

MODERN MASS PRODUCTION ON AT FORD PLANT

Dream Of Henry Comes True, But Figures Stagger Imagination

A million axle shafts, each one exactly like the other 999,999 within one thousandth of an inch—four million pistons fitting four million cylinders with a degree of exactness that all but staggers the imagination—many more millions of drilled and threaded holes, all placed with an accuracy of location that is incomprehensible to any but the mechanically or mathematically minded—and all these factors, combined with other millions of parts manufactured in widely separated units of a gigantic plant, meeting on an assembly line to fashion a million automobiles! This is the miracle that is modern mass production, the miracle that was conjured up by Mr. Henry Ford when he started his first automobile assembly line.

The story of how it is possible to make a million—or ten million, or twenty million, for that matter—of any machine part, each one identical with all its fellows, is a story of measurements. Just as that story of measurements explains the ability of the Ford Motor Company to produce fifteen million Model T automobiles, it also explains Mr. Ford's ability to produce the Model A in the same plants and by the same methods that make possible the pioneer Ford cars, yet at limits that are from one fourth to one half what they were on the Model T.

Today, in the Detroit plants, mechanics who have never looked through the eye-piece of a microscope are measuring within limits too fine for any unaided eye to see. Model A parts machined to within one ten-thousandth part of an inch accuracy are all in the day's work. Back of this precision are something like a million gages that must be kept in correct adjustment at all times, and many thousands of these gages are in constant use throughout the Ford plants. There is no time for hand-fitting of inaccurate parts on the assembly line. They must either fit the first time or they are valueless. Therefore, the parts must leave the various machines which fashion them with every specified dimension correct. The result is that when put together, the car moves off the assembly line under its own power, a completed means of transportation requiring no special adjustments.

There are inspection and working gages to measure outside and inside diameters, lengths, widths, heights, angles, pitch diameter and lead of screw threads, which are in the hands of workmen throughout each day, timing and checking each part as it passes from machine to machine through the plant. But these gages will wear or get slightly out of adjustment under constant use, therefore, they must be constantly watched. So behind them must be master gages, of greater accuracy, for use as Standards. These master gages, the product of C. E. Johansson Division of the Ford Motor Company are accurate within a millionth part of an inch!

Throughout the Ford Plants inspectors are moving constantly, each with special hardened, ground and lapped rectangular steel blocks—Johansson Gages. These gage blocks are in special sizes to meet requirements of the workman's scrutiny; making it unnecessary for inspectors to make up combinations to measure different dimensions of length. A set of 81 gage blocks, such as is used in the tool rooms, can be combined to measure 120,000 different size lengths, from three-sixteenths inch to over twelve inches, and each of the 120,000 combination gages represent a variation of one ten-thousandth part of an inch which occurs in that time. Others are adjusted or changed at less frequent intervals, as frequency of use and amount of wear dictates.

In addition to their use in the production of Ford cars, trucks, airplanes and Lincoln automobiles, the Johansson gage blocks are the standard of the world for industrial precision measurement of length.

N. C. WEEKLY INDUSTRIAL REVIEW

RALEIGH—Board of Conservation and Development asks appropriation of \$50,000 annually for advertising resources and attractions of North Carolina.

VASS—Highway No. 50 will be paved from this city to Lee County line.

SOUTHERN PINES—\$3,000 new cleaning plant recently installed at local cleaning and tailoring establishment.

LEXINGTON—Industrial Building and Loan Association organized here for Lexington and Davidson Counties.

HIGH POINT—Grading and construction of bridges on Lexington Avenue route through here progressing satisfactorily.

WILLIAMSTON—Local light and power distribution system sold to Carolina division of Virginia Power & Electric Co., for \$75,000.

CHERRYVILLE—Long Spinning Co., Cherryville, capitalized at \$100,000, granted charter.

ZEBULON—Little River Ice Co., enlarging and increasing business.

Reports show North Carolina has total of 13,570,000,000 board feet saw timber in state.—Hickory Daily Record.

HICKORY—C. & N. W. Railroad installing siding at site in North Hickory.

HIGH POINT—Plans progressing for improvement of City Hall.

HIGH POINT—New post office building under consideration here.

BREVARD—Large deposits of soft quartzite suitable for glass manufacture found in Transylvania County.

MURPHY—Murphy Steam Laundry purchased by Raymond Hall who will install new machinery to increase efficiency of plant.

ANDREWS—Activities in gold mining area of Valley River section of Cherokee County will start in near future.

Annual output of farms and factories of North Carolina over one billion six hundred million dollars.—Monroe Inquirer.

Approximately \$5,000,000 worth of furs shipped from North Carolina during 1927.—North Wilkesboro Patriot.

ELIZABETH CITY—Plans progressing for reconstruction of Knobb's Creek Bridge.

ASHEVILLE—Through bus service inaugurated by Independent Coach line between here and Atlanta, Georgia.

COINJOCK—Paving on State highway through this county progressing rapidly.

ANGIER—New highway from here to Wake County line practically completed.

WILLIAMSTON—Eastern Carolina Chamber of Commerce sponsored recent peanut exposition held here.

FOUR OAKS—New building completed for Four Oaks Bank.

PINE LEVEL—Burned mill of Pine Level Oil Co., will be rebuilt in near future.

GREENSBORO—Air passenger service between here and Atlanta, Ga., will be inaugurated in April.

WINSTON-SALEM—Plans progressing for establishment of \$3,000,000 home, hospital and recreation place for aged, incapacitated and indigent traveling salesmen, near this city.

WILMINGTON—Woodard & Son, Richmond lumber dealers, plan to

establish several large sawmills along Cape Fear River in this vicinity.

FRIENDS WORK TO KEEP POU ON PRISON JOB

Say Great Record Made By Prison Superintendent Warrants His Re-appointment

The friends of John Ross Pou, superintendent of North Carolina's State Prison for the past four years, in Cherokee County and throughout the State, are working diligently to keep him on the job as head of the State's prison, since the announcement last week that Pou's place had been tendered by Gov. O. Max Gardner to an old friend of Shelby, and the Shelby man had denied to accept. The news of the offered appointment came as a surprise to the friends over the state of Mr. Pou, who will bring pressure to bear upon Governor Gardner to reappoint him in view of his wonderful record as head of the State's penal institution.

Pou's friends point out the fact that there are only five other State prisons in the United States operated without cost to the taxpayers, and the North Carolina prison stands at the head of them all. This is due to the business-like handling of the prison's affairs by Mr. Pou during the past four years.

The books of the prison, which have just been audited, show that Mr. Pou made the record breaking profit of \$146,550.35 for 1928. For the past four years, the PROFITS of the prison have been as follows: 1925, over \$18,000.00; 1926, over \$29,000.00; 1927, over \$67,000.00; 1928, over \$146,000.00. These profits, it is pointed out, are not "book profits," but the prison actually has \$273,000.00 in gold cash in the bank to its credit, with only a few hundred dollars outstanding in bills payable.

In view of this outstanding record, Mr. Pou's thousands of friends, as well as thousands of others, throughout the State feel that he should be re-appointed to the job he has handled so wonderfully and so economically for the State during his tenure of office, and already a stream of letters, telegrams and telephone messages is being turned upon North Carolina's new chief executive urging the reappointment of Mr. Pou.

Correspondence On Chattanooga-Murphy Asheville Short Route

(Continued from page four)

Asheville, N. C.
Dear Mr. Miller:

I am in receipt of copy of your letter to Mr. R. H. Hart, Secretary-Manager of the Chattanooga Automobile Club, Chattanooga, Tenn., and am pleased to know that you and the people of Asheville are so much interested in the completing and hard surfacing of the extension of Highway 28 from Murphy to the Tennessee line. I think none of us fully realize the great benefit that western North Carolina will receive from the completion of this road. This road will be the gateway for the people out of the Mississippi Valley and the south west coming into western North Carolina, as well as many coming out of the upper Mississippi and Ohio valleys, by the way of Chattanooga into western North Carolina. I have many inquiries from northern and middle western cities as to whether or not they can come the short route from Chattanooga, through Murphy to Asheville, without having to come by way of Atlanta.

Mr. Stikeleather is very much interested in the completion of this road, and I truly hope that you, the Asheville Chamber of Commerce, and other influential men of Asheville will stand by him in securing sufficient money from the state highway department to complete and hard surface this road at the earliest possible moment.

I have been corresponding with the Chattanooga Automobile Club for several years about getting this highway opened and they have been

exceedingly anxious to get this road open, so that they could get to Murphy and Asheville the very shortest way possible. There has been quite a delay in selecting the meeting point on the N. C.-Tenn. state line. That was settled something over a year ago, and as soon as that was done, the Tennessee state highway department graded and hard surfaced their road from Ducktown up to the North Carolina line. Now it is up to North Carolina to complete their end of the road.

Your suggestion to Mr. Hart to meet in Murphy is, I am sure a good one. The unfinished part of the road is in this county, and it will bring about much enthusiasm among our people in this and adjoining counties, and we would be glad to have you and Mr. Stikeleather bring a good delegation of Asheville business men and the state highway commissioners from all over the state, as possibly some of the commissioners have never been over this scenic road, and we think it very important for them to meet the Chattanooga people and have them explain the great importance of completing this road, and what it would mean to western North Carolina, Chattanooga and other points in Tennessee.

When the Murphy meeting is over, then the Murphy people will be glad to join the party to go either to Asheville or Chattanooga.

There is another fact that I would like to call to your attention. That is, that No. 10 from Asheville through Murphy is the most scenic route leading out of western North Carolina, to the south and southwest. There is no scenery in eastern America that surpasses that between Bryson City and Murphy, and crossing the Blue Ridge at Neel Gap. There is some one in Asheville advocating and broadcasting over radio almost every night, the road from Asheville, by the way of Franklin to Atlanta, claiming that it is 57 miles shorter. As a matter of fact, it is only 34 miles shorter, and as you know, there is no comparison in the scenery. We would thank you to take this up with the Asheville Chamber of Commerce and the different hotels, and explain the facts to the tourists, and not be partial to any one route. While the Franklin route is the shorter, the Bryson City and Murphy route is the Scenic route. As you know, you hardly know when you cross the Blue Ridge at Rabun Gap.

Any time I can give you any information from this section, or serve you in any way, I shall be pleased to do so.

Yours very truly,
C. W. SAVAGE.

SHORTER ROUTE FROM CAROLINA IS POSSIBILITY

(Continued from page one)

127 miles from Murphy to Asheville. The present route from Chattanooga to Asheville via Murphy is 242 miles. When the river-level route is completed the distance will be 220 miles. The present route is three miles shorter than by Knoxville to Asheville which is 245 miles.

Murphy has always desired a close connection with Chattanooga, and had contentions with the state highway department of North Carolina to secure the building of the connection between Murphy and the Tennessee line by Hot House, instead of by Turtletown, which brings it in north of Ducktown.

"Already they are planning a motorcade in the early spring from Murphy to Chattanooga, so Mr. Savage informed us," continued Mr. Holmes. "Mr. Savage furnished us with the following list of prominent citizens of Murphy and Andrews, N. C., who have signed up to make the trip: C. W. Savage, owner Hotel Regal; W. M. Fain, wholesale grocer and president of the Lions Club; Harry P. Cooper, mayor; J. W. Davidson, merchant; J. B. Storey, cashier of the Cherokee Bank; L. E. Bayless, cashier of the Bank of Murphy; Dr. J. N. Hill, Ernest Hawkins, representative in the legislature; D. Witherspoon, attorney; G. H. Cope, lumberman.

"Those from Andrews who intend coming, according to Mr. Savage's list, will be led by D. S. Russell,

mayor, and commissioner of Cherokee County, George Hoblitzell, superintendent of the Andrews Tanning Extract company, which is owned by the same people that own the Marion Extract company of Chattanooga; P. B. Ferebee, president of the Citizens Bank; J. W. Walker, president of the Merchants and Manufacturers' Bank. There are other towns along the route between Murphy and Asheville which will be represented. Those two towns are in the same county. They have felt like they have been neglected by North Carolina because of no outlet to Chattanooga. The road from Murphy to Asheville is a high-class road, and was three years ago when Mr. Cline, Mr. Hart and myself went over it.

"Already the highway commission has the route numbers up on the new grade over which we went, and the North Carolina number is 28. They also have up their curve and danger signs. We learned that Murphy is 1,640 feet above sea level. The Southern railroad reaches it from Asheville, and the Louisville & Nashville comes in from Blue Ridge, Ga. Both are branch lines, but make a physical connection at Murphy.

"We had met Mr. Savage before, and found him just as enthusiastic about the road as when we first visited with him. They are closer to Chattanooga now than they are to Asheville, and he was delighted to learn that a surveying corps of the Tennessee highway department would begin on the Ocoee gorge route after the first of the year. When that route is completed a good short commercial route will be established between Murphy, N. C., Copperhill, Ducktown and Dalton, Ga. Both are branch lines, but make a physical connection at Murphy. The route up men and will be level, but very b

Mr. Holmes and Mr. Savage met at 1 o'clock and were held to Atlanta. In describing the routes over the Blue Ridge mountains, Mr. Holmes was very enthusiastic and declared it was not prettier standard Kimsey mountains and others is around Chattanooga but it is entirely new to the Chattanooga way they gradually climbed the mountain they could see the Hiwassee river diminishing in size until finally it became a branch. They passed through Neal's Gap, with the mountains several hundred feet higher on either side of the gap. The marker on the gap showed that point was 3,400 feet above sea level. Plenty of snow and ice was encountered on the mountain and in the gap. This portion of the mountain is the Blue Ridge range. Descending the mountain on the south side, they picked the beginning of the Chattahoochee river, which flows near Atlanta.

"This road through the mountains for miles without any habitable sight and only occasionally

a passing automobile, prove an elation to us," said Mr. J. I. "Here is a route which is wholly for tourists. It is to travel it and not to own it but a big thing which owns many thousands of acres. Now, mind you, there are two routes from Atlanta to Chattanooga over which you can't travel a half a mile without seeing a house, and along which the towns and settlements are five and ten miles apart and on which very little hard paving has ever been laid. The two routes from Atlanta by Rome and Dalton extend through the most populated section of the 'goober-graber' state, and has had less attraction paid to the roads than was given the section up the wild mountains of the northern part of the state, where even the crows get lost because they see no smoke coming up from the chimneys to guide them to a corn crib. No wonder the people of northwest Georgia have had no roads to travel over. The state ignored them in providing for what few tourists they could entice to come out of Asheville that way to Florida.

"We had a good trip from Atlanta to Chattanooga. There has not been any rain for several days. Part of the road by Dalton, which was not paved, were actually dusty. But there have been great improvements made in the road between Atlanta and the Tennessee line this past twelve months."