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GEOLOGICAL SURVEY
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Water-Supply Paper 937

WATER LEVELS AND ARTESIAN PRESSURE IN OBSERVATION WELLS IN THE UNITED STATES IN 1941

PART 2. SOUTHEASTERN STATES

BY

O. E. MEINZER, L. K. WENZEL, and others

Prepared in cooperation with the States of ALABAMA, FLORIDA, GEORGIA, MARYLAND, MISSISSIPPI, NORTH CAROLINA, SOUTH CAROLINA, TENNESSEE, VIRGINIA, and WEST VIRGINIA, the DISTRICT OF COLUMBIA, and other agencies

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INTRODUCTION

By O. E. Meinzer and L. K. Wenzel

The rock formations of the earth are great natural underground reservoirs in which a part of the water derived from rain and snow is stored to supply wells and springs and to maintain the flow of streams during periods of fair weather. Water levels in wells register the stages of these natural reservoirs; they show the extent to which water supplies are depleted by drought or by heavy pumping for public waterworks, for irrigation, or for industrial uses and the extent to which they are replenished in seasons of abundant rainfall or melting snow. The changes in pressure recorded on flowing wells may indicate depletion or replenishment of the artesian reservoirs.

The regular publication of records of water levels and artesian pressure in the United States was begun by the Geological Survey in 1935, and from that year through 1939 one volume containing these data was published each year. The volumes were issued as Water-Supply Papers 777, 817, 840, 845, and 886. The number of observation wells and the quantity of records on water levels and artesian pressure obtained from them have increased gradually from year to year. As a result the records for 1940 were published in six volumes, Water-Supply Papers 906-911 inclusive. Water-Supply Paper 906 contains the records for the northeastern States, 907 for the southeastern States, 908 for the north-central States, 909 for the south-central States, 910 for the northwestern States, and 911 for the southwestern States and Hawaii. Records for 1941 are being published in six volumes also, each volume covering a section of the United States corresponding to that covered by one of the volumes containing records for 1940. (See fig. 1.) This series of reports is in a sense an inventory, year by year, of the groundwater supplies of those parts of the country that are covered.

This volume covers the southeastern section and gives records of water level or artesian pressure in about 350 observation wells of the Geological

Survey and cooperating agencies in Alabama, District of Columbia, Florida, Georgia, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, and West Virginia. Of these wells 43 are equipped with automatic water-stage recorders. For some wells for which records had not heretofore been published complete records of water levels are given in this report, including those for years before 1941. For wells whose previous records have been published, however, this volume gives only current records. If complete descriptions of the wells were given in one of the previous reports, only the well numbers or the well numbers and brief identifying descriptions are given in this report. The report includes about 9,500 individual measurements of water level or artesian pressure.

The water levels in this report are given with reference to datum planes of different kinds. Some are given in depths below measuring point--that is, below the recognized reference mark, at or near the top of the well, from which the depth to water level is usually measured; and some are given in height above an assumed datum plane. As the measuring points on some of the wells were changed in 1941, the records may not be directly comparable with those in previous annual volumes, but changes in measuring points are recorded in this report. Water levels given in height above sea level or above assumed datum planes are generally comparable with those given in previous volumes. Unless otherwise stated, the depth of wells is usually the measured depth below the measuring point.

Acknowledgments for effective services in the preparation of this report are due Misses Dorothy M. Ireland and Ruthmae Brundage, Mrs. Roxie Lou Davis, and Mrs. Margaret F. Monk, who typed the offset copy; and to Rodney Hart, who prepared the illustrations and gave other assistance in preparing the copy.

GENERAL SUMMARY OF CHANGES IN GROUND-WATER LEVELS IN 1941 IN THE SOUTHEASTERN PART OF THE UNITED STATES

In 1941 the precipitation in most of the southeastern States was below normal and in most parts of the region the water levels in wells declined. The fluctuations of the water levels and artesian pressure in wells depend, however, on many factors besides the amount of precipitation. Consequently, it is usually not possible to find a simple relation between the changes in water level or artesian pressure and the departures from normal precipitation.

The following statements are taken chiefly from the interpretative text of the several State sections in this volume. They summarize the changes in ground-water levels and artesian pressure that occurred in 1941 in the parts of the underground reservoirs in the southeastern States that are tapped by the observation wells.

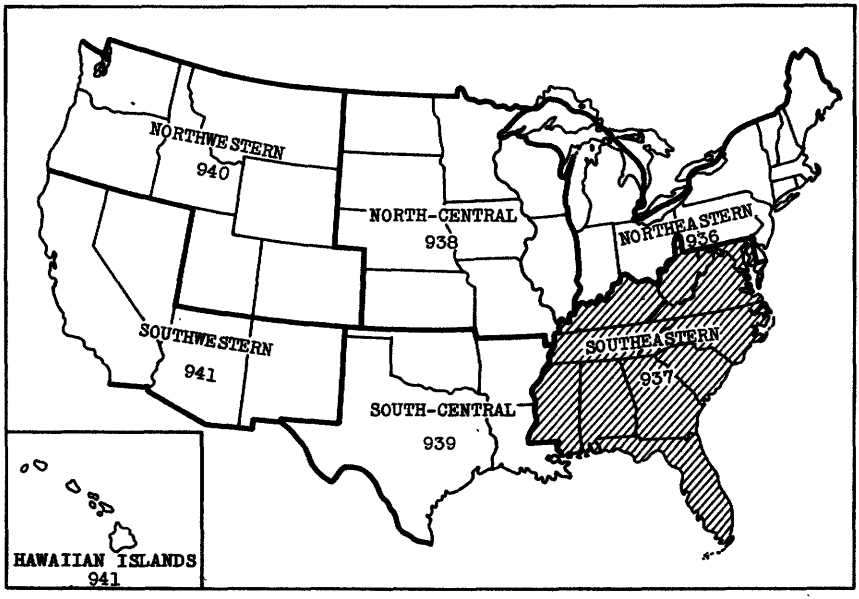

Figure 1.--Outline map of the United States, showing sections of the country covered by the six water-supply papers on water levels and artesian pressure in observation wells in 1941. The shaded section represents the part of the country covered by this volume.

Florida.--In southeastern Florida, in Dade and Broward Counties, the water levels were generally above those in 1940 except in June, August, September, October, and November. The lowest stages of the year were reached in June just prior to the heavy rains in July. Water levels were about 0.5 foot to 1.5 feet lower on December 31, 1941, than on December 31, 1940.

Georgia.--Artesian water levels in wells ending in the Ocala limestone continued to decline throughout 1941, but the decline in most of the area was less than that during 1940. The lowering was greatest in Savannah and

in the neighboring industrial area, where the water levels in wells declined from 4 to 7 feet. The averages of the water levels were at least 5 feet lower during 1941 than in 1940, due to increased pumpage in the industrial areas of Savannah.

The average of water levels in wells ending in the Ocala limestone in the greater part of Bryan, Liberty, and McIntosh Counties was 1 to 2 feet lower during 1941 than during 1940. In Charlton, Brantley, Long, and Wayne Counties and in the northwestern part of Camden County the water levels in artesian wells ending in the Ocala limestone were about the same, or slightly lower, during 1941 then during the latter part of 1940.

Maryland.--In 1941 the water level in a well in Montgomery County that has been observed periodically since 1932 fluctuated about normally for the period January to September, but declined to below normal stages in October, and at the end of the year was about 2.25 feet lower than at the end of 1940.

Mississippi.--The precipitation in Mississippi was 6.5 inches below the average in 1941. Water levels in wells declined generally, but increased consumption rather than subnormal precipitation was the dominant cause of the lowering in many places. Heavy pumpage continued to lower water levels in the upper Catahoula sand at Laurel.

In the Mississippi alluvial plain in northwest Mississippi the water levels declined below the low stages of 1940 in 15 of the 22 observation wells that are measured periodically. No noticeable trend was shown by 3 wells, and the water levels rose in 5 wells.

North Carolina.--In 1941 net declines in water level occurred in all wells distributed over the State.

In the Deep River area, near High Point, the precipitation for 1941 was 13.23 inches below the average for this region. This was reflected in the drying up of some of the wells during the second half of the year.

Virginia.--The precipitation in northern Virginia during 1941 was unusually low--12.99 inches below normal. The drought was reflected by abnormally low ground-water levels throughout the State. The water level in a well near Petersburg, which is regarded as typical for a large section of Virginia, had a net decline of 2.53 feet in 1941.

ALABAMA

By C. W. Carlston

A program of observation wells started in 1940 as part of cooperative ground-water investigations in the Coastal Plain of Alabama by the Federal Geological Survey and the Geological Survey of Alabama was continued in 1941. A brief description of the work and measurements in 4 observation wells in 1940 are included on pages 5 and 6 of Water Supply Paper 907.

Early in 1941, a continuous water-level recorder was installed on well 10 at Clanton, in Chilton County. Weekly measurements on well 1 in Dallas were begun by the superintendent of water works at Selma in April and monthly measurements were begun on well 1 in Greene County. Observations were discontinued on well 15, Montgomery County, on May 13, and on well 11, Pickens County, at the end of 1940. The observation-well program at the end of 1941 included 3 deep wells and 2 shallow wells. In the shallow wells the fluctuation of the water level reflects the rainfall. However, in the deep wells, which penetrate the artesian formation, fluctuations caused by rainfall are not apparent.

During the first three months of 1941 the cumulative rainfall recorded by the United States Weather Bureau in the Middle Division of Alabama, in which the observation wells are located, was 5.43 inches below the average since 1884. On March 26, the water level in well 10, one of the shallow wells at Clanton, Chilton County, reached its highest stage for the year (17.8 feet below the measuring point). During April the cumulative departure of rainfall from average increased to 5.79 inches and the water level in this well declined slowly. The average of rainfall for the State for May was the lowest for the entire period of record since 1884. Only 0.19 inch of rainfall fell at Clanton during the month of May and the water level in the observation well at Clanton declined very rapidly throughout the the month. In June the rainfall was slightly above normal throughout the State and, although the decline of the water level in the well at Clanton almost ceased, the lowest water level for the first six months of the year

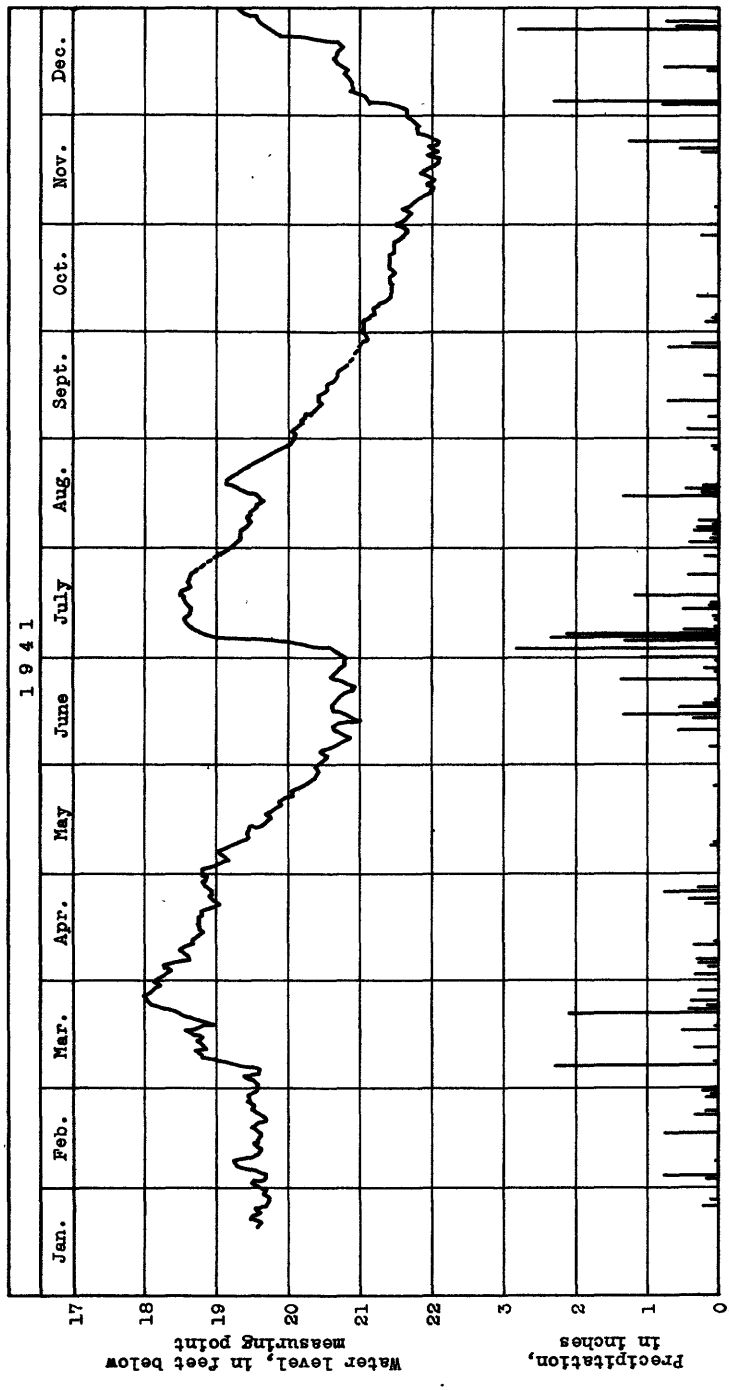

Figure 2.--Lowest daily water level in well C-10, at Clanton, Chilton County, Ala., and rainfall at Clanton, 1941.

(20.9 feet below the measuring point) was observed on June 12. Rainfall for the State in July was considerably above normal, with 11.86 inches at Clanton, and the water level in the observation well rose 2.25 feet in the first 10 days. Throughout August, September, October, and November the rainfall progressively decreased and ground-water levels dropped to new lows for the year, seriously affecting well and spring supplies derived from shallow sources. The water level in the Clanton well reached its lowest stage--22.07 feet below the measuring point--on November 18, 23, and 24. On November 29 the water level in well 6, a shallow well, Greene County, was 26.20 feet below the measuring point. In December unusually heavy rainfall throughout the State caused abrupt and continued rise in ground-water levels.

Chilton County

10. City of Clanton. In brick house behind settling tanks in water works lot north side of Clanton. Abandoned city well, diameter 10 feet, depth 45.8 feet. Measuring point, edge of platform of recorder, 0.5 foot above land surface. Water in well under local artesian pressure caused by clay bed overlying basal Tuscaloosa sand and gravel. Continuous water-level recorder installed Jan. 20, 1941.

Water level, in feet below measuring point, 1941

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 20	19.60	Apr. 21	18.90	July 21	18.50	Oct. 20	21.44
27	19.75	28	18.87	29	19.00	27	21.45
Feb. 4	19.80	May 5	18.90	Aug. 4	19.30	27	21.80
10	19.60	12	19.40	11	19.50	Nov. 3	21.80
17	19.50	20	19.90	18	19.13	10	22.00
24	19.30	26	20.30	25	19.60	17	22.04
Mar. 3	19.30	June 2	20.40	Sept. 1	20.51	24	22.07
10	18.70	9	20.60	8	20.25	Dec. 1	21.71
17	19.00	16	20.60	14	20.50	8	19.90
24	18.00	23	20.60	21	20.80	15	20.80
31	17.95	30	20.60	27	21.10	22	20.67
Apr. 7	18.35	July 7	18.75	Oct. 6	21.15	29	19.59
14	18.67	14	18.55	15	21.50		

Dallas County

1. Selma Waterworks. Behind north end of pump building on water works property, Selma. Main supply well, diameter 12 inches, depth 483 feet. Measuring point, lip of hole bored in pump base, at ground level. Measurements made at 7 o'clock on Monday mornings, just before the well was pumped after being out of operation for periods ranging from 4 to 11 hours. Well draws upon basal Eutaw sands. Reported water level in April 1932, was 9 feet below land surface.

Water level, in feet below measuring point, 1941

Apr. 27	10.10	June 1	14.60	July 13	13.40	Aug. 17	11.34
May 4	11.03	8	14.68	20	11.80	24	13.14
11	11.58	15	11.58	27	12.33	31	12.84
18	12.88	29	12.28	Aug. 3	12.37	Sept. 7	13.11
25	14.93	July 6	10.96	10	12.03	14	16.86

Dallas County--Continued

1.--Continued

Water level, in feet below measuring point, 1941

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Sept. 21	14.76	Oct. 19	14.86	Nov. 16	11.68	Dec. 14	10.38
28	13.04	26	15.18	23	10.59	21	11.66
Oct. 5	12.97	Nov. 2	12.00	30	10.60	28	9.02
12	13.36	9	11.29	Dec. 7	9.47		

Greene County

6. R. Neilan, E. Ward. Cotton Patch, in front of restaurant. Unused dug well, depth 31.5 feet. Measuring point, center of eastern edge of well, top of wood strip marked "M. P.", 0.75 foot above land surface. Located on hillside in upper Eutaw sands.

Water level, in feet below measuring point, 1941

Sept. 13	19.19	Oct. 6	21.23	Oct. 25	24.00	Nov. 29	26.20
20	19.44	11	22.07	Nov. 3	24.63	Dec. 29	22.02
29	20.36	18	23.09				

13. Formerly well 16. W. F. Bell. Bolligee, old mill house well, (Water-Supply Paper 907, p. 6). Well shut off for 20 minutes previous to each measurement.

Water level, in feet below measuring point, 1941

Jan. 18	2.45	July 21	1.38	Sept. 2	2.32	Oct. 11	2.50
Feb. 12	2.25	28	2.30	6	2.41	18	2.46
June 13	2.35	Aug. 2	2.14	13	2.44	25	2.51
21	2.50	9	2.32	20	2.41	Nov. 3	2.39
28	2.50	18	2.31	29	2.46	29	2.30
July 5	2.26	25	2.37	Oct. 6	2.45	Dec. 29	2.10
12	2.21						

Montgomery County

34. Formerly well 15. City of Montgomery, (Water-Supply Paper 907, p. 6) Observations discontinued on May 13, 1941.

Water level, in feet below measuring point, 1941

Jan. 1	114.07	Feb. 11	113.01	Mar. 13	115.46	Apr. 23	120.22
14	113.60	18	111.00	25	115.78	30	117.61
21	113.45	25	112.58	Apr. 4	117.03	May 6	123.73
28	113.77	Mar. 4	113.53	8	117.43	13	124.58
Feb. 5	113.50	11	113.58	15	118.25		

Pickens County

Observations discontinued on well 11 at Reform.

Tuscaloosa County

60. T. D. Stewart, Ralph. Well shut off for 10 minutes previous to each measurement.

Water level, in feet above measuring point, 1941

July 8	4.56	Aug. 18	4.80	Sept. 20	4.72	Oct. 18	4.70
12	4.73	25	4.81	29	4.69	25	4.69
21	4.68	Sept. 6	4.73	Oct. 6	4.72	Nov. 3	4.72
28	4.70	13	4.69	11	4.66	Dec. 29	5.02
Aug. 2	4.82						

DISTRICT OF COLUMBIA

By Bernard Fisher

The observation-well program in the District of Columbia,[1/] which was begun in 1940, was continued in 1941. Periodic measurements of water level were made in four wells, but during the last part of the year well 4,559 became inaccessible and measurements in it were discontinued. A total of 95 individual measurements was made during 1941.

The water level in well 4,518 fluctuated through a range of nearly 25 feet during 1941. The highest stage of the year--10.19 feet below sea level--was recorded on February 28, and the lowest stage of the year--34.89 feet below sea level--was reached on August 22. The last measurement of the year was made on November 28 when the water level was 25.19 feet below sea level--7.7 feet below its stage on January 3. In general, the trend of the water level was downward until the end of August and then upward for the rest of the year.

The water level in well 4,542B fluctuated through a range of about 32 feet in 1941. The water level was highest on February 10 when a stage 50.21 feet above sea level was recorded and was lowest on August 4 when a stage of 17.96 feet above sea level was reached. The trend of the water level in the well was in general downward until the first part of August and upward thereafter, although much of the decline in the first part of the year occurred from March 24 to June 19 and from July 21 to August 4, and much of the rise in the last part of the year occurred from August 4 to September 2 and from November 10 to 17. The water level in the well does not reflect regional fluctuations because it is affected by the pumping of a nearby well.

The water level in well 4,549 fluctuated through a range of only about 1.3 feet during the period of observation in 1941. The lowest stage--43.04 feet above sea level--occurred on March 24 and the highest stage--44.35 feet above sea level--was recorded on July 21.

1/ See Water-Supply Paper 907.

Well 465 is pumped too frequently to record accurately the regional fluctuations in ground-water level. The record for this well shows, however, a general upward trend of the water level from January through March, a general downward trend from April through September, and a rising trend for the rest of the year. The water level was nearly 6 feet lower at the end than at the beginning of the year.

4,518. Potomac Electric Power Company. Measuring point, 10.01 feet above mean sea level.

Water level, in feet below sea level, 1941

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 3	17.49	Mar. 7	20.09	Apr. 25	14.69	June 27	28.49
10	16.69	14	16.84	May 2	22.99	Aug. 1	33.89
17	15.99	21	23.38	30	25.04	8	34.09
23	22.22	28	16.40	June 6	15.94	22	34.89
Feb. 14	23.03	Apr. 4	24.20	13	18.14	Oct. 17	23.09
21	11.22	11	23.19	20	29.59	Nov. 28	25.19
28	10.19	18	23.09				

4,542B. Security Storage Company. Measuring point 57.76 feet above mean sea level.

Water level, in feet above sea level, 1941

Jan. 6	49.61	July 7	33.19	Sept.22	29.40	Nov. 10	29.00
Feb. 10	50.21	21	35.19	Oct. 6	28.75	17	43.54
24	50.08	Aug. 4	17.96	13	29.05	23	44.39
Mar. 24	50.12	18	24.29	20	26.98	Dec. 1	44.66
Apr. 26	43.87	Sept. 2	33.84	27	27.90	15	44.28
June 19	32.59	15	29.74	Nov. 3	27.89		

4,549. New Medical Building. Measuring point, 62.02 feet above mean sea level.

Water level, in feet above sea level, 1941

Jan. 6	43.45	Mar. 10	43.20	June 19	43.50	Aug. 18	43.82
Feb. 10	43.27	24	43.04	July 21	44.35	Sept.22	43.81
24	43.25	Apr. 26	43.26	Aug. 4	43.81	Oct. 20	43.46

465. St. Elizabeths Hospital. Measuring point, bottom inside edge of upper end of a sloping 4-inch pipe that is 8.65 feet above mean sea level. Measurements of depth to water level are corrected for the slope of the pipe by subtracting 0.7 foot.

Water level, in feet below sea level, 1941

Jan. 6	32.66	Apr. 14	28.76	Aug. 18	41.59	Oct. 20	42.68
Feb. 10	31.12	26	29.91	25	40.88	27	42.63
17	30.02	May 12	31.56	Sept. 2	40.93	Nov. 3	41.65
24	29.83	June 2	33.89	8	40.44	10	41.02
Mar. 3	29.00	16	34.82	15	(a)	17	41.15
17	28.55	30	35.09	22	44.32	Dec. 1	40.07
24	28.58	July 7	36.24	29	43.30	22	38.67
31	28.48	14	39.62	Oct. 13	42.72	29	38.50
Apr. 7	28.50	21	(a)				

a Pump operating in well.

FLORIDA

NORTHEASTERN FLORIDA

By H. H. Cooper, Jr.

Measurements of water levels in wells in northeastern Florida (see Water-Supply Paper 907) were continued during 1941 as a part of the ground-water investigation by the Federal Geological Survey in cooperation with the Florida Geological Survey, Herman Gunter, State Geologist.

An investigation of the artesian water in Nassau, Duval, Clay, and St. Johns Counties, which was begun in the fall of 1938, was completed in the spring of 1941. A summary of the results of this investigation and maps showing the original piezometric surface, the piezometric surface in 1940, the area of artesian flow, and the consumption of artesian water in the principal industrial areas were included in a paper[1/] published in November 1941.

Altogether about 150 individual water-level measurements were made in 1941, the water levels in 74 wells having been measured one or more times. Four recording pressure gages, installed by the Federal Geological Survey, were in operation during the year. Records from three recording pressure gages in Jacksonville were obtained through the courtesy of the city of Jacksonville, and records from one recording pressure gage at Neptune Beach were obtained through the courtesy of the city of Neptune Beach. Included in this report are 48 measurements of water level in 26 representative wells. Water-level measurements on wells not included in this report and data from the three recording pressure gages at Jacksonville will be included later in a separate report on northeastern Florida.

In general, water levels in 1941 were not appreciably higher or lower than they were in 1940. Changes in water levels caused by ocean tides, tidal fluctuations in rivers, barometric fluctuations, and withdrawal of

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1/ Stringfield, V. T., Warren, M. A., and Cooper, H. H., Jr., Artesian water in the coastal area of Georgia and northeastern Florida; Econ. Geol., vol. 36, No. 7, pp. 698-711.

water from nearby wells are in many cases as large as seasonal changes. Individual measurements of water levels at intervals of several months are not, therefore, reliable indices to small seasonal changes, although they do show large changes caused by periods of unusually heavy rainfall or extreme drought. The average precipitation in north Florida in 1941 was 57.81 inches as compared to 51.94 in 1940. Most of the precipitation in 1941 occurred during the last half of the year, and possibly if measurements of water levels had been made near the end of the year, a slight rise in the water levels would have been found.

Withdrawal of water from the limestones in northeastern Florida has been increasing since the first wells were drilled near the beginning of the century, and this increase has been accompanied by a gradual lowering of the water levels. Increases in withdrawal are expected to continue, and the resulting decline in water levels as shown by measurements over a period of many years will afford a basis for estimating the safe yield of the water-bearing formations.

The observation wells that follow were listed in Water-Supply Paper 907 with more complete descriptions and with numbers corresponding to those in this report. Water levels in some of these wells were not measured in 1941. It is expected that a program of periodic measurements in all wells listed will be begun in 1942.

Clay County

1. Girl Scouts of America. About 1,000 feet south of SE cor. sec. 20, T. 5 S., R. 26 E., about 2,200 feet west of south end of bridge across Black Creek on U. S. Highway 17, Camp Chowenaw, 3.5 miles northwest from Green Cove Springs. Record begins in 1934. No measurements made in 1941.

2. Mrs. M. A. Chaulker. NW¼NW¼ sec. 13, T. 5 S., R. 24 E., at residence of owner, about 500 feet north of South Fork of Black Creek, Middleburg. Record begins in 1934. Water level, in feet above measuring point, 1941: Sept. 25, 38.6.

4. T. J. Jennings. Near north line SW¼SW¼ sec. 32, T. 4 S., R. 25 E., southeast side of new highway, 3.2 miles northeast from Middleburg. Record begins in 1940. Water levels, in feet above measuring point, 1941: Aug. 29, 34.0; Sept. 25, 34.2.

5. John Huntley. NE¼NE¼ sec. 32, T. 4 S., R. 25 E., about 500 feet northwest of new highway, in rear of residence of owner, 4.2 miles northeast from Middleburg. Record begins in 1940. Water level, in feet above measuring point, 1941: Sept. 25, 30.1.

7. U. S. Navy. Auxiliary air base, about 2.5 miles southeast from Green Cove Springs. Record begins in 1940. Water level, in feet above measuring point, 1941: Sept. 25, 25.4.

Clay County--Continued.

8. St. Elmo Hotel. North of St. Elmo Hotel, Green Cove Springs. Record begins in 1934. Water level, in feet above measuring point, 1941: Sept. 25, 17.0.

Duval County

12. Jacksonville Motor Transit Company. About 200 feet east of Riverside Avenue, about 75 feet south of McCoy Street, Jacksonville. Record begins in 1938. Water levels, in feet above measuring point, 1941: Jan. 28, 28.9; May 20, 25.5; Sept. 27, 28.1.

102. V. A. Stevens. SW¼NW¼ sec. 24, T. 2 S., R. 27 E., about 240 feet north of Atlantic Boulevard, in rear of residence of owner. Record begins in 1930. Water levels, in feet above measuring point, 1941: Mar. 14, 0.27; Sept. 25, 0.7.

109. J. P. Young. North side of residence of owner, west side of Dones Street, about 400 feet north of Floral Bluff Avenue, about 1,000 feet east of St. Johns River, Floral Bluff, 3 miles northeast from Jacksonville. Record begins in 1939. Water level, in feet above measuring point, 1941: Mar. 11, 12.5.

115. City of Jacksonville. East side of pumphouse, east corner of intersection of Baltic Street and Oxford Avenue, Ortega, 5 miles southwest from Jacksonville. Record begins in 1930. Water levels, in feet above measuring point, 1941: Jan. 28, 30.2; Apr. 15, 28.9.

118. City of Jacksonville. Southwest side of pumphouse, west corner of intersection of Post and Dancy Streets, Jacksonville. Record begins in 1940. Water levels, in feet above measuring point: Dec. 31, 1940, 27.8; Jan. 28, 1941, 27.8; Apr. 15, 1941, 27.7; Aug. 30, 1941, 27.7.

122. City of Jacksonville. About 20 feet north of 63d Street between Russell and Eastland Streets, Jacksonville. Record begins in 1930. Water levels, in feet above measuring point, 1941: Mar. 12, 38.5; May 20, 38.0; Aug. 30, 38.7; Sept. 27, 38.5.

123. City of Jacksonville. West of pumphouse, west side of Huron Street, about 150 feet north of Beaver Street, Woodstock Park, Jacksonville. Record begins in 1930. Water levels, in feet above measuring point, 1941: Jan. 28, 30.8; Mar. 14, 30.5; May 20, 30.0; Sept. 27, 30.6.

129. Jim Merril. East side of Ortega Boulevard, between First and Palmetto Streets, Ortega, 5.2 miles southwest from Jacksonville. Record begins in 1940. Water levels, in feet above measuring point, 1941: Jan. 28, 41.0; Jan. 28, 41.1; Sept. 25, 41.0.

131. G. C. Cole. SW¼ sec. 10, T. 1 S., R. 26 E., south side of residence of owner, east side of Lem Turner Road, 0.7 mile north of Trout River, 7.0 miles north from Jacksonville. Record begins in 1934. Water levels, in feet above measuring point, 1941: Feb. 6, 37.9; Sept. 27, 37.8.

138. Joe Quattlebaum. Near west line of SW¼NE¼ sec. 15, T. 2 S., R. 25 E., at residence of owner, 0.8 mile northwest from Marietta. Record begins in 1934. Measurements discontinued after Mar. 14, 1941. Water level, in feet below measuring point, 1941: Mar. 14, 4.47.

145. Duval County School Board. In rear of Oceanway School, 0.5 mile north from Broward, 10 miles north from Jacksonville. Record begins in 1940. Water levels, in feet above measuring point, 1941: Jan. 27, 19.5; Sept. 26, 19.3.

147. V. C. Johnson. SW¼SW¼ sec. 32, T. 1 N., R. 26 E. Record begins in 1940. Water level, in feet above measuring point, 1941: Feb. 6, 30.8.

149. W. M. Bostwick. North side of mouth of Drummond Creek, 1.2 miles southwest from Eastport, 6 miles northeast from Jacksonville. Record begins in 1940. Water level, in feet above measuring point, 1941: Sept. 26, 22.5.

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Duval County--Continued,

154. J. M. Shield. SW¼ sec. 22, T. 3 S., R. 27 E., between Florida East Coast Railroad and U. S. Highway 1, 1.2 miles north from Sunbeam. Record begins in 1940. Water levels, in feet above measuring point, 1941: Mar. 13, 24.9; Sept. 25, 25.0.

160. City of Neptune Beach. About 400 feet from Atlantic Ocean, southeast corner of intersection of First Street and Florida Avenue, Neptune Beach. Water level affected by ocean tides.

Highest and lowest weekly water level, in feet below measuring point, 1940-41
(from recorder charts)

Week	Highest level	Lowest level	Week	Highest level	Lowest level
Nov. 19-25, 1940	39.5	37.2	May 20-26, 1941	37.0	35.8
Nov. 26-Dec. 2	39.3	37.2	May 27-June 2	36.8	35.3
Dec. 3- 9	39.2	37.2	June 3- 9	37.0	35.1
10-16	39.7	37.8	10-16	38.3	35.5
17-23	40.4	37.7	17-23	38.6	37.0
24-30	41.1	39.3	24-30	39.0	37.4
Dec. 31-Jan. 6	40.4	39.2	July 1- 7	38.9	37.0
Jan. 7-13, 1941	a40.8	a39.4	8-14	39.3	37.2
14-20	....	....	15-21	39.9	38.0
21-27	40.6	39.0	22-28	a39.9	a38.6
Jan. 28-Feb. 3	40.4	38.9	July 29-Aug. 4	a39.9	a38.0
Feb. 4-10	40.6	38.9	Aug. 5-11	40.0	37.0
11-17	a40.8	a39.2	12-18	39.2	36.5
18-24	39.8	38.4	19-25	39.5	37.9
Feb. 25-Mar. 3	40.4	38.7	Aug. 26-Sept. 1	39.8	38.0
Mar. 4-10	40.4	38.7	Sept. 2- 8	40.0	38.0
11-17	40.2	38.6	9-15	40.2	38.0
18-24	40.0	38.8	16-22	....	....
25-31	40.0	38.5	23-29	40.8	38.9
Apr. 1- 7	39.4	38.2	Sept.30-Oct. 6	40.0	38.0
8-14	39.7	37.9	Oct. 7-13	39.3	38.0
15-21	39.0	37.0	14-20	39.0	37.6
22-28	38.6	36.8	21-27	40.5	38.0
Apr. 29-May 5	38.3	36.0	Oct. 28-Nov. 3	40.1	38.8
May 6-12	38.0	35.8	Nov. 4-10	40.3	39.0
13-19	37.2	35.9			

164. Ribault Club. In pumphouse, Ribault Club, Fort George Island. Record begins in 1930. Water levels, in feet above measuring point, 1941: June 20, 38.0; Sept.26, 39.0.

Nassau County

2. G. G. Gerbing. Southeast corner of pumphouse at residence of owner, Amelia City, 5.5 miles south from Fernandina. Record begins in 1939. No measurements made in 1941.

8. Charles Pelot. Near SE cor. of NE¼ sec. 1, T. 1 N., R. 28 E., about 400 feet from Atlantic Ocean, in rear of beach cottages, 1.1 miles south from Franklintown, 8.9 miles south from Fernandina. Record begins in 1939. No measurements made in 1941.

23. National Park Service. About 1,000 feet northwest from end of south jetty to St. Marys Entrance, 2.6 miles northeast from Fernandina. Record begins in 1939. Water level, in feet above measuring point, 1941: Sept. 26, 23.0.

28. State of Florida. About 50 feet east of Kingsley Creek, about 50 feet north of State Highway 13, Kingsley Creek drawbridge, 3.2 miles southwest from Fernandina. Record begins in 1939. Water level, in feet above measuring point, 1941: Sept. 26, 18.2.

a Record for week incomplete.

Nassau County--Continued.

34. W. L. Hardee. About 150 feet east of Amelia River, Hardee dock, 0.3 mile southwest from Fernandina. Record begins in 1939. Water level, in feet below measuring point, 1941: Sept. 26, 25.17.

44. Seaboard Railway. South of pumphouse near elevated tank, Seaboard Railway station, Yulee. Record begins in 1934. No measurements made in 1941.

50. Higgenbotham. SW¼SE¼ sec. 4, T. 2 N., R. 26 E., about 100 feet south of Seaboard Railway, in rear of residence of owner, 0.6 miles east from Italia. Record begins in 1940. Water level, in feet above measuring point, 1941: Jan. 27, 37.6.

51. Drew Sauls. Callahan, near SW cor. NW¼ sec. 29, T. 2 N., R. 25 E. Record begins in 1940. Water levels, in feet above measuring point, 1941: Jan. 27, 37.9; Sept. 27, 37.5.

52. CCC. NW¼SW¼ sec. 15, T. 3 N., R. 24 E., in site of former CCC camp, about 500 feet east of U. S. Highway 1, 1.4 miles southeast from Hilliard. Record begins in 1938. Water levels, in feet below measuring point, 1941: Jan. 27, 1.81; Feb. 6, 2.06; Aug. 14, 2.21; Sept. 27, 2.22.

St. Johns County

2. P. J. Manucy. East side of North River, about 150 feet north of Vilano Bridge, Vilano Beach, 1.9 miles northeast from St. Augustine. Record begins in 1934. Water levels, in feet above measuring point, 1941: Mar. 13, 26.1; Sept. 25, 26.2.

3. Francis Usina. East side of North River, Usina's Beach, 2.4 miles north from Vilano Bridge, 4.0 miles north from St. Augustine. Record begins in 1934. Water level, in feet above measuring point, 1941: Mar. 13, 32.4.

4. Mill Creek School. In rear of school house, northwest side of Nine Mile Road, about 700 feet northeast of intersection of State Highway 48 with Nine Mile Road, 8.3 miles southeast from Shands Bridge. Record begins in 1934. No measurements made in 1941.

5. G. L. Oesterricker. In rear of residence of owner, east side of Inland Waterways Canal, north side of State Highway 306, 3.2 miles south from Palm Valley. Record begins in 1934. No measurements made in 1941.

8. Parish Brothers. Near SW cor. of NE¼NE¼ sec. 4, T. 5 S., R. 28 E., 0.5 mile southwest of Florida East Coast Railroad, 2.5 miles southeast from Bayard. Record begins in 1934. Water level, in feet above measuring point, 1941: Mar. 13, 31.3.

WEST FLORIDA

By H. H. Cooper, Jr.

Escambia County

Periodic measurements of water levels in wells in Escambia County (see Water-Supply Paper 907) were continued through 1941 by the Federal Geological Survey in cooperation with the Florida Geological Survey and with the Municipal Advertising Board of the city of Pensacola. After the close of the fiscal year ending June 30, 1941, there were no funds for the Escambia County investigation other than those available for the State-wide

investigation under the cooperative agreement with the Florida Geological Survey, and it became necessary to curtail the program of water-level observations.

Until the last part of June 1941, the water levels in 18 wells were measured once each week, automatic water-stage recorders were maintained on 8 wells, and a water-stage recorder was maintained on Bayou Chico in order to obtain a record of tidal fluctuations for comparison with water levels in wells adjacent to the bayou. The water-stage recorder on one of the wells was removed on June 19 after the pumpage from a new city well caused the water level in the observation well to fluctuate to the extent that it was impracticable to obtain records suitable for satisfactory interpretation. From the last part of October to the end of the year water levels in only 9 wells were measured weekly and water-stage recorders were maintained on only five wells. Thus, 14 wells were included in the water-level observation program at the end of 1941.

Records of water levels in wells 42, 45, and 46 during 1940 and a brief discussion of these wells were included in Water-Supply Paper 907. The highest and lowest weekly water levels in wells 45 and 46 and weekly measurements of the water level in well 42 during 1941 are included in this report.

During May, June, and July a pulp mill at Cantonment pumped small amounts of water intermittently from five large wells situated within a few hundred feet of well 45. The effect of this pumpage was detectable on the charts of the water-stage recorder on well 45, but the effect was so small that it cannot be detected in the record of the weekly highest and lowest water levels. Increased pumpage during August caused larger differences between the highest and lowest water levels each week. During September the pumpage lowered the water level in well 45 beyond the length of float cable on the water-stage recorder, so that no records were obtained. When the recorder was set in operation again in October, the pulp mill wells were being pumped at a constant rate of about 8 million gallons a day or less, and the water level in well 45 had been lowered about 9 feet. There was only very little or no change in the rate of pumping to the end of the year.

Well 45, at Ensley, is about 6.5 miles south from the heavily pumped wells at Cantonment. If the water level in well 46 was affected by the pumping at Cantonment, the effect was so small as to be hidden by normal seasonal fluctuations. During the period of record, the water level in this well has risen as much as 6 feet in 3 months, due to heavy rainfall.

The water level in well 42 has been lowered about 18 feet by the pumpage of about 8 million gallons a day at a large industrial plant situated about 1,500 feet from the well. Although this well is only about 250 feet from Bayou Chico, and although the water level in it has been lowered to about 12 feet below mean sea level, the water contains only about 15 parts per million of chloride. No progressive lowering of the water level in the well has been detected during the period of record.

42. Pensacola Shipbuilding Company. West side of storage tank, about 250 feet north of Bayou Chico, about 1,500 feet west of the intersection of Barancas Avenue and Pine Street, Pensacola. Water level affected by tide and by pumping from other wells.

Water level, in feet below measuring point, 1941

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 4	31.87	Apr. 3	34.05	June 19	32.20	Sept.25	31.74
11	31.36	10	33.89	26	32.38	Oct. 9	31.83
17	32.69	17	34.20	July 4	31.91	23	31.65
24	32.81	24	35.04	17	32.10	30	32.09
30	33.24	May 1	34.91	24	31.61	Nov. 6	32.18
Feb. 6	33.35	8	31.48	31	31.49	13	31.14
13	33.37	15	32.53	Aug. 7	31.76	20	31.80
26	35.38	22	32.88	14	31.67	27	31.28
27	35.22	29	32.28	28	31.80	Dec. 4	31.80
Mar. 6	35.29	June 5	32.70	Sept.11	31.71	11	31.14
13	35.03	12	32.85	18	31.86	18	31.35
30	34.08						

45. U. S. Geological Survey. About 1,150 feet southwest of Louisville and Nashville Railroad, about 1,600 feet northeast of Gulf Florida and Alabama Railroad, 0.5 mile south from Cantonment.

Highest and lowest weekly water level, in feet below measuring point, 1941 (from recorder charts)

Week	Highest level	Lowest level	Week	Highest level	Lowest level
Jan. 4-10	a72.75	.....	Apr. 12-18	71.94	72.26
11-17	72.20	72.75	19-25	71.83	72.00
18-24	72.42	72.87	Apr. 26-May 2	71.70	72.04
25-31	72.41	72.68	May 3- 9	71.68	73.06
Feb. 1- 7	72.07	72.64	10-16	72.90	72.33
8-14	72.13	72.60	17-23	71.80	72.17
15-21	72.31	72.58	24-30	71.88	72.76
22-28	72.27	72.55	May 31-June 6	71.77	72.08
Mar. 1- 7	71.95	72.59	June 7-13	71.83	72.17
8-14	72.05	72.61	14-20	71.89	72.18
15-21	71.98	72.57	21-27	71.82	72.22
22-28	72.04	72.29	June 28-July 4	71.95	72.19
Mar. 29-Apr. 4	71.77	72.32	July 5-11	71.88	72.32
Apr. 5-11	71.90	72.18	12-18	71.92	72.06

a Record for week incomplete.

Escambia County--Continued.

45.--Continued.

Highest and lowest weekly water level, in feet below measuring point, 1941 (from recorder charts)

Week	Highest level	Lowest level	Week	Highest level	Lowest level
July 19-25	71.84	72.25	Oct. 11-17	79.72	80.36
July 26-Aug. 1	71.90	72.69	18-24	79.84	80.58
Aug. 2- 8	72.20	a74.90	25-31	a79.98	.....
9-15	a72.20	77.25	Nov. 1- 7	80.14	.....
16-22	73.60	77.27	8-14	80.07	.....
23-29	75.34	.....	15-21	80.43	80.75
Aug. 30-Sept. 5	.....	.....	22-28	80.52	.....
Sept. 6-12	.....	.....	Nov. 29-Dec. 5	81.44	a83.02
13-19	.....	.....	Dec. 6-12	81.13	.....
20-26	.....	.....	13-19	81.12	.....
Sept.27-Oct. 3	.....	.....	20-26	80.03	.....
Oct. 4-10	78.96	82.32	Dec. 27-Jan. 2	80.12	a83.44

46. U. S. Geological Survey. Forty-three and one-half feet east of centerline of Louisville and Nashville Railroad, 196 feet north of centerline of a graded cross road, 0.4 mile east from Ensley.

Highest and lowest weekly water level, in feet below measuring point, 1941 (from recorder charts)

Jan. 4-10	68.67	68.85	July 5-11	68.13	68.45
11-17	68.07	68.67	12-18	.....	.....
18-24	68.29	68.64	19-25	.....	.....
25-31	68.27	68.49	July 26-Aug. 1	68.57	68.78
Feb. 1- 7	67.96	68.44	Aug. 2- 8	68.67	68.91
8-14	68.04	68.43	9-15	68.87	69.01
15-21	68.30	68.52	16-22	68.87	68.99
22-28	68.30	68.63	23-29	68.97	69.15
Mar. 1- 7	68.11	68.67	Aug. 30-Sept. 5	69.08	69.22
8-14	68.20	68.70	Sept. 6-12	69.10	69.22
15-21	68.22	68.72	13-19	69.12	69.25
22-28	68.22	68.40	20-26	69.19	69.37
Mar. 29-Apr. 4	67.88	68.44	Sept.27-Oct. 3	69.34	69.52
Apr. 5-11	67.80	67.98	Oct. 4-10	69.37	69.57
12-18	67.57	67.98	11-17	69.57	69.71
19-25	67.43	67.59	18-24	69.62	69.75
Apr. 26-May 2	67.30	67.61	25-31	69.63	69.93
May 3- 9	a67.26	a67.40	Nov. 1- 7	69.72	69.98
10-16	.....	.....	8-14	70.23	69.98
17-23	67.37	67.62	15-21	70.07	70.32
24-30	67.48	67.69	22-28	a70.18	a70.55
May 31-June 6	67.53	67.61	Nov. 29-Dec. 5	70.42	70.57
June 7-13	67.68	67.82	Dec. 6-12	70.57	70.77
14-20	67.77	68.06	13-19	70.55	70.96
21-27	67.92	68.13	20-26	70.60	71.05
June 28-July 4	68.10	68.32	Dec. 27-Jan. 2	70.78	71.27

CENTRAL FLORIDA

By H. H. Cooper, Jr.

Measurements of artesian pressure in two wells in central Florida (see Water-Supply Paper 907) were continued during 1941. As in previous years, the district office of the Federal Geological Survey at Ocala made measurements of the artesian pressure in Marion County well 5 (Sharpes

a Record for week incomplete.

Ferry well) about once each week, making a total of 50 measurements on this well during the year. A recording pressure gage was maintained on Seminole County well 35 throughout the year, but because of discrepancies found in the calibration of the recording gage, the 1941 records from it are not considered suitable for publication. Included in this report are the 50 measurements on Marion County well 5 and two measurements of the artesian pressure in Seminole County well 35.

Marion County

Sharpes Ferry well (Marion County 5).

Water level, in feet above measuring point, 1941

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 4	3.90	Apr. 11	5.20	July 26	5.9	Oct. 17	6.05
11	4.0	19	5.4	Aug. 2	6.0	30	6.8
18	3.90	26	5.45	9	6.15	Nov. 1	7.15
25	4.0	May 3	5.55	16	6.30	8	7.30
Feb. 1	3.95	9	5.65	23	6.30	14	7.75
8	4.05	17	5.55	30	6.35	15	7.50
15	4.0	31	5.27	Sept. 6	6.3	22	7.70
21	4.18	June 7	5.05	13	6.30	29	7.50
28	4.25	14	5.00	20	6.25	Dec. 6	7.90
Mar. 15	4.50	21	5.10	27	6.15	13	7.70
22	4.85	July 5	5.45	Oct. 4	6.20	20	7.60
29	4.88	12	5.6	10	6.20	27	7.90
Apr. 5	5.15	19	5.60				

Seminole County

35. Owner's well 1, farm 3. C. S. Lee. SE¼NW¼ sec. 26, T. 20 S., R. 31 E. Water levels, in feet above measuring point, 1941: Aug. 28, 18.9; Nov. 20, 19.0.

SOUTHEASTERN FLORIDA

Dade and Broward Counties

By W. P. Cross

Observations of water levels in wells in Dade and Broward Counties were continued during 1941 in connection with the ground-water investigation by the Federal Geological Survey in cooperation with the cities of Miami, Miami Beach, and Coral Gables, and with Dade County.

A brief description of the general geology and water resources of the area under investigation is included in Water-Supply Paper 886. A preliminary report of the investigation was completed in March 1941, and mimeographed copies were placed on file in the Washington, Miami, and Ocala offices of the Geological Survey.

Periodic measurements of water levels were being made by the Federal Geological Survey in 259 observation wells in Dade and Broward Counties at the end of 1941. Twenty of the wells are equipped with automatic water-stage recorders; the rest of the wells are measured weekly or bi-weekly. About 8,900 individual measurements of water level were made in 1941. An automatic pressure recorder was maintained on an artesian well in Dade

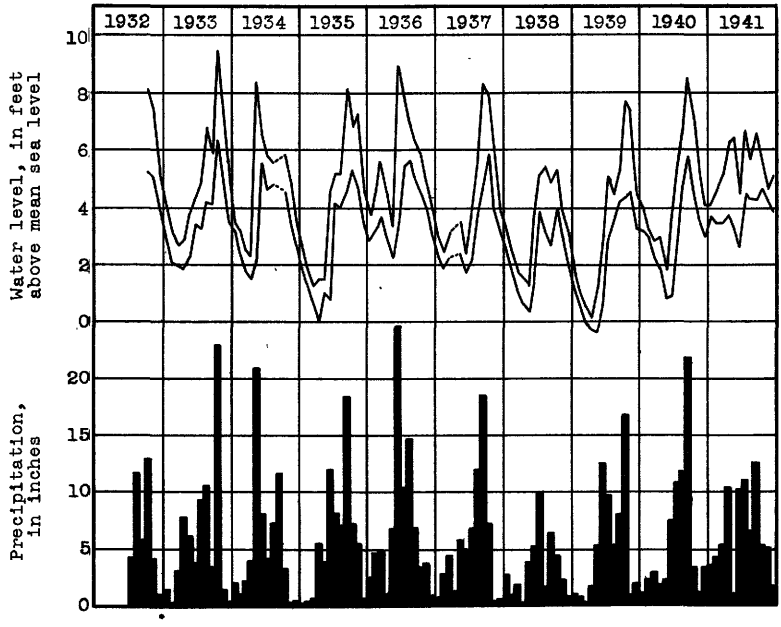

Figure 3.--Graph showing highest and lowest water levels by months in well S-196 and monthly precipitation at the University of Florida Experiment Station, Homestead, Fla.

County beginning in August 1941. This report contains 692 individual measurements made in 20 of the observation wells.

The rainfall at Miami during 1941 was 51.34 inches, as compared with a 36-year average of 58.92 inches. Precipitation was subnormal in May, June, August, September, October, and December, and considerably above normal in March, April, and July.

Water levels in wells were generally above those of 1940 except during the months of June, August, September, October, and November. The lowest stages of the year were reached in June just prior to heavy rains in July. Water levels were about 0.5 foot to 1.5 feet lower on December 31, 1941, than on December 31, 1940.

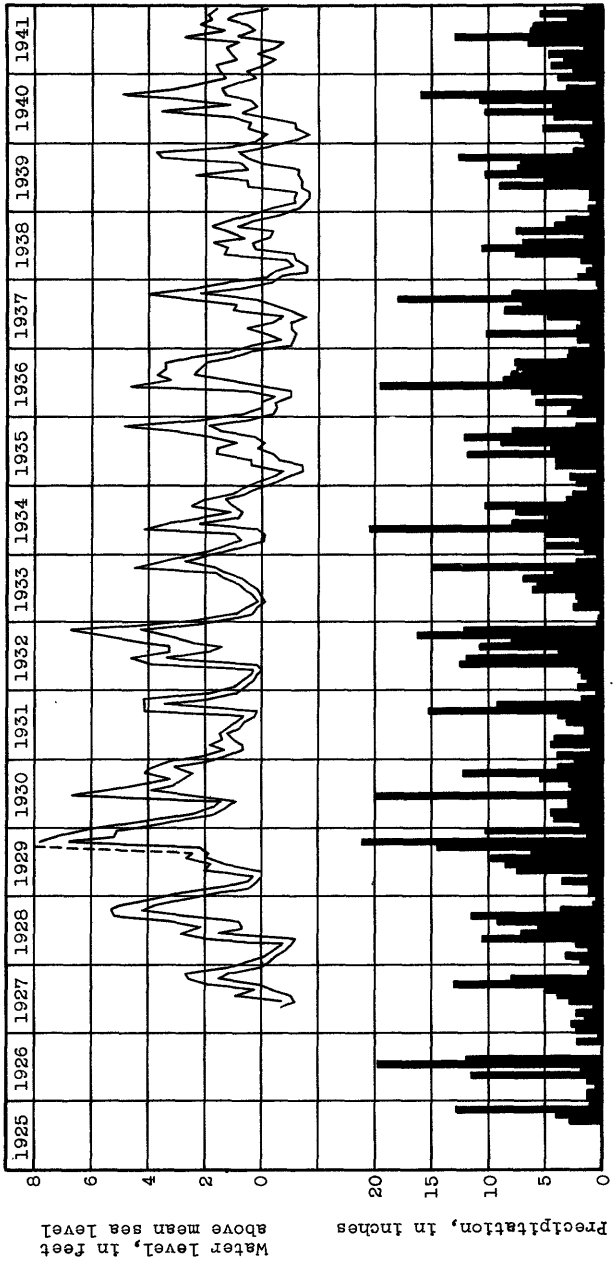

Figure 4.--Graph showing highest and lowest water levels by months in well S-1A, city of Miami well field, and monthly precipitation at the Miami Water Plant, Hialeah, Fla.

The accompanying figure shows the highest and lowest water levels by months from 1927 to 1941 in well S-1A and the monthly precipitation from 1925 to 1941 at the Miami Water Plant at Hialeah, Fla., based on records of the water department of the city of Miami. The water level in well S-1A was influenced by the withdrawal of water from wells for the public supply of Miami in 1927 and 1928, and from 1935 to 1941, inclusive. The lowest water level reached each year was below sea level. The maximum range of fluctuation during the 15-year period was between 9 and 10 feet. The highest water level was about 8 feet above sea level, and occurred in 1929, after the largest monthly rainfall of the period.

Another illustration shows the highest and lowest water levels by months in well S-196 and monthly precipitation at the University of Florida Experiment Station, at Homestead, from 1931 to 1941 inclusive, based on the records of that station. The maximum range of fluctuation of water level during the 10-year period was between 11 and 12 feet, which was somewhat larger than that in well S-1A, at Miami. Also the fluctuation in rainfall was larger at Homestead than at Miami. The lowest water level occurred in 1939, when it was slightly below sea level.

The highest water levels in wells S-1A and S-196 each year generally occur in the summer or fall during periods of high rainfall, and the lowest water levels occur in the latter part of the winter or early spring, following the period when the rainfall is small. These fluctuations are also typical of many of the other non-artesian wells in Dade and Broward Counties.

Dade County

D8. City of Miami. (Water-Supply Paper 907, p. 31.) Water levels, in feet below measuring point, 1941: Jan. 14, 11.05; Jan. 28, 11.42; Feb. 17, 11.25. Measurements discontinued Feb. 17.

D70. City of Miami. (Water-Supply Paper 907, p. 33.) Measurements discontinued after Mar. 18.

Water level, in feet below measuring point, 1941

Date	Water level	Date	Water level	Date	Water level
Jan. 14	8.38	Feb. 17	8.50	Mar. 18	9.18
28	9.69	Mar. 4	9.85		

Dade County--Continued.

D151. Peoples Water and Gas Company. (Water-Supply Paper 907, p.28.)

Water level, in feet below measuring point, 1941

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 7	11.77	Apr. 15	11.50	July 15	11.53	Oct. 8	11.74
14	11.47	22	11.84	22	11.88	14	11.95
21	11.76	29	11.94	29	12.00	21	11.85
28	11.85	May 6	11.71	Aug. 5	12.25	28	12.00
Feb. 4	11.81	13	11.68	12	12.34	Nov. 4	11.78
11	11.25	20	12.08	19	12.49	11	12.14
18	11.42	27	12.36	26	12.25	18	11.16
25	11.71	June 3	12.63	Sept. 2	12.20	25	11.51
Mar. 4	11.96	4	12.64	9	12.07	Dec. 2	11.30
11	12.20	10	12.48	16	12.00	9	11.79
18	12.34	17	12.43	23	11.24	16	11.94
25	11.85	24	12.28	30	11.49	23	11.96
Apr. 1	11.87	July 1	12.17	Oct. 5	11.62	30	12.19
8	11.60	8	11.68				

F9. City of Miami Springs. (Water-Supply Paper 907, p. 29.)

Water level, in feet below measuring point, 1941

Jan. 13	5.85	May 12	6.20	Aug. 14	6.59	Oct. 27	6.06
27	6.32	26	6.89	18	6.63	31	6.16
Feb. 10	5.60	30	7.08	29	6.58	Nov. 10	6.29
17	5.90	June 9	7.18	Sept. 1	6.66	24	5.87
22	6.15	23	6.89	15	6.42	28	5.85
Mar. 3	6.45	30	6.46	18	6.27	Dec. 8	6.31
17	6.79	July 7	6.19	26	5.66	18	6.47
31	6.57	21	5.98	29	5.80	22	6.50
Apr. 14	6.24	30	6.30	Oct. 13	6.02	31	6.73
28	6.67	Aug. 4	6.39				

F12. City of Miami Springs. (Water-Supply Paper 907, p. 29.)

Water level, in feet below measuring point, 1941

Jan. 13	9.05	May 12	9.65	Aug. 14	10.15	Oct. 27	9.09
27	9.75	26	10.48	18	9.55	31	9.27
Feb. 10	8.99	30	10.86	29	9.99	Nov. 10	9.21
17	9.12	June 9	11.06	Sept. 1	9.67	24	8.91
22	9.65	23	10.11	15	9.48	28	8.94
Mar. 3	9.84	30	9.67	18	9.32	Dec. 8	9.34
17	10.56	July 7	9.29	26	8.62	18	9.71
31	10.03	21	8.87	29	8.70	22	9.73
Apr. 14	9.72	30	9.36	Oct. 13	8.87	31	10.06
28	10.06	Aug. 4	9.32				

F25. City of Opa Locka. (Water-Supply Paper 907, p. 26.)

Water level, in feet below measuring point, 1941

Jan. 13	7.43	Mar. 3	8.00	June 23	8.96	Sept. 29	7.50
27	7.80	17	8.11	July 7	7.32	Oct. 13	7.83
Feb. 10	7.16	31	7.95	21	7.28	27	7.90
11	7.20	Apr. 14	7.65	Aug. 4	6.77	Nov. 10	8.07
13	7.27	28	8.20	18	7.65	24	7.48
14	7.30	May 12	8.00	Sept. 1	7.98	Dec. 8	7.81
15	7.37	26	8.55	15	7.92	22	8.16
17	7.48	June 9	8.95				

Dade County--Continued.

F62. City of Miami. (Water-Supply Paper 907, p. 30.)

Water level, in feet below measuring point, 1941

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 14	11.26	Apr. 15	10.57	June 27	12.44	Sept. 30	11.58
28	11.60	24	12.00	July 8	11.35	Oct. 14	11.96
Feb. 11	11.02	29	12.12	23	10.99	28	12.01
17	11.11	May 12	11.88	Aug. 6	11.96	Nov. 11	12.03
Mar. 4	11.79	27	12.31	19	12.40	25	11.45
18	12.21	29	12.39	Sept. 2	12.42	Dec. 9	11.79
27	12.08	June 10	12.68	16	12.21	23	12.11
Apr. 1	12.12	24	12.53				

F109. City of Miami. (Water-Supply Paper 907, p. 30.)

Water level, in feet below measuring point, 1941

Jan. 14	9.52	Apr. 15	9.80	July 23	9.46	Oct. 14	9.94
28	9.93	29	10.20	Aug. 6	10.06	28	10.01
Feb. 11	9.32	May 12	9.92	19	10.32	Nov. 11	10.12
17	9.43	27	10.46	Sept. 2	10.24	25	9.49
Mar. 4	10.06	June 10	10.72	16	10.15	Dec. 9	9.92
18	10.43	24	10.65	30	9.51	23	10.11
Apr. 1	10.23	July 8	9.59				

F186. City of Miami. (Water-Supply Paper 907, p. 32.)

Water level, in feet below measuring point, 1941

Jan. 13	11.20	Apr. 14	11.21	July 21	10.90	Oct. 13	11.34
27	11.51	28	11.94	Aug. 4	11.62	27	11.56
Feb. 10	11.05	May 12	11.38	18	12.07	Nov. 10	11.73
17	10.91	26	12.10	Sept. 1	12.16	24	11.37
Mar. 3	11.60	June 9	12.59	15	11.71	Dec. 8	11.65
17	11.82	23	12.68	17	11.64	22	11.92
31	11.66	July 7	11.59	29	11.13		

F-233. City of Miami. (Water-Supply Paper 907, p. 30.)

Water level, in feet below measuring point, 1941

Jan. 14	10.61	Apr. 15	11.03	July 23	11.23	Oct. 14	10.96
28	11.04	29	11.15	Aug. 6	11.43	28	11.05
Feb. 11	10.64	May 13	10.90	19	11.60	Nov. 11	11.28
17	10.75	27	11.51	Sept. 2	11.43	25	10.97
Mar. 4	11.20	June 11	11.71	16	11.21	Dec. 9	11.32
18	11.51	24	11.53	30	10.80	23	11.23
Apr. 1	11.27	July 9	10.77				

F240. City of Hialeah. (Water-Supply Paper 907, p. 30.)

Water level, in feet below measuring point, 1941

Jan. 13	8.63	Feb. 22	8.72	May 30	9.68	Sept. 15	9.13
27	9.00	Mar. 3	9.10	June 9	9.95	29	8.40
Feb. 10	8.41	17	9.43	23	9.92	Oct. 13	8.84
11	8.32	31	9.24	July 7	8.62	27	8.94
13	8.31	Apr. 14	8.78	21	7.96	Nov. 10	8.95
14	8.31	28	9.34	Aug. 4	8.82	24	8.40
15	8.34	May 12	9.02	18	9.12	Dec. 8	8.81
17	8.43	26	9.54	Sept. 1	9.18	22	9.17

Dade County--Continued.

F268. City of Hialeah. (Water-Supply Paper 907, p. 31.)

Water level, in feet below measuring point, 1941

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 13	6.75	Apr. 28	7.56	Aug. 4	7.12	Oct. 27	7.00
27	7.15	May 12	7.10	18	7.44	31	7.13
Feb. 10	6.49	26	7.81	29	7.37	Nov. 10	7.12
17	6.65	30	7.91	Sept. 1	7.43	24	6.68
22	6.94	June 9	8.16	15	7.28	28	7.18
Mar. 3	7.35	23	7.97	26	6.47	Dec. 8	7.13
17	7.68	July 7	6.90	29	6.59	22	7.41
31	7.51	21	6.64	Oct. 13	6.90	31	7.73
Apr. 14	7.02						

F284. North Miami. (Water-Supply Paper 907, p. 28.)

Water level, in feet below measuring point, 1941

Jan. 14	11.48	Apr. 29	12.04	July 22	11.36	Oct. 14	11.84
28	11.83	May 12	11.80	Aug. 4	11.92	28	11.90
Feb. 17	11.39	26	12.34	19	12.12	Nov. 11	12.07
Mar. 4	11.94	June 9	12.64	Sept. 2	11.99	25	11.36
18	12.27	24	12.57	16	12.04	Dec. 9	11.73
31	12.06	July 8	11.59	30	11.39	23	11.96
Apr. 14	11.59						

F288. North Miami Beach. (Water-Supply Paper 907, p. 28.)

Water level, in feet below measuring point, 1941

Jan. 14	8.32	Apr. 29	9.23	July 22	8.65	Oct. 14	9.23
28	8.78	May 13	9.21	Aug. 5	9.19	28	9.43
Feb. 17	8.27	27	9.75	19	9.32	Nov. 11	9.44
Mar. 4	9.04	June 10	10.08	Sept. 2	9.40	25	8.69
18	9.39	25	10.08	16	9.51	Dec. 9	8.94
31	9.00	July 8	8.80	30	8.71	23	9.36
Apr. 15	8.52						

S1A. City of Miami. (Water-Supply Paper 907, p. 31.)

Water level, in feet above city of Miami datum, 1941

Jan. 6	1.1	Apr. 7	0.8	July 7	1.4	Oct. 6	1.7
13	1.7	14	1.1	14	2.0	13	1.7
20	1.5	21	.9	21	2.1	20	1.9
27	.9	28	.7	28	1.7	27	1.6
Feb. 3	.7	May 5	1.3	Aug. 4	1.2	Nov. 3	1.7
10	1.7	12	1.1	11	.7	10	1.4
17	1.4	19	.5	18	1.2	17	1.7
24	1.0	26	.2	25	1.0	24	1.7
Mar. 3	1.0	June 2	.0	Sept. 1	.8	Dec. 1	1.8
10	.6	9	- .4	8	.6	8	1.3
17	.2	16	.0	15	1.2	15	.2
24	1.0	23	.6	22	1.9	22	.2
31	.7	30	1.0	29	1.9	29	.5

S18. Model Dairy. (Water-Supply Paper 907, p. 28.)

Water level, in feet below measuring point, 1941

Jan. 6	7.88	Mar. 3	8.13	May 5	7.97	July 2	8.31
13	7.46	10	8.22	12	8.24	7	7.64
20	7.70	17	8.42	19	8.54	14	7.42
27	7.87	24	7.83	26	8.78	21	7.60
Feb. 3	8.04	31	8.08	June 2	9.02	28	7.91
10	7.20	Apr. 7	8.18	9	9.20	Aug. 4	8.13
13	7.24	14	7.67	16	9.23	11	8.37
17	7.48	21	8.10	23	9.26	18	8.03
24	7.87	28	8.35	30	8.48	25	8.22

Dade County--Continued.

S18.--Continued.

Water level, in feet below measuring point, 1941

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Sept. 1	8.52	Oct. 5	7.94	Nov. 10	8.38	Dec. 8	7.99
8	8.40	13	8.20	17	7.33	15	8.23
15	8.50	20	8.27	24	7.68	22	8.39
22	7.62	27	8.25	Dec. 1	7.82	29	8.57
29	7.78	Nov. 3	8.41				

S19. City of Miami. (Water-Supply Paper 907, p. 29.)

Water level, in feet below measuring point, 1941

Jan. 6	6.84	Apr. 14	6.57	July 14	5.70	Oct. 13	6.17
13	6.40	21	6.94	21	5.87	20	6.06
20	6.61	26	7.28	28	6.19	27	6.32
25	6.69	28	7.25	30	6.55	31	6.37
27	6.67	May 5	6.36	Aug. 4	6.41	Nov. 3	6.21
Feb. 3	6.94	12	6.59	11	6.68	10	6.26
10	5.96	16	6.83	18	6.62	17	5.82
17	6.45	19	7.05	25	6.76	24	6.25
24	6.92	26	7.55	29	6.98	27	6.38
25	6.97	31	8.08	Sept. 1	7.06	Dec. 1	6.37
Mar. 3	7.05	June 2	8.17	8	6.70	8	6.46
10	6.98	9	8.37	15	6.74	11	6.64
17	7.39	16	7.89	22	5.84	15	6.73
24	6.91	23	7.47	26	5.74	22	6.79
29	7.03	30	7.07	29	5.83	29	6.97
31	6.87	July 7	6.38	Oct. 5	5.97	31	7.05
Apr. 7	7.06						

S196. State of Florida. (Water-Supply Paper 907, p. 33.)

Water level, in feet below measuring point, 1941

Jan. 6	6.48	Apr. 7	5.79	July 7	5.25	Oct. 7	5.03
13	6.29	14	5.76	14	4.17	13	4.72
20	6.30	21	6.25	21	4.71	20	4.65
27	6.37	28	5.51	28	4.75	27	5.29
Feb. 3	6.74	May 5	4.51	Aug. 4	4.67	Nov. 3	5.76
10	5.70	12	5.30	11	5.86	11	5.95
17	5.86	19	6.00	18	5.00	17	5.82
24	6.30	26	6.63	25	5.14	24	6.09
Mar. 3	6.48	June 2	7.18	Sept. 1	5.57	Dec. 1	5.23
10	6.40	9	7.65	8	5.97	8	5.46
17	6.70	16	6.58	15	4.96	15	5.77
24	5.15	23	6.66	22	3.77	22	6.10
31	5.56	30	5.84	29	4.78	29	6.37

Broward County

F294. City of Hollywood. (Water-Supply Paper 907, p. 34.)

Water level, in feet below measuring point, 1941

Jan. 7	13.66	Mar. 17	14.38	June 25	15.40	Sept.30	13.77
14	12.89	Apr. 1	13.98	July 8	14.45	Oct. 14	14.28
21	13.31	15	13.21	22	13.52	28	14.51
28	13.67	29	14.12	Aug. 5	14.34	Nov. 11	14.32
Feb. 4	13.93	May 13	14.39	19	14.71	25	13.72
15	12.97	27	15.02	Sept. 2	14.90	Dec. 9	14.11
Mar. 4	14.00	June 10	15.45	16	15.00	23	14.46

Broward County--Continued.

S329. City of Fort Lauderdale. (Water-Supply Paper 907, p. 34.)

Water level, in feet below measuring point, 1941

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 7	4.59	Apr. 8	4.19	July 8	5.67	Oct. 5	4.40
14	4.92	15	4.67	15	5.39	14	4.83
21	5.27	22	5.24	22	5.10	21	4.59
28	5.52	29	5.57	29	4.97	28	5.09
Feb. 4	5.70	May 6	5.85	Aug. 5	5.09	Nov. 4	5.35
11	4.26	13	6.00	12	5.58	11	5.64
18	4.88	20	6.56	19	5.72	18	4.95
25	5.17	27	6.96	26	6.13	25	5.31
Mar. 4	5.44	June 3	7.37	Sept. 2	6.15	Dec. 2	5.40
11	5.38	10	7.66	9	6.57	9	5.82
18	5.58	17	7.51	16	6.44	16	6.08
25	5.11	24	7.28	23	4.55	23	6.18
Apr. 1	5.66	July 1	6.33	30	4.38	30	6.54

GEORGIA

By M. A. Warren

Measurements of water level and artesian pressure in selected observation wells in 12 counties located in the coastal area of Georgia and Dougherty County, in the southwestern part of the State, were continued throughout 1941, as a part of a cooperative ground-water investigation by the Federal Geological Survey and the Division of Mines, Mining and Geology, of the Georgia State Department of Natural Resources. The program of observation wells, which has been in progress since November 1938, was expanded during 1939, 1940, and 1941. A brief description of the work and records of the measurements made during 1938, 1939, and 1940 are contained in Water-Supply Papers 845, 886, and 907. At the end of 1941 it included 140 observation wells, the number in each county being as follows: Brantley 1, Bryan 16, Camden 16, Charlton 2, Chatham 52, Dougherty 1, Effingham 6, Glynn 12, Liberty 13, Long 1, McIntosh 14, Pierce 2, Wayne 4.

During 1941 weekly measurements were made on wells 30 and 50, Chatham County, and bi-weekly measurements were made on well 84, Chatham County. Water-stage recorders were maintained on wells 8, 79, 123, and 328, Chatham County, and well 3, Dougherty County. A recording pressure gage on well 1, Glynn County, was continued in operation throughout the year.

In the 134 observation wells on which automatic recorders were not installed approximately 610 measurements were made during 1941. Also included in this report are 36 measurements made on some of these wells prior to 1941 which have not been previously published.

The piezometric surface of artesian water in the Ocala limestone in the coastal area of Georgia, a map of which is published on page 70 of Water-Supply Paper 886, continued to decline throughout 1941, but the decline in most of the area was less than that during 1940. The accompanying figure shows the averages of the monthly water levels in wells 8, 30, 50, 79, and 84, Chatham County, during all or part of the period from January 9, 1939, to December, 1941. Wells 8 and 79 are within

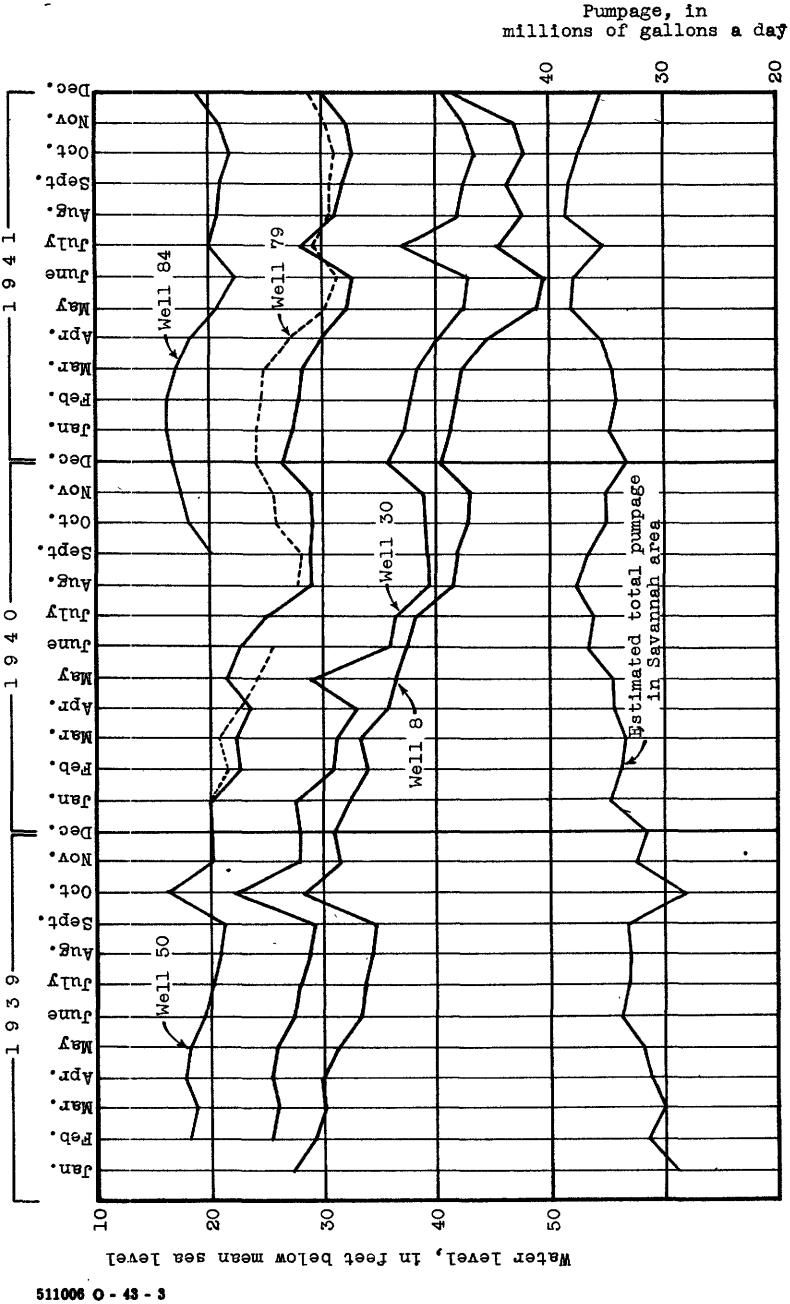

Figure 5.--Hydrograph showing average monthly water levels in wells 8, 30, 50, 79, and 84, Chatham County, Ga.; also estimated average monthly pumpage for Savannah area.

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the city limits of Savannah, wells 30 and 50 are in the industrial area northwest of Savannah, and well 84 is 2.9 miles east of the city hall. The mean monthly water levels for wells 8 and 79, which are equipped with automatic water-stage recorders, were obtained by averaging the highest and lowest water levels in each day throughout the month. The average water levels for each month in wells 30 and 50 were obtained by averaging weekly measurements, and in well 84 by averaging bi-weekly measurements. According to this method of computing water levels, the averages for the year 1941 in wells 8, 30, 50, 79, and 84 were respectively 45.3, 40.5, 30.4, 28.6, and 19.5 feet below mean sea level. During 1940 the average water levels for wells 8, 30, 50, and 79 were respectively 38.1, 34.7, 25.1, and 24.2 feet below mean sea level. Thus the average water levels in these 4 wells were respectively 7.2, 5.8, 5.3, 4.4 feet lower in 1941 than in 1940. Therefore, it appears that the averages of the artesian water levels within the city limits of Savannah and in the industrial area northwest of Savannah were at least 5 feet lower during 1941 than in 1940. It is estimated that in 1941 the pumpage from artesian wells in the Savannah area averaged about 37,000,000 gallons a day, which is approximately 1,500,000 gallons a day more than the average in 1940.

The average of the water levels in wells ending in the Ocala limestone in the greater part of Bryan, Liberty, and McIntosh Counties was 1 to 2 feet lower during 1941 than during 1940. The decline near Hinesville was due in part to the pumping from artesian wells for the water supply at Camp Stewart, which was begun in the latter part of 1940 and was increased during 1941.

In Charlton, Brantley, Long, and Wayne Counties and in the northwestern part of Camden County the water levels in artesian wells ending in the Ocala limestone were about the same during 1941 as during the latter part of 1940, or slightly lower. In the immediate vicinity of St. Marys, Ga., in the southeastern part of Camden County, there was a large decline in artesian water levels caused by the discharge from an 18-inch artesian well of the St. Marys Kraft Corporation which was placed in service in August 1941. The discharge was about 4,500,000 gallons a day during October, November, and December 1941.

Records of water-level measurements in 10 observation wells in Baker County and 3 observation wells in Early County, the locations of which are shown in the accompanying figure, were supplied through the courtesy of the Emory University Field Station, located 11 miles southwest of Newton, Ga. These records are a part of the hydrologic data collected in Early and Baker Counties by the Emory University Field Station in connection

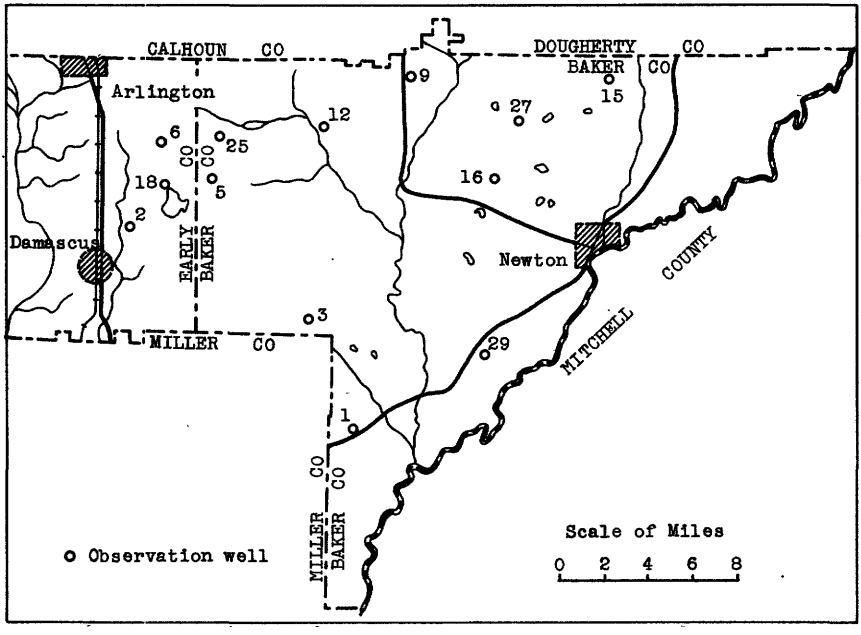

Figure 6.--Map showing location of 13 of the observation wells measured by the Emory University Field Station, in Baker and Early Counties, Ga.

with malaria research work. At the end of 1941, 34 wells in Baker County and 19 in Early County were included in the observation-well program of the Emory University Field Station. Weekly measurements were made on water levels in all of these wells except two in Baker County, which are equipped with water-stage recorders. The accompanying figure shows the fluctuation of water levels in wells 1, 5, 9, 12, 15, and 25 in Baker County, for all or part of the period from October 18, 1939, to December 31, 1941.

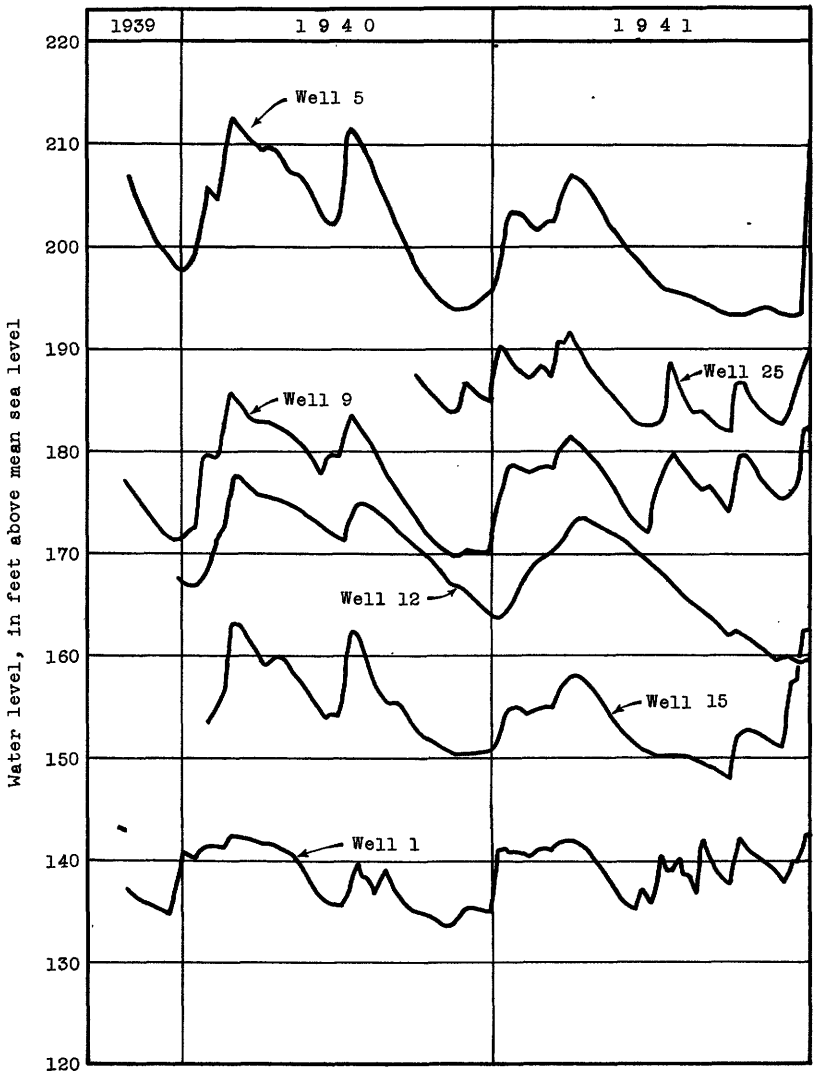

Figure 7.--Hydrographs showing fluctuations of water levels recorded by Emory University Field Station in wells 1, 5, 9, 12, 15, and 25, in Baker County, Ga.

Baker County

1. Emory University Field Station's number 1. Fred Cross. About 1.1 miles east of Baker-Miller county line, 0.3 mile north State Highway 91, about 0.25 mile northwest Nochaway Church, 30 feet southwest of pond. Unused dug domestic well, diameter 24 inches, depth 12 feet. Measuring point, knife edge of iron bar over east side of well, 3.5 feet above land surface and 146.55 feet above mean sea level.

Water level, in feet above mean sea level, 1939-41

Date	Water level	Date	Water level	Date	Water level
Oct. 18, 1939	137.49	July 17, 1940	139.94	Apr. 16, 1941	140.74
25	136.84	24	138.42	23	140.07
Nov. 1	136.35	31	138.25	30	139.30
8	135.91	Aug. 7	136.51	May 7	138.27
15	135.61	14	138.02	14	137.14
22	135.45	21	139.18	21	136.41
29	135.19	28	137.18	28	135.85
Dec. 6	135.03	Sept. 4	136.11	June 4	135.57
13	134.86	11	135.60	11	135.26
20	137.69	18	135.20	18	137.39
27	141.05	25	134.98	25	136.53
Jan. 3, 1940	140.46	Oct. 2	134.75	July 2	135.97
10	140.11	9	134.59	9	140.73
17	141.32	16	134.00	16	138.97
24	141.39	23	133.81	23	139.15
31	141.07	30	133.62	30	140.31
Feb. 7	141.32	Nov. 6	133.99	Aug. 6	138.46
14	141.32	13	134.53	13	138.39
21	142.62	20	135.45	20	136.77
28	142.38	27	135.28	27	142.01
Mar. 6	142.10	Dec. 4	135.10	Sept. 3	140.87
13	142.05	11	134.93	10	139.46
20	141.94	18	134.76	17	138.59
27	141.53	26	135.09	24	137.48
Apr. 3	141.71	Jan. 1, 1941	141.13	Oct. 1	137.70
10	141.61	8	141.19	8	142.37
17	141.18	15	140.81	15	141.38
24	140.74	22	140.86	22	140.94
May 1	140.77	29	140.57	29	140.27
8	139.81	Feb. 5	140.43	Nov. 5	140.08
15	138.86	12	140.90	12	139.44
22	137.75	19	141.21	19	138.78
29	137.01	26	141.00	26	138.20
June 5	136.44	Mar. 5	140.82	Dec. 3	137.88
12	136.05	12	141.89	10	139.78
19	135.69	19	141.85	17	139.86
26	135.50	26	141.83	24	142.41
July 3	135.92	Apr. 2	141.48	31	142.25
10	138.12	9	141.32		

3. Emory University Field Station's number 3. Jette Craft. About 0.7 mile north of Baker-Miller county line, 1.6 miles west of Mimsville, about 0.2 mile northwest of Milford-Cooktown Road, 90 feet north of field road. Unused dug domestic well, diameter 36 inches, depth 26 feet. Measuring point, knife edge of iron bar over well, 3.3 feet above land surface and 188.79 feet above mean sea level.

Water level, in feet above mean sea level, 1939-41

Oct. 18, 1939	163.91	Dec. 6, 1939	161.42	Jan. 24, 1940	159.92
25	163.59	13	161.02	31	159.98
Nov. 1	163.19	20	160.85	Feb. 7	160.76
8	162.75	27	160.72	14	161.91
15	162.49	Jan. 3, 1940	160.38	21	176.40
22	162.22	10	160.09	28	173.55
29	161.76	17	160.06	Mar. 6	170.90

Baker County--Continued

3. Emory University Field Station's number 3.--Continued.

Water level, in feet above mean sea level, 1939-41

Date	Water level	Date	Water level	Date	Water level
Mar. 13, 1940	168.93	Aug. 28, 1940	163.29	May 7, 1941	163.75
20	168.07	Sept. 4	162.85	14	163.13
27	167.35	11	162.47	21	162.67
Apr. 3	167.11	18	162.09	28	162.30
10	167.35	25	161.74	June 4	162.14
17	167.76	Oct. 2	161.40	11	162.04
24	167.43	9	161.06	18	161.91
May 1	167.11	16	160.70	25	161.47
8	166.35	23	160.40	July 2	161.14
15	166.18	30	160.15	9	160.88
22	165.85	Nov. 6	160.00	16	160.77
29	165.51	13	159.79	23	160.64
June 5	164.92		(a)	30	160.75
12	164.57	Feb. 19, 1941	161.40	Aug. 6	160.35
19	164.48	26	161.99	13	160.18
26	164.47	Mar. 5	162.47	20	160.07
July 3	164.07	12	163.96	27	159.92
10	165.67	19	164.71	Sept. 3	159.77
17	166.72	26	165.24		(b)
24	166.37	Apr. 2	165.51	Oct. 8	160.21
31	165.57	9	165.08		(c)
Aug. 7	164.96	16	164.70	Dec. 24	168.50
14	164.45	23	164.42	31	167.82
21	163.84	30	164.09		

5. Emory University Field Station's number 5. D. G. Jones. About 1.8 miles northwest of Crestview, 75 feet east of county road. Latitude 31° 21' 21.39", longitude 84° 37' 47.35". Unused dug domestic well, diameter 36 inches, depth 25 feet. Measuring point, knife edge of iron bar over well, 3.3 feet above land surface and 218.27 feet above mean sea level.

Water level, in feet above mean sea level, 1939-41

Date	Water level	Date	Water level	Date	Water level
Oct. 18, 1939	207.04	Apr. 10, 1940	209.47	Oct. 2, 1940	196.75
25	205.70	17	208.74	9	196.00
Nov. 1	204.32	24	207.96	16	195.27
8	203.02	May 1	207.14	23	194.68
15	201.74	8	207.09	30	194.33
22	200.66	15	206.37	Nov. 6	193.85
29	199.66	22	205.41	13	193.67
Dec. 6	198.83	29	204.37	20	193.67
13	198.16	June 5	203.23	27	194.17
20	197.41	12	202.27	Dec. 4	194.55
27	197.00	19	201.92	11	195.12
Jan. 3, 1940	198.12	26	202.11	18	195.53
10	199.73	July 3	206.96	26	195.87
17	202.82	10	211.62	Jan. 1, 1941	198.17
24	205.40	17	210.97	8	202.27
31	204.97	24	209.75	15	203.55
Feb. 7	204.47	31	208.49	22	203.06
14	209.37	Aug. 7	207.23	29	202.73
21	213.01	14	205.75	Feb. 5	202.23
28	211.94	21	204.08	12	201.47
Mar. 6	211.07	28	202.55	19	201.73
13	210.20	Sept. 4	201.16	26	202.57
20	210.16	11	199.92	Mar. 5	202.13
27	209.34	18	198.72	12	205.02
Apr. 3	209.75	25	197.73	19	205.84

a Well dry from Nov. 20, 1940 to Feb. 12, 1941.
b Well dry from Sept. 10 to Oct. 1.
c Well dry from Oct. 15 to Dec. 17.

Baker County--Continued

5. Emory University Field Station's number 5.--Continued.

Water level, in feet above mean sea level, 1939-41

Date	Water level	Date	Water level	Date	Water level
Mar. 26, 1941	207.15	July 2, 1941	196.42	Oct. 8, 1941	193.35
Apr. 2	206.77	9	195.91	15	193.17
9	206.07	16	195.70	22	193.43
16	205.36	23	195.62	29	193.85
23	204.48	30	195.53	Nov. 5	194.19
30	203.51	Aug. 6	195.32	12	194.07
May 7	202.62	13	195.09	19	193.77
14	201.60	20	194.81	26	193.38
21	200.68	27	194.55	Dec. 3	193.21
28	199.91	Sept. 3	194.26	10	192.99
June 4	199.23	10	193.92	17	193.12
11	198.44	17	193.67	24	193.90
18	197.70	24	193.33	31	207.27
25	197.12	Oct. 1	193.07		

9. Emory University Field Station's number 9. Matthew Clias. About 5.2 miles north of Elmodel, 170 feet east of county road, about 0.25 mile east of State Highway 37. Unused dug domestic well, diameter 36 inches, depth 23 feet. Measuring point, knife edge of iron bar over well, 2.8 feet above land surface and 194.78 feet above mean sea level.

Water level, in feet above mean sea level, 1939-41

Date	Water level	Date	Water level	Date	Water level
Oct. 18, 1939	177.27	July 17, 1940	182.82	Apr. 16, 1941	179.88
25	176.49	24	181.87	23	179.14
Nov. 1	175.59	31	181.07	30	178.36
8	174.72	Aug. 7	180.11	May 7	177.60
15	173.71	14	178.93	14	176.63
22	173.17	21	177.77	21	175.76
29	172.50	28	176.65	28	174.78
Dec. 6	171.66	Sept. 4	176.18	June 4	173.85
13	171.31	11	175.23	11	172.85
20	171.02	18	174.13	18	172.34
27	171.64	25	173.29	25	171.71
Jan. 3, 1940	172.23	Oct. 2	172.39	July 2	175.21
10	172.33	9	171.74	9	177.29
17	179.33	16	171.04	16	178.99
24	179.53	23	170.52	23	179.83
31	179.29	30	170.07	30	179.48
Feb. 7	179.45	Nov. 6	169.73	Aug. 6	178.47
14	182.46	13	169.87	13	177.45
21	185.98	20	170.32	20	176.77
28	184.65	27	170.13	27	176.33
Mar. 6	183.88	Dec. 4	170.10	Sept. 3	176.78
13	183.19	11	170.08	10	176.35
20	183.02	18	170.43	17	175.66
27	182.58	26	170.58	24	174.76
Apr. 3	182.93	Jan. 1, 1941	175.61	Oct. 1	173.87
10	182.83	8	178.45	8	179.56
17	182.36	15	178.75	15	179.80
24	181.83	22	178.58	22	179.08
May 1	181.53	29	178.22	29	178.15
8	181.24	Feb. 5	177.88	Nov. 5	177.54
15	180.46	12	178.13	12	176.78
22	179.50	19	178.55	19	175.79
29	178.51	26	178.53	26	175.26
June 5	177.47	Mar. 5	178.00	Dec. 3	175.26
12	179.53	12	180.48	10	176.29
19	179.75	19	180.55	17	176.82
26	179.23	26	181.56	24	182.16
July 3	183.63	Apr. 2	181.01	31	182.35
10	181.78	9	180.49		

Baker County--Continued

12. Emory University Field Station's number 12. Alton Kidd. Fourteen hundredths mile north of Milford, 75 feet east of county road. Unused dug domestic well, diameter 30 inches. Measuring point, knife edge of iron bar over well, 3.0 feet above land surface and 187.55 feet above mean sea level.

Water level, in feet above mean sea level, 1939-41

Date	Water level	Date	Water level	Date	Water level
Dec. 27, 1939	167.51	Aug. 28, 1940	172.44	Apr. 30, 1941	172.56
Jan. 3, 1940	166.99	Sept. 4	172.01	May 7	172.39
10	166.64	11	171.43	14	172.00
17	167.04	18	170.94	21	171.43
24	168.17	25	170.44	28	170.86
31	170.28	Oct. 2	169.84	June 4	170.42
Feb. 7	171.83	9	169.13	11	169.82
14	172.61	16	168.51	18	169.21
21	177.45	23	167.88	25	168.73
28	177.53	30	167.29	July 2	168.13
Mar. 6	176.99	Nov. 6	166.88	9	167.63
13	176.45	13	166.74	16	167.10
20	176.05	20	166.23	23	166.71
27	175.71	27	165.75	30	166.25
Apr. 3	175.41	Dec. 4	165.25	Aug. 6	165.67
10	175.22	11	164.72	13	165.10
17	175.05	18	164.30	20	164.87
24	174.78	26	163.95	27	164.43
May 1	174.53	Jan. 1, 1941	163.75	Sept. 3	163.85
8	174.08	8	163.95	10	163.27
15	173.73	15	164.89	17	162.80
22	173.34	22	166.15	24	162.30
29	172.92	29	167.27	Oct. 1	161.90
June 5	172.48	Feb. 5	168.39	8	162.48
12	172.17	12	169.03	15	161.82
19	171.77	19	169.44	22	161.29
26	171.57	26	169.83	29	160.87
July 3	171.30	Mar. 5	170.30	Nov. 5	160.61
10	173.10	12	170.88	12	160.23
17	174.98	19	171.70	19	159.62
24	175.00	26	172.65	26	159.66
31	174.53	Apr. 2	173.36	Dec. 3	159.87
Aug. 7	174.08	9	173.51	10	159.70
14	173.58	16	173.25	24	159.08
21	173.02	23	172.97	31	159.85

15. Emory University Field Station's number 15. R. L. Hall. About 7.3 miles north of Baker County court house at Newton, about 1,500 feet east of county road at Old Hickory Hill Plantation. Unused dug domestic well, diameter 36 inches, depth 21.5 feet. Measuring point, knife edge of iron bar over well, 3.6 feet above land surface and 168.64 feet above mean sea level.

Water level, in feet above mean sea level, 1940-41

Date	Water level	Date	Water level	Date	Water level
Jan. 24, 1940	153.63	Apr. 24, 1940	159.19	July 24, 1940	160.18
31	154.49	May 1	158.42	31	158.68
Feb. 7	154.98	8	157.58	Aug. 7	157.42
14	156.42	15	156.84	14	156.18
21	163.51	22	156.28	21	155.35
28	163.19	29	155.35	28	155.24
Mar. 6	162.46	June 5	154.59	Sept. 4	155.23
13	161.50	12	154.02	11	154.41
20	160.55	19	154.09	18	153.50
27	159.09	26	154.04	25	152.81
Apr. 3	159.22	July 3	155.87	Oct. 2	152.32
10	159.80	10	162.72	9	151.86
17	160.08	17	162.27	16	151.51

Baker County--Continued

15. Emory University Field Station's number 15.--Continued.

Water level, in feet above mean sea level, 1940-41

Date	Water level	Date	Water level	Date	Water level
Oct. 23, 1940	151.16	Mar. 19, 1941	157.16	Aug. 13, 1941	149.95
30	150.80	26	158.23	20	149.71
Nov. 6	150.45	Apr. 2	158.02	27	149.49
13	150.18	9	157.84	Sept. 3	149.25
20	150.35	16	157.13	10	149.01
27	150.39	23	156.34	17	148.64
Dec. 4	150.35	30	155.54	24	148.21
11	150.36	May 7	154.74	Oct. 1	147.74
18	150.42	14	153.86	8	152.19
26	150.77	21	153.05	15	152.51
Jan. 1, 1941	151.91	28	152.32	22	152.84
8	154.46	June 4,	151.78	29	152.54
15	154.96	11	151.26	Nov. 5	152.27
22	154.84	18	150.84	12	151.92
29	154.58	25	150.50	19	151.57
Feb. 5	154.24	July 2	150.42	26	151.17
12	154.57	9	150.15	Dec. 3	150.84
19	154.78	16	150.16	10	157.61
26	154.94	23	150.18	17	157.44
Mar. 5	154.71	30	150.24	24	162.44
12	156.73	Aug. 6	150.14	31	162.42

16. Emory University Field Station's number 16. Ichaway Plantation Incorporated (W. R. Woodruff). About 3.8 miles east of Elmodel, north side old county road, about 0.25 mile north of large dry pond. Unused drilled domestic well, diameter 2 inches, depth 94+ feet. Measuring point, top of 2-inch casing, 1.7 feet above land surface and 176.85 feet above mean sea level.

Water level, in feet above mean sea level, 1941

Date	Water level	Date	Water level	Date	Water level	Date	Water level
July 2	143.99	Aug. 20	143.08	Oct. 8	142.83	Nov. 26	142.09
9	143.70	27	142.87	15	143.30	Dec. 3	141.84
16	143.65	Sept. 3	142.67	22	143.28	10	142.41
23	143.72	10	142.45	29	143.04	17	142.61
30	143.67	17	142.25	Nov. 5	142.90	24	144.60
Aug. 6	143.46	24	142.00	12	142.58	31	147.32
13	143.26	Oct. 1	141.78	19	142.34		

25. Emory University Field Station's number 35. P. H. Thompson, Jr. Patmos, 3.6 miles west of, 1 mile east of Baker-Early county line, about 0.6 mile north of Pine Grove Church. Latitude 31° 23' 09.70", longitude 84° 37' 26.26". Bored well, diameter 6 inches, depth 28 feet. Cased 2 feet. Measuring point, knife edge of iron bar over well, 0.3 foot above land surface and 201.78 feet above mean sea level.

Water level, in feet above mean sea level, 1940-41

Date	Water level	Date	Water level	Date	Water level
Sept. 25, 1940	187.93	Dec. 4, 1940	185.63	Feb. 12, 1941	187.20
Oct. 2	186.92	11	185.05	19	188.40
9	186.08	18	184.80	26	187.84
16	185.25	26	184.76	Mar. 5	187.09
23	184.54	Jan. 1, 1941	190.31	12	190.78
30	184.07	8	190.08	19	190.48
Nov. 6	183.83	15	188.60	26	191.92
13	183.58	22	188.22	Apr. 2	190.43
20	186.98	29	187.63	9	189.18
27	186.28	Feb. 5	187.15	16	188.28

Baker County--Continued

25. Emory University Field Station's number 35.--Continued.

Water level, in feet above mean sea level, 1940-41

Date	Water level	Date	Water level	Date	Water level
Apr. 23, 1941	187.51	July 23, 1941	189.10	Oct. 15, 1941	186.96
30	186.88	30	187.25	22	185.38
May 7	186.30	Aug. 6	185.28	29	184.26
14	185.64	13	184.10	Nov. 5	184.00
21	184.84	20	183.78	12	183.46
28	183.93	27	184.16	19	183.01
June 4	183.28	Sept. 3	183.63	26	182.77
11	182.79	10	182.83	Dec. 3	182.78
18	182.58	17	182.50	10	186.56
25	182.48	24	182.04	17	185.95
July 2	182.39	Oct. 1	181.92	24	188.12
9	182.96	8	186.70	31	191.50
16	183.81				

27. Emory University Field Station's number 37. Doc Davis. Baker County Court House at Newton, 6.3 miles northwest of, 2.9 miles south of Baker-Dougherty county line, 5.2 miles east of State Highway 37, about 150 feet north of county road. Bored well, diameter 6 inches, depth 22 feet. Cased 2 feet. Measuring point, knife edge of iron bar over well, 0.3 foot above land surface and 171.40 feet above mean sea level.

Water level, in feet above mean sea level, 1940-41

Oct. 2, 1940	154.56	Mar. 12, 1941	154.59		(b)
16	153.21	19	155.93	Oct. 15, 1941	156.20
23	152.34	26	157.06	22	155.31
30	151.76	Apr. 2	157.94	29	153.83
	(a)	9	157.42	Nov. 5	153.04
Jan. 8, 1941	151.55	16	157.03	12	152.12
15	152.55	23	156.69	19	151.47
22	152.63	30	156.01	26	150.90
29	152.50	May 7	155.40	Dec. 3	(c)
Feb. 5	152.25	14	154.40	10	154.21
12	152.29	21	153.65	17	155.25
19	152.51	28	152.96	24	158.57
26	152.84	June 4	152.41	31	163.12
Mar. 5	152.85	11	151.82		

29. Emory University Field Station's number 39. Ichaway Plantation Incorporated (W. R. Woodruff). Pilgrims Home Church, 1.6 miles northeast of, 0.5 mile southeast of State Highway 91. Bored well, diameter 6 inches, depth 25 feet. Cased 2 feet. Measuring point, knife edge of iron bar over well, 0.3 foot above land surface and 150.25 feet above mean sea level.

Water level, in feet above mean sea level, 1940-41

Oct. 9, 1940	134.70	Jan. 29, 1941	135.85	May 21, 1941	135.40
16	134.89	Feb. 5	135.80	28	135.29
23	134.60	12	137.70	June 4	135.23
330	134.17	19	140.11	11	134.95
Nov. 6	133.75	26	138.28	18	134.77
13	133.28	Mar. 5	136.14	25	134.45
20	132.91	12	144.32	July 2	134.23
27	132.65	19	142.50	9	134.45
Dec. 4	132.66	26	143.54	16	136.00
11	132.81	Apr. 2	140.92	23	143.65
18	132.94	9	140.62	30	139.56
26	133.25	16	138.91	Aug. 6	136.40
Jan. 1, 1941	136.84	23	136.88	13	135.85
8	139.22	30	135.85	20	135.71
15	136.78	May 7	135.66	27	135.59
22	135.97	14	135.52	Sept. 3	135.40

a Well dry from Nov. 6, 1940 to Jan. 1, 1941.
b Well dry from June 18, 1941 to Oct. 8, 1941.
c Dry.

Baker County--Continued

29. Emory University Field Station's number 39.--Continued.

Water level, in feet above mean sea level, 1940-41

Date	Water level	Date	Water level	Date	Water level
Sept. 10, 1941	135.36	Oct. 22, 1941	134.89	Dec. 3, 1941	133.91
17	135.32	29	134.93	10	138.95
24	134.96	Nov. 5	134.89	17	137.09
Oct. 1	134.73	12	134.82	24	144.05
8	134.59	19	134.57	31	146.41
15	134.57	26	134.24		

Brantley County

1. N. S. McVeigh. Waynesville, north side State Highway 50. Used drilled domestic well, diameter 4 to 3 inches, depth 675 feet. Cased about 600 feet. Measuring point, top 4-inch tee on 4-inch casing, 1.5 feet above land surface and about 57 feet above mean sea level. Water levels, in feet above measuring point: June 16, 1939, 2.7; Aug. 12, 1941, 0.56.

Bryan County

18. No measurement during 1941.

27. No measurement during 1941.

41. Mrs. D. B. Gill. Roding. East of State Highway 63, near intersection of State Highway 144. Used drilled domestic well, diameter 4 inches, depth 400+ feet. Measuring point, top of 4-inch coupling on well, 15.64 feet above mean sea level and 1 foot above land surface. Water levels, in feet above measuring point, 1941: June 25, 13.55; Oct. 24, 12.8.

51. W. H. Davis. About 600 feet southwest Clyde school house, (during 1941 became part of Camp Stewart Firing Range). Used drilled domestic well, diameter 3 inches, depth about 500 feet. Measuring point, top 3-inch tee on 3-inch casing, 1 foot above land surface, about 24.5 feet above mean sea level. Water levels, in feet above measuring point, 1941: June 25, 9.85; Oct. 24, 9.1.

52. Clyde Consolidated School.. Clyde (during 1941 became part of Camp Stewart Firing Range). Used drilled public well, diameter 3 inches, depth about 500 feet. Measuring point, top 3-inch tee on 3-inch casing, 1 foot above land surface and about 28 feet above mean sea level. Water levels, in feet above measuring point, 1941: June 25, 6.13; Oct. 24, 5.45.

63. W. C. McCallar. About 7 miles west of Richmond Hill, 4.5 miles north of Fleming, east side of road (U. S. Highway 17 to Bashlor's Bridge). Used drilled domestic well, diameter 3 inches, depth 490 feet. Cased 100 feet (during 1941 because part of Camp Stewart Firing Range). Water level, in feet above measuring point, 1941: June 25, 13.3.

71. Green Bay Baptist Church. South side of River Road, 5.5 miles west of State Highway 63. Used drilled well, diameter 3 inches (during 1941 became part of Camp Stewart Firing Range). Measuring point, top 3-inch tee, about 35 feet above mean sea level, about 1 foot above land surface. Water level, in feet above measuring point, 1941: June 25, 3.05.

85. Henry Ford. About 0.1 mile southwest of Belfast Road, about 150 feet east of Seaboard Air Line R. R. Used drilled well, diameter 3 inches. Measuring point, top 3-inch casing, about 21.5 feet above mean sea level and 0.3 foot above land surface. Water levels, in feet above measuring point, 1941: Mar. 25, 8.54; June 4, 7.70; Oct. 27, 6.65.

Bryan County--Continued

87. Henry Ford. Richmond Hill. About 500 feet west of intersection of U. S. Highway 17 and Bryan Neck Road. Used drilled domestic well diameter 4 inches, depth 580 feet. Cased 113 feet. Measuring point, top 4-inch cross, 24.44 feet above mean sea level and 2.5 feet above land surface.

Water level, in feet with reference to measuring point, 1941

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 21	+0.31	June 17	-0.74	Aug. 25	-0.91	Oct. 27	-1.13
Mar. 25	+.35	July 30	-.60	Sept.29	-1.27	Nov. 24	-1.42
June 4	-.53	Aug. 11	-.79	Oct. 13	-1.47	Dec. 18	-1.37

96. J. W. Harden. About 1.7 miles south of Keller, about 300 feet east of Bryan Neck Road. Used drilled domestic well, diameter 3 inches, depth 320 feet. Cased 60 feet. Measuring point, top 3-inch tee on 3-inch casing, 1.75 feet above land surface. Water level affected by tide. Water levels, in feet above measuring point, 1941: June 4, 7.6; Oct. 24, 7.15.

112. L. W. Smith. South side River Road, 12 miles west along River Road from State Highway 63.(during 1941 became part of Camp Stewart Firing Range). Used drilled domestic well, diameter 3 to 2 inches, depth 510 feet. Cased 160 feet. Measuring point, top of 3 by 2-inch bushing over casing, 1.5 feet above land surface and about 38 feet above mean sea level. Water level, in feet above measuring point, 1941: June 25, 4.90.

119. Henry Ford. Keller. About 4.5 miles southeast of Kilkenny. Used drilled domestic well, diameter 3 inches. Measuring point, top of 2-inch tee over well, 10.8 feet above mean sea level and 0.8 foot above land surface. Water level, in feet above measuring point, 1941: Oct. 24, 7.5.

143. A. M. Casin. Near west end Morgan's Bridge, over Ogeechee River, on Pine Barren Road, north side of road. Used drilled domestic well, diameter 3 inches. Measuring point, top of 3-inch tee, 2.3 feet above land surface and 17.2 feet above mean sea level. Water levels, in feet above measuring point: Oct. 27, 1939, 14.55; Nov. 11, 1940, 13.50; June 25, 1941, 12.92; Oct. 24, 1941, 12.50.

146. Alphonso Casin; A. M. Casin and J. P. Dukes. 2.25 miles northeast of Lanier, south side State Highway 30. Unused drilled domestic well, diameter 6 inches, depth 423 feet. Cased 318 feet. Measuring point, top 6-inch casing, 1.5 feet above land surface, and about 68 feet above sea level. Water levels, in feet below measuring point, 1941: Mar. 6, 21.34; May 28, 21.98; July 28, 22.03; Nov. 3, 22.42.

148. Henry Ford. Keller. About 80 feet west of Bryan Neck Road and about 200 feet north of Belfast Road. Used drilled domestic well, diameter 4 inches, depth 440 feet. Cased 152 feet. Measuring point, top 4-inch tee 1 foot above land surface. Water levels, in feet above measuring point: Dec. 17, 1940, 6.32; Mar. 25, 1941, 6.40; June 3, 1941, 6.10; Oct. 24, 1941, 5.33.

149. Henry Ford. About 5.5 miles southeast of Richmond Hill at the Jack Griswold Place. Used drilled domestic well, diameter 4 inches, depth 500 feet. Cased 160 feet. Measuring point, top 4-inch tee, about 1 foot above land surface. Water levels, in feet above measuring point: Dec. 17, 1940, 4.65; June 4, 1941, 4.33; Oct. 24, 1941, 3.6.

Camden County

3. Number 20 in Water-Supply Paper 886. Town of St. Marys. East side of State Highway 40, 0.25 mile north from Riverview Hotel, St. Marys. Used drilled municipal well, diameter 6 inches, reported depth 539 feet. Cased 345 feet. Measuring point, top of 6-inch tee, 2.3 feet above land surface and 14.3 feet above mean sea level.

Camden County--Continued

3.--Continued.

Water level, in feet above measuring point, 1941

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 22	32.5	June 19	32.5	Aug. 25	a 29.2	Oct. 15	a 22.5
Mar. 28	33.9	Aug. 13	30.7	Oct. 14	a 22.5	Dec. 19	a 25.4

8. M. L. Hill. Kingsland. At residence of M. L. Hill, about 300 feet south from St. Marys Road, about 300 feet east of U. S. Highway 17. Used drilled domestic well, diameter 2 inches, depth 486 feet. Cased 300 feet. Measuring point, top of 2 by 1-inch bushing in 2-inch tee, 1 foot above land surface and 36.5 feet above mean sea level.

Water level, in feet above measuring point, 1941

Jan. 22	21.9	June 19	21.6	Aug. 26	21.9	Dec. 19	22.1
Mar. 28	22.4	Aug. 13	22.1	Oct. 14	21.8		

12. Southwell & Hopkins. Kingsland. About 300 feet north of St. Marys Road, west side U. S. Highway 17. Used drilled domestic well, diameter 3 inches, approximate depth 500 feet. Measuring point, top 3-inch cross, 1.5 feet above land surface and 36.9 feet above mean sea level.

Water level, in feet above measuring point, 1941

Date	Water level	Date	Water level	Date	Water level
Jan. 22	21.4	June 19	20.8	Oct. 14	21.2
Mar. 28	21.7	Aug. 13	21.7	Dec. 19	21.4

18. L. O. Harris. St. Marys. About 0.8 mile north of Riverview Hotel, east side of State Highway 40. Used drilled domestic well, diameter 2 inches. Measuring point, top of 2-inch cross, 0.8 foot above land surface and 11.3 feet above mean sea level.

Water level, in feet above measuring point, 1941

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 22	36.8	June 19	36.9	Aug. 25	b 32.3	Oct. 15	b 23.1
Mar. 28	38.0	Aug. 13	36.2	Oct. 14	b 23.1	Dec. 19	b 25.8

19. Camden Training School. St. Marys. One mile north of Riverview Hotel, east side of State Highway 40. Used drilled domestic well, diameter 2 inches, depth 540 feet. Cased about 300 feet. Measuring point, top 2-inch tee, 2 feet above land surface and 12.7 feet above mean sea level.

Water level, in feet above measuring point, 1941

Mar. 28	36.4	Aug. 13	35.5	Oct. 14	c 17.3	Dec. 19	c 21.2
June 19	35.6	25	c 29.2	15	c 17.3		

32. No measurement during 1941.

39. Southern Fertilizer & Chemical Company. (Formerly Holland and Halter Fishery). St. Marys. About 1.5 miles north of Riverview Hotel, near west bank of North River. Used drilled industrial well, diameter 6 inches, depth 535 feet. Cased about 300 feet. Measuring point, top of 6-inch tee, 2.7 feet above land surface and about 12 feet above mean sea level.

a Well 155, St. Marys Kraft Corp., 4,327 feet N 20° 10' E, flowing or pumping.

b Well 155, St. Marys Kraft Corp., 2,198 feet N 31° 18' E, flowing or pumping.

c Well 155, St. Marys Kraft Corp., 1,140 feet N 43° 41' E, flowing or pumping.

Camden County--Continued

39. Southern Fertilizer & Chemical Company.--Continued.

Water level, in feet above measuring point, 1941

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 22	36.5	June 19	37.2	Aug. 25	a 32.1	Dec. 19	a 25.2
Mar. 18	38.1	Aug. 13	36.3	Oct. 15	a 22.1		

59. Zack Colson. About 3.5 miles southeast of Woodbine, 0.6 mile south of Satilla River. Used drilled domestic well, diameter 4 inches, depth 400+ feet. Measuring point, top 4-inch cross, 2 feet above land surface and about 26 feet above mean sea level. Water levels, in feet above measuring point: June 22, 1939, 30.7; Oct. 2, 1940, 29.0; June 19, 1941, 27.5; Dec. 18, 1941, 28.2.

61. Camden Properties. Billysville. Two miles east of Coleburg, west end of tenant quarters. Used drilled domestic well, diameter 3 inches. Measuring point, top 3-inch cross, 1.8 feet above land surface and about 24 feet above mean sea level.

Water level, in feet above measuring point, 1941

Date	Water level	Date	Water level	Date	Water level
Jan. 22	34.1	June 17	33.8	Oct. 14	34.0
Mar. 28	34.5	Aug. 13	34.2	Dec. 19	34.6

66. No measurement during 1941.

68. Kings Bay Club. Kings Bay. Five miles north of St. Marys. Used drilled domestic well, diameter 3 inches, depth 525 feet. Cased 320 feet. Measuring point, top of 3-inch cross, 1.5 feet above land surface and about 11 feet above mean sea level.

Water level, in feet above measuring point, 1941

Jan. 22	43.3	June 19	43.2	Oct. 15	41.5
Mar. 28	43.8	Aug. 13	43.8	Dec. 19	42.2

78. White Oak Public School. White Oak. West side Seaboard Air Line Railroad at school house. Used drilled domestic well, diameter 2 inches. Measuring point, top 2-inch cross, 2.5 feet above land surface and about 17 feet above mean sea level.

Water level, in feet above measuring point, 1941

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 22	39.8	May 27	39.8	Aug. 13	39.8	Oct. 14	39.3
Mar. 28	40.2	June 19	39.5	25	39.8	Dec. 19	39.5

87. Camden Properties. Cabin Bluff, 13 miles southeast of Woodbine, near west bank Cumberland River. Used drilled domestic well, diameter 4 inches. Measuring point, top of 4-inch cross, 1.5 feet above land surface and about 11 feet above mean sea level. Water levels, in feet above measuring point: Sept. 18, 1939, 48.5; June 19, 1941, 44.8.

92a. Camden Race Track. About 2.2 miles southeast of Kingsland, north side of St. Marys Road at race track. Used drilled domestic well, diameter 2 inches, depth 500+ feet. Measuring point, top 2-inch side outlet tee, 1.1 feet above land surface and about 26 feet above mean sea level.

a Well 155, St. Marys Kraft Corp., 2,014 feet, S 30° 44' W, flowing or pumping.

Camden County--Continued

92a. Camden Race Trace.--Continued.

Water level, in feet above measuring point, 1939-41

Date	Water level	Date	Water level	Date	Water level
Sept. 19, 1939	33.8	Mar. 28, 1941	31.1	Aug. 25, 1941	30.8
Dec. 19, 1940	31.1	June 19	30.3	Oct. 14	30.4
Jan. 22, 1941	31.0	Aug. 13	30.9	Dec. 14	30.9

118. Mrs. Elfriede Wagner. About 9.5 miles west of Kingsland, on old Folkston Road, south side of road. Used drilled domestic well, diameter 3 inches, depth about 600 feet. Measuring point, top of 3-inch cross, level with land surface. Water levels, in feet above measuring point: Nov. 3, 1939, 40.2; Oct. 15, 1941, 38.2.

144. T. C. Haygood. Woodbine. East side of U. S. Highway 17, 0.5 mile south of road to Folkston. Used drilled domestic well, diameter 3 inches, depth 410 feet. Cased about 300 feet. Measuring point, top 3-inch cross, 1 foot above land surface. Water levels, in feet above measuring point, 1941: June 19, 36.3; Aug. 13, 37.1; Dec. 19, 37.6.

Charlton County

4. U. S. Government. About 7 miles southwest of Folkston, at C. C. Camp, BS-1, Ga. Used drilled domestic well, diameter 6 to 4 inches, depth 467 feet. Cased 453 feet. Measuring point, top of 6-inch casing, 1 foot above land surface and 74.1 feet above mean sea level. Water levels, in feet below measuring point: Feb. 2, 1940, 12.44; May 27, 1941, 14.07; Oct. 15, 1941, 13.84.

7. State of Georgia. One mile southwest of Folkston, at State convict camp. Used drilled domestic well, diameter 4 to 3 inches, depth 552 feet. Cased 517 feet. Measuring point, top of 4-inch casing, 1.0 foot above land surface and 74.95 feet above mean sea level.

Water level, in feet below measuring point, 1941

Date	Water level	Date	Water level	Date	Water level
Jan. 22	15.77	Feb. 6	15.45	Oct. 15	15.69
27	15.59	Aug. 14	15.55		

Chatham County

8. City of Savannah No. 8. West side Stiles Avenue and about 600 feet south of Louisville road, Savannah. Unused drilled municipal well, diameter 12 inches, depth 497 feet. Cased about 250 feet. Measuring point, top edge of horizontal iron bar that supports air line in well, 8.32 feet above mean sea level. Water level affected by pumpage in Savannah area. Average daily range of water level fluctuations during 1939, 1940, and 1941 are respectively 3.6, 3.2, and 3.1 feet.

Highest and lowest weekly water level, in feet below measuring point, 1941 (from recorder charts)

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 1	46.70	Jan. 12	47.48	Jan. 27	48.51	Feb. 9	47.75
4	50.02	13	51.25	Feb. 1	53.42	12	51.55
5	47.05	19	48.07	2	48.98	16	48.00
10	50.95	23	51.84	4	52.77	20	51.42

Chatham County--Continued

8. City of Savannah No. 8.--Continued.

Highest and lowest weekly water level, in feet below measuring point, 1941 (from recorder charts)

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Feb. 23	48.23	May 24	61.7	Aug. 9	52.94	Oct. 19	53.57
Mar. 1	52.83	25	55.38	10	53.25	22	58.02
2	47.64	29	63.04	12	60.50	26	53.64
8	53.83	June 2	54.60	19	59.99	29	58.87
9	48.13	6	71.13	23	53.98	Nov. 2	52.93
15	52.60	8	54.75	25	56.65	4	57.77
16	48.18	10	63.60	30	53.35	11	52.92
19	53.38	15	53.81	31	56.50	14	56.58
24	48.52	17	61.62	Sept. 3	47.97	20	52.1
27	52.29	23	52.67	7	52.52	22	59.5
30	49.21		(b)	10	56.57	25	59.90
Apr 2	52.88	July 2	58.97	14	53.10	29	49.97
7	49.76	5	48.64	15	57.38		(c)
12	54.72	6	49.05	21	53.45	Dec. 9	55.72
14	49.96	11	56.15	26	58.22	13	47.80
19	56.25	13	51.54	28	54.32	15	47.30
21	50.98	16	56.27	28	56.65	18	53.13
23	57.27	21	49.15	Oct. 5	54.20	22	51.90
	(a)	26	55.5	10	59.08	25	39.05
May 13	54.16	27	51.71	13	54.37	29	40.71
16	61.16	31	62.04	16	59.27	31	48.66
19	53.96	Aug. 8	59.89				

28. Reliance Fertilizer Company. About 200 feet south of Louisville Road, 2 miles west of West Broad Street, Savannah, Ga. Used drilled industrial well, reported depth 480 feet. Cased 160 feet. Measuring point, hole in pump base plate, 1.5 feet above land surface, 17.87 feet above mean sea level. Water level affected by pumpage in Savannah area.

Water level, in feet below measuring point, 1941

Jan. 2	54.12	Mar. 15	57.00	June 7	62.98	Aug. 9	59.68
4	54.42	29	57.32	14	62.57	16	61.20
11	54.95	Apr. 5	56.94	21	61.55	23	60.72
18	55.77	12	58.75	28	61.28	Sept. 8	58.77
25	56.07	19	58.49	July 5	52.0	13	60.53
Feb. 1	56.39	May 13	60.08	12	58.13	Oct. 4	60.97
8	55.47	20	61.32	19	57.26	Dec. 6	59.65
Mar. 1	55.76	24	62.42	26	57.34	31	55.6
8	55.57	31	62.53	Aug. 2	59.70		

29. Port Wentworth Corporation. East side of U. S. Highway 17 under elevated steel water tank, Port Wentworth, Ga. Used drilled municipal well, diameter 12 inches, depth 502 feet. Cased 200 feet. Measuring point, top of hole in pump base plate, 1.5 feet above land surface and 17.3 feet above mean sea level. Water levels, in feet below measuring point, 1941: Jan. 29, 24.87; Mar. 13, 25.3; June 12, 27.68; Dec. 16, 27.23.

30. Dixie Asphalt Products Corporation. Near west bank of Savannah River, 1 mile northeast of U. S. Highway 17, 3.4 miles northwest of Savannah City Hall. Used drilled industrial well, diameter 12 inches, depth 620 feet. Measuring point, hole in pump base plate, 0.2 feet above land surface and 11.5 feet above mean sea level. Water level affected by pumpage in Savannah area.

Water level, in feet below measuring point, 1941

Jan. 4	48.0	Jan. 25	49.59	Feb. 15	49.90	Mar. 15	49.64
11	48.08	Feb. 1	49.13	Mar. 1	49.09	22	50.64
18	d 53.08	8	48.78	8	49.31	29	50.41

a No record Apr. 27 to May 12.
b No record June 24-28.
c No record Nov. 30 to Dec. 6.
d Pump on well operating, water level very near stable after pump has been operating 30 minutes, at which time drawdown is about 4.0 feet.

Chatham County--Continued

30. Dixie Asphalt Products Corporation.--Continued.

Water level, in feet below measuring point, 1941

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Apr. 5	51.20	June 21	54.05	Aug. 23	54.72	Nov. 1	a 57.9
12	51.8	28	53.53	Sept. 8	51.88	8	54.96
19	51.7	July 5	43.49	13	54.13	15	54.09
May 13	a 56.6	12	50.7	20	a 58.15	22	53.40
20	54.33	19	a 53.9	27	55.73	Dec. 6	53.59
24	54.39	26	a 54.0	Oct. 4	54.8	13	52.85
31	54.40	Aug. 2	52.5	11	55.45	20	52.87
June 7	55.37	9	a 56.3	18	55.78	31	49.08
14	54.69	16	53.98	25	53.83		

43. Owner's number 215A, Southern Cotton Oil Company. South well, 40 feet north of Lathrop Avenue, 1,200 feet southwest of southwest bank of Savannah River, 1.75 miles northwest Savannah City Hall. Used drilled industrial well, diameter 12 inches, depth 1,000 feet. Cased 220 feet. Measuring point, top of hole in pump base-plate, 1 foot above land surface and 8.8 feet above mean sea level. Water level affected by pumpage in Savannah area. Water levels, in feet below measuring point, 1941: June 12,b/ 77.46; Sept. 17, 66.18.

46. Owner's No. 5. Union Bag and Paper Corporation. About 800 feet southwest Savannah River, 2.4 miles northwest Savannah City Hall. Used drilled industrial well, diameter 20 inches, depth 1,010 feet. Cased 220 feet. Measuring point, top concrete base for pump motor, about 10.5 feet above mean sea level. Well in continuous use. Measurements furnished through courtesy of Union Bag and Paper Corporation. Well pumping about 3,500 gallons a minute. Water levels, in feet below measuring point, 1941: Mar. 10, 105; May 12, 109; Sept. 8, 109; Nov. 10, 112.

47. No measurement made in 1941.

48. Southeastern Warehouse and Compress Company. Near west bank of Savannah River, 3.8 miles northwest Savannah City Hall. Used drilled industrial well, diameter 8 inches, depth 539 feet. Cased 239.5 feet. Measuring point, top of hole in pump base-plate, 1.5 feet above land surface and 15.7 feet above mean sea level. Water level affected by pumpage in Savannah area. Water levels, in feet below measuring point, 1941: Mar. 8, 45.56; June 12, 49.66; Sept. 17, 49.15.

50. Hercules Powder Company. South side Louisville road, 3.2 miles west from West Broad Street, Savannah. Unused drilled industrial well, diameter 4 inches, reported depth 420 feet. Cased 80 feet. Measuring point, top 4-inch casing, 1.0 foot above land surface and 14.83 feet above mean sea level. Water level affected by pumpage in Savannah area. Measurements made while 8-inch well, No. 49, about 500 feet west, was pumping.

Water level, in feet below measuring point, 1941

Jan. 4	41.12	Apr. 5	43.79	July 12	44.13	Oct. 11	47.92
11	42.02	12	45.10	19	43.41	18	47.77
18	42.56	19	44.72	26	43.49	25	46.63
25	43.19	May 13	45.60	Aug. 2	45.63	Nov. 1	47.51
Feb. 1	43.02	20	47.1	9	45.94	8	47.55
8	42.49	24	47.88	16	45.73	15	46.44
15	42.94	31	47.62	23	46.88	22	46.85
Mar. 1	42.71	June 7	48.39	Sept. 8	45.43	Dec. 6	46.01
8	42.47	14	47.81	13	46.40	13	45.20
15	43.63	21	47.20	20	46.83	20	45.70
22	43.15	28	46.83	27	48.15	31	42.58
29	43.31	July 5	40.80	Oct. 4	47.47		

a Pump on well operating, water level very near stable after pump has been operating 30 minutes, at which time drawdown is about 4.0 feet.

b Pump operating, about 11.0 feet drawdown.

Chatham County--Continued

61. No measurements made in 1941.

62. No measurements made in 1941.

63. Colonial Ice Company. Five feet northwest of McGuire Street and 105 feet northeast Indian Street, Savannah. Unused drilled industrial well, diameter 12 inches, depth 525 feet. Cased 125 feet. Measuring point through 1940, hole in pump base-plate. Measuring point since Jan. 2, 1941, top 12-inch casing, 0.1 foot lower than hole im pump base-plate, 0.7 foot above concrete floor and 20.0 feet above mean sea level. Water level affected by pumpage in Savannah area.

Water level, in feet below measuring point, 1941

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 2	57.41	Jan. 11	58.13	Sept.17	64.72	Sept.27	65.03
4	57.53	June 12	65.58	20	63.90	Oct. 4	64.60

74. Certain-teed Products Corporation. Nine hundred feet southwest of southwest bank of Savannah River, 3 miles northwest Savannah City Hall. Used drilled industrial well, diameter 12 inches, depth 550 feet. Measuring point, hole in pump base-plate, 13.23 feet above mean sea level. New pump installed in well during July 1941, leaving no opening for making measurements. Water level affected by pumpage in Savannah area.

Water level, in feet below measuring point, 1941

Jan. 4	a 62.57	Feb. 15	62.43	Apr. 5	62.58	May 31	66.1
11	59.13	Mar. 1	60.53	12	63.7	June 14	66.5
18	60.97	8	60.7	19	62.8	21	65.09
25	62.77	15	61.19	May 13	a 70.35	28	65.21
Feb. 1	60.63	22	62.68	20	66.29	July 5	47.59
8	59.48	29	62.22	24	66.52		

76. Pierpont Manufacturing Company. About 600 feet southwest of Savannah River, 2.1 miles northwest of Savannah City Hall. Unused drilled industrial well, diameter 3 inches, depth 378 feet. Measuring point, top of 3-inch casing, 1 foot above land surface and 13.1 feet above mean sea level. Water level affected by pumpage in Savannah area. Water levels, in feet below measuring point, 1941: June 12, 77.06; Sept. 17, 76.27; Dec. 16, 72.15.

79. Georgia Ice Company. About 25 feet west of center line of Whitaker Street extended and about 55 feet south of Victory Drive, Savannah. Unused drilled industrial well, diameter 12 inches, depth 495 feet. Measuring point, top edge 12-inch coupling, level with concrete floor and 38.8 feet above mean sea level. Water level affected by pumpage in Savannah area. Average daily range of fluctuations of water level during 1940 and 1941 are 1.02 and 1.18 feet.

Highest and lowest weekly water level, in feet below measuring point, 1941 (from recorder charts)

Jan. 2	61.50	Feb. 17	62.46	Apr. 7	63.70	June 5	73.82
4	62.54	20	63.87	12	65.63	9	69.32
6	62.05	23	62.99	14	64.26	11	72.38
10	62.67	Mar. 1	63.96	19	66.89	16	68.60
12	62.47	2	63.96	21	65.41	17	71.60
13	64.30	3	62.79	26	69.25	23	68.30
20	62.71	10	63.05		(b)	23	69.93
23	63.69	15	64.35	May 14	67.5	30	68.26
27	62.74	17	63.16	17	69.36	July 3	70.75
Feb. 1	64.0	20	64.84	19	67.74	7	66.48
2	63.92	24	62.94	24	70.47	11	68.32
3	62.81	29	64.07	26	69.19	14	67.04
9	63.70	31	63.35	29	72.02	14	68.45
10	62.77	Apr. 2	64.57	June 2	70.11	22	66.47

a Pump on well operating.
b No record April 27 to May 14.

Chatham County--Continued

79. Georgia Ice Company.--Continued.

Highest and lowest weekly water level, in feet below measuring point, 1941 (from recorder charts)

Date	Water level	Date	Water level	Date	Water level	Date	Water level
July 26	69.42	Sept. 3	68.72	Oct. 15	72.65	Nov. 23	71.91
28	67.24	8	67.93	21	68.58	28	67.56
31	71.93	12	71.12	24	71.47		(a)
Aug. 7	68.26	15	68.11	29	69.86	Dec. 8	66.30
8	71.03	19	70.84	Nov. 1	68.20	13	69.36
11	68.02	22	68.46	3	67.55	15	67.32
16	71.40	25	71.01	8	68.57	20	69.98
17	71.39	29	68.76	11	67.03	21	70.50
18	68.67	Oct. 3	71.30	15	71.18	27	64.13
25	68.48	6	69.05	16	68.41	28	64.56
27	70.58	8	71.67	21	74.64	31	67.30
Sept. 1	69.94	13	69.02				

81. Gordon Saussy. Near west bank of Savannah River, 5.3 miles northwest of Savannah City Hall, a short distance south of Savannah Sugar Refining Corporation. Used drilled domestic well, diameter 6 inches, depth 522 feet. Measuring point, top 6-inch casing, level with land surface and 15.1 feet above mean sea level. Water levels, in feet below measuring point, 1941: Jan. 29, 35.28; June 12, 38.85; Sept. 18, 37.8; Dec. 16, 37.33.

84. Standard Oil Company. About 150 feet south of Savannah River, 2.9 miles east Savannah City Hall. Used drilled industrial well, diameter 10 inches, depth 652 feet. Cased 230 feet. Measuring point, top hole in pump base-plate, 6.1 feet above mean sea level. Water level affected by pumpage in Savannah area.

Water level, in feet below measuring point, 1941

Jan. 4	21.75	Mar. 29	23.66	July 5	27.43	Oct. 4	28.11
8	22.85	Apr. 12	24.39	26	24.67	18	27.99
18	22.09	May 13	26.2	Aug. 9	25.89	Nov. 1	27.30
Feb. 1	22.58	24	27.30	23	27.43	15	26.64
15	22.37	June 7	28.62	Sept. 8	26.64	Dec. 6	25.38
Mar. 1	22.95	21	27.96	20	27.50	19	24.21
15	22.96						

87. No measurement made in 1941.

105. No measurement made in 1941.

109. Georgia State Highway Department. South of west abutment of Savannah River bridge on U. S. Highway 17, 7 miles northwest of Savannah. Used drilled domestic well, diameter 3 inches, depth 253 feet. Measuring point, base of pitcher pump, 4.0 feet above land surface and 7.8 feet above mean sea level. Water level affected by tide. Water levels, in feet below measuring point, 1941: Dec. 16, 10.05 a.m., 18.09; Dec. 16, 12:20 p.m., 18.48.

112. Mrs. L. O. Givern. About 300 feet east of Central of Georgia R. R. station, north side of street, Bloomingdale. Used drilled domestic well, diameter 2 inches, depth 360 feet. Measuring point, top of 2-inch tee, 2.7 feet above land surface and 24.4 feet above mean sea level. Water levels, in feet below measuring point, 1941: Mar. 6, 0.26; June 13, 1.19; July 28, 1.02.

117. War Department. About 300 feet south of lighthouse, Fort Screven, Tybee Island. Used drilled municipal well, diameter 9 inches, depth 602 feet. Cased 125 feet. Measuring point, top of 9-inch cap on well, 6.7 feet above mean sea level. Water level affected by tide. Water level, in feet below measuring point, 1941: Jan. 11, 11:50 a.m., 5.14.

a No record Nov. 30 to Dec. 6.

Chatham County--Continued

121. Robert Schneider. Northwest part Tybee Island, 50 feet north of Tybee Road. Used drilled domestic well, diameter 2 inches, depth 174 feet. Measuring point, top 1-inch cross, level with land surface and 5.8 feet above mean sea level. Water level affected by tide.

Water level, in feet below measuring point, 1941

Date	Hour	Water level	Date	Hour	Water level
Jan. 11	12:45 p.m.	4.27	Aug. 16	11:55 a.m.	4.88
Apr. 5	12:20 p.m.	3.14	Oct. 25	11:55 a.m.	2.90
May 24	4:35 p.m.	4.04	Dec. 13	12:16 p.m.	4.50

122. Georgia State Highway Department. Near southwest end of steel truss bridge over Bull River on Tybee Road, 7 miles east of Savannah. Used drilled domestic well, diameter 3 inches, depth 245 feet. Measuring point, top of 3-inch tee on 3-inch casing, 0.5 foot above land surface and 9.07 feet above mean sea level. Water level affected by tide.

Water level, in feet below measuring point, 1941

Date	Hour	Elev. of tide in Bull River with respect to mean sea level	Water level	Date	Hour	Elev. of tide in Bull River with respect to mean sea level	Water level
Jan. 11	11:30 a.m.	...	10.01	Aug. 9	11:50 a.m.	+1.4	11.50
Apr. 5	11:20 a.m.	+ .6	9.97	Oct. 11	10:20 a.m.	+3.7	11.8
June 21	12:05 p.m.	-3.2	12.29				

123. Henry Walthour Estate, Wilmington Island. Southwest side dirt road, about 0.5 mile south of Tybee road near head of Bates Creek. Unused drilled domestic well, diameter 3 inches, depth 235 feet. Measuring point, top of 3-inch casing, 5.2 feet above mean sea level. Daily fluctuation of water level in well due to tidal loading, ranges from about 0.3 foot during lowest neap tides to 1.0 feet during highest spring tides.

Highest and lowest weekly water level, in feet below measuring point, 1941 (from recorder charts)

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 1	6.43	Mar. 18	6.62	June 20	7.68	Sept. 7	7.78
3	5.61	23	6.39	22	8.27	9	8.48
5	6.27	27	5.70	24	7.50	17	8.36
10	5.53	30	6.47	July 4	8.37	19	7.43
16	5.16	Apr. 1	5.77	5	7.52	21	7.31
18	6.18	8	5.68	6	8.32	27	8.59
20	6.36	12	6.70	8	7.27	30	8.71
24	5.58	13	5.90	13	7.48	Oct. 1	8.00
26	6.27	19	6.82	19	8.17	6	8.65
27	5.45	23	6.25	20	8.20	10	7.98
Feb. 4	6.18	26	6.96	25	7.29	14	8.81
7	5.27		(a)	31	7.33	17	7.93
11	6.30	May 14	6.45	Aug. 2	8.14	19	8.62
13	5.14	16	7.48	4	7.25	21	7.51
17	5.43	18	7.02	7	8.23	26	7.80
19	6.36	24	7.82	13	8.15	29	8.56
24	6.39	25	7.25	14	7.61	Nov. 3	8.37
27	5.51	29	8.15	19	7.65	6	7.58
Mar. 5	6.39	June 4	7.35	22	8.43	10	8.50
8	5.68	7	8.39	24	7.70	15	7.42
12	6.59	8	8.37	27	8.53	16	7.40
15	5.58	10	7.27	Sept. 3	8.60	19	8.38
17	5.72	19	8.34	6	7.74	23	7.53

a No record April 27 to May 13.

Chatham County--Continued

123. Henry Walthour Estate.--Continued.

Highest and lowest weekly water level, in feet below measuring point, 1941 (from recorder charts)

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Nov. 24	8.40	Dec. 7	8.14	Dec. 15	8.09	Dec. 21	8.13
Dec. 1	8.17	13	7.26	17	7.09	23	7.07
4	7.40						

126. Atlantic Mutual Fire Insurance Company, south end Wilmington Island. Unused drilled domestic well, diameter 3 inches, depth 238 feet. Measuring point, top of 3-inch casing, approximately 15 feet above mean sea level and 1.1 feet above land surface. Daily fluctuation of water level due to tidal loading, ranges from 0.7 foot during lowest neap tides to approximately 1.5 feet during highest spring tides.

Water level, in feet below measuring point, 1941

Date	Hour	Water level	Date	Hour	Water level
Jan. 18	12:45 p.m.	13.90	July 26	11:40 a.m.	16.09
Mar. 22	10:45 a.m.	14.99	Sept.27	1:05 p.m.	16.33
May 31	12:20 p.m.	15.98	Dec. 6	12:20 p.m.	16.24

131. C. E. Oliver. East side State Highway 21, 0.8 mile northwest of crossing of Atlantic Coast Line Railroad at Monteith. Used drilled domestic well, diameter 3 inches, depth about 300 feet. Measuring point, top of 3-inch cross, 14.3 feet above mean sea level and 1.5 feet above land surface. Water levels, in feet below measuring point, 1941: Jan. 29, 6.69; June 13, 8.52; Dec. 16, 8.90.

137. C. P. Rowland. East side Ferguson Avenue, northern part of Montgomery. Used drilled domestic well, diameter 3 inches, reported depth about 400 feet. Measuring point, top 3-inch casing, 0.2 foot above land surface. Water levels, in feet below measuring point, 1941: Mar. 7, 10.14; June 26, 11.84; Sept. 15, 11.54.

143. M. B. Lane. About 600 feet north Seaboard Air Line Railroad at Anderson Station. Used drilled domestic well, diameter 4 inches. Measuring point, top of 4-inch tee, 7.07 feet above mean sea level and 2.6 feet above land surface. Water levels, in feet above measuring point, 1941: Jan. 21, 4.51; Mar. 25, 4.49; June 4, 2.88; Aug. 11, 3.10.

145. A. G. Gillespie. North side U. S. Highway 17, 0.25 mile east Little Ogeechee River. Used drilled domestic well, diameter 3 inches, depth 380 feet. Cased 67 feet. Measuring point, top of 3-inch elbow, 1.1 feet above land surface and about 12.5 feet above mean sea level.

Water level, in feet with reference to measuring point, 1941

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 21	+1.61	June 17	+0.24	Aug. 25	+0.27	Oct. 27	-0.04
Mar. 25	+1.59	Aug. 11	+.52	Sept.29	-.20	Dec. 18	.00
June 4	+.40						

169. L. J. Carter. North side Pine Barren Road, 2.75 miles east of Ogeechee River. Used drilled domestic well, diameter 3 inches, depth 365 feet. Cased 115 feet. Measuring point, top of 3-inch tee, 1.3 feet above land surface. Water levels, in feet above measuring point, 1941: June 25, 1.68; Oct. 24, 1.11.

174. Mrs. Eda W. Sapp. Approximately 750 feet north of Pine Barren Road, 0.5 mile east of Ogeechee River. Used drilled domestic well, diameter 3 inches, depth 340 feet. Cased 102 feet. Measuring point, top of 3-inch tee, 2.5 feet above land surface. Water levels, in feet above measuring point, 1941: June 25, 6.7; Oct. 24, 5.3.

Chatham County--Continued

188. A. C. Colbert. Burroughs. Between Atlantic Coast Line Railroad and Seaboard Air Line Railroad. Used drilled domestic well, diameter 3 inches, depth 370 feet. Cased 110 feet. Measuring point, top of 3-inch tee, about 15 feet above mean sea level and 0.65 foot above land surface. Water levels, in feet with reference to measuring point, 1941: June 4, +0.58; Nov. 24, -0.3+.

194. Mrs. W. W. Keller, Sr. Drakie's Bluff. West bank of Savannah River, about 8 miles northwest of Savannah. Used drilled domestic well, diameter 4 inches, depth 350 feet. Cased about 60 feet. Measuring point through 1940, top of 4-inch tee, 16.08 feet above mean sea level. Measuring point since Dec. 1940, top of 4-inch casing, 3.34 feet below old measuring point, 12.74 feet above mean sea level and 0.4 foot above land surface. Water levels, in feet below measuring point, 1941: Jan. 29, 15.18; June 13, 17.78; Sept. 17, 17.48; Dec. 16, 18.06.

199. Mrs. Hattie F. Keller. Meinhard. About 0.25 mile south from Monteith Road, about 750 feet west of Savannah & Atlanta Railroad. Used drilled domestic well, diameter 5 inches, depth 375 feet. Cased 40 feet. Measuring point, top bushing in 5-inch tee, 20.3 feet above mean sea level and 3 feet above land surface. Water levels, in feet below measuring point, 1941: Jan. 29, 10.19; June 13, 11.88; Sept. 17, 11.80; Dec. 16, 12.17.

203. No measurement during 1941.

213. J. L. Budreau. Intersection of Burroughs Road and U. S. Highway 17. Used drilled domestic well, diameter 3 inches, depth 420 feet. Cased 120 feet. Measuring point, northeast end of concrete base for gasoline pump across U. S. Highway 17 at J. F. Zipperer's store.

Water level, in feet with reference to measuring point, 1941

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 21	+1.14	June 17	-0.19	Aug. 25	-0.20	Oct. 27	-0.57
Mar. 25	+1.09	30	+.03	Sept.29	-.70	Nov. 24	-.77
June 4	.00	Aug. 11	-.04	Oct. 13	-.89	Dec. 18	-.71

221. J. L. Joyce. Coffee Bluff. Used drilled domestic well, diameter 3⅛ inches, depth 360 feet. Measuring point, top 3⅛-inch coupling on 3⅛-inch casing, 16.3 feet above mean sea level and 1 foot above land surface. Water level affected by tide. Water levels, in feet below measuring point, 1941: Mar. 7, 5.88; June 26, 7.72; Sept. 15, 6.77.

256. Mrs. W. M. Price. Bloomingdale. South side Central of Georgia Railroad, opposite depot. Used drilled domestic well, diameter 2 inches. Measuring point, top of 2-inch casing, approximately 25.5 feet above mean sea level and 1 foot above land surface.

Water level, in feet with reference to measuring point, 1939-41

Date	Water level	Date	Water level	Date	Water level
Mar. 3, 1939	+1.4	Mar. 6, 1941	-1.56	Sept.24, 1941	-2.76
Oct. 23, 1940	-1.47	June 13	-2.48		

266. Dr. J. F. Chisholm. One mile east of Augusta Road, 3.5 miles north of Monteith. Used drilled domestic well, diameter 3 to 2 inches, depth 300+ feet. Measuring point, top of 3-inch tee on 3-inch casing, 13.8 feet above mean sea level and 0.5 foot above land surface. Water levels, in feet below measuring point, 1941: June 13, 4.62; Dec. 16, 5.09.

Chatham County--Continued

269. W. J. Pierpont Estate. Isle of Hope. Used drilled domestic well, diameter 8 inches, depth 521 feet. Cased 160 feet. Measuring point, lower east inside edge 8-inch tee, 10.8 feet above mean sea level and 0.8 foot above land surface.

Water level, in feet below measuring point, 1941

Date	Hour	Elev. of tide in Skidaway River with reference to half tide level	Water level
Mar. 7	11:50 a.m.	+0.3	12.07
June 26	3:55 p.m.	-3.5	14.93
Sept.15	3:55 p.m.	+4.0	14.20
Dec. 15	4:15 p.m.	+2.9	13.92

273. Charley Gross. West side of Isle of Hope Road, 1.5 miles north of Isle of Hope. Used drilled domestic well, diameter 3 inches, reported depth about 360 feet. Measuring point, top of 3-inch casing, about 7 feet above mean sea level. Water level affected by tide.

Water level, in feet below measuring point, 1941

Date	Water level	Date	Water level	Date	Water level
Mar. 7	15.65	June 26	19.16	Dec. 15	18.40
June 9	19.29	Sept.15	17.95		

275. Mrs. R. J. Travis. Avalon. Used drilled domestic well, diameter 4 inches. Measuring point, top end of 4-inch overflow pipe, 3.14 feet below concrete base for gasoline pump, and about 6 feet above mean sea level. Water level affected by tide. Water levels, in feet with reference to measuring point, 1941: Mar. 7, +0.31; June 26, -0.4+.

276. Dr. J. F. Chisholm. Near Atlantic Coast Line Railroad, 2.5 miles northeast of Monteith. Used drilled domestic well, diameter 3 inches. Measuring point, top of 3-inch coupling, 16.1 feet above mean sea level and 0.8 foot above land surface. Water levels, in feet below measuring point, 1941: Jan. 29, 8.96; June 13, 9.14.

279. DeWitt Hotel Corporation. Oglethorpe Hotel, Wilmington Island. Used drilled well. Measuring point, top 12-inch plate cap on well, 11.1 feet above mean sea level and 4 feet below land surface. Water level affected by tide.

Water level, in feet below measuring point, 1941

Date	Hour	Water level	Date	Hour	Water level
Jan. 18	1:03 p.m.	11.89	Sept.27	1:25 p.m.	14.65
Mar. 22	11:00 a.m.	13.40	Dec. 6	12:35 p.m.	14.90
July 26	11:55 a.m.	14.78			

312. Miss Mamie Taylor. North side of U. S. Highway 80, 0.65 mile southeast from bridge over Central of Georgia Railroad. Used drilled domestic well, diameter 3 inches, depth 406 feet. Cased 80 feet. Measuring point, top of 3-inch tee, 13.55 feet above mean sea level.

Water level, in feet below measuring point, 1941

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 4	3.70	Mar. 6	4.55	May 13	5.42	June 25	6.36
Feb. 15	4.37	Apr. 19	5.10	June 13	6.5		

Chatham County--Continued

314. J. M. Breckenridge. Approximately 600 feet west of White Bluff Road, 0.3 mile north of Buckhalter Road. Used drilled irrigation well, diameter 10 inches, depth 601 feet. Cased 255 feet. Measuring point, top of pump base-plate, 1 foot above land surface. Water levels, in feet below measuring point, 1941: Mar. 7, 26.18; June 26, 29.27; Sept. 15, 29.22; Dec. 15, 29.78.

321. R. C. Hinely. About 100 feet north of Vernonburg Avenue, 0.1 mile east of White Bluff Road. Used drilled domestic well, diameter 3 inches, depth 365 feet. Measuring point, ¼-inch tap hole in 3 by 1-inch reducer, about 16.5 feet above mean sea level and 1.7 feet above land surface. Water levels, in feet below measuring point, 1941: Mar. 7, 10.17; June 26, 12.03; Sept. 15, 11.89; Dec. 15, 12.32.

326. Edward Derst. Eastern part Coffee Bluff. Used drilled domestic well, diameter 3 inches, approximate depth 350 feet. Measuring point, top of 3-inch tee, 6.6 feet above mean sea level and 1.7 feet above land surface. Water level affected by tide.

Water level, in feet above measuring point, 1940-41

Date	Hour	Water level	Date	Hour	Water level
Dec. 11, 1940	10:10 a.m.	3.53	Sept.15, 1941	2:40 p.m.	2.90
Mar. 7, 1941	10:05 a.m.	3.88	Dec. 15	3:00 p.m.	2.50
June 26	3:15 p.m.	2.29			

328. War Department. Fort Screven, Tybee Island. Unused drilled well, diameter 3 inches, depth 136 feet. Measuring point, top of 3-inch by 10-inch nipple on 3-inch casing, 6.9 feet above mean sea level and 1.3 feet above land surface. Daily fluctuation of water level due to tidal loading ranges from 1.7 feet during lowest neap tides to 4.2 feet during highest spring tides. Highest water level in well logs, about 40 minutes behind highest tide level in Savannah River, 0.25 mile northeast.

Highest and lowest weekly water level, in feet below measuring point, 1941 (from recorder charts)

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 19	6.41	Apr. 13	6.98	July 18	7.30	Oct. 5	7.35
24	2.92	22	6.73	21	7.34	5	4.16
26	6.24	26	3.27	23	3.91	17	4.02
27	2.7		(a)	Aug. 2	7.65	18	7.30
Feb. 7	2.8	May 13	2.94	2	4.27	19	7.50
8	5.88	16	7.11	5	3.70	21	3.46
13	2.4	24	7.08	7	7.70	28	7.18
14	6.47	24	3.79	9	4.37	30	4.05
17	2.7	25	3.94	10	7.58	Nov. 2	7.15
20	6.30	27	7.24	22	7.80	5	4.04
23	6.36	June 7	7.70	23	4.30	10	7.05
25	2.8	7	3.52	25	7.84	15	3.73
Mar. 2	5.97	8	7.74	29	4.02	19	3.43
7	3.37	8	3.49	Sept. 2	4.30	19	7.82
14	6.86	15	7.09	3	7.82	23	3.70
15	2.55	21	4.22	7	7.47	29	7.30
16	2.94	24	3.90	13	4.23	30	7.44
17	6.73	28	7.20	17	7.04	Dec. 1	4.40
26	2.99	July 4	7.68	20	3.27		(b)
29	6.25	5	4.00	21	3.35	17	3.51
30	6.20	7	3.60	23	7.45	19	7.78
31	3.14	8	7.70	30	7.41	20	7.63
Apr. 11	6.92	13	4.38	Oct. 4	4.11	22	3.81
11	2.66						

a No record April 27 to May 12.
b No record Dec. 4 to Dec. 14.

Chatham County--Continued

330. State Highway Department. Six miles southwest of Savannah, southeast side of U. S. Highway 17, northeast of entrance to Lebanon Plantation. Unused drilled well, diameter 3 to 2 inches, depth 540 feet. Measuring point, top of 3-inch coupling on 3-inch casing, 0.5 foot below land surface. Water level affected by tide.

Water level, in feet above measuring point, 1941

Date	Water level	Date	Water level	Date	Water level	Date	Water level
June 4	1.03	Aug. 11	1.31	Oct. 13	0.07	Nov. 11	0.28
17	.94	25	.94	24	.41	24	.20
30	1.11	Sept.29	.38	27	.43	Dec. 18	.47

Dougherty County

3. Owner's number 3. City of Albany. Southwest of intersection of Jackson and Roosevelt streets, in rear of municipal water works pumping station. Unused drilled municipal well, diameter 10 to 8 inches, depth 940 feet. Cased 710 feet. Casing reported to have been perforated at a depth of about 280 feet, about 1925. Measuring point, top of 10-inch casing, 0.5 foot above land surface and 200.33 feet above mean sea level.

Water level, in feet below measuring point, 1941
(from recorder charts)

Feb. 20	38.9	May 11	40.0	Aug. 5	45.3	Oct. 30	43.0
22	37.0	16	42.1	9	47.9	Nov. 1	44.3
Mar. 7	38.6	17	41.0	10	48.1	2	42.3
13	36.6	18	43.7	16	43.9	8	44.3
16	36.4	28	45.0	18	46.2	9	42.0
26	37.8	29	43.7	19	44.2	15	44.1
29	36.4	June 9	45.8	24	44.0	16	42.9
31	37.7	13	43.2	26	41.6	20	44.9
Apr. 4	36.6	18	45.8	Sept.10	43.2	23	42.6
6	36.8	20	43.5	11	40.1	27	44.5
9	39.2	23	46.0	16	41.4	30	45.4
18	38.1	27	41.7	18	40.4	Dec. 6	41.3
19	40.1	July 2	44.3	30	41.6	10	41.2
20	40.9	5	41.9	Oct. 4	45.8	13	40.0
26	38.6	7	43.4	5	46.3	14	40.0
27	39.3	8	41.6	10	41.9	20	41.5
28	40.6	13	42.7	14	38.1	23	42.1
May 2	39.4	16	44.5	18	41.3	27	36.3
3	41.2	20	41.5	20	38.6	28	36.6
5	42.1	23	44.3	29	44.4	31	35.2
7	41.8						

Early County

2. Emory University Field Station's number 19. Plez Douglas. About 2.4 miles northeast of Damascus, 1.4 miles east of Seaboard Air Line Railroad, 60 feet south of county road. Latitude 31° 19' 31.14", longitude 84° 41' 39.53". Bored well, diameter 6 inches, depth 30 feet. Cased 2 feet. Measuring point, knife edge iron bar over well, 0.3 foot above land surface and 207.70 feet above mean sea level.

Water level, in feet above mean sea level, 1941

July 23	180.60	Sept. 3	198.10	Oct. 15	203.41	Nov. 26	195.38
30	184.74	10	195.57	22	203.01	Dec. 3	196.12
Aug. 6	188.02	17	194.65	29	201.99	10	197.21
13	192.37	24	193.67	Nov. 5	201.17	17	197.48
20	200.05	Oct. 1	193.06	12	199.09	24	201.38
27	198.82	8	201.73	19	196.56	31	204.68

Early County--Continued

6. Emory University Field Station's number 23. P. F. Chandler. About 1.3 miles north of Douglasville, 2.7 miles east of Seaboard Air Line Railroad, 50 feet west of T intersections of county roads. Latitude 31° 22' 23.39", longitude 84° 40' 00.36". Bored well, diameter 6 inches, depth 19 feet. Cased 2 feet. Measuring point, knife edge iron bar over well, 0.3 foot above land surface and 228.45 feet above mean sea level.

Water level, in feet above mean sea level, 1941

Date	Water level	Date	Water level	Date	Water level	Date	Water level
July 30	219.73	Sept.10	212.54	Oct. 22	217.46	Dec. 3	216.07
Aug. 6	217.76	17	211.95	29	216.92	10	217.73
13	216.97	24	(a)	Nov. 5	216.79	17	216.92
20	216.15	Oct. 1	215.31	12	215.85	24	224.54
27	214.90	8	222.83	19	214.82	31	225.33
Sept. 3	214.69	15	218.63	26	213.85		

18. Emory University Field Station's number 53. E. B. Davis. About 0.8 mile southeast of Douglasville, 3,125 feet south of county road, north of Big Cypress pond. Latitude 31° 21' 08.49", longitude 84° 39' 35.94". Bored well, diameter 6 inches, depth 30 feet. Cased 2 feet. Measuring point, knife edge on iron bar over well, 0.3 foot above land surface and 220.87 feet above mean sea level.

Water level, in feet above mean sea level, 1941

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Mar. 19	217.61	June 4	213.50	Aug. 20	209.75	Oct. 29	211.27
26	217.71	11	212.71	27	209.14	Nov. 5	211.16
Apr. 2	217.48	18	212.02	Sept. 3	208.63	12	210.66
9	217.44	25	211.66	10	207.91	19	210.12
16	217.14	July 2	211.24	17	207.31	26	209.54
23	217.12	9	211.09	24	206.76	Dec. 3	209.11
30	216.83	16	210.95	Oct. 1	206.24	10	211.69
May 7	216.68	23	211.15	8	209.60	17	212.67
14	216.11	30	211.15	15	211.25	24	216.03
21	215.27	Aug. 6	210.78	22	211.37	31	217.16
28	214.27	13	210.21				

Effingham County

6. Waldo Bradley. Eden, east side of U. S. Highway 80, about 0.3 mile north of crossing of Central of Georgia Railroad and U. S. Highway 80. Used drilled domestic well, diameter 3 inches, depth 360 feet. Cased 80 feet. Measuring point, top of 3-inch tee, 1.2 feet above land surface and about 38 feet above mean sea level.

Water level, in feet with reference to measuring point, 1939-41

Date	Water level	Date	Water level	Date	Water level
Apr. 5, 1939	+0.43	Mar. 6, 1941	-1.25	July 28, 1941	-1.79
Oct. 23, 1940	-1.04	June 13	-1.75	Sept.24	-2.30

7. Central of Georgia Railroad. Meldrim. Between Central of Georgia Railroad and Seaboard Air Line Railroad, about 200 feet north of station. Used drilled industrial well, diameter 8 inches, depth 431 feet. Cased 273 feet. Measuring point, top of 8-inch cap over 8-inch tee, 2.2 feet above land surface and 33.86 feet above mean sea level.

Water level, in feet with reference to measuring point, 1941

Mar. 6	+1.01	July 28	+0.40	Nov. 8	-0.11
June 13	+.42	Sept.24	.00		

a Dry.

Effingham County--Continued

10. H. M. Edwards. About 2.2 miles northwest of Bloomingdale, about 100 feet north of U. S. Highway 80. Used drilled domestic well, diameter 3 inches, depth 440 feet. Cased 90 feet. Measuring point, top of 3-inch casing, 2 feet above land surface. Water levels, in feet below measuring point, 1941: Mar. 6, 9.80; June 13, 10.52; July 28, 10.54; Sept. 24, 10.96.

16. Coastal Service Co. Springfield, northern part, near bottom of valley, south of Jacks Branch, about 300 feet east of State Highway 21. Used drilled public well, diameter 6 inches, depth 400 feet. Measuring point, top of hole in pump base-plate, 1.5 feet above land surface and 46.5 feet above mean sea level. Water levels, in feet below measuring point, 1941: Jan. 29, 6.8; June 13, 7.1.

18. H. B. Robertson. Four miles southwest of Guyton, near east end of steel bridge over Ogeechee River on Springfield to Statesboro road, south side of road. Used drilled domestic well, diameter 3 inches, depth 310 feet. Cased 90 feet. Measuring point, top of 3-inch elbow, 1.8 feet above land surface. Water levels, in feet above measuring point: May 4, 1939, 3.75; Jan. 29, 1941, 2.40; June 13, 1941, 1.85; Sept. 29, 1941, 1.54.

20. Pineora Manufacturing Co. Pineora. Three miles south of Guyton, 0.2 mile west of Central of Georgia Railroad. Used drilled domestic well, diameter 4 inches, depth 397 feet. Measuring point, top of 4-inch casing, 2 feet above land surface. Water levels, in feet below measuring point: May 4, 1939, 37.35; June 13, 1941, 39.68.

Glynn County

1. Owner's number 1, Atlantic Refining Company. About 1 mile north of Brunswick, about 1,400 feet northwest of office of Atlantic Refining Company at Arco. Unused drilled industrial well, diameter 10 inches, depth 1,026 feet. Cased 531 feet. Measuring point, center of recording pressure gauge, 5.35 feet above concrete floor of pump house and about 19 feet above mean sea level. Water level affected by pumpage in Brunswick area.

Highest and lowest weekly water level, in feet above measuring point, 1941 (from recorder charts)

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 2	24.8	Mar. 12	21.8	May 23	21.1	Aug. 7	20.2
3	23.0	14	25.7	28	21.1	10	22.1
5	24.3	16	24.5	29	23.4	13	20.0
6	21.8	22	22.2	June 3	23.4	18	20.0
12	23.8	24	24.4	5	21.1	22	22.5
14	22.3	29	22.2	10	24.0	26	22.0
21	21.6		(b)	11	21.1	29	19.9
24	23.8	Apr. 7	24.0	17	21.6	Sept. 1	20.3
27	23.6	12	22.4	21	24.6	3	22.9
31	21.5	15	24.0	24	23.4	9	20.1
Feb. 5	21.0	18	22.0	28	21.8	13	23.5
7	23.3	21	24.0		(d)	16	22.1
12	21.7	26	21.6	July 14	20.9	20	27.0
13	23.7	May 1	26.2	18	22.9	23	27.8
17	23.4	3	22.6	22	20.6	26	22.4
20	21.5		(c)	26	22.5	30	21.1
23	23.4	12	23.5	27	20.8	Oct. 4	24.0
28	21.3	15	21.8	Aug. 1	23.5	5	23.6
	(a)	18	23.1	3	22.7	6	20.7

a No record Mar. 2 to Mar. 11.
b No record Mar. 30 to Apr. 6.
c No record May 6 to May 11.
d No record June 30 to July 12.

Glynn County--Continued

1. Owner's number 1.--Continued.

Highest and lowest weekly water level, in feet above measuring point, 1941 (from recorder charts)

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Oct. 14	20.9	Nov. 4	20.2	Nov. 23	22.7	Dec. 15	19.8
15	22.9	5	22.0	24	19.8	20	22.4
19	22.7	11	19.3	30	22.4	21	20.9
20	21.0	15	22.2	Dec. 2	20.3	26	26.0
26	22.9	17	20.3	9	20.0	28	23.5
28	20.9	22	22.7	12	22.3	29	20.7

3. Owner's number 3, Atlantic Refining Company. About 1 mile north of Brunswick, about 1,100 feet southwest of office of Atlantic Refining Company at Arco. Unused drilled industrial well, diameter 12 inches, depth 983 feet. Cased 501 feet. Measuring point, top of 12-inch valve, 3.5 feet above land surface and about 15 feet above mean sea level. Water level affected by pumpage in Brunswick area.

Water level, in feet above measuring point, 1941

Date	Water level	Date	Water level	Date	Water level
Jan. 23	26.8	June 18	28.4	Oct. 14	24.55
May 27	26.2	Aug. 12	24.0	Nov. 25	24.7

13. U. S. Department of Commerce. Lighthouse, St. Simons Island. Used jetted domestic well, diameter 4½ inches, depth 627 feet. Cased about 500 feet. Measuring point, top of 4½-inch tee, 2 feet above land surface and 13.5 feet above mean sea level. Water level affected by tide. Water levels, in feet above measuring point, 1941: Jan. 23, 10:30 a.m., 31.5; Aug. 12, 5:00 p.m., 31.75; Oct. 13, 4:40 p.m., 32.9.

33. Sea Island Company, Sea Island Yacht Club. Lanier Island, west bank of Frederica River, south of causeway. Used drilled domestic well, diameter 3 inches, depth about 640 feet. Cased about 500 feet. Measuring point, top of 3-inch tee, 0.5 foot above land surface and about 8 feet above mean sea level. Water level affected by tides. Water levels, in feet above measuring point, 1941: Jan. 23, 10:05 a.m., 37.3; June 18, 2:40 p.m., 37.0; Aug. 12, 4:40 p.m., 36.0; Oct. 13, 4:20 p.m., 37.65.

37. F. G. Horne. St. Simons Island, 0.25 mile south of Fort Frederica. Used drilled domestic well, diameter 3 inches, depth 640 feet. Cased about 500 feet. Measuring point, top of 3-inch cross, 1.7 feet above land surface and about 14 feet above mean sea level. Water level affected by tide. Water levels, in feet above measuring point: Jan. 11, 1939, 12:30 p.m., 34.3; June 18, 1941, 5:05 p.m., 30.4; Aug. 12, 1941, 6:15 p.m., 29.6; Oct. 13, 1941, 5:45 p.m., 29.95.

44. Sea Island Company. North side Sea Island Road, 0.5 mile west of Cloister Hotel at Gun Club. Used drilled domestic well, diameter 3 inches, depth 640 feet. Cased about 500 feet. Measuring point, top of 3-inch cross on 3-inch casing, 0.8 foot above land surface and about 7 feet above mean sea level. Water level affected by tide. Water levels, in feet above measuring point, 1941: Jan. 23, 10:50 a.m., 37.05; June 18, 3:30 p.m., 37.3; Aug. 12, 5:40 p.m., 35.7; Oct. 13, 5:00 p.m., 36.3.

45. City of Brunswick. Northeast part of Brunswick in H. E. Coffin Park. Used drilled public well, diameter 6 inches, depth 630 feet. Cased 514 feet. Measuring point, top of 6-inch tee, 1.6 feet above land surface and 8.11 feet above mean sea level.

Glynn County--Continued

45. City of Brunswick.--Continued.

Water level, in feet above measuring point, 1941

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 23	31.7	June 18	31.45	Oct. 14	31.7	Dec. 19 a	32.3
Mar. 28	31.9	Aug. 13	31.6	Nov. 25	31.8	19 b	32.0
May 27	32.2						

100. New England Tourist Camp. Altamaha River Bridge, 6.1 miles south along U. S. Highway 17, about 300 feet east of highway. Used drilled domestic well, diameter 3 inches, depth about 600 feet. Cased about 300 feet. Measuring point, top of 3-inch cross, 1.5 feet above land surface and 16.9 feet above mean sea level. Water levels, in feet above measuring point, 1941: Jan. 23, 21.0; Mar. 28, 17.65; June 20, 17.35; Aug. 25, 17.9.

128. A. C. Harrison. Thalman. About 0.1 mile south of crossing of Seaboard Air Line Railroad and A. B. & C.R. R. R. Used drilled domestic well, diameter 3 inches, depth about 700 feet. Measuring point, top of 3-inch cross, 1 foot above land surface and 20.75 feet above mean sea level. Water levels, in feet above measuring point: June 21, 1939, 35.2; June 18, 1941, 32.15.

138. G. F. Cowman. South Brunswick River, about 300 feet south of marsh edge, east side of U. S. Highway 17. Used drilled domestic well, diameter 3 inches, depth 665 feet. Measuring point, top of 3-inch cross, 1.5 feet above land surface and about 8 feet above mean sea level. Water level affected by tide.

Water level, in feet above measuring point, 1941

Date	Hour	Water level	Date	Hour	Water level
Mar. 28	1:55 p.m.	32.25	Oct. 14	10:15 a.m.	31.6
June 19	9:55 a.m.	31.45	Dec. 16	8:30 a.m.	32.2
Aug. 13	9:00 a.m.	31.15			

143. J. H. McKee. St. Simons Island, 0.5 mile east of Frederica Road, 0.4 mile north Sea Island Road, at Black Banks. Used drilled domestic well, diameter 3 inches. Measuring point, top of 3-inch cross, 1.2 feet above land surface and about 7 feet above mean sea level. Water level affected by tide. Water levels, in feet above measuring point, 1941: Jan. 23, 12:05 p.m., 21.1; June 19, 4:00 p.m., 20.2; Aug. 12, 5:55 p.m., 19.4; Oct. 13, 5:15 p.m., 21.1.

192. Edgar Rittenhouse. Brunswick, 0.25 mile north Palmetto Cemetery, about 400 feet east of old canal. Used drilled domestic well, diameter 3 inches, depth 640 feet. Cased 520 feet. Measuring point, top of 3-inch cross, 1.8 feet above land surface and about 11 feet above mean sea level. Water level, in feet above measuring point, 1941: Oct. 14, 21.3.

Liberty County

18. E. P. Way. McIntosh, 0.25 mile northwest of Atlantic Coast Line Railroad on southwest side State Highway 38. Used drilled domestic well, diameter 3 inches, depth 550 feet. Measuring point, top of 3-inch tee, 0.4 foot above land surface and about 21 feet above mean sea level. Water levels, in feet above measuring point: Feb. 8, 1939, 23.7; Aug. 11, 1941, 21.3; Sept. 29, 1941, 20.9; Oct. 18, 1941, 21.5.

a 7:55 a.m.
b 4:15 p.m.

Liberty County--Continued

19. Atlantic Coast Line Railroad. McIntosh, about 300 feet southwest of crossing of Atlantic Coast Line Railroad and State Highway 38, on northwest side of railroad. Used drilled industrial well, diameter 6 inches. Measuring point, top of 3-inch tee over well, about 21 feet above mean sea level and 1.4 feet above land surface. Water levels, in feet above measuring point, 1941: Jan. 21, 1.43; June 17, 1.75; Aug. 11, 1.98; Sept. 29, 2.00.

36. W. M. Woods. Dorchester Station, about 0.1 mile east of Seaboard Air Line Railroad station, north side of Sunbury Road. Used drilled domestic well, diameter 3 inches, depth 430 feet. Measuring point, top of 3-inch tee on 3-inch casing, 2.7 feet above land surface and about 20 feet above mean sea level. Water levels, in feet above measuring point, 1941: June 17, 13.95; Nov. 24, 13.8.

38. Dana Stevens. About 0.4 mile south of Dorchester Village Schoolhouse. Used drilled domestic well, diameter 2½ inches. Measuring point, top of 1½-inch pipe, 2 feet above land surface. Water levels, in feet below measuring point, 1941: June 17, 10.19; Nov. 24, 10.43.

43. C. H. Ricks. About 2 miles southeast of Dorchester Village, on north side of road to Colonel's Island. Used drilled domestic well, diameter 3 inches, depth 700 feet. Measuring point, top of 3-inch tee, 0.75 foot above land surface. Water levels, in feet below measuring point, 1941: June 17, 1.38; Nov. 24, 1.8.

45. E. P. Way. Sunbury, 0.3 mile north of Fort Morris. Used drilled domestic well, diameter 3 inches, depth 580 feet. Cased 250 feet. Measuring point to Jan. 1941, top of 3-inch cross, 1 foot above land surface. Measuring point since Jan. 1941, top of 2½-inch tee over well, 1.1 feet above concrete surfacing around well, about 23 feet above mean sea level. Water level affected by tide. Water levels, in feet above measuring point, 1941: June 17, 2:40 p.m., 4.4; Nov. 24, 2:45 p.m., 3.36.

53. Lionel Tester. About 2.5 miles south of Midway Church, on west side of U. S. Highway 17. Used drilled domestic well, diameter 3 inches, depth 408 feet. Cased 180 feet. Measuring point, top of 3 by 2-inch reducer on 3-inch casing, 2 feet above land surface and about 13 feet above mean sea level.

Water level, in feet above measuring point, 1941

Date	Water level	Date	Water level	Date	Water level
Mar. 28	25.6	Aug. 11	25.0	Nov. 24	24.7
June 17	25.0	Oct. 13	24.7	Dec. 18	24.5

75. G. A. Breachley. About 3.7 miles south of Riceboro; along U. S. Highway 17, about 100 feet east of highway. Used drilled domestic well, diameter 3 inches, depth 500 feet. Cased 187 feet. Measuring point, top of 3-inch cross, 1.9 feet above land surface.

Water level, in feet above measuring point, 1939, 1941

Feb. 9, 1939	23.8	June 30, 1941	20.9	Oct. 13, 1941	20.4
Mar. 28, 1941	21.5	Aug. 25	20.0	Dec. 18	20.5

86. G. M. Brown. In southwest part of Colonel's Island, 0.25 mile southwest of Colonel's Island Road. Used drilled domestic well, diameter 3 inches. Measuring point, top of 3-inch tee, 1.5 feet above land surface. Water level affected by tide. Water levels, in feet above measuring point, 1941: June 17, 15.7; Nov. 24, 15.5.

95. W. M. S. Howard. Northwestern part of Colonel's Island, near marsh. Used drilled domestic well, diameter 3 inches. Measuring point, top of 3 by 2-inch reducer, 2.7 feet above land surface and about 8 feet above mean sea level. Water level affected by tide. Water levels, in feet above measuring point; Feb. 14, 1939, 13.5; Nov. 22, 1939, 14.1; June 17, 1941, 12.7; Nov. 24, 1941, 12.25.

Liberty County--Continued

137. H. A. Bacon. Hinesville, 0.5 mile northeast of County Court House, along State Highway 38, on north side of highway. Used drilled domestic well, diameter 2 inches, depth 527 feet. Cased 400 feet. Measuring point, top of 2-inch tee, 0.9 foot above land surface and about 47 feet above mean sea level.

Water level, in feet with reference to measuring point, 1941

Date	Water level	Date	Water level	Date	Water level
Jan. 21	+0.16	June 17	-0.76	Oct. 27	-0.65
Mar. 25	+.05	Sept.29	-1.00		

140. Mrs. Amber Kiddy. Allenhurst, 0.1 mile southeast of Atlantic Coast Line Railroad, at site of old sawmill. Used drilled domestic well, diameter 10 inches, depth 546 feet. Measuring point, top of 10-inch tee, 0.5 foot above land surface and about 47 feet above mean sea level. Water levels, in feet below measuring point, 1941: Jan. 21, 0.11; July 1, 0.85; Aug. 11, 1.04; Sept. 29, 1.18.

170. J. H. Woodall. On north side of U. S. Highway 17, 0.3 mile northeast of Freedman's Grove. Used drilled domestic well, diameter 3 inches, depth 503 feet. Cased 463 feet. Measuring point, top of 3-inch tee on 3-inch casing, 1.2 feet above land surface.

Water level, in feet above measuring point, 1941

June 30	13.75	Oct. 27	13.2	Dec. 18	12.7
Oct. 13	13.25	Nov. 24	13.1		

Long County

8. Town of Ludowici. Ludowici. About 100 feet northwest Atlantic Coast Line Railroad. Used drilled municipal well, diameter 8 to 6 inches, depth 579 feet. Cased 495 feet. Measuring point, hole in pump base-plate, 2.7 feet above land surface and 68.7 feet above mean sea level.

Water level, in feet below measuring point, 1941

Jan. 21	13.46	June 18	13.8	Aug. 11	13.91
Mar. 25	13.20	July 1	13.78	Sept.29	14.05

McIntosh County

11. C. A. Stebbins. Darien. Southeast of State Highway 131, northeast of City Park, about 25 feet west of swimming pool. Used drilled domestic well, diameter 3 to 2 inches, depth 965 feet. Cased 636 feet. Measuring point, top of 3-inch tee on 3-inch casing, 35.06 feet above mean sea level and 2.5 feet above land surface.

Water level, in feet above measuring point, 1941

Jan. 23	7.8	Aug. 25	6.6	Dec. 18	6.3
June 19	6.6	Oct. 13	6.65		

14. C. H. Stebbins. South Newport, northeast of intersection of U. S. Highway 17 and Harris Neck Road. Used drilled domestic well, diameter 3 inches. Measuring point, top of 3-inch tee, 1.9 feet above land surface and approximately 17 feet above mean sea level. Water levels, in feet above measuring point: Feb. 9, 1939, 20.25; June 30, 1941, 18.35; Oct. 13, 1941, 17.55; Dec. 18, 1941, 17.5.

McIntosh County--Continued

22. D. E. McDonald. Eulonia. West side U. S. Highway 17, about 0.25 mile south of road to Townsend. Used drilled domestic well, diameter 3 inches, depth 540 feet. Cased 230 feet. Measuring point, top of 3-inch tee, 0.6 foot above land surface. Water levels, in feet above measuring point: Mar. 6, 1939, 22.0; July 1, 1941, 19.65; Dec. 18, 1941, 18.9.

25. A. D. Burns. Crescent. South side State Highway 131, short distance southeast of post office. Used drilled domestic well, diameter 3 inches, depth 771 feet. Cased 130 feet. Measuring point, top of 3-inch tee, 1 foot above land surface. Water levels, in feet above measuring point: Mar. 10, 1939, 4.65; Oct. 3, 1940, 3.35; July 1, 1941, 2.53; Dec. 18, 1941, 2.11.

27. C. B. Mallard. East side State Highway 131, about 0.4 mile south of right angle bend in road near Crescent, near bluff or Southern Branch Sapeloe River. Used drilled domestic well, diameter 3 inches, depth 729 feet. Cased 120 feet. Measuring point, top of 3 by 2-inch reducer on 3-inch casing, 1 foot above land surface and about 30 feet above mean sea level. Water level affected by tide. Water levels, in feet above measuring point, 1941: July 1, 10:30 a.m., 6.11; Dec. 18, 4:15 p.m. 5.68.

38. E. P. Maggioni & Company. Harris Neck. West bank of Barbour's Island River, northeast of Harris Neck airport. Used drilled industrial well, diameter 4 inches, depth 500+ feet. Measuring point, top of 4-inch cross on 4-inch casing, 3.6 feet above land surface and about 11 feet above mean sea level. Water level affected by tide. Water levels, in feet above measuring point: Mar. 16, 1939, 3:45 p.m., 19.2; June 30, 1941, 4:05 p.m., 18.35; Dec. 18, 1941, 12:55 p.m., 17.5.

43. Public well. Shellman Bluff. Between houses Mallard Jones and Doby Hamons. Used drilled domestic well, diameter 3 inches, depth 650 feet. Measuring point, top of 3-inch tee, 1 foot above land surface, about 15 feet above mean sea level. Water level affected by tide. Water levels, in feet above measuring point: Mar. 12, 1939, 12:05 p.m., 20.25; July 24, 1939, 9:40 a.m., 20.00; June 30, 1941, 5:15 p.m., 18.75; Dec. 18, 1941, 1:40 p.m., 18.05.

45. New Masonic Lodge. Half a mile south of Shellman Bluff. Used drilled domestic well, diameter 3 inches, depth about 700 feet. Measuring point, top of 3-inch tee, 0.5 foot above land surface and about 28 feet above mean sea level. Water level affected by tide. Water levels, in feet above measuring point: Mar. 17, 1939, 1:00 p.m., 6.0; June 30, 1941, 5:45 p.m., 4.25; Dec. 18, 1941, 2:30 p.m., 3.7.

53. Townsend Band Mill. Townsend. About 300 feet east of Seaboard Air Line Railroad, north of Townsend to Eulonia Road. Used drilled industrial well, diameter 4 inches, depth 485 feet. Cased 400 feet. Measuring point, top of 4-inch tee on 4-inch casing, 0.8 foot above land surface and 20.4 feet above mean sea level. Water levels, in feet above measuring point, 1941: July 1, 23.75; Dec. 18, 23.2.

85. R. C. Collins. About 0.7 mile west of Crescent, south side State Highway 131. Used drilled domestic well, diameter 3 inches, depth 918 feet. Cased about 600 feet. Measuring point, top of 3-inch coupling, 1 foot above land surface. Water levels, in feet below measuring point, 1941: July 1, 4.12; Dec. 18, 4.45.

103. A. M. Durant. Volonia. Near A. M. Durant's store. Used drilled domestic well, diameter 3 inches, depth 600 feet. Measuring point, top of 3-inch cross on 3-inch casing, 0.8 foot above land surface and about 10 feet above mean sea level. Water level affected by tide. Water level, in feet above measuring point, 1941: July 1, 10:00 a.m., 24.85.

130. James O'Brien Estate. Ridgeville. Half a mile south of road to dock, east side State Highway 131. Used drilled domestic well, diameter 3 inches, depth 996 feet. Cased 500 feet. Measuring point, top of 3-inch cross, 1.3 feet above land surface. Water level, in feet above measuring point, 1941: July 1, 15.9.

McIntosh County--Continued

141. Sam Jardney. About 6 miles southeast of Townsend, on east side of Briardam Road. Used drilled domestic well, diameter 3 inches, depth 496 feet. Cased about 400 feet. Measuring point, top of 3 by 2-inch bushing, 0.8 foot above land surface. Water levels, in feet above measuring point: Apr. 27, 1939, 22.5; Nov. 14, 1940, 20.6; Dec. 18, 1941, 19.3.

144. Colonel Talbot Smith. About 1.5 miles northeast of Darien, near edge of marsh. Used drilled domestic well, diameter 4 inches, depth 716 feet. Cased about 600 feet. Measuring point, top of 4-inch cross, 1.5 feet above land surface and about 20 feet above mean sea level. Water level, in feet above measuring point, 1941: July 1, 20.3.

Pierce County

2. City of Blackshear. Blackshear. Northeast part of town, about 25 feet northwest of elevated, concrete, municipal water tank. Drilled municipal emergency supply well, diameter 8 inches, depth 825 feet. Cased 450 feet. Measuring point, top of 1-inch pipe nipple in 8-inch flange, 2.2 feet above land surface and 130.6 feet above mean sea level. Water levels, in feet below measuring point, 1941: Jan. 21, 61.88; Mar. 25, 61.24; Aug. 11, 61.77; Oct. 27, 62.08.

5. Town of Patterson. Patterson. About 140 feet east of Atlantic Coast Line Railroad station. Used drilled municipal well, diameter 8 to 6 inches, depth 635 feet. Cased 447 feet. Measuring point, top of hole in pump base plate, 1.5 feet above land surface and about 104 feet above mean sea level. Water levels, in feet below measuring point, 1941: Aug. 11, 35.5; Oct. 28, 35.81.

Wayne County

1. City of Jesup. Jesup. About 300 feet west of crossing of Atlantic Coast Line Railroad and Southern Railroad. Drilled municipal emergency supply well, diameter 10 to 8 inches, depth 654 feet. Cased 502.5 feet. Measuring point, ½-inch tap hole in top of 10-inch bushing, 2 feet above land surface and 98.0 feet above mean sea level.

Water level, in feet below measuring point, 1941

Date	Water level	Date	Water level	Date	Water level
Jan. 21	37.1	June 18	37.40	Oct. 27	37.34
Mar. 25	36.72	Aug. 11	37.34		

3. A. W. Hurn. Gardi. About 300 feet west of old abandoned brick bank building. Used drilled domestic well, diameter 3 inches, depth 560 feet. Measuring point, top of 3-inch coupling, 1.8 feet above land surface and 63.9 feet above mean sea level. Water levels, in feet below measuring point, 1941: June 18, 5.80; Nov. 25, 6.07.

4. State Highway Department. On southwest side of State Highway 25, 0.3 mile southeast of Mt. Pleasant. Used drilled domestic well, diameter 6 to 4½ inches, depth 560 feet. Cased 345 feet. Measuring point, top of 6-inch tee, 1 foot above land surface. Water levels, in feet above measuring point, 1941: June 18, 3.55; Nov. 25, 3.33.

10. Town of Screven. About 600 feet west of Atlantic Coast Line Railroad station. Used drilled municipal well, diameter 8 to 6 inches, depth 931 feet. Cased 572 feet. Measuring point, top of hole in pump base-plate, 1.2 feet above land surface and about 124.5 feet above mean sea level. Water levels, in feet below measuring point: Mar. 22, 1940, 57.20; Mar. 25, 1941, 58.50; Aug. 14, 1941, 58.88; Oct. 28, 1941, 59.30.

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MARYLAND

MONTGOMERY COUNTY

By A. H. Horton

Periodic measurements of water levels have been made since April 18, 1932, in an observation well in Montgomery County by the Federal Geological Survey in cooperation with the Maryland Geological Survey. Records of water levels in this well prior to 1941 have been published in Water-Supply Papers 817, 840, 845, 886, and 907.

The well is an abandoned dug well lined with loose stone, at the rear of the residence owned by Walter M. Brown, 800 feet northeast of the gaging station of the Northwest Branch of the Anacostia River, 1½ miles southwest of Colesville. A continuous water-stage recorder was maintained on this well during 1941.

The highest water level in this well for the period of record--12.75 feet above datum--occurred on April 22, 1933; the lowest of record--6.24 feet above datum--occurred on October 6, 1932.

In 1941 the water level fluctuated about normally for the period January to September and below normal for the balance of the year. The highest water level in 1941 was 10.61 feet, on April 6, and the lowest was 6.29 feet, on October 26 to November 3. The water level was 2.26 feet lower at the end of the year than at the end of 1940.

Water levels are given in feet above the same datum to which the gage on the Northwest Branch of the Anacostia River is referred.

Mean daily water level, in feet above datum, 1941
(from recorder charts)

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	9.16	9.97	9.60	9.79	9.69	8.55	8.03	7.83	7.42	6.63	6.29	6.38
2	9.20	9.98	9.54	9.91	9.65	8.51	8.00	7.81	7.39	6.60	6.29	6.39
3	9.37	9.98	9.53	9.92	9.58	8.48	7.97	7.78	7.36	6.58	6.29	6.40
4	9.43	9.96	9.51	9.90	9.55	8.50	7.95	7.76	7.33	6.55	6.30	6.40
5	9.41	9.95	9.42	10.29	9.52	8.52	7.94	7.73	7.32	6.53	6.30	6.41
6	9.39	9.95	9.39	10.61	9.46	8.51	7.94	7.71	7.30	6.51	6.31	6.42
7	9.39	10.01	9.37	10.55	9.45	8.49	7.95	7.67	7.28	6.47	6.31	6.42
8	9.39	10.08	9.40	10.54	9.40	8.48	7.95	7.65	7.24	6.46	6.32	6.44
9	9.41	10.03	9.39	10.53	9.36	8.45	7.94	7.63	7.22	6.44	6.32	6.46
10	9.42	9.96	9.36	10.50	9.31	8.42	7.92	7.60	7.20	6.42	6.32	6.47

Montgomery County--Continued.

Mean daily water level, in feet above datum, 1941--Continued.
(from recorder charts)

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
11	9.41	9.93	9.68	10.47	9.28	8.38	7.90	7.57	7.17	6.40	6.32	6.47
12	9.40	9.91	10.12	10.42	9.24	8.35	7.88	7.55	7.14	6.39	6.32	6.48
13	9.37	9.88	10.18	10.40	9.20	8.33	7.95	7.51	7.11	6.37	6.32	6.53
14	9.33	9.95	10.19	10.40	9.16	8.32	8.17	7.48	7.08	6.36	6.32	6.63
15	9.32	10.01	10.21	10.37	9.12	8.31	8.19	7.47	7.07	6.35	6.33	6.67
16	9.39	9.98	10.24	10.31	9.11	8.28	8.19	7.50	7.03	6.34	6.33	6.68
17	9.84	9.99	10.23	10.27	9.09	8.25	8.19	7.47	7.01	6.33	6.34	6.72
18	9.98	9.97	10.18	10.22	9.02	8.23	8.17	7.46	6.97	6.33	6.34	6.73
19	9.96	9.90	10.17	10.17	8.99	8.21	8.15	7.48	6.95	6.32	6.33	6.76
20	9.90	9.87	10.16	10.14	8.94	8.19	8.17	7.64	6.92	6.30	6.33	6.78
21	9.86	9.86	10.12	10.08	8.91	8.17	8.15	7.65	6.90	6.30	6.33	6.78
22	9.85	9.83	10.08	9.99	8.89	8.15	8.13	7.65	6.87	6.30	6.34	6.80
23	9.83	9.79	10.05	9.96	8.85	8.13	8.11	7.65	6.85	6.31	6.34	6.82
24	9.82	9.74	10.05	9.93	8.81	8.18	8.09	7.64	6.81	6.30	6.34	6.85
25	10.08	9.72	10.02	9.88	8.76	8.18	8.06	7.62	6.79	6.30	6.34	6.86
26	10.12	9.68	9.97	9.84	8.74	8.15	8.03	7.61	6.75	6.29	6.35	6.88
27	10.10	9.65	9.94	9.82	8.71	8.13	7.98	7.57	6.73	6.29	6.36	6.89
28	10.07	9.64	9.92	9.77	8.66	8.11	7.95	7.52	6.70	6.29	6.36	6.90
29	10.05	....	9.88	9.72	8.63	8.09	7.92	7.50	6.67	6.29	6.37	6.91
30	10.04	....	9.82	9.71	8.59	8.06	7.89	7.47	6.65	6.29	6.38	6.92
31	10.00	....	9.79	....	8.57	....	7.86	7.45	....	6.29	....	6.92

PRINCE GEORGES COUNTY

By Bernard Fisher

The periodic measurement of water levels in 2 wells in Prince Georges County, which was begun in 1940 (see Water-Supply Paper 907), was continued in 1941. A total of 59 individual measurements of water level was made during the year.

The water in well 242 is under artesian pressure. On January 6 the water level was 16.62 feet above sea level. It rose gradually to a peak of 18.55 feet above sea level on June 30. This was followed by a period of discharge which culminated in a low water level of 13.69 feet above sea level on September 22. This was followed by another gradual rise in water level which continued until the end of the year when the water level was 18.80 feet above sea level--higher than it had been at any other time during 1941.

Well 261, in Suitland, was discontinued as an observation well because an electric pump was installed in July. Until that time the total fluctuation of water level was 2.07 feet from a low of 252.00 feet above sea level on June 30 to a high of 254.07 feet above sea level a week later.

Prince Georges County--Continued.

242. City of Hyattsville. Measuring point, 22.01 feet above mean sea level.

Water level, in feet above mean sea level, 1941

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 6	16.62	Apr. 26	17.90	Aug. 18	15.37	Oct. 27	15.33
Feb. 10	16.80	May 12	17.91	25	15.20	Nov. 3	15.84
17	16.79	June 2	18.00	Sept. 2	14.76	10	16.43
24	17.03	16	18.22	8	14.42	17	17.31
Mar. 3	16.98	30	18.55	15	13.94	23	17.58
10	17.27	July 7	18.51	22	13.69	Dec. 1	17.98
17	17.40	14	18.29	29	13.78	8	18.57
24	17.62	21	17.82	Oct. 6	13.81	15	18.65
31	17.80	29	17.19	13	14.13	22	18.72
Apr. 7	17.97	Aug. 4	16.06	20	14.52	29	18.80
14	17.92	11	15.69				

261. Suitland. Measuring point, 280 feet above mean sea level.

Water level, in feet above mean sea level, 1941

Jan. 6	253.69	Mar. 10	253.86	Apr. 7	253.90	June 2	253.24
Feb. 10	253.70	17	253.83	14	253.69	16	252.02
17	253.80	24	253.71	26	250.22	30	252.00
24	253.71	31	253.78	May 12	253.04	July 7	254.07
Mar. 3	253.76						

MISSISSIPPI

By R. W. Adams and G. F. Brown

Water-level measurements in 42 key observation wells were continued in Mississippi during 1941 as part of the ground-water investigations conducted by the Federal Geological Survey in cooperation with the Mississippi Geological Survey. Water-stage recorders--5 pressure-type and 6 float-type--furnished nearly continuous records of the water-level fluctuations in 11 wells. Monthly or seasonal measurements were made in 31 additional wells during the year.

Records of the United States Weather Bureau show that the annual precipitation in Mississippi was 6.5 inches below the average. July and October were the only months in which the precipitation was more than normal. Water levels in wells declined generally, but increased consumption rather than subnormal precipitation was the dominant cause of the lowering in many places, including the Hattiesburg and Laurel areas.

The water level in the municipal observation well at Hattiesburg declined 2.45 feet during the period from January to late September, and rose about 1 foot during the remainder of the year. The decline apparently was caused, in part, by the increase in quantity of water pumped, and the rise was due to a decrease in consumption which occurred when water meters were installed in the city.

Heavy pumpage continued to lower water levels in the upper Catahoula sand at Laurel. The average low stage for December was 5.9 feet below the average low stage for December 1940.

In the alluvial plain of the Mississippi River in northwest Mississippi the water levels declined below the stages of 1940 in 15 of 22 observation wells that are measured periodically. No noticeable trend was shown by 3 wells, and the water levels rose in 5 wells. At the end of the year the largest measured decline was 8.3 feet in Humphreys 10, which penetrates a sand that contains water under sufficient pressure to rise 100 feet above the land surface. The water level in Quitman 15, in the northern part of

the alluvial plain, was 1.5 feet lower than at the end of 1940, whereas the water level continued to rise in Washington 70, the weekly lows for November being 0.42 foot higher than the corresponding levels of the preceding year.

The accompanying illustration shows fluctuations of water level in a well at Mississippi State College, Starkville, during a part of 1940 and all of 1941.

Bolivar County

13. Town of Shelby. Water levels, in feet above datum, 1941: July 23, 2:07 p.m., 172.3; Nov. 28, 8:30 a.m., 171.1; Dec. 26, 4:15 p.m., 171.1.

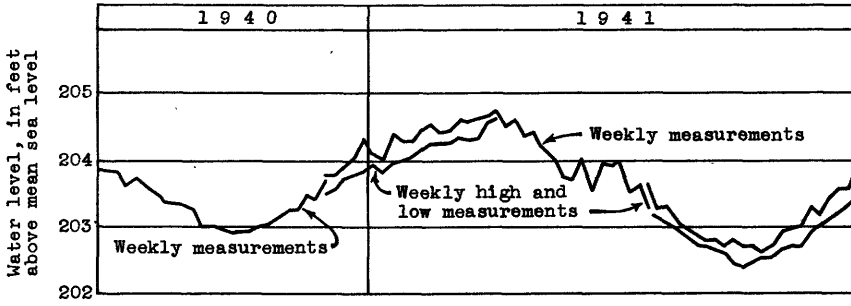

Figure 8.--Graph showing fluctuations of water level in well at Mississippi State College, Starkville, Miss.

18. Town of Gunnison. Water levels, in feet above datum, 1941: July 23, 2:43 p.m., 179.5; Nov. 28, 9:00 a.m., 179.1; Dec. 26, 4:55 p.m., 179.2.

35. Town of Beulah. Water levels, in feet above datum, 1941: July 23, 3:30 p.m., 173.6; Nov. 28, 9:40 a.m., 176.1; Dec. 26, 5:25 p.m., 174.9.

50. Jones Bayou Gin Co. Water levels, in feet above datum, 1941: July 23, 4:55 p.m., 150.0; Nov. 28, 10:25 a.m., 152.0; Dec. 26, 6:15 p.m., 151.2.

Coahoma County

11. Norfleet and Wilsford. Water levels, in feet above datum, 1941: July 23, 9:13 a.m., 221.1; Nov. 27, 1:50 p.m., 220.0; Dec. 26, 2:30 p.m., 219.8.

32. Coahoma County Agricultural High School. Water levels, in feet above datum, 1941: July 22, 7:45 p.m., 218.6; Nov. 28, 7:10 a.m., 215.8; Dec. 26, 3:20 p.m., 216.2.

Forrest County

City of Hattiesburg. SE¼NW¼ sec. 10, T. 4 N., R. 13 W. No measurements made during 1941.

City of Hattiesburg. Recorder well. Measuring point, 159.46 feet above mean sea level.

Weekly high and low water level, in feet above datum, 1941

Date	Hour	High water level	Date	Hour	Low water level
Jan. 11	5:00 a.m.	157.92	Jan. 7	10:00 p.m.	157.62
17	1:00 a.m.	158.11	12	1:00 a.m.	157.78
25	3:00 p.m.	158.02	23	8:00 a.m.	157.82
30	5:00 a.m.	157.96	29	1:00 p.m.	157.74
Feb. 3	5:00 a.m.	158.00	Feb. 8	11:00 p.m.	157.54
10	6:00 a.m.	157.81	15	2:00 p.m.	157.30
22	3:00 p.m.	157.37	18	8:00 p.m.	157.20
24	4:00 a.m.	157.44	Mar. 1	3:00 a.m.	157.00
Mar. 8	11:59 p.m.	157.67	6	11:00 a.m.	156.98
9	2:00 p.m.	157.75	16	1:00 a.m.	156.99
15	8:00 a.m.	157.07	22	4:00 a.m.	156.88
24	5:00 a.m.	156.93	29	1:00 p.m.	156.76
31	4:00 p.m.	157.22	30	1:00 a.m.	156.77
Apr. 6	3:00 p.m.	157.08	Apr. 12	11:00 a.m.	156.80
17	6:00 a.m.	157.72	19	11:00 p.m.	156.79
24	12:00 p.m.	157.39	21	10:00 a.m.	157.00
27	7:00 a.m.	157.17	May 3	10:00 a.m.	156.82
May 6	5:00 a.m.	156.92	10	10:00 a.m.	156.73
11	5:00 p.m.	156.80	14	11:00 a.m.	156.50
18	12:00 a.m.	156.61	24	10:00 p.m.	156.17
30	7:00 a.m.	156.52	28	10:00 a.m.	155.98
June 5	4:00 p.m.	156.25	June 7	11:00 p.m.	155.87
14	8:00 p.m.	156.13	8	10:00 a.m.	155.83
18	4:00 p.m.	156.16	20	4:00 a.m.	155.95
23	4:00 p.m.	156.11	28	6:00 a.m.	155.94
30	6:00 p.m.	155.98	July 3	5:00 a.m.	155.70
July 6	1:00 a.m.	155.94	9	8:00 a.m.	155.77
17	4:00 p.m.	156.13	13	2:00 a.m.	155.86
20	2:00 a.m.	156.04	26	1:00 p.m.	155.75
30	4:00 p.m.	155.91	Aug. 1	11:00 p.m.	155.71
Aug. 4	7:00 p.m.	155.94	9	2:00 p.m.	155.59
10	6:00 a.m.	155.66	15	3:00 p.m.	155.44
17	6:00 p.m.	155.72	23	1:00 p.m.	155.37
28	1:00 a.m.	155.54	27	10:00 a.m.	155.34
Sept. 6	10:00 p.m.	155.77	31	11:00 a.m.	155.45
9	6:00 a.m.	155.98	Sept. 11	2:00 p.m.	155.60
14	6:00 a.m.	155.89	20	7:00 p.m.	155.63
27	11:00 p.m.	155.77	24	2:00 p.m.	155.51
Oct. 4	7:00 a.m.	155.91	Oct. 1	7:00 p.m.	155.75
7	4:00 a.m.	155.96	11	11:00 p.m.	155.79
12	4:00 p.m.	155.87	17	10:00 a.m.	155.73
20	4:00 p.m.	155.86	24	2:00 p.m.	155.56
Nov. 1	4:00 p.m.	155.84	29	10:00 p.m.	155.52
5	6:00 p.m.	156.11	Nov. 2	1:00 p.m.	155.79
12	9:00 a.m.	156.09	12	11:00 p.m.	155.89
22	11:00 p.m.	156.28	19	11:00 a.m.	155.98
23	6:00 a.m.	156.28	29	12:00 m.	156.01
Dec. 2	1:00 p.m.	156.47	30	12:00 a.m.	156.09
13	5:00 p.m.	156.87	Dec. 7	8:00 p.m.	156.30
18	3:00 a.m.	156.90	16	3:00 p.m.	156.53

William Beard. NE¼NE¼ sec. 23, T. 3 N., R. 13 W., at southwest corner of porch at rear of residence. Domestic well, diameter 6 inches, measured depth 44.5 feet. Measuring point, top of wooden curbing, 4.6 feet above land surface and about 284 feet above mean sea level. Water level, in feet below measuring point, 1941: Oct. 18, 41.20.

Forrest County--Continued.

Dixie Tung Empire Corporation.

Water level, in feet below measuring point, 1941

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Feb. 28	50.02	June 30	51.01	Aug. 29	50.71	Oct. 18	51.99
Mar. 31	49.26	July 29	50.68	Sept.28	51.06	Dec. 31	50.97
May 31	51.20						

Grenada County

12. Holcomb School. Water levels, in feet above datum, 1941: Jan. 1, 2:15 p.m., 211.7; July 31, 6:00 p.m., 213.3; Nov. 28, 7:52 p.m., 213.1; Dec. 27, 8:25 a.m., 212.2.

16. Town of Holcomb. Water levels, in feet above datum, 1941: Jan. 1, 2:15 p.m., 189.22; July 31, 5:40 p.m., 190.59; Nov. 28, 7:35 p.m., 189.19; Dec. 27, 7:58 p.m., 188.72.

Harrison County

118. City of Gulfport.

Weekly high and low water level, in feet above mean Gulf level, 1941

Date	Hour	High water level	Date	Hour	Low water level
Jan. 11	5:00 p.m.	42.6	Jan. 10	9:00 a.m.	40.8
16	5:00 p.m.	43.5	12	11:00 a.m.	41.2
22	5:00 p.m.	42.8	19	11:00 a.m.	41.0
27	4:00 p.m.	42.9	28	10:00 a.m.	41.1
Feb. 2	6:00 p.m.	42.7	Feb. 3	10:00 a.m.	41.2
13	4:00 p.m.	42.9	11	9:00 a.m.	41.1
21	7:00 p.m.	42.9	21	10:00 a.m.	41.2
25	4:00 p.m.	42.8	28	10:00 a.m.	41.1
Mar. 7	3:00 a.m.	42.7	Mar. 2	10:00 a.m.	41.3
15	2:00 p.m.	42.7	11	7:00 a.m.	41.5
20	4:00 p.m.	43.3	17	11:00 p.m.	41.8
26	4:00 p.m.	43.3	29	10:00 p.m.	41.5
Apr. 4	6:00 p.m.	43.6	30	12:01 a.m.	41.6
9	12:00 m.	43.4	Apr. 4	11:00 p.m.	41.5
18	3:00 p.m.	42.6	14	11:00 p.m.	39.7
23	1:00 p.m.	42.9	25	12:00 m.	41.1
29	1:00 p.m.	43.2	May 2	4:00 a.m.	40.5
May 5	2:00 p.m.	43.1	9	4:00 a.m.	40.7
13	3:00 p.m.	42.5	17	7:00 p.m.	39.5
22	6:00 a.m.	41.9	23	5:30 p.m.	38.5
31	3:00 p.m.	41.8	28	3:30 p.m.	38.2
June 2	4:30 p.m.	42.2	June 6	3:00 a.m.	40.5
10	10:00 a.m.	42.7	13	4:00 a.m.	40.7
16	11:00 a.m.	42.5	20	5:00 a.m.	40.8
23	6:00 a.m.	42.8	27	6:00 a.m.	40.6
July 5	4:00 a.m.	42.7	July 4	4:00 a.m.	41.0
6	7:00 a.m.	42.7	11	4:00 a.m.	40.9
19	9:00 a.m.	42.5	18	4:00 a.m.	40.8
20	10:00 a.m.	42.3	25	4:00 a.m.	40.5
Aug. 2	7:00 a.m.	42.5	Aug. 1	4:00 a.m.	40.8
6	2:00 p.m.	42.5	8	5:00 a.m.	40.5
10	8:00 p.m.	42.2	15	5:00 a.m.	40.4
23	2:00 p.m.	42.0	22	5:00 a.m.	40.3
26	3:00 p.m.	42.1	29	5:00 a.m.	40.5
31	8:00 a.m.	42.2	Sept. 5	5:00 a.m.	40.4
Sept.13	5:00 a.m.	42.6	12	4:00 a.m.	41.2
14	4:00 a.m.	42.5	19	4:00 a.m.	40.5
22	1:00 p.m.	42.5	26	4:00 a.m.	40.5
Oct. 2	6:00 a.m.	42.8	Oct. 4	6:00 a.m.	40.8
9	1:00 p.m.	42.1	10	5:00 a.m.	40.3

Harrison County--Continued.

118. City of Gulfport.--Continued.

Weekly high and low water level, in feet above mean Gulf level, 1941

Date	Hour	High water level	Date	Hour	Low water level
Oct. 14	2:00 a.m.	42.1	Oct. 14	6:00 p.m.	41.5
21	2:00 a.m.	42.1	23	3:30 a.m.	40.2
27	6:00 a.m.	42.2	31	6:00 p.m.	37.8
Nov. 15	12:30 a.m.	41.5	Nov. 8	7:00 p.m.	37.2
14	11:00 a.m.	41.1	14	8:30 p.m.	37.4
22	11:59 p.m.	41.1	16	9:00 p.m.	37.5
23	2:00 a.m.	41.3	28	9:00 p.m.	37.3
Dec. 3	5:00 p.m.	41.6	Dec. 1	8:00 a.m.	40.5
8	4:30 p.m.	41.7	8	10:00 a.m.	40.3
16	3:00 p.m.	42.1	14	10:00 a.m.	40.3
23	4:00 p.m.	42.3	21	10:00 a.m.	40.5

Gulf & Ship Island R. R. NE¼NW¼ sec. 18, T. 5 S., R. 11 W., between two tenant houses, 600 feet east of U. S. Highway 49, near crest of low ridge, 1.5 miles southeast of Saucier. Used dug domestic water-table well, diameter at top, 3 feet, depth 23.4 feet. Measuring point, top of well curb 2.8 feet above land surface and about 145 feet above mean sea level.

Water level, in feet below measuring point, 1941

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Feb. 28	21.95	June 30	22.90	Aug. 29	22.10	Oct. 18	21.96
Mar. 31	21.66	July 29	22.10	Sept.28	21.81	Dec. 31	21.78
May 31	22.50						

Holmes County

38. Town of Tchula. Water levels, in feet above datum, 1941: July 31, 11:25 a.m., 131.4; Nov. 28, 5:50 p.m., 138.9; Dec. 27, 12:15 p.m., 138.0.

59. M. L. Smith. Water levels, in feet above datum, 1941: July 31, 10:45 a.m., 251.3; Nov. 28, 5:30 p.m., 243.2; Dec. 27, 12:40 p.m., 239.8.

Humphreys County

10. Wister Henry. Automatic water-level recorder removed after Feb. 15, 1941.

Weekly high and low water level, in feet above datum, 1941

Date	High water level	Low water level	Date	High water level	Low water level
Jan. 4	225.9	224.1	Feb. 1	228.7	226.9
11	226.9	224.1	8	228.4	226.7
18	224.9	224.1	15	227.9	226.9
25	228.3	224.4	Dec. 27	a 216.7	.....

18. J. C. Halbrook.

Weekly high and low water level, in feet above datum, 1941

Date	High water level	Date	Low water level
Jan. 4	117.8	Jan. 4	116.7
10	118.0	10	116.4
15	118.2	18	116.4
25	118.2	19	116.2
31	117.8	29	116.5
Feb. 5	117.8	Feb. 5	116.8
13	118.0	9	116.4

a Tape measurement; 5:30 p.m.

Humphreys County--Continued.

18. J. C. Halbrook.--Continued.

Weekly high and low water level, in feet above datum, 1941

Date	High water level	Date	Low water level
Feb. 16	117.9	Feb. 19	116.4
Mar. 1	117.4	28	116.6
2	118.2	Mar. 5	116.7
9	118.2	12	116.8
21	118.2	17	116.8
29	118.2	28	117.0
Apr. 2	118.6	Apr. 2	117.1
9	118.4	8	117.2
14	118.4	15	117.3
26	118.4	23	117.0
May 3	118.4	29	116.8
10	118.4	May 10	117.2
11	118.4	16	116.1
24	117.6	24	117.2
25	117.8	29	115.9
June 4	118.0	June 5	115.9
14	118.4	12	116.0
18	117.1	17	116.3
26	117.7	26	a 115.6

56. Town of Louise. Water levels; in feet above datum, 1941: July 31, 8:53 a.m., 127.2; Nov. 28, 4:20 p.m., 129.3.

Issaquena County

24. W. W. Gary. Measuring point, 98.13 feet above mean sea level. Water levels, in feet above datum, 1941: July 24, 11:09 a.m., 146.0; Nov. 28, 2:30 p.m., 144.4; Dec. 27, 5:45 p.m., 144.2.

Jackson County

Camp McClellan.

Weekly high and low water level, in feet above datum, 1941

Date	High water level	Low water level	Date	High water level	Low water level
Jan. 4	39.9	39.2	July 5	40.0	39.7
11	39.8	39.0	12	39.9	39.8
18	40.0	39.1	19	39.9	39.7
25	39.8	39.3	26	40.0	39.7
Feb. 1	39.6	39.1	Aug. 2	40.0	39.7
8	39.8	39.2	9	39.9	39.6
15	40.0	39.4	16	39.9	39.6
22	39.8	39.4	23	40.0	39.6
Mar. 1	39.8	39.3	30	39.9	39.5
8	39.9	39.4	Sept. 6	39.9	39.6
15	39.8	39.2	13	39.9	39.8
22	39.9	39.2	20	40.2	39.9
29	39.9	39.5	27	40.0	40.0
Apr. 5	39.9	39.5	Oct. 4	40.0	39.8
12	39.9	39.7	11	40.1	39.6
19	39.9	39.6	18	b 41.0	b 39.8
26	40.0	39.4	25	41.2	40.9
May 3	39.9	39.6	Nov. 1	41.0	40.8
10	39.9	39.7	8	41.1	40.8
17	40.0	39.5	15	41.0	40.4
24	39.9	39.3	22	41.2	40.7
31	39.8	39.2	29	41.0	40.6
June 7	39.9	39.6	Dec. 6	....	....
14	39.8	39.5	13	40.8	40.4
21	39.9	39.5	20	40.9	40.5
28	39.9	39.8	27	40.9	40.6

a Automatic water-level recorder removed.
b Automatic water-level recorder adjusted Oct. 17; earlier records not corrected.

Jackson County--Continued.

Gulf Hills Development Company. No measurements made during 1941.

Jones County

Mr. Ed Howard.

Water level, in feet below measuring point, 1941

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Feb. 28	18.04	May 31	18.47	July 29	18.30	Sept.28	18.97
Mar. 31	17.17	June 30	19.03	Aug. 29	18.61	Dec. 30	18.23

Gilchrist-Fordney Lumber Company. Measuring point, 270.82 feet above mean sea level.

Weekly high and low water level, in feet above datum, 1941

Date	High water level	Low water level	Date	High water level	Low water level
Jan. 4	171.29	167.87	June 14	160.62	158.47
11	171.97	170.01	21	161.34	159.85
18	172.27	170.01	28	162.07	159.48
25	172.77	171.07	July 5	160.54	158.60
Feb. 1	172.87	171.37	12	160.89	159.42
8	173.42	171.47	19	161.90	159.45
15	173.17	170.04	26	161.44	159.52
22	171.72	169.90	Aug. 2	160.16	157.22
Mar. 1	172.72	170.74	9	158.82	157.69
8	172.89	170.10	16	159.55	158.22
15	173.05	169.87	23	159.54	157.47
22	172.20	170.27	30	158.47	156.80
29	172.27	168.82	Sept. 6	159.62	157.07
Apr. 5	169.34	167.74	13	161.42	158.47
12	169.86	166.82	20	160.92	156.88
19	168.90	165.90	27	160.52	156.70
26	168.69	166.12	Oct. 4	160.79	156.55
May 3	169.44	165.45	11	160.80	156.50
10	167.92	165.47	18	161.40	154.64
17	168.15	163.50	25	156.50	153.95
24	163.47	161.50	Nov. 1	160.02	153.92
31	162.29	159.54	8	162.35	159.62
June 7	161.52	159.04			

Starch plant, U. S. Department of Agriculture. Measuring point, 230.6 feet above mean sea level.

Weekly high and low water level, in feet below measuring point, 1941

Jan. 4	141.5	115.4	May 10	104.0	99.2
11	145.8	127.1	17	109.2	101.9
18	125.6	111.1	24	105.3	98.8
25	130.1	111.1	31	101.4	97.1
Feb. 1	117.6	110.5	June 7	102.0	99.9
8	114.9	112.0	14	103.7	94.6
15	114.0	112.2	21	127.7	95.1
22	113.8	111.8	28	120.1	100.5
Mar. 1	113.2	105.5	July 5	102.1	98.6
8	114.0	104.4	12	100.7	97.8
15	110.9	104.0	19	101.1	99.6
22	108.6	101.8	26	100.7	95.9
29	106.8	101.3	Aug. 2	98.7	94.5
Apr. 5	106.7	90.6	9	105.8	95.9
12	104.6	102.7	16	106.1	97.2
19	103.4	102.8	23	98.0	96.0
26	111.0	102.9	30	97.4	92.2
May 3	105.0	102.0	Sept. 6	97.4	91.6

Jones County--Continued.

Starch plant, U. S. Department of Agriculture.--Continued.

Weekly high and low water level, in feet below measuring point, 1941

Date	High water level	Low water level	Date	High water level	Low water level
Sept. 13	97.9	93.5	Nov. 8	90.8	84.1
20	98.2	89.3	15	92.5	83.3
27	99.0	89.5	22	91.0	85.8
Oct. 4	99.1	92.4	29	95.2	85.7
11	97.8	92.5	Dec. 6	95.5	89.7
18	97.7	94.0	13	94.8	91.7
25	98.6	85.8	20	91.6	89.5
Nov. 1	98.8	85.1	27	93.9	82.0

Mr. M. Brannon.

Water level, in feet below measuring point, 1941

Date	Water level	Date	Water level	Date	Water level
Feb. 28	71.66	June 30	72.56	Aug. 29	69.96
Mar. 31	68.05	July 29	69.71	Sept. 28	73.03
May 31	73.52				

Town of Ovett. Flowing prior to measurements. Water levels, in feet above measuring point, 1941: Nov. 30, 2.99; Dec. 30, 3.04.

LeFlore County

60. Mrs. D. B. Jameson. Water levels, in feet above datum, 1941: July 31, 4:00 p.m., 145.6; Nov. 27, 5:45 p.m., 146.3; Dec. 27, 11:05 a.m., 145.6.

74. Rudolph Bernander. Discontinued as an observation well July 27, 1940.

136. C. M. Journey. Water levels, in feet above datum, 1941: Jan. 1, 12:20 p.m., 166.7; July 31, 2:55 p.m., 166.0; Nov. 27, 4:52 p.m., 167.6; Dec. 27, 7:20 a.m., 166.5.

152. City of Greenwood.

Weekly high and low water level, in feet above datum, 1941

Date	High water level	Low water level	Date	High water level	Low water level
Jan. 4	147.22	146.71	Mar. 22	146.85	146.32
11	147.93	146.74	29	146.90	146.53
18	.....	.....	Apr. 5	146.95	146.30
25	.....	.....	12	147.01	146.22
Feb. 1	146.81	146.43	19	146.78	146.04
8	146.87	146.38	26	146.98	146.23
15	146.83	146.13	May 3	147.02	146.35
22	146.80	146.22	10	146.98	146.21
Mar. 1	146.76	146.11	17	146.87	145.77
8	146.86	146.24	20	146.73	145.73
15	146.92	146.39			

Quitman County

14. Dr. J. E. Furr. Measurements discontinued.

15. Town of Marks.

Weekly high and low water level, in feet above datum, 1941

Jan. 4	178.3	177.9	Feb. 8	178.3	176.9
11	178.3	177.6	15	178.5	177.8
18	178.3	177.6	22	178.3	177.7
25	178.3	177.2	Mar. 1	178.3	177.7
Feb. 1	178.3	177.5	8	178.5	177.8

Quitman County--Continued.

15. Town of Marks.--Continued.

Weekly high and low water level, in feet above datum, 1941

Date	High water level	Low water level	Date	High water level	Low water level
Mar. 15	178.5	177.8	Aug. 9	177.7	177.0
22	178.6	177.7	16	177.3	176.7
29	178.5	177.8	23	177.3	176.5
Apr. 5	178.7	178.1	30	177.2	176.5
12	178.7	178.0	Sept. 6	177.1	176.5
19	178.6	178.0	13	176.9	176.5
26	178.8	177.7	20	176.9	176.5
May 3	178.9	178.1	27	176.8	176.2
10	178.8	177.8	Oct. 4	176.7	176.3
17	178.7	177.9	11	176.7	176.5
24	178.6	177.7	18	176.8	176.3
31	178.5	177.5	25	176.9	176.5
June 7	178.5	177.5	Nov. 1	176.8	176.3
14	178.4	177.5	8	176.8	176.5
21	178.2	177.3	15	176.7	176.3
28	178.3	177.5	22	176.7	176.5
July 5	178.3	177.5	29	177.1	176.5
12	178.5	177.3	Dec. 6	176.7	176.3
19	179.0	178.0	13	176.6	176.3
26	179.3	178.3	20	176.8	176.4
Aug. 2	178.5	177.3	27	176.8	176.4

21. W. R. Harrington. Water levels, in feet above datum, 1941: July 22, 5:25 p.m., 200.9; Nov. 26, 5:45 p.m., 202.8; Dec. 26, 12:35 p.m., 203.3.

32. City Cafe, Lambert. Water levels, in feet above datum, 1941: July 22, 2:15 p.m., 166.55; Nov. 24, 5:00 p.m., 166.80; Dec. 26, 12:00 m., 166.75.

Sharkey County

43. Cary Water Company. Discontinued as an observation well June 11, 1940.

Sunflower County

39. E. L. Coleman et al. Water levels, in feet above datum, 1941: July 23, 12:48 p.m., 157.8; Nov. 28, 11:05 a.m., 157.0; Dec. 26, 7:05 p.m., 153.4.

Tallahatchie County

24. Town of Tutwiler. Water levels, in feet above datum, 1941: July 23, 11:45 a.m., 165.23; Nov. 27, 2:30 p.m., 165.37; Dec. 27, 9:30 a.m., 165.17.

68. Town of Sumner. Water levels, in feet above datum, 1941: July 23, 10:18 a.m., 211.0; Nov. 27, 3:00 p.m., 215.6; Dec. 27, 9:45 a.m., 212.8.

171. Phillip Stave Mill Company. Water levels, in feet above datum, 1941: July 31, 7:05 p.m., 148.94; Nov. 27, 3:45 p.m., 150.96; Dec. 27, 10:23 a.m., 150.37.

Tunica County

17. G. D. Perry, Sr. Water levels, in feet above datum, 1941: July 23, 8:30 a.m., 221.9; Nov. 28, 12:15 p.m., 219.9; Dec. 26, 1:40 p.m., 218.0.

Washington County

25. Wagner Plantations. Water levels, in feet above datum, 1941: July 23, 6:40 p.m., 164.3; Nov. 28, 11:45 a.m., 164.6; Dec. 27, 4:15 p.m., 161.0.

65. W. D. Atterbury. Water levels, in feet above datum, 1941: July 24, 8:25 a.m., 200.2; Nov. 28, 12:40 p.m., 197.9; Dec. 27, 4:50 p.m., 195.8.

70. Town of Hollandale. Measuring point, top of 6-inch well casing, 0.2 foot above land surface and 5.0 feet below previous measuring point.

Weekly high and low water level, in feet above datum, 1941

Date	High water level	Low water level	Date	High water level	Low water level
Jan. 4	99.38	98.27	July 5	97.06	96.91
11	99.70	98.83	12	96.92	96.58
18	99.85	98.90	19	97.25	96.86
25	99.77	98.91	26	97.80	96.90
Feb. 1	99.77	98.63	Aug. 2	96.99	96.67
8	100.12	99.48	9	.....	.....
15	100.24	99.39	16	96.81	96.71
22	100.19	99.33	23	96.73	96.28
Mar. 1	100.30	99.13	30	96.82	96.08
8	100.50	99.67	Sept. 6	96.77	96.04
15	100.90	99.91	13	96.05	95.96
22	100.96	100.11	20	95.98	95.80
29	101.01	99.89	27	96.20	95.20
Apr. 5	101.15	101.01	Oct. 4	95.21	94.91
12	101.14	99.64	11	94.91	94.51
19	100.97	100.04	18	95.59	94.52
26	100.75	99.71	25	95.59	94.17
May 3	100.76	99.67	Nov. 1	95.62	94.37
10	100.70	99.54	8	96.20	95.03
17	100.55	99.20	15	96.39	95.55
24	100.25	99.12	22	96.80	95.67
31	99.19	98.39	29	97.09	95.87
June 7	98.83	97.98	Dec. 6	97.53	96.57
14	97.98	97.40	13	97.55	96.49
21	98.16	97.35	20	97.61	96.84
28	97.66	97.07	27	97.86	96.95

Yazoo County

25. Yazoo City. Water level, in feet above datum, 1941: July 24, 2:00 p.m., 136.6.

NORTH CAROLINA

STATE-WIDE PROJECT

By E. D. Burchard

The program of water-level measurements in observation wells in North Carolina, as described in Water-Supply Papers 777, 840, 886 and 907, was continued in 1941. Water level recorders were operated on four wells throughout the year. Measurements were made daily or intermittently in four other wells.

The drought of 1941 registered a net decline in the ground-water level at all wells under observation. Frequent reports, on a State-wide basis, of the drying up of reliable wells and springs further substantiate this record. This decline varied from 0.65 foot at the McCauley well in Chapel Hill to 5.09 feet at the Governor Holt well at Haw River and 6.47 feet at the Fishdam well near Northside. At the end of the year all ground-water levels were lower than they had ever been recorded, except for the well at Blantyre (Baldwin well), which was 1.37 feet lower in February 1940, and the Governor Holt well at Haw River, which was 0.63 foot lower in February 1940.

Freuler well. At Roanoke Rapids.

Mean daily water level, in feet above datum, 1941
(from recorder charts)

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	5.45	5.36	....	6.01	5.61	4.82	4.21	3.95	4.16	3.40	2.73	2.27
2	5.48	5.39	....	5.95	5.59	4.80	4.19	3.92	4.09	3.37	2.71	2.26
3	5.52	5.35	....	5.86	5.51	4.78	4.12	3.89	4.05	3.35	2.72	2.24
4	5.55	5.29	....	5.88	5.50	4.80	4.10	4.00	4.07	3.32	2.70	2.22
5	5.48	5.31	....	6.22	5.50	4.78	4.10	4.16	4.03	3.30	2.67	2.38
6	5.43	5.29	....	6.05	5.47	4.71	4.17	4.07	3.99	3.30	2.71	2.31
7	5.41	5.40	5.80	5.99	5.43	4.69	4.28	3.98	3.97	3.28	2.65	2.26
8	5.41	5.38	6.48	5.98	5.50	4.67	4.50	3.93	3.91	3.26	2.63	2.21
9	5.45	5.31	6.40	5.98	5.46	4.61	....	3.90	3.87	3.22	2.62	2.19
10	5.46	5.23	6.32	5.96	5.40	4.60	....	3.88	3.83	3.21	2.60	2.16
11	5.47	5.23	6.38	5.92	5.39	4.59	....	3.93	3.81	3.19	2.57	2.10
12	5.42	5.24	6.33	5.88	5.36	4.57	....	3.85	3.78	3.18	2.55	2.03
13	5.40	5.32	6.31	5.89	5.31	4.56	....	3.88	3.77	3.15	2.55	2.10
14	5.30	5.82	6.31	5.90	5.28	4.56	....	3.83	3.74	3.11	2.53	2.19
15	5.30	6.08	6.35	5.90	5.26	4.58	....	3.80	3.70	3.10	2.51	2.10
16	5.45	6.04	6.37	5.88	5.27	4.50	....	3.80	3.68	3.09	2.49	2.02
17	5.52	6.13	6.31	5.86	5.23	4.49	4.40	3.78	3.68	3.07	2.45	2.00

Freuler well.--Continued.

Mean daily water level, in feet above datum, 1941
(from recorder charts)

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
18	5.48	6.03	6.20	5.83	5.17	4.45	4.39	3.73	3.67	3.03	2.43	2.00
19	5.42	5.99	6.18	5.80	5.15	4.41	4.33	3.72	3.65	3.01	2.43	1.99
20	5.39	5.99	6.19	5.78	5.10	4.40	4.29	4.39	3.62	3.00	2.42	1.99
21	5.37	6.01	6.15	5.75	5.08	4.39	4.23	4.91	3.60	2.99	2.41	1.99
22	5.42	6.02	6.09	5.69	5.06	4.38	4.20	4.67	3.59	2.98	2.39	1.97
23	5.42	5.95	6.06	5.68	5.03	4.34	4.19	4.63	3.56	2.96	2.37	1.99
24	5.41	5.91	6.11	5.70	5.01	4.32	4.13	4.58	3.51	2.92	2.36	2.42
25	5.40	5.93	6.08	5.69	4.98	4.28	4.10	4.56	3.49	2.90	2.35	2.30
26	5.36	5.86	6.03	5.68	4.98	4.26	4.08	4.50	3.50	2.88	2.34	2.22
27	5.42	5.91	6.02	5.67	4.94	4.26	4.06	4.41	3.51	2.87	2.31	2.20
28	5.39	....	6.05	5.64	4.90	4.21	4.03	4.35	3.47	2.87	2.30	2.10
29	5.39	....	6.00	5.60	4.89	4.20	4.01	4.28	3.42	2.82	2.29	2.03
30	5.42	....	5.95	5.62	4.88	4.28	3.99	4.23	3.40	2.77	2.28	2.01
31	5.38	....	5.94	....	4.83	....	3.97	4.19	....	2.75	....	2.00

Governor Holt well. At Haw River.

Mean daily water level, in feet above datum, 1941
(from recorder charts)

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	a7.96	7.90	6.97	a8.57	8.21	6.32	6.24	5.88	4.17	a3.50	3.21	a2.93
2	a8.08	7.85	6.94	a8.62	8.18	6.35	6.20	5.86	4.10	a3.49	3.21	a2.93
3	a8.21	7.80	6.92	a8.68	8.12	6.85	6.15	5.72	4.04	a3.48	3.20	a2.92
4	8.32	7.70	6.90	a8.78	8.02	7.22	6.08	5.65	3.97	a3.47	3.19	a2.92
5	8.39	7.64	6.85	a8.98	7.97	7.37	6.02	5.60	3.94	3.46	a3.17	a2.92
6	8.29	7.59	a6.79	9.15	7.91	7.35	....	5.56	3.96	3.46	a3.14	2.92
7	8.15	7.58	a6.95	9.17	7.86	7.29	....	5.50	4.04	3.46	a3.11	....
8	8.07	7.54	7.32	9.15	7.81	7.22	....	5.44	4.08	3.46	3.10	....
9	8.05	7.46	7.81	9.10	7.75	7.15	....	5.39	4.10	3.45	3.09	....
10	8.07	7.34	a8.01	9.03	7.67	7.09	....	5.32	4.08	3.45	a3.08	....
11	8.05	7.26	a8.06	9.14	7.59	7.02	....	5.24	4.06	3.44	a3.07	2.89
12	7.98	7.22	a8.06	9.25	7.53	6.94	....	5.18	4.03	3.43	a3.06	....
13	7.89	7.19	a8.04	9.28	7.46	6.87	....	5.11	4.00	a3.42	a3.05	....
14	7.76	7.19	a8.02	9.29	7.38	6.81	....	5.04	3.97	a3.40	a3.04	....
15	a7.69	7.25	8.00	9.26	7.31	6.77	....	5.00	3.93	a3.39	3.03	....
16	a7.93	7.35	7.98	9.20	7.27	6.71	7.03	a4.96	3.90	a3.38	a3.02	....
17	a8.33	7.42	7.96	9.12	7.23	6.64	7.04	a4.91	3.85	a3.37	a3.02	....
18	8.68	a7.43	7.86	9.03	7.15	6.57	6.95	a4.86	3.80	3.37	a3.01	....
19	8.73	a7.40	7.79	8.93	7.06	6.50	6.84	a4.80	3.77	3.36	a3.01	....
20	a8.66	a7.36	7.74	8.86	7.00	6.42	6.73	a4.75	3.73	3.35	a3.00	2.84
21	a8.57	a7.33	7.69	8.77	6.93	6.34	6.64	a4.70	3.70	3.34	a2.99	....
22	a8.47	7.31	7.61	8.66	6.86	6.29	6.55	a4.66	3.68	3.33	2.98	....
23	a8.39	a7.28	7.52	8.54	6.80	6.25	6.47	4.62	3.67	3.32	a2.98	....
24	a8.33	a7.18	7.49	8.47	6.72	6.25	6.40	4.58	3.65	3.31	a2.97	2.82
25	8.29	a7.13	7.48	8.42	6.59	6.26	6.32	4.54	a3.63	3.30	a2.95	....
26	8.23	a7.09	7.46	8.39	6.50	6.27	6.26	4.51	a3.60	a3.28	a2.95	....
27	8.18	a7.05	7.45	8.37	6.44	6.26	6.17	4.47	a3.56	a3.26	a2.94	2.86
28	8.13	7.02	7.82	8.33	6.38	6.27	6.10	4.40	a3.55	a3.24	a2.93	....
29	8.09	....	a8.29	8.27	6.34	6.30	6.03	4.34	a3.53	a3.23	2.93	....
30	8.03	....	a8.44	8.23	6.31	6.28	5.99	4.27	a3.52	a3.23	2.93	....
31	8.00	....	a8.52	....	6.29	....	5.94	4.22	....	a3.22	....	2.87

a Record estimated from range lines and observer's readings.

Baldwin well. At Blantyre.

Water level, in feet above datum, 1941

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	3.44	4.23	4.95	5.50	6.23	6.65	5.78	5.11	5.64	5.63	3.81	2.69
2	3.46	4.29	4.96	5.52	6.26	6.64	5.74	5.11	5.66	5.61	3.74	2.59
3	3.48	4.32	4.99	5.54	6.29	6.64	5.71	5.11	5.68	5.57	3.66	2.59
4	3.49	4.34	5.01	5.56	6.30	6.64	5.67	5.16	5.69	5.54	3.58	2.59
5	3.49	4.37	5.02	5.58	6.32	6.62	5.58	5.17	5.70	5.49	3.52	2.61
6	3.51	4.41	5.03	5.61	6.35	6.59	5.56	5.18	5.72	5.41	3.48	2.59
7	3.52	4.46	5.08	5.64	6.38	6.58	5.55	5.18	5.74	5.37	3.42	2.61
8	3.54	4.45	5.11	5.66	6.40	6.56	5.53	5.19	5.75	5.33	3.45	2.59
9	3.57	4.47	5.12	5.68	6.42	6.55	5.47	5.21	5.77	5.30	3.39	2.56
10	3.61	4.50	5.13	5.70	6.44	6.53	5.44	5.20	5.79	5.27	3.34	2.55
11	3.62	4.53	5.13	5.72	6.46	6.51	5.41	5.19	5.81	5.15	3.29	2.38
12	3.64	a4.56	5.13	5.74	6.48	6.50	5.37	5.22	5.82	5.09	3.25	2.39
13	3.67	a4.59	5.17	5.76	6.49	6.48	5.35	5.26	5.83	5.00	3.22	2.48
14	3.69	4.62	5.18	5.79	6.51	6.45	5.31	5.26	5.83	4.90	3.19	2.50
15	3.72	4.62	5.23	5.82	6.52	6.43	5.27	5.26	5.84	4.82	3.16	2.40
16	3.76	4.64	5.23	5.84	6.54	6.40	5.26	5.30	5.85	4.75	3.14	2.39
17	3.78	4.67	5.21	5.88	6.55	6.37	5.23	5.32	5.85	4.73	3.12	2.44
18	3.79	4.70	5.25	5.90	6.56	6.33	5.21	5.34	5.86	4.66	3.05	2.48
19	3.82	4.72	5.27	5.94	6.58	6.30	5.18	5.36	5.85	4.62	3.01	2.50
20	3.85	4.75	5.27	5.96	6.59	6.26	5.13	5.41	5.85	4.58	2.96	2.40
21	3.89	4.78	5.26	5.98	6.60	6.23	5.13	5.45	5.84	4.53	2.92	2.43
22	3.93	4.82	5.28	5.99	6.61	6.19	5.12	5.49	5.84	4.47	2.88	2.47
23	3.97	4.83	5.30	6.02	6.62	6.16	5.11	5.54	5.83	4.42	2.86	2.62
24	4.01	4.83	5.30	6.07	6.62	6.13	5.11	5.54	5.82	4.35	2.84	2.68
25	4.02	4.88	5.33	6.09	6.63	6.09	5.09	5.52	5.81	4.29	2.83	2.69
26	4.03	a4.90	5.35	6.11	6.63	6.03	5.03	5.52	5.78	4.22	2.81	2.64
27	4.08	4.92	5.39	6.13	6.64	5.97	5.04	5.54	5.75	4.14	2.74	2.63
28	4.11	a4.94	5.43	6.15	6.64	5.94	5.05	5.56	5.73	3.97	2.69	2.59
29	4.15	....	5.44	6.18	6.64	5.82	5.06	5.56	5.70	3.92	2.71	2.59
30	4.19	....	5.46	6.20	6.65	5.82	5.07	5.58	5.68	3.88	2.64	2.60
31	4.21	....	a5.48	....	6.65	....	5.09	5.64	....	3.85	....	2.57

McCauley well. At Chapel Hill.

Mean daily water level, in feet above datum, 1941
(from recorder charts)

Day	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	....	3.10	3.55	4.24	4.45	4.15	3.97	3.35	2.83	2.46	2.10
2	....	3.09	3.58	4.26	4.44	4.13	3.95	3.33	2.82	2.44	2.09
3	....	3.09	3.61	4.27	4.46	4.12	3.93	3.31	2.81	2.43	2.08
4	....	3.09	3.64	4.28	4.48	4.10	3.92	3.29	2.80	2.42	2.07
5	....	3.08	3.72	4.30	4.46	4.08	3.91	3.28	2.78	2.41	2.06
6	....	3.08	3.77	4.31	4.43	4.07	3.89	3.25	2.77	2.40	2.05
7	....	3.09	3.79	4.32	4.42	4.08	3.87	3.23	2.76	2.39	2.04
8	....	3.16	3.81	4.34	4.42	4.07	3.85	3.21	2.75	2.38	2.03
9	....	3.20	3.83	4.35	4.43	4.06	3.84	3.18	2.74	2.37	2.02
10	3.00	3.21	3.85	4.35	4.44	4.05	3.82	3.16	2.72	2.36	2.01
11	3.00	3.22	3.87	4.37	4.43	4.03	3.81	3.14	2.71	2.34	2.00
12	3.00	3.22	3.89	4.38	4.42	4.01	3.78	3.12	2.70	2.33	1.99
13	3.00	3.23	3.91	4.38	4.42	3.99	3.75	3.10	2.68	2.32	1.99
14	3.01	3.24	3.94	4.38	4.42	4.03	3.73	3.08	2.67	2.30	1.98
15	3.06	3.26	3.96	4.39	4.42	4.12	3.72	3.06	2.66	2.29	1.97
16	3.08	3.26	3.98	4.41	4.40	4.12	3.70	3.03	2.65	2.27	1.97
17	3.10	3.27	4.00	4.42	4.38	4.11	3.68	3.02	2.64	2.26	1.96
18	3.10	3.27	4.02	4.41	4.36	4.09	3.65	3.01	2.63	2.25	1.95
19	3.09	3.27	4.04	4.42	4.35	4.08	3.63	2.99	2.61	2.24	1.94
20	3.09	3.28	4.06	4.43	4.33	4.06	3.62	2.98	2.60	2.23	1.93
21	3.09	3.29	4.07	4.44	4.31	4.06	3.59	2.97	2.59	2.21	1.92
22	3.09	3.30	4.08	4.44	4.30	4.05	3.57	2.96	2.58	2.20	1.91
23	3.09	3.30	4.09	4.45	4.30	4.04	3.55	2.94	2.57	2.19	1.90

a Interpolated.

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McCauley well.--Continued.

Mean daily water level, in feet above datum, 1941
(from recorder charts)

Date	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
24	3.09	3.31	4.11	4.45	4.28	4.04	3.53	2.92	2.55	2.17	1.88
25	3.09	3.32	4.13	4.44	4.25	4.04	3.52	2.91	2.54	2.17	1.87
26	3.10	3.33	4.16	4.45	4.23	4.03	3.50	2.90	2.53	2.16	1.85
27	3.10	3.34	4.18	4.45	4.21	4.01	3.48	2.89	2.52	2.15	1.84
28	3.10	3.42	4.19	4.45	4.21	4.00	3.45	2.87	2.50	2.14	1.83
29	....	3.49	4.20	4.46	4.20	4.00	3.43	2.86	2.48	2.13	1.82
30	....	3.50	4.22	4.46	4.18	3.99	3.41	2.84	2.47	2.11	1.81
31	....	3.52	....	4.46	....	3.98	3.39	....	2.47	....	1.80

Kurfee well. At Mocksville.

Mean daily water level, in feet above datum, 1941
(from recorder charts)

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	5.34	6.31	7.32	8.48	9.05	7.78	6.34	6.17	5.07	3.85	2.92	2.65
2	5.47	6.35	7.34	8.50	9.05	7.73	6.28	6.15	5.03	3.81	2.91	2.65
3	5.58	6.37	7.38	8.50	8.99	7.67	6.23	6.11	4.99	3.78	2.89	2.65
4	5.62	6.38	7.42	8.72	8.93	7.63	6.20	6.09	4.94	3.75	2.88	2.65
5	5.58	6.40	7.42	9.09	8.92	7.58	6.17	6.06	4.90	3.71	2.86	2.64
6	5.58	6.42	7.43	8.95	8.90	7.49	6.15	6.03	4.86	3.67	2.85	2.63
7	5.60	6.48	7.59	8.88	8.89	7.41	6.15	5.99	4.82	3.63	2.83	2.62
8	5.64	6.51	7.82	8.92	8.86	7.36	6.14	5.95	4.78	3.61	2.81	2.61
9	5.71	6.51	7.83	8.97	8.81	7.31	6.13	5.92	4.73	3.59	2.79	2.59
10	5.77	6.50	7.75	9.02	8.75	7.27	6.11	5.90	4.69	3.54	2.77	2.58
11	5.82	6.50	7.75	9.04	8.73	7.21	6.09	5.86	4.65	3.51	2.74	2.56
12	8.85	6.54	7.77	9.06	8.71	7.14	6.10	5.84	4.61	3.47	2.72	2.54
13	5.88	6.60	7.81	9.09	8.66	7.08	6.12	5.80	4.56	3.45	....	2.53
14	5.91	7.09	7.85	9.14	8.60	7.04	6.06	5.76	4.51	3.40	....	2.52
15	5.94	7.09	7.90	9.17	8.57	7.00	6.04	5.73	4.47	3.38	....	....
16	6.00	6.94	7.96	9.18	8.56	6.94	6.04	5.71	4.42	3.34	....	2.46
17	6.05	6.94	7.99	9.19	8.54	6.88	6.22	5.67	4.38	3.30	....	2.46
18	6.07	6.95	7.98	9.20	8.47	6.82	6.11	5.63	4.34	3.27	....	2.42
19	6.08	6.96	7.99	9.20	8.40	6.76	6.11	5.59	4.29	3.23	....	2.41
20	6.08	6.99	8.05	9.20	8.35	6.71	6.15	5.55	4.25	3.19	....	2.39
21	6.08	7.04	8.09	9.19	8.30	6.63	6.11	5.50	4.21	3.16	....	2.38
22	6.11	7.09	8.11	9.15	8.25	6.56	6.10	5.47	4.17	3.13	....	2.36
23	6.14	7.12	8.12	9.14	8.22	6.51	6.10	5.44	4.13	3.10	....	2.35
24	6.17	7.14	8.25	9.15	8.16	6.46	6.34	5.40	4.09	3.08	....	....
25	6.20	7.18	8.25	9.13	8.09	6.40	6.26	5.35	4.06	3.06	....	....
26	6.20	7.22	8.23	9.11	8.05	6.34	6.22	5.31	4.03	3.04	....	....
27	6.21	7.26	8.26	9.11	8.00	6.32	6.21	5.26	3.99	3.02	....	....
28	6.23	7.30	8.58	9.09	7.96	7.12	6.21	5.22	3.96	3.00	2.65	....
29	6.25	....	8.46	9.05	7.91	6.65	6.20	5.17	3.92	2.98	2.65	....
30	6.28	....	8.42	9.05	7.88	6.44	6.20	5.13	3.88	2.96	2.65	....
31	6.30	....	8.43	....	7.82	....	6.19	5.10	....	2.94	....	2.15

Fishdam well. Near Northside.

Water level, in feet above or below datum, 1941

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 13	5.89	Apr. 13	6.15	June 22	1.60	Aug. 31	0.25
25	5.11	22	5.50	28	1.33	Sept. 7	.16
Feb. 4	5.02	May 4	5.58	July 9	3.42	Oct. 30	- .73
8	5.24	10	4.92	13	3.30	Nov. 9	- .77
23	5.08	17	4.12	20	3.07	16	- .73
Mar. 4	4.88	25	3.83	27	2.42	22	-1.00
10	5.72	June 1	2.32	Aug. 3	1.87	30	- .98
17	5.65	8	2.70	10	1.21	Dec. 13	-1.03
25	5.40	14	2.42	17	.82	25	- .58

Brick Pit well. Near Goldsboro.

Water level, in feet above datum, 1941

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 4	2.52	Apr. 5	3.98	July 5	3.50	Oct. 4	2.98
12	2.54	12	4.06	12	4.12	11	2.80
18	2.58	19	4.04	19	4.80	18	2.58
25	2.62	26	4.06	26	5.20	25	2.46
Feb. 1	2.62	May 3	3.96	Aug. 2	5.10	Nov. 1	2.38
8	2.66	10	3.84	9	4.82	8	2.28
15	2.82	17	3.70	16	4.60	15	2.18
22	2.98	24	3.52	23	4.40	22	2.08
Mar. 1	3.16	31	3.32	30	4.16	29	1.98
8	3.32	June 7	3.20	Sept. 6	3.92	Dec. 6	1.97
15	3.68	14	3.20	13	3.66	13	1.96
22	3.82	21	3.14	20	3.38	20	1.76
29	3.90	28	3.38	27	3.20		

Alston well. Near Nashville.

Water level, in feet above datum, 1941

Jan. 1	12.72	Apr. 5	14.28	July 5	12.44	Oct. 4	10.66
4	13.26	9	(a)	9	13.23	8	11.00
8	11.86	12	(a)	12	16.62	11	10.84
11	12.22	16	(a)	16	18.72	15	10.00
15	13.64	19	(a)	19	19.47	18	9.84
18	13.96	23	13.36	23	16.32	22	9.72
23	13.10	26	13.26	26	16.05	25	9.55
25	12.86	30	13.10	30	14.36	29	9.68
29	13.71	May 3	12.96	Aug. 2	14.68	Nov. 1	9.86
Feb. 1	13.85	7	12.82	6	13.72	5	9.85
5	14.00	10	12.74	9	13.55	8	9.87
8	13.93	14	12.39	13	(a)	12	9.61
12	14.05	17	12.18	16	(a)	15	9.58
15	17.93	21	12.00	20	12.63	19	9.49
19	15.62	24	11.86	23	12.42	22	9.38
22	15.45	28	11.54	27	11.72	26	9.41
26	14.27	31	11.21	30	11.93	29	9.43
Mar. 1	14.12	June 4	11.56	Sept. 3	(a)	Dec. 3	9.35
5	14.21	7	11.36	6	(a)	6	9.26
8	14.32	11	12.15	10	11.63	10	9.54
12	14.38	14	12.05	13	11.36	13	9.60
15	14.31	18	12.00	17	11.00	17	9.52
19	14.28	21	11.70	20	10.90	20	9.71
22	14.25	25	11.42	24	(a)	24	9.77
26	14.32	28	11.62	27	(a)	27	10.00
29	14.29	July 2	12.21	Oct. 1	10.72	31	9.77
Apr. 2	14.26						

a Lost.

FORSYTH, GUILFORD, AND RANDOLPH COUNTIES

DEEP RIVER AREA

By Bernard Fisher

The observation-well program in the Deep River area[1] in Guilford, Forsyth, and Randolph Counties, near High Point, N. C., was continued in 1941 by the Geological Survey. About 210 individual measurements of water level were made by M. Delk in 1941. These consisted of monthly measurements of 18 wells. In addition, daily measurements were made in well 2 at the Lindale Dairy near High Point.

The illustration[2] showing the average height of the water levels and the cumulative departure from normal precipitation is being republished in this report, because it was incorrectly shown in Water-Supply Paper 907. In that report, the two curves have been shifted a quarter of a year to the left. The corrected curve for cumulative departure from normal precipitation has been brought up to December 1941. Unfortunately, it was not possible to take the curve, showing average water levels, beyond June 1941 because some of the wells went dry, and the averages could not be calculated accurately. It seems likely, however, that the general downward trend of this graph continued until the end of the year, because in general the individual wells showed a decline of the water level in this period.

After July 1941, precipitation records were not kept at High Point, N. C. To complete the records, the cumulative departure from normal precipitation has been taken for Greensboro--which is also in Guilford County--from August to December. The precipitation for 1941 was 13.23 inches below the average for this region. This is reflected in the drying up of some of the wells during the second half of the year.

1/ See Water-Supply Papers 777, 817, 840, 845, 886, and 907.
2/ Water-Supply Paper 907, fig. 5, p.75.

Forsyth County

18. Federal Transient Camp.

Water level, in feet above datum, 1941

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 25	10.68	Mar. 28	11.22	May 30	10.69	July 25	9.75
Feb. 21	10.63	Apr. 25	11.39	June 27	10.75	Sept.25	(a)

19. W. C. Michael.

Water level, in feet above datum, 1941

Jan. 25	11.78	Apr. 25	11.67	July 25	11.50	Oct. 23	11.28
Feb. 21	11.66	May 30	11.37	Aug. 28	11.37	Nov. 28	10.95
Mar. 28	11.93	June 27	11.54	Sept.25	11.40	Dec. 24	11.07

Guilford County

2. Lindale Dairy Corporation.

Water level, in feet above datum, 1941

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	9.58	10.19	10.03	10.15	10.31	9.81	9.27	9.35	9.03	8.54	8.23	7.79
2	9.67	10.25	9.97	10.14	10.23	9.80	9.25	9.33	9.03	8.53	8.24	7.78
3	9.83	10.23	10.02	10.12	10.20	9.77	9.23	9.30	8.99	8.61	8.18	7.76
4	9.88	10.17	10.05	10.18	10.23	....	9.23	9.29	8.98	8.62	8.17	7.76
5	9.84	10.21	9.90	10.30	10.21	....	9.21	9.29	9.00	8.61	8.16	7.76
6	9.81	10.23	9.89	10.26	10.21	....	9.18	9.30	9.00	8.58	8.19	7.74
7	9.83	10.28	9.95	10.21	10.24	9.64	9.19	9.26	8.98	8.57	8.15	7.72
8	9.87	10.25	10.08	10.26	10.25	9.64	9.23	9.25	8.96	8.57	....	7.72
9	9.94	10.19	10.08	10.28	10.23	9.65	9.22	9.26	8.93	8.54	....	7.71
10	9.99	10.08	9.95	10.30	10.17	9.65	9.21	9.26	8.91	8.54	....	7.68
11	10.00	10.07	....	10.29	10.18	9.62	9.21	9.25	8.90	....	....	7.66
12	10.01	10.10	....	10.25	10.19	9.59	9.19	9.27	8.88	....	8.04	7.64
13	10.01	10.11	....	10.28	10.11	9.57	9.17	9.24	8.85	....	8.03	7.66
14	9.97	10.21	....	10.32	10.07	....	9.15	9.18	8.84	....	8.01	....
15	9.99	10.13	10.00	10.34	10.06	....	9.15	9.19	8.84	8.45	8.02	7.61
16	10.08	10.08	10.07	10.35	10.10	....	9.15	9.23	8.84	8.46	8.01	7.60
17	10.12	10.21	10.05	10.36	10.11	9.49	9.19	9.20	8.83	8.44	7.96	7.60
18	10.12	10.15	9.96	10.36	10.03	9.46	9.20	9.18	8.82	8.40	7.93	7.58
19	10.09	10.07	9.95	10.35	9.99	9.43	9.23	9.18	8.81	8.39	7.93	7.57
20	10.06	10.06	10.00	10.36	9.97	9.41	9.22	9.17	8.88	8.40	....	7.56
21	10.07	10.08	10.01	10.32	9.95	9.40	9.23	9.14	8.86	8.38	....	7.52
22	10.13	10.11	9.96	10.25	9.94	9.40	9.26	9.23	8.87	8.38	7.91	7.50
23	10.17	10.06	9.95	10.25	9.95	9.41	9.28	9.12	8.88	8.32	7.92	7.52
24	10.20	10.03	10.01	10.29	9.91	9.41	9.30	9.12	8.86	8.32	7.89	7.55
25	10.17	10.06	10.01	10.28	9.84	9.37	9.31	9.11	8.85	8.28	7.85	7.52
26	10.16	10.03	9.98	10.25	9.87	9.33	9.32	9.11	8.83	8.29	7.85	7.49
27	10.20	10.06	10.01	.....	9.85	9.33	9.31	9.09	8.68	8.28	7.83	7.46
28	.....	10.08	10.08	10.21	9.82	9.32	9.31	9.05	8.57	8.22	7.81	7.46
29	10.21	.....	10.08	10.25	9.83	9.32	9.36	9.02	8.56	8.21	7.80	7.43
30	10.23	.....	10.04	10.29	9.83	9.30	9.35	9.01	8.55	....	7.79	7.41
31	10.22	.....	10.08	.....	9.80	....	9.36	9.02	....	8.23	....	7.40

4. W. O. Atkins.

Water level, in feet above datum, 1941

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 25	11.95	Apr. 25	13.83	July 25	12.27	Oct. 23	12.05
Feb. 21	12.08	May 30	12.75	Aug. 28	12.15	Nov. 28	11.17
Mar. 28	12.07	June 27	12.30	Sept.25	12.17	Dec. 24	11.23

a Well filled up by construction of new highway.

Guilford County--Continued

5. Isaac Tonkins.

Water level, in feet above datum, 1941

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 25	10.53	Apr. 26	10.53	July 27	10.45	Oct. 25	10.20
Feb. 22	10.51	May 31	10.51	Aug. 29	10.41	Nov. 28	10.18
Mar. 29	10.59	June 28	10.40	Sept.28	10.32	Dec. 24	10.45

7. E. J. Welch.

Water level, in feet above datum, 1941

Jan. 25	10.80	Apr. 25	12.01	July 25	10.32	Oct. 23	7.30
Feb. 21	10.82	May 30	11.04	Aug. 28	9.00	Nov. 28	6.65
Mar. 28	11.48	June 27	10.05	Sept.28	8.04	Dec. 24	6.60

8. Welch Place.

Water level, in feet above datum, 1941

Jan. 25	11.13	Apr. 25	11.42	July 25	10.60	Oct. 23	10.11
Feb. 21	10.58	May 30	10.73	Aug. 28	10.40	Nov. 28	9.99
Mar. 28	10.34	June 27	10.55	Sept.25	10.28	Dec. 24	9.88

12. John Blair Estate.

Water level, in feet above datum, 1941

Jan. 25	9.70	Apr. 26	6.55	July 27	6.41	Oct. 25	6.42
Feb. 22	6.57	May 31	6.48	Aug. 29	6.50	Nov. 28	6.70
Mar. 29	6.98	June 28	6.42	Sept.28	6.72	Dec. 24	6.74

14. Clodfelters Dairy.

Water level, in feet above datum, 1941

Jan. 25	12.75	Apr. 26	12.69	July 27	10.92	Oct. 25	9.69
Feb. 22	12.38	May 31	11.89	Aug. 29	9.40	Nov. 28	9.34
Mar. 29	12.94	June 28	11.20	Sept.28	10.00	Dec. 24	9.08

15. C. C. Robbins.

Water level, in feet above datum, 1941

Jan. 25	10.88	Apr. 26	11.00	July 27	11.10	Oct. 25	(a)
Feb. 22	9.00	May 31	6.40	Aug. 29	8.30	Nov. 28	(a)
Mar. 29	12.92	June 28	6.50	Sept.28	4.00	Dec. 24	(a)

Randolph County

9. W. C. Warner.

Water level, in feet above datum, 1941

Jan. 25	4.75	Apr. 26	5.87	June 28	1.32	Aug. 29	(a)
Feb. 22	4.11	May 31	1.99	July 27	- .21	Sept.28	- .74
Mar. 29	6.14						

9B. W. C. Warner.

Water level, in feet above datum, 1941

Jan. 25	1.05	Apr. 26	1.17	July 27	-3.38	Oct. 25	-9.55
Feb. 22	.72	May 31	-1.56	Aug. 29	-5.83	Nov. 28	-8.06
Mar. 29	.75	June 28	-3.59	Sept.28	-7.84	Dec. 24	-11.38

a Dry.

Randolph County--Continued

10. W. F. Beeson.

Water level, in feet above datum, 1941

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 25	10.60	Apr. 26	11.52	July 27	(a)	Oct. 25	(a)
Feb. 22	10.69	May 31	11.32	Aug. 29	(a)	Nov. 28	(a)
Mar. 29	10.34	June 28	11.20	Sept.28	8.06	Dec. 24	(a)

11. Emery Taylor.

Water level, in feet above datum, 1941

Jan. 25	5.30	Apr. 25	13.09	July 27	(a)	Oct. 25	(a)
Feb. 22	5.48	May 31	12.88	Aug. 29	(a)	Nov. 28	4.33
Mar. 29	6.18	June 28	11.75	Sept.28	4.33	Dec. 24	4.33

20. Dr. Bush.

Water level, in feet above datum, 1941

Jan. 25	10.85	Apr. 26	11.81	July 27	10.50	Oct. 25	8.91
Feb. 22	11.19	May 31	11.56	Aug. 29	9.90	Nov. 28	8.52
Mar. 29	11.44	June 28	10.92	Sept.28	9.48	Dec. 24	8.29

21. J. W. Young.

Water level, in feet above datum, 1941

Jan. 25	10.74	Apr. 25	12.48	July 27	10.35	Oct. 25	7.38
Feb. 22	11.25	May 31	11.40	Aug. 29	8.30	Nov. 28	7.34
Mar. 29	12.90	June 28	10.20	Sept.28	7.38	Dec. 24	7.58

23. Mrs. Lonnie Pugh.

Water level, in feet above datum, 1941

Jan. 25	11.20	Apr. 26	12.01	July 27	11.35	Oct. 25	8.70
Feb. 22	11.31	May 31	12.12	Aug. 29	10.42	Nov. 28	7.85
Mar. 29	13.21	June 28	11.77	Sept.28	9.52	Dec. 24	7.38

25. J. S. White.

Water level, in feet above datum, 1941

Jan. 25	9.00	Apr. 26	9.45	July 27	8.94	Oct. 25	7.28
Feb. 22	8.04	May 31	9.01	Aug. 29	8.35	Nov. 28	6.74
Mar. 29	9.20	June 28	8.50	Sept.28	7.78	Dec. 24	6.48

27. Walter Lambeth.

Water level, in feet above datum, 1941

Jan. 25	14.10	Apr. 26	12.01	July 27	13.26	Oct. 25	(a)
Feb. 22	11.58	May 31	11.86	Aug. 29	12.18	Nov. 28	(a)
Mar. 29	11.60	June 28	10.94	Sept.28	8.40	Dec. 24	(a)

a Well dry.

ELIZABETH CITY AREA

By A. G. Fiedler

Observations of the fluctuations of ground-water level near Elizabeth City were continued in 1941 through the cooperation of the Elizabeth City Public Utility Commission. The records reported herein are collected in order to obtain reliable information on the fluctuations of ground-water level within the Elizabeth City well field and also in other localities that are in the same general region but sufficiently distant so that they are not especially affected by pumping from that field.

Records were obtained on two wells equipped with water-stage recorders. Well 31T is a shallow well about 2,500 feet northwest of the pumping plant in the city well field, and well 33T is a shallow well just west of the pumping plant and is within the well field proper. Detailed descriptions and water-level records of the wells for previous years are given in Water-Supply Paper 817 (pp. 225-228), Water-Supply Paper 840 (pp. 316-318), Water-Supply Paper 845 (pp. 343-345), Water-Supply Paper 886 (pp. 523-526), and Water-Supply Paper 907 (pp. 82-86).

The water levels in well 31T are not appreciably affected by pumping in the well field, and accordingly they reflect the natural recharge and discharge from the underground reservoir. The records of water level taken from the recorder charts represent the lowest water level, in feet below the measuring point, on days for which records are available. The highest level during the year occurred on April 6 and was 2.11 feet below the measuring point. This level was only 0.16 foot lower than the highest level recorded in 1940, which occurred in February. The lowest level during 1941 occurred on December 15 and was 9.20 feet below the measuring point. This stage was the lowest recorded since June 27, 1935, when records were started, and was 1.51 feet lower than the previous lowest stage, which occurred on July 24, 25, 1940. The record low stage in 1941 is especially significant in relation to the safe yield of the present Elizabeth City well field, since it followed immediately a year in which the previous lowest level had occurred. The lowest water level on December 31, 1941, was 5.45 feet lower than the lowest level on the same date in 1940.

According to the records of the United States Weather Bureau, the precipitation at Elizabeth City during 1941 was 37.92 inches--9.58 inches below normal. Precipitation was below normal in all months except March and July.

As shown by the record of daily lowest water levels in the attached table, the deficiency of precipitation had a marked effect upon the groundwater level. From January 1 to the highest level of the year on April 6, the water level rose fairly persistently, though not at a high rate, but declined noticeably between periods of precipitation. From April 6 to the end of the year the trend was downward except for a minor recovery of about 0.4 foot in July, when precipitation for the month was 7.16 inches--1.06 inches above normal--and a rise of 2.16 feet on September 4, following 2.80 inches of rainfall on September 3. Other than during the two periods just mentioned, precipitation contributed only minor quantities of recharge from April 6 to December 31.

As discussed in Water-Supply Paper 907 in the review of the 1940 water-level records for Elizabeth City, more recharge occurs in this area when the precipitation is moderate and well distributed than when it is heavy and of short duration. Precipitation was so persistently deficient during all but 1 of the last 9 months of the year that evaporation, transpiration, and other natural losses from the underground reservoir made heavy drafts on the zone of saturation, and accordingly a new low level of the water table was recorded. Furthermore, the very low water level on December 31 in comparison with that of the previous lowest level of record on the same date in 1940 may indicate that the cone of depression in the water table surrounding the Elizabeth City well field has expanded sufficiently to affect the water level in well 31T. This well may, therefore, no longer truly represent natural fluctuations of the water table because of an undetermined amount of influence from pumping during times of such an extended period of deficient precipitation as occurred in 1941. The situation obviously indicates the need for careful attention to the position of the water table during extended dry periods and the need for the distribution of pumping over a larger area if the water-supply needs of the city expand greatly.

The water level in well 33T, situated within the well field, reflects changes in recharge; but the strongest influence affecting it is the pumping of nearby wells. Records of water level for this well, taken from recorder charts, are the minima on the days for which records are available. The highest water level recorded during the year in well 33T was 13.43 feet below the measuring point on January 11, and the lowest level was 16.50 feet below the measuring point on December 12-14. The lowest level on December 31 was 16.46 feet, 3.24 feet lower than the stage on the corresponding date in 1940. There are several periods in 1941 for which no records are available. It is believed, however, that records of the highest and lowest level of the year were obtained.

During 1941 the pumpage from the Elizabeth City well field amounted to approximately 194,000,000 gallons. This represents an increase of about 8 million gallons over 1940. Although the increase was only moderate, it appears, nevertheless, that under the conditions of precipitation and recharge that existed in 1941, the safe yield was probably approached, if not exceeded, during part of the year and that even with the addition of more wells the present well field would have yielded very little additional water.

The following summary table gives the highest and lowest water levels recorded in wells 31T and 33T. The significant feature of the record for well 31T is that the lowest level for the 6½ years of record occurred on December 15, 1941. This level was 1.51 foot lower than the previous lowest level recorded. The lowest water level for well 33T during the 4 years of record likewise occurred in 1941. The lowest water level in both wells occurred in December at essentially the same time. This appears to be further evidence that well 31T, which is outside the well field and in former years has been only remotely affected by pumping, was, this year, probably affected by pumping within the well field. In previous years the lowest water level in the two wells occurred at appreciably different times during each year.

Summary, by calendar years, of ground-water levels for wells 31T and 33T, Elizabeth City area, N. C.

Well	First measured	Lowest observed water level (by calendar year)		Highest observed water level (by calendar year)	
		Water level (feet)	Date	Water level (feet)	Date
31T	June 27, 1935	7.50	Nov. 17, 1935	2.10	July 27, 1935
		6.64	June 1, 1936	1.87	Oct. 17, 1936
		7.14	July 7, 1937	2.03	Feb. 23, 1937
		7.15	Sept.16, 1938	2.03	Dec. 7, 1938
		a 5.69	Dec. 26, 1939	a 1.82	Feb. 11, 1939
		7.69	July 24, 25, 1940	1.95	Feb. 20, 1940
		9.20	Dec. 15, 1941	2.11	Apr. 6, 1941
33T	Jan. 9, 1938	13.19	July 15, 1938	9.94	Dec. 27, 1938
		a 13.50	Nov. 3, 1939	a 4.39	Mar. 18, 1939
		14.38	Oct. 24, 25, 1940	10.53	May 3, 1940
		16.50	Dec. 12-14, 1941	13.43	Jan. 11, 1941

31T.

Lowest daily water level, in feet below measuring point, 1941

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	....	3.80	4.01	2.65	5.61	....	....	7.39	....	8.07	....	9.05
2	....	3.90	3.88	2.45	5.67	7.15	....	7.40	8.00	8.09	....	9.05
3	....	4.12	3.80	2.50	5.75	7.17	....	7.41	8.00	8.10	8.65	9.05
4	....	4.26	3.58	2.71	5.82	7.19	....	7.42	5.36	8.12	....	9.06
5	....	4.35	3.56	2.77	5.93	7.21	....	7.38	5.92	8.14	....	9.07
6	4.55	4.45	3.54	2.11	6.00	7.23	....	....	6.34	8.18	....	9.08
7	4.62	4.51	3.58	2.27	6.07	7.26	7.75	....	6.66	8.18	....	9.09
8	4.76	4.51	3.58	2.46	6.13	7.28	....	....	6.88	8.19	....	9.10
9	4.92	....	2.20	2.61	6.18	7.32	....	....	7.02	8.20	....	....
10	5.02	3.81	2.14	2.74	6.24	....	....	....	7.10	8.20	8.75	9.10
11	5.10	3.88	2.17	2.88	6.31	....	....	7.56	7.18	8.21	....	9.11
12	....	3.97	2.28	3.02	....	....	....	7.63	7.23	8.23	....	9.11
13	5.55	4.07	2.47	3.16	....	....	....	7.63	7.27	8.25	....	9.12
14	5.52	4.13	2.60	3.45	....	....	7.60	7.65	7.31	....	....	9.13
15	5.62	4.00	2.70	3.57	....	7.50	....	7.66	7.42	8.34	....	9.20
16	5.71	2.26	2.82	3.08	....	7.51	....	7.67	....	....	....	....
17	5.78	2.40	3.07	3.81	....	7.52	....	7.68	....	....	....	....
18	5.82	2.70	3.21	3.90	....	7.54	....	7.67	....	....	8.90	....
19	5.45	2.80	3.34	4.08	6.48	7.56	....	....	....	....	....	....
20	4.64	2.97	3.45	4.20	....	7.57	....	....	....	....	....	....
21	4.17	3.13	3.54	4.38	....	7.59	7.42	....	....	8.10	....	....
22	4.25	3.38	3.66	4.50	....	7.61	7.49	....	....	....	....	....
23	4.31	3.52	3.78	4.63	....	7.62	7.49	....	7.84	....	....	....
24	4.40	3.73	3.94	4.75	....	7.62	7.49	....	7.87	....	9.00	9.20
25	4.47	3.84	3.94	....	....	7.64	7.49	7.65	7.90	....	....	8.96
26	....	3.94	3.00	....	6.99	7.65	7.49	....	7.93	....	....	9.00
27	4.51	4.04	2.94	....	....	7.67	7.48	.....	7.96	....	....	9.03
28	4.20	4.06	3.00	5.36	....	7.69	7.47	....	8.00	....	....	9.04
29	3.91	....	2.65	5.45	....	7.70	7.39	....	8.01	8.55	....	....
30	3.76	....	2.28	5.53	....	7.73	7.39	....	8.04	....	....	9.05
31	3.74	....	....	....	....	....	7.39	....	....	....	....	9.05

a From recorder chart.

33T.

Lowest daily water level, in feet below measuring point, 1941

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	13.98	.....	14.17	15.00	15.03	15.19	.....	15.59	.....	.....	16.30
2	.....	14.07	.....	14.20	15.00	15.01	15.21	.....	15.59	.....	.....	16.34
3	.....	14.21	15.01	14.26	15.04	15.01	15.24	.....	15.60	.....	15.53	16.36
4	.....	14.29	15.04	14.30	15.04	14.98	15.26	.....	15.60	.....	.....	16.38
5	.....	14.37	15.04	14.29	15.06	14.96	15.29	15.35	15.59	.....	.....	16.40
6	13.47	14.42	15.02	14.25	15.07	14.95	15.31	15.36	15.52	15.65	.....	16.41
7	13.47	14.51	15.02	14.21	15.07	.....	15.37	15.35	15.46	15.67	.....	16.43
8	13.47	14.56	14.96	.....	15.07	.....	15.40	15.33	15.40	15.69	.....	16.45
9	13.46	14.63	14.93	.....	.....	14.80	15.42	15.32	15.36	15.70	.....	.....
10	13.44	14.68	14.92	.....	.....	.....	15.44	15.31	.....	15.71	15.80	16.47
11	13.43	14.66	.....	.....	.....	.....	15.46	15.32	.....	15.72	15.81	16.48
12	13.44	14.67	.....	.....	15.06	.....	15.48	.....	.....	15.72	15.83	16.50
13	13.48	14.70	.....	.....	15.06	.....	15.50	.....	.....	15.72	15.84	16.50
14	13.50	14.76	.....	14.35	15.07	.....	15.51	.....	.....	.....	15.85	16.50
15	13.50	14.79	.....	14.37	15.06	.....	15.53	.....	15.30	15.75	15.86	.....
16	13.50	14.80	.....	14.46	15.06	14.66	15.54	.....	15.33	15.76	15.87	16.40
17	13.51	14.80	14.14	14.48	15.06	14.67	15.55	.....	15.35	15.76	15.89	16.42
18	13.52	14.83	.....	14.53	15.06	14.66	15.56	15.50	15.37	15.75	15.91	16.43
19	13.54	14.82	.....	14.58	15.05	14.64	15.57	.....	15.39	15.73	15.93	.....
20	13.56	14.82	.....	14.62	15.04	14.64	15.57	.....	15.41	15.73	15.95	.....
21	13.57	14.83	.....	14.66	15.04	14.61	.....	.....	15.43	.....	15.96	.....
22	13.56	14.83	.....	14.71	15.04	14.73	.....	.....	15.48	.....	15.98	16.45
23	13.54	14.85	.....	14.74	15.04	14.88	.....	.....	15.50	.....	16.00	16.45
24	13.55	14.85	14.27	14.78	15.04	14.94	.....	.....	15.53	.....	.....	.....
25	13.56	.....	14.28	14.82	15.04	15.01	.....	15.50	15.55	.....	.....	.....
26	13.57	.....	14.28	14.85	15.05	15.05	.....	15.53	15.57	.....	16.17	.....
27	13.57	.....	14.26	14.87	15.05	15.09	.....	15.54	15.60	15.73	16.19	.....
28	13.54	.....	14.23	14.95	15.05	15.12	15.49	15.55	.....	.....	16.21	.....
29	13.55	.....	14.23	14.97	15.05	15.16	.....	15.56	.....	.....	16.25	.....
30	13.60	.....	14.23	14.98	15.03	15.19	.....	15.57	15.60	.....	16.27	16.45
31	13.84	.....	14.22	.....	15.03	.....	.....	15.58	.....	.....	.....	16.46

SOUTH CAROLINA

GREENVILLE AND SPARTANBURG COUNTIES
TIGER RIVER AREA OF SOIL CONSERVATION SERVICE

By L. K. Wenzel

The observation-well program in the Tiger River area, South Carolina (see Water-Supply Papers 777, 817, 840, 845, 886, and 907), was continued in 1941 through cooperation with the Soil Conservation Service. At the beginning of the year only three observation wells contained sufficient water to permit measurements of water level to be made. Some recharge to the underground reservoirs occurred, however, during the late spring and early summer and measurements were resumed by the middle of August on 11 wells. Seven of the 14 wells then under observation went dry during the fall months, and at the end of 1941 measurements were being made in 7 wells. A total of 162 individual measurements of water level in 14 wells was made during the year.

The average annual precipitation at Spartanburg is about 50 inches. Since 1937, however, the precipitation in each year has been about 10 to 14 inches below normal, and in 1941 it was 35.92 inches--14.03 inches below normal. Only two months--July and December--had above-normal precipitation in 1941. There has been a deficit of nearly 45 inches of precipitation since October 1937.

The observation-well program was started in the spring of 1934 when the water levels in wells were at comparatively low stages as a result of low precipitation during 1933 and the first part of 1934. The water levels fluctuated through only a small range in 1935, but they rose markedly in 1936 and 1937 when the precipitation was above normal. In the summer of 1937 the water level began a persistent decline, which continued with only minor interruptions through 1938, 1939, 1940, and 1941. All but 3 of the wells went dry during this 4½-year period of drought. The records of only 3 wells (6, 12, and 18) are thus available for comparison in 1941. The

water levels in these wells were from about 0.10 foot to 0.35 foot lower at the end of 1941 than they were at the beginning of the year. It is probable, therefore, that the quantity of water stored in the underground reservoirs of the area at the end of 1941 was the smallest since records were begun in 1934.

Greenville County

15. A. W. Neves. Well dry throughout year.

16. J. T. Bridewell. Well dry throughout year.

18. Mrs. Hamit. Pumped occasionally.

Water level, in feet above datum, 1941

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 13	10.06	Apr. 7	9.86	July 2	10.02	Oct. 6	10.60
27	9.99	21	9.82	15	10.18	16	10.63
Feb. 10	9.95	May 5	9.76	Aug. 9	10.21	Nov. 4	10.23
24	9.67	19	10.07	18	10.56	17	10.14
Mar. 10	9.90	June 2	10.12	Sept. 3	10.60	Dec. 2	10.00
24	9.84	16	10.06	16	10.65	16	9.99

19. H. P. Jones. Measurements resumed. Pumped occasionally.

Water level, in feet above datum, 1941

Aug. 18	8.42	Oct. 6	7.86	Nov. 4	7.94	Dec. 2	7.82
Sept. 3	8.27	16	7.82	17	7.88	16	8.08
16	8.11						

40. Will Neely. Dry throughout year.

Spartanburg County

1. C. O. Fowler. No measurements made in 1941.

2. C. O. Fowler. Measurements resumed.

Water level, in feet above datum, 1941

Aug. 18	8.69	Oct. 6	8.64	Nov. 4	8.55	Dec. 2	8.35
Sept. 3	8.70	16	8.59	17	8.46	16	8.21
16	8.83						

3. C. D. Turner. Measurements resumed.

Water level, in feet above datum, 1941

June 2	7.54	Aug. 8	7.63	Oct. 6	7.44	Nov. 17	7.10
16	7.43	18	7.65	16	7.24	Dec. 2	6.99
30	7.36	Sept. 3	7.39	Nov. 4	7.14	16	6.94
July 15	7.39	16	7.47				

6. J. D. Darby.

Water level, in feet above datum, 1941

Jan. 13	8.63	Apr. 7	8.39	June 30	8.37	Oct. 6	8.96
27	8.52	21	8.43	July 15	8.39	16	8.91
Feb. 10	8.62	May 5	8.47	Aug. 8	8.58	Nov. 4	8.71
24	8.58	19	8.52	18	8.69	17	8.55
Mar. 10	8.32	June 2	8.47	Sept. 3	8.87	Dec. 2	8.42
24	8.49	16	8.47	16	8.94	16	8.36

Spartanburg County--Continued.

7. T. O. Fowler. Measurements resumed. Pumped occasionally. Water levels, in feet above datum, 1941: Aug. 18, 9.75; Sept. 3, 9.38; Sept. 16, 8.72; Oct. 6, a/.

9. Mrs. Ila L. Wilson. Measurements resumed. Pumped occasionally.

Water level, in feet above datum, 1941.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Aug. 8	9.91	Sept. 3	9.94	Oct. 6	9.43	Nov. 4	8.60
18	9.90	16	9.81	16	9.20	17	(a)

10. J. E. Raven. Measurements resumed. Pumped occasionally.

Water level, in feet above datum, 1941

Date	Water level	Date	Water level	Date	Water level
Aug. 18	7.83	Sept.16	7.30	Oct. 16	7.48
Sept. 3	7.55	Oct. 6	6.65	Nov. 4	(a)

12. J. G. R. Armstrong.

Water level, in feet above datum, 1941

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 13	9.89	Apr. 7	9.94	July 2	10.63	Oct. 6	10.44
27	9.88	21	9.66	15	10.71	16	10.35
Feb. 10	9.87	May 5	9.97	Aug. 9	10.67	Nov. 4	10.23
24	9.89	19	10.02	18	10.66	17	10.09
Mar. 10	9.90	June 2	10.24	Sept. 3	10.60	Dec. 2	10.04
24	9.92	16	10.47	16	10.55	16	9.99

31. B. L. Bane. Measurements resumed. Pumped occasionally.

Water level, in feet above datum, 1941

Aug. 18	7.38	Sept.16	7.51	Oct. 16	7.09	Nov. 11	(a)
Sept. 3	7.49	Oct. 6	7.26	Nov. 4	6.67		

32. John Wingo. Measurements resumed.

Water level, in feet above datum, 1941

Aug. 18	7.35	Oct. 6	7.16	Nov. 4	7.43	Dec. 2	7.13
Sept. 3	7.19	16	7.06	17	6.91	16	(b)
16	7.33						

33. J. L. Foster. Well dry throughout year.

35. A. B. Grouse. Records for 1940 given in Water-Supply Paper 907, page 91, are incorrect; revised records included in following table.

Water level, in feet above datum, 1940-41

Date	Water level	Date	Water level	Date	Water level
July 31, 1940	9.53	Dec. 2, 1940	8.30	June 16, 1941	9.25
Aug. 12	9.38	16	8.07	30	9.00
23	9.48	30	7.83	July 15	8.77
Sept.10	9.54	Jan. 13, 1941	(c)	Aug. 8	8.41
23	9.46	Apr. 21	8.36	18	8.28
Oct. 7	9.34	May 5	8.28	Sept. 3	8.09
21	9.10	19	8.84	16	7.80
Nov. 4	8.84	June 2	9.03	Oct. 6	(d)
18	8.57				

a Well dry throughout rest of year.
b Well dry.
c Well dry Jan. 13 to Apr. 21.
d Well dry Oct. 6 through Dec. 31.

Spartanburg County--Continued.

36. E. E. Brown. Measurements resumed. Pumped occasionally.

Water level, in feet above datum, 1941

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Aug. 8	9.69	Sept. 16	9.91	Nov. 4	9.22	Dec. 2	9.23
18	9.92	Oct. 6	9.70	17	8.94	16	9.21
Sept. 3	9.85	16	9.58				

37. C. P. Cleveland.

Water level, in feet above datum, 1941

Jan. 13	(a)	Sept. 16	7.75	Nov. 4	7.77	Dec. 2	7.31
Aug. 18	7.30	Oct. 6	7.87	17	7.39	16	(b)
Sept. 3	7.62	16	7.94				

38. A. B. Grouse. Well dry throughout 1941.

a Well dry Sept. 10, 1940, to Aug. 18, 1941.
b Well dry.

TENNESSEE

MEMPHIS

By F. H. Klaer, Jr. and R. G. Kazmann

Since the publication of the 1940 water-level report (Water-Supply Paper 907) the ground-water situation in Memphis has changed in the following manner: The growth of defense industry in the area is the index which shows the increase in draft in the artesian supply. To offset this increase, however, due to a recent city ordinance, all new wells for air-conditioning purposes within the city limits must have municipal approval. It is expected that this will result in few, if any, new wells for air-conditioning drawing on the artesian reservoir.

The water level in the Central Avenue well, records of which extend to 1932, reached the lowest elevation on record, 92.25 feet above the assumed datum, on October 10, 1941. This is about 5 feet lower than the lowest level recorded in 1940 and nearly 18 feet lower than the lowest level reached in 1933. The somewhat greater than usual decline is probably due chiefly to the increased draft on the ground-water reservoir during 1941.

During 1941 the water level in the Sycamore Avenue well fluctuated a total of nearly 15 feet--from elevation 105 to 90 and back to 101--making a net decline during 1941 of 4 feet. This is a total decline of 6 feet from the low of 1939 and 8 feet below that of 1938.

Measurements in well 32 were discontinued in July 1941 when the well was put back into service. The records obtained prior to that time are given below.

The records of test wells T-1, T-2, and T-3 are not of sufficient length to show any significant trends although, in general, the water levels declined somewhat. The elevation of the water in test well T-4 is given at weekly intervals, when the recorder charts were replaced. Fluctuations in this well have been very small and the total decline during 1941 was about one foot.

During the first half of 1941 records from test well T-2 showed little fluctuation and only weekly measurements are given. The well was cleaned out in June 1941 and 15 cubic feet of sand removed from it. During the

process the top of the casing, heretofore used as the measuring point, was lowered about 1.6 feet. On July 20, 1941, the water-level recorder was put back into operation. The lowest daily water level is given for each day from July 21, 1941, until the end of the year. The condition of the well at the time it was cleaned throws doubt on the value of the records obtained before cleaning.

Complete descriptions of test wells T-1, T-2, T-3, T-4, 17, and 32 are found on pp.99-101 of Water Supply Paper 907.

Central Avenue well. City of Memphis, Central Ave., Memphis.

Lowest daily water level, in feet above an assumed datum, 1941
(from recorder charts)

Day	Jan.	Feb.	Mar.	Apr.	May	June
1	100.51	99.57	99.75	99.43	98.21	95.44
2	100.37	99.60	99.94	99.37	98.20	95.36
3	100.40	99.71	100.20	99.26	98.00	95.20
4	100.36	99.71	99.75	99.05	98.04	95.14
5	100.40	99.84	99.68	99.06	98.02	95.05
6	100.10	99.88	99.70	99.21	97.92	94.75
7	99.93	99.80	99.85	99.24	97.67	94.74
8	99.86	99.77	99.93	99.05	97.55	94.80
9	99.70	99.86	100.01	98.61	97.38	94.85
10	99.70	100.06	100.05	98.55	97.35	94.78
11	99.75	100.00	99.74	98.37	97.43	94.50
12	100.00	99.98	99.66	98.25	97.50	94.38
13	100.24	99.85	99.55	98.30	97.40	94.21
14	100.10	99.69	99.48	98.55	97.35	94.28
15	99.85	99.71	99.56	98.53	97.14	94.43
16	99.80	99.90	100.00	98.35	97.15	94.65
17	99.61	100.00	100.17	98.20	97.16	94.45
18	99.54	99.81	99.98	98.06	97.24	94.36
19	99.48	99.66	99.90	98.01	97.01	94.10
20	99.84	99.67	99.90	98.03	96.85	94.05
21	99.70	99.70	100.06	98.00	96.50	94.05
22	99.60	99.80	99.93	98.05	96.02	94.15
23	99.51	99.91	99.95	98.50	95.79	94.42
24	99.33	100.05	99.91	98.50	95.80	94.22
25	99.32	99.90	99.76	98.50	95.87	93.86
26	99.65	99.82	100.65	98.46	96.14	93.60
27	99.63	99.76	99.50	98.50	95.85	93.49
28	99.60	99.72	99.41	98.62	95.52	93.50
29	99.60	.....	99.40	98.47	95.44	93.60
30	99.57	.....	99.54	98.35	95.35	93.80
31	99.56	.....	99.55	.....	95.30	.....

Lowest daily water level, in feet above an assumed datum, 1941
(from recorder charts)

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	93.45	93.55	93.38	93.08	94.27	95.55
2	93.05	93.55	93.62	92.80	94.37	95.48
3	93.05	93.60	93.55	92.70	94.65	95.50
4	93.20	93.85	93.46	92.70	94.69	95.50
5	94.07	93.75	93.43	92.86	94.64	95.50
6	94.54	93.55	93.37	92.74	94.52	95.38
7	94.75	93.37	93.46	92.55	94.44	95.48
8	94.20	93.30	93.49	92.44	94.53	95.83
9	93.73	93.22	93.20	92.44	94.92	95.75
10	93.40	93.25	92.99	92.25	95.16	95.53
11	93.21	93.34	93.00	92.30	95.30	95.52
12	93.25	93.14	92.94	92.55	95.14	95.53
13	93.40	92.76	92.92	92.84	95.00	95.58
14	93.70	92.76	92.92	92.82	95.00	95.63

Central Avenue well--Continued

Lowest daily water level, in feet above an assumed datum, 1941
(from recorder charts)

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.
15	93.69	92.80	92.97	92.74	95.20	95.75
16	93.60	92.91	92.93	92.75	95.45	95.66
17	93.35	92.98	92.64	92.82	95.59	95.58
18	93.28	93.34	92.62	92.96	95.65	95.48
19	93.18	93.16	92.65	93.14	95.72	95.36
20	93.25	93.16	92.88	93.35	95.62	95.36
21	93.60	93.34	92.95	93.50	95.53	95.45
22	93.37	93.35	93.07	93.20	95.58	95.70
23	93.20	93.45	93.10	92.93	95.72	95.70
24	93.09	93.50	93.16	92.94	95.35	95.65
25	93.08	93.55	92.93	93.17	95.30	95.80
26	93.24	93.30	92.78	93.45	95.27	96.85
27	93.44	93.22	92.80	93.86	95.30	96.76
28	93.85	93.10	92.94	93.92	95.08	96.68
29	93.37	93.02	.....	93.92	95.10	96.30
30	93.66	93.05	93.14	93.92	95.30	96.24
31	93.55	93.18	.....	94.00	.....	96.22

Sycamore Avenue well. City of Memphis. Sycamore Ave. & Fifth St., Memphis.

Lowest daily water level, in feet above an assumed datum, 1941
(from recorder charts)

Day	Jan.	Feb.	Mar.	Apr.	May	June
1	.....	104.31	.....	104.50	.....	.....
2	104.23	104.31	.....	104.54	.....	95.66
3	104.23	104.43	.....	104.45	.....	.....
4	104.19	104.65	.....	104.23	.....	95.20
5	104.05	104.78	104.70	104.01	99.77	.....
6	104.08	104.72	104.70	103.98	.....	94.87
7	104.05	104.58	104.72	104.20	99.39	.....
8	103.94	104.52	104.67	.....	.....	.....
9	103.87	104.52	104.66	.....	98.84	95.36
10	103.95	104.85	104.72	.....	.....	.....
11	103.99	104.65	104.70	.....	.....	94.46
12	104.22	104.47	104.64	.....	99.45	.....
13	104.93	104.20	104.45	.....	.....	.....
14	105.01	103.95	104.37	103.16	.....	.....
15	105.00	103.88	104.37	.....	99.27	.....
16	104.94	103.88	104.37	.....	.....	95.28
17	104.65	104.06	.....	101.20	.....	.....
18	104.40	104.20	.....	100.77	.....	.....
19	103.35	104.18	.....	.....	98.20	.....
20	104.10	104.18	.....	.....	.....	.....
21	104.02	104.19	.....	101.10	.....	.....
22	103.82	104.23	.....	.....	96.53	.....
23	103.73	104.22	.....	.....	.....	95.04
24	103.68	104.35	104.96	.....	95.80	.....
25	103.68	104.61	104.98	.....	.....	.....
26	103.82	104.57	104.86	.....	96.86	93.80
27	104.13	.....	104.68	.....	.....	.....
28	104.14	.....	104.38	102.76	95.82	.....
29	104.31	.....	104.18	.....	95.37	.....
30	104.40	.....	104.17	.....	95.06	93.15
31	104.39	.....	104.50	.....	.....	.....

Lowest daily water level, in feet above an assumed datum, 1941
(from recorder charts)

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	91.42	91.74	92.99	96.08	99.36
2	91.18	91.38	.....	92.47	96.42	99.44
3	91.10	91.38	.....	92.16	96.98	99.40
4	91.08	.....	92.75	92.08	97.47	99.42
5	91.60	92.08	92.48	92.08	97.67	99.18
6	92.54	91.73	92.41	92.44	97.70	99.03

Sycamore Avenue well--Continued

Lowest daily water level, in feet above an assumed datum, 1941
(from recorder charts)

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.
7	93.43	91.29	92.43	92.08	97.78	99.03
8	.....	90.97	92.94	91.78	97.92	99.36
9	92.31	90.72	93.11	91.60	98.08	99.68
10	92.00	90.82	92.70	91.54	98.32	99.76
11	91.76	91.54	92.38	91.66	98.66	99.85
12	91.76	90.94	92.58	92.10	98.71	99.92
13	91.88	90.30	92.62	92.90	98.77	100.03
14	92.62	90.07	92.61	93.42	98.99	100.02
15	92.74	90.05	93.07	93.43	99.24	100.21
16	92.61	90.10	93.04	93.43	99.62	100.00
17	92.44	90.10	.....	93.59	100.12	99.72
18	92.42	90.72	.....	93.67	100.35	99.68
19	92.45	90.92	.....	93.76	100.03	99.56
20	92.50	90.98	.....	94.22	99.57	99.50
21	93.20	91.08	.....	94.10	99.27	99.50
22	92.66	91.22	.....	93.79	99.23	99.87
23	92.33	91.36	.....	93.42	99.17	100.06
24	92.08	91.82	92.54	93.17	99.24	99.76
25	91.90	92.25	91.96	93.16	99.42	99.73
26	91.79	91.86	91.88	93.27	99.10	99.93
27	91.79	91.40	92.00	93.95	98.98	100.28
28	92.63	91.25	92.38	94.38	99.00	100.38
29	92.79	91.20	92.96	94.72	99.02	100.52
30	92.36	91.09	93.34	95.11	99.07	100.70
31	91.98	91.09	.....	95.57	.....	101.00

T-1. Memphis Water Department. O. K. Robertson Road, Memphis.

Lowest daily water level, in feet above an assumed datum, 1941
(from recorder charts)

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	78.05	77.45	76.96	77.20	77.12	74.84	74.00	73.05	71.80	71.57	72.27	73.08
2	78.01	77.52	77.01	77.20	77.10	74.83	73.83	72.97	71.83	71.62	72.31	73.13
3	78.00	77.52	77.07	77.22	77.03	74.82	73.75	72.91	71.89	71.62	72.33	73.23
4	77.96	77.53	76.94	77.15	76.92	74.73	73.65	72.83	71.87	71.58	72.37	73.28
5	77.89	77.62	76.94	77.07	76.86	74.64	73.59	72.89	71.86	71.49	72.50	73.14
6	77.90	77.74	76.96	77.03	76.83	74.59	73.54	72.85	71.80	71.45	.....	73.06
7	77.89	77.73	76.98	77.03	76.71	74.52	73.60	72.76	71.80	71.44	.....	73.06
8	77.90	77.67	76.97	77.00	76.56	74.50	73.60	72.68	71.78	71.39	.....	73.12
9	77.94	77.60	76.97	76.94	76.37	74.51	73.62	72.60	71.76	71.40	.....	73.11
10	77.94	77.56	76.92	76.90	76.27	74.56	73.65	72.56	71.66	71.38	.....	73.06
11	78.05	77.55	76.85	76.88	76.24	74.60	73.64	72.53	71.66	71.38	.....	73.04
12	78.06	77.56	76.84	76.88	76.23	74.57	73.61	72.52	71.67	71.44	73.03	73.07
13	78.09	77.54	76.81	76.89	76.20	74.52	73.56	72.44	71.66	71.52	73.06	72.98
14	78.10	77.40	76.82	76.96	76.18	74.53	73.56	72.40	71.58	71.60	73.10	72.95
15	78.18	77.32	76.88	77.02	76.13	74.51	73.58	72.41	71.57	71.70	73.18	72.96
16	78.15	77.30	76.93	77.08	76.09	74.53	73.62	72.30	71.55	71.81	73.23	73.01
17	77.94	77.23	76.88	77.08	76.00	74.58	73.58	72.24	71.55	71.83	73.25	73.02
18	77.72	77.15	76.90	77.08	75.93	74.63	73.58	72.22	71.56	72.00	73.26	72.97
19	77.64	77.09	76.98	77.06	75.86	74.66	73.56	72.22	71.59	72.00	73.28	72.92
20	77.57	77.08	77.10	76.06	75.78	74.67	73.49	72.18	71.56	72.01	73.34	72.91
21	77.53	77.07	77.16	76.88	75.70	74.66	73.43	72.14	71.55	72.04	73.21	72.91
22	77.47	77.06	77.19	76.83	75.60	74.64	73.42	72.08	71.56	72.13	73.19	72.07
23	77.44	77.04	77.22	76.87	75.54	74.62	73.37	72.06	71.61	72.10	73.19	73.23
24	77.41	77.06	77.28	76.92	75.47	74.65	73.32	72.06	71.66	72.06	73.09	73.20
25	77.40	77.13	77.30	76.89	75.40	74.62	73.26	72.07	71.60	72.05	73.06	73.20
26	77.36	77.14	77.34	76.88	75.32	74.57	73.19	72.07	71.54	72.05	73.06	73.12
27	77.30	77.06	77.31	76.92	75.24	74.48	73.16	72.00	71.53	72.05	73.08	73.10
28	77.30	76.97	77.20	76.99	75.14	74.35	73.14	71.98	71.48	72.01	73.06	73.10
29	77.37	.....	77.16	77.06	75.06	74.25	73.16	71.91	71.46	71.97	73.03	73.10
30	77.42	.....	77.18	77.10	74.99	74.10	73.20	71.85	71.50	72.01	73.04	.....
31	77.44	.....	77.20	.....	74.90	.....	73.13	71.81	.....	72.15	.....	73.40

T-2. City of Memphis. Schiebler Road, Memphis. Water levels after July 21 are not directly comparable with those preceding. The well was cleaned out and measuring point lowered about 1.6 feet. This figure, however, is not exact. The records obtained before the well was cleaned out (those records taken before June 9, 1941) are not considered too reliable. The records taken after July 20, 1941, elevation of measuring point assumed 98.40 feet above an assumed datum, are considered reliable.

Water level, in feet above an assumed datum, 1941

Date	Hour	Water level	Date	Hour	Water level
Jan. 6	11:55 a.m.	29.88	Mar. 31	10:20 p.m.	29.37
13	11:30 a.m.	29.83	Apr. 3	11:00 a.m.	29.36
20	12:50 p.m.	29.80	7	1:30 p.m.	29.35
27	2:30 p.m.	29.74	14	1:45 p.m.	29.31
Feb. 3	10:45 a.m.	29.67	21	2:00 p.m.	29.25
10	12:20 p.m.	29.62	28	3:15 p.m.	29.20
17	10:30 a.m.	29.57	May 5	1:40 p.m.	29.15
24	12:30 p.m.	29.52	12	2:00 p.m.	29.10
Mar. 3	1:30 p.m.	29.47	19	1:45 p.m.	29.03
10	2:10 p.m.	29.44	26	1:30 p.m.	28.95
17	1:45 p.m.	29.41	June 2	1:45 p.m.	28.85
24	3:45 p.m.	29.38	9	9:00 a.m.	28.76

Lowest daily water level, in feet above an assumed datum, 1941
(from recorder charts)

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	23.00	22.31	21.62	21.80	22.26
2	.....	23.00	22.27	21.62	21.80	22.32
3	.....	22.97	22.29	21.62	21.78	22.36
4	.....	22.95	22.24	21.61	21.79	22.40
5	.....	22.96	22.22	21.60	21.88	22.35
6	.....	22.93	22.18	21.56	21.86	22.29
7	.....	22.90	22.18	21.56	21.81	22.29
8	.....	22.85	22.13	21.52	21.81	.....
9	.....	22.82	22.07	21.50	21.57	.....
10	.....	22.79	22.03	21.46	.....	.....
11	.....	22.80	22.02	21.44	.....	22.34
12	.....	22.79	22.03	21.44	21.63	22.34
13	.....	22.73	22.01	21.44	21.63	22.35
14	.....	22.72	21.98	21.43	21.66	22.36
15	.....	22.74	21.94	21.42	.....	22.34
16	.....	22.70	21.89	21.49	.....	22.34
17	.....	22.63	21.85	21.49	.....	22.35
18	.....	22.62	21.85	21.61	.....	22.31
19	.....	22.62	21.84	21.59	22.08	22.29
20	.....	22.59	21.81	21.59	22.08	22.25
21	23.14	22.55	21.77	21.59	22.04	22.25
22	23.12	22.49	21.75	21.59	22.07	22.26
23	23.11	22.46	21.76	21.61	22.16	22.50
24	23.10	22.46	21.80	21.60	22.14	22.44
25	23.09	22.43	21.72	21.60	22.14	22.44
26	23.05	22.42	21.67	21.61	22.23	22.36
27	23.02	22.35	21.66	21.62	22.27	22.36
28	23.00	22.40	21.60	21.55	22.25	.....
29	23.01	22.39	21.57	21.57	22.23	.....
30	23.05	22.35	21.60	21.61	22.24	.....
31	23.04	22.32	.....	21.73	.....	22.52

T-3. Memphis Water Department. Macon Road, Memphis.

Lowest daily water level, in feet above an assumed datum, 1941
(from recorder charts)

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	23.23	23.34	23.05	23.10	23.10	22.92	22.43	22.17	22.05	21.74	21.76	21.74
2	23.25	23.36	23.11	23.07	23.13	22.92	22.39	22.14	22.07	21.74	21.72	21.79
3	23.25	23.25	23.24	23.09	23.14	22.91	22.39	22.12	22.08	21.75	21.69	21.81
4	23.26	23.23	23.06	23.08	23.08	22.86	22.42	22.13	22.04	21.73	21.73	21.81

T-3--Continued
Lowest daily water level, in feet above an assumed datum, 1941
(from recorder charts)

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	23.20	23.27	23.03	22.98	23.07	22.79	22.41	22.14	22.04	21.71	21.79	21.73
6	23.19	23.35	23.06	22.94	23.10	22.76	22.42	22.12	22.04	21.65	21.76	21.60
7	23.20	23.37	23.17	22.98	23.09	22.74	22.40	22.06	22.07	21.69	21.70	21.61
8	23.21	23.35	23.20	22.98	23.04	22.72	22.38	22.04	22.05	21.64	21.69	21.76
9	23.22	23.28	23.21	22.94	22.96	22.76	22.37	22.04	22.02	21.66	21.67	21.72
10	23.20	23.26	23.14	22.89	22.90	22.78	22.40	22.06	21.92	21.59	21.61	21.66
11	23.33	23.23	23.00	22.88	22.93	22.79	22.39	22.10	21.92	21.58	21.61	21.66
12	23.32	23.26	22.96	22.86	23.00	22.76	22.39	22.09	21.96	21.62	21.76	21.71
13	23.36	23.40	22.96	22.86	23.01	22.69	22.35	22.05	21.96	21.63	21.75	21.72
14	23.38	23.19	22.93	22.91	23.02	22.69	22.37	22.02	21.93	21.63	21.78	21.65
15	23.45	23.14	23.08	22.94	23.00	22.66	22.38	22.04	21.93	21.62	21.81	21.66
16	23.47	23.14	23.17	22.98	22.99	22.62	22.38	22.03	21.90	21.68	21.80	21.69
17	23.32	23.22	22.93	22.98	22.99	22.59	22.34	22.02	21.85	21.69	21.72	21.74
18	23.15	23.14	22.90	23.00	22.95	22.56	22.35	22.05	21.86	21.67	21.66	21.71
19	23.08	23.09	22.93	23.00	22.94	22.55	22.36	22.08	21.89	21.64	21.66	21.65
20	23.08	23.10	23.04	22.96	22.90	22.56	22.33	22.02	21.84	21.65	21.62	21.61
21	23.14	23.11	23.10	22.87	22.86	22.53	22.28	22.03	21.81	21.65	21.59	21.62
22	23.22	23.14	23.06	22.86	22.85	22.54	22.30	22.03	21.80	21.68	21.63	21.68
23	23.24	23.15	23.07	22.92	22.89	.....	22.30	22.03	21.84	21.63	21.63	21.87
24	23.23	23.17	23.03	23.00	22.89	22.57	22.29	22.06	21.88	21.61	21.54	21.76
25	23.20	23.20	23.00	22.96	22.90	22.52	22.29	22.04	21.78	21.63	21.55	21.76
26	23.26	23.20	23.03	22.94	22.91	22.47	22.26	22.02	21.68	21.68	21.68	21.62
27	23.16	23.11	23.08	22.98	22.89	22.47	22.23	21.96	21.70	21.68	21.70	21.57
28	23.15	23.04	23.02	23.05	22.86	22.47	22.20	21.99	21.69	21.54	21.68	21.57
29	23.22	.....	22.94	23.06	22.86	22.47	22.21	22.02	21.65	21.53	21.67	21.57
30	23.28	.....	22.98	23.08	22.88	22.47	22.24	22.01	21.71	21.61	21.68	21.64
31	23.34	.....	23.08	.....	22.92	.....	22.20	22.03	.....	21.69	.....	21.78

17. City of Memphis. N. Parkway and N. Garland Sts., Memphis.

Lowest daily water level, in feet above an assumed datum, 1941
(from recorder charts)

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	29.11	27.42	30.05	26.00	25.00	17.20	8.87	12.70	16.79	14.42	22.97	20.80
2	30.10	28.00	30.22	25.50	21.80	17.20	9.58	12.90	15.35	13.50	24.12	20.44
3	29.66	29.00	30.70	24.40	20.48	16.13	10.00	13.50	14.89	15.64	25.15	20.48
4	29.52	29.25	29.45	24.02	21.70	16.28	.....	15.92	17.62	14.59	24.28	20.72
5	29.58	29.16	29.28	23.90	21.02	16.26	.....	14.35	16.30	15.76	23.92	20.63
6	29.90	28.63	29.80	25.97	21.32	15.86	.....	14.30	16.88	15.52	23.81	22.18
7	28.80	28.52	29.37	26.25	22.70	14.44	12.98	13.87	17.88	14.44	23.81	23.05
8	28.33	28.99	29.09	24.92	22.11	16.50	9.14	13.69	14.94	14.00	24.79	24.15
9	27.59	29.50	29.24	24.48	21.38	16.28	8.24	13.00	14.28	13.20	25.08	24.00
10	27.48	28.48	30.53	25.17	20.63	14.40	8.94	13.00	14.67	13.22	25.39	25.25
11	28.12	28.19	30.36	25.37	22.00	14.12	9.03	13.60	14.52	.....	25.02	25.18
12	28.40	29.07	30.38	25.40	23.18	14.70	10.50	10.10	.....	.....	24.52	25.18
13	28.95	29.30	30.11	26.88	22.65	15.15	13.21	9.69	.....	.....	24.03	25.92
14	28.60	29.10	30.10	27.00	22.06	15.11	14.20	12.16	.....	.....	23.97	26.22
15	28.05	30.10	30.89	26.17	21.40	16.50	11.82	13.50	.....	14.25	24.40	24.75
16	28.28	30.62	31.97	24.54	20.30	16.84	13.16	14.50	14.05	15.47	25.23	24.40
17	27.97	30.90	28.80	22.87	19.18	16.55	10.68	14.62	13.59	15.30	24.35	25.22
18	27.67	30.47	28.40	22.66	21.78	14.00	.....	15.29	14.25	14.90	22.10	24.40
19	28.18	30.47	29.40	22.60	20.50	12.38	11.80	14.00	14.19	14.35	20.75	22.82
20	28.40	30.25	30.30	23.92	19.23	12.81	13.88	16.11	14.57	14.60	20.45	22.80
21	27.91	29.30	28.18	26.14	18.10	13.19	13.26	16.28	16.52	15.18	21.08	23.30
22	27.51	29.00	27.22	27.07	17.20	14.70	11.49	16.48	16.85	15.70	21.25	24.48
23	27.51	29.26	28.90	29.60	16.71	17.00	12.06	16.79	15.71	16.01	22.90	21.50
24	28.25	30.32	28.00	28.60	17.80	13.00	12.00	17.62	15.00	18.30	21.60	20.98
25	28.30	30.33	27.69	27.22	19.90	11.26	13.90	15.50	14.71	21.30	20.25	20.98
26	28.88	30.87	27.28	26.96	19.25	12.36	13.38	13.60	14.98	21.25	19.55	23.25
27	29.29	30.84	26.23	27.68	16.88	11.97	17.50	13.22	16.94	22.00	19.50	22.58
28	29.62	30.90	25.74	27.32	16.12	11.63	17.10	15.35	18.38	.....	19.73	22.50
29	29.65	.....	25.95	26.72	16.35	15.20	14.38	12.70	17.02	22.20	19.73	22.56
30	29.28	.....	26.90	26.61	15.22	11.87	13.80	12.15	17.42	22.25	20.27	22.50
31	27.82	.....	27.90	.....	15.65	.....	12.95	13.32	.....	22.70	.....	22.10

32. City of Memphis. N. Evergreen St., Memphis.

Lowest daily water level, in feet above an assumed datum, 1941
(from recorder charts)

Day	Jan.	Feb.	Mar.	Apr.	May	June	July
1	60.48	57.09	55.74	56.17	56.25	53.89	49.47
2	60.63	57.71	56.06	55.66	56.42	53.90	49.13
3	60.66	58.08	56.56	55.09	56.48	53.34	49.00
4	60.63	58.04	56.38	55.05	56.87	52.70	48.95
5	61.29	57.78	56.67	55.12	57.00	52.08	49.19
6	61.22	57.22	56.83	55.60	56.89	51.92	49.08
7	60.83	57.05	56.73	56.03	56.13	51.95	49.13
8	60.52	56.74	56.56	55.78	56.21	51.97	44.05
9	60.67	57.12	56.58	55.38	56.20	52.23	50.50
10	60.54	56.92	56.66	55.23	55.86	52.04	50.37
11	60.33	56.68	56.23	55.41	55.95	51.92	(a)
12	60.15	56.58	55.90	55.39	55.70	51.90	.....
13	60.36	56.34	55.58	55.50	55.57	52.05	.....
14	59.10	56.20	55.56	55.54	55.26	52.30	.....
15	58.26	56.14	56.02	55.26	54.78	52.34	.....
16	59.98	55.99	56.59	55.16	54.60	52.86	.....
17	60.12	56.12	56.39	55.12	54.12	52.76	.....
18	59.69	55.71	56.47	55.40	53.94	52.66	.....
19	59.74	55.60	56.48	55.77	55.08	52.30	.....
20	58.11	55.51	56.84	55.82	54.58	51.87	.....
21	57.78	55.75	55.98	55.94	54.39	51.59	.....
22	57.81	56.06	55.93	55.49	53.87	51.36	.....
23	57.81	56.36	55.97	55.42	53.72	51.60	.....
24	57.78	57.46	56.34	55.27	53.66	51.40	.....
25	57.78	56.96	57.04	55.12	54.00	51.18	.....
26	58.65	56.62	56.84	55.16	54.15	50.61	.....
27	58.26	56.12	56.84	55.60	53.76	50.34	.....
28	57.83	55.77	56.48	56.32	53.62	50.15	.....
29	57.90	.....	56.28	56.43	53.69	50.35	.....
30	58.08	.....	56.74	56.32	53.80	49.90	.....
31	57.30	.....	56.62	.....	53.84	.....	.....

a Well put back into service.

VIRGINIA

NORTHERN VIRGINIA

By Bernard Fisher

The observation-well program in northern Virginia (see Water-Supply Papers 777, 817, 840, 845, 886, and 907) was continued in 1941. Automatic water-stage recorders were maintained on the Bacon, Ross, Swart Stream, Swart 5, and Swart 162 wells, and measurements by the wetted-tape method were made about once a week in the other wells. Measurements in the Carne well, Fairfax County, were begun November 19 under the direction of D. J. Cederstrom. A total of about 700 individual measurements of water level was made during 1941.

The records of the United States Weather Bureau at Washington, D. C., indicate that the precipitation was unusually low for northern Virginia in 1941. June, July, and December had precipitation slightly above normal. The rest of the year was marked by a great deficiency of moisture, culminating in an accumulated departure from normal precipitation of 12.99 inches by the end of December. The drought was reflected by abnormally low groundwater levels throughout the area.

The water level in the Halls Hill School well was 27.15 feet below the measuring point on January 6. Thereafter it rose steadily, with no appreciable reversals in direction, until May 5, when the highest stage of the year was recorded--24.12 feet below the measuring point. From this high stage the water level declined persistently for the rest of the year, reaching a level 29.61 feet below the measuring point on December 29. This stage was 2.31 feet lower than the stage on December 30, 1940, and was the lowest recorded since the fall of 1932.

The fluctuations of water level in 1941 in the Ross, Bacon, Bell, Jefferson School, and Glendale Farm wells were similar to those in the Halls Hill School well. The water levels rose seasonally from January to about May, but the high spring stages reached were lower than those recorded in previous years. The water levels then declined with only minor interruptions throughout the last half of the year, and at the end

of December they were lower than they had been at any year-end for several years. There were net declines in water level for the year as follows: Ross well, about 1 foot; Bacon well, 3.05 feet; Bell well, 6.7+ feet; Jefferson School well, 3.7+ feet; and Glendale Farm well, about 1.9 feet. The Bell and Jefferson School wells went dry in October and remained in that condition through December.

The water levels in the Swart wells are not good indicators of general ground-water conditions because they are very shallow and are affected by small amounts of precipitation and by seepage of water from nearby Difficult Run.

Precipitation and departure from normal precipitation, in inches, at Washington, D. C., in 1941

Month	Recorded precipitation	Normal precipitation	Departure from normal	Accumulated departure from normal
January	3.04	3.55	-0.51	-0.51
February	.92	3.27	-2.35	-2.86
March	2.57	3.75	-1.18	-4.04
April	2.73	3.27	- .54	-4.58
May	1.58	3.70	-2.12	-6.70
June	4.38	4.13	+ .25	-6.45
July	5.67	4.71	+ .96	-5.49
August	1.92	4.01	-2.09	-7.58
September	.53	3.24	-2.71	-10.29
October	1.08	2.84	-1.76	-12.05
November	.81	2.37	-1.56	-13.61
December	3.94	3.32	+ .62	-12.99
Year	29.17	42.16	-12.99	-12.99

Arlington County

Halls Hill School well.

Water level, in feet below measuring point, 1941

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 6	27.15	Apr. 21	24.24	Aug. 4	25.90	Oct. 20	28.13
13	26.71	28	24.20	11	26.09	27	28.20
27	26.37	May 5	24.12	18	26.32	Nov. 3	28.38
Feb. 3	25.97	19	24.49	25	26.44	10	28.58
10	25.89	26	24.63	Sept. 2	26.76	17	28.84
17	25.46	June 2	24.71	8	26.83	23	28.89
24	25.53	9	24.82	15	27.07	Dec. 1	29.03
Mar. 3	25.35	30	25.44	22	27.30	8	29.11
17	24.87	July 7	25.35	29	27.52	15	29.27
24	24.78	14	25.66	Oct. 6	27.70	22	29.44
31	24.80	21	25.60	13	27.92	29	29.61
Apr. 7	24.62	29	25.57				

Ross well

Daily water level at 2:00 a.m., in feet below measuring point, 1941 (from recorder charts)

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	26.45	25.80	25.41	24.74	24.02	24.50	25.24	.....	26.05	26.57	26.93	27.18
2	26.41	25.75	25.41	24.71	24.02	24.65	25.26	.....	.....	26.59	26.93	27.19
3	26.37	25.73	25.39	24.74	24.14	24.70	25.29	.....	26.12	26.61	26.94	27.20
4	26.34	25.71	25.35	24.73	24.13	24.66	25.30	.....	26.14	26.61	26.94	27.20
5	26.34	25.69	25.42	24.66	24.07	24.59	25.31	.....	26.15	26.63	26.95	27.21
6	26.34	25.69	25.42	24.66	24.07	24.59	25.30	.....	26.16	26.66	26.95	27.21
7	26.33	25.61	25.44	24.55	24.11	24.80	25.28	25.71	26.17	26.68	26.96	27.22
8	26.29	25.57	25.37	24.48	24.08	24.77	25.27	25.72	26.19	26.68	26.97	27.24
9	26.23	25.56	25.34	24.38	24.11	24.84	25.29	25.73	26.19	26.70	26.99	27.24
10	26.23	25.58	25.41	24.31	24.18	24.85	25.33	25.74	26.22	26.71	27.02	27.26

Arlington County--Continued.

Ross well--Continued.

Daily water level at 2:00 a.m., in feet below measuring point, 1941
(from recorder charts)

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
11	26.23	25.58	25.40	24.28	24.21	24.87	25.34	25.76	26.33	26.71	27.02	27.27
12	26.22	25.54	25.37	24.26	24.18	24.90	25.35	25.72	26.25	26.72	27.02	27.28
13	26.22	25.53	25.33	24.23	24.23	24.92	25.38	25.78	26.29	26.73	27.03	27.28
14	26.22	25.49	25.28	24.14	24.27	24.90	25.40	25.81	26.30	26.74	27.04	27.28
15	26.19	25.48	25.22	24.10	24.30	24.91	25.40	25.82	26.32	26.75	27.05	27.30
16	26.14	25.43	25.14	24.07	24.23	24.93	25.44	25.80	26.33	26.75	27.06	27.34
17	26.14	25.42	25.07	24.05	24.35	24.97	25.44	25.83	26.34	26.78	27.08	.....
18	26.14	25.44	25.08	24.05	24.23	24.97	25.45	25.84	26.36	26.79	27.08	.....
19	26.14	25.48	25.06	24.05	24.40	25.03	25.46	25.84	26.38	26.80	27.08	.....
20	26.14	25.47	25.01	24.01	24.39	25.05	25.47	25.84	26.39	26.83	27.08	.....
21	26.12	25.45	24.99	24.06	24.43	25.07	25.47	25.87	26.39	26.83	27.08	.....
22	26.12	25.45	24.98	24.16	24.43	25.08	25.47	25.89	26.40	26.84	27.09	.....
23	26.03	25.42	24.97	24.13	24.46	25.08	25.47	25.89	26.40	26.86	27.11	.....
24	26.03	25.43	24.89	24.04	24.48	25.10	25.47	25.91	26.42	26.87	27.13	.....
25	26.02	25.43	24.84	24.10	24.56	25.12	25.48	25.93	26.44	26.88	27.13	.....
26	26.02	25.41	24.86	24.10	24.54	25.17	25.48	25.94	26.46	26.90	27.13	.....
27	25.99	25.43	24.82	24.07	24.51	25.17	25.51	25.96	26.48	26.90	27.14	.....
28	25.95	25.39	24.79	24.10	24.51	25.18	25.52	26.00	26.51	26.90	27.15	.....
29	25.91	.....	24.78	24.09	24.59	25.19	25.54	26.02	26.55	26.92	27.16	.....
30	25.87	.....	24.81	24.09	24.63	.....	.....	26.03	26.57	26.92	27.17	.....
31	25.82	.....	24.80	.....	24.65	.....	.....	26.04	.....	26.93	.....	.....

Fairfax County

Bacon well.

Daily water level at 2:00 a.m., in feet below measuring point, 1941
(from recorder charts)

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	18.40	17.53	17.42	16.80	16.43	.....	18.45	.....	19.67	.....	20.87	21.27
2	18.37	17.51	17.42	16.78	16.45	17.62	.....	.....	19.71	.....	20.87	.....
3	18.33	17.47	17.39	16.73	16.50	17.64	.....	.....	19.74	.....	20.89	.....
4	18.27	17.47	17.35	16.71	16.54	17.65	.....	18.95	19.76	.....	20.91	.....
5	18.23	17.46	17.41	16.67	16.55	17.62	.....	.....	19.76	20.46	20.93	.....
6	18.22	17.44	17.44	16.24	16.59	17.69	.....	.....	19.76	.....	20.94	.....
7	18.00	17.41	17.45	16.11	16.61	17.75	18.42	.....	19.79	.....	20.94	.....
8	18.18	17.37	.....	16.05	16.62	17.77	.....	.....	19.82	.....	20.97	21.29
9	18.15	17.39	.....	16.03	16.66	.....	.....	.....	19.84	.....	20.98	21.29
10	18.13	17.41	17.41	16.03	16.70	.....	.....	.....	19.87	.....	20.99	21.29
11	18.09	17.43	17.42	16.06	16.74	.....	.....	19.18	19.89	.....	21.00	21.30
12	18.07	17.40	17.32	16.09	.....	.....	.....	19.18	19.91	.....	21.01	21.32
13	18.08	17.39	17.21	16.12	16.78	.....	.....	19.21	19.92	20.65	.....	21.33
14	18.09	17.37	17.15	16.10	16.83	.....	17.76	19.26	19.94	.....	.....	21.33
15	18.09	17.35	17.08	16.11	16.87	.....	.....	19.28	19.96	.....	.....	21.29
16	18.08	17.35	16.97	16.13	16.87	.....	.....	19.30	19.97	.....	.....	21.29
17	18.03	17.36	16.88	16.15	16.89	17.99	.....	19.33	19.99	.....	21.07	21.29
18	17.95	17.32	16.86	16.17	16.95	.....	.....	19.36	20.01	.....	.....	21.29
19	17.90	17.37	16.85	16.19	17.04	.....	.....	19.37	20.04	.....	.....	21.30
20	17.90	17.37	16.82	16.20	17.08	.....	.....	19.38	20.07	20.75	.....	21.30
21	17.89	17.37	16.80	.....	17.13	.....	18.86	19.41	20.09	.....	.....	.....
22	17.87	17.35	16.82	.....	17.17	.....	.....	19.43	20.10	.....	.....	.....
23	17.82	17.34	16.83	.....	17.21	18.23	.....	19.45	20.11	.....	.....	.....
24	17.83	17.37	16.80	.....	17.26	.....	.....	19.48	20.13	.....	21.15	.....
25	17.79	17.40	16.77	.....	17.33	.....	.....	19.50	20.15	.....	.....	.....
26	17.72	17.41	16.80	.....	17.35	.....	.....	19.50	20.17	.....	.....	.....
27	17.67	17.42	16.79	16.36	.....	.....	.....	19.53	20.19	20.82	.....	21.43
28	17.62	17.42	16.79	16.37	.....	.....	18.00	19.56	20.21	20.82	.....	21.44
29	17.60	.....	16.79	16.42	.....	.....	.....	19.60	20.22	20.83	.....	21.45
30	17.57	.....	16.81	16.44	.....	18.45	.....	19.63	.....	20.85	.....	21.46
31	17.53	.....	16.82	.....	.....	.....	.....	19.65	.....	20.86	.....	21.46

Fairfax County--Continued.

Bell well.

Water level, in feet below measuring point, 1941

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 6	4.20	July 7	4.99	Aug. 18	8.61	Sept.29	12.22
26	3.36	14	3.05	25	9.18	Oct. 6	12.24
Apr. 21	4.42	21	5.23	Sept. 2	9.88	13	(a)
May 4	5.12	29	6.14	8	10.49	Nov. 3	(a)
26	6.64	Aug. 4	6.81	15	11.12	Dec. 15	(a)
June 30	7.08	11	8.11	22	11.70	29	(a)

Jefferson School well.

Water level, in feet below measuring point, 1941

Jan. 6	24.28	May 26	24.14	Aug. 11	26.65	Sept.29	28.33
26	23.56	June 30	25.84	18	27.05	Oct. 6	28.34
Mar. 3	23.25	July 7	25.73	25	26.77	13	(a)
31	22.79	14	25.56	Sept. 2	27.66	Nov. 3	(a)
Apr. 14	22.16	21	25.55	8	27.92	Dec. 15	(a)
27	22.36	29	26.00	15	28.23	29	(a)
May 19	22.66	Aug. 4	26.25	22	28.23		

Swart Stream well.

Daily water level at 2:00 a.m., in feet above assumed datum, 1941 (from recorder charts)

Day	Feb.	Mar.	Apr.	May	June	Sept.	Nov.	Dec.
1	1.69	1.63	1.76	....	....	1.44	....	....
2	1.69	1.63	2.19	....	....	2.19	....	1.55
3	1.69	1.64	1.78	....	2.43	1.60	....	1.56
4	1.69	1.65	1.77	....	2.54	1.47	....	1.56
5	1.67	1.65	1.76	....	2.51	1.47	....	2.04
6	1.66	1.64	2.03	....	....	1.47	....	1.55
7	1.66	1.65	....	....	....	1.44	....	1.51
8	1.67	1.81	....	....	....	....	....	1.50
9	1.66	1.64	....	....	....	....	....	1.50
10	1.65	1.74	....	....	....	....	....	1.50
11	1.63	1.94	....	....	....	....	1.54	1.50
12	1.63	1.98	....	....	....	....	1.55	1.50
13	1.62	1.86	1.98	1.56	....	....	1.55	1.52
14	1.62	1.78	1.97	1.56	....	....	1.56	1.78
15	1.67	1.78	1.95	1.56	....	....	1.57	1.58
16	1.64	1.78	1.93	1.59	....	....	1.57	1.48
17	1.64	1.76	1.92	1.56	....	....	1.58	1.48
18	1.64	1.71	1.90	1.56	....	....	....	1.47
19	1.64	1.80	1.88	1.55	....	....	....	1.47
20	1.64	1.78	1.86	1.53	....	....	....	1.47
21	1.64	1.77	1.74	1.53	....	....	....	1.60
22	1.63	1.75	1.72	1.53	....	....	....	1.60
23	1.63	1.76	1.71	1.52	....	....	....	1.60
24	1.63	1.79	1.71	1.53	....	....	....	1.62
25	1.63	1.87	1.71	1.52	....	....	....	1.61
26	1.63	1.82	1.71	1.52	....	....	....	1.59
27	1.63	1.79	1.71	....	....	....	....	1.56
28	1.63	1.78	....	....	....	....	....	1.56
29	....	1.76	....	....	....	....	....	1.56
30	....	1.77	....	....	....	....	....	1.56
31	....	1.76	....	....	....	....	....	1.56

a Dry.

Fairfax County--Continued.

Swart well 5.

Daily water level at 2:00 a.m., in feet above assumed datum, 1941 (from recorder charts)

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2.47	2.55	....	2.32	1.82	1.24	1.32	....	1.10	0.90	1.15	1.46
2	2.40	2.67	....	3.07	1.79	1.25	1.22	....	1.20	.90	1.20	1.46
3	2.89	2.70	2.36	2.91	1.73	1.26	1.34	....	1.15	.92	1.20	1.46
4	2.87	2.61	2.43	2.69	1.71	1.35	1.84	1.34	1.66	.93	1.20	1.46
5	2.68	2.47	2.35	2.59	1.66	1.47	2.18	1.27	1.83	.89	1.22	1.70
6	2.47	2.39	2.30	3.13	1.64	1.49	2.32	1.22	1.87	.86	1.24	2.05
7	2.35	2.35	2.27	2.89	1.61	1.49	2.62	1.08	1.76	.84	1.28	1.99
8	2.29	2.67	2.33	2.73	1.59	1.43	2.67	1.13	1.60	.81	1.28	1.97
9	2.24	2.55	2.39	2.61	1.59	1.37	2.81	1.10	1.52	....	1.28	1.92
10	2.21	2.40	2.60	2.50	1.59	1.31	2.40	1.07	1.45	....	1.30	1.87
11	2.23	2.31	3.11	2.44	....	1.27	2.17	1.07	1.39	....	1.32	1.84
12	2.21	2.26	3.26	2.40	....	1.23	2.07	1.06	1.31	....	1.34	1.84
13	2.20	2.23	3.15	2.33	....	1.29	2.08	1.06	1.27	....	1.35	1.87
14	2.19	2.26	3.09	2.30	....	1.82	2.78	1.00	1.23	.90	1.36	1.89
15	2.17	2.75	3.02	2.25	....	....	2.52	1.00	1.20	.90	1.38	2.57
16	2.17	2.68	2.87	2.20	....	2.38	2.20	1.23	1.15	.95	1.39	2.47
17	3.18	2.59	2.78	2.16	....	2.34	2.12	1.15	1.12	.93	1.38	2.42
18	3.05	2.51	2.80	2.13	....	2.23	2.18	1.10	1.09	.96	1.37	2.34
19	2.86	2.39	2.50	2.10	1.44	2.08	2.02	1.11	1.07	.99	1.39	2.28
20	2.67	2.30	2.44	2.07	1.42	1.82	1.92	1.25	1.04	.99	1.41	2.15
21	2.52	2.23	2.43	2.05	1.38	1.72	....	1.21	1.04	.99	1.42	2.21
22	2.42	2.19	2.39	1.99	1.35	1.64	1.85	1.17	1.04	1.00	1.42	2.18
23	2.40	2.17	2.36	1.96	1.31	1.57	1.81	1.20	1.02	.99	1.44	2.17
24	2.42	2.11	2.35	1.95	1.30	1.53	1.76	1.17	.98	.99	1.45	2.20
25	3.18	2.11	2.71	1.96	1.27	1.50	1.70	1.25	.97	.99	1.43	2.36
26	2.80	2.13	2.65	1.97	1.25	1.43	1.64	1.26	.96	.98	1.43	2.35
27	2.68	2.14	2.56	....	1.23	1.38	....	1.32	.94	1.00	1.43	2.31
28	2.64	2.17	2.50	1.89	1.19	1.32	1.45	1.23	.93	1.04	1.43	2.24
29	2.62	....	2.44	1.85	1.16	1.29	1.32	1.20	.90	1.04	1.44	2.20
30	2.60	....	2.38	1.84	1.16	....	1.27	1.17	.87	1.06	1.45	2.15
31	2.56	....	2.34	....	1.22	....	1.69	1.14	....	1.11	....	2.14

Water levels, in feet above assumed datum, in Swart wells 10, 35, 60, 85, 110 and 135, and weekly precipitation, in inches, recorded at the station of the United States Weather Bureau in Washington, D. C., 1941

Date		10	35	60	85	110	135	Precipitation
Jan.	1	2.83	3.29	3.67	4.06	5.01	5.23	0.65
	12	2.32	2.62	2.86	3.73	4.82	5.19	T
	19	3.03	3.33	3.93	4.18	4.94	5.23	.98
	26	2.96	3.40	3.83	4.16	4.96	5.26	1.15
Feb.	2	2.84	3.29	3.61	4.15	4.97	5.28	.26
	9	2.68	3.08	3.37	3.92	4.69	5.28	.29
	16	2.82	3.27	3.60	4.11	4.80	5.26	.44
	23	2.23	2.46	3.66	3.45	4.44	....	.03
Mar.	2	2.33	2.67	2.96	3.89	4.48	5.21	.16
	9	2.56	3.02	3.36	4.08	4.69	5.20	1.92
	16	2.96	3.54	3.86	4.18	4.91	5.30	.19
	23	2.41	2.72	2.93	3.67	4.76	5.29	T
	30	2.41	2.70	2.91	3.64	4.82	5.29	.46
Apr.	8	1.84	2.20	2.25	3.40	4.56	4.74	2.18
	13	2.35	2.62	2.76	3.45	4.96	5.34	.00
	20	2.06	2.22	2.30	3.07	4.46	5.24	T
May	4	1.73	1.85	1.86	2.73	4.08	5.02	.59
	12	1.59	1.77	1.79	2.75	4.21	4.98	.38
	19	1.34	1.55	1.58	2.49	4.12	4.84	.16
	26	1.14	1.24	1.27	....	3.91	4.66	.42
June	2	1.13	3.07	2.82	4.46	4.22	4.63	.58
	9	1.47	1.71	1.78	2.68	4.28	4.86	1.36
	16	2.67	3.47	3.77	4.10	4.63	5.20	1.64

T Trace

Fairfax County--Continued.

Water levels, in feet above assumed datum, in Swart wells 10, 35, 60, 85, 110, and 135, and weekly precipitation, in inches, recorded at the station of the United States Weather Bureau in Washington, D. C., 1941--Continued.

Date	10	35	60	85	110	135	Precipitation
June 23	1.63	1.69	1.53	2.74	4.21	3.72	0.20
30	....	....	1.10	1.99	3.81	4.60	1.18
July 7	2.87	3.52	4.35	4.15	4.66	5.34	2.93
14	2.92	3.59	3.82	4.14	4.72	5.29	1.98
21	1.93	1.21	2.24	3.03	4.53	5.15	.52
28	1.45	1.56	3.53	2.75	4.16	4.88	.00
Aug. 4	1.38	1.58	1.56	2.75	4.25	4.79	.24
11	1.39	1.12	....	....	3.84	4.46	.00
18	.97	1.17	....	2.65	4.08	4.40	1.40
25	1.14	1.43	1.62	2.86	4.38	4.49	.44
Sept. 1	1.00	1.35	2.91	2.46	4.06	4.52	.08
8	1.84	2.20	2.25	3.40	4.56	4.74	.52
15	1.13	1.37	1.49	2.21	4.02	4.55	.01
22	.87	1.27	....	....	3.69	4.29	.00
29	.55	....	....	....	5.40	3.97	.00
Oct. 5	.53	....	....	....	3.27	4.03	.14
13	....	....	....	....	3.41	4.18	.52
20	.60	....	....	....	3.35	3.99	.04
27	.81	....	....	....	3.38	4.14	.00
Nov. 3	.92	1.14	....	....	3.64	3.68	.48
10	1.04	1.24	....	....	3.71	3.76	.13
17	1.16	1.35	1.68	2.72	3.72	3.84	.00
24	1.32	1.51	1.53	2.88	3.84	3.96	.58
Dec. 1	1.36	1.59	1.62	2.63	3.79	4.04	.00
8	1.22	2.64	1.93	3.45	4.28	4.24	1.45
15	1.69	3.37	3.79	4.06	4.56	4.39	2.21
22	2.27	3.38	2.76	3.50	4.33	4.53	.05
29	2.30	2.42	2.76	3.47	4.53	4.61	.23

Swart well 162.

Daily water level at 2:00 a.m., in feet above assumed datum, 1941 (from recorder charts)

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	5.06	5.25	4.89	4.86	4.52	....	....	4.40	4.02	3.15	....	3.88
2	5.01	5.27	4.96	5.39	4.44	....	....	4.37	....	3.19	....	3.88
3	5.41	5.23	5.07	5.32	4.40	4.28	....	4.26	....	3.22	....	3.89
4	5.38	5.18	5.08	5.20	4.40	4.32	....	....	....	3.21	....	3.89
5	5.28	5.12	5.02	5.12	4.40	4.74	....	....	....	3.14	....	4.01
6	5.14	5.06	4.96	5.67	4.37	4.76	....	....	....	3.11	....	4.49
7	5.05	5.02	4.92	5.63	4.36	....	....	....	....	3.08	....	4.40
8	4.97	5.33	4.95	5.49	4.39	....	4.85	....	4.30	3.03	....	4.36
9	4.90	5.21	5.10	5.37	4.45	....	5.02	....	4.24	2.99	....	....
10	4.88	5.08	5.18	5.24	4.54	4.22	4.67	....	4.17	2.97	3.60	....
11	4.88	5.00	5.22	5.11	4.47	4.16	4.53	3.64	4.09	3.18	3.60	....
12	4.88	4.97	5.25	4.91	....	4.08	4.48	....	4.02	3.18	3.61	....
13	4.84	4.95	5.27	4.91	....	4.29	4.46	....	3.95	3.17	3.62	....
14	4.83	4.96	5.30	4.84	....	4.34	5.20	....	3.83	3.15	3.64	....
15	4.79	5.36	5.31	4.77	....	4.71	4.82	....	3.77	3.12	3.67	3.72
16	4.80	5.22	5.33	4.71	....	5.04	4.62	....	3.71	3.16	3.69	....
17	4.93	5.17	5.36	4.69	....	4.66	4.54	....	3.66	3.13	3.69	....
18	5.50	5.15	4.93	4.66	....	4.57	4.77	3.83	3.62	3.11	....	....
19	5.44	5.04	5.14	4.63	4.25	4.43	4.64	....	3.57	3.12	....	....
20	5.22	4.96	5.11	4.60	....	4.33	4.48	....	....	....	....	....
21	3.14	4.90	5.08	4.57	....	4.27	4.42	....	....	....	....	....
22	5.02	4.87	5.03	4.53	....	4.21	4.34	....	....	....	....	3.51
23	4.99	4.89	4.99	4.51	....	4.18	4.30	....	3.50	....	....	....
24	5.03	4.85	4.98	4.53	....	4.16	4.30	....	3.44	....	3.90	....
25	5.19	4.86	5.33	4.78	....	4.20	4.25	4.20	3.41	....	3.90	....

Fairfax County--Continued.

Swart well 162--Continued.

Daily water level at 2:00 a.m., in feet above assumed datum, 1941 (from recorder charts)

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
26	5.34	4.88	5.20	4.65	4.07	4.09	4.19	....	3.38	....	3.90	....
27	5.29	4.86	5.12	4.60	4.02	4.03	4.14	....	....	3.08	3.90	....
28	5.30	4.88	5.05	4.59	3.96	3.96	4.06	....	....	3.15	3.89	....
29	5.28	....	4.99	4.55	3.93	3.93	4.00	....	....	3.19	3.88	....
30	5.27	....	4.97	4.52	4.04	3.91	3.95	....	3.16	3.22	3.88	3.42
31	5.26	....	4.89	....	....	....	4.56	....	....	3.27	....	3.41

1429. Carne well. Fairfax. Detailed description of location to be given in next annual report. Abandoned drilled well, diameter 6 inches, depth 90 feet. Measuring point, hole in recorder base, about 400 feet above sea level. Water derived from Wissahickon schist, of pre-Cambrian age. (See Virginia Geological Survey Bulletin 50, by R. C. Cady, p. 151, 152, 156.) Water level affected by nearby pumping at a rate of about 50 gallons a minute.

Water level, in feet below measuring point, 1941

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Nov. 19	39.64	Nov. 30	40.11	Dec. 14	40.38	Dec. 28	40.48
24	39.77	Dec. 11	40.38	22	40.48		

Fauquier County

Glendale Farm well.

Water level, in feet below measuring point, 1941

Jan. 8	13.55	Mar. 10	13.49	June 1	15.00	July 29	15.29
12	13.45	30	13.10	8	14.91	Aug. 3	15.53
19	13.46	Apr. 6	11.74	15	14.83	10	15.72
26	13.26	20	12.82	23	14.82	17	15.71
Feb. 2	12.80	27	13.22	29	14.90	23	15.73
9	12.95	May 4	13.59	July 6	14.90	31	15.69
16	13.14	11	13.81	13	14.50	Sept. 6	(a)
23	13.46	18	13.51	20	15.90	Dec. 31	15.67
Mar. 2	13.95	25	14.92				

SOUTHEASTERN VIRGINIA

By D. J. Cederstrom

Periodic measurements of water levels in observation wells previously established in southeastern Virginia were continued in 1941 in connection with the investigation of the ground-water resources of the State in cooperation with the Virginia Geological Survey, Arthur Bevan, State Geologist. Additional observation wells were established in the Franklin area, where wells of large capacity were constructed during the year to supply a Kraft

a Obstruction in well.

Figure 8.--A, Graph showing fluctuations of water level in 1941 in the Pilcher well near Petersburg, Va., and precipitation at Richmond, Va.; B, Graph showing fluctuations of water level from 1939 through 1941 in well 13, Hopewell, Va.

paper mill, and at Ft. Eustis, on the York-James peninsula, where low water levels produced by heavy pumping increase the danger of contamination of the ground water by the encroachment of salt water.

The general geological description of the Coastal Plain province which appeared in Water Supply Paper 886 (Water levels and artesian pressure in observation wells in the United States in 1939) is also applicable to the York-James peninsula. However, in contrast to the greater part of the Coastal Plain in Virginia south of the James River, the lower part of the York-James peninsula yields brackish water from the lower Cretaceous strata. This brackish water has presumably resulted from incomplete flushing of the sea water with which the artesian strata were once saturated.

Ten observation wells were included in the program at the end of the year. Four of the wells are equipped with automatic water-stage recorders actuated by floats. Generally the depth to water level was also measured by tape once a week. A total of about 350 measurements were made in 1941.

A comprehensive report on the ground-water resources of the Coastal Plain south of the James River was nearly completed during the year. New developments in that area, however, will necessitate further detailed studies. A Virginia Geological Survey Circular (Ground-water resources of the southeastern Virginia Coastal Plain, by D. J. Cederstrom, a preliminary report) was released in 1941.

Petersburg-Hopewell area (Chesterfield and Prince George Counties)

Observations begun in October 1939 were continued on well 36 (Pilcher well, 3 miles north of Petersburg), Chesterfield County. From December 30, 1940, to April 20, 1941, the water level in the well had a net rise of 1.98 feet, as is shown in the accompanying illustration. The precipitation was deficient in this period and the accumulated departure amounted to 4.43 inches by May 1, but the water from the rain and snow which fell during this period had a good opportunity to percolate to the zone of saturation because of the low evaporation and transpiration during the cold months. From April 20 to December 10 the water level had a net decline of 4.51 feet. This decline was due to deficient rainfall and high transpiration. The downward trend of the water level was temporarily interrupted by moderate rains early in July and again in the last three weeks in August and the first week

in September. The net decline from December 30, 1940, to December 10, 1941, was 2.53 feet, which is of the general magnitude of the declines observed in water-table wells in northern Virginia.

The Pilcher well is in the Fall Zone and the fluctuations of water level in it are believed to indicate regional changes in the stage of the water table. The fluctuations show, therefore, the increases and decreases in ground-water storage that occur as a result of changes in the rates of recharge and discharge to the underground reservoir.

Observations begun in 1939 were continued on well 2 (Federal Reformatory well, 3 miles northeast of Petersburg), Prince George County. The water in the aquifer reached by this well is definitely under artesian pressure. From the beginning of the year to the end of April the water level fluctuated only very slightly and had almost no net change. The fluctuations were doubtless in part barometric and they do not indicate any net increase or decrease in storage. In the rest of the year there was a persistent decline amounting to 4 or 5 feet. From April 22 to December 23 the water level declined 4.81 feet.

The fluctuations of the water level in well 13 (Old Dominion Waterworks well, Hopewell), Prince George County, are also shown in the accompanying illustration. The water in the aquifer tapped by this well is under artesian pressure. The water level is affected chiefly by the operation of nearby wells of the Solvay Process Co. and the Hummel Ross Fibre Co. The wells of the Hummel Ross Fibre Co. are pumped at the rate of about a half a million gallons a day continuously throughout the year. The pumping undoubtedly depresses the water level in the observation well but because the rate of pumping is about constant it probably does not produce much fluctuation in the observation well. The wells of the Solvay Process Co. are pumped heavily during the summer, chiefly for cooling purposes. In the winter water is not pumped from them, but on the contrary, surface water is run into them to recharge the aquifer with water of low temperature. The hydrograph in the accompanying illustration shows clearly the effects of both pumping and recharge, but some of the details of the fluctuations can not be definitely interpreted because no accurate records are at hand as to the precise pumping operations of the two companies or of the recharge operations of the Solvay Process Co.

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Sussex County

Periodic measurements of water levels in well 90 (Jeb S. White well, Wakefield), Sussex County, were continued in 1941. From the beginning of the year to early May the water level was generally between 65 and 66 feet below the measuring point. During the second quarter of the year the water level was occasionally more than 66 feet and in the last half of the year the water level was generally between 66 feet and 67 feet below the measuring point.

If the measurement reported on July 21 is disregarded on account of its probable error, the lowest recorded level for the year occurred on November 10 when the depth to water was 1.95 feet below the lowest level of 1940. On May 26 the depth to water was 2.25 feet above the minimum stage and 0.09 foot below the highest level of 1940.

The water level in this well fluctuates widely from week to week owing to changes in river stage and to changes in the rate of pumping from nearby wells for municipal supply. A persistent downward trend in water level is clearly discernible, however, and a net decline of about 1 foot took place during the year. It is possible that some of the decline may be caused by the persistent low stages of adjacent streams which resulted from the drought that began in November 1940, but it is believed that at least a part of the decline may be ascribed to a general lowering of water levels over a wide area in consequence of excessive discharge from flowing wells along the James River. Lack of recharge at the Fall Zone is not considered to be a significant factor in bringing about the decline in water level in the well in 1941.

Franklin area

Water-level observations on well 201b (Camp Manufacturing Co. well, Franklin) were continued in 1941. The water level declined to 17.90 feet below the measuring point by Aug. 9--a maximum decline of 1.40 feet from the first of the year--and remained at comparatively low stages through November 5, the date of the last measurement.

Inasmuch as the water-level range is the same as that of the preceding year, it is believed that no regional change in pressure head apparently occurred in the aquifer. The low stages of the last part of the year are attributed to low river stages.

Measurements of water level in well 243 (Webb School well) near Franklin were begun August 13. The decline in artesian pressure of about 0.5 foot that occurred in the period during which the well was under observation is attributed to a decline in the stage of Nottoway River. Effects of heavy industrial pumping at Franklin, which began November 7, cannot be discerned.

Measurements were begun November 27 in well 161, Isle of Wight County. The rapid decline of the water level reflects the effect of pumping at the rate of 3-3/4 million gallons of water a day at the Chesapeake Camp kraft paper mill situated about 0.75 mile northwest. Pumping began November 7 and, although it was carried on only intermittently during the first two weeks, the artesian head at the site of observation well was probably lowered at least 2 feet before the well was constructed and put into service.

The decline of more than 0.04 foot a day from November 27 to December 22 was accelerated by the construction of a second well of large capacity, 0.25 mile south of the first pumping well. Although this well was not pumped, a decline in pressure head resulted, owing to the fact that the well began to flow at a rate of 200 gallons a minute on December 24. For a few days the daily decline of water level in the observation well increased to 0.17 foot but at the close of the year the rate had decreased to about 0.06 foot a day.

The water level in observation well 161, like the water levels in wells 13 and 15 in Prince George County, is very sensitive to changes in rates of ground-water withdrawal and the records collected should aid eventually in determining the perennial yield of the underground reservoir the well taps.

Measurements were begun September 28 in well 97b (Jones Peanut Factory well), Nansemond County. During the period of observation only slight differences in artesian pressure were discerned--for example, the water level on December 27 was only 0.27 foot lower than on October 2. This small decline is attributed to a decline in river stage rather than to industrial pumping at Franklin.

York - James Peninsula

The water level in the observation well at Fort Eustis fluctuates widely owing to ocean tides. It is evident, however, that the water level in the well declined 2 to 2½ feet from April 17 to the end of the year. The lowering is believed to have resulted largely from the pumping of about 1½ million gallons of water a day at the fort and the pumping of about 3/4 million

gallons of water a day at nearby Skiffs Creek Reservoir, where ground-water is being used to supplement a surface-water supply.

The precipitation recorded at the Richmond station of the United States Weather Bureau was below normal every month in 1941, and the deficiency for the year amounted to 16.62 inches. The precipitation was only slightly below normal in April, August, and December, but in February, May, June, October, and November it was notably small (see accompanying illustration). The subnormal precipitation has obviously caused the water level to decline appreciably in the Pilcher well, in Chesterfield County, but the effect on water levels in the wells east of the Fall Zone is not so apparent. Moderate declines of the water levels in the wells at Wakefield, Franklin, South Quay, and Fort Eustis are correlated with local or regional losses of head in consequence of the withdrawal of large quantities of water for domestic and industrial uses or with changes in the stage of nearby rivers.

Chesterfield County

36. Pilcher well.

Water level, in feet below measuring point, 1940-41

Date	Water level	Date	Water level	Date	Water level
Dec. 30, 1940	19.12	Apr. 27, 1941	17.36	Aug. 24, 1941	20.42
Jan. 5, 1941	19.06	May 4	17.59	31	20.47
12	18.95	11	17.90	Sept. 7	20.41
19	18.79	18	18.16	14	20.57
27	18.66	25	18.58	21	20.64
Feb. 3	18.65	June 1	18.87	28	20.72
9	18.68	8	18.94	Oct. 5	20.83
16	18.72	15	19.06	12	21.15
23	18.86	22	19.35	15	21.07
Mar. 2	18.97	29	19.51	22	21.12
9	18.78	July 6	19.65	29	21.23
16	18.42	13	19.64	Nov. 5	21.27
23	18.23	20	19.67	15	21.31
Apr. 2	18.27	27	19.81	19	21.49
6	18.16	Aug. 3	20.10	26	21.51
13	17.32	10	20.26	Dec. 4	21.61
20	17.14	16	20.54	10	21.65

Nansemond County

105. No measurements made in 1941.

976. Jones Peanut Factory, South Quay, southeast of main building, 4¼ miles south-southeast of Franklin, 0.4 mile southeast of Blackwater River highway bridge at South Quay. Jetted well, diameter 3 inches.

Water level, in feet below measuring point, 1941

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Sept. 28	6.52	Oct. 14	6.50	Nov. 15	6.90	Dec. 20	6.90
Oct. 2	6.40	Nov. 4	6.80	29	6.90	27	6.67
10	6.60	10	6.85				

Prince George County

2. Federal Reformatory.

Water level, in feet below measuring point, 1941

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 2	20.21	Apr. 15	20.88	July 8	21.92	Sept.30	23.33
7	20.65	22	20.20	15	21.88	Oct. 8	23.44
14	20.42	29	20.44	22	21.74	15	23.71
21	20.23	May 6	20.58	29	21.78	22	23.80
28	20.19	13	20.96	Aug. 5	21.96	Nov. 4	24.15
Feb. 4	20.10	20	21.29	12	22.17	13	24.35
11	20.33	27	21.50	19	22.46	18	24.49
26	20.64	June 3	21.54	26	22.33	25	24.60
Mar. 4	20.60	10	21.56	Sept. 2	22.60	Dec. 3	24.76
11	20.44	17	21.72	9	22.71	10	24.69
Apr. 1	20.67	24	21.95	16	22.94	17	24.88
8	20.15	July 1	21.92	23	23.08	23	25.01

13. Old Dominion Water Co., Hopewell.

Water level, in feet below measuring point, 1941

Jan. 4	36.24	Apr. 5	32.87	July 5	47.85	Oct. 4	49.07
11	36.39	12	38.30	12	48.20	11	49.15
18	37.26	19	38.60	19	48.27	18	49.06
25	38.16	26	39.00	26	47.73	25	48.76
Feb. 1	37.62	May 3	38.90	Aug. 2	47.55	Nov. 1	48.68
8	37.11	10	39.25	9	47.35	8	48.73
15	36.35	17	44.30	16	47.40	15	49.02
22	37.28	24	45.77	23	48.23	22	46.53
Mar. 1	37.00	31	46.24	30	48.83	29	43.60
8	32.80	June 7	46.39	Sept. 6	48.80	Dec. 6	41.41
15	36.90	15	46.55	13	49.18	13	40.55
22	37.40	21	47.02	20	49.20	20	40.17
29	37.27	28	47.22	27	49.08	27	39.86

15. Tubize-Chatillon Co., Hopewell.

Water level, in feet below measuring point, 1941

Jan. 1	39.87	Apr. 8	36.70	July 8	49.59	Oct. 5	49.55
8	40.02	15	36.87	14	49.60	12	49.51
15	38.50	222	41.77	20	49.66	19	49.52
22	39.80	29	37.02	27	49.67	26	47.78
28	39.90	May 6	37.02	Aug. 3	49.88	Nov. 2	43.82
Feb. 5	38.61	13	38.78	10	49.76	9	42.50
12	39.52	20	40.12	17	46.65	16	40.83
19	44.11	27	45.13	24	49.36	23	40.92
26	39.46	June 3	47.25	31	49.52	30	40.47
Mar. 4	39.11	10	48.10	Sept. 7	49.50	Dec. 7	40.37
11	39.90	17	48.52	14	49.30	14	40.39
18	36.24	24	48.81	21	49.39	21	38.31
25	36.30	July 1	49.47	28	49.60	28	33.77
Apr. 1	36.30						

Southampton County

201b.

Water level, in feet below measuring point, 1941

Jan. 4	16.59	July 12	17.30	Aug. 26	17.55	Sept.28	17.88
Mar. 29	16.70	26	17.48	30	17.70	Oct. 11	17.70
Apr. 5	16.50	Aug. 2	17.70	Sept. 6	17.68	18	17.72
12	16.90	9	17.90	13	17.85	Nov. 5	17.90
19	16.95	23	17.58	20	17.78		

Southampton County--Continued.

243. Roy Vaughan, Webb School, in front of building, 4 miles west-southwest of Franklin. Jetted well, equipped with pitcher pump. Diameter 3 inches, depth 375 feet. Measuring point, top of cross bar holding 2-inch diameter pipe in place inside casing, about 26 feet above sea level.

Water level, in feet below measuring point, 1941

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Aug. 13	6.70	Sept. 19	6.79	Oct. 30	6.97	Nov. 29	7.09
18	6.50	26	6.82	Nov. 4	6.98	Dec. 15	6.98
30	6.55	Oct. 8	6.85	10	7.02	23	6.82
Sept. 5	6.60	14	7.00	17	7.00	30	6.99
12	6.72						

Sussex County

90. Jeb S. White well.

Water level, in feet below measuring point, 1941

Jan. 6	65.19	Apr. 7	65.94	July 7	65.76	Oct. 13	66.38
13	65.10	14	65.10	14	65.33	20	66.08
20	65.50	21	65.91	21	68.10(?)	27	66.00
27	65.00	28	65.07	28	66.21	Nov. 4	65.94
Feb. 3	64.98	May 5	65.06	Aug. 4	66.11	10	66.91
10	65.92	12	66.94	26	65.90	17	66.05
17	65.91	19	66.50	Sept. 1	66.19	24	66.04
22	65.46	26	64.64	8	65.30	Dec. 2	66.04
Mar. 3	65.40	June 2	66.13	15	66.27	8	66.13
10	65.43	9	65.97	22	66.07	15	66.42
17	65.91	16	65.99	30	66.42	24	65.98
24	65.00	23	65.85	Oct. 6	66.31	29	66.27
Apr. 3	64.91	July 1	65.92				

Isle of Wight County

160. Chesapeake Camp Co., Franklin, 1 mile southeast of main highway crossing Blackwater River at Franklin. Well constructed for observation purposes. Diameter 6 inches to 129½ feet, 4 inches to 605 feet. Slotted pipe strainers, 330 feet to 335 feet, 400 feet to 405 feet and 595 feet to 600 feet. Measuring point, hole in base of recorder platform on top of extended casing, 10 feet above surface. Surface altitude 20 feet above sea level. Measurements by Chesapeake Camp Company.

Water level, in feet below measuring point, 1941

Date	Water level	Date	Water level	Date	Water level
Nov. 27	3.40	Dec. 8	3.86	Dec. 22	4.61
Dec. 1	3.56	15	4.24	29	5.40

Warwick County

Milstead 1. Fort Eustis. Near sewage disposal plant, between two small creeks south of Skiffs Creek. Abandoned drilled well, diameter 10 inches, depth 370 feet. Measuring point, hole in recorder base, about 10 feet above ground, 14.5 feet above sea level. Well subject to tidal fluctuations. Measurements by War Department.

Water level, in feet below measuring point, 1941

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Apr. 17	2.07	June 23	4.86	Aug. 26	5.30	Oct. 28	6.04
28	4.33	30	4.50	Sept. 2	3.95	Nov. 4	4.94
May 2	4.60	July 8	4.38	9	5.33	10	4.40
9	3.09	15	4.10	16	4.87	17	5.15
16	4.71	22	5.12	23	4.49	24	4.73
24	4.17	29	4.69	30	5.12	Dec. 1	5.65
June 2	4.45	Aug. 5	3.95	Oct. 7	5.74	8	5.35
9	3.14	12	5.34	15	6.66	15	6.18
16	3.45	19	5.10	21	5.04	22	5.05

WEST VIRGINIA

By R. L. Nace

A State-wide investigation of the ground-water resources of West Virginia was begun in July 1941 by the Federal Geological Survey in cooperation with the West Virginia Geological and Economic Survey. The primary purpose of the investigation is to make a current inventory of the occurrence, quantity, and accessibility of the ground-water supplies in the State, the quality of the water, and methods of protecting the potable supplies from contamination by brines. A few observation wells were established. By the end of 1941 measurements were being made of the depth to the water level in 16 wells. Weekly measurements were being made in 4 of the wells, semi-monthly measurements in 5 wells and monthly measurements in 1 well; in 6 wells measurements were made at irregular intervals. A total of about 200 individual measurements of water levels was made in 1941. No automatic water-stage recorders were in operation and no measurements of artesian pressures were made.

Approximate elevations of measuring points were determined by aneroid barometer, using Federal bench-marks as local controls. In the tables of water-level measurements that follow, the land surface at the well sites is used as the most convenient datum to which to refer the water levels.

Wells are numbered according to the following system. Each county in West Virginia has been given an index number, beginning with number one for Hancock County at the northern end of the State and with successive numbers assigned to the counties in a general southward direction. The magisterial districts within each county have also been numbered, according to a similar system, beginning with number one for the northwest district in each county. Individual wells have been numbered consecutively, roughly according to geographic location, from one upward in each district. In the number 9-6-27, 9 represents Monongalia County, 6 represents Morgan District, and 27 represents a particular well in Morgan District.

In the following table are listed the 10 wells in which enough measurements of water level have been made to indicate a general trend in the latter part of 1941. All except one of these wells showed a net rise in water level. The maximum net rise was 10.17 feet.

The precipitation in the northern part of West Virginia in 1941 was somewhat below the average of the previous 50 years, with the greater part of the negative departure in the first 6 months of the year. The period from June to August was relatively wet, with damaging floods in a few areas. The fall and early winter were relatively dry. The general rise in water levels in wells during the latter half of 1941 probably resulted from the relatively wet summer and a decrease of pumpage in the late fall and early winter.

Ground-water levels in representative observation wells in 1941

Well No.	Date of first measurement	Lowest observed water level, with reference to the land surface		Highest observed water level, with reference to the land surface		Net change in water level during observation period in 1941
		Date	Water level (feet)	Date	Water level (feet)	
9-2-1	July 23	Aug. 8	23.79	Sept.11	a 23.09	+0.09
9-2-2	23	July 23	13.27	11	a 11.90	+1.37
9-2-3	23	Aug. 8	13.23	11	a 11.15	+1.32
9-6-6	Oct. 5	Oct. 5	11.49	Nov. 13	a 10.37	+1.12
9-6-27	Sept.22	7	136.51	Dec. 19	133.47	+2.94
11-3-3	Aug. 29	21	b 5.61	Nov. 25	3.78	+.31
11-3-4	Sept.10	4	19.76	25	17.87	+.59
11-3-8	July 24	11	18.57	Dec. 16	c 14.19	+2.62
11-3-9	Aug. 11	Aug. 11	22.91	30	12.74	+10.17
11-3-14	July 24	Dec. 9	4.25	Sept.16	.28	-3.86

Descriptions of observation wells follow, with the complete record of water-level measurements, in feet below the land surface. Description is in the alphabetical order of the counties.

a Last measurement in 1941; observations at irregular intervals.

b Lowest level when nearby wells were not being pumped. It has been observed that when other wells are being pumped, the water level in this well has been temporarily drawn down as much as 15 feet. During the first two weeks in October, about 180,000 gallons of water a day were pumped from a well that is 150 feet from well 11-3-3 and draws water from the same aquifer.

c A water-level measurement of 12.23 feet was made on Aug. 20, but prior to that date surface water gained access to the well after a heavy rain. The condition was corrected on Oct. 4.

Kanawha County, Charleston District

40-5-14. Coyle and Richardson Department Store, Charleston. Beneath sidewalk trap door to southwest corner of store basement, 126 feet south of Lee Street sidewalk curb at corner of Lee and Dickinson streets. Abandoned drilled well, diameter, 8 inches, depth, 208 feet (reported). Measuring point, top of casing, 12 feet below land surface. Water level in feet below land surface; 1941: Sept. 26, 41.13.

Marion County, Fairmont District

10-3-20. Bethlehem Mines Corp. Between Buffalo Creek and Baltimore & Ohio Railroad, 450 feet southeast of boiler house of Barrackville Mine. Abandoned drilled well, diameter, 6 inches, depth, 101 feet. Measuring point, top edge of 4-inch tee in top of tubing, 2.5 feet above land surface. Measurements at irregular intervals. Water levels, in feet below land surface, 1941: Sept. 25, 53.14; Oct. 16, 53.21; Dec. 26, 53.23.

Monongalia County, Clay District

The following three wells, listed under Clay District, Monongalia County, W. Va., actually are in Wayne Township, Green County, Pa. Blacksville post office is in West Virginia, but part of the town is in Pennsylvania. The wells are located only a few feet north of the boundary between Pennsylvania and West Virginia.

9-2-1. D. C. Johnson, Blacksville. On northeast valley wall of Dunkard Creek, 0.2 mile north-northeast of Blacksville post office, at northeast corner of rear porch of house. Drilled domestic well, diameter 6 inches, depth 47 feet. Measuring point, top of west side of casing at land surface. Measurements at irregular intervals.

9-2-2. Earl Miller Sawmill, Blacksville. On terrace platform north of Dunkard Creek, 0.25 mile east-northeast of Blacksville post office. Drilled well, diameter, 6 inches, depth, 40.80 feet. Measuring point, top of board cover over well-pit at land surface. Measurements at irregular intervals.

9-2-3. Eli Huss, Blacksville. On terrace platform north of Dunkard Creek, 0.24 mile east-northeast of Blacksville post office, about 10 feet north of boundary between West Virginia and Pennsylvania. Abandoned drilled well, diameter 7 inches, depth, 58.32 feet. Measuring point, north side of top of casing, 1.85 feet above land surface. Measurements at irregular intervals.

Water levels, in feet below land surface, 1941

Date	Well 9-2-1	Well 9-2-2	Well 9-2-3
July 23	23.18	13.27	12.47
Aug. 8	23.79	.....	13.23
26	23.11	12.50	11.67
Sept.11	23.09	11.90	11.15

Monongalia County, Morgan District

9-6-1. Baltimore & Ohio Railroad, Sabraton. On north bank of Deckers Creek, 20 feet southeast of intersection of State Highway 7 and White Avenue. Coal-test boring. Flowing artesian well, semi-public. No measurements of artesian pressure in 1941. Measurements of rate of flow at irregular intervals by means of 90-degree notch gate weir across drainage ditch.

Monongalia County, Morgan District--Continued

Measurements of rate of flow in gallons a minute, 1941

Date	Rate of flow	Date	Rate of flow	Date	Rate of flow	Date	Rate of flow
Aug. 29	29	Sept. 4	29	Sept.20	32	Oct. 11	25
Sept. 1	24.6	16	a 43	Oct. 4	34	Nov. 12	29

9-6-6. A. J. W. Headlee. East of Star City, on Morgantown R.F.D. 4, 0.5 mile northeast of Flatts School, in yard behind Headlee house No. 2. Dug domestic well, diameter, 18 inches, depth, 15.64 feet. Measuring point, top of tile casing, 2.0 feet above land surface.

Water level, in feet below land surface, 1941

Date	Water level	Date	Water level	Date	Water level
Oct. 5	b 11.49	Oct. 8	11.13	Oct. 21	10.95
6	11.35	13	11.13	Nov. 13	10.37

9-6-27. T. J. Johnson, Morgantown. At east end of Foundry Street, beneath brick pavement, 220 feet east of High Street. Drilled well, diameter, 10 inches, depth, 875 feet (reported). Measuring point, top edge of tee on air jet pipe leading into well, 2.25 feet below land surface.

Water level, in feet below land surface, 1941

Sept.22	136.41	Nov. 4	135.79	Dec. 12	134.06
Oct. 7	136.51	Dec. 5	135.27	19	133.47

9-6-36. Bethlehem Mines Corp., Richard. Beneath office of Assistant Superintendent at Richard Mine, near coal tipple, on terrace platform north of Deckers Creek. Drilled, flowing artesian well. Depth and diameter not determinable as well is not accessible. Rate of flow measured at irregular intervals by calibrated bucket and stop watch at drainage pipe, 1941: Sept. 4, 2.2 gallons a minute; Nov. 13, 2.0 gallons a minute.

9-6-45. Deckers Creek Sand Co. On south bank of Deckers Creek at foot of hill below car-loading sand piles, 0.5 mile east-southeast of Greer Limestone Quarry overhead conveyor, 250 feet south of State Highway 7. Drilled well, not in use. Diameter, 8 inches, depth, 105 feet. Measuring point, south side of top of casing, at ground surface. Water levels, in feet below land surface, 1941: Sept. 20, 13.04; Oct. 11, 15.07.

Preston County, Valley District

11-3-3. Preston County Coal and Coke Co., Cascade. On terrace platform east of Deckers Creek, 150 feet south of State Highway 7, 0.7 mile east of Cascade post office. Drilled well, diameter, 8 inches, depth, 102.5 feet. Measuring point, top of casing, 0.5 foot above land surface.

11-3-4. Masontown City well 4, Oak Park. One mile west of Masontown, 150 feet southeast of Deckers Creek. Drilled municipal well. New; no pumpage during 1941 other than test on completion of drilling. Diameter, 8 inches, depth, 73 feet. Measuring point, land surface.

11-3-5. Masontown City well 3, Oak Park. One mile west of Masontown, 100 feet southeast of Deckers Creek, 75 feet southwest of well 11-3-4. Drilled municipal well, diameter, 8 inches, depth, 113 feet. Measuring point, top of casing at land surface. New; no pumpage during 1941 other than test on completion of drilling. Measurements discontinued after Sept. 8.

a Probably an appreciable amount of seepage from recent rains was entering the drainage ditch.

b New well. First measurement on completion of casing.

Preston County, Valley District--Continued

11-3-8. George E. Lemmons, Masontown. Formerly Masontown City well 1. East Depot Street, at back of Lemmons lot. Drilled well, diameter, 8 inches, depth, 785 feet (reported). Measuring point, top of casing, 5.45 feet below land surface. No pumpage during 1941.

11-3-9. Martin L. Massie, Masontown. East side of Massie house at east end of E Street. Domestic drilled well, diameter, 5 inches, depth, 36.4 feet. Measuring point, top surface of porch floor, 0.8 foot above land surface.

11-3-14. National Youth Administration, Reedsville. In field 300 feet southeast of NYA Work Experience Project Factory. Old coal-test boring; original depth unknown. Diameter, 3-5/8 inches. Measuring point, top of casing, 1 foot above land surface.

11-3-51. Elmer Smith. At back of Smith farm house, 1.3 miles west-northwest of Sutherland post office, on Kingwood R.F.D. 2. Domestic drilled well, diameter, 4-3/4 inches, depth, 135.7 feet. Measuring point, top of casing, 0.25 foot above land surface.

Water levels, in feet below land surface, 1941

Date	Well 11-3-3	Well 11-3-4	Well 11-3-5	Well 11-3-8	Well 11-3-9	Well 11-3-14	Well 11-3-51
July 24	.....	.....	.....	17.42	.....	0.39	.....
Aug. 11	.....	.....	.....	17.81	22.91	....	.....
14	.....	.....	.....	.....	.....	.77	.....
20	.....	.....	13.01	a 12.23	18.31	....	.....
21	.....	.....	.....	.....	.....	....	43.77
28	.....	.....	14.45	.....	.....	....	.....
29	b 13.11	.....	.....	.....	.....	....	.....
Sept. 1	4.98	.....	.....	.....	.....	....	.....
4	.....	.....	.....	.....	.....	.55	.....
8	4.85	.....	12.89	.....	14.53	....	.....
16	.....	.....	(c)	.....	.....	.28	.....
Oct. 4	b 18.73	19.76	.....	.....	.....	....	.....
11	b 19.32	19.71	.....	18.57	18.70	.40	.....
21	5.61	18.99	.....	17.85	18.70	....	.....
28	5.13	21.15	.....	17.42	18.19	....	.....
Nov. 4	4.57	18.71	.....	15.52	14.57	....	.....
11	4.71	18.81	.....	15.95	15.11	....	.....
18	5.06	19.26	.....	17.29	17.57	....	.....
25	3.78	17.87	.....	16.01	14.80	.23	.....
Dec. 2	.....	19.01	.....	16.27	.....	....	.....
9	4.75	18.87	.....	15.81	15.53	4.25	46.81
16	.....	18.32	.....	14.19	.....	....	.....
23	.....	18.71	.....	15.35	.....	....	.....
30	4.67	18.77	.....	14.80	12.74	....	.....

a Prior to Aug. 20 surface water gained access to the well during a period of heavy rains. The condition was corrected on Oct. 4; observations were resumed Oct. 11.

b Water level drawn down by heavy pumpage of nearby wells.

c Observations discontinued after Sept. 8, and well 11-3-4 measured thereafter.

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