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REMARKABLE INDUSTRY WHERE YADKIN RIVER FLOWS

Aluminum Company Building Where One Can Look From Mountain Tops Over Knobs and Hills and Let Imagination Riot Without Limit—A Revelation of What Men Are Doing With Natural Forces.

Bion H. Butler, in the News and Observer.

Albemarle, Feb. 5.—Bad as I need money I would give my nicker that has a big hole in it if I could lead the population of North Carolina over a little journey that I have taken from Albemarle out to Badin, and down to the dam building there by the Hardaway Construction Company for the Aluminum Company of America, and over the hills from which a view may be had of the panorama which the mountain tops disclose. A man can stand on the top of one of the high knobs out there above the river and let his imagination riot without limit, and the chances are he will never reach the real outer fringe of the possibilities that are ahead.

I have seen a lot of the big things that men have done, and a lot of the ambitious plans that have been projected, and a lot of the famous industrial developments of our country, but here is one that more nearly gets me off my feet than anything else I have ever tried to cipher out. For a dozen years or so I have been figuring on a trip through the Narrows of the Yadkin river, but although I have been in gun-shot three or four times, it has never been possible to get down to the river side in the bottom of the Narrows until this trip.

It is worth the money. It is worth the money as a natural bit of scenery, or as a revelation of what men are doing with the natural forces of the State. The plans at Badin have already been outlined. The Aluminum Company of America has taken the holdings and the development of the French predecessors, and enlarged schemes are now pushing along to make this one of the big affairs of the world of production.

I dropped down into the gorge where the work is in progress and nosed around in the den of Cyclops, and it was not hard to imagine that somewhere among the giant rocks the Titans might be encountered forging thunderbolts, or anything enormous and powerful.

The Wonderful Yadkin.

It is hard to realize that the Yadkin river which is crossed by a bridge about a quarter of a mile long up at Whitney, is pressed into such small compass that in the gorge it is completely blocked up by a coffer dam of concrete and its entire water content compelled to turn aside and burrow under the mountain in two restricted tunnels before the water can continue on its seaward journey. For millions of years I would guess this old river has been diligently cutting a rocky course through the intensely hard volcanic crystalline schists that have resisted so successfully that while its channel a few miles above is half a mile wide, at some points in the Narrows it is barely sixty feet. Through that refractory rock the river has worked its course, and undisputed it has held sway until men came to assert an intelligent authority. Then as docile as a kitten, this powerful current slips aside into the tunnels cut for it, a coffer dam is thrown across the narrow channel, and no man has an idea when water will again flow down the original stream.

When the Hardaway Construction Company pulls out of the Yadkin they will leave behind one of the great hydro-electric powers of the United States, and one of the most interesting additions to the picturesque scenery of North Carolina that has ever been undertaken.

Across the valley the work of building the big dam has been taken up again. In two or three weeks the construction company will be moving 30,000 yards of rock and earth a month, and in a little longer time that limit will be doubled. About 1,500 hands will be busy, with 25 locomotives, or more than many of the small railroads own, 50 big 50-ton flat cars and 75 of the smaller side-dump flats, 45 steel derricks of 20-tons capacity, with 115 foot masts and 100 foot booms, an outfit suitable for Cyclops. Those derricks pick up a load of 20 tons of rock or earth and set it down in the flat car, so that about three or four swings of the derrick boom loads a car and it is ready to move.

To operate the machinery that is building the dam wires have been strung from electric plants of the Southern Power Company, and a current equivalent to 7,000 or 8,000 horse power is available in this job of building.

Stupendous Power.

It is useless to go into any detail of this thing, for it is of such magnitude that figures do not express anything. One comparison will be enough. The idea is to generate 100,000 horse power. At the last census 14 States of the Union reported the use of less than that total of power for the entire State. The vast scope of territory comprising Nebraska, Wyoming, Idaho, and Utah used just about as much power as this one big plant will develop. There are several right pretentious industries in the United States that do not use so much power for the entire industry. All the tobacco factories in the country could be run by the Badin dam, and enough power left over to run all the factories making men's and women's clothing. Badin could run all the agricultural implement factories in the United States, or all the boot and shoe factories and leave power for something else.

That's the Badin dam. The Hardaway Construction Company will get three million for building it. That is another way to get an idea of the size of the job.

Rising 170 feet from the surface of the water the dam will connect the hills above the river with a wall of masonry a quarter of a mile long, which will be topped by a driveway 18 feet wide. It is the intention of the people of North Carolina to build a road from Wilmington to Charlotte which will cross the river at the dam, and a more interesting route of travel will not be found in America. Approaching the dam from either side the tourist will find himself in the air almost two hundred feet above the valley below him. Stretching away up the stream will be the biggest mountain landlocked body of water in this part of the South. Nine square miles of the country will be submerged, the pool extending nearly ten miles up the valley, and widening out into ever natural hollow made by the streams that enter the river. A ten-mile lake, reaching almost to the mountain tops, commanding a view of the country for miles in all directions and convenient to every portion of the State by a modern road fit for travel from every quarter, should make the Badin highway one of the most popular south of the Potomac. The people of Albemarle are talking of securing the club house at Whitney, which stands on the summit above the Whitney dam, and undertaking to make of that mountain top a summer and winter resort, a project, which, if carried out, should fill this section with visitors at all seasons of the year.

Fine Highways.

The road scheme is close to materialization, for already much of the stretch between Wilmington and the dam is built. From Fayetteville to West End the Capital highway is one of the best in the State, and from West End to Troy, the road is in fairly good shape most of the way. The distance from Troy to the river is not great. From the river to Albemarle, Stanly county has already built a good road, and the counties to Charlotte are working on the job.

Lexington is agitating the question of a road to Badin, and other counties are figuring on getting on the east and west line that will come from the coast to the foothills. The road from Raleigh, through Chatham and Lee is counting on a short-circuit across Moore county to Montgomery, and a connection with the Charlotte road past Badin. From all directions eyes are turned this way, the ambition to be on the picturesque road being common.

The purchase of the Badin plant by the Aluminum Company of America has resulted in the changing of plans. The new owners are anxious to make a bigger job than the old ones had figured on. One of the first things was to condemn the old power house and arrange for a new one. So a fine, big, new building, not yet finished, in fact, is going into the junk heap to make way for a more powerful institution just across the narrow river. The old building was meant to shelter units of some 11,000 horse power, with horizontal delivery. The new

plant will have four vertical units of 25,000 horse power each, delivering water from gigantic pen-stocks in torrents that will be outside the range of comprehension in their power.

An Industrial Factor.

This dam on the Yadkin is not the aluminum plant. It is to be simply the factor that provides the power and the heat. It is like the engine at the cotton mill, or the wheel at the water mill. After all the work is done, and the dam finished, and the water wheels are turning, and the wheel generators are loading the wires with their enormous force, the whole purpose of this outfit is to supply the big factories back on the hill. The power plant and dam are in the gorges of the narrows. The town of Badin is back from the river, and high above the water line that will be established after the tunnels are closed and the head is raised when the dam is built, and the power houses are completed and the Allis-Chambers wheels and generators are installed, the upper end of the tunnels will be blocked up with rock and cement, and the gorge from the dam up will give way to a lake that will drown out the river entirely. The river will stop. With the dam drawn down below the spillway by the requirements of the mills, when the gates are shut at night or on Sundays it will be possible to cut out for a period the flow of water in the Yadkin. It ceases to be a river under certain conditions. A river comes into the lake. A river will go out from the power house when the water runs through the wheel pits. But a link of eight or ten miles will be cut out of the Yadkin henceforth.

The surplus water is not to run away over the dam. At a certain elevation shafts have been cut down to the tunnels, and when the water gets so high that it is desired to permit the surplus to escape it is to enter the tunnels below where they are shut up and to flow away into the river at the lower end of the tunnels. Henceforth the Yadkin will emerge from the mountains below the Badin dam in the form of a gigantic spring, breaking forth either at the tail race, or at the foot of the tunnels, a transformation of a river that has few if any parallels.

Drains 4,000 Square Miles.

The Yadkin dam is going to have a salutary influence on the water flow of the stream below. The drainage area of the dam is about 4,000 square miles, or about 400 times the area of the pond at the dam. As the water used at the dam will have a constant tendency to draw the head down the pond will act as a reservoir for the valley. An inch of rainfall over the entire area drained by the river, if discharged into the river and brought down immediately, would fill only 35 feet of the higher part of the pool. The normal rainfall of the territory drained is about 50 inches, or an inch a week. The dam can permit the power plant to figure on something like an average supply of water, because it is so big it can store flood water against the day of scant rainfall, and when floods come after periods of low water the prospect will be that the water in the pool is low enough to store a large proportion of the water that comes down in ordinary floods.

The result will be that such a vast lake will bring the average of power up to an unusual figure, and that the frequent floods will be modified to a flow of water more nearly uniform the year round. The high water that comes from above will be held in the dam until it is filled to the limit, and all the nine miles of surface raised to the high point. That reserve supply will be turned loose day by day to the capacity of the plant, and not only will the Badin power supply be regulated by the power of the dam but hold the flood water against the day of low water, but the dams on the river below will be to considerable extent guarded from the extremes that have been common in the past, for a more uniform flow at this dam will mean a more uniform flow at all points down the stream. This means a greater average power for the prospective development farther down the narrows where the Aluminum Company owns another location capable of 50,000 horse power, and at the other shoals until Blewett's Falls is reached, where the storage of the Badin dam should prove highly beneficial.

3,500 to 5,000 Employees.

On the hill at Badin, high above the dam, hundreds of men are at work preparing the buildings for utilizing the power when it is ready. That will not be until the last of the year. In the meanwhile it is proposed to use power from the Southern Power Company's plants, for it is the intention to begin the manufacture of aluminum within the next few weeks. It is said that the work to be undertaken will be the production of the metal in the pig, which will be sent to New Kensington, near Pittsburgh, for further manufacture, and to Edgewood, in the New York territory. The buildings put up for the French Company are almost in condition to operate, but at the same time an army of men is busy increasing house room for the big factories, and enlarging the facilities. From 3,500 to 5,000 hands is the number that the wise men say will be employed, although not much is said officially by any one at the plant, as the management that is to handle the factory has not as yet arrived from the North.

Real estate dealers are swarming at Badin and in the neighborhood. Much is doing in their line. The prospects are that a revolution in prices is ahead. Town lot schemes are in evidence, and employing a lot of hands. New buildings are providing work for a lot of people. Badin industrially is already very much alive.

We have seen what the big dam means. It is one of the big sources of power in this big country, and the power is wholly for this one industry. I am told by semi-official authority that the power development at Badin is not a fourth of what this concern will ultimately use. But there is a simpler way to try to comprehend what it all means. The manufacture of aluminum commenced in 1883, in which year the amount produced was 83 pounds. Three years later the quantity had increased to 3,000 pounds, being still wholly experimental. In 1887 it had increased to 18,000 pounds, six times as much, but still not enough to indicate an established industry. Three years more saw it increased almost three and a half times, while another two years saw that increase multiplied to four times as much more.

Aluminum Production.

By 1896 aluminum had established itself with an annual production of far above a million pounds. The next year it boosted that figure to three times as much. Climbing in good earnest. Six years later it had doubled again, and three years later it doubled again, now reaching a production of almost 15,000,000 pounds. Three years more and the production doubled once more, and in 1912 it had almost doubled again, the total product being above 65,600,000 pounds. In 1913 it climbed again to 72,379,000. I do not have the figures since then, but it is no doubt still heading upward, for the things made of it are becoming more common every day. The fact is that the use of aluminum seems now only to have commenced. That being the case we can see how it is actually starting something out in the north end of Stanly county, and incidentally in this town of Albemarle.

The introduction of aluminum in many new lines promises to make it forge ahead in production as fast in the future as it has in the past. New uses are for electric wires, in which it has the advantage of being the lightest wires known, a good conductor, and a strong wire. Being strong it can be depended on for suspended wires, and being light a lot of wires do not overload the poles and towers like iron and copper wires do. Aluminum is also coming into use rapidly for tubing, as it has several advantages for use in that respect. It is not poisonous like brass and lead, does not corrode like iron, stands heat, is light and in every way adaptable for ordinary pipe construction.

A thing that caught me at Badin was the fact that the big dam job is in the hands of a contracting company that is of the South. The Hardaway Company comes from Columbus, Ga. That it is a thoroughly competent company is shown by two tests. It has been doing several jobs of this character for the Southern Power Co., and it gets the job at Badin from men who want efficiency. Three million dollar jobs are not given out except to men who can show right good reasons for getting them. The Hardaway Company is about the biggest concern doing this class of work. Its annual contracts run about \$5,000,000. The reason this interested me is because it shows the United States is coming to be a nation of efficiency and ability

in every quarter. Then it was left for Northern contractors to do all the big things as if there were a country with but one good leg. Now that we can prove up competency in any direction, it is permissible to insist that we have both feet firmly on the ground.

A Good Combination.

If you think about it a minute you will be gratified at the combination over at the river. Pennsylvania, Georgia, and North Carolina, one supplying the money and the knowledge of the manufacture of the metal, one supplying the ability to construct the gigantic dam and power, and the third affording the natural opportunity for the first and second to combine and all profit by the generosity of nature.

It makes a man feel pretty good to stand on the mountain top above a job like this one and realize that while Europe is divided in a war in which killing each other is the main object, America is united in subduing the mighty forces of nature and working for the immediate welfare of the whole continent and the whole human race.

An American has a right to get chesty sometimes.

BADIN WILL BE A WHITE AND A SANITARY TOWN

Salisbury Post, Feb. 1st.

Stuart B. Marshall, the manager of the Badin properties for the Aluminum Company of America, was a Salisbury visitor this morning. Mr. Marshall was enroute for the properties and left on a later train for Badin.

While in the city Mr. Marshall was the center of a group of gentlemen interested in the large developments down the river. He talked to a representative of the Post, and while he could not give any details of the work undertaken in Stanly county by his company, he gave a few of the large outlines of the company and its work.

Mr. Marshall said that there would be built at the site of the company's properties at Badin a model town. It is his intention, and that of the company he represents, to build at Badin a clean, white and sanitary town, one that will appeal to the very best people and assure the most excellent conditions of living for those who work with the company.

To this Mrs. Marshall will give much attention and only the most sanitary methods will be employed and the most healthy conditions will be fostered.

"We will build a hospital and have a physician in charge," said Mr. Marshall. For while we do not expect much sickness, there will be some, and it is our intention to take the very best care of such cases as we do have.

"We expect to build a large store room also," said Mr. Marshall, "and while we will not have anything to do with the management of the store, we want it operated to the best interest of the community—so that it will serve the wants and needs of the people."

Mr. Marshall stated that he thought the company would be making aluminum before the end of the present year. Not on a large scale perhaps, but he gave it as his opinion that the company would be in operation before the end of the year.

The Aluminum Company of America is one of the largest business concerns of the country. It owns large landed estates and a number of manufacturing plants and power properties. One of the largest properties of the company's holdings is that in Southwestern North Carolina, where large power is being developed for the operation of the manufacturing plants across the State line in Tennessee.

Mr. Marshall declared that he was on his way to Badin to go to work. He said there would be much activity at Badin beginning at once, that he would be a very busy man and at this time could not say much about the plans and the details ahead of him.

Mr. Marshall is a man of forceful personality and clearly a man acquainted with large dealings. As soon as his home at Badin is completed he will move in and remain close to the heart of things.

Mr. Marshall is in charge of all properties in North Carolina, this includes the large holdings in the western part of the State.

Mr. Marshall said that these de-

FROM THE MOUNTAINS TO THE SEA

Charlotte-Pinehurst Road, Serving as Connecting Link Between Good Eastern and Western Roads—Meeting to Be Held Here March 9.

The Charlotte-Pinehurst road will be built. When a people become so thoroughly aroused over a proposition and see the great advantage of it as the people all along the proposed line of this road, it is only a question of time when things will happen. The people of Charlotte, Concord, Mt. Pleasant, Salisbury, Albemarle, Troy, Mt. Gilead, and Pinehurst want this road and they want it bad enough to get busy. And no wonder, when one stops to think that this road will be the connecting link in the State's most important highway from the seacoast to the mountains. But, the latest and best news is that a meeting has been arranged for committees and all interested citizens all along the proposed line to be held in Albemarle on March 9, when the matter will be taken up in earnest. The commissioners of Stanly, Cabarrus and Montgomery counties will be on hand and a large crowd of boosters will be here to push the thing to some practical conclusion so that work may be started at once. Now, let every one talk the road and be here March 9. The Montgomery county people are red-hot for the road. Messrs. R. T. Pool, a leading Montgomery county attorney, and Edgar Haywood, clerk of the superior court of Montgomery county, were in Albemarle on Tuesday. They are enthusiastic and they report that the citizens of their good county are also red-hot over the proposition. They tell us Albemarle people that Montgomery county means to have a good road to Badin at whatever cost. The people of Salisbury are anxious for a road connecting that good town with Albemarle and Badin. This will put Salisbury in close connection with this great mountain-to-the-sea highway, and will also give Albemarle two outlets to the National Highway passing Salisbury, Mt. Pleasant is reported to be anxious and Concord, also. Therefore, Albemarle will soon be situated on one of the most important highways of the State. Gentlemen, is it worth while? Let's not allow the opportunity to pass without taking advantage of it.—Contributed.

That Road to Southern Pines.

Correspondent.

The question of a highway from Charlotte to Southern Pines by way of Albemarle and Badin is taking on a more tangible form, and so enthusiastic are the people of Stanly and Montgomery counties, as well as all others along the route for this road, that it is safe to predict that within a few months work will have been commenced in earnest, towards the immediate completion of the highway. A meeting will be called here within a short while, of the county commissioners of Stanly and Montgomery counties, jointly, with some of the leading men of the two counties, for the purpose of taking the matter up properly and coming to some definite conclusion as to where the road will go, the crossing of the Yadkin river, etc. It is learned here, through Mr. Marshall, general superintendent of the works at Badin, that the report which has gone out as to the crossing on top of the big dam is incorrect. Mr. Marshall says this will be impossible, but that company will otherwise assist in getting a crossing over the Yadkin. It would, therefore, seem that the only way of crossing the river with this highway will be by the construction of a steel bridge. There are many supporters of the road here, as well as in Montgomery county who think the bridge will have to be built at Swift Island Ferry and go by way of Mt. Gilead.

Developments would mean a great deal to the State at large as well as to the immediate vicinity. This can be very readily appreciated, for the plans of the corporation are to build a town that would be a credit to any section, one that will be builded and operated along modern lines, with everything done to make it a city of happy homes and contented people.

This is very clear idea of what the Aluminum Company of America has in mind and in the manager it has a man who grasps the significance of the situation and with a clear vision will work these plans into reality.