Cost of Panama Canal and Where the Money Goes

(Copyright, 1912, by Frank G. Carpenter.)

CULEBRA, Canal Zone, Panama.—Four hundred million dollars! That is what the Panama canal will have cost when completed. You need not question the figures. They are dead right and I will give you the items farther on.

But stop first and think what $400,000,000 means. Suppose you had to earn it and your wages were $2 a day. How long would it take? It would take 200,000,000 days, or more than 600,0000 years. The history of man goes back only 6,000 years, and you would have had to work 100 times the life of this world as far as history is concerned to have done this job.

Four hundred million dollars! Suppose it were all in silver coins, such as are now paid to the men who are doing the digging. What a pile and what a weight! One thousand such dollars equal to fifty-five pounds, and the whole sum would weigh in round numbers 22,000,000 pounds, or 11,000 tons. At a ton to the wagon it would be enough to load a train of two-horse teams, making a single file over sixty miles or roadway, and the noses of each team might rest on the tailboard of the wagon in front of it.

Indeed it is a goodly sum! Where has it gone? And is Uncle Sam getting the worth of his money? These are some of the matters I have been looking into this week. I have gone over the canal work and knocked for leaks, and have also made notes of some places where Uncle Sam is using the principle of scientific management and modern economy. I had a look at the books in the administration building here in Culebra, and with the clerks have gone over the ledgers to learn how Uncle Sam counts the cost and to show you what has already been spent and what we must spend in the future.

Our $400,000,000 Ditch.

But first let me satisfy you as to the total. President Taft and Colonel Goethals have estimated the cost of the canal at $375,000,000. In one way they are right, but there are other items which will amount to at least $25,000,000. These are the extra charges entailed by the annual sum we pay Panama, and the fortifications. The first estimate of the cost of the latter was $19,000,000 and congress has now cut it down to $12,000,000. We have already spent more than $3,000,000 and we will run up to $20,000,000 before we get through. Moreover we have agreed to pay Panama $250,000 a year, beginning with nine years after the treaty by which we took the canal. Eight years have already gone, and a year from now we will be spending that $250,000, which will be fixed charge upon the treasury for all time to come. Two hundred and fifty thousand dollars is the annual interest on more than $6,000,000, and so we must capitalize that $6,000,000 and add it to the cost of the canal. And so you have the $25,000,000 without going farther, making, as I have said, a total of $400,000,000.

Now, let us see where the money has gone. We shall first take it in the rough.

We spent $50,000,000 at the start to get control of the canal property. The French company received $40,000,000 for its rights and the work it had done and Panama got $10,000,000 for the canal zone and other rights. Then we began to clean up the canal, to organize the work and to dig. We spent less than $1,000,000 in 1904, the year we bought the canal. We paid out about $5,000,000 in 1905, $11,000,000 in 1906, $21,000,000 in 1907 and from then on have steadily increased until we are now spending millions a month. By June 30 next we shall have used up the total appropriations so far made by congress, and they now equal the vast sum of $293,565,872.76. At the beginning of this year we had already expended more than $200,000,000 and the remaining $93,000,000 is the cost of the current six months.

Uncle Sam's Money Worth.

Is the job a cheap one and is Uncle Sam receiving the worth of his money?

The job is not cheap and, nevertheless, Uncle Sam is getting the worth of his money. He is getting more than any other great company or government has had for similar work. Let me give some comparative figures. When the French started this canal in 1879 it was planned to build it at sea level and at a cost of $240,000,000. The first company continued its work for ten years, after which time it became bankrupt. In that time it spent $260,000,000 and excavated about 56,000,000 yards of earth and rock, so that the average cost of digging was about $4 a yard.

Uncle Sam, with all his preliminaries in the way of sanitation and getting ready for work, has been on the job less than eight years and at the end of last February he had taken out over 140,000,000 cubic yards of earth and rock. He has been able to use a little less than 30,000,000 yards of the French digging and has now a total excavation all told of a little more than 200,000,000 cubic yards, with something like 30,000,000 yet to dig.

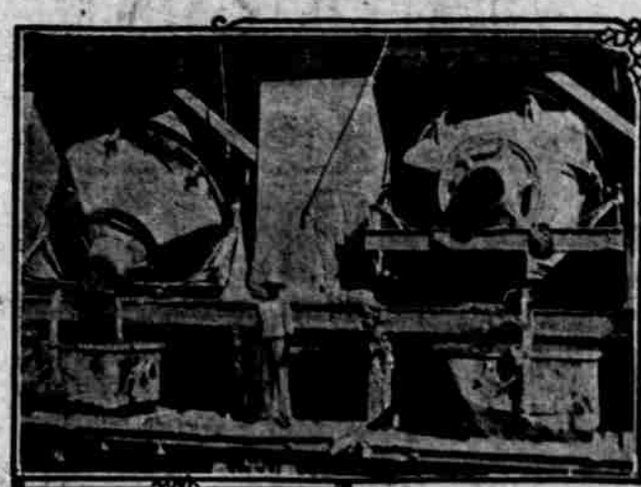
The French cost, as I have shown, was $4 a yard, Uncle Sam's cost was at one time $1 a yard, but it has been steadily cut until, on the Culebra division, where it is almost solid rock and the expense is the greatest, the total average per cubic yard is less than 64 cents, while the dredging cost at the Atlantic end of the canal is less than 25 cents. Does it not seem as though Uncle Sam is getting the worth of his money?

The Suez canal cost all told about $100,000,000 to build, and the original excavation was 80,000,000 cubic yards. The cost was about $1.25 per yard or just twice what we are paying now for taking the rock out here at Culebra. This is so notwithstanding Suez was a ditch through a desert without hill or hollow, where the sand could be shoveled out on the banks and where thousands of fellahs were furnished by the khedive to do the work at practically nothing a day.

The Chicago drainage canal cost a little over $35,000,000, and its excavation amounted to over 42,000,000 cubic yards, of which, however, only about 12,000,000 were rock. At that rate the digging there cost an average of 80 cents per cubic yard, or 20 cents more than that we are now paying at Panama.

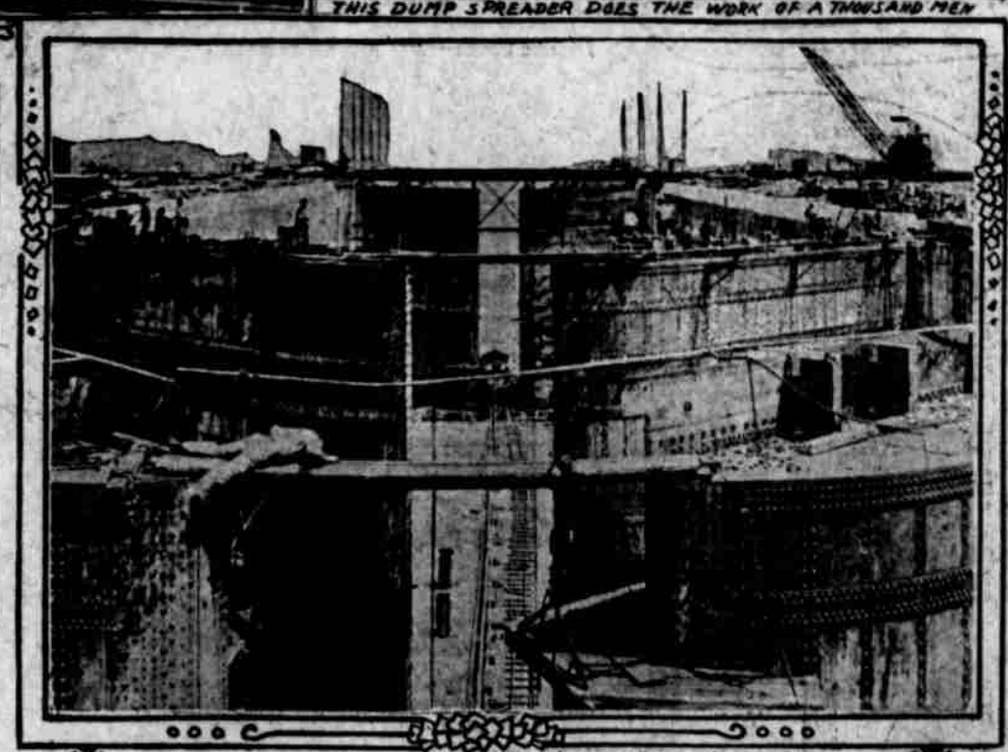
Watching the Corners.

It is only by watching the corners that Uncle Sam is able to cut down the cost of the work to these very low figures. You must remember that he pays the best wages on earth, and that he houses his men free of charge. Nevertheless the cost is about as low as it could be on any great work of this kind almost anywhere in the world. The reduction is made by stopping every leak and by using every available bit of material. The French houses were required and used. Two million dollars' worth of the French machinery was modernized and put to work and every bit of French scrap not in use was sold for what it would bring. The French buildings altogether saved us $2,000,000, and every old French shack that has been torn down has found a place in other buildings.



Concrete Mixers

THIS DUMP SPREADER DOES THE WORK OF A THOUSAND MEN



A Look at the Gates of Gatun

Indeed, I have never seen so much care taken in saving the scraps, anywhere as right here at Panama. Lumber is used over and over again. The buildings which form a part of the Guam lake basin have been torn down by carpenters, and all the material shipped to other stations in the canal zone. The windows and doors and even the galvanized roofs were preserved.

Right here at Culebra they are now moving the buildings in advance of a great slide, which is expected, taking in the ground where the penitentiary stands.

It will all be bare by the time the slide comes. In doing such work the men save nearly every hinge, nail and every board and stick that can be used for new construction, and then set the Jamaica negroes to cutting the scraps into kindling wood for the employes. Uncle Sam furnishes free fuel to his men and kindling is quite expensive.

Millions Saved from Old Material.

Indeed it is wonderful how much Uncle Sam saves by the sale of old machinery and various kinds of waste material. The moment he gets through with a machine he disposes of it, and at the close of the work there will be some mighty sales of this kind. So far more than $5,000,000 has been turned into the treasury from the sale of government property down here, and an additional $4,000,000 has been received for services rendered and material supplied to individuals and companies.

Everything is watched and there is nothing too small to be picked up and cared for. Going through the Culebra cut Sunday one may see a gang of men gathering up the old bits of iron to be shipped off and straightened out for new work. The bad joints are thrown away, and new threads are made on that which is left. It is the same with brass, copper and old rubber. It is all saved and classified to be sold as junk. There is a car filled with rubber hose and rubber piping on the side tracks here now, and in this is a large quantity of worn rope and wire cable, and also of lead pipe, steel chains and other material of various kinds.

Walking with Colonel Devol through some of these buildings covered with wire netting, I asked as to the effect of the climate upon the metal cloth. He replied:

"This woven-wire lasts only about two years. It then begins to have holes and we take it off and replace it with new. The old netting we bale up and ship to New York, where it is sold at fixed prices. We made a shipment last week, which brought in $7,000, and we have sold many lots which brought more."

It is the same with the galvanized roofing. Some of that on the French houses built twenty or thirty years ago is full of holes, but nevertheless it does for the walls of buildings, where such holes do not matter. It is the same with everything. The machines are cared for as though they were race horses and everywhere economy and efficiency march side by side.

Watching the Labor.

I have already written something about the labor of the canal. Uncle Sam pays bigger wages and gives bigger vacations than any other employer on earth. The men here get from 25 to 50 per cent more than in the states, free medical attendance and free fuel. They can buy eatables at a shade above cost and each of them has six weeks' vacation, with his high rate of pay during the year.

In return for this Uncle Sam sees that they do their work. There is mighty little loafing on the island, and during working hours every muscle is put to its highest efficiency. There are detectives who go about to see if there is any scamping the job or padding the pay rolls, and the poor workman is pretty sure to be dropped.

This is especially so of the men handling the machinery. A careful record is kept of the amount of labor that each machine performs, and from week to week the engineers know just what every steam shovel and every dredge is doing. There is a great competition as to which machines and which gangs do the most, and as a result we have had some surprising work. The outputs of the steam shovels have been doubled, and a single shovel has excavated about 4,000 cubic yards in one day, while another has a record of having loaded more than 56,000 cubic yards in one month. That first shovel did the work of over 600 men. Now when it is remembered that we have something like 100 shovels on the isthmus you can see how much it means that all should work well. Altogether the shovels alone represent a force equal to the labor of 40,000 or 50,000 men, and the same is true of other great machines on the isthmus, such as the track shifters and spreaders, each of which does the work of hundreds.

Machine Efficiency.

Indeed, the amount of labor saved at Panama by the use of machinery is enormous. Uncle Sam is doing nothing that he can get steam, electricity or compressed air to do, and he finds that it pays. Scientific studies are made of blasting and drilling, and the men know just where to use and where to save dynamite. In connection with the steam shovels, the government employs 700 or 800 men in drilling and blasting. If the work were done by hand it would have to have 2,000 or 3,000 men and would use about three times the amount of explosives. The track shifters and spreaders which are handled by three white men and six laborers, can move more than a mile of track in a day, and they can spread down an eighteen-foot dump to a wide road of nine feet. It is estimated that the nine men so working are equal to a gang of 60, which would need nine foremen to handle them. The Ledgerwood unloaders, which require twenty-eight white men and forty-two laborers to operate them, each do as much work as 2,600 laborers with the necessary white foremen, supposing the work to be done otherwise. The dredges are also of enormous saving in the way of efficiency and we have many other machines of similar economical nature.

Uncle Sam's Bookkeeping.

I wish I could show you the books that the government is keeping down here at Panama. They have a system of accounts which shows just what everything costs down to the lifting of every pound of sand and rock, to the making of every cubic yard of concrete and, I might say, as to the labor performance of every man. If the concrete in one division of the work is costing more than that of another Uncle Sam knows it, and his books show just how much the cement and sand in each yard of that concrete cost. It is the same with the dredges and with every bit of machinery, even to the oil used in greasing the same.

The cost of excavation per cubic yard is figured out to the hundredths of a cent, and the variations from month to month are estimated. This is per cubic yard of work done, and it shows just what we are getting and of the men and machines.

Take, for instance, the Gatun locks. I am looking at the records of last year. During the months of July, August and September the average cost, per cubic yard, of work there was a little over $2.96. In September it was about $3, in August almost $6 and in July only a little over $2.

This was made up of items like the following: Cost of drilling, 39 cents; blasting, 23 cents; loading by power, 5 cents; by hand, 77 cents; track transportation, 23 cents; tracks, 1 cent; division expense, 13 cents; and so on, making up the total that I have given. I would say, however, that I have only quoted the round numbers, and that each of these calculations is carried out to the hundredths of a cent.

Where Sixteen Cents Goes.

When you divide a cent into a hundred parts and make your calculations on a job of $400,000,000 you are getting things down to a pretty fine point. But this is done as to everything. In each cubic yard on the Atlantic, where the dredging costs 16 cents, they know to this fraction of a cent just what the cost of the use of the pipe lines is. They know the repairs of the dredges, the cost of operation of the dredges, the cost of the tugs, the cost of the barges, the rock breakers, of the big boats and the little boats and of everything that can possibly enter into that work.

On that division there are fourteen different items which form a part of the unit cost of getting one cubic yard of earth out of the sea and landing it and the total cost is only a little over 15 cents. In addition to this is the administration and general expense account, which is a little more than a cent and which must be added.

In getting stone out from the quarries, the stripping, drilling, blasting, loading, transportation, tracks, power and maintenance of equipment are taken into account, and in the concrete comes the sandstone, cement, the mixing and other things. Similar work is going on in different places all over the canal zone, and if one part of the work goes much ahead or behind the others in cost that part is investigated and the reason is known.

How Uncle Sam Buys.

A great many have wondered that there has not been some scandal connected with the canal purchases. They cannot see how $400,000,000 can pass through the itching palms of thousands of weak, avaricious human beings without a large percentage sticking thereto. Indeed, it would be risky were it not for the safeguards. Uncle Sam has his purchases well watched, and there is an army of detectives always on the outlook for frauds. One great protection is the method by which purchases are made. This provides that every contract for work or materials to the amount of $1,000 or over can be awarded only after bids for the same have been advertised for and then only to the lowest bidder. The bids are made upon plans and specifications and upon accurate descriptions as to the machinery and material of which the goods are composed. Every bidder has to send in a bond with his bid or a certified check of not less than 15 per cent of its amount for his faithful carrying out of the same if it should be accepted, and if he starts and fails to complete the work he is liable for damages.

Bidding of this kind is done as to small contracts as well as to large ones. I have before me the circular which gives the proposals for the great lock gates, which, it will be remembered, were awarded to Pittsburgh parties at a cost of over $5,000,000. It fills many pages and it is accompanied by designs which show just what the locks must be. The provisions state how the steel must be made, how tested, what the constituent elements of each part must be and, also such an infinite number of details and provisions that a full page of this newspaper would not contain them all.

After such contracts are made the government sends its scientists and engineers to the various shops to watch the construction and to see that all the details of the contract are carried out. These men make chemical and other tests from time to time. They assay the metals which go into the various parts and measure to the thousandth of an inch every piece of the machinery. The least variation may destroy a contract and the result is that Uncle Sam usually gets what he orders, although the contractor may go bankrupt in furnishing the same.

FRANK G. CARPENTER.

Persistent Advertising is the Road to Big Returns.

The Doctor's Advice

by Dr. Lewis Baker

The questions answered below are general in character, the symptoms or diseases are given and the answers will apply to any case of similar nature.

Those wishing further advice free, may address Dr. Lewis Baker, College Bldg., College-Ellwood Sts., Dayton, O., enclosing self-addressed stamped envelope for reply. Full name and address must be given, but only initials or fictitious name will be used in my answers. The prescriptions can be filled at any well-stocked drug store. Any druggist can order of wholesaler.

"Jack" says: "I need a good nerve tonic. I have to work very hard and am running almost a week."

Answer: Your condition is very common, especially among brain workers. Make the following tonic: Mix in mixing syrup of hypophosphites comp., 5 ozs.; tincture gentian (not cardamon), 1 oz.; and take a teaspoonful before each meal and in a few weeks your strength will be restored.

* * *

"Mrs. W." writes: "I am getting too stout for comfort and would like you to publish a safe, effective cure."

Answer: Purchase separately to avoid substitution: Aromatic elixir, 5 ozs.; glycerine, 1 oz. Mix by shaking well and take a teaspoonful after meals for the first three days and then double the dose. Many have reported the loss of a pound of flesh a day after taking the medicine for several weeks. This should be continued until you properly reduce your weight.

* * *

"Miss K." writes: "Could you publish a remedy for liver and kidney trouble and the usual diseases that arise from that source. I am troubled with dizzy spells, dark spots before my eyes and also with rheumatism."

Answer: If you will get three grain salicylate tablets (not sulphur tablets), and take according to directions, you will not only be relieved, but if you continue the use of these tablets you will be gradually cured of all the troubles you mention. They will purify the blood and also cure your rheumatism.

* * *

"Worried"—Your child can be easily cured of bedwetting by using tincture cubeba, 1 dram; tincture rhus aromatic, 1 dram, and comp. fluid balmwort, 1 oz. Give him 10 to 15 drops in water before each meal. This is usually good for older people.

* * *

"Poor Woman:" Since you are unable to take treatment from your physician why not try this home treatment for the cure of leucorrhea, inflammation, bearing down pains and periodic misery. This heals, tones the parts and stops all abnormal discharge by its powerful antiseptic properties. Mix together: 1 oz. tannic acid and 2 ozs. antiseptic vulsons powder. Use a teaspoonful to a quart of warm water as injection or douche with syringe.

* * *

"Hannah" writes: "I would like to get something that would make my hair soft and fluffy. My hair is greasy and I can do nothing to keep the oil out of it."

Answer: To take the surplus oil out of the hair and keep it soft and fluffy, put a 4 oz. jar of plain yellow mercurial ointment into a pint of water and use it regularly. This will cure itching scalp and dandruff and make the hair grow, and you will not be bothered with stringy, straggling hair.

* * *

"Louise" writes: "I do not insert enough for my height. I am dull and listless and have frequent headaches. Please advise what will help me."

Answer: Your condition is due to the lack of red blood corpuscles. I can prescribe nothing better than three grain hypophosphites tablets, which can be purchased at any up-to-date drug store in sealed cartons with full directions. These tablets will cause the body to assimilate the fatty elements of food and thus give physical strength and added color to the skin. Your weight will increase and you will not be troubled with headache. These are recommended by physicians and if taken according to directions you will surely gain flesh.

* * *

"Troubled Miss G." writes: "Every winter I am troubled with severe attacks of rheumatism which sometimes keeps me in bed for weeks. Please advise something for me."

Answer: My favorite prescription for rheumatism, and one that I know has cured thousands of people, is made by mixing iodide of potassium, 2 drams; sodium salicylate, 4 drams; wine of colchicum, one-half oz.; comp. essence cardiol, 1 oz.; comp. fluid balmwort, 1 oz.; syrup sarsaparilla, 4 ozs. Take one teaspoonful at meal time and at bed time and you will soon be cured.

* * *

"Annette" writes: "I have been greatly annoyed lately by coughing and a tickling sensation in the throat and hoarseness after singing. My bronchial tubes are affected also."

Answer: You can be easily cured of this bronchial trouble by using pasange menthol-lasene. This relieves quickly and certainly brings about a cure by its tonic and laxative action and therefore is superior to ordinary preparations, which only relieve. You can feel the medicine working on the throat, lungs and bronchial tubes, giving a feeling of freshness and strength to the entire system. Purchase a 1½ oz. package of pasange menthol-lasene and make according to the directions on bottles and take eight to ten doses daily and you will soon be cured of your trouble.

* * *

"M. L. G." writes: "Have suffered for years with stomach trouble and constipation. Have tried many 'cures' but they did not even relieve. I have great pain at time, especially after I eat."

Answer: Obtain tablets diapepsine and take according to directions. These tablets are pink, white and blue. Take a pink tablet after breakfast, a white tablet after dinner and a blue tablet after supper. Regular treatment with these tablets will cure any case of stomach disorder.

"Glad I Took One!!"

Sweet and Little, but the way they exercise the bowels is—well, it's very, very satisfying; yes, and you'll say to yourself, "Why, how delightful I feel!" and a "Glad-I-Took-One" feeling creeps all over you.

It's a joyous privilege—really, to have a sweet little CascaRoyal-Pill to exercise the bowels without purging, griping, and straining them.

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10c. 25c. All druggists.

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A more beautiful motor car than the 1912 Baker Coupe could not be imagined. Its stately lines, set off with full skirted patent leather fenders and the gleam of smartly designed hub caps, make a handsome impression. The following refinements and enlargements have been made in this 1912 model, in line with a well-defined manufacturing policy to keep Baker Electrics, regardless of cost, in the forefront of electric vehicle design.

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Inside body dimensions have been materially increased without making the car look bulky. This is an important reservation, as every motor car owner will appreciate who knows the graceful body lines of the Baker Coupe.

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In the construction of the coupe body aluminum panels are used. These are more lasting than wood, lighter than steel. They will not warp nor crack—are unaffected by weather. The Baker Coupe is both as strong and as light as it is possible to build it. Will retain its handsome appearance over a long period of years.

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permit easy entrance and exit. They enable women daintily gowned to get in and out with perfect safety to themselves and their clothes.

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the odometer is mounted on a flexible shaft and so placed that it can be easily read from the driver's seat inside. This is one of a number of minor conveniences and refinements which make the Baker Coupe so desirable a vehicle for women to drive.

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add the last touch of elegance to this handsome exterior. The broad sweeping bands of polished leather make a fine appearance. They are so much richer than metallic fenders and absolutely noiseless. Do not rattle under any conditions. Steps and body are now completely protected against mud stains and dirt from the wheels.

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Baker wheels are now overtired. The tires are larger than are strictly required. Easier riding and longer tire life result. And the cost of maintenance is also much reduced. Whether Cushion tires or pneumatics are used, this wide margin of reserve service in them adds materially to the comfort and security of Baker operation. The car rides with wonderful ease of motion.

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has been secured by increasing the battery capacity. This will enable the Baker to travel farther on a charge than heretofore. People want mileage in an electric, and in a Baker they get it—more miles than in any other car. This has always been true; will be more so hereafter.

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