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NEWS LETTER

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OUR WATER RESOURCES

I. GAGING STREAMS

An adequate and pure water supply, cheap and abundant power, safe and inoffensive disposal of sewage, are three prime necessities for the successful up-building of any community. In North Carolina each of these factors is based upon accurate knowledge of stream flow, which can be secured only from records assembled over a long period of time.

Municipal Water Supply

Most towns in the state have been faced with a water shortage within the past five years. This could have been avoided had adequate stream flow data been available and used. Many cities in the state have had to abandon costly water supply construction, sometimes soon after its completion, because the source has become inadequate. For how many years in the future can a source of water supply be depended upon? What is the minimum flow ever likely to occur? Will it be necessary to store excess flow in the winter to be used in the summer? How much storage will be needed? If a dam is to be built how wide must the spillway be to pass safely the largest flood that may be expected? Will there be enough water to use a surplus to produce water power to pump, thereby lowering costs of purchased power? The only answer to all of these questions is accurate stream flow records.

More and more North Carolina communities are being supplied with power generated by falling water. Even when steam is used to produce power, large quantities of water are needed for condensing purposes. How much water power can be produced from a given stream in the driest times; in average times; in flood times? How much auxiliary steam power will be needed? How much increase of power will there be from storing flood water and using it in dry periods? What will be the effect of such storage in reducing the damage from disastrous floods? How great capacity is needed at dams to pass with safety the floods? Is sufficient water for condensing available in dry periods? Answers to all these questions can be had only by securing accurate stream flow records.

Sewage Disposal

A problem of increasing importance to many North Carolina communities is the safe and inoffensive disposal of their sewage and trade wastes. Can these be discharged into a stream without causing serious sanitary pollution, offensive odors, or destruction of fish life? If not, what degree of treatment will be required? Answers to these questions depend largely upon the amount of dilution which the stream affords, and this in turn can be told only from accurate stream flow records.

Basic data for planning for adequate water supply, cheap power, and efficient waste disposal should be predicated upon accurate stream flow records collected in advance of the day of need and extending over a sufficiently long period to be representative. Having been collected, the data should be available in a form readily adapted to use. What is North Carolina doing to collect and make available this fundamental information?

Cooperative Effort

The United States Geological Survey is charged with making and collecting data on stream flow all over the country. At various times some 90 stations have been maintained on North Carolina streams, but many of these were operated only for a year or two, and the records are thus of small value. The Federal Survey is so restricted in funds that it has to concentrate its efforts in those states where there is local cooperation, either on the part of the state itself, or from private or municipal sources. The North Carolina Geological and Economic Survey has always cooperated with the Federal Survey in maintaining gaging stations in this state. It was not until 1920, however, when the Water Resources Division of the State Survey (now the Department of Conservation and Development) was established, that systematic stream gaging under close state

oversight began in North Carolina. In 1920 there were 12 gaging stations regularly operated in the state. The number has steadily increased until at present there are 40 such stations in operation. Through the Water Resources Division of the Department of Conservation and Development more stream gaging is being done by North Carolina than by any other South Atlantic State, and nearly \$10,000 of the \$12,750 allocated to the use of this Division is expended in stream gaging work. The Division was instrumental in having the district office of the United States Geological Survey moved from Atlanta to Asheville, and practically all of the funds for stream gaging are turned over to the Federal Survey for the use of its expert staff of engineers who do nothing but stream gaging work.

The Water Resources Division is located at Chapel Hill, where it is under the direction of the Professor of Hydraulic and Sanitary Engineering in the School of Engineering at the University. This tie-up with the University enables the services of specially skilled instructors to be used during their spare time at much less than the cost of full-time personnel, and explains the very large amount of notable work which has been produced in spite of extremely meagre funds. The Division in general outlines where it is desired to have stream gaging stations located, arranges for local cooperation on the part of power interests and municipalities, supplies stream flow data for other departments of the state, several reports having been made for the Highway Commission, and publishes the records in convenient form. There will shortly be sent to press a bulletin giving weekly and monthly stream flow at every gaging station ever operated in North Carolina, and this bulletin will be the most complete of its kind ever issued by a state east of the Mississippi.

Spends too Little

Although the stream gaging work in North Carolina is something to be proud of as being more adequately carried on than in other southern states, nevertheless expenditures for this purpose in North Carolina do not compare favorably with such expenditures in other states of the country. Considering the United States as a whole, North Carolina ranks twelfth in the magnitude of her water powers, but ranks twenty-fifth in total expenditures for stream gaging. Considering states east of the Mississippi only, North Carolina ranks second in potential water power, but ranks eighth in total expenditures for stream gaging. Considering expenditures for the year 1923-24, North Carolina ranks thirteenth in the country and fourth of the states east of the Mississippi. For instance, last year the state spent only \$5,920 in investigating her water resources while Texas spent more than ten times as much. We boast of our enormous water resources but we have spent all told only \$18,138 in assembling the records which are necessary in effectively conserving these resources.

North Carolina has lagged behind other states in investigating her water resources. There is nothing more important in the economic development of this state than complete and accurate data on the water resources of the state. It is only after the facts have been assembled that our great water resources can be conserved and developed most efficiently. —Thorndike Saville.

WATER TRANSPORTATION

The formation of a State Transportation Commission which would include and control waterways as well as highways was advocated by William T. Couch before the regular bi-weekly meeting of the North Carolina Club Monday evening. He declared that such a commission is the first and most important step to be taken toward a solution of the State's transportation problems. This body should have direction of all transportation facilities in the state, waterways as well as roads, to develop each according to the de-

COOPERATE OR PERISH

If we have social warfare within the civilized nations we shall not emerge from it until tides of blood have flowed. If we have an unrestricted commercial war, a savage and ruthless competition between great powers out for world trades at all costs against each other, the other things will happen. The human tribes in the next phase of history, now approaching, must cooperate or perish.

The Christian peoples at least are dedicated to peace, by words that they cannot ignore without treachery to the spirit of their faith. There is no Christianity in hatred, none in class warfare, none in violence against our neighbor, none in envy of our neighbor's goods, none in denial of the laborer's hire, none without love and pity and self-sacrifice. It is only by rededicating ourselves to that spirit that we can hope to solve the problems that beset us on every side and exorcise the evil powers in the heart of humanity which are working for destruction. —Sir Philip Gibbs, in Collier's.

mands for it, and to consider and develop projects for the future. The topic before the Club for discussion was Ports and Terminals for North Carolina.

The paper presented dealt with three clearly defined and inter-related phases of this subject: (1) What are the possibilities on the North Carolina coast for the development of inland waterways, and for the development of a modern port for sea-going vessels? (2) Would it pay to give further development to the port at Wilmington and our inland waterways? (3) If so, how should this development be promoted?

Ample Possibilities

North Carolina's coast line has ample possibilities in so far as has to do with physical conformation for the development of inland waterways; but this does not mean that such a development necessarily would be a profitable one from the beginning. The privately owned shipping facilities at Wilmington are adequate for the present, but additional facilities will be needed in the near future according to an authority on the subject. Charleston on the south and Norfolk on the north, shipping points already well developed and securing business with energy, deprive Wilmington of much that she might do. Neither of those ports is doing what it might, however, and Wilmington with a budget of one to two hundred thousand dollars a year for a number of years for advertising purposes and a channel with a minimum width of 500 feet and a minimum depth of 30 feet at low tide could easily become an important point for water shipping.

East-West Trunk Line

A modern port at Wilmington would avail little unless there were also provided railway facilities, linking the east with the west. The readiness with which railway companies would accept the responsibility of providing such a line is purely conjectural. If the state assumed the responsibility, the cost would surpass estimates made previously by those giving study to the problem. The insufficiency of transportation facilities in the United States, at the present time does not guarantee that Wilmington would profit by a port development. Crowded conditions exist, but only in certain well established commercial channels; and Wilmington, lacking an east-west trunk line, is not included in those lanes of commerce. In accordance with recommendations of the Board of Engineers, shipping facilities at Bayboro, New Bern, Oriental, Beaufort, and Fayetteville could be provided at a relatively small cost, and should be in order to promote inland waterway commerce. The relatively low cost of water transportation—it being about one-third as costly as rail—makes such inland development a reasonably profitable proposition.

As to the best method for such development, it was argued, upon authority, that public ownership and operation of terminals is much preferable to private ownership. An analogy was drawn here between the state highway system and a water system, and it was shown that the state should be as much concerned in one system as the other. The extent to which the state should invest in waterways and terminal facilities or any other projects should be determined in exactly the same way as expenditures on state roads are determined, by the same organization and with the same purpose of developing the state resources.

TRUE AND TAXABLE WEALTH

TRUE VS TAXABLE WEALTH

The richest state per inhabitant in the Union, both as shown by the tax books and in true wealth as estimated by the Federal Department of Commerce, is Nevada. The poorest state, on the tax books, is South Carolina, while the Federal authorities estimate that on the basis of true wealth per inhabitant, Mississippi is the poorest.

The Federal census authorities estimate the true wealth of North Carolina at \$4,543,110,000, or \$1,703 per inhabitant, for the year 1922, and our rank among the states in wealth per inhabitant as forty-second. Six states rank below North Carolina in estimated true wealth per inhabitant, but eighteen states rank below us in the per inhabitant amount of property listed for taxation. The table which appears elsewhere shows the rank of the states in estimated true wealth per inhabitant, and the parallel column shows the amount of property listed for taxes and subject to the general property tax.

Two Billions Untaxed

If all taxable property in the state had been listed at its true value in 1922, we would have had on the tax books \$4,381,177,000. As a matter of fact, we had listed for taxation \$2,521,115,000, which leaves \$1,860,062,000 of wealth that was taxable but not listed, due to the policy of our one hundred counties of assessing property at varying percents of its true value, but in no county at its true value. The state over, only 57 percent of the value of property that is taxable is actually listed for taxes. Nearly two billion dollars remains off the tax books, and it is well to remember that the census authorities are always conservative in all their reports and estimates.

The wealth of North Carolina not subject to the property tax totals \$161,993,000—property owned by the state, counties, churches, and other exempt properties.

The Main Concern

The main trouble in North Carolina lies not in the fact that nearly two billion dollars of values escapes taxes, but in the unequal assessments on the part of the 100 counties. Property the state over should be listed at some uniform percent of its true value, preferably at 100 percent, but uniformly, whatever the percent. It is the only way out of our tax difficulties. Everybody agrees that this is so, but what

is being done about it? How, for instance, can the state school equalization fund ever be equitably distributed with property listed at widely varying percents of its true value by the various counties?

Land

To illustrate the unequal assessments we will present a few facts as shown by the recent report of the State Commissioner of Revenue. Land is assessed in one county at \$180.86 per acre, in another at \$4.36. Land varies greatly in value, to be sure, but in adjoining counties with similar conditions the assessed values vary widely. In one mountain county land is assessed at 38 dollars per acre. In another mountain county with similar conditions it is assessed at 8 dollars per acre. In one piedmont county land is assessed at \$18.16 per acre, and in an adjoining county at \$75.52 per acre. And so on ad infinitum, ad nauseam.

Livestock

In Alleghany county horses are assessed at 80 dollars, and mules at 76 dollars, upon an average, while in another mountain county, Macon, horses are assessed at \$10.20 and mules at \$10.35, upon an average! How can that be explained? In one mountain county horses are assessed at 75 dollars each upon an average, and in the same county mules are assessed at \$7.86, and so on and on.

In Bladen all cattle average 21 dollars on the tax books, while in Bertie, comparable with Bladen, they average \$10.60 each. Cattle are listed at two and a half times as much upon an average in Caswell as in Currituck. In one tidewater county cattle average 46 dollars each while in another tidewater county they average 9 dollars, or one-fifth as much, on the tax books.

Sheep are listed at an average of \$4.30 in Person, and 79 cents in Pamlico.

Personal property listed for taxation averages 1,480 dollars per inhabitant in one county and 93 dollars in another.

For low comedy see the value of dogs as reported by the tax books of the various counties!

The main point is not that two billion dollars of wealth escapes taxation in North Carolina but that it escapes unequally, and the low assessment counties are the beneficiaries.

Would that it were possible to compare the 100 counties of the state, true wealth in one column, and wealth as reported for taxation in a parallel column, as it is done for the states in the accompanying table. —S. H. H., Jr.

TRUE AND TAXABLE WEALTH Per Inhabitant by States in 1922

The following table, based on recent publications issued by the Federal Department of Commerce relating to wealth, debt, and taxation, shows (1) the rank of the states in estimated true value of all property, and (2) the per inhabitant amount of property listed for taxation and subject to the general property tax.

Nevada leads, both in true wealth and in wealth listed for taxation per inhabitant. Mississippi ranks last in true wealth per inhabitant, while South Carolina ranks last in property listed for taxes per inhabitant.

In estimated true wealth per inhabitant six states rank below North Carolina, while eighteen states rank below us in taxables listed per inhabitant, or so in 1922.

U. S. average of true wealth per inhabitant \$2,918, and of wealth listed for taxation \$1,146.

Department of Rural Social-Economics, University of North Carolina

Rank	States	Prop. Listed for Taxes per Inhab.	Est. True Wealth per Inhab.	Rank	States	Prop. Listed for Taxes per Inhab.	Est. True Wealth per Inhab.
1	Nevada	\$2,580	\$6,998	25	Ohio	\$1,745	\$3,048
2	Wyoming	1,782	4,663	26	West Virginia	1,382	3,040
3	South Dakota	3,054	4,482	27	Indiana	1,751	2,942
4	Iowa	723	4,274	28	Missouri	1,350	2,903
5	Oregon	1,248	4,182	29	Michigan	1,542	2,899
6	California	1,153	4,007	30	Wisconsin	1,896	2,887
7	Nebraska	2,422	4,004	31	Delaware	994	2,728
8	North Dakota	1,979	3,692	32	Maryland	1,135	2,665
9	Montana	779	3,691	33	Maine	824	2,586
10	Connecticut	1,367	3,614	34	Vermont	872	2,389
11	Washington	791	3,600	35	Florida	412	2,358
12	New Jersey	1,249	3,524	36	New Mexico	895	2,299
13	Arizona	2,034	3,512	37	Virginia	772	2,050
14	Kansas	1,991	3,493	38	Texas	670	2,010
15	Minnesota	960	3,442	39	Oklahoma	802	1,864
16	New York	1,445	3,436	40	Louisiana	851	1,865
17	Idaho	1,047	3,301	41	Tennessee	730	1,753
18	Illinois	601	3,295	42	North Carolina	952	1,703
19	Colorado	1,591	3,285	43	Kentucky	984	1,459
20	Utah	1,345	3,247	44	Arkansas	323	1,439
21	Massachusetts	1,429	3,243	45	South Carolina	252	1,385
22	Pennsylvania	1,087	3,187	46	Georgia	401	1,306
23	Rhode Island	1,687	3,086	47	Alabama	393	1,244
24	New Hampshire	1,386	3,074	48	Mississippi	396	1,210