383,590	41,760,856
Gross earnings	$5,398,465	$13,525,485
Per cent operating expenses	59·7	48·7
Divided profits	$328,000	$2,471,675

It will be noticed that although the length of the track operated increased in this period but sixty per cent, the mileage increased in the same period about two hundred and fifty per cent, while the gross earnings increased at the same rate, and the profits at the rate of eight hundred per cent. Looking at these enormous profits one would naturally be prepared to find that they were the outcome of a policy in which the general public was made to suffer for the benefit of the corporation. So far is this from being the case, however, that by virtue of a generous system of transfers, a passenger can ride continuously for a distance of about fifty miles on the different lines of the system for one five cent fare; and the public has shown its appreciation of this convenience by taking transfers during the year 1899 to the astonishing total of 128,365,161.

The company point with commendable pride to the fact that under the old system of separately owned and operated systems, the same amount of transportation would have cost the traveling public an additional sum of $6,418,258.

As a matter of fact it will be apparent at once to all students of the economics of transportation that this sum would never have been expended by the public under the old system. It is the consolidation of roads under one management, and the high state of efficiency to which the roadbed, rolling stock, and motive power have been brought, that enable the street railways of New York not only to carry passengers at a much lower rate per mile, but to do so with vastly increased profits to the shareholders; while the cheapening of transportation has served, in its turn, to increase the amount of travel by 250 per cent. The recent acquisition of the vast system of the Third Avenue Railway Company places the whole of the railroads of New York under one management, and as this consolidated system will be advantageously placed with regard to the city's underground system, there is no doubt that a further extension of the system of transfers will be made by which the efficiency of both the above and underground lines will be greatly improved.

CONGRESS AND THE PNEUMATIC DISPATCH SYSTEM IN THIS CITY.

Chiefly because of certain irregularities which were stated to have occurred in connection with the granting of former appropriations for the Pneumatic Postal Tube System in this city, Congress was disposed at first peremptorily to refuse the requested appropriation for this year; and has only now given a reluctant consent, coupled with the stipulation that no further extensions of the system are to be sanctioned.

Opposition to the granting of the appropriation was based upon some very explicit statements, to the effect that persons financially interested in the Dispatch System had held positions in a previous year which gave them a hand in the unloosing of the government purse-strings when the question of appropriations was passed upon.

The SCIENTIFIC AMERICAN is not concerned in this aspect of the question further than to say that if the facts are as stated, this journal is heartily in sympathy with the motive which suggested the withholding of further appropriations; for every blow at the iniquities of the "spoils system" brings us nearer to that day when the word Congress shall be suggestive of an integrity that is spotless and unassailable. At the same time we think that if the appropriations had been refused, Congress would have shown more zeal than discretion; for in its desire to punish a few individuals, it would have seriously crippled the New York Post Office by depriving it of its most efficient system of delivery.

The pneumatic postal service of this city, a description of which appears in the SCIENTIFIC AMERICAN of December 11, 1897, was installed after the practicability of the system had been demonstrated by the postal authorities in London, Paris and Berlin, and by the successful operation of a plant erected by an American company in Philadelphia. The American plant embodied all the improvements suggested by past experience, and surpassed all previous installations in the fact that its capacity was trebled, and a larger class of mail matter was eligible for transmission. The New York system, which includes a line of tubes from the general Post Office downtown to the banking district, uptown to Forty-second Street and across the Brooklyn Bridge to Brooklyn, may well stand upon its record as gathered from the report of the postmaster at New York to the postmaster-general. From this report we learn that on the first named of the above routes the tube has saved over 10,000 miles of wagon service annually, on the second-named, 48,312 miles; while the branch across the Brooklyn Bridge has reduced the wagon mileage by 18,000 miles. The time occupied by the mails in transit has been surprisingly reduced; in the case of the Brooklyn delivery, according to the report, mails which took twenty-five minutes by wagon are now carried in three minutes through the tubes, while "mails are now delivered with ease, on the first round of carriers all over the city, that heretofore were delivered only by a constant struggle with delayed trains, broken-down wagons, and careless drivers."

Quotations from this report might be multiplied, showing that, whatever doubtful influences may or may not have been at work in connection with the matter of appropriations, the new system of postal delivery is thoroughly efficient and a boon to the general public. Congress, in its determination to administer a stinging rebuke, has apparently lost sight of this fact; with the result that the punitive measures proposed would have fallen heavily upon that very public whose interests it is desired to protect. Evidence of this is found in the agitation which was immediately started among the merchants and business associations of this city to loosen the deadlock, and preserve an institution which has proved its right to become a permanent feature of our system of postal delivery.

DEVELOPMENT OF COLOR-PHOTOGRAPHY.

In a communication made to the Académie des Sciences, M. Graby gives an account of a method of color-photography, by which he has succeeded in obtaining an approximation to the natural colors. After having made a series of prints upon a paper containing subchloride of silver and bichromate of potassium, he found that in some cases prints were obtained which gave an appearance of the natural colors. He came to the conclusion that since this effect is obtained by the violet-blue of the subchloride and the orange of the bichromate, the next step would be to make a separate print of the blues and violets upon a blue paper and one of the oranges and reds upon an orange paper, and that these prints, when superposed, would give more or less the desired effect. His method of working is to make the first exposure upon a plate sensitive to orange, behind a red screen; the second exposure is made with a screen of bluish-green, upon a plate sensitive to the blues and greens; by using a stereoscopic camera, the two exposures may be made at the same time, besides obtaining relief.

The first plate is printed upon the ordinary ferroprussiate, or blue print paper, the second upon a chloride of silver paper, which is not toned, but merely fixed in the hypo. bath and washed, giving thus an orange-brown color. The two prints are pasted upon a stereoscope card and viewed through a stereoscope, a red screen being placed before the blue print and a blue screen before the orange. In this case the colors of the object are seen with a greater or less approximation, and if a stereoscopic camera has been used at first, relief is also given. A remarkable point observed is the brilliancy with which the metals are reproduced; thus in the case of gilding, the color is not merely yellow, but a fine metallic luster is given. This process is one of great simplicity, as it requires but two exposures and two prints, which are made without toning. By making one of the prints transparent the colors may be obtained by superposing one on the other. This process is now in an experimental stage, and is capable of further improvement to obtain a close approximation to the natural colors; it has the disadvantage of not reproducing the reds or violets to any great extent, but as there are many subjects which do not contain these colors, the process may be used to advantage in certain cases. M. Graby states that he is also at work upon a process by which he uses but one exposure and one photographic print.

THE AMERICAN TROTTER ABROAD.

The superiority of the American trotting horse abroad has become so well established in the last few years that European breeders have sent agents to this country to study our methods of breeding, and in Germany and France the local horse-breeders have induced their governments to place an embargo on fur-