

RALEIGH WATER SUPPLY AND HOW CONSTRUCTED

Also a Brief History of How This City Has Been Supplied in the Past. Description of Present Plant
(By FRED A. OLDS)

The system supplying water in all built-up parts of the city, and also to suburban property, is owned and operated by the city. The original works were built in 1867 by the Raleigh Water Company, which in 1901 was sold by the latter to the city in 1913.

The Supply.
The water is taken from Walnut creek and flows by gravity from the intake basin through a long line of pipe to a suction well at the pumping station; thence is pumped by low-duty pumps to the chemical house, where it is treated. It flows by gravity from the chemical house to the settling basin, and from the latter through filters to the clear water reservoir from which it is again pumped by high-duty pumps direct to the distribution system, to which is connected a water tower acting as an equalizer. Pressure can be raised as called for on an alarm by the low-lift pumps can discharge the treated water either through the filter plant or direct to the clear water reservoir. The high-pressure connected suction, can take water either from the clear water reservoir or the clear water well in the filter-house.

The Watershed.
Walnut creek has a drainage area above the intake of 13.87 square miles and extends to Cary, about eight miles west of RALEIGH. On the north the watershed is approximately bounded by the Hillsboro road and by the tracks of the Southern and Seaboard Air Line Railways. On the south the approximate boundary is the old Tyson road and the Rhamkatte road. The soil of the watershed is generally of a sandy clay character which is quite pervious and well adapted to serve the rain. A large percentage of the watershed is in large timber and other wooded areas. The remainder is in cultivation and abandoned oil fields. The general sanitary conditions are exceptionally good. An inspector is regularly employed to police the watershed.

The Impounding Reservoir.
Is on the grounds of the State hospital, at the site of the old Hunter dam, about 2-1/2 miles from the center of RALEIGH. The dam is of concrete. The water area is 17 acres and the approximate capacity 200,000,000 gallons.

The Intake.
Is about 2,000 feet downstream from the impounding reservoir. A timber sill is bolted to a rock ledge, to form a basin in which is a screened intake; this intake is connected by 10,000 feet of 18-inch pipe to a pump chamber close to the pump room at the pump house, from which the low-lift pumps take suction. This line has a capacity from its present head of approximately 3,000,000 gallons a day.

The Settling Reservoir.
Is built on the grounds at the pumping station, its construction being of concrete, 144 feet by 44 feet over all and 11 feet down. The basin is divided into two sections by a middle partition wall. Each section has three baffle walls. One-half of the entire basin can be used at will. The walls of the basin are backed up by embankments, terraced and turfed.

The Filter House.
Is located 125 feet northwest of the pumping station and is a one-story brick building, 66 feet by 44 feet, with a covered roof, on wooden sheathing and trusses, with concrete floors. The plant consists of six reinforced concrete filter units. Each has a filtering area of 180 square feet, with inside dimensions of 15 by 12 feet and a capacity of 350 gallons a minute. Each is equipped with wash-troughs, water strainers and all necessary piping valves. An electrically driven centrifugal pump and blower are connected into two sections by a middle partition wall. The chemical house at the south end of the filter house is a three-story brick with metal roof. The first floor is for chemical storage; the second is laboratory and the third the mixing and treating room. The combined capacity of plant is 3,000,000 gallons in twenty-four hours.

The Clear Water Reservoir.
Is located south of the filter house, is elliptical in plan, about 14 feet in depth, lined with masonry and holds approximately 2,000,000 gallons.

The Pumping Station.
Is located on the north bank of Walnut creek, on the Fayetteville road, about 1-1/4 miles south of RALEIGH, and is a one-story brick building with 12-inch walls. A 12-inch wall running through the roof divides the building into a boiler room, 35 by 40 feet, and pump room, 66 by 40 feet, slate-covered roof on wooden sheathing, supported by purlins and trusses. In the pump room, a metal roof with steel trusses over the boiler room. There is a brick stack outside the building; two metal stacks extending through roof.

The Equipment.
There are three high-duty pumps: a McGowan horizontal, compound, condensing, duplex pumping engine, size 20 and 32 by 15 by 24, rated capacity 3,000,000 gallons in 24 hours; a Worthington horizontal compound, condensing, duplex pumping engine, size 18 and 24 by 15 by 18; rated capacity 2,500,000 gallons in 24 hours; a Prescott horizontal cross-compound, condensing Corliss pumping engine, size 15-30 by 9-1-4 by 30; rated capacity 2,500,000 gallons in 24 hours.

Of low duty pumps there are two: a McGowan horizontal, compound, condensing, duplex pumping engine, size 12 by 14 by 18, rated capacity 2,250,000 gallons in 24 hours; an 8-inch Alberger horizontal centrifugal pump, electrically driven, for filters, rated capacity 1,728,000 gallons in 24 hours.

The Boilers.
Are two Walsh & Weidner horizontal marine fire tube, rated horsepower each 125; two Cassey-Hodges horizontal marine fire tube, rated horsepower 150.

The Water Tower.
Is located at 115 West Morgan street. There is a steel tank thirty feet high and 4 feet in diameter, supported on an octagonal brick and stone tower, 85 feet high; capacity 160,000 gallons. A 12-inch connection with the street main is provided with a hydraulically operated valve, which is closed when fire pressures are called for. There is a two-story brick, metal-roof office building, adjoining the

tower; also a repair shop and storehouse, two-story brick, in rear.

The Distribution System.
Two force mains, 16 and 14-inch extend from the pumping station to the city, and continue as 14 and 12-inch to the West Tyson road. The principal mercantile district, while 12 and 10-inch feeders extend through the central portion of the city to the street and North street respectively.

The minor distributors are 8, 6 and 4-inch. The following is a table which shows the mains and valves in service:

Diameter—	Pipe in Miles.	No. Gate Valves.
16 inch	1.15	5
14 inch	.84	3
12 inch	1.66	8
10 inch	.43	2
8 inch	5.11	26
6 inch	23.25	202
4 inch	4.82	74
Total	37.16	322

In addition to the above there are miles of domestic service pipe lines, averaging in size from 1 to 2 inches in diameter.

The above table gives the number of gate valves in the distribution system. All are direct acting and set with the usual iron extension box.

Hydrants.
There are 255 public hydrants in service, exclusive of 37 private hydrants around schools, public institutions and manufacturing concerns. All are of the post type, Mathews & Columbian pattern, having two 2-1/2-inch hose outlets, and of them 133 have 4-inch and 132 4-inch branch connections to the mains. All hydrants have automatic drip valves and are set in pockets of loose stone.

Meters and Service Connections.
The number of meters on the water rates is 2,712 and on meters 1,114, giving a total of 3,826. All large services are metered.

The Consumption of Water.
The average daily consumption for the year was 1,766,610 gallons.

Pressures.
A recording gauge is installed in the office at the water tower, and day and night pressures are uniformly maintained at between forty and fifty pounds to the square inch. There is also a recording gauge at the pumping station, where the average pressure during domestic draft is 105 pounds to the square inch. These pressures can be materially increased during fires.

Quality and Treatment of Water.
The water has an unusual degree of natural purity, and its general qualities are such as to render purification treatment easy. The only chemical generally used in the process of coagulation is aluminum sulphate or "filter alum." The average dose is one grain to the gallon. On rare occasions, after heavy rains, a small quantity of soda ash is used to supply the deficiency in alkalinity in the raw water. All chemicals introduced into the raw water are

more going to the settling basin and filters. The filtered water shows no traces of chemicals. Chemical tests for the determination of alkalinity and the proper dosage of chemicals are made daily. Bacterial tests are made, as prescribed by law, by the State laboratory of Hygiene. The city has now an abundant supply of clear and pure water.

C. J. STEED BECOMES CIRCULATION MGR.

On September 15, Mr. C. J. Steed of Charlotte will join THE TIMES staff as general manager of the subscription department.

Mr. Steed has been with the Charlotte Observer for a number of years and is a man of wide newspaper experience. He has worked at every position in the subscription end of a newspaper, having started at the bottom as carrier boy.

Mr. Steed will come to RALEIGH and take up his duties next week. His wife and three children will move to this city the first of October.

The Charlotte Observer of Monday has the following item about Mr. Steed:

"Mr. C. J. Steed, who for the past three years has been connected with the Observer as circulation manager of the Evening Chronicle and later doing special circulation work for The Observer, has accepted the position of circulation manager of THE RALEIGH TIMES. He will assume the duties of the state capital to assume his new duties. Mr. Steed came to Charlotte from Macon, Ga., where he was formerly located. He was an expert circulation man, having had experience on a number of leading Georgia papers. His success with the Observer was marked as the circulation books of the company will show. Mr. Steed goes to RALEIGH with fine prospects of success, and carries with him the best wishes of the entire staff. He will actively the duties of his new position September 15."

The 8:50 Southern train this morning was crowded with students going to the University. An extra coach was put on to accommodate the crowd.

RALEIGH'S RENAISSANCE IN PAST QUADRENNIUM

(Continued From Page One.)

a back country with soil that has been blessed with the ability to give growth to other products than cotton.

Increased Hotel Facilities.
Hotel facilities have been increased several hundred per cent within the past quadrennium, the consumption of which THE TIMES celebrates today. Wright's has been practically doubled in capacity, the Bland has been completed and opened for business and added to, while the Yarbrough has been re-opened and enlarged, after \$100,000 was spent in making it new. With the increase of hotel facilities in the past four years, the number of people visiting this city has increased. RALEIGH has now reached the point where it is visited by close on to 50,000 people every year, exclusive of Fair Week, legislative sessions and other events and periods of State-wide interest. With the enlarging of the hotel accommodations here, the traveling

erected large new homes, installing a total expenditure of hundreds of thousands of dollars. As money has been invested right in the business section of RALEIGH, and in all these buildings there are offices by the score. This has called to RALEIGH the agencies for many firms that would not have been secured otherwise. All these buildings, erected in the past four years, would do credit to any city of 100,000 people and upward. The Citizens National Bank building is twelve stories high, the Commercial National Bank building eleven stories high, and the Raleigh Banking and Trust building is three stories high. All are built of the best material and equipped with the most modern conveniences, both the banking and office facilities.

Public Improvements.
State, county and nation, within the past four years have invested nearly \$1,000,000 here in new and improved buildings. The State ad-

large shop force here with an annual pay-roll of nearly a quarter of a million dollars. All the railroads have increased their freight facilities to meet the growth of the city.

The city itself has taken on new life. It was just a little more than four years ago that the magnificent new city hall and auditorium were formally opened. Since that time RALEIGH, keeping pace with other up-to-date cities, has chosen the commission form of government and under that form a half-million dollar water supply system has been built and many miles of the most modern streets have been laid. New and entirely modern fire equipment has been secured. Today RALEIGH has the best fire equipment in North Carolina and among the best in the entire United States.

New District Opened.
Truly, the growth of the city during the transition period of the past four years has been phenomenal. In addition to the business facilities, new residences have gone up all over this section. Waste places have been built up into beautiful suburbs, like those adjacent to the large cities. New parks have been established; new picture shows have been opened; new life has been injected into the amusement spirit and visitors now,

four years, many improvements among the institutions of higher learning—A. and M. College, Meredith College, St. Mary's and Peace Institute; also among the colored institutions located here, which are doing a good work for the members of the colored race, industrially and socially. As to the public schools, they have been lacking, but in the past few weeks there has sprung up a sentiment that will likely find a fine expression in the election for \$100,000 worth of bonds to be held on the 14th of this month. With this money, new schools will be built and old ones will be modernized.

Expansion a Feature.
Expansion has been a feature of RALEIGH'S growth during the past four years. It is a notable fact that the built-up area of this city is much larger than it was four years ago.

That fact alone is evidence of an increased population. In these newly built-up sections the residences are of an up-to-date style, equipped with modern conveniences, well-kept and attractive in every way. The city and suburbs reach now for a distance of about three and a quarter miles from east to west and two and a half miles from north to south. All new suburbs are reached by good streets and quick street-car

Capitol to a point beyond Davis street, on Fayetteville street; from the Capitol to Davis street, on Wilmington street; from McDowell street to a point beyond Blount on Martin; from Salisbury street to Blount on Hargett; from Salisbury street to Blount on Morgan, and from the Capitol to Davis street on Salisbury, making in all, about 20 blocks which are filled with business houses of every description, from modest retail stores to large department stores and wholesale houses.

THE TIMES is proud of the fact that the RALEIGH of today is almost an entirely different city from the RALEIGH of four years ago. While there exists here that same home-loving, hospitable spirit which has always characterized the city, there is coupled with that a new spirit of enterprise, which makes a fine combination—one pleasing to those who visit here and who come here to locate. More people have located here in the past four years than in any previous period of twice that duration. In all movements for the upbuilding of RALEIGH, THE TIMES has rejoiced, as it will continue to rejoice in the future. It has conscientiously striven to lend a hand to all movements for the betterment of the city and for its advancement along material lines.

The Chamber of Commerce, the Merchants' Association, the Rotary Club, and other live-wire institutions have been rejuvenated and organized in the past four years and today there is, as a result of the past four years' efforts, more of a spirit of cooperation than ever before. The spirit of community service has cemented the citizens together; money has been turned loose by enterprising and optimistic business men and RALEIGH is on a better basis today than it has ever been.

The RALEIGH of today is a new RALEIGH. During the past four years the progress has been greater than in any previous period of equal duration.

SCHOOL EDITORS OF THE TIMES

Weekly Page of School News To Be Resumed

The page of RALEIGH school news, which appeared in THE TIMES every Saturday during last season, was one of the most interesting features of the paper to many readers and was eagerly looked forward to by the children, the parents and the teachers especially. The news of interest in each school is reported by a company of live school editors, each school having an editor-in-chief and several assistants. THE TIMES was fortunate in securing such able reporters and many showed real newspaper ability. This feature may be the making of some future journalists.

The editors found that it was not all work but that there were real good times attached to the office and they enjoyed a number of courtesies at the hands of THE TIMES.

With the re-opening of the schools this feature will be resumed. Those who are interested in the page will be a great benefit of editors at each school.

The following were the editors of the school page at the close of school last May:

High School: Editor-in-chief, Alderman Merritt, assistant editor-in-chief, Edith Russell, associates: Will X. Coley, Lee Denson, Agnes Scott, William Krafts, Elizabeth Kitchen, Ludie Rogers, Macon Belvin.

Wiley School: Editor-in-chief, editor-in-chief, Charles Hearty, first assistant; Helen Dughi, Gladys Morgan, and Mary O'Kelley, associate editors.

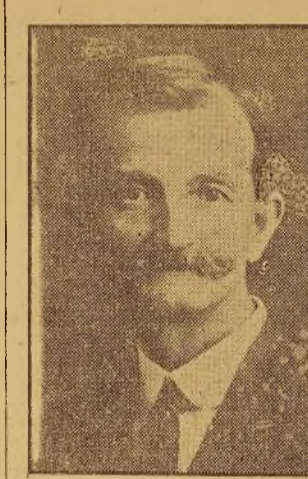
Worship School: Editor-in-chief, Ellen Seawell; associates, Laura Russell, and Ethel Marshall.

Centennial School: Mary Elizabeth Alford, editor-in-chief; Owie Morris, Margaret Tucker, Franklyn Owens, associate editors.

Pilot Mills School: Editor-in-chief, Kathleen Bell; associate editors, Elsie Morgan.

Brooklyn School: Editor-in-chief, Martha King. Thompson School: Editor-in-chief, Marie Richardson; associates: John Robert Sams and Rachael Walford.

SAM BOGASSE Foreman of Composing Room



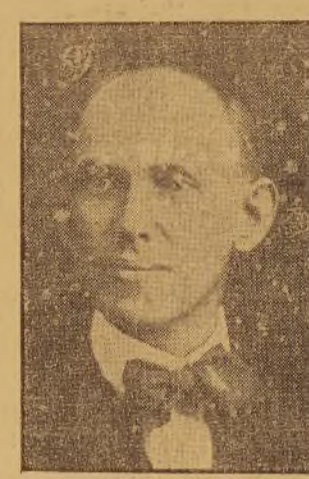
E. B. NELSON Chief Linotype Operator



C. F. PILLEY Linotype Operator



JAMES L. PARHAM Linotype Operator



S. L. BOGASSE Advertising Compositor

LUTHER A. WILSON The Good Little Devil

WILL A. WOODS Linotype Operator

J. G. SMITH Advertising Compositor

men are boosting the city all over the country. The best things are said about RALEIGH. This isn't just an idle statement, trumped up inside the newspaper office to boost the town. It's the traveling man. More traveling men are "making" RALEIGH today than ever before; and, in this connection, it might be stated that when a lot of traveling men make a point to "make" a city, they "make" it a bigger, busier city. Such is the case with RALEIGH. Within the past four years RALEIGH has steadily become the traveling man's mecca.

New Banking Houses.
Another big feature of the past four years is the way the banking houses have shown their faith in RALEIGH by erecting new buildings. Within the past four years, the Commercial National Bank, the Citizens National Bank and the Raleigh Banking and Trust Company have all

administration building, one of the finest in the United States, has been completed, a new court-house has been erected—one that would do credit to any city—has been completed, and the government has doubled the capacity of its already splendid building. All this occurred during the past four years, during the renaissance period.

Better Market Facilities.
The market facilities are today better than ever before. During the past four years the city has erected a market house building that is splendidly equipped and proportioned, abandoning the old antiquated building back to reconstruction times. The improvement in market facilities has drawn people to RALEIGH.

Railroad Improvements.
During the past four years the railroads have improved their properties here, especially the Norfolk Southern which now maintains a

instead of having to spend their evenings at their hotels, can go out and get the same class of amusement they are privileged to enjoy in the largest cities. The streets are crowded each evening with after-dinner pleasure-seekers.

Public Service Improvements.
During the past four years all the public service corporations have made marked improvements here, notably the street-car company. It has inaugurated schedules that are far superior to those formerly in operation, and since the taking over by the Carolina Power & Light Company of the gas company, over \$100,000 has been invested in a modern gas plant for the Capital City. This was completed just a short while ago. During the past four years, much additional power has become available for RALEIGH, making it an important electrical center.

School Improvements.
There have been, during the past

service. All of this was accomplished in the past four years.

The Churches.
The churches have kept pace with the other improvements. During the past four years, Christ church has erected a large and commodious parish house that is probably unequalled in the entire State. The Edenton Street Methodist Sunday school has built a structure adapted to the needs of the modern requirements, and the Church of the Sacred Heart has started work on a rectory of solid granite, while the magnificent new edifice of the Church of the Good Shepherd, which was in course of construction for many years, has been completed. Other churches have made many minor improvements which greatly added to their effectiveness.

Larger Business District.
Another thing worth consideration is the expansion of the business district, which now extends from the

To the Insuring Public

WE wish to call your attention to the fact that we are prepared to handle all lines of Insurance, Fire, Life, Health and Accident, Liability, Plate Glass, Burglary, Automobile, Tornado, Tourist Baggage, Use and Occupancy, and all other kinds of insurance. Our agency is composed of the Strongest and Best Companies. We invite you to consult us on any matters pertaining to insurance.

Citizens Insurance Agency, Inc.

Insurance Department
Raleigh Savings Bank and Trust Company

G. H. ANDREWS
President

F. K. ELLINGTON
Vice-President

L. G. RICHARDSON
Secretary & Treasurer

Office in Raleigh Savings Bank & Trust Company