Tell the People The Price

By HOLLAND.

ONE of the first questions asked when the question of buying goods comes up is, "What does it cost?" The man who is to pay the bill wants to know what that bill will be. The price is also a very good line on quality. Sane men know that goods are not offered at prices away below their value unless there is a good reason for the sacrifice.

Consequently the curiosity regarding the price is legitimate and should be satisfied. The man looking for a house and able to pay only $20 a month rent is not interested in one that rents for $50, no matter how fine it is or how great a bargain. He would be wasting his time going to inspect such a residence.

Conversely, the man who is able and willing to pay $50 a month rent for a house would not care to look at one offered for $10.

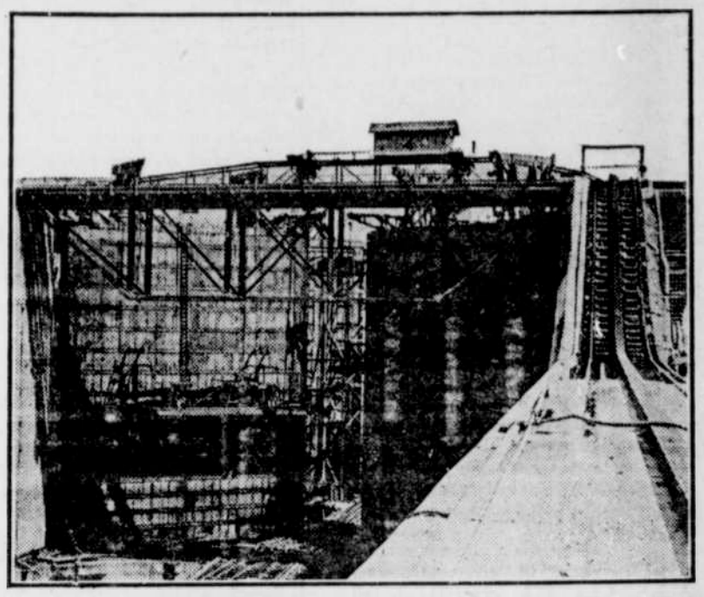
Whether buying eggs,shoes, molasses, nails, toothpicks or automobiles, the buyer wants to know the price—that is, if he expects to pay the bill, and merchants do not care to sell goods to the man who has no such intention.

Bearing this in mind, the advertiser should not be afraid to quote prices. The price will have to be told some time. Why keep it a secret?

INTEREST POSSIBLE CUSTOMERS BY GIVING PRICES OF GOODS.

The Americans In Panama

Story of the Panama Canal From Start to Finish.



ENTRANCE TO MIRAFLORES LOCK.

At the right is shown the track on which the towing locomotives will run. These locomotives, operated by electricity, will tow vessels through the locks.

By Wm. R. Scott.

(Continued from last week.)

the Pacific, having made the whole journey from deep water in the Atlantic to deep water in the Pacific, fifty miles, in ten hours.

At both ends the locks are built in pairs or twins, so that ships going in opposite directions may pass through them simultaneously. A wall sixty feet thick separates the locks, and if one set should become disabled the adjoining set still would be available for passage. The time required for a ship to mount the three locks on one side and descend the three locks on the other side is three hours.

On the Atlantic side the locks at Gatun are connected and constitute one solid piece of masonry. On the Pacific side the lock at Pedro Miguel is separated from the two locks at Miraflores by a small lake a mile and a half long. This lake, like the great Gatun lake, is formed by damming rivers. A dam at the Pedro Miguel lock, which is the first lock encountered going toward the Pacific, holds the waters of Gatun lake from spilling down the Pacific slope.

Chief Engineer Stevens began the excavations in the Gatun and Pedro Miguel lock sites in 1906 shortly after the decision was made for a lock type canal, but most of the excavation and all of the concrete laying have been done under Colonel Goethals. It was necessary to remove about 5,000,000 cubic yards of rock and earth from the site of the three locks at Gatun to prepare a foundation for the tremendously heavy structure. Careful borings had been made to ascertain if a suitable foundation could be found there.

On Aug. 24, 1909, the first concrete was laid in the Gatun lock site. Rock of a desirable kind for use in making the concrete as well as sand could not be found in the canal zone, and experiments along the coast showed that at Porto Bello, twenty miles east of Colon, good rock could be quarried, and sand was discovered in suitable quantities and quality at Nombre de Dios, forty miles east of Colon. These two places are the oldest on the isthmus, Columbus having been there in 1502.

Rock crushing began at Porto Bello on March 2, 1909. If all the rock and sand removed from Porto Bello and Nombre de Dios were placed in barges separated by the usual distances in a tow they would reach from Colon to New Orleans, or 1,500 miles. This material was towed to Colon and thence through the old French canal to Gatun. Here it was unloaded by machinery and stored conveniently for the concrete mixing plant.

All the machinery and equipment for building the locks were designed on a scale commensurate with the unprecedented size of the structures. Eight giant mixers were fed with rock, sand and cement by cars operated by electricity, the finished product coming from each of the mixers at the rate of sixty-four cubic feet for each complete operation.

To get the concrete into place four cableways suspended across the lock site on towers eighty-five feet high were installed. Electrically operated cars brought the concrete to these towers, where great buckets were filled. These buckets then were run up to the cables and out on the cables to a given point, where they were lowered and the concrete dumped into the proper position.

After the floors of the locks had been laid the walls were built in the usual manner of erecting steel forms, which were removed when the concrete had hardened. At Gatun the walls of the locks were built in sections thirty-six feet long and joined together, on the plan that such construction would have less tendency to settle and crack than if it were built in one solid, continuous wall. This may be appreciated when it is understood that at Gatun the locks form a concrete wall about 3,500 feet mile. The usable part of each lock is 1,000 feet long, and there are three in flight.

In each of the outside walls and in the center wall tunnels eighteen feet in diameter were constructed for use in filling and emptying the locks with water during the processes of raising and lowering ships. Smaller tunnels run out from these main longitudinal tunnels, under the floors of the locks, with openings through which the water is turned into or withdrawn from the lock chamber by gravitation. Valves operated by electricity regulate the flow of the water. The water for operating the locks starts from the Gatun lake and flows through the tunnels down grade through the three locks until it finally is used in the lowest lock, when it is spilled into the sea level channel.

The first concrete for the Pacific side locks was laid at Pedro Miguel on Sept. 1, 1909, seven days after the beginning of operations at Gatun. It was in February, 1910, that concrete work was started in the two locks at Miraflores. For all twelve locks 4,480,000 cubic yards of concrete were required.

For the three locks at Gatun 2,000,000 cubic yards of concrete were required, for the one lock at Pedro Miguel 921,000 cubic yards and for the two locks at Miraflores 1,504,000 cubic yards. A contract was awarded for 4,500,000 barrels of cement, with the privilege of increasing this order by 15 per cent, and in 1912 another 1,000,000 barrels were bought to complete the canal.

All twelve locks were half done as regards the concrete work about May 4, 1911. The best month's record for laying concrete was made in April, 1912, in the Pacific division, when 97,735 cubic yards were laid. The concrete is all of re-enforced construction, and an unusual feature has been the placing of rocks weighing many tons throughout the walls. The lock walls at Pedro Miguel were not built in sections, as at Gatun, but as one solid piece of masonry more than 1,000 feet long. At Miraflores the two locks were built in sections, as at Gatun.

The gates for the locks were contracted for, in 1910, to cost $5,374,474.82. Their construction and erection are by the McClintic-Marshall Construction company of Pittsburgh, under the inspection of the commission. This concern in 1913 had more than 3,000 men at work and was rushing the construction to meet the dates agreed upon for their completion. Under the contract this company has until Jan. 1, 1914, to finish the work. On July 1, 1913, out of a total of 58,000 tons of steel required in all the gates, 54,000 tons had been erected, or 94 per cent, leaving to be erected before October, 1913, when the first ship is scheduled to go through, 4,000 tons.

There are forty-six gates in all twelve locks, with two leaves to the gate or ninety-two leaves. The gates are from forty-seven to eighty-one feet high, are seven feet thick and weigh from 390 to 600 tons each leaf. They are constructed with interior cells, which at the bottom will be air chambers to assist in their manipulation, and at the top water chambers to increase their weight as the water rises in the locks. The sheathing is with steel plates riveted on heavy girders. These gates will be opened and shut to permit the entrance or egress of ships by electrical apparatus.

As 95 per cent of the vessels in the world are less than 600 feet long it would be a great waste of water and time to use the full 1,000 foot lock in each passage. So intermediate gates are being constructed which will permit the use of only 400 or 600 feet, as the particular vessel may require. There are recesses in the lock walls which allow the gates to be opened and still leave a clear width of 110 feet. At the entrance of the locks a chain, with links three inches in diameter, stretches from one side to the other to stop vessels which might not obey the signals. In case the first gates should be rammed and broken a second set of gates especially provided for emergencies have been constructed behind the first set. If both sets of gates should be demolished the water would rush through with a fearful velocity, but provision has been made against this contingency by having in readiness emergency dams, which would be swung out over the lock and forced down through the inrushing water.

It is to prevent such accidents that the plan of towing vessels through the locks with electric locomotives was adopted, as then no misunderstanding of signals from the captain to the engineer of a ship could result. The tracks for these locomotives are on each side wall of the locks, and two will fasten to the rear and two to the front of a ship to effect a passage. If all twelve locks were joined end to end they would make a canyon nearly three miles long, 110 feet wide and eighty feet deep.

The natural topography of the isthmus at Panama permitted the Chagres river to escape into the Caribbean sea through a break in the mountains at Gatun. Engineers logically considered that this was the point at which a dam should be thrown across the Chagres river. Two valleys were formed at Gatun by a hill which rose in the center to an elevation of 110 feet, and the dam that was designed runs from the Gatun locks to this hill and from this hill to the mountains, a total distance of 7,500 feet, or a mile and a half.

As the Chagres river every year discharges enough water to fill the lake, some means of disposing of the surplus water had to be provided. The plan adopted called for a spillway to be constructed in this hill, about third way in the dam site. This spillway is of concrete, requiring 225,000 cubic yards to complete. On July 1, 1913, it was more than 98 per cent completed.

The floor of the spillway is ten feet above sea level and 300 feet wide through the hill, which involved excavation through rock for a depth of 100 feet at the highest point of the hill. A concrete dam was built on this floor to a height of sixty-nine feet above sea level and in shape like a semicircle. On top of the concrete dam piers were built with an arrangement for steel gates. These steel gates will be electrically operated and regulate the flow of water out of the lake. As much as 140,000 cubic feet of water per second may escape through the spillway when the gates are open.

There will not be a complete loss of this water, as on the east side of the spillway a power plant of the hydro-electric type will be operated. A drop of seventy-five feet by the water will

(Continued next week)