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## SELECTION OF THE NEW CANAL COMMISSION.

Now that Congress has decided that the question of a canal at the Isthmus must be investigated in the most thorough manner, and in the broadest possible spirit, the selection of the board of engineers becomes a matter requiring the exercise of careful judgment. The fact that the people of the United States should demand yet another survey in spite of the fact that eight or nine previous surveys have been made simply proves that they realize the magnitude of the undertaking, and do not wish to be driven by mere sentiment or impulse into a venture of which the physical merits and demerits and financial liabilities are only imperfectly known.

In comparing the several surveys that have been made, there is one disquieting fact which, perhaps, more than any other, has led Congress to pause before committing itself to the construction of the canal, and this is the wide disparity which appears in the estimates of the practicability and cost of the various proposed canals, and particularly of that at Nicaragua. Between the estimate of \$65,084,176 by Menocal and the estimate of \$150,000,000 by General Hains there is a disparity so great as to satisfy Congress that at the present stage the surveys are in no such condition as to warrant it in taking up the work of construction, or even sufficient to allow an intelligent comparison to be instituted between this and the apparently more feasible Panama route.

The authorization of yet another survey, and the placing of the large sum of \$1,000,000 in the President's hands for the purpose, show that it is the wish of the country that this examination shall be thorough, impartial, and final. It is desirable that the new board should be composed of engineers who have never yet been employed in previous surveys, with a view to obtaining an expression of opinion from as many different experts as possible and enabling the final report to be compared as to its findings with those of previous commissions.

Having these facts in view, we think that the reappointment of the Walker board, which, it is stated, is under consideration by the Executive, would be decidedly at variance with the spirit and purpose of Congress in demanding yet another survey. In the first place, it would narrow down the investigation to a few men who have already given their views upon the subject, and have shown a strong bias toward one canal as against the other; and in the second place, there is every evidence that the members of this board are already widely at variance in their views upon the cost of the Nicaragua scheme itself.

The country has asked for a new survey, not for a rehash of an old one; and in view of the fact that one member of the board, Prof. Haupt, has said in committee, "After my investigations as to the economies that would be effected by this (the Nicaraguan) canal the question of cost does not carry very much weight in my mind, even if it were \$200,000,000," we think the desirability of securing entirely fresh material on the new board is evident.

Bearing in mind that the threefold interests, military, naval, and commercial, are interested, we think that the appointment of a board consisting of three engineers from the army, two from the navy and two from civil life, none of whom has been concerned in the previous surveys, would best meet the needs of the case and comply with the wishes of the whole nation.

As matters now stand, four out of the five members suggested for the new board have served on the old commissions, and three of them are committed to the construction of the Nicaragua Canal. Of what value will the report of such a commission be in solving the problem of the best available route when its members are already notoriously pledged to one particular route? If the President is desirous of fulfilling the clearly expressed wish of Congress, he will appoint an entirely non-partisan commission, or one which includes a commissioner representing officially the interests of each canal. How comes it that in selecting a board whose avowed object is to examine the relative merits of Panama and Nicaragua, the new board has been filled with partisans of Nicaragua, while

those of Panama have been ignored altogether? Has the Executive any doubt of the fitness of General Abbott, U. S. A., one of the most experienced engineers in the world, or of Chief Engineer Fteley, under whose care the great Croton undertaking is being successfully completed? We sincerely hope that the admirable judgment which has hitherto characterized the actions of the Executive will not be clouded at this late hour by such obvious partiality as is shown in the proposed make-up of the new commission.

## TO PREVENT CROWDING ON STREET CARS.

There are some things in which New York city leads the world, and one of these is the art of overcrowding. There are residence areas of the city in which more souls are to be counted to the square mile than in any other quarter of the globe; there are thoroughfares down which a more solid stream of humanity surges at certain hours of the day than can be witnessed in any city of the old or new world, while in the matter of transportation we have developed overcrowding into a fine art. There is certainly no city that can touch us in this last respect; for by virtue of that skill which comes only by patient study and long, if painful, experience, the average New Yorker in a crowd is an adept in adjusting the irregularities of his body to conform with as little discomfort as possible to those of his neighbor. As a result we lead the world in our ability to jam a maximum number of people into a minimum amount of car-space.

We are certainly a most patient people. Discomforts of travel which would render the average Briton apoplectic with indignation, or call forth from a Frenchman the choicest expletives of his expressive language, are accepted by ninety-nine out of a hundred Americans as irremediable and therefore inevitable. Occasionally some returned tourist, fresh from the "seat for all" methods of Paris or London, ventures to ask why some restrictive methods are not taken to prevent our street and elevated cars from carrying more passengers than they can seat; but he is immediately met by the statement that Americans are too busy a people to wait for a seat, and prefer to travel standing if they can not start at once.

The fallacy of this reply is obvious to anyone who has seen both systems at work: for while it may happen that occasionally in the cities named a passenger has to wait a few minutes for a vehicle with a vacant seat, in the vast majority of cases the first car or bus that comes is available. This fact is explained by the great law of supply and demand, the various transportation companies placing more cars upon the routes as fast as they are required. If the authorities of Paris, deciding to return to the barbarism and brutalities of overcrowding, rescinded the law insuring every passenger a seat, half the cars would be withdrawn at once from the city's streets. If, again, the resultant miseries were found to be unbearable, and the law was re-enacted, the number of vehicles would be at once increased by the necessary amount.

So with New York. If legislative means were taken to prevent overcrowding, the street and elevated railway companies would find means to increase their carrying capacity until practically every passenger was supplied with a seat. If they were unable to do this, the underground would be built at once; for the people have to be moved twice daily from one end of our long and narrow city to the other, and if it is found that it cannot be done with decency by the existing lines of travel, others will have to be provided.

The Metropolitan Street Railway Company could exactly double the capacity of its system by the simple expedient of double-decking its cars, a change that could be carried out within a few months' time on its most important and overcrowded lines, such as Broadway, Lexington Avenue, and Madison Avenue. The most serious cause of delay would be the raising of the elevated structure some four or five feet at the few points where the Metropolitan tracks on these lines pass beneath those of the elevated—a change that could be made at an insignificant cost, compared with the vast relief afforded to the traveling public.

By directing long distance passengers to take the upper deck of the cars and reserving the lower deck for "short haul," the delay of loading and unloading passengers would be greatly reduced, the passageways being free and the passengers being able to move without delay from their seats to the platform. This change could be made within a few months on the lines in question, and within twelve months the raising of the elevated structure on Third, Sixth, and Eighth Avenues, at the points where at present it would not admit double-deck cars beneath it, could be completed and the cars running.

It would be a costly undertaking for the roads concerned, but not nearly so costly as the franchises granted to these roads by the city are valuable and deserving of every possible return in the way of provision for the comfort of the traveling public.

The Harburger bill, at present before the Assembly, provides that the cars shall carry no more than they can seat, and that when all the seats are occupied the entrance gates shall be closed. Such a procedure is

impracticable and too radical, and it would prove disastrous if put rigorously into practice. During the rush hours, with the present number of cars in use, many of the downtown passengers would have to wait from a half to a full hour before they could get the coveted seat. At the same time we think that some less drastic measure in the way of a "no seat, no fare," or "no seat, half fare," enactment would hasten the introduction of the two-deck car or the construction of the underground road. Certainly the two-deck car should be given a thorough trial. It is in practical use in a number of European cities and gives very general satisfaction.

## THE FARMER AND THE PATENT SYSTEM.

Until recently that numerous and influential class of our citizens, the farmers, have in some sections of the country borne a feeling of enmity toward the patent system. There is no doubt that this feeling arises from an entire misunderstanding on the part of this intelligent class of our citizens as to the aims and purposes of the patent laws, and that this feeling of hostility has been engendered and increased by the unscrupulous acts of certain parties who have taken advantage of the protection of the patent laws to levy a species of blackmail upon the unsuspecting farmer. It will be interesting to review some of the benefits that the farmer has derived from the patent system.

The average farmer now lives nearly as well as did the most prosperous of his class in the old colonial days, so far as the necessities are concerned; and, as for luxuries, he has no end of conveniences and pleasures that were not to be had at any price in those days. But, as his prosperity depends on his earnings, let us compare the fruits of a given amount of labor expended in agriculture then and now.

Taking first the plow, which is one of the most important, if not the most important agricultural implement, at the time of the enactment of the first patent law in this country, in 1791, the plow was a wooden structure shod with iron, and it was so imperfect that but an acre of land could be plowed in a day, and even then it was not much more than scratched. The plow had hardly been improved at all in forty centuries. Now, the steel plow, with its greater strength and its perfected shape, digs down and overturns the soil so that a much larger crop is grown, and several times as much work can be done in a day with the ordinary one-horse plow as with the old form; while a steam-driven gang plow can plow twenty acres in the same length of time.

The harrow of the eighteenth century was simply a log having the spurs of its limbs for teeth. It was ineffective and easily broken. The modern harrow is mounted on wheels, and its well-shaped steel teeth are yieldingly supported, so that they may spring aside, instead of being broken on striking a stone. It does thirty times as much work in a given time as did its predecessor, and, besides this, it carries its driver.

The planting of seed in rows and the cultivation of the plants that grew therefrom before the advent of the American inventor were done with the hoe. Now the seed, with a measured amount of fertilizer, is accurately deposited and covered as rapidly as horses can walk; and implements which were never dreamed of by our ancestors thoroughly cultivate by horse power the ground between the rows.

Of machinery for digging vegetables and harvesting corn, grain, and other crops, there is now such a variety that one is embarrassed to describe it, and yet it was all unknown one hundred years ago. The best implement for harvesting grain three generations ago was the cradle. This is a scythe having wooden fingers parallel to and above the blade to catch the grain as it was cut, so that it could be laid straight on the ground for ease in gathering it. A single man using a modern self-binding harvester will cut and bind twenty times as much grain in a day as he could cut alone with a cradle. These machines are sold for about the same price as a high-grade bicycle.

In thrashing by the use of the flail, which many persons living can remember to have seen in common use, four men could thrash twenty bushels of wheat in a day; while the steam thrasher of to-day, using the same number of hands, can thrash one thousand bushels in an equal length of time. In fact, there are steam propelled harvesting machines on the Pacific slope that cut a swath twenty-six feet wide through a field of wheat, and the same machine at the same time thrashes, cleans, and puts the grain into bags at the rate of three bushels per minute; yet seven are all the men that are needed to run such a machine.

The prototype of the mower is the scythe, which has a comparative efficiency of one to twenty; and one modern horse rake is equal to half a dozen field hands working with the hand rake, which was the best implement the last century afforded.

The baling press is entirely an invention of this century, and yet, without it, hay could be profitably raised only near enough to the cities to be hauled in wagons, for it could not be shipped by railroad economically in its loose state.

In fact, there is so much machinery in use by the farm-