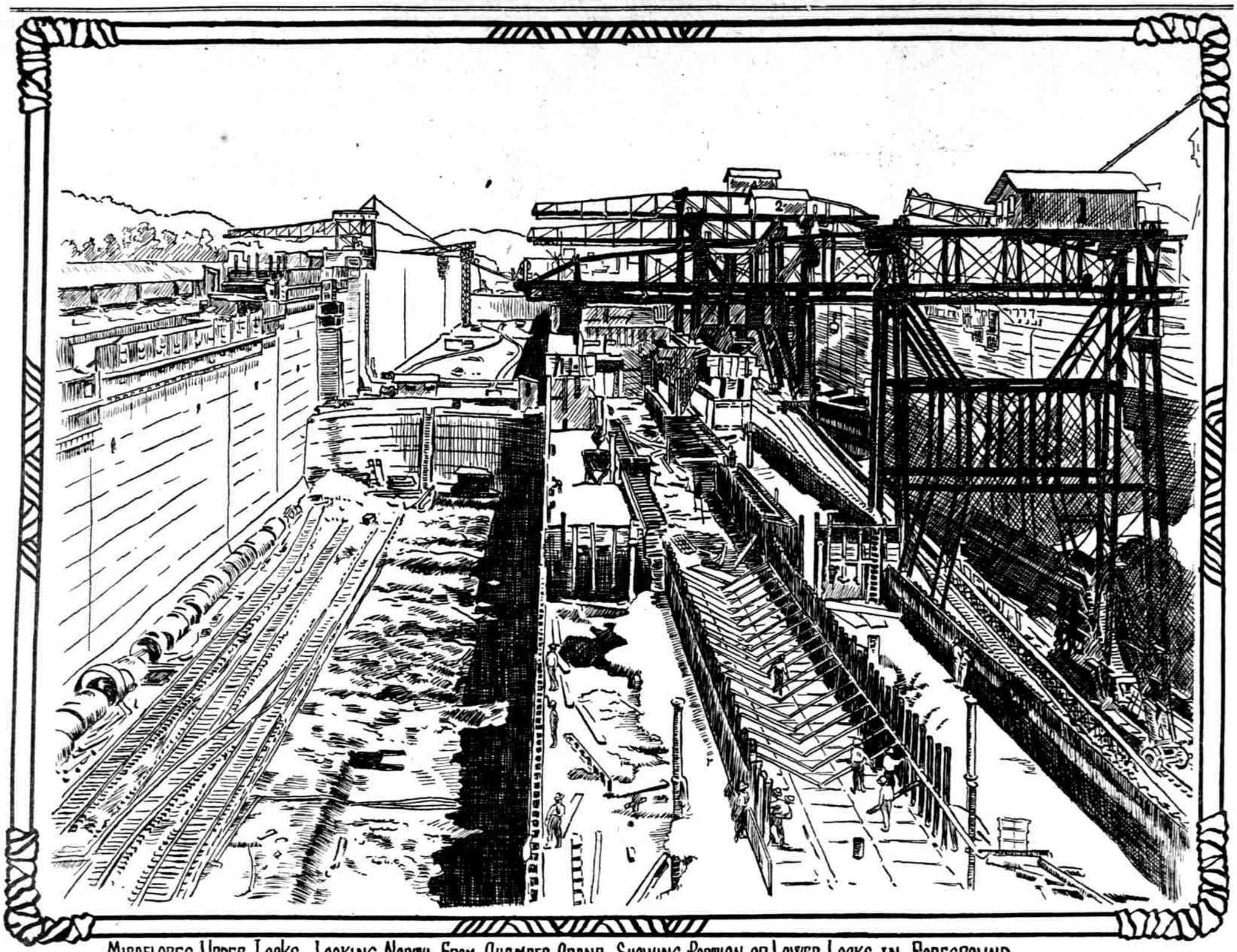

MIRAFLORES UPPER LOCKS, LOOKING NORTH FROM CHAMBER CRANE, SHOWING PORTION OF LOWER LOCKS IN FOREGROUND.

New Orleans business men are enthusiastic enough about the opening of the Panama Canal and the effect it is sure to have on the growth of the city which occupies so advantageous a position with regard to this new avenue of commerce, but there are not a few who claim that an even greater impulse will be given to the development of the city's population and wealth by the land reclamation which has made such prodigious strides within the last ten years.

Your representative heard this word "reclamation" so often in his talks with New Orleans business men that he became curious to know more of the work from which they expect such tremendous developments. He began to ask questions, and found that even New Orleans men themselves have only a vague idea of the great work now going on, and its possibilities.

"Reclamation in Louisiana," he was told, "has a very different meaning from that which it bears in the arid West. In fact, it means generally just the opposite. In the West it usually means the irrigation of dry lands, and we all know how much money the government engineers have expended 'to make the desert blossom as the rose.'

"In Louisiana, on the other hand, the reclamation consists of the drainage of wet lands, and it has been done by private enterprise which is finding it a richly paying investment. Louisiana has, too, large tracts of irrigated lands, which are also handled without government aid, for they are watered in order to produce rice, and last year the Louisiana crop surpassed even that of Texas, which for some years has led the country in the production of that very profitable crop.

"Both drainage and irrigation are done almost entirely by means of pumps in this State, for the land is so level through the greater part of its area that the water will not run on or off by gravity. As in all delta formations, the land in the immediate vicinity of New Orleans slopes away from the banks of the river—the soil having been deposited by the overflow of the stream. Thus the only land near the city which has good natural drainage is a narrow strip on each side of the river. This strip varies from half a mile to two miles in width, and is thickly settled and planted in sugar-cane, rice, and truck."

We had noticed this in our trips about the city; and also that going out of the city in any direction except along the bank of the river, one travels for about two hours through marsh or swamp lands before coming to a town of any size, or even, except in rare instances, to cultivated fields. These rare instances are the reclaimed tracts we have heard so much about, and it is the work of draining these lands, and others of like nature farther away from the city, but still tributary to it, the conversion of these now useless swamps into habitable and inhabited farms, that Louisianians mean when they tell you with such conviction that "reclamation of Louisiana wet lands is going to bring New Orleans more prosperity, wealth, and population than even the Panama Canal."

For, they point out, the settling up of these fertile tracts with small farmers will bring an immense amount of retail business to the city; this land, planted largely in truck—for the soil is a pure garden loam of the richest sort—will make New Orleans the marketing center of the country for fruits and vegetables. All this will be done, they insist, at a cost far less than the irrigation of the Colorado and Arizona arid regions; for all that is necessary is to pump out the surplus water from the sponge-like soil, and it is ready for the farmer.

"But," we asked somewhat skeptically," is not that pumping a heavy perpetual tax on the land?"

"It is a perpetual tax," admitted our informants, "but not a heavy one. The cost of pumping to rid the wet lands of Louisiana of their excess of water is far less than that of furnishing water to the arid lands along the Rio Grande, for which, as you probably know, a great number of pumping plants have been put in within the last five years. If you want these statements confirmed, suppose you call on A. M. Lockett & Co., a firm of contracting mechanical engineers which has made a specialty of this sort of work—the designing and construction of pumping plants for irrigation and drainage, and which has built more large plants of this type than any other concern in the country."

THE FARMERS' OPPORTUNITY

A. M. Lockett & Co., Ltd., is a Louisiana corporation, which has its main office in New Orleans, with a branch office in Houston, since a large part of their business consists of irrigation plants in Texas and Mexico. A. M. Lockett, the president, is one of the best known engineers of the Southwest, a member of the American Society of Mechanical Engineers and of the Louisiana Engineering Society. He was for many years with Henry R. Worthington, and is at present manager of their office in New Orleans as well as manager of the branch office of the Babcock & Wilcox Company.

Mr. Lockett is also one of the directors of A. M. Lockett & Co., Ltd., the others being E. H. Wells and John G. Ward, of New York. Mr. Wells is vice president, and the treasurer is Motley Lewis. The secretary and chief engineer is H. L. Hutson, also a member of the American Society of Mechanical Engineers, and of the Louisiana Engineering Society, and formerly with Henry R. Worthington. He has been with the company for ten years, and it was he to whom your correspondent put his questions about the reclamation of Louisiana lands, its cost and its possibilities.

"I can tell you only about the pumping end of it," said Mr. Hutson, "you know the cost of reclaiming these lands includes many elements, and even the cost of pumping will vary for each district, since it depends on the rainfall, the "lift" or head against which the water must be pumped, the amount of storage space for water within the district, and the kind of crops to be planted; and last, but not least, the kind of pumping plant.

"While you should, if you planned to invest, consult a civil engineer with experience in drainage projects, the question of the kind of pumping plant most suitable is the point on which we claim to be experts, for no other firm in the country has done so large a business in the construction of plants for this service. Last year A. M. Lockett & Co. sold or installed centrifugal pumping plants for irrigation and drainage having a combined pumping capacity of over 1,000,000 gallons a minute. These plants pump against heads of from five to fifty feet. The combined horsepower is 10,318.

"Now, some of these plants were put in to pump water on the lands in the arid regions of Texas or Mexico, while others were built to remove the surplus water from the wet lands of Louisiana. So we have had ample experience with both problems. We know that, under modern conditions and with modern apparatus, pumping is far less expensive than people generally suppose. A number of these plants are located where gravity irrigation would be possible, but it is better engineering, and truer conservation, to spend from 15 cents to $1.15 per acre per annum for fuel than to put in the expensive dams which would be necessary. For the interest on the first cost of such dams alone would amount to a greater annual tax per acre than the cost of fuels for pumping.

"If it pays to put in pumps when gravity could be used to carry water on or off, it certainly pays to do so when it is the only means of removing the water—which is the case through a large part of our delta land.

"We are often asked why we do not use windmills to clear our lands of water as they do in Holland. We can show you why, by a simple calculation. To do the work which we are doing with the pumping plants I have just mentioned as sold by us in the past year would require no less than 6,286 windmills, assuming a sixteen-foot wheel and a sixteen-mile wind as an average.

"Although there are few published tests of drainage plants, there are, in government bulletins and elsewhere, a number of such tests of irrigation plants, and from these, and the tests we have had made of our own installations by such experts as Prof. W. B. Gregory, of the School of Technology of Tulane University, we can calculate pretty closely the cost of pumping a given drainage area, when we know the necessary factors to figure on—which, as I said, include the rainfall, the lift, the kind of crops, and other elements which may vary with each job.

"Near New Orleans our rainfall is about 60 inches per annum. It is not necessary to figure on pumping off the whole amount, because some is lost by evaporation, and during the growing season a good deal is taken up by the plants. On a large drainage area, with ample storage within the district, it will be enough to figure on pumping off 40 per cent, or 24 inches per acre per annum.

"With oil at 95 cents a barrel, the cost of getting rid of the water would be about 1 cent per acre foot per foot of lift; or 16 cents to pump off two feet of runoff per year against an 8-foot head. This is for fuel only, and presupposes high class machinery.

"We will now figure the cost of labor, which will amount to more than the fuel. If the plant drains about 5,000 acres, a crew consisting of one engineer at $1,200, one assistant at $900, and day labor when needed at a cost of about $300, should suffice. This would amount to $2,000, or 40 cents per acre.

"I have assumed that you would use oil fuel, as it is the ideal fuel for drainage plants, saving labor and enabling one man to run a plant of two or three hundred horsepower. The cost of supplies must be added, and it would also be proper to add for interest and depreciation on the pumping plant, but as it is usual to consider the cost of the pumping plant as part of the first cost of the drainage work, this would be taken care of by a sinking fund in the same way as the cost of levees, ditches, &c.

"You see that the cost of fuel in drainage is a matter of a few cents an acre, while in irrigation plants it will amount to several times as much, depending, of course, upon the lift and other factors. It is the low lift needed to bring the water off of the wet lands that makes this cost so moderate; for the irrigation plants have to lift water against a head of 25 to 50 or more feet, instead of 4 to 6 or 8 feet.

"Thus, against the average of 16 cents we have just reached in our calculation of fuel cost for drainage, you must set 50 to 80 cents, $1.00 or more, for irrigation pumping.

"Thus you can see that the drainage proposition is much the less expensive; yet we put in a great many more irrigation plants at present because the field of operation in wet lands has only just begun to develop. Last year we sold or installed the following plants:

Location.	Size Centrifugal Pump Inches Units
American Rio Grande Land and Irrigation Company	2-60
American Rio Grande Land and Irrigation Company	1-42
American Rio Grande Land and Irrigation Company	1-16
Santo Domingo Land and Irrigation Company	1-20
Louisiana Rio Grande Canal Company	1-50
Louisiana Rio Grande Canal Company	1-36
Louisiana Rio Grande Canal Company	2-60
Garwood Irrigation Company	1-36
San Jacinto Rice Company	1-36
Louisiana Meadows Company	2-48
Harlem Plantation	1-24
Compania Agricola del Rio Bravo	2-60
Compania Agricola del Rio Bravo	1-36

"Eleven of these plants were for irrigation, and only two for drainage. But we expect to see the time when the drainage plants will exceed the irrigation plants in number and acreage taken care of.

"What acreage would these plants reclaim? Well, that is a difficult question to answer, as it would depend on the conditions at each plant. Moreover, it is a little out of our province, which is merely the designing and construction of the plants according to the specifications given us. But you can calculate that the combined acreage that could be irrigated or drained by the plants we sold last year would be about one-tenth of the gallons per minute, which would be about 10,000 acres."