

NEW TRAFFIC ARTERY.

STEEL Path Which Electric Road Builders are Blazing to the Seaboard.

The Trip by Trolley From Sanford, Past Old Falls on the Mousam to Kennebunk.

(Sept. 18, 1899)

With the opening of the new electric road along the Mousam, Sanford and Kennebunk have moved up closer. An end-of-the-century change, almost as marvelous in its way as a move in their places on the map, has brought them nearer together, so that, for business and social purposes, the people of the two big villages on the Mousam are now next door neighbors. Capital and road builders' art have wrought this magic—capital backed by fearless and far-seeing enterprise, and road building assisted by the latest practical economies of electrical science.

Fifteen miles of heavy track connect the two towns, bringing them within forty-five minutes of trolley travel from each other. In a sense, this modern highway of steel is the first real connecting link between the villages, for the old difficult and sandy wagon roads have been a bar rather than an assistance to business.

But it is as an avenue for the intake and outlet of the elements which make Sanford's industrial life flourish that most is expected of the new road. It is to put Sanford in touch with the big cities in a way it never enjoyed before, affording a quicker and more direct route to Boston, and giving better and more frequent train service for all points east and west. For freight and express transportation as well as passenger service, the new road will afford facilities unknown hitherto. It will have connection by spur tracks with the railroad yards of both the Eastern and Western divisions of the Boston & Maine in Kennebunk, so that freight cars can be switched from the steam railroad to the electric, or vice versa. Another important connection not yet established because the road makers have not had time to spin their web of steel to that length, will be at the sea-board end of the line. Wharf privileges in Cape Porpoise harbor, owned by the company, will give a chance for the direct transfer of freight between schooners and cars.

Not the least wonderful thing about this new artery of traffic through the center of the county is that it is run by converted water power from the little "Niagara" in the woods at Old Falls on the Mousam, where the same great generators which supply it with the electric current, furnish also the force which turns the wheels of Sanford and Goodall mills. It is the first practical application of the principle of electrical transmission of power in York county and the most extensive plant of the kind in Maine.

The ten thousand volt current which is flashed along the big copper conductors to the mills is the most powerful thing in

the electric line east of Boston. It is the nearest approach to chain lightning, bound and fettered, that Maine has yet produced.

The construction of the Sanford and Cape Porpoise road is of importance not only to the people living along its location, but to all York county as well for it is a great step forward in the facilitation of business between the inner and coast towns. It is a notable advance also in railroad building in the county, representing the best product of road builder's skill. Three other roads have preceded it in York county. The Biddeford & Saco line was first equipped, then the Mousam River road in Sanford, and within a few years the Kittery and York road.

In road-bed construction and mechanical and power equipment, the new line is the best that engineering skill can produce, for the projectors have hesitated at no expense in making it a thoroughly efficient and up-to-date traffic carrier. The men who are behind the enterprise are not taking their first plunge as railroad investors. They have successfully operated the Mousam River line since March, 1893 and the new road is in effect but an extension of that one, though it has a distinct corporate name.

As a matter of fact, not only are these two electric lines, and the great power plant, which operates them, run by the same men, but the industries which give Sanford its life—which make it what it is, and without which it would be not—are also owned largely and managed by them. Directors of the Sanford mills and the Goodall Worsted company are directors of the Mousam River Railroad company the Sanford & Cape Porpoise Railway company, the Sanford Light and Water company, and the Sanford Power company.

The moving spirit in it all is Hon. E. M. Goodall, president of the Sanford mills. His energy and enterprise are ably seconded by the co-operation of his brothers, George B. Goodall, president of the Goodall Worsted company, and Louis B. Goodall, treasurer of the same company, Frank Hopewell of Newton, Mass., and John Hopewell of Cambridge, Mass., are active in the directorate of the mills, and are also financially interested in the new road as directors.

The road thus intimately connected with Sanford's prosperous woolen mills is designed largely to assist in the progress of those industries and their economical and efficient operation. It will be at once a channel of supply and of output. Over it, coal and other supplies used in the mills may be freighted at a

minimum cost from vessels and railroad connecting points, and the product of the factories, loaded in freight cars, will seek a market by its means.

When it is considered that these factories in Sanford, under the management of the Goodalls, will this year produce one fourth of the value of all the woolen goods manufactured in Maine, something of an idea of the business growth which made the road desirable and necessary may be gained. The mills in Sanford never had a more prosperous or busy year than now. It is not a business boom of the balloon variety, but a strong steady growth with all the elements of permanency. The pay roll of the 1,500 operatives in the two corporations amounts to \$600,000 annually or \$50,000 a month, all distributed in one school district.

WHERE THE POWER COMES FROM

Something About the Plant Which Produces the Highest Voltage In Maine.

It will be two years next month since work was begun on the power plant which is the heart and lungs of this great industrial system. With a delay caused by a washout at one end of the dam, work progress steadily at Old Falls, and in February of the present year, the water was let into the big penstock and the wheels set running for the transmission of power to the mills in Sanford.

The electrical energy now converted from water power at Old Falls and sent over the wire into the transformer, amounts to 1,200 horse power at the mills. This enabled a corresponding amount of steam power formerly used at the mills to be done away with. The big boilers and steam engines in the mills now lie idle, and are not used except as reserved power in the event of accident to the electrical equipment. Some part of the mill plant are still run by steam, but a large portion of the Sanford mills and the Goodall Worsted manufactory depend upon the converted power from Old Falls. The saving in coal thus effected is immense.

This power plant at Old Falls is controlled by the Sanford Power company of which Hon. E. M. Goodall is president. Besides furnishing power to the mills it has a thirty-year contract with the Sanford & Cape Porpoise Railway company to provide them with what power they need.

The electrical plant which is located in a brick building at the foot of the dam consists of two 800 horse power alternating generators for supplying power to the mills, and one 800 horse power combination generator-giving a direct current at one end and an alternating current at the other. From this combination generator, an alternating current of 400 horse power at the generator is conducted to a point half way between Kennebunk and Cape Porpoise to be eventually used as a feeder for that end of the line. Here it enters a rotary transformer which acts as an alternating motor and a direct current generator. From the direct current end of the generator at the power station, the current is fed into the middle of the line for five miles each way.

But while Sanford has been growing larger every year, industrially and in point of population her means of access to the great markets have been little improved. It became necessary for the thriving community upon the Mousam to get into closer touch with the distributing centers, and the new way to the through railroad traffic lines and the sea-board is the result. The village has reached out so that it now has connection with all the steam railroad in the county—the Portland & Rochester at Springvale, the Eastern division of the Boston & Maine in West Kennebunk, and the Western division at Kennebunk.

The old power house at the Sanford end of the line is equipped with two 100 horse power generators.

In addition to this generous equipment, there is provided as a reserve force, a storage battery of 200 horse power. This battery is located in a building erected for it in Sanford just across the highway bridge from the mills. It is composed of 250 cells making a current of 500 volts,—two volts to a cell. The battery is operated automatically, coming into play as an auxiliary power when the load on the generators is too heavy for them to sustain, and receiving the charging current and storing it up, when the load at the generators is less than their full capacity. It acts as a sort of regulator, and is an economical arrangement generally.

Cars have been run twelve miles from Sanford with the storage battery alone, and on two Sunday forenoons, it has been used without generators for operating the Mousam River line.

From the long dam which stretches across the river at Old Falls and pushes the water back for miles in an enormous pond, a penstock nine feet in diameter and 450 feet in length conducts the water to the big wheels connected direct to the generators in the power house. An iron pipe nine feet in diameter is a thing to be gazed at with respect. It is almost if not quite big enough to drive a horse and buggy through. When a stream of water of this size shoots along at the rate of nine feet in a second through a pipe 450 feet long, it is a somewhat awkward proposition to handle without the most careful precautions. To arrest its progress too suddenly would be attended with dangerous consequences. It can't be shut off at once with a turn of the wrist like a stream from a garden hose. It has to be given a chance to disport itself a little. At the power station where the big valves are which cut the flow of water from the wheels, they have an arrangement to obviate the trouble. From the upper side of the penstock, a stack seven feet in diameter and 72 feet long rises straight up through the roof of the power house. It is bent over so that it points toward the canal at the side of the house. The sudden stopping of the flow of water into the wheelpits drives it up through this stack to discharge in a seven foot stream over the roof into the canal. After the initial velocity of its rebound is reduced, it is controlled by the relief valves.

The entire electrical plant of the Sanford Power Company is under direction of William Davis, as superintendent. He is an expert electrician and has general charge of the power at the mills and for the railroad. It might be noted also that he and his assistants have the distinction of handling the highest voltage produced in the state.

Sydney Spinney and Homer Goodwin are the engineers at the big power station. They live with their families in a two-tenement house built for them by the power company at the top of the hill overlooking the dam and mill pond. The house is of modern architectural design, handsomely finished outside and in. It is lighted by electricity, and its water supply is from a tank at the highest point of the hill to which a small pump forces water from a spring. Both the residence and the power station are connected with Sanford by telephone, and the electric car spur track will run close to them, so the dwellers in this rather remote spot are not nearly so isolated as would seem at first thought.

During the construction of the great power works, Hon. E. M. Goodall occupied much of the time a cosy (*sic*) camp which he fitted up on the sheltered side of the hill. It contains some interesting souvenirs of his annual yachting trips to Florida waters on board the "Nemo." Just now, the squirrels which Mr. Goodall had tamed so that they would come down from the trees to enjoy a feast of nuts on his front piazza, are its only occupants, and they enjoy undisputed possession except at rare intervals when the proprietor brings a visitor to inspect his domain.

Old Falls was in former years a favorite picnic resort for people from Sanford and Kennebunk, and even from Biddeford and Saco. Naturally, it has been less used for this purpose since the work on the power plant began, but the plant itself is an attraction, and the beauty of the surroundings have not been injured by the building operations, so many visitors still go there of a Sunday to loiter by the shady banks of the stream or to watch the revolutions of the great generators in the power house.