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Water-Supply Paper 987

WATER LEVELS AND ARTESIAN PRESSURE IN OBSERVATION WELLS IN THE UNITED STATES IN 1943

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
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Part 2. SOUTHEASTERN STATES

INTRODUCTION

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

Significance of records of water level and artesian pressure

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, whether for public waterworks, irrigation, or 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 indicate depletion or replenishment of the artesian reservoirs.

Annual publication of records by Geological Survey

The regular publication of records of water level and artesian pressure in the United States was begun by the Geological Survey in 1935 and has continued yearly since. The records for the entire country were published in a single volume each year through 1939. Beginning with 1940 the records have been published in six volumes, covering the northeastern, southeastern, north-central, south-central, northwestern, and southwestern sections of the country. Hawaii is included in the southwestern section. (See fig. 1.) The following table gives the numbers of these reports. This series of water-supply papers is in a sense an inventory, year by year, of the ground-water supplies of such parts of the country as have been covered.

Water-supply papers on water levels and artesian pressure in observation wells in the United States

Year	North-eastern States	South-eastern States	North-central States	South-central States	North-western States	South-western States and Hawaii
1935	777	777	777	777	777	777
1936	817	817	817	817	817	817
1937	840	840	840	840	840	840
1938	845	845	845	845	845	845
1939	886	886	886	886	886	886
1940	906	907	908	909	910	911
1941	936	937	938	939	940	941
1942	944	945	946	947	948	949
1943	986	987	988	989	990	991

Scope of present volume

The present volume covers the southeastern States and gives records of water level and artesian pressure in about 475 observation wells of the Geological Survey and cooperating agencies in Alabama, Florida, Georgia, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, and West Virginia. Of these wells, 67 are equipped with automatic water-stage recorders. For some wells not previously reported complete records of water level are given in this volume, including those for the years before 1943. For wells whose previous records have been published this volume gives only the current records. If a complete description of a well has been published in a previous report, only the well number or the well number and a brief identifying description are given in this report. The numbers in parentheses immediately following a well number are those of the water-supply papers in which earlier records of that well are given and the pages on which they appear. An asterisk indicates that a description of the well is given in the paper whose number is so marked. This report includes about 15,900 individual determinations of water level and artesian pressure.

Land-surface datum

Hitherto, in Geological Survey reports, the water levels and artesian heads for some wells have been given in feet above or below the measuring points and for other wells in feet above or below sea level or above or below various assumed datum planes. It was considered inadvisable to adopt a standard procedure in expressing water levels and artesian heads until after a period of trial with datum planes of different kinds. The time has come, however, for the adoption of a uniform practice as to datum in making

the records to be published in the annual water-level reports. It has become evident that the water levels in each well should be expressed with reference to a permanent datum plane established for that well in order to preserve the continuity of the record if the measuring point is changed.

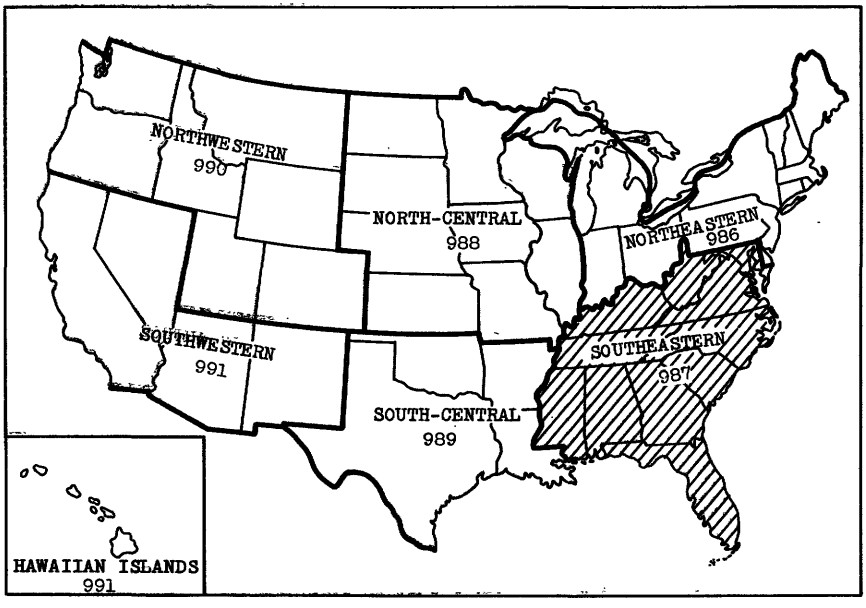

Figure 1.--Outline map of the United States showing sections of the country covered by the six water-supply papers on water levels and artesian pressure in observation wells in 1943. The shaded section represents the part of the country covered by this volume.

The chief objection to the use of datum planes other than the land surface has been that the significance of the water level with respect to the land surface is thereby concealed. It appears, however, that this objection can be overcome by using a precise datum plane which approximates the land surface.

The adoption of land-surface datum planes as the standard to be used in expressing water levels and artesian heads will not prevent the use of other datum planes for the summary tables and for maps and graphs in the annual water-level reports or in other reports. The use of the sea-level datum and the 10-foot datum planes are to be encouraged for purposes of study and interpretation, but the land-surface datum planes will be used

exclusively for publishing original records. Bench marks must be established, as heretofore, near each observation well to prevent the loss of the precise record when the measuring point or the well itself is destroyed. New data as to the positions of the measuring point and of the bench marks, in feet above or below the land-surface datum plane, will be published in the appropriate annual reports.

In accordance with the above, the water levels and artesian heads for all wells listed in this report are given in reference to land-surface datum planes. If the water levels or artesian heads are referred to land-surface datum for the first time, a conversion factor is given in the descriptive matter preceding them in order to facilitate comparison of the older and newer records. Wherever the conversion factor is given in the report for 1942, it is not repeated in this report.

Network of key observation wells

During 1942 the Geological Survey established a network of key observation wells in order to make available current information on general ground-water conditions over the country. These wells were selected because the fluctuations of water level in them are believed to be typical, and they represent the general fluctuations that occur in the parts of the country in which the wells are situated. At the end of 1942 the network included about 130 wells in 40 States. About 40 of the wells were established expressly for the network in 1942; the other 90 were selected from wells measured regularly in connection with cooperative ground-water investigations. The coverage of the country is still far from adequate, and it is expected that some wells not now included will be added to the network from time to time.

General summary of changes in ground-water level in 1943 in the southeastern part of the United States

In 1943 the precipitation in each of the 10 States in the southeastern section of the country was below normal and the water levels in many wells of the section declined. The fluctuations of both water level and artesian pressure in wells depend, however, on many factors besides the amount of precipitation. In certain of the observation wells there are fluctuations caused by differences in the rate of pumping or artesian flow from other wells in the area, but most of the observation wells are not noticeably affected by pumping or artesian flow.

The following statements are taken chiefly from the text that appears in this volume under each of the several States. They summarize the changes in ground-water level and artesian pressure that occurred in 1943 in the parts of the subterranean reservoirs that are tapped by observation wells.

Florida.--The water levels in the observation wells throughout the central and southern parts of Escambia County were generally lower in 1943 than in 1942. In northeastern Florida they have been nearly stable since the early part of 1940. During the entire year the artesian pressure in Marion County well 5 was lower than it was at any time in 1942, and, except during January and February, it was below normal.

In Sarasota and Manatee Counties, where large quantities of artesian water are used for irrigating truck and citrus crops, there has been a gradual decline of water levels in wells for several years past, which has caused concern among the growers. The most notable fluctuations of water level are due to changes in rates of withdrawal. The water levels often rise during periods of rainfall, but this is due to reductions in withdrawal for irrigation rather than to increased recharge.

The water level in Orange County well 47, which fluctuates in response to local precipitation, was low in 1943 owing to below-normal precipitation.

Georgia.--In the Coastal Plain the water levels in the observation wells ending in the Ocala limestone declined during 1943, and in nearly all the wells the water levels went lower than at any previous time since measurements were begun in 1939. It is estimated that the average daily pumpage in the Savannah area was 3½ to 4 million gallons greater in 1943 than in 1942. In this area, which includes the industrial section northeast of the city proper, artesian water levels averaged about 5¼ feet lower during 1943 than during 1942.

Maryland.--In the observation well in Montgomery County, which is a water-table well unaffected by pumping, the water level fluctuated about normally during the period January to July but was below normal from August to December. It was 2.03 feet lower at the end of 1943 than at the end of 1942.

Mississippi.--Water levels in the observation wells throughout the State, with one exception, declined in 1943, due principally to increased

pumpage or artesian discharge. In Washington County well 65, at Estill, the water level was 0.03 foot higher at the end of 1943 than at the end of 1942.

North Carolina.--During the first 6 months of 1943 the average precipitation for the State was about normal, in July it was 1.93 inches above normal, and in the remaining 5 months, it was 7.53 inches below normal. Three of the observation wells reached record low water levels in 1943, but in most of the wells the water levels were at nearly normal stages.

Virginia.--The precipitation in Virginia was notably below normal in 1943 as compared with a large excess in 1942. The lack of precipitation in 1943 is reflected in net declines in water level in the observation wells.

Acknowledgments

Acknowledgments for effective services in the preparation of this water-supply paper are due Miss Dorothy M. Ireland, Mrs. Susan H. Washburn, Mrs. Bertha K. Dale, and Miss Nauvoo Morris. Miss Ireland had general charge of the assembling of the several reports and did most of the offset typing; Mrs. Washburn edited all of the reports; Mrs. Dale prepared the illustrations; and Miss Morris assisted with the offset typing.

ALABAMA

By C. W. Carlston

PROGRAM OF WORK

The observation-well program in Alabama, begun in 1940 by the Geological Survey, United States Department of the Interior, in cooperation with the Geological Survey of Alabama, was continued in 1943. It was begun in connection with an investigation of ground-water conditions and resources in the outcrop area of the Cretaceous formations of the State, which lies along the inner margin of the Coastal Plain. It is now planned to expand the program to cover other parts of the State also. One well was added in 1943, when, on October 25, the Federal Geological Survey began measurements in a well that had previously been installed by the Tennessee Valley Authority at Scottsboro, Jackson County, in the northeast corner of the State. The Tennessee Valley Authority made weekly measurements in this well during most of the 6-year period April 1936 to March 1941, and records of these measurements, which are published in this report, were furnished the Federal Geological Survey by A. S. Fry, head hydraulic engineer of that agency. At the end of 1943, the program embraced three wells, one of which was measured weekly during the year and one monthly; the remaining well was equipped with an automatic water-stage recorder. Individual measurements in the State during the year reached a total of 75.

FLUCTUATIONS OF WATER LEVEL

In January and February 1943 the precipitation in the part of Alabama designated by the United States Weather Bureau as the middle division, in which two of the observation wells are located, was considerably below normal, but in March it was considerably above normal. Following is a discussion of the fluctuations in each of these two wells, which show the effect of the variations in precipitation.

On March 21 the water level in Chilton County well 10, at Clanton, rose to 15.92 feet below land-surface datum, or 0.83 foot higher than its highest stage during the 3-year period of record. A secondary high was

recorded on April 23, when the water level stood at 16.47 feet below land-surface datum. It then began to decline and declined steadily through May and June, reaching a low of 19.85 feet below land-surface datum on July 2. Summer rains brought it up again, however, until on July 6 it had reached a stage of 19.29 feet, and 4.29 inches of rain at Clanton during the period August 1-15 raised it to an August high of 19.10 feet on the 15th and 16th of that month. It then declined steadily until, on November 3, it reached its lowest stage of the year and also its lowest stage on record--21.69 feet below land-surface datum. The lowest stage previously recorded for this well was 21.57 feet on November 18 and 23, 1941.

In Greene County well 6, the month-end measurement in April showed that the water level was 16.87 feet below land-surface datum, or 0.44 foot higher than its highest measured stage in 1942, which was 16.43 feet on March 30 of that year. This well reached its low for the year, as well as its low for the period of record, at the end of December 1943, when its water level stood at 27.65 feet below land-surface datum, which is 1.80 feet lower than its lowest stage as previously recorded--21.85 feet below land-surface datum on October 31, 1942.

From the foregoing it will be seen that in 1943 the water level in each of these two wells reached both its highest and its lowest stage for the period of record.

WELL DESCRIPTIONS AND WATER-LEVEL MEASUREMENTS

Chilton County

10 (*937, p. 7; 945, p. 9). City of Clanton. In brick recorder house behind settling tanks in waterworks lot, on north side of Clanton. Equipped with automatic water-stage recorder. Measuring point, edge of platform recorder, 0.5 foot above land-surface datum and 587.80 feet above mean sea level. Two bench marks were established in 1943, as follows: (1) Chiseled cross at middle of top of abandoned foundation block, 25 feet southwest of brick recorder house; block marked "T.B.M. 1," elevation 587.86 feet above mean sea level. (2) Chiseled cross on concrete floor of recorder house at southeast corner; floor marked "T.B.M. 2"; elevation 587.02 feet above mean sea level. Land-surface datum is 587.30 feet above mean sea level.

Water level, in feet below land-surface datum, 1943
(From recorder charts)

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 1	18.36	Feb. 23	18.30	Apr. 19	16.72	June 14	19.38
8	18.32	Mar. 1	18.32	26	16.87	21	19.49
13	18.61	8	17.91	May 3	17.86	28	19.46
20	18.91	15	17.37	10	17.98	July 4	19.59
26	18.49	22	16.37	17	18.72	11	19.39
Feb. 2	18.24	29	17.06	24	18.34	19	19.60
9	17.88	Apr. 5	17.10	31	18.58	26	19.74
16	18.50	12	16.95	June 7	19.08	Aug. 2	19.99

10. City of Clanton--Continued.

Water level, in feet below land-surface datum, 1943
(From recorder charts)

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Aug. 9	19.64	Sept. 20	20.83	Oct. 25	21.38	Nov. 29	21.15
16	19.13	27	22.04	Nov. 1	21.66	Dec. 6	21.17
23	19.80	Oct. 4	21.15	8	21.52	13	21.24
30	20.38	11	21.25	15	21.24	20	21.24
Sept. 6	20.55	18	21.39	22	21.23	27	20.65
13	20.75						

Greene County

6 (*937, p. 8; 945, p. 9). R. Neilon and E. Ward. In front of Cotton Patch Restaurant, on U. S. Highway 11, 3.8 miles north of Eutaw, on hillside, in upper Eutaw sands. Unused dug well, depth 31.5 feet. Measuring point, top edge of 1½-inch raised concrete rim, at point where cross is chiseled, 9.5 inches north of southeast corner of rim, 0.35 foot above land-surface datum and 183.03 feet above mean sea level. Two bench marks were established in 1943, as follows: (1) Chiseled cross in top of concrete cover of well, 9 inches from southeast corner, 31 inches southeast of measuring point; concrete cover marked "T.B.M. 1," elevation 182.66 feet. (2) Top of brown pebble in notch cut in triangular concrete slab at base of pine tree, 12 feet east of bench mark (1): chiseled arrow points to pebble; slab marked "T.B.M. 2," elevation 181.46 feet. Land-surface datum is 182.68 feet above mean sea level.

Water level, in feet below land-surface datum, 1943

Jan.	19.41	Apr.	16.87	July	19.25	Oct.	27.14
Feb.	19.25	May	17.05	Aug.	23.45	Nov.	27.50
Mar.	17.23	June	17.90	Sept.	25.91	Dec.	27.65

Jackson County

J28. Tennessee Valley Authority well TVA28. On State Highway 35 about 0.4 mile south of its intersection with U. S. Highway 72 and 50 feet southeast of its intersection with old Scottsboro highway, 30 feet south of State Highway 35. Diameter 6 inches, depth 13.39 feet. Elevation of top of well casing, established by owner, 644.12 feet above sea level. Measurements of water level to nearest tenth of a foot made by owner Apr. 13, 1936, to Jan. 27, 1941. In 1943 two new bench marks were established, as follows: (1) East side of flared top of 3/4-inch pipe painted red and driven into ground to land-surface level, 2.5 feet northeast of northeast corner of well house, marked "T.B.M. 1," elevation 641.88 feet. (2) Chiseled cross on top of corner block of low stone-and-cement fence, at southwest corner of fence, 25 feet east of pavement, 85 feet northeast of well house, marked "T.B.M. 2," elevation 643.22. Measuring point, top of 2- by 1- by 1/8-inch steel strip at west edge of hole cut in floor of well house, 644.71 feet above sea level. Land-surface datum is 641.88 feet above mean sea level.

Water level, in feet below land-surface datum, 1936-41, 1943
(Records prior to 1943 furnished by Tennessee Valley Authority)

Date	Water level	Date	Water level	Date	Water level
Apr. 13, 1936	3.1	June 17, 1936	10.1	Sept. 1, 1936	10.4
20	3.8	23	10.7	11	9.9
24	4.0	30	11.2	17	11.0
29	4.3	July 8	10.8	23	11.6
May 5	5.2	20	5.1	28	11.3
14	6.1	28	6.1	Oct. 5	11.2
21	7.0	Aug. 7	6.9	12	11.2
30	7.8	13	7.7	21	9.6
June 5	8.9	19	8.0	27	7.3
11	9.1	25	9.5	Nov. 4	8.1

J28. Tennessee Valley Authority well TVA28--Continued.

Water level, in feet below land-surface datum, 1936-41, 1943
(Records prior to 1943 furnished by Tennessee Valley Authority)

Date	Water level	Date	Water level	Date	Water level
Nov. 9, 1936	8.2	Jan. 28, 1938	3.3	July 6, 1939	5.4
16	8.8	Feb. 3	3.2	13	7.7
25	9.4	8	3.6	19	7.5
Dec. 1	9.9	16	3.9	27	8.2
8	5.5	Mar. 3	3.1	Aug. 3	5.7
15	5.7	12	2.8	26	9.9
22	4.5	17	3.2	Sept. 4	10.5
29	4.8	24	2.5	14	9.9
Jan. 7, 1937	2.9	30	3.0	21	10.5
14	2.7	Apr. 7	2.9	28	11.0
19	2.1	13	3.2	Oct. 5	11.5
30	3.0	22	2.5	19	13.2
Feb. 3	3.0	27	3.4	Nov. 2	13.4
12	1.3	May 5	3.0	15	13.4
17	3.3	11	4.0	21	11.7
25	3.1	20	4.9	28	12.2
Mar. 3	3.2	25	5.1	Dec. 5	11.4
13	3.5	June 2	5.3	18	12.9
17	3.5	10	3.7	Jan. 4, 1940	9.7
23	3.2	16	4.4	29	7.1
30	3.4	24	3.9	Feb. 8	4.3
Apr. 6	3.3	29	3.3	13	3.0
14	3.8	July 14	3.6	20	2.4
20	4.1	27	3.4	27	3.0
May 5	2.9	Aug. 4	3.0	Mar. 13	1.9
12	3.5	11	3.5	20	3.0
17	3.6	Sept. 2	6.2	27	3.3
24	4.1	6	7.0	May 3	4.3
June 2	4.8	20	9.0	8	3.7
8	4.8	Oct. 1	9.9	July 3	4.1
14	5.1	6	10.4	16	3.0
21	5.7	13	10.8	30	5.2
29	7.1	19	11.0	Aug. 5	6.3
July 6	8.2	28	12.3	13	7.5
13	9.2	Nov. 5	11.1	21	8.9
19	9.8	10	12.4	29	9.7
27	10.6	25	5.8	Sept.12	10.5
Aug. 5	11.4	Dec. 2	6.6	25	11.3
9	12.1	5	6.7	Oct. 3	12.7
19	12.0	12	6.9	15	11.9
25	10.7	19	7.4	23	13.3
Sept. 1	10.8	Jan. 4, 1939	4.3	30	11.9
9	12.3	11	3.1	Nov. 5	11.6
14	12.9	20	3.0	25	10.3
21	13.2	25	2.9	Dec. 23	7.1
28	(a)	Feb. 1	3.0	Jan. 13, 1941	2.6
Oct. 5	12.4	21	3.0	21	3.8
11	12.6	27	2.9	27	2.7
19	11.4	Mar. 6	2.0	Oct. 25, 1943	10.11
25	10.9	15	3.0	30	10.27
Nov. 3	10.3	24	3.6	Nov. 8	9.42
9	10.6	Apr. 14	3.4	15	9.56
Dec. 3	12.0	25	3.7	22	10.10
9	12.3	May 1	3.5	Dec. 1	10.63
16	12.1	15	4.5	6	10.81
24	8.2	22	5.1	13	9.65
30	4.6	29	3.9	20	9.19
Jan. 11, 1938	3.6	June 5	3.1	27	4.31
21	4.8	12	3.3		

a Dry.

FLORIDA

By H. H. Cooper, Jr., and G. G. Parker

PROGRAM OF WORK

The observation-well program in Florida, begun in parts of the State as early as 1931, was continued in 1943 by the Geological Survey, United States Department of the Interior, in cooperation with the Florida Geological Survey and with Dade County and the cities of Miami, Miami Beach, and Coral Gables. The program forms part of a cooperative investigation of ground-water resources and conditions in the State, which, in the southeastern part, has been intensive since 1939. At the end of 1943, 91 wells were included in the program, 17 of which were equipped with water-stage recorders. Individual measurements of water level made during the year reached a total of 5,750.

In addition to the measurements made in the observation wells and included in the total given, several thousand measurements were made in other wells. In Dade County alone more than 100 wells that do not come under the "observation-well program" were measured in 1943.

OCCURRENCE OF GROUND WATER

Ground water occurs in Florida both in unconfined aquifers at shallow depth, with a free upper surface, and as artesian water in confined aquifers several hundred feet below the land surface. The unconfined aquifers are principally in Pliocene, Pleistocene, and Recent formations and the confined aquifers in Eocene, Oligocene, and Miocene formations. In Escambia County, which is in the extreme northwestern part of the State, and in the southeastern part, most of the wells in use derive their water from unconfined aquifers, but in the northeastern and central parts, most of the water used is artesian in origin.

Of the beds in southeastern Florida in which unconfined water occurs, the highly permeable Tamiami formation, of Pliocene age,[1/] is economically the most important. The Tamiami formation underlies the southern Everglades

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1/ Parker, G. G., and Cooke, C. W., Late Cenozoic geology of southern Florida, with a discussion of the ground water: Florida Geol. Survey Bull. 27, 119 pp., 1944.

and the eastern Atlantic Coastal Ridge at least as far north as Delray. This aquifer is more than 100 feet thick at Miami and yields large supplies of ground water with negligible draw-down from open-hole wells, that is, wells that are uncased and unscreened at the lower end. In some places along the coast this highly permeable aquifer is 300 feet thick; inland it thins out and merges with the Caloosahatchee marl, of low permeability, which underlies the middle and upper Everglades and extends north beyond Lake Okeechobee. Little water passes to the southward or eastward downgradient from the Caloosahatchee marl into the Tamiami formation.

The artesian waters in southeastern Florida are not only deeply buried but are unfit for most uses, owing to their content of dissolved mineral matter and gases, which not only impart a salty taste to the water but make it corrosive. For a few years the water from certain artesian wells in Miami was used in cooling operations, but, owing to the necessity of frequently replacing the condenser tubes and plumbing fixtures with which it came in contact, the cost of maintaining these wells was prohibitive and their use was therefore discontinued. The artesian water occurs principally in the limestones of Miocene, Oligocene, and Eocene age that underlie a thick section of Miocene greensand, clay, silt, marl, and shell beds of the Hawthorn formation. The Hawthorn, also, contains some water, but it is of poor quality and under low artesian head.

FLUCTUATIONS OF WATER LEVEL

Only a few wells in northeastern Florida were visited in 1943, owing to demands for work in other parts of the State more closely related to the war effort. Increases in withdrawal in northeastern Florida have, in the past, caused water levels to decline considerably (see Water-Supply Paper 907, p. 12), but since the early part of 1940 there have been no substantial increases in withdrawal and, in consequence, water levels have been nearly stable.

In Escambia County, in the northwestern part of the State, weekly measurements of water level in seven wells and the maintenance of water-stage recorders on five wells were continued. At Pensacola the precipitation in 1943 was 40.89 inches--16.96 inches below normal--as compared with 61.85 inches in 1942. Ground-water levels throughout the central and southern parts of the county were generally lower than in 1942. In the

vicinity of Bayou Chico, at Pensacola, water levels in the lower part of the Citronelle formation, of Pliocene age, have declined to several feet below sea level as the result of a pumpage of about 9 million gallons a day by an industry on the north side of the bayou. This lowering of water levels has permitted a progressive local encroachment of sea water over a period of several years. The extent to which the water levels have been lowered is indicated by the records of wells 42 and 62; but if there has been a progressive decline due to pumping, it is so slight as to be undetectable over the period of record. During 1943 the water level in well 62 declined 2.3 feet, probably because of the below-normal precipitation. Future records may show a recovery of the water levels under normal precipitation.

Weekly measurements of the artesian pressure in Marion County well 5 were continued during 1943 by the district office of the Federal Geological Survey at Ocala. During the entire year the pressure in this well was lower than it was at any time during 1942, and, except during January and February, it was below normal. The precipitation at the Ocala Airport during 1943 was 47.89 inches--3.53 inches below normal--as compared with 55.35 inches in 1942.

Records of water level in the two wells in Sarasota County and the single well in Manatee County included in the well measurement program are obtained through the courtesy of J. G. Kirmmel, representing the Palmer Corporation at Sarasota. Large quantities of artesian water are used in these two counties for irrigating truck and citrus crops. The artesian water is drawn, largely by natural flow, from the Ocala limestone, of Eocene age, from the Tampa limestone, of Miocene age, and from the lower part of the Hawthorn formation, also of Miocene age. The Hawthorn formation contains relatively impervious beds that prevent or retard the upward percolation of artesian water. The artesian water in Sarasota County has been further discussed in a report by Stringfield.[2/]

2/ Stringfield, V. T., Ground-water resources of Sarasota County; Exploration of artesian wells in Sarasota County: Florida Geol. Survey 23d-24th Ann. Rept., pp. 121-227, 1933.

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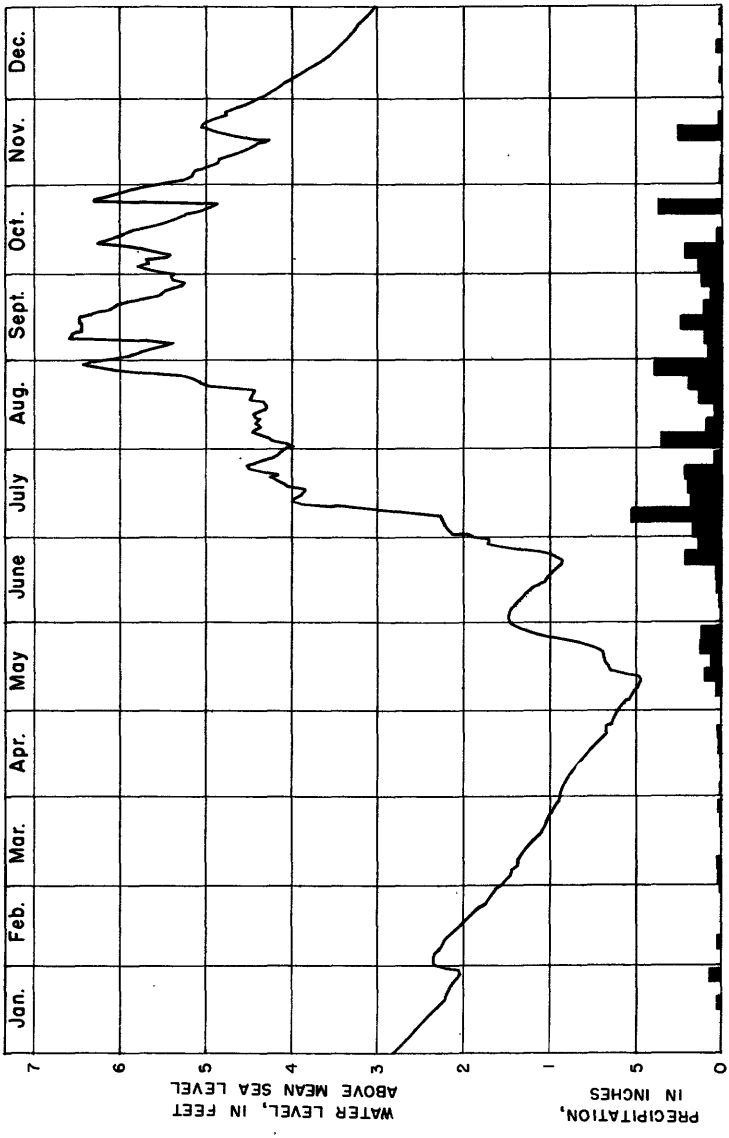

Figure 2.--Graphs showing fluctuations of water level during 1943 in Dade County well S196 and precipitation at the University of Florida Experiment Station, Homestead, Fla.

A gradual decline of water level in wells in Sarasota and Manatee Counties for several years past has caused concern among growers of truck and citrus crops. The decline may be due principally to a progressive increase in withdrawal, but adequate records of the withdrawal from year to year are not available to bear out this statement. The most notable fluctuations of water level are due to changes in withdrawal. Water levels often rise during periods of rainfall, owing to reductions in withdrawal for irrigation, but local precipitation apparently has little or no direct effect on them. Arrangements are now being made by Sarasota and Manatee Counties to drill two wells in upland areas to divert water by gravity from surface streams into the artesian formations. If this experiment is successful, a still larger artificial recharge system will probably be constructed in order to halt or retard the decline of water levels.

In Orange County the principal water-bearing formations are the Ocala limestone, of upper Eocene age, and limestones of middle Eocene age. The Hawthorn formation, of Miocene age, overlies the Ocala in Orange County and retards the downward percolation of water from the surface, but local recharge to the limestone formations occurs through numerous lakes and ponds that occupy what appear to be old sink holes filled with permeable material.

About 250 wells have been drilled into the Ocala and middle Eocene limestones in Orange County for the purpose of draining surplus water from the surface. Some of these wells serve to control lake levels, others receive water from roadside ditches and street gutters, and a few receive the effluent from Orlando's septic tanks and from wastes of citrus-canning factories. For many years the city of Orlando, which is situated in an area in which surface drainage is inadequate, has relied wholly on such drainage wells to dispose of its surplus water and other waste liquids. During heavy rains large quantities of water drain into the limestone formations through these wells, contributing substantially to the local recharge.

The water level in Orange County well 47 fluctuates in response to local precipitation, some of which provides recharge to the water-bearing formation through drainage wells and through sink holes. The water level was low in 1943 owing to below-normal precipitation.

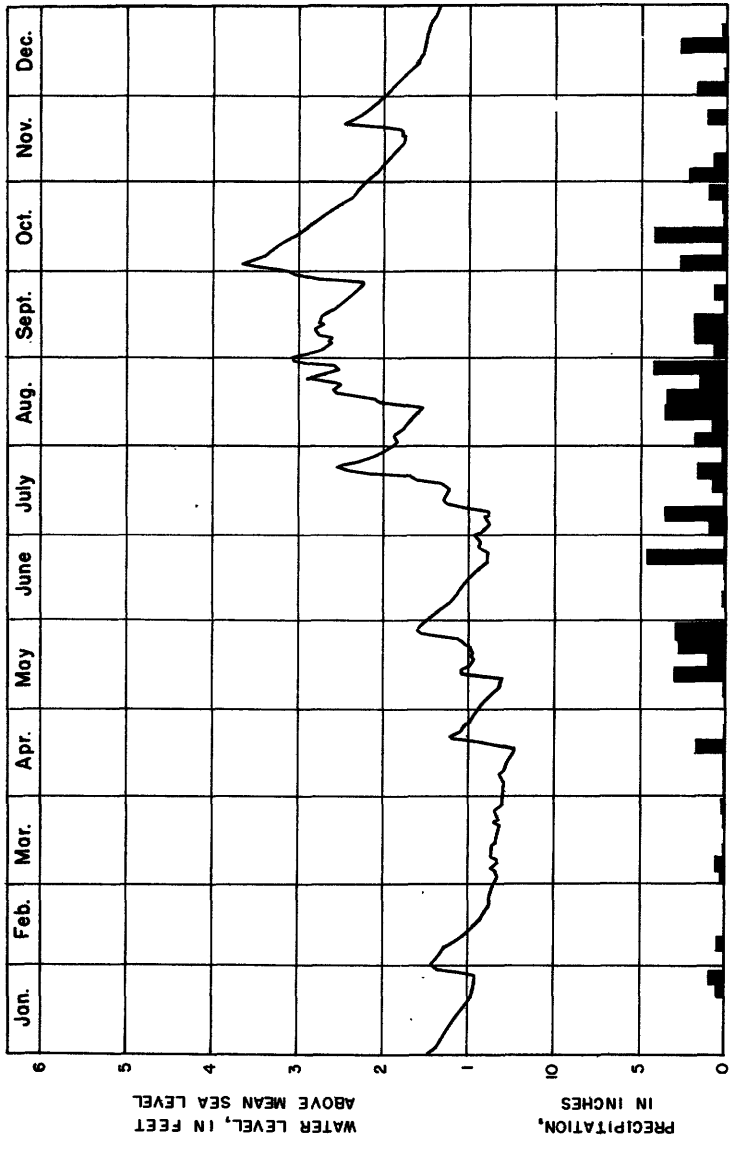

Figure 3.--Graphs showing fluctuations of water level during 1943 in Dade County well S18, Opa Locka, Fla., and precipitation at the United States Weather Bureau station at Miami Airport.

In southeastern Florida, where water-table wells in the Tamiami formation furnish most of the water used, fluctuations in water level are almost entirely dependent upon precipitation. Although some water is carried into the area by the canals that dissect the Everglades, recharge to wells occurs principally as the result of local rainfall. Figures 2 and 3 show the close correlation in this area between precipitation and ground-water levels.

WELL DESCRIPTIONS AND WATER-LEVEL MEASUREMENTS

Broward County

S329 (*907, p. 34; 937, p. 27; 945, p. 29). City of Fort Lauderdale. SW¼NE¼ sec. 12, T. 50 S., R. 41 E. Measuring point is 1.2 feet above land-surface datum.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 7	6.16	Mar. 28	7.06	June 24	6.97	Sept. 30	2.48
14	6.34	31	7.17	July 1	6.02	Oct. 7	2.87
21	6.55	Apr. 8	7.22	8	5.80	14	3.21
28	6.51	12	7.32	14	5.40	22	3.84
Feb. 4	6.52	15	7.36	21	5.46	29	3.98
6	6.49	21	7.08	29	5.28	Nov. 4	4.43
11	6.65	29	7.03	Aug. 5	5.39	10	4.56
18	6.80	May 5	7.31	12	5.33	16	4.92
25	6.86	13	6.98	19	5.39	23	3.78
Mar. 2	6.97	20	7.05	26	5.02	30	4.18
4	6.83	27	5.99	Sept. 2	4.40	Dec. 8	4.78
11	6.95	June 3	6.09	9	3.46	17	5.00
14	6.91	10	6.56	17	3.36	23	5.14
19	7.00	17	6.89	22	3.78	31	5.47
25	7.14						

Clay County

1 (*907, p. 13; 937, p. 12; 945, p. 12). Girl Scouts of America. At Camp Chowenaw, about 1,000 feet south of SE. corner of 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, 3.5 miles northeast of Green Cove Springs. Measuring point is 1.10 feet above land-surface datum and 12.84 feet above mean sea level. No measurements made in 1943.

2 (*907, p. 13; 937, p. 12; 945, p. 12). Mrs. M. A. Chaulker. At Middleburg, in NW¼NW¼ sec. 13, T. 5 S., R. 24 E., at residence of owner, about 500 feet north of South Fork of Black Creek. Measuring point is 2.00 feet above land-surface datum and 29.72 feet above mean sea level. No measurements made in 1943.

4 (*907, p. 14; 937, p. 12; 945, p. 12). T. J. Jennings. Near north line of SW¼SW¼ sec. 32, T. 4 S., R. 25 E., on southeast side of new highway, 3.2 miles northeast of Middleburg. Measuring point is 3.30 feet above land-surface datum and 29.37 feet above mean sea level. No measurements made in 1943.

5 (*907, p. 14; 937, p. 12; 945, p. 12). 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 of Middleburg. Measuring point is 2.50 feet above land-surface datum and 26.52 feet above mean sea level. No measurements made in 1943.

7 (*907, p. 14; 937, p. 12; 945, p. 13). U. S. Navy. At auxiliary air base, about 2.5 miles southeast of Green Cover Springs. Measuring point is 1.00 foot above land-surface datum and 13.14 feet above mean sea level. No measurements made in 1943.

8 (*907, p. 14; 937, p. 13; 945, p. 13). St. Elmo Hotel. In Green Cove Springs, north of St. Elmo Hotel. Measuring point is 1.00 foot above land-surface datum and 16.89 feet above mean sea level. No measurements made in 1943.

Dade County

D151 (*886, p. 66; *907, p. 28; 937, p. 23; 945, p. 29). Peoples Water & Gas Co. Center of sec. 16, T. 52 S., R. 42 E. Measuring point is 0.2 foot above land-surface datum.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 4	12.11	Apr. 11	12.09	July 18	11.85	Oct. 10	10.18
18	12.26	25	11.84	Aug. 1	11.25	24	10.96
Feb. 1	11.82	May 9	12.15	15	11.54	Nov. 7	10.49
15	12.31	23	11.84	29	11.17	21	11.00
28	12.37	June 6	11.32	Sept.12	11.17	Dec. 5	11.50
Mar. 15	12.14	20	11.88	26	10.74	19	11.76
29	11.96	July 4	12.17				

F9 (*886, p. 65; *907, p. 29; *937, p. 23; 945, p. 30). City of Miami Springs. SW¼SE¼ sec. 19, T. 53 S., R. 41 E. Measuring point is 2.4 feet above land-surface datum.

Water level, in feet below land-surface datum, 1943

Jan. 4	4.80	Apr. 11	4.47	June 30	4.53	Oct. 10	2.83
18	4.98	25	4.48	July 18	4.32	24	3.53
30	4.72	30	4.50	30	4.11	Nov. 7	3.83
Feb. 1	4.60	May 9	4.43	Aug. 15	3.43	21	3.58
15	4.89	23	3.58	28	3.46	30	3.79
27	5.05	29	3.27	Sept.12	3.73	Dec. 5	3.86
Mar. 15	4.50	June 6	4.08	26	3.60	19	4.18
30	4.49	20	4.55	29	2.96	30	4.33

F12 (*886, p. 66; *907, p. 29; 937, p. 23; 945, p. 30). City of Miami Springs. NE¼SE¼ sec. 24, T. 53 S., R. 40 E. Measuring point is 2.0 feet above land-surface datum.

Water level, in feet below land-surface datum, 1943

Jan. 4	8.99	Apr. 25	8.59	July 18	8.17	Oct. 24	7.34
18	9.48	30	8.99	30	7.98	30	7.57
30	9.10	May 9	9.05	Aug. 15	7.54	Nov. 7	7.80
Feb. 1	8.91	23	7.65	28	7.25	21	7.62
15	9.35	29	7.22	Sept.12	7.70	30	7.57
27	9.53	June 6	8.53	26	7.73	Dec. 5	7.88
Mar. 15	8.87	20	9.06	29	6.70	19	7.99
30	9.16	30	8.49	Oct. 10	6.52	30	8.29
Apr. 11	9.29						

F25 (*886, p. 65; *907, p. 28; 937, p. 23; 945, p. 30). City of Opa Locka. NE¼SW¼ sec. 21, T. 52 S., R. 41 E. Measuring point is 2.9 feet above land-surface datum.

Water level, in feet below land-surface datum, 1943

Jan. 4	5.90	Apr. 11	6.55	July 18	5.64	Oct. 10	4.04
18	6.18	25	6.03	Aug. 1	5.35	24	4.64
Feb. 1	5.62	May 9	6.40	15	5.31	Nov. 7	4.97
15	6.20	23	5.48	29	4.60	21	4.98
28	6.47	June 6	5.71	Sept.12	4.51	Dec. 5	4.93
Mar. 15	6.50	20	6.21	26	5.01	19	5.29
29	6.49	July 4	6.23				

F62 (*886, p. 67; *907, p. 30; 937, p. 24; 945, p. 30). City of Miami. SE¼SE¼ sec. 14, T. 53 S., R. 41 E. Measuring point is 2.0 feet above land-surface datum.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 4	10.55	Apr. 11	10.11	July 18	9.28	Oct. 10	7.87
17	10.69	25	9.98	Aug. 1	9.38	24	8.54
31	10.10	May 9	10.20	15	9.40	Nov. 7	9.24
Feb. 14	10.48	23	9.75	29	8.89	21	9.33
Mar. 2	10.31	June 6	8.90	Sept.12	8.57	Dec. 5	9.52
15	10.16	20	9.73	26	8.79	19	9.82
28	10.12	July 4	9.96				

F109 (*886, p. 67; *907, p. 30; 937, p. 24; 945, p. 31). City of Miami. NE¼SE¼ sec. 10, T. 53 S., R. 41 E. Measuring point is 1.8 feet above land-surface datum.

Water level, in feet below land-surface datum, 1943

Jan. 4	8.84	Apr. 11	7.55	July 18	8.19	Oct. 10	6.66
17	8.99	25	8.68	Aug. 1	8.12	24	7.53
31	8.42	May 9	8.85	15	8.20	Nov. 7	8.02
Feb. 14	8.83	23	7.96	29	7.36	21	7.95
Mar. 2	9.52	June 6	7.88	Sept.12	7.59	Dec. 5	8.10
15	8.74	20	8.57	26	7.72	19	8.42
28	8.76	July 4	8.75				

F174 (*945, p. 31). City of Miami. SW¼NE¼ sec. 9, T. 54 S., R. 41 E. Measuring point is 2.0 feet above land-surface datum.

Water level, in feet below land-surface datum, 1943

Jan. 3	11.41	Apr. 11	11.34	July 4	11.33	Sept.26	10.13
17	11.59	25	11.31	18	10.55	Oct. 10	9.56
26	11.66	May 9	11.41	31	10.87	24	9.91
31	11.48	23	11.13	Aug. 1	10.89	Nov. 7	10.48
Feb. 14	11.53	28	10.75	15	11.05	21	10.61
Mar. 2	11.70	June 6	10.79	29	10.51	Dec. 5	10.76
15	11.48	20	11.13	Sept.12	10.07	19	11.08
29	11.34						

F179 (*945, p. 32). City of Miami. SE¼NW¼ sec. 16, T. 54 S., R. 41 E. Measuring point is 2.4 feet above land-surface datum and about 11.17 feet above mean sea level.

Water level, in feet below land-surface datum, 1943

Jan. 3	7.53	Apr. 5	7.40	July 4	7.53	Oct. 3	5.90
11	7.65	11	7.42	11	7.05	10	5.75
17	7.70	18	7.58	18	6.80	17	5.69
25	7.72	25	7.41	25	6.94	24	6.05
31	7.60	May 2	7.42	Aug. 1	7.08	31	6.44
Feb. 8	7.50	9	7.47	8	7.16	Nov. 7	6.75
14	7.68	16	7.44	15	7.23	14	6.94
22	7.79	23	7.12	22	7.09	21	6.77
Mar. 2	7.84	30	6.76	29	6.70	28	6.80
8	7.68	June 6	6.98	Sept. 5	6.31	Dec. 5	6.92
15	7.55	13	7.10	12	6.37	12	7.17
22	7.65	20	7.28	19	6.07	19	7.26
29	7.40	27	7.22	26	6.35	26	7.23

F186 (*886, p. 66; *907, p. 32; 937, p. 24; 945, p. 33). City of Miami. SE¼SE¼ sec. 1, T. 54 S., R. 40 E. Measuring point is 2.3 feet above land-surface datum.

Water level, in feet below land-surface datum, 1943

Jan. 3	10.38	Mar. 1	10.72	Apr. 4	10.69	May 23	10.04
17	10.57	2	10.74	12	10.71	June 6	9.57
31	10.35	15	10.65	25	10.51	20	10.23
Feb. 14	10.50	29	10.66	May 5	10.64	July 4	10.38

F186. City of Miami--Continued.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
July 18	9.39	Sept.12	7.82	Oct. 10	8.22	Nov. 21	9.35
Aug. 1	9.47	26	8.05	24	8.65	Dec. 5	9.35
15	9.35	28	7.97	Nov. 7	9.05	19	9.66
29	8.02						

F210. City of Miami. SW¼NE¼ sec. 13, T. 53 S., R. 41 E., on northwest corner of Northwest 62d Street and Miami Court. Drilled fire well, diameter 6 inches, depth 111.7 feet. Measuring point, top of recorder shelf, 2.0 feet above land-surface datum and about 10.77 feet above mean sea level. Water-stage recorder installed Mar. 9, 1940.

Water level, in feet below land-surface datum, 1940-43

Date	Water level	Date	Water level	Date	Water level
Mar. 9, 1940	7.88	Oct. 22, 1940	6.60	Aug. 26, 1941	7.93
12	7.92	29	6.46	Sept. 2	8.03
19	8.00	Nov. 5	6.42	9	7.88
26	8.03	12	6.78	16	7.81
Apr. 2	7.47	19	7.17	23	7.35
4	7.59	26	7.45	30	7.28
9	7.77	Dec. 3	7.58	Oct. 5	7.35
11	7.85	10	7.73	14	7.58
16	7.95	17	7.82	21	7.51
18	7.97	24	7.51	28	7.63
23	8.01	31	7.07	Nov. 4	7.56
25	8.05	Jan. 10, 1941	6.95	11	7.68
30	8.11	14	6.85	18	6.79
May 2	8.10	17	6.80	25	7.11
7	8.15	23	7.00	Dec. 2	7.10
14	8.11	28	7.22	9	7.45
16	8.09	Feb. 4	7.35	11	7.53
21	8.12	11	6.61	16	7.62
24	8.14	18	6.85	23	7.70
28	8.06	25	7.19	30	7.85
June 4	5.11	Mar. 4	7.46	Jan. 6, 1942	7.93
6	5.24	11	7.57	13	7.91
11	6.13	18	7.80	14	7.82
13	5.96	25	7.68	19	7.83
18	6.57	27	7.64	26	7.92
20	6.75	Apr. 1	7.73	Feb. 2	7.93
25	7.14	8	7.44	9	7.96
27	7.00	15	7.24	16	7.93
July 2	7.27	22	7.56	23	7.72
9	7.38	24	7.62	Mar. 2	7.59
16	7.67	29	7.68	9	7.71
23	7.85	May 6	7.37	16	8.00
25	7.88	13	7.46	23	8.02
30	7.92	20	7.76	30	7.94
Aug. 1	7.95	27	7.94	Apr. 6	8.02
6	7.70	June 3	8.15	13	8.12
13	6.71	10	8.23	20	2.64
20	6.33	17	8.21	27	4.42
24	6.63	24	8.10	May 4	5.85
27	6.74	July 1	7.60	11	6.63
Sept. 3	7.05	8	6.95	18	7.14
10	5.32	15	5.70	25	7.52
12	5.39	22	6.71	June 1	7.70
17	5.38	29	7.24	8	7.02
24	3.20	Aug. 5	7.60	15	5.75
Oct. 1	4.15	12	7.84	22	6.37
8	5.31	19	8.03	29	6.65
15	6.16	21	8.02	July 6	7.04

F210. City of Miami--Continued.

Water level, in feet below land-surface datum, 1940-43

Date	Water level	Date	Water level	Date	Water level
July 13, 1942	7.40	Jan. 11, 1943	8.19	June 27, 1943	7.59
20	7.52	17	8.24	July 4	7.88
27	7.59	25	8.26	11	7.10
Aug. 3	7.73	29	8.11	18	7.22
10	7.88	31	7.68	25	6.94
17	8.00	Feb. 8	7.79	28	7.30
24	8.01	14	8.02	Aug. 8	7.36
31	7.85	22	8.23	15	7.20
Sept. 7	7.15	Mar. 2	8.29	22	6.85
14	7.14	8	8.16	29	6.83
21	7.35	15	8.00	Sept. 5	6.43
28	7.29	22	8.11	12	6.25
Oct. 5	7.01	28	7.91	19	6.30
12	6.98	Apr. 5	7.97	26	6.70
19	6.91	10	7.94	Oct. 3	5.65
25	6.97	13	8.02	10	5.81
Nov. 1	7.11	16	8.12	17	6.07
8	7.05	18	8.10	24	6.50
16	7.19	25	7.84	31	6.85
22	7.42	May 2	7.92	Nov. 7	7.19
30	7.66	9	8.03	14	7.42
Dec. 1	7.67	16	7.92	21	7.19
7	7.84	23	7.64	28	7.27
14	7.79	30	6.23	Dec. 5	7.44
20	7.85	June 6	6.90	12	7.65
28	7.94	13	7.28	19	7.71
Jan. 4, 1943	8.10	20	7.62	26	7.73

F233 (*886, p. 67; *907, p. 30; 937, p. 24; 945, p. 33). City of Miami. SW¼SE¼ sec. 33, T. 53 S., R. 41 E. Measuring point is 1.5 feet above land-surface datum.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 3	10.31	Mar. 28	10.04	July 4	10.29	Oct. 10	8.57
17	10.41	Apr. 11	10.08	18	9.77	24	9.15
27	10.26	25	10.10	Aug. 1	9.72	Nov. 7	9.57
31	10.17	May 9	10.19	15	9.75	21	9.25
Feb. 14	10.38	23	9.67	29	8.98	Dec. 5	9.55
Mar. 2	10.45	June 6	9.61	Sept.12	9.22	19	9.76
15	10.15	20	9.96	26	9.07		

F234 (*945, p. 33). City of Miami. NW¼NW¼ sec. 27, T. 53 S., R. 41 E. Measuring point is 0.5 foot below land-surface datum and about 7.87 feet above mean sea level.

Water level, in feet below land-surface datum, 1943

Date							
Jan. 3	7.62	Mar. 28	7.37	July 4	7.71	Oct. 10	5.72
17	7.76	Apr. 11	7.41	18	7.04	24	6.34
27	7.64	25	7.42	Aug. 1	6.97	Nov. 7	6.87
31	7.51	May 9	7.52	15	6.94	21	6.67
Feb. 14	7.77	23	6.86	29	6.26	Dec. 5	6.91
Mar. 2	7.82	June 6	6.82	Sept.12	6.60	19	7.17
15	7.47	20	7.31	26	6.43		

F240 (*886, p. 67; *907, p. 30; 937, p. 24; 945, p. 34). City of Hialeah. NW¼NE¼ sec. 8, T. 53 S., R. 41 E. Measuring point is 2.8 feet above land-surface datum.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 4	7.04	Apr. 11	7.11	July 18	6.42	Oct. 10	4.74
18	7.27	25	6.88	Aug. 1	6.29	24	5.47
Feb. 1	6.61	May 9	7.11	15	6.33	Nov. 7	6.04
15	7.08	23	5.71	29	5.51	21	5.98
28	7.37	June 6	5.99	Sept.12	5.84	Dec. 5	6.05
Mar. 15	7.18	20	6.85	26	5.94	19	6.43
29	7.15	July 4	6.97				

F243 (*945, p. 34). City of Hialeah. NE¼NE¼ sec. 31, T. 52 S., R. 41 E. Measuring point is 3.4 feet above land-surface datum and about 11.38 feet above mean sea level.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 4	6.93	Apr. 11	7.39	July 18	6.53	Oct. 10	4.75
18	7.17	25	6.89	Aug. 1	6.27	24	5.34
Feb. 1	6.58	May 9	7.23	15	6.11	Nov. 7	5.67
15	7.11	23	6.01	29	5.65	21	4.75
28	7.40	June 6	6.44	Sept.12	5.41	Dec. 5	5.56
Mar. 15	7.37	20	7.01	26	5.88	19	5.98
29	7.16	July 4	6.99				

F253 (*945, p. 35). City of Hialeah. SE¼NW¼ sec. 12, T. 53 S., R. 40 E. Measuring point is 3.6 feet above land-surface datum and about 9.27 feet above mean sea level.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 4	4.74	Apr. 5	4.67	July 4	4.81	Oct. 10	2.15
18	4.91	11	4.64	18	4.32	24	2.74
Feb. 1	4.41	25	4.39	Aug. 1	4.20	Nov. 7	2.99
15	4.83	May 9	4.52	15	3.62	21	2.41
28	5.05	23	3.90	29	3.24	Dec. 5	2.76
Mar. 15	4.63	June 6	4.10	Sept.12	3.62	19	3.15
29	4.69	20	4.71	26	3.50		

F268 (*886, p. 67; *907, p. 31; 937, p. 25; 945, p. 35). City of Hialeah. SW¼SE¼ sec. 18, T. 53 S., R. 41 E. Measuring point is 2.0 feet above land-surface datum.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 4	6.18	Apr. 25	5.96	July 18	5.56	Oct. 24	4.75
18	6.34	30	6.04	30	5.51	30	4.92
30	6.17	May 9	5.96	Aug. 15	4.90	Nov. 7	5.21
Feb. 1	5.97	23	4.88	28	4.80	21	4.98
15	6.24	29	4.39	Sept.12	5.06	30	5.02
27	6.43	June 6	5.30	26	5.04	Dec. 5	5.12
Mar. 15	6.00	20	6.01	29	4.26	19	5.44
30	5.96	30	5.95	Oct. 10	4.04	30	5.59
Apr. 11	5.93						

F273 (*945, p. 36). Town of North Miami. SW¼NE¼ sec. 29, T. 52 S., R. 42 E., on east side of Northeast 14th Avenue at end of 127th Street. Measuring point is 1.7 feet above land-surface datum and about 14.86 feet above mean sea level.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 4	12.48	Apr. 11	12.40	July 18	11.96	Oct. 10	10.38
18	12.66	25	12.20	Aug. 1	11.69	24	11.19
Feb. 1	11.81	May 9	12.49	15	11.93	Nov. 7	11.80
15	12.50	23	12.02	29	11.48	21	11.16
28	12.72	June 6	11.49	Sept.12	11.44	Dec. 5	11.83
Mar. 15	12.38	20	12.23	26	11.20	19	12.16
29	12.34	July 4	12.44				

F284 (*886, p. 66; *907, p. 28; 937, p. 25; 945, p. 36). Town of North Miami. SW¼SE¼ sec. 26, T. 52 S., R. 41 E. Measuring point is 2.2 feet above land-surface datum.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 4	10.19	Mar. 29	10.40	July 4	10.39	Oct. 10	8.25
18	10.42	Apr. 11	10.47	18	9.86	24	8.88
28	10.35	26	10.20	Aug. 1	9.61	Nov. 7	9.51
Feb. 1	10.01	May 9	10.46	15	9.80	21	9.28
15	10.43	23	9.94	29	8.90	Dec. 5	9.60
28	10.60	June 6	9.72	Sept.12	9.06	19	9.92
Mar. 14	10.40	20	10.21	26	9.21		

F288 (*886, p. 66; *907, p. 28; 937, p. 25; 945, p. 36). Town of North Miami Beach. SW¼SW¼ sec. 7, T. 52 S., R. 42 E. Measuring point is 2.0 feet above land-surface datum.

Water level, in feet below land-surface datum, 1943

Jan. 4	7.63	Apr. 11	8.40	July 18	7.55	Oct. 10	5.69
18	7.95	25	7.97	Aug. 1	7.05	24	6.50
Feb. 1	7.74	May 9	8.34	15	7.10	Nov. 7	7.06
15	8.13	23	8.08	29	6.22	21	6.85
28	8.32	June 6	7.73	Sept.12	6.40	Dec. 5	7.27
Mar. 15	8.28	20	8.22	26	6.58	19	7.55
29	8.28	July 4	8.20				

F309 (*945, p. 37). City of Coral Gables. NE¼SE¼ sec. 18, T. 54 S., R. 41 E., at southwest corner of Riviera Drive and Toledo Street. Measuring point is 0.6 foot above land-surface datum and about 11.82 feet above mean sea level.

Water level, in feet below land-surface datum, 1943

Jan. 3	10.07	Apr. 11	10.25	July 18	9.38	Oct. 10	8.37
17	10.27	25	10.21	Aug. 1	9.62	24	8.82
31	10.07	May 9	10.30	15	9.77	Nov. 7	9.33
Feb. 14	10.27	23	9.94	29	9.17	21	9.39
Mar. 2	10.48	June 6	9.64	Sept.12	8.67	Dec. 5	9.57
15	10.27	20	9.99	26	8.93	19	9.85
29	10.20	July 4	10.25				

F331 (*945, p. 37). Town of South Miami. NE¼NE¼ sec. 35, T. 54 S., R. 40 E., on south side of Sunset Drive about 300 feet west of Ludlum Road. Measuring point is level with land-surface datum and about 9.72 feet above mean sea level.

Water level, in feet below land-surface datum, 1943

Jan. 3	7.17	Apr. 11	7.25	July 18	6.68	Oct. 10	5.96
17	7.51	26	8.44	Aug. 1	6.53	24	5.27
31	7.66	May 9	8.56	15	6.51	Nov. 7	5.59
Feb. 14	7.80	23	7.22	29	5.65	21	5.73
Mar. 2	8.04	June 6	7.05	Sept.12	5.12	Dec. 5	6.04
15	8.15	20	7.75	26	5.30	19	6.38
29	8.29	July 4	7.44	27	5.13		

G3 (*945, p. 38). Geological Survey, U. S. Dept. of Interior. NE¼SW¼ sec. 13, T. 53 S., R. 40 E., in Miami Springs. Measuring point is 3.2 feet above land-surface datum and about 8.08 feet above mean sea level.

Water level, in feet below land-surface datum, 1943

Jan. 4	4.20	Apr. 11	4.02	July 11	3.50	Oct. 10	1.80
11	4.23	18	4.20	18	3.88	17	2.05
18	4.33	25	3.85	25	3.54	24	2.47
25	4.28	May 2	3.95	Aug. 1	3.78	31	2.52
Feb. 1	4.01	9	3.79	8	3.72	Nov. 7	2.61
8	4.02	16	3.61	15	3.20	14	2.71
15	4.30	23	3.10	22	2.76	21	2.22
22	4.36	30	3.02	29	2.70	28	2.29
Mar. 1	4.45	June 6	3.60	Sept. 5	3.16	Dec. 5	2.37
8	3.97	13	3.93	12	3.09	12	2.66
15	3.94	20	4.21	19	2.86	19	2.72
22	4.05	27	4.01	26	3.04	26	2.87
29	4.06	July 4	4.41	Oct. 3	1.73	31	3.04
Apr. 5	4.05						

G10. Geological Survey, U. S. Dept. of Interior. NW¼SW¼ sec. 4, T. 54 S., R. 40 E., 100 feet south of West Flagler Street, 3.8 miles west of Red Road. Driven well, diameter 8 inches, depth 5.5 feet. Measuring point, top of well casing, at northeast side, 2.7 feet above land-surface datum and about 8.32 feet above mean sea level. Water-stage recorder installed Mar. 4, 1940.

Water level, in feet below land-surface datum, 1940-43

Date	Water level	Date	Water level	Date	Water level
Mar. 4, 1940	1.69	Apr. 28, 1941	1.18	July 6, 1942	0.44
11	1.79	May 5	.36	13	.90
18	1.96	12	.73	20	.97
26	2.09	19	1.21	27	.45
Apr. 2	1.53	26	1.63	Aug. 3	.97
9	1.79	June 2	1.98	10	1.00
16	2.20	9	2.25	17	.62
23	2.42	16	1.56	24	.72
30	2.60	23	1.64	31	.07
May 7	2.84	30	.86	Sept. 7	a .30
14	3.05	July 7	.00	14	a .07
21	3.24	14	.24	21	.27
28	3.32	21	.32	28	.38
June 4	.16	28	.53	Oct. 5	.64
11	.77	Aug. 4	.90	12	.84
18	1.35	11	1.09	19	1.25
25	1.82	18	.63	25	.87
July 2	1.50	25	1.09	Nov. 2	1.48
3	.32	Sept. 1	1.20	8	1.47
9	1.11	8	1.25	16	1.78
16	1.83	15	1.13	22	2.07
23	2.03	22	.50	30	2.31
30	1.02	29	.63	Dec. 7	2.55
31	.50	Oct. 5	.63	14	2.44
Aug. 6	1.33	7	.50	20	2.62
13	.11	13	.46	Jan. 3, 1943	2.76
16	a .23	20	.68	11	2.85
20	.40	27	.90	17	2.93
27	.78	Nov. 3	.98	25	2.94
Sept. 3	.89	10	1.17	31	2.50
10	.44	17	.80	Feb. 8	2.59
17	.15	24	1.04	14	2.78
24	a .57	Dec. 1	.98	22	2.97
Oct. 1	a .36	8	1.14	Mar. 1	3.07
8	.06	15	1.41	8	3.11
15	.35	22	1.48	15	3.20
22	.70	29	1.71	22	3.32
29	.19	Jan. 5, 1942	1.85	28	3.42
Nov. 5	.31	12	1.71	Apr. 5	3.54
12	.72	19	1.81	11	3.64
19	.94	26	2.19	18	3.78
26	.94	Feb. 2	2.35	25	2.98
Dec. 3	1.08	9	2.50	May 2	3.24
10	1.25	16	2.62	9	3.49
17	1.40	23	2.02	16	3.00
24	.59	Mar. 2	2.23	23	2.34
31	.63	9	2.15	30	1.93
Jan. 6, 1941	.54	16	2.43	June 6	2.74
13	.79	23	2.52	13	3.19
20	.93	30	2.67	20	3.55
27	.77	Apr. 6	2.70	27	2.25
Feb. 3	1.06	13	2.85	July 4	2.86
10	.17	20	.04	11	1.72
17	.54	27	.73	18	2.26
24	.93	May 4	1.39	25	1.32
Mar. 3	1.05	11	1.73	Aug. 1	1.98
10	.72	18	1.59	8	1.79
17	1.20	25	2.18	15	1.25
24	.38	June 1	2.19	22	1.01
31	.93	8	a .27	29	.55
Apr. 7	.85	15	a .34	Sept. 5	1.15
14	.70	22	a .27	12	.62
21	1.18	29	a .16	19	.80

a Water level in feet above land-surface datum.

G10. Geological Survey, U. S. Dept. of Interior--Continued.
Water level, in feet below land-surface datum, 1940-43

Date	Water level	Date	Water level	Date	Water level
Sept.26, 1943	0.80	Oct. 31, 1943	0.72	Dec. 5, 1943	1.25
Oct. 3	a .05	Nov. 7	.82	12	1.36
10	.16	14	1.15	19	1.12
17	.44	21	.64	26	1.46
24	.76	28	1.04	31	1.56

G16 (*945, p. 39). SE¼SE¼ sec. 36, T. 53 S., R. 40 E., on west side of Red Road, 100 feet north of Northwest 20th Street. Measuring point is level with land-surface datum and about 6.75 feet above mean sea level. Well destroyed in March 1943.

Water level, in feet below land-surface datum, 1943

Jan. 3	6.00	Jan. 31	5.96	Feb. 28	6.27
17	6.14	Feb. 14	6.05		

G72 (*945, pp. 39-40). Geological Survey, U. S. Dept. of Interior. NW¼NE¼ sec. 3, T. 52 S., R. 39 E., on east side of State Highway 26, at Dade-Broward county line. Measuring point was lowered 0.93 foot on Apr.15, 1943, and now is 4.0 feet above land-surface datum and 10.02 feet above mean sea level. All measurements in the following table are expressed with reference to the measuring point set at 4.0 feet above land-surface datum. Measurements published in Water-Supply Paper 945 (pp. 39-40) are referred to a measuring point 4.9 feet above land-surface datum.

Water level, in feet with reference to land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 2	-2.13	Apr. 5	-3.24	July 8	+1.40	Oct. 7	+0.43
9	-2.53	8	-3.31	15	+.94	14	+.48
16	-2.80	15	-3.40	22	+.82	21	+.40
21	-2.87	22	-1.12	29	+.58	29	+.37
28	-2.81	29	-1.74	Aug. 5	+.19	Nov. 4	+.36
Feb. 4	-2.80	May 6	-2.17	12	+.29	10	+.30
11	-3.04	13	-2.47	19	+.60	15	+.20
18	-3.28	20	-1.98	26	+.53	23	+.41
25	-3.28	27	-.83	Sept. 2	+.28	30	+.32
Mar. 4	-3.32	June 3	-1.22	9	+.10	Dec. 8	+.20
11	-3.29	10	-2.01	16	+.32	15	+.06
18	-3.37	17	-2.54	23	+.12	23	-.15
25	-3.48	24	-2.60	30	+.32	31	-.50
Apr. 1	-3.36	July 1	-1.47				

G113 (*945, p. 40). Geological Survey, U. S. Dept. of Interior. SE¼NE¼ sec. 25, T. 53 S., R. 41 E., at northeast corner of North Miami Avenue and 29th Street. Measuring point is 0.6 foot above land-surface datum and about 14.07 feet above mean sea level.

Water level, in feet below land-surface datum, 1943

Jan. 4	12.58	Apr. 11	12.29	July 18	11.82	Oct. 10	10.55
17	12.69	25	12.30	Aug. 1	11.90	24	11.14
31	12.33	May 9	12.39	15	12.00	Nov. 7	11.72
Feb. 15	12.59	23	12.08	29	11.60	21	11.70
Mar. 2	12.67	June 6	11.71	Sept.12	11.40	Dec. 5	11.89
16	12.28	20	12.10	26	11.27	19	12.13
28	12.16	July 4	12.30				

G121 (*945, p. 41). Geological Survey, U. S. Dept. of Interior. SE¼NE¼ sec. 35, T. 53 S., R. 41 E., on east side of Northwest 10th Avenue, about 30 feet north of 14th Street. Measuring point is 3.2 feet above land-surface datum and about 11.60 feet above mean sea level.

Water level, in feet below land-surface datum, 1943

Jan. 3	7.68	Feb. 15	7.67	Mar. 28	7.18	May 9	7.44
17	7.76	Mar. 2	7.70	Apr. 11	7.38	23	6.97
31	7.41	16	7.35	25	7.37	June 6	6.94

G121. Geological Survey, U. S. Dept. of Interior--Continued.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
June 20	7.27	Aug. 15	7.13	Oct. 10	5.77	Nov. 21	6.72
July 4	7.44	29	6.67	24	6.34	Dec. 5	6.94
18	7.05	Sept. 12	6.65	29	6.52	19	7.14
Aug. 1	7.08	26	6.42	Nov. 7	6.82		

G123 (*945, pp. 41-42). Geological Survey, U. S. Dept. of Interior. Sec. 38, T. 54 S., R. 41 E. In Miami, on southwest corner of Southwest 7th Avenue and 9th Street. Measuring point is 2.5 feet above land-surface datum and about 11.16 feet above land-surface datum.

Water level, in feet below land-surface datum, 1943

Jan. 4	7.54	Apr. 11	7.13	July 18	7.12	Oct. 10	5.93
17	7.58	25	7.20	Aug. 1	7.07	24	6.42
31	7.28	May 9	7.26	15	7.18	Nov. 7	6.90
Feb. 14	7.57	23	6.98	29	6.76	21	6.75
Mar. 2	7.62	June 6	6.95	Sept. 12	6.82	Dec. 5	6.90
15	7.24	20	7.16	26	6.49	19	7.17
28	7.18	July 4	7.42				

S18 (*886, p. 66; *907, p. 28; 937, p. 25; 945, p. 42). Model Dairy. NW¼NW¼ sec. 15, T. 52 S., R. 41 E. Measuring point is 1.0 foot above land-surface datum.

Water level, in feet below land-surface datum, 1943

Jan. 4	7.78	Apr. 11	8.57	July 11	7.96	Oct. 10	5.95
11	7.92	18	8.64	18	7.80	17	6.25
18	8.12	25	8.08	25	6.61	24	6.68
25	8.21	May 1	8.25	Aug. 1	7.24	31	6.89
Feb. 1	7.71	9	8.47	8	7.36	Nov. 7	7.14
8	7.95	16	8.12	15	7.37	14	7.34
15	8.23	23	8.09	22	6.59	21	6.70
22	8.35	30	7.55	29	6.44	28	7.04
Mar. 1	8.43	June 6	7.86	Sept. 5	6.48	Dec. 5	7.28
8	8.45	13	8.07	12	6.42	12	7.50
15	8.44	20	8.30	19	6.58	19	7.60
22	8.50	27	8.23	26	6.88	26	7.65
29	8.50	July 4	8.34	Oct. 3	5.49	31	7.77
Apr. 5	9.05						

S19 (*886, p. 66; *907, p. 29; 937, p. 26; 945, p. 43). City of Miami. NW¼NE¼ sec. 25, T. 53 S., R. 40 E. Measuring point is 1.2 feet above land-surface datum.

Water level, in feet below land-surface datum, 1943

Jan. 4	7.00	Apr. 5	7.18	July 11	6.10	Oct. 10	4.53
11	7.01	11	7.17	18	6.17	17	4.57
18	7.26	18	7.21	25	5.71	24	5.05
25	7.23	25	6.63	Aug. 1	6.19	31	5.40
30	7.13	May 2	7.15	8	5.89	Nov. 7	5.22
Feb. 1	6.96	9	7.24	15	5.55	14	5.62
8	6.72	16	6.47	22	4.65	21	5.15
15	6.92	23	5.99	30	5.10	28	5.30
22	7.46	30	5.40	Sept. 5	5.56	Dec. 5	5.47
Mar. 1	7.67	June 6	6.20	12	5.52	12	5.71
8	7.30	13	6.52	16	4.78	19	5.77
15	6.90	20	6.91	19	5.12	26	5.88
22	6.91	27	6.70	26	5.35	30	5.96
29	7.13	July 4	6.85	Oct. 3	4.07		

S171 (*945, pp. 43-44). City of Miami. NW¼SE¼ sec. 20, T. 54 S., R. 41 E., in pit at northwest corner of Coconut Grove water plant. Measuring point is 7.5 feet below land-surface datum and about 4.62 feet above mean sea level.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 3	11.26	Apr. 11	11.00	July 18	10.75	Sept.28	9.99
17	11.36	27	10.98	Aug. 1	10.80	Oct. 10	9.66
31	11.19	May 9	11.05	15	10.90	24	10.17
Feb. 14	11.38	23	11.05	29	10.61	Nov. 7	10.66
Mar. 2	11.21	June 6	10.75	Sept.12	11.44	21	10.55
15	11.10	20	10.90	26	10.16	Dec. 5	10.70
29	11.05	July 4	11.36	27	10.06	19	10.98

S182 (*945, pp. 44-45). International Fruit Co. NW¼NW¼ sec. 5, T. 56 S., R. 40 E., 300 feet north of Quail Roost Drive and 0.4 mile west of U. S. Highway 1.

Water level, in feet below land-surface datum, 1943

Jan. 3	7.57	Apr. 5	9.79	July 4	8.92	Oct. 3	4.34
11	7.86	11	9.87	11	8.12	10	3.67
17	8.09	18	10.09	18	7.73	17	4.10
25	8.30	25	10.13	25	6.95	24	4.66
31	8.49	May 2	10.24	Aug. 1	7.10	31	4.49
Feb. 8	8.60	9	10.37	8	6.52	Nov. 7	4.89
14	8.72	16	10.09	15	6.33	14	5.44
22	8.88	23	10.02	22	5.83	21	4.55
28	9.04	30	9.59	29	4.39	28	5.14
Mar. 8	9.15	June 6	9.59	Sept. 5	4.51	Dec. 5	5.68
14	9.25	13	9.76	12	4.42	12	6.15
22	9.45	20	9.93	19	4.24	19	6.47
29	9.60	27	9.12	26	4.63	26	6.83

S191 (*945, pp. 45-46). A. H. Singleton. SE¼SW¼ sec. 19, T. 56 S., R. 39 E., 160 feet north of Coconut Palm Drive and 0.3 mile east of Krome Avenue. Measuring point is 0.5 foot above land-surface datum and about 9.41 feet above mean sea level.

Water level, in feet below land-surface datum, 1943

Jan. 25	6.48	Apr. 12	7.97	June 27	7.48	Sept.27	3.17
Feb. 22	6.84	26	8.29	July 28	4.54	Oct. 17	2.58
Mar. 1	7.03	May 9	8.58	Aug. 22	3.70	Nov. 14	4.02
14	7.34	30	7.61	Sept.19	2.23	Dec. 12	4.75
29	7.70						

S196 (*907, p. 33; 937, p. 26; 945, p. 46). University of Florida Experiment Station. (Formerly owned by State of Florida.) SW¼SE¼ sec. 35, T. 56 S., R. 38 E. Measuring point is level with land-surface datum.

Water level, in feet below land-surface datum, 1943

Jan. 1	7.53	Apr. 7	9.56	July 11	6.86	Oct. 4	4.65
8	7.75	14	9.76	18	6.26	11	4.05
15	7.97	21	9.94	25	5.80	18	4.85
22	8.13	30	10.12	31	6.26	24	5.46
30	8.15	May 4	10.23	Aug. 4	6.04	25	4.02
Feb. 3	7.98	11	10.37	11	5.88	31	4.73
10	8.16	18	9.97	18	5.85	Nov. 7	5.36
17	8.40	25	9.51	25	5.15	14	5.90
24	8.65	31	8.89	29	3.90	21	5.30
26	8.69	June 7	8.95	Sept. 1	4.27	30	5.90
Mar. 1	8.78	14	9.25	8	3.74	Dec. 7	6.33
8	8.95	21	9.49	15	3.87	14	6.70
15	9.12	30	8.44	20	4.40	21	6.95
22	9.28	July 4	8.10	27	5.10	31	7.29
31	9.44						

S233 (*945, pp. 46-47). City of Miami Beach. NE¼NE¼ sec. 32, T. 51 S., R. 42 E., at south side of sand road through dump, 0.2 mile east of paved road leading to dump, and 0.3 mile north of Ives Dairy Road. Measuring point is 1.0 foot below land-surface datum and about 7.13 feet above mean sea level.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 4	6.33	Apr. 11	7.56	July 18	6.80	Oct. 10	4.34
18	6.80	25	7.11	Aug. 1	5.86	24	5.32
Feb. 1	7.00	May 23	7.27	15	2.97	Nov. 7	5.94
15	7.18	June 6	6.95	29	4.73	21	6.16
28	7.37	20	7.45	Sept.12	1.62	Dec. 5	6.38
Mar. 15	7.32	July 4	7.18	26	5.26	19	6.58
24	7.42						

S290 (*945, p. 47). J. C. Kersey. NE¼NE¼ sec. 3, T. 52 S., R. 41 E., about 30 feet northwest of milking shed west of Honey Hill Road and 0.6 mile west of Northwest 12th Avenue. Measuring point is 0.4 foot above land-surface datum and about 19.21 feet above mean sea level.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 4	16.72	Apr. 11	17.93	July 18	16.87	Oct. 10	14.65
18	17.15	25	17.41	Aug. 1	16.26	24	15.52
Feb. 1	16.99	May 9	17.79	15	16.65	Nov. 7	16.12
15	17.40	23	17.56	29	15.10	21	16.04
28	17.65	June 6	17.21	Sept.12	15.20	Dec. 5	16.45
Mar. 15	17.72	20	17.69	26	15.62	12	16.71
29	17.83	July 4	17.49				

Duval County

12 (*907, p. 14; 937, p. 13; 945, p. 13). Jacksonville Motor Transit Co. In Jacksonville, about 200 feet east of Riverside Avenue, about 75 feet south of McCoy Street. Measuring point, top of 6-inch valve, 1.80 feet above land-surface datum and 10.14 feet above mean sea level. No measurements made in 1943.

102 (*907, p. 14; 937, p. 13; 945, p. 13). 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. Measuring point is 0.50 foot above land-surface datum and 53.54 feet above mean sea level. No measurements made in 1943.

109 (*907, p. 14; 937, p. 13; 945, p. 13). J. P. Young. At Floral Bluff, on north side of residence of owner, on west side of Dones Street, about 400 feet north of Floral Bluff Avenue, about 1,000 feet east of St. Johns River, and 3 miles northeast of Jacksonville. Measuring point is 2.50 feet above land-surface datum and 43.55 feet above mean sea level. No measurements made in 1943.

115 (*907, p. 15; 937, p. 13; 945, p. 13). City of Jacksonville. In Ortega, at east corner of intersection of Baltic Street and Oxford Avenue, on east side of pump house, 5 miles southwest of Jacksonville. Measuring point is 4.70 feet above land-surface datum and 20.82 feet above mean sea level. No measurements made in 1943.

118 (*907, p. 15; 937, p. 13; 945, p. 13). City of Jacksonville. In Jacksonville, at west corner of intersection of Post and Dancy Streets, on southwest side of pump house. Measuring point is 4.00 feet above land-surface datum and 27.79 feet above mean sea level. Water level, in feet above land-surface datum, 1943: Mar. 4, 31.5.

122 (*907, p. 15; 937, p. 13; 945, p. 13). City of Jacksonville. In Jacksonville, about 20 feet north of 63d Street, between Russell and Eastland Streets. Measuring point is 2.50 feet above land-surface datum and 17.37 feet above mean sea level. No measurements made in 1943.

123 (*907, p. 15; 937, p. 13; 945, p. 13). City of Jacksonville. At Woodstock Park, Jacksonville, on west side of Huron Street, about 150 feet north of Beaver Street, west of pump house. Measuring point is 2.50 feet above land-surface datum and 25.28 feet above mean sea level. Water level, in feet above land-surface datum, 1943: Mar. 3, 33.1.

129 (*907, p. 15; 937, p. 13; 945, p. 13). Jim Merril. In Ortega, on east side of Ortega Boulevard between First and Palmetto Streets, 5.2 miles southwest of Jacksonville. Measuring point is 1.00 foot above land-surface datum and 9.63 feet above mean sea level. No measurements made in 1943.

131 (*907, p. 15; 937, p. 13; 945, p. 14). G. C. Cole. SW¼ sec. 10, T. 1 S., R. 26 E., on east side of Lem Turner Road, on south side of residence of owner, 0.7 mile north of Trout River, 7.0 miles north of Jacksonville. Measuring point is level with land-surface datum and 17.86 feet above mean sea level. No measurements made in 1943.

145 (*907, p. 16; 937, p. 13; 945, p. 14). Duval County School Board. In rear of Oceanway School, 0.5 mile north of Broward, 10 miles north of Jacksonville. Measuring point is 1.50 feet above land-surface datum and 36.29 feet above mean sea level. No measurements made in 1943.

147 (*907, p. 16; 937, p. 13; 945, p. 14). V. C. Johnson. SW¼SW¼ sec. 32, T. 1 N., R. 26 E. Measuring point is 3.80 feet above land-surface datum and 25.65 feet above mean sea level. No measurements made in 1943.

149 (*907, p. 16; 937, p. 13; 945, p. 14). W. M. Bostwick. At north side of mouth of Drummond Creek, 1.2 miles southwest of Eastport, 6 miles northeast of Jacksonville. Measuring point is 4.00 feet above land-surface datum and 33.22 feet above mean sea level. No measurements made in 1943.

154 (*907, p. 16; 937, p. 14; 945, p. 14). J. M. Shield. SW¼ sec. 22, T. 3 S., R. 27 E., between Florida East Coast Railway and U. S. Highway 1, 1.2 miles north of Sunbeam. Measuring point is 3.10 feet above land-surface datum and 28.3 feet above mean sea level. Water level, in feet above land-surface datum, 1942: Aug. 15, 28.1. No measurements made in 1943.

160 (*907, p. 16; 937, p. 14; 945, p. 14). City of Neptune Beach. At Neptune Beach, about 400 feet from ocean, on southeast corner of intersection of First Street and Florida Avenue. Measuring point is 0.50 foot above land-surface datum and 11.55 feet below mean sea level. No measurements made in 1943.

164 (*907, p. 16; 937, p. 14; 945, p. 14). Ribault Club. On Fort George Island, in pump house at Ribault Club. Measuring point is 1.30 feet above land-surface datum and 17.01 feet above mean sea level. No measurements made in 1943.

Escambia County

42 (*907, p. 22; 937, p. 17; 945, p. 14). Pensacola Shipbuilding Co. In Pensacola, about 250 feet north of Bayou Chico, about 1,500 feet west of intersection of Barancas Avenue and Pine Street, on west side of storage tank. Measuring point is 11.20 feet above land-surface datum and 22.95 feet above mean sea level. Water level affected by tide and by pumping from other wells.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 6	19.58	Mar. 17	20.55	May 26	21.40	Aug. 4	20.90
13	19.51	24	20.82	June 2	20.88	11	21.45
20	20.15	31	20.60	9	22.03	18	21.70
27	19.97	Apr. 7	19.87	16	21.54	25	21.47
Feb. 3	19.53	14	19.60	23	19.75	Sept. 1	22.10
10	19.57	21	21.73	30	20.82	7	20.78
17	21.10	28	21.85	July 7	20.62	14	21.19
24	20.80	May 5	21.42	14	20.00	22	19.90
Mar. 3	21.13	12	22.23	21	21.00	29	21.60
10	19.74	19	21.60	28	21.52	Oct. 6	21.71

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45 (*907, p. 22; 937, p. 17; 945, p. 15). Geological Survey, U. S. Dept. of Interior. About 1,150 feet southwest of Louisville & Nashville Railroad, about 1,600 feet northeast of Gulf, Florida & Alabama Railway (now St. Louis-San Francisco Railway), 0.5 mile south of Cantonment. Measuring point is 1.48 feet above land-surface datum and about 136.48 feet above mean sea level. Water levels affected by heavy pumping from other wells.

Highest and lowest daily water level, in feet below land-surface datum, 1943
(From recorder charts)

Day	January		February		March		April		May		June	
	High	Low	High	Low	High	Low	High	Low	High	Low	High	Low
1	.....	.....	.....	.....	83.27	84.17	85.05	85.17	80.77	83.14	79.42	84.59
2	.....	.....	.....	.....	83.52	84.42	84.30	85.14	81.85	82.54	78.50	79.40
3	.....	.....	82.67	83.01	84.35	84.93	83.83	84.65	81.84	82.65	78.20	78.66
4	.....	.....	82.42	82.88	84.82	84.93	84.06	84.37	81.54	82.34	78.15	81.07
5	82.67	83.39	82.13	82.55	84.34	84.82	80.47	84.29	81.45	82.07	81.07	84.27
6	82.46	82.76	82.30	83.07	84.35	84.87	78.62	80.47	81.62	84.04	83.48	84.20
7	82.46	83.03	83.08	83.88	84.87	85.11	79.78	83.22	83.40	84.57	83.60	84.78
8	82.86	83.38	83.14	84.04	85.11	85.15	81.92	83.37	84.52	85.04	84.78	85.20
9	82.87	83.70	84.04	84.15	85.14	85.24	81.73	82.26	85.05	85.18	85.20	85.30
10	83.70	83.86	84.15	84.26	85.05	85.14	81.79	82.23	85.18	85.24	85.30	85.39
11	83.86	83.96	84.26	84.63	84.97	85.04	81.99	82.32	85.07	85.19	85.39	85.48
12	.....	.....	84.63	84.67	84.85	84.97	81.92	82.12	85.19	85.34	85.47	85.57
13	.....	.....	84.55	85.66	84.87	85.12	82.40	82.90	85.35	85.47	85.56	85.73
14	.....	.....	84.58	84.81	85.12	85.21	82.70	83.14	83.22	85.52	82.83	85.66
15	.....	.....	84.78	84.95	84.00	85.18	82.80	84.72	82.84	85.06	82.44	83.55
16	.....	.....	84.78	84.98	84.41	84.95	84.73	84.90	83.82	85.48	83.57	85.24
17	.....	.....	84.82	84.93	84.95	85.09	84.86	84.98	84.47	85.65	85.24	85.43
18	.....	.....	84.82	84.87	85.07	85.10	84.76	84.94	85.48	85.62	85.44	85.59
19	.....	.....	84.81	84.86	85.00	85.06	83.54	85.99	85.53	85.63	84.20	85.67
20	.....	.....	84.59	84.80	84.92	85.04	83.47	84.89	85.57	85.64	84.42	85.80
21	.....	.....	84.45	84.59	84.91	85.26	84.89	85.30	85.61	85.67	85.80	85.90
22	.....	.....	84.44	84.49	85.26	85.41	85.30	85.34	85.64	85.69	85.87	85.94
23	.....	.....	84.57	84.59	83.89	84.85	85.22	85.34	85.63	85.69	85.84	85.96
24	.....	.....	84.57	84.69	83.79	84.20	85.08	85.35	85.57	85.64	85.92	86.04
25	.....	.....	84.69	84.77	83.62	84.21	85.35	85.45	85.52	85.58	85.99	86.10
26	.....	.....	82.42	84.77	83.50	84.50	85.43	85.52	85.59	85.82	86.11	86.17
27	.....	.....	83.63	84.29	84.50	84.79	85.47	85.52	85.82	85.93	83.57	86.11
28	.....	.....	82.42	83.63	84.79	85.02	85.49	85.57	84.70	85.92	82.64	83.57
29	.....	.....	.....	.....	85.04	85.19	83.02	85.56	84.22	84.70	82.51	82.74
30	.....	.....	.....	.....	85.19	85.27	81.00	83.03	84.06	84.33	82.52	83.17
31	.....	.....	.....	.....	85.12	88.20	.....	.....	84.00	84.61	.....	.....

Highest and lowest daily water level, in feet below land-surface datum, 1943
(From recorder charts)

Day	July		August		September		October		November		December	
	High	Low	High	Low	High	Low	High	Low	High	Low	High	Low
1	83.12	84.76	83.64	84.42	84.27	84.67	85.42	85.82	86.19	86.48	87.05	87.27
2	84.69	85.22	83.52	84.54	84.40	85.11	85.25	85.42	79.89	86.35	85.56	87.11
3	83.99	85.24	80.40	83.62	84.95	85.19	85.38	85.84	78.64	79.89	85.28	85.72
4	82.72	84.00	79.79	80.40	84.82	85.17	81.14	86.20	77.94	78.64	85.25	85.65
5	82.65	83.77	79.86	83.67	84.44	85.04	81.17	85.89	76.49	77.93	84.89	85.34
6	83.47	85.46	83.70	84.24	81.57	85.06	85.97	86.61	77.32	78.45	84.84	85.16
7	83.52	85.63	83.78	84.24	81.42	85.02	86.61	86.67	78.02	84.37	84.82	85.32
8	85.63	85.79	83.70	84.24	84.19	84.85	86.66	86.70	84.37	84.83	83.64	85.11
9	85.79	85.92	83.89	85.17	84.28	85.43	86.70	86.78	80.50	85.02	83.34	84.66
10	85.91	86.05	84.44	85.74	84.82	86.13	86.78	86.92	83.62	84.70	83.30	84.07
11	86.05	86.14	85.74	86.04	86.14	86.30	86.92	87.02	84.09	84.95	83.18	83.42
12	86.14	86.25	85.82	86.13	86.30	86.40	87.00	87.02	84.95	85.92	83.21	83.41
13	86.22	86.29	86.11	86.22	86.38	86.44	84.02	86.98	85.93	86.28	82.95	83.39
14	86.20	86.33	86.17	86.24	86.40	86.54	84.05	86.71	86.28	86.45	82.90	85.54
15	86.32	86.35	86.05	86.24	86.54	86.67	86.71	86.82	86.43	86.49	84.84	86.85
16	86.32	86.39	86.17	86.24	86.66	86.73	86.82	87.11	.....	.....	86.86	87.28
17	86.39	86.42	86.22	86.39	86.73	86.80	87.11	87.22	86.60	86.81	87.23	87.28
18	86.40	86.46	86.39	86.51	86.75	86.78	86.69	87.27	86.81	86.90	87.07	87.25
19	86.31	86.41	86.50	86.57	86.38	86.74	87.01	87.13	86.86	86.12	87.12	87.19

45. Geological Survey, U. S. Dept. of Interior--Continued.

Highest and lowest daily water level, in feet below land-surface datum, 1943
(From recorder charts)

Day	July		August		September		October		November		December	
	High	Low	High	Low	High	Low	High	Low	High	Low	High	Low
20	86.32	86.39	86.57	86.63	86.66	86.68	86.79	87.17	86.13	86.90	87.19	87.28
21	86.37	86.44	86.60	86.72	86.66	86.80	87.12	87.23	86.16	86.23	87.20	87.25
22	86.44	86.47	86.70	86.77	86.80	86.90	86.26	87.20	85.45	85.97	87.20	87.30
23	86.45	86.49	86.75	86.79	86.91	86.96	85.92	86.40	85.16	85.46	87.29	87.52
24	86.48	86.53	81.32	86.81	86.85	86.90	85.42	86.40	85.14	86.47	87.48	87.53
25	86.53	86.61	78.55	81.32	85.77	86.99	84.72	86.41	86.47	86.82	83.94	85.48
26	85.11	86.60	78.34	85.09	86.09	87.01	85.66	86.20	86.82	86.88	83.71	86.90
27	84.55	86.48	85.09	85.96	87.01	87.08	86.01	86.30	86.86	86.92	86.92	87.18
28	83.79	84.52	84.88	86.05	87.08	86.08	86.11	86.33	86.84	86.92	87.12	87.26
29	83.79	84.92	84.32	85.46	85.89	86.34	86.07	86.23	86.86	87.09	87.26	87.38
30	84.83	85.14	84.37	84.74	85.66	86.19	85.93	86.07	87.09	87.26	87.37	87.48
31	84.02	85.07	84.29	84.67	.....	.....	86.00	86.54	.....	.....	85.39	86.49

46 (*907, p. 22; 937, p. 18; 945, p. 15). Geological Survey, U. S. Dept. of Interior. 0.4 mile east of Ensley, 43.5 feet east of center line of Louisville & Nashville Railroad, 196 feet north of center line of graded cross road. Measuring point is 1.18 feet above land-surface datum and about 131.18 feet above mean sea level.

Highest and lowest daily water level, in feet below land-surface datum, 1943
(From recorder charts)

Day	January		February		March		April		May		June	
	High	Low	High	Low	High	Low	High	Low	High	Low	High	Low
1	.....	.....	63.86	63.87	64.37	64.43	64.41	64.45	64.69	64.72	65.25	65.30
2	.....	.....	63.87	63.89	64.39	64.47	64.38	64.41	64.67	64.75	65.24	65.29
3	.....	.....	63.80	63.87	64.48	64.77	64.40	64.55	64.67	64.71	65.25	65.32
4	.....	.....	63.73	63.80	64.72	64.79	64.55	64.58	64.70	64.75	65.32	65.42
5	.....	.....	63.67	63.74	64.35	64.72	64.42	64.55	64.75	64.79	65.42	65.47
6	63.12	63.21	63.69	63.97	64.14	64.47	64.41	64.45	64.75	64.80	65.44	65.47
7	62.90	63.13	63.97	64.03	64.47	64.72	64.40	64.42	64.71	64.77	65.44	65.49
8	62.90	63.03	63.96	64.02	64.72	64.78	64.36	64.40	64.72	64.77	65.49	65.53
9	63.03	63.10	63.92	63.98	64.70	64.76	64.21	64.36	64.77	64.83	65.51	65.53
10	63.08	63.13	63.89	63.92	64.55	64.71	64.23	64.30	64.75	64.82	65.48	65.51
11	63.13	63.18	63.93	64.07	64.44	64.55	64.27	64.33	64.63	64.75	65.48	65.50
12	63.19	63.21	64.07	64.07	64.40	64.54	64.17	64.27	64.68	64.76	65.50	65.55
13	63.20	63.21	64.06	64.07	64.40	64.50	64.18	64.24	64.76	64.83	65.55	65.61
14	63.12	63.20	64.07	64.08	64.50	64.57	64.24	64.50	64.83	64.87	65.61	65.66
15	63.09	63.12	64.07	64.08	64.45	64.54	64.51	64.63	64.85	64.90	65.65	65.68
16	63.09	63.13	.....	.....	64.39	64.43	64.48	64.58	64.88	64.96	65.64	65.67
17	63.13	63.20	64.49	64.56	64.39	64.42	64.40	64.49	64.95	64.98	65.65	65.70
18	.....	.....	64.50	64.54	64.38	64.40	64.14	64.38	64.96	64.99	65.69	65.73
19	.....	.....	64.47	64.55	64.37	64.38	64.14	64.33	64.94	64.98	65.72	65.75
20	63.62	63.68	64.46	64.48	64.29	64.37	64.36	64.48	64.96	64.99	65.74	65.77
21	63.47	63.61	64.18	64.46	64.25	64.47	64.48	64.59	64.97	64.99	65.74	65.77
22	63.41	63.47	63.13	63.18	64.47	64.66	64.53	64.59	64.98	64.99	65.76	65.79
23	63.40	63.51	63.19	64.26	64.66	64.71	64.42	64.55	64.96	64.99	65.76	65.77
24	63.40	63.42	64.27	64.36	64.51	64.67	64.45	64.50	64.95	64.97	65.77	65.82
25	63.42	63.46	64.36	64.40	64.36	64.51	64.52	64.54	64.91	64.94	65.82	65.86
26	63.45	63.55	64.39	64.49	64.10	64.36	64.53	64.58	64.94	65.10	65.86	65.90
27	63.55	63.68	64.49	64.59	64.11	64.15	64.59	64.67	65.10	65.19	65.85	65.88
28	63.57	63.67	64.44	64.53	64.15	64.34	64.67	64.69	65.19	64.23	65.90	65.89
29	63.67	63.75	.....	.....	64.35	64.50	64.65	64.68	65.18	64.25	65.93	65.96
30	63.75	63.82	.....	.....	64.50	64.56	64.67	64.70	65.17	65.20	65.96	66.00
31	63.82	63.88	.....	.....	64.45	64.52	.....	.....	65.19	65.25	.....	.....

Highest and lowest daily water level, in feet below land-surface datum, 1943
(From recorder charts)

Day	July		August		September		October		November		December	
	High	Low	High	Low	High	Low	High	Low	High	Low	High	Low
1	66.00	66.13	66.94	66.98	67.92	67.95	68.65	68.71	69.80	69.87	70.60	70.65
2	66.13	66.24	66.96	66.98	67.89	67.94	68.65	68.69	69.87	69.88	70.60	70.66
3	66.22	66.27	66.94	67.00	67.90	67.95	68.69	68.78	69.88	69.92	70.67	70.75

46. Geological Survey, U. S. Dept. of Interior--Continued.
Highest and lowest daily water level, in feet
below land-surface datum, 1943
(From recorder charts)

Day	July		August		September		October		November		December	
	High	Low	High	Low	High	Low	High	Low	High	Low	High	Low
4	66.16	66.22	66.94	67.01	67.95	68.00	68.78	68.90	69.86	69.91	70.75	70.79
5	66.14	66.18	66.98	67.03	68.00	68.02	68.89	68.99	69.85	69.87	70.74	70.79
6	66.16	66.21	67.02	67.05	68.00	68.02	69.01	69.07	69.85	69.88	70.71	70.74
7	66.18	66.21	67.06	67.08	67.98	68.02	68.97	69.04	69.78	69.87	70.72	70.79
8	66.20	66.23	67.06	67.07	68.00	68.06	68.95	69.00	69.84	70.03	70.79	70.84
9	66.22	66.25	67.07	67.10	68.06	68.12	68.95	69.01	70.03	70.13	70.84	70.93
10	66.25	66.33	67.10	67.18	68.12	68.18	69.00	69.11	70.13	70.20	70.86	70.93
11	66.33	66.39	67.18	67.27	68.17	68.20	69.10	69.17	70.19	70.22	70.84	70.89
12	66.39	66.45	67.27	67.30	68.19	68.25	69.14	69.18	70.16	70.22	70.86	70.90
13	66.48	66.50	67.29	67.32	68.20	68.24	69.09	69.17	70.16	70.20	70.85	70.93
14	66.48	66.52	67.27	67.32	68.22	68.27	69.07	69.11	70.20	70.25	70.86	70.90
15	66.44	66.50	67.25	67.30	68.27	68.32	69.08	69.13	70.15	70.23	70.89	71.17
16	66.46	66.50	67.22	67.26	68.32	68.39	69.12	69.29	70.12	70.21	71.17	71.27
17	66.50	66.59	67.24	67.32	68.39	68.42	69.29	69.34	70.21	70.31	71.27	71.34
18	66.59	66.63	67.32	67.41	68.37	68.42	69.34	69.37	70.32	70.35	71.21	71.30
19	66.56	66.61	67.41	67.45	68.35	68.39	69.34	69.37	70.30	70.35	71.21	71.23
20	66.58	66.62	67.45	67.50	68.30	68.35	69.35	69.38	70.29	70.33	71.21	71.26
21	66.59	66.63	67.50	67.56	68.31	68.42	69.37	69.43	70.29	70.34	71.17	71.22
22	66.63	66.65	67.56	67.60	68.42	68.49	69.41	69.45	70.32	70.40	71.16	71.20
23	66.65	66.68	67.60	67.64	68.49	68.56	69.43	69.47	70.40	70.47	71.20	71.37
24	66.66	66.75	67.62	67.69	68.50	68.54	69.40	69.46	70.48	70.52	71.34	71.39
25	66.75	66.82	67.69	67.72	68.54	68.56	69.44	69.50	70.50	70.54	71.08	71.34
26	66.82	66.86	67.67	67.76	68.56	68.58	69.47	69.54	70.45	70.50	71.09	71.27
27	66.85	66.86	67.70	67.77	68.58	68.66	69.54	69.62	70.42	70.45	71.27	71.35
28	66.86	66.87	67.72	67.77	68.70	68.77	69.62	69.71	70.36	70.44	71.21	71.31
29	66.87	66.90	67.72	67.81	68.76	67.80	69.71	69.78	70.39	70.52	71.27	71.33
30	66.90	66.97	67.80	67.87	68.71	68.77	69.68	69.74	70.52	70.66	71.33	71.40
31	66.97	67.02	67.85	67.92	.....	.....	69.71	69.70	.....	.....	71.39	71.52

62 (*945, p. 16). Geological Survey, U. S. Dept. of Interior.
In Petterson addition, Pensacola, on south side of Corry Field switching lead of St. Louis-San Francisco Railway, about 1,000 feet east of railroad bridge across Bayou Chico, on west side of Twelfth Ave. Measuring point is 1.50 feet above land-surface datum and 15.45 feet above mean sea level.

Highest and lowest daily water level, in feet
below land-surface datum, 1943
(From recorder charts)

Day	January		February		March		April		May		June	
	High	Low	High	Low	High	Low	High	Low	High	Low	High	Low
1	14.30	14.38	13.95	14.10	14.57	14.68	16.02	16.09	16.69	16.79	16.36	16.65
2	14.18	14.29	14.10	14.37	14.67	14.98	15.82	16.03	16.45	16.65	16.07	16.35
3	14.11	14.20	14.37	14.95	14.99	15.26	15.72	15.82	16.47	16.56	15.96	16.07
4	14.11	14.13	14.95	15.35	15.24	15.32	15.45	15.73	16.28	16.51	15.96	16.01
5	14.13	14.24	15.35	15.48	15.06	15.23	14.91	15.45	16.32	16.33	15.80	15.96
6	14.24	14.38	15.21	15.42	14.72	15.01	14.80	14.91	16.11	16.33	15.74	15.81
7	14.21	14.35	15.07	15.20	14.54	14.71	14.80	14.84	16.18	16.26	15.65	15.85
8	14.16	14.21	15.05	15.31	14.49	14.58	14.80	14.83	16.01	16.26	15.86	16.58
9	14.00	14.16	15.32	15.46	14.58	14.90	14.72	14.80	15.71	16.01	16.59	16.96
10	13.91	14.00	15.37	15.46	14.90	15.30	14.53	14.72	15.61	15.79	16.96	17.09
11	13.90	14.10	15.43	15.84	15.30	15.55	14.50	14.55	15.80	16.15	17.10	17.20
12	14.10	14.28	15.84	16.07	15.55	15.59	14.47	14.88	16.15	16.49	17.20	17.23
13	14.28	14.39	15.83	16.13	15.50	15.60	14.90	15.33	16.47	16.53	16.98	17.20
14	14.28	14.39	15.49	15.83	15.26	15.50	15.35	15.80	16.33	16.53	16.75	16.98
15	14.29	14.44	15.37	15.49	15.22	15.28	14.80	16.28	15.93	16.32	16.82	17.01
16	14.28	14.44	15.46	15.87	15.28	15.48	16.28	16.30	15.69	15.93	17.03	17.13
17	13.88	14.28	15.87	16.18	15.48	15.60	16.32	16.54	15.57	15.69	17.11	17.16
18	13.75	13.92	16.18	16.32	15.15	15.61	16.55	16.62	15.64	16.26	16.82	17.16
19	13.92	14.49	16.26	16.30	14.83	15.15	16.54	16.62	16.26	16.77	16.12	16.82
20	14.50	14.74	15.85	16.26	15.05	15.34	16.42	16.54	16.77	17.05	15.56	16.10
21	14.58	14.68	15.84	15.95	15.34	15.41	16.46	16.51	17.06	17.13	15.24	15.55
22	14.45	14.58	15.96	16.27	15.33	15.56	16.25	16.46	16.96	17.13	15.17	15.24

62. Geological Survey, U. S. Dept. of Interior--Continued.

Highest and lowest daily water level, in feet below land-surface datum, 1943 (From recorder charts)

Day	January		February		March		April		May		June	
	High	Low	High	Low	High	Low	High	Low	High	Low	High	Low
23	14.20	14.45	16.19	16.27	15.56	15.86	16.06	16.22	16.67	16.95	15.20	15.27
24	13.70	14.20	16.10	16.27	15.87	16.06	15.90	16.06	16.57	16.67	15.27	15.45
25	13.52	13.70	15.60	16.12	15.97	16.08	15.73	15.89	16.65	16.75	15.45	15.91
26	13.54	13.80	15.29	15.60	15.74	15.97	15.74	16.01	16.75	16.80	15.91	16.28
27	13.80	13.94	15.07	15.29	15.49	15.76	16.01	16.26	16.70	16.74	16.29	16.40
28	13.94	14.09	14.65	15.06	15.18	15.48	16.26	16.34	16.71	16.78	16.36	16.40
29	14.09	14.18	.....	.....	15.18	15.45	16.36	16.58	16.68	16.76	16.00	16.37
30	14.17	14.22	.....	.....	15.45	15.87	16.58	16.69	16.61	16.67	15.69	16.00
31	13.95	14.18	.....	.....	15.88	16.01	.....	.....	16.51	16.61	.....	.....

Highest and lowest daily water level, in feet below land-surface datum, 1943 (From recorder charts)

Day	July		August		September		October		November		December	
	High	Low	High	Low	High	Low	High	Low	High	Low	High	Low
1	15.55	15.69	15.95	16.46	17.32	17.42	16.28	16.33	15.59	15.70	15.81	15.93
2	15.52	15.58	15.78	15.90	17.42	17.54	16.29	16.40	15.58	15.73	15.93	15.98
3	15.58	15.60	15.85	15.95	17.54	17.58	16.20	16.40	15.73	15.96	15.92	15.98
4	15.50	15.60	15.94	16.24	17.31	17.58	15.84	16.19	15.96	16.54	15.90	16.14
5	15.34	15.49	16.24	16.55	17.12	17.31	15.72	15.85	16.55	16.69	16.15	16.44
6	15.36	15.74	16.55	16.59	16.74	17.12	15.85	16.21	16.25	16.69	16.44	16.55
7	15.77	16.21	16.59	16.65	16.28	16.74	16.21	16.37	15.72	16.25	16.55	16.76
8	16.11	16.34	16.45	16.65	16.10	16.28	15.98	16.29	15.72	15.83	16.77	16.91
9	15.87	16.11	15.97	16.45	16.04	16.10	15.75	15.98	15.83	16.00	16.83	17.02
10	15.72	15.86	15.76	15.97	16.08	16.14	15.61	15.75	16.00	16.08	16.32	16.84
11	15.49	15.86	15.85	16.02	15.92	16.12	15.59	15.91	16.08	16.45	16.09	16.32
12	15.35	15.49	16.02	16.24	15.82	15.91	15.91	16.13	16.45	15.80	15.95	16.09
13	15.34	15.36	16.24	16.35	15.80	16.31	16.10	16.38	16.67	16.81	15.93	16.00
14	15.37	15.45	16.25	16.35	16.31	16.57	16.37	16.45	16.45	16.66	16.00	16.10
15	15.46	15.60	16.07	16.25	16.57	16.94	16.30	16.37	16.36	16.45	16.10	16.22
16	15.60	15.65	15.96	16.06	16.94	17.05	16.10	16.37	16.40	16.56	16.22	16.33
17	15.62	15.65	16.03	16.14	17.05	17.10	15.65	16.35	16.56	16.86	16.33	16.42
18	15.49	15.62	16.14	16.14	16.87	17.10	15.51	15.65	16.86	16.96	16.33	16.42
19	15.43	15.49	16.14	16.17	16.62	16.87	15.50	15.55	16.89	16.93	16.08	16.35
20	15.46	15.81	16.14	16.17	16.46	16.62	15.55	15.74	16.86	16.91	16.03	16.29
21	15.81	16.30	16.12	16.14	15.90	16.46	15.74	16.11	16.75	16.85	16.29	16.69
22	16.30	16.61	16.05	16.12	15.58	15.91	16.11	16.41	16.36	16.75	16.69	16.86
23	16.61	16.83	16.01	16.08	15.51	15.57	16.41	16.68	16.14	16.36	16.85	16.87
24	16.81	16.86	16.08	16.18	15.53	15.57	16.36	16.68	16.10	16.13	16.79	16.85
25	16.50	16.80	16.18	16.27	15.57	15.58	16.29	16.37	16.05	16.09	16.40	16.78
26	16.41	16.66	16.27	16.35	15.36	15.57	16.37	16.62	16.00	16.05	16.31	16.40
27	16.67	16.80	16.35	16.36	15.22	15.45	16.62	16.71	15.92	16.00	16.31	16.45
28	16.55	16.71	16.29	16.48	15.45	15.99	16.70	16.72	15.66	15.92	16.35	16.48
29	16.35	16.55	16.48	16.93	16.00	16.23	16.34	16.70	15.60	15.66	16.23	16.34
30	16.41	16.54	16.93	17.22	16.23	16.34	15.50	16.34	15.62	15.81	16.18	16.23
31	16.46	16.56	17.22	17.32	.....	.....	15.70	16.00	.....	.....	16.12	16.18

62-A (*945, p. 17). Geological Survey, U. S. Dept. of Interior. In Petterson addition, Pensacola, south side of Corry Field switching lead of St. Louis-San Francisco Railway, about 1,000 feet east of railroad bridge across Bayou Chico, on west side of Twelfth Ave. extended. Measuring point is 0.81 foot above land-surface datum and 14.76 feet above mean sea level.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 6	12.10	Feb. 3	12.53	Mar. 3	12.48	Apr. 14	12.17
13	12.24	10	12.56	10	12.26	21	12.14
20	12.21	17	12.31	17	12.24	28	12.31
27	12.36	24	12.54	24	12.17	30	12.36
30	12.39	27	12.43	31	12.22	May 5	12.38
Feb. 1	12.39	Mar. 1	12.60	Apr. 7	12.22	12	12.41

62-A. Geological Survey, U. S. Dept. of Interior--Continued.
Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
May 19	12.44	July 28	12.62	Sept.14	12.62	Nov. 10	12.17
26	12.39	31	12.67	22	12.34	17	12.24
June 2	12.66	Aug. 4	12.73	29	12.26	24	12.34
9	12.69	11	12.67	Oct. 6	12.10	Dec. 1	12.43
16	12.12	18	12.74	13	12.24	8	12.61
23	12.65	25	12.66	20	12.19	15	12.49
30	12.56	31	12.74	27	11.34	22	12.64
July 7	12.68	Sept. 1	12.73	31	12.27	29	12.54
14	12.51	7	12.67	Nov. 3	12.34	31	12.50
21	12.67						

Hendry County

G138. Geological Survey, U. S. Dept. of Interior. On Big Cypress Indian Reservation, in SW¼SW¼ sec. 12 (?), T. 48 S., R. 33 E., 35.4 miles along Devil's Garden Road south of State Highway 25. Driven and dug well, diameter 8 inches, depth 11.7 feet. Well installed Jan. 15, 1941, and reconditioned May 18, 1943. Measuring point beginning May 18, 1943, metal angle fastened to wooden bracket on side of tape-gage shelter, 0.51 foot above top of 8-inch metal flange to which shelter is mounted directly and 2.50 feet above land-surface datum.

Water level, in feet below land-surface datum, 1941-43

Date	Water level	Date	Water level	Date	Water level
Jan. 6, 1941	0.30	Nov. 21, 1941	0.92	Aug. 17, 1942	1.88
24	.40	28	.98	24	.91
Mar. 6	.67	Dec. 5	1.14	29	.88
13	.55	12	1.29	Sept.23	1.09
19	.76	19	1.25	30	.84
25	.54	26	1.18	Oct. 2	.70
31	.55	31	1.42	Nov. 22	1.90
Apr. 7	.30	Jan. 7, 1942	1.38	30	2.21
14	.43	14	1.52	Dec. 3	2.32
18	.53	21	1.48	10	2.22
23	.80	28	1.81	15	2.24
May 20	1.15	Feb. 5	2.08	Jan. 14, 1943	2.95
26	1.18	12	2.19	21	3.06
31	1.52	19	2.37	28	3.16
June 7	2.06	26	1.44	Feb. 5	3.28
14	1.42	Mar. 3	1.09	12	3.37
21	1.22	10	1.10	19	3.50
28	1.08	17	1.19	26	3.52
July 4	.39	24	1.50	Mar. 1	3.57
11	.16	31	1.26	8	3.70
18	.26	Apr. 7	2.06	15	3.82
25	.22	14	2.49	22	3.96
31	.45	21	2.28	29	4.12
Aug. 7	.38	28	2.76	Apr. 5	3.74
14	.60	May 5	3.03	12	3.43
21	.72	12	3.33	17	3.34
28	1.08	19	2.46	24	3.07
Sept. 5	1.44	26	2.75	30	3.44
12	1.20	31	1.38	May 7	3.81
19	1.52	June 7	.35	14	4.12
26	.91	14	.29	18	4.37
Oct. 3	.90	20	.37	21	1.97
10	.82	30	.49	28	2.47
17	1.11	July 7	.76	June 5	1.80
24	.78	14	.97	12	2.31
31	.90	21	1.33	19	2.88
Nov. 7	.56	25	1.16	26	1.16
14	.65	Aug. 10	1.99	July 5	.75

G138. Geological Survey, U. S. Dept. of Interior--Continued.

Water level, in feet below land-surface datum, 1941-43

Date	Water level	Date	Water level	Date	Water level
July 12, 1943	0.81	Sept. 5, 1943	0.65	Nov. 1, 1943	0.77
17	.64	12	.05	8	.84
25	.49	19	.46	Dec. 3	.90
31	.75	26	.64	9	1.01
Aug. 7	.81	Oct. 3	.54	16	.88
14	.82	10	a .11	27	1.18
21	.71	17	.39	31	1.28
28	.25	24	.61		

G299. Geological Survey, U. S. Dept. of Interior. SW¼SW¼ sec. 22, T. 44 S., R. 32 E., on east side of Devil's Garden Road, 7.9 miles south of State Highway 25. Driven well, diameter 2 inches, depth 6 feet. Measuring point, top of casing, 1.8 feet above land-surface datum. Not leveled in to mean sea level. Well installed June 17, 1941.

Water level, in feet below land-surface datum, 1941-43

July 1, 1941	0.74	June 30, 1942	0.79	Mar. 25, 1943	3.41
31	.54	July 29	1.42	May 3	3.13
Aug. 3	.70	Aug. 31	1.16	18	3.52
30	1.05	Sept. 30	.71	26	3.12
Dec. 2	1.58	Oct. 30	1.96	June 24	1.66
Jan. 2, 1942	1.63	Nov. 25	2.78	July 29	1.16
29	1.69	Dec. 29	2.61	Sept. 4	1.79
Feb. 27	1.54	Jan. 14, 1943	2.82	Oct. 7	1.32
Mar. 29	1.59	27	2.76	Nov. 5	2.66
May 2	1.79	Feb. 25	3.22	26	2.79
June 5	.59	Mar. 17	3.39	Dec. 30	3.28

Highlands County

1 (*773-C, pp. 168, 179). Young Men's Christian Association, Miami. (Formerly owned by Brighton Valley Hotel.) At Brighton, about 17 miles west of Okeechobee, on southeast side of State Highway 8, in pump house. Used drilled domestic well, diameter 6 inches, depth 640 feet. Measuring point Feb. 15, 1934, top of 3/4-inch faucet, 4 feet above land-surface datum. Measuring point beginning July 14, 1942, top of 6-inch tee, 3.00 feet above land-surface datum and about 35 feet above mean sea level. Water levels, in feet above land-surface datum: Feb. 15, 1934, 21.9; July 14, 1942, 23.4; Oct. 19, 1943, 23.7.

Leon County

36. Dawkins Pond Church. Near north line of SE¼SW¼ sec. 30, T. 3 N., R. 2 E., in front of church, 70 feet west of U. S. Highway 319, 14.8 miles northeast of Tallahassee. Unused dug domestic well, depth 30 feet. Bench mark 36, top of nail driven in north side of base of 48-inch oak tree, 150 feet south-southeast of well. Measuring point, top of 1¼-inch pipe inside of stone well curbing, 0.31 foot above bench mark 36 and 2.00 feet above land-surface datum, and about 107 feet above mean sea level.

Water level, in feet below land-surface datum, 1935-37, 1942-43

Dec. 20, 1935	20.86	Mar. 17, 1936	12.14	July 16, 1936	20.44
27	20.14	24	13.01	20	20.49
Jan. 3, 1936	20.29	Apr. 6	14.95	27	20.76
20	19.94	20	14.86	Aug. 3	20.82
27	19.74	27	16.02	17	21.31
Feb. 10	16.19	May 12	16.84	24	21.52
14	15.14	25	17.74	31	21.97
17	14.73	June 1	17.74	Sept. 14	22.64
24	13.09	10	18.34	Oct. 5	23.01
Mar. 2	11.74	24	19.29	12	22.42
12	11.59	July 3	20.84	26	22.81

a Water level in feet above land-surface datum.

36. Dawkins Pond Church--Continued.

Water level, in feet below land-surface datum, 1935-37, 1942-43

Date	Water level	Date	Water level	Date	Water level
Nov. 2, 1936	23.21	Mar. 31, 1937	7.18	Aug. 11, 1943	18.81
16	23.59	Apr. 7	7.74	18	19.39
30	23.81	14	8.49	Sept. 1	20.03
Dec. 22	24.19	21	8.67	8	20.41
Feb. 8, 1937	25.24	28	8.99	14	20.91
Mar. 2	24.24	May 5	9.79	22	21.39
19	24.89	12	9.79	29	21.61
Apr. 2	23.79	19	10.31	Oct. 6	21.91
26	21.29	20	10.39	14	22.49
May 8	16.49	26	10.76	20	22.56
24	16.52	June 2	11.54	27	22.90
June 9	16.54	9	12.77	Nov. 3	23.19
July 31, 1942	12.34	16	13.47	10	23.54
Aug. 31	9.94	23	14.47	17	23.90
Sept. 30	5.18	30	15.02	24	24.30
Oct. 31	9.91	July 7	15.63	Dec. 1	24.65
Nov. 30	13.07	21	17.09	9	24.90
Dec. 31	14.89	28	17.65	15	25.50
Jan. 31, 1943	12.50	Aug. 4	18.30	28	25.61
Mar. 1	12.97				

Manatee County

92. James T. Waterbury. In Waterbury, in SE¼SE¼ sec. 9, T. 35 S., R. 20 E., on west side of State Highway 161. Unused drilled domestic well, diameter 5 inches, depth 600 feet. Measuring point, top of casing, 1.00 foot above land-surface datum and 80.38 feet above mean sea level. Records furnished by J. G. Kimmel, of the Palmer Corporation.

Water level, in feet below land-surface datum, 1941-43

Date	Water level	Date	Water level	Date	Water level
June 6, 1941	38.29	Oct. 31, 1942	37.24	June 11, 1943	38.19
27	38.27	Nov. 6	37.54	25	37.76
July 1	38.09	13	37.83	July 2	37.65
19	37.82	20	38.11	9	37.26
Aug. 10	37.03	28	38.12	16	37.25
23	37.28	Dec. 4	38.06	23	37.12
Sept. 4	36.96	Jan. 8, 1943	37.49	30	37.08
10	37.00	23	37.48	Aug. 6	36.89
19	36.75	Feb. 5	37.57	13	36.75
26	36.66	12	37.93	20	36.36
Oct. 4	36.74	19	38.20	27	36.40
14	36.88	26	38.11	Sept. 3	36.23
24	37.02	Mar. 5	38.18	10	36.22
Nov. 5	36.80	12	37.96	24	36.02
22	36.88	19	37.76	Oct. 1	35.92
Dec. 6	36.89	26	37.62	8	35.94
Jan. 17, 1942	36.63	Apr. 2	37.63	15	35.90
Mar. 13	36.81	9	37.63	22	36.27
Apr. 24	37.17	16	38.09	29	36.42
May 22	37.49	23	38.12	Nov. 5	36.46
June 6	37.38	30	38.28	12	36.79
July 3	37.01	May 7	38.40	19	36.85
17	36.98	14	36.80	26	37.04
Sept. 4	36.30	21	38.55	Dec. 3	37.18
18	36.30	28	38.47	10	37.16
Oct. 16	36.63	June 4	38.38		

Marion County

5 (*817, p. 32; 840, p. 52; 845, p. 50; 886, p. 67; 907, p. 25; 937, p. 19; 945, p. 18). Sec. 11, T. 15 S., R. 23 E., about 8 miles east of Ocala, on east side of Oklawaha River and north side of road that crosses river at Sharpes Ferry. Measuring point, top of 6-inch casing, 3.00 feet above land-surface datum and 42.53 feet above mean sea level.

Water level, in feet above land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 2	10.3	Apr. 3	8.4	July 3	7.3	Oct. 2	10.4
9	9.9	10	8.4	10	7.4	9	10.3
16	9.8	17	8.1	17	7.5	16	10.3
23	9.6	24	8.3	24	7.8	23	10.0
30	9.6	May 1	8.0	31	7.3	30	9.8
Feb. 6	9.5	8	7.9	Aug. 7	8.1	Nov. 6	9.6
13	9.2	15	7.7	14	8.3	13	9.5
20	9.2	22	7.7	21	8.8	20	9.4
27	8.9	29	7.6	28	9.5	27	9.3
Mar. 6	9.0	June 5	7.5	Sept. 4	9.9	Dec. 4	9.0
13	9.1	12	7.4	11	10.0	11	9.1
20	8.9	19	7.4	18	10.1	18	8.7
27	8.8	26	7.3	25	10.3	25	8.7

Nassau County

2 (*907, p. 17; 937, p. 14; 945, p. 19). G. G. Gerbing. In Amelia City, 5.5 miles south of Fernandina, at residence of owner, in southeast corner of pumphouse. Measuring point is 1.00 foot above land-surface datum and 10.98 feet above mean sea level. No measurements made in 1943.

8 (*907, p. 17; 937, p. 14; 945, p. 19). Charles Pelot. Near SE. corner of NE¼ sec. 1, T. 1 N., R. 28 E., about 400 feet from ocean, in rear of beach cottages, 1.1 miles south of Franklintown, 8.9 miles south of Fernandina. Measuring point is 1.80 feet above land-surface datum and 15.50 feet above mean sea level. No measurements made in 1943.

23 (*907, p. 17; 937, p. 14; 945, p. 19). National Park Service. U. S. Dept. of Interior. About 1,000 feet northwest of end of south jetty to St. Marys Entrance, 2.6 miles northeast of Fernandina. Measuring point is 2.80 feet above land-surface datum and 10.62 feet above mean sea level. No measurements made in 1943.

28 (*907, p. 17; 937, p. 14; 945, p. 19). State of Florida. At Kingsley Greek drawbridge, about 50 feet east of Kingsley Creek, 50 feet north of State Highway 13, and 3.2 miles southwest of Fernandina. Measuring point is 2.80 feet above land-surface datum and 8.80 feet above mean sea level. Measurements discontinued.

34 (*907, p. 17; 937, p. 15; 945, p. 19). W. L. Hardee. At Hardee dock, about 150 feet east of Amelia River, 0.3 mile southwest of Fernandina. Measuring point is 2.00 feet above land-surface datum and 5.79 feet above mean sea level. No measurements made in 1943.

44 (*907, p. 17; 937, p. 15; 945, p. 19). Seaboard Railway. At Seaboard Railway station, at Yulee, south of pump house near elevated tank. Measuring point is 1.40 feet above land-surface datum and 36.40 feet above mean sea level. No measurements made in 1943.

50 (*907, p. 18; 937, p. 15; 945, p. 19). Mr. 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 mile east of Italia. Measuring point is 1.20 feet above land-surface datum and 18.99 feet above mean sea level. No measurements made in 1943.

51 (*907, p. 18; 937, p. 15; 945, p. 19). Drew Sauls. In Callahan, near SW. corner NW¼ sec. 29, T. 2 N., R. 25 E. Measuring point is 1.00 foot above land-surface datum and 19.8 feet above mean sea level. No measurements made in 1943.

52 (*907, p. 18; 937, p. 15; 945, p. 19). Civilian Conservation Corps. NW¼SW¼ sec. 15, T. 3 N., R. 24 E., on site of former Civilian Conservation Corps camp, about 500 feet east of U. S. Highway 1, 1.4 miles southeast of Hilliard. Measuring point is 0.50 foot above land-surface datum and 61.99 feet above mean sea level. No measurements made in 1943.

Orange County

47 (*773-C, pp. 171, 184). Orange County. Near SE. corner NE¼NE¼ sec. 10, T. 22 S., R. 28 E., at edge of sink, on west side of State Highway 413, about 1 mile northwest of Orlo Vista. Unused drilled drainage well, diameter 8 to 6 inches, depth 350 feet, cased to 328 feet. Measuring point, top of 8-inch casing, 10.00 feet above land-surface datum and 82.12 feet above mean sea level. Water-stage recorder installed July 31, 1943.

Water level, in feet with reference to land-surface datum, 1930-33

Date	Water level	Date	Water level	Date	Water level
Sept. 1930	+8.	July 29, 1931	+4.30	Mar. 8, 1932	-3.45
July 9, 1931	+4.	Aug. 9	+4.00	Apr. 5	-4.06
14	+4.5	12	+3.9	June 16	-2.96
15	+4.5	13	+3.8	July 14	-3.95
17	+4.33	16	+3.9	Sept. 9	-1.5
19	+4.25	Jan. 6, 1932	-1.75	Nov. 18	-4.48
22	+4.26	Feb. 9	-2.89	May 10, 1933	-8.0

Highest and lowest daily water level, in feet below land-surface datum, 1943
(From recorder charts)

Day	August		September		October		November		December	
	High	Low	High	Low	High	Low	High	Low	High	Low
1	6.28	6.32	5.71	5.75	....	....	3.10	3.13	3.80	3.85
2	6.24	6.35	5.72	5.77	....	....	3.11	3.13	3.80	3.83
3	6.13	6.23	5.76	5.83	....	....	3.12	3.14	3.82	3.85
4	6.10	6.15	5.81	5.85	....	....	3.12	3.15	3.82	3.88
5	6.14	6.18	5.82	5.85	....	....	3.13	3.18	3.79	3.87
6	6.18	6.20	5.76	5.84	....	....	3.18	3.23	3.85	3.88
7	6.19	6.22	5.44	5.78	....	....	3.20	3.25	3.85	3.90
8	6.20	6.24	4.62	5.43	....	....	3.19	3.27	....	....
9	6.23	6.28	4.50	4.61	....	....	3.26	3.33	....	....
10	6.28	6.32	4.55	4.74	....	....	3.31	3.37	....	....
11	6.32	6.33	....	....	....	....	3.35	3.41	....	....
12	6.33	6.33	....	....	....	....	3.37	3.42	....	....
13	6.34	6.38	....	....	....	....	3.41	3.48	....	....
14	6.26	6.37	....	....	....	....	3.47	3.50	....	....
15	6.03	6.27	....	....	....	....	3.45	3.50	....	....
16	5.97	6.02	....	....	....	....	3.42	3.46	....	....
17	5.97	5.98	....	....	....	....	3.44	3.55	....	....
18	5.98	6.01	....	....	....	....	3.54	3.57	....	....
19	5.99	6.02	....	....	....	....	3.55	3.58	....	....
20	5.99	6.01	....	....	....	....	3.57	3.60	....	....
21	5.76	5.99	....	....	2.58	2.63	3.60	3.63	....	....
22	5.54	5.76	....	....	2.63	2.67	3.62	3.67	....	....
23	5.55	5.61	....	....	2.67	2.73	3.66	3.71	....	....
24	5.59	5.69	....	....	2.70	2.76	3.69	3.81	....	....
25	5.67	5.74	....	....	2.68	2.75	3.76	3.81	....	....
26	5.72	5.77	....	....	2.74	2.84	3.73	3.82	....	....
27	5.73	5.79	....	....	2.82	2.91	3.75	3.82	....	....
28	5.75	5.81	....	....	2.90	3.02	3.72	3.79	....	....
29	5.77	5.85	....	....	3.00	3.05	3.62	3.72	....	....
30	5.81	5.89	....	....	3.00	3.05	3.72	3.81	....	....
31	5.71	5.83	....	....	3.04	3.10	....	....	....	....

Palm Beach County

G300. Geological Survey, U. S. Dept. of Interior. On Loxahatchee Farms, at Loxahatchee, in sec. 32 (?), T. 43 S., R. 41 E., 500 feet northwest of rain-gaging station, about 0.2 mile north of West Palm Beach Canal, and 0.2 mile east of lateral canal emptying into West Palm Beach Canal. Driven well, diameter 2 inches, depth 7.8 feet. Measuring point, top of casing, 3.5 feet above land-surface datum. Well installed June 3, 1941.

Water level, in feet below land-surface datum, 1941-43

Date	Water level	Date	Water level	Date	Water level
July 7, 1941	2.18	May 4, 1942	2.31	Mar. 6, 1943	4.86
14	.80	11	2.91	13	4.65
21	.90	18	2.93	20	4.97
28	1.88	25	3.40	27	5.10
Aug. 4	2.16	June 1	2.85	Apr. 3	4.98
11	3.08	8	a .12	10	5.18
18	2.45	15	.22	17	5.06
25	3.03	22	.45	24	5.06
Sept. 1	3.57	29	1.59	May 1	5.32
8	3.88	July 6	2.33	8	5.33
15	3.86	13	2.88	15	5.03
22	a .72	20	3.09	22	4.73
29	.47	27	2.96	29	4.62
Oct. 6	1.20	Aug. 3	3.35	June 5	4.58
13	1.71	10	3.47	12	4.93
20	a .17	17	3.55	19	4.86
27	1.57	24	3.84	26	4.62
Nov. 3	2.35	29	3.72	July 3	4.50
10	2.47	Sept. 5	.53	10	5.30
17	2.50	12	1.90	17	5.24
24	3.18	19	2.95	24	5.40
Dec. 1	3.52	26	3.33	31	4.98
8	3.76	Oct. 3	3.54	Aug. 7	5.02
15	3.87	17	3.23	14	5.57
22	3.98	24	7.02	21	4.78
29	4.12	31	2.66	28	3.66
Jan. 5, 1942	4.08	Nov. 7	3.46	Sept. 4	4.48
12	3.68	14	3.78	11	3.30
19	3.78	21	4.02	18	2.50
26	3.52	28	4.17	25	3.88
Feb. 2	3.88	Dec. 5	4.35	Oct. 2	2.17
9	4.16	12	4.41	9	1.48
16	4.30	19	4.45	16	1.91
23	3.41	26	4.55	23	3.26
Mar. 2	3.48	Jan. 2, 1943	4.70	30	4.14
9	4.31	9	4.85	Nov. 6	4.03
16	2.81	16	5.00	13	3.26?
23	2.80	23	4.95	20	2.37
30	3.40	30	4.50	27	2.92
Apr. 6	2.94	Feb. 6	4.46	Dec. 4	3.62
13	3.70	13	4.68	11	3.90
20	a .10	20	4.95	18	4.12
27	1.48	27	4.57	25	4.32

S1042 (*945, pp. 47-48). Lake Worth Drainage District. NW¼NE¼ sec. 22, T. 46 S., R. 42 E. In pasture, 0.2 mile south of Delray road (Atlantic Avenue) and 1.05 miles west of Lake Worth Drainage District equalizing canal 3. Measuring point is 5.4 feet above land-surface datum.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 1	2.22	Jan. 28	2.48	Mar. 4	3.35	Apr. 8	3.52
8	2.51	Feb. 4	2.66	11	2.95	15	3.56
14	2.71	11	2.99	18	3.23	22	3.62
21	2.88	18	3.19	25	3.28	29	3.75
27	3.06	25	3.25	Apr. 1	3.41	May 6	3.90

a Water level in feet above land-surface datum.

S1042. Lake Worth Drainage District--Continued.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
May 13	3.96	July 16	2.43	Sept. 9	0.88	Oct. 30	2.00
20	3.91	18	1.32	11	1.30	Nov. 6	2.21
27	3.04	24	1.17	20	1.83	16	2.38
June 4	3.39	31	1.94	24	1.36	21	.97
10	3.57	Aug. 7	1.84	28	.48	27	1.70
17	3.81	14	2.24	30	.95	Dec. 4	2.00
25	2.93	21	2.40	Oct. 5	.79	11	2.18
28	2.22	28	1.73	10	.56	18	1.86
July 1	2.63	30	1.10	16	1.37	24	2.26
8	2.87	Sept. 4	1.95	23	1.76	31	2.30
10	1.69						

S1140 (*945, p. 48). Town of Boca Raton. SE¼SE¼ sec. 19, T. 47 S., R. 43 E., about 250 feet west of water tank at Boca Raton water plant. Recorder removed Aug. 8, 1943, when it was discovered that well was partially plugged; the resulting water level as measured may not be representative of actual conditions, as there is always a lag. Measuring point is 0.9 foot above land-surface datum.

Water level, in feet below land-surface datum, 1943

Jan. 1	15.10	Feb. 26	15.98	Apr. 26	16.11	June 18	16.28
8	15.22	Mar. 5	16.09	May 2	16.23	July 10	15.90
15	15.38	13	15.92	16	16.30	16	15.73
22	15.51	21	15.60	23	16.18	24	15.10
29	15.60	26	15.62	28	16.15	30	15.18
Feb. 5	15.66	30	15.65	June 5	16.12	Aug. 8	14.00
12	15.76	Apr. 5	15.84	12	16.18	14	15.17
19	15.86	11	16.00				

St. Johns County

2 (*907, p. 18; 937, p. 15; 945, p. 19). P. J. Manucy. At Vilano Beach, on east side of North River, about 150 feet north of Vilano Bridge, 1.9 miles northeast of St. Augustine. Measuring point is 2.70 feet above land-surface datum and 8.79 feet above mean sea level. No measurements made in 1943.

3 (*907, p. 18; 937, p. 15; 945, p. 20). Francis Usina. At Usina's Beach, on east side of North River, 2.4 miles north of Vilano Bridge, 4.0 miles north of St. Augustine. Measuring point is 1.10 feet above land-surface datum and 7.65 feet above mean sea level. No measurements made in 1943.

4 (*907, p. 19; 937, p. 15; 945, p. 20). Mill Creek School. On northwest side of Nine Mile Road about 700 feet northeast of its intersection with State Highway 48, in rear of schoolhouse, 8.3 miles southeast of Shands Bridge. Measuring point is 0.50 foot above land-surface datum. and 27.24 feet above mean sea level. No measurements made in 1943.

5 (*907, p. 19; 937, p. 15; 945, p. 20). G. L. Oesterricker. On east side of Inland Waterways Canal, on north side of State Highway 306, 3.2 miles south of Palm Valley, in rear of owner's residence. Measuring point is 1.20 feet above land-surface datum and 5.73 feet above mean sea level. No measurements made in 1943.

8 (*907, p. 19; 937, p. 15; 945, p. 20). Parish Bros. Near SW. corner of NE¼NE¼ sec. 4, T. 5 S., R. 28 E., 0.5 mile southwest of Florida East Coast Railway, 2.5 miles southeast of Bayard. Measuring point is 3.00 feet above land-surface datum and 20.77 feet above mean sea level. No measurements made in 1943.

Sarasota County

5 (*945, p. 20). Designated as well 46 in Florida Geol. Survey 23d-24th Ann. Rept. (combined). R. M. Canty. SE¼NE¼ sec. 19, T. 36 S., R. 20 E., about 300 feet south of State Highway 18, about 12 miles east of Sarasota. Measuring point is level with land-surface datum and 43.60 feet above mean sea level. Water-stage recorder maintained on well since Nov. 15, 1941. Records furnished by J. G. Kirmel, of the Palmer Corporation.

Highest and lowest daily water level, in feet below land-surface datum, 1943
(From recorder charts)

Day	January		February		March		April		May		June	
	High	Low	High	Low	High	Low	High	Low	High	Low	High	Low
1	5.10	5.18	5.18	5.27	5.49	5.56	5.10	5.22	....	....	5.56	5.66
2	5.10	5.18	5.17	5.29	5.45	5.56	5.07	5.20	....	....	5.52	5.62
3	5.07	5.18	5.18	5.29	5.38	5.60	5.10	5.27	....	....	5.52	5.61
4	5.07	5.17	....	....	5.26	5.42	5.24	5.33	....	....	....	....
5	5.10	5.21	....	....	5.26	5.37	5.18	5.33	....	....	5.55	5.63
6	5.08	5.21	5.18	5.30	5.35	5.41	5.16	5.24	....	....	5.53	5.59
7	5.02	5.18	5.30	5.40	5.34	5.42	5.21	5.28	....	....	5.53	5.57
8	4.99	5.11	5.36	5.42	5.27	5.36	5.21	5.27	5.66	5.72	5.55	5.57
9	5.02	5.07	5.36	5.39	5.21	5.27	5.19	5.23	5.71	5.77	5.49	5.56
10	5.07	5.11	5.37	5.39	....	....	5.16	5.21	5.73	5.76	5.46	5.51
11	5.10	5.16	5.38	5.49	....	....	5.19	5.27	5.69	5.73	5.42	5.48
12	5.11	5.16	5.49	5.56	....	....	5.23	5.27	5.64	5.70	5.37	5.46
13	5.01	5.14	5.47	5.55	....	....	5.22	5.30	5.67	5.76	5.35	5.43
14	5.00	5.07	5.46	5.64	....	....	5.27	5.42	5.72	5.79	5.33	5.43
15	4.97	5.06	5.62	5.70	5.20	5.28	5.41	5.54	5.74	5.84	5.26	5.40
16	4.98	5.06	5.65	5.71	5.17	5.26	5.45	5.55	5.78	5.87	5.23	5.36
17	4.99	5.07	5.70	5.81	5.15	5.24	5.42	5.52	5.74	5.87	5.25	5.36
18	4.96	5.06	5.72	5.80	5.16	5.26	5.32	5.49	5.74	5.83	5.20	5.32
19	4.98	5.11	5.68	5.81	5.16	5.26	5.24	5.37	5.74	5.83	5.22	5.30
20	5.07	5.15	5.61	5.77	5.12	5.24	5.35	5.45	5.75	5.84	5.18	5.27
21	5.01	5.15	5.58	5.70	5.02	5.21	5.42	5.52	5.70	5.83	5.05	5.21
22	5.00	5.08	5.53	5.63	5.10	5.26	5.42	5.50	5.70	5.77	5.00	5.07
23	5.01	5.08	5.48	5.54	5.25	5.32	5.38	5.47	5.69	5.73	4.96	5.00
24	5.01	5.05	5.54	5.60	5.20	5.31	5.34	5.39	5.64	5.69	4.95	5.00
25	5.03	5.06	5.57	5.61	5.14	5.23	5.34	5.40	5.60	5.64	4.93	5.00
26	5.02	5.06	5.53	5.57	5.05	5.15	5.38	5.47	5.59	5.66	4.76	4.93
27	5.00	5.07	5.54	5.64	5.00	5.05	5.45	5.53	5.65	5.74	4.61	4.76
28	....	....	5.53	5.63	5.00	5.08	5.48	5.54	5.65	5.73	4.59	4.68
29	....	....	....	....	5.08	5.23	5.48	5.56	5.59	5.71	4.61	4.70
30	5.14	5.25	....	....	5.19	5.26	5.50	5.61	5.57	5.66	4.63	4.72
31	5.19	5.27	....	....	5.13	5.25	....	....	5.59	5.67	....	....

Highest and lowest daily water level, in feet below land-surface datum, 1943
(From recorder charts)

Day	July		August		September		October	
	High	Low	High	Low	High	Low	High	Low
1	4.67	4.77	4.27	4.36	3.62	3.71	3.50	3.62
2	4.69	4.80	4.18	4.33	3.55	3.68	3.29	3.54
3	4.57	4.77	4.11	4.20	3.58	3.64	3.25	3.32
4	4.54	4.63	4.11	4.17	3.62	3.67	3.30	3.38
5	4.54	4.59	4.12	4.19	3.63	3.67	3.38	3.45
6	4.57	4.62	4.11	4.14	3.58	3.67	3.41	3.46
7	4.57	4.62	4.07	4.11	3.57	3.62	3.34	3.42
8	4.57	4.60	4.04	4.07	3.44	3.61	3.37	3.46
9	4.47	4.59	4.03	4.07	3.44	3.51	3.39	3.49
10	4.47	4.52	4.01	4.08	3.48	3.58	3.43	3.58
11	4.49	4.56	4.00	4.09	3.48	3.59	3.51	3.62
12	4.52	4.59	3.96	4.09	3.43	3.57	3.55	3.63
13	4.44	4.61	3.96	4.07	3.44	3.55	3.53	3.63
14	4.46	4.56	3.90	4.02	3.50	3.60	3.54	3.62
15	4.47	4.57	3.78	3.94	3.55	3.63	3.53	3.62
16	4.48	4.57	3.73	3.81	3.51	3.64	....	....
17	4.53	4.64	3.76	3.85	....	....	....	....

5. R. M. Canty--Continued.

Highest and lowest daily water level, in feet below land-surface datum, 1943
(From recorder charts)

Day	July		August		September		October	
	High	Low	High	Low	High	Low	High	Low
18	4.52	4.64	3.80	3.88	....	.....	....	....
19	4.50	4.59	3.67	3.82	....	....	....	....
20	4.44	4.56	3.69	3.84	....	....	....	....
21	4.46	4.50	3.70	3.74	....	....	....	....
22	4.41	4.48	3.69	3.74	....	....	....	....
23	4.37	4.46	3.66	3.73	....	....	....	....
24	4.37	4.41	3.65	3.73	....	....	....	....
25	4.37	4.43	3.67	3.75	3.44	3.53	....	....
26	4.39	4.47	3.66	3.78	3.49	3.61	....	....
27	4.36	4.45	....	....	3.56	3.65	....	....
28	4.26	4.44	3.58	3.71	3.59	3.69	....	....
29	4.29	4.38	3.61	3.70	3.62	3.70	....	....
30	4.31	4.40	3.64	3.74	3.58	3.69	....	....
31	4.30	4.39	3.65	3.72	....	....	....	....

9 (*945, p. 22). Designated as well P-100 in Florida Geol. Survey 23rd-24th Ann. Rept. (combined). Palmer Corporation. At Palmer Farms, near SE. corner of SW¼SE¼ sec. 20, T. 36 S., R. 19 E., about 7 miles east of Sarasota. Measuring point is 6.00 feet above land-surface datum and 39.56 feet above mean sea level. Water-stage recorder maintained on well Sept. 27, 1930, to Apr. 6, 1937, and since Nov. 15, 1941. Records furnished by J. G. Kimmel, of the Palmer Corporation.

Highest and lowest daily water level, in feet with reference to land-surface datum, 1943
(From recorder charts)

Day	January		February		March		April		May		June	
	High	Low	High	Low	High	Low	High	Low	High	Low	High	Low
1	-0.31	-0.48	-1.65	-1.81	-1.84	-2.06	-1.89	-1.98	-1.98	-2.10	-1.55	-1.63
2	-.45	-.54	-1.76	-2.15	-1.90	-2.07	-1.92	-2.03	-2.00	-2.18	-1.50	-1.58
3	-.46	-.56	-2.05	-2.25	-.83	-1.90	-1.98	-2.26	-2.13	-2.23	-1.53	-1.61
4	-.49	-.98	-2.04	-2.24	-.56	-.94	-2.21	-2.31	-1.97	-2.16	-1.57	-1.65
5	-.99	-1.48	-2.10	-2.21	-.38	-.73	-2.17	-2.25	-1.98	-2.07	-1.62	-1.69
6	-1.31	-1.53	-2.00	-2.23	-.30	-.57	-2.14	-2.20	-2.05	-2.15	-1.60	-1.67
7	-1.39	-1.54	-2.04	-2.26	-.21	-.32	-2.20	-2.26	-2.08	-2.13	-1.57	-1.61
8	-1.43	-1.54	-2.26	-2.37	-.08	-.30	-2.21	-2.26	-2.12	-2.15	-1.57	-1.60
9	-1.45	-1.61	-2.33	-2.45	-.05	-.12	-2.15	-2.25	-2.11	-2.15	-1.57	-1.60
10	-1.61	-1.66	-2.40	-2.46	-.03	-.16	-2.15	-2.28	-2.08	-2.12	-1.55	-1.57
11	-1.66	-1.83	-2.32	-2.46	-.15	-.50	-2.28	-2.36	-2.02	-2.13	-1.51	-1.55
12	-1.82	-1.92	-2.31	-2.52	-.51	-1.19	-2.21	-2.35	-1.98	-2.07	-1.41	-1.53
13	-1.50	-1.91	-2.52	-2.64	-1.20	-1.46	-1.95	-2.21	-1.96	-2.07	-1.38	-1.45
14	-1.41	-1.50	-2.48	-2.58	-1.47	-1.60	-1.89	-2.25	-1.87	-2.05	-1.38	-1.48
15	-1.38	-1.52	-2.55	-2.74	-1.56	-1.64	-2.20	-2.32	-1.90	-2.08	-1.32	-1.43
16	-1.42	-1.51	-2.65	-2.79	-1.60	-1.68	-2.27	-2.35	-1.92	-2.08	-1.21	-1.38
17	-1.40	-1.49	-2.62	-2.74	-1.64	-1.78	-2.26	-2.35	-1.90	-2.00	-1.17	-1.31
18	-1.40	-1.46	-2.68	-2.78	-1.70	-1.81	-2.17	-2.32	-1.87	-1.97	-1.10	-1.21
19	-1.35	-1.52	-2.64	-2.78	-1.65	-1.78	-1.84	-2.15	-1.85	-1.92	-1.11	-1.20
20	-1.49	-1.80	-2.65	-2.78	-1.66	-1.75	-1.62	-1.85	-1.86	-1.93	-1.11	-1.17
21	-1.75	-1.85	-2.58	-2.69	-1.37	-1.76	-1.62	-1.90	-1.81	-1.89	-1.00	-1.15
22	-1.80	-1.85	-2.26	-2.63	-1.23	-1.51	-1.87	-1.93	-1.79	-1.85	-.85	-1.02
23	-1.84	-1.88	-1.91	-2.25	-1.51	-1.64	-1.87	-1.93	-1.77	-1.82	-.82	-.85
24	-1.86	-1.91	-1.88	-1.91	-1.63	-2.01	-1.71	-1.90	-1.70	-1.77	-.81	-.95
25	-1.91	-2.00	-1.84	-1.90	-1.98	-2.05	-1.80	-1.91	-1.68	-1.72	-.94	-.99
26	-2.00	-2.04	-1.70	-1.84	-1.81	-2.00	-1.83	-1.91	-1.69	-1.75	-.79	-.95
27	-1.90	-2.03	-1.73	-2.00	-1.70	-1.82	-1.89	-1.97	-1.67	-1.71	-.70	-.80
28	-1.62	-1.90	-1.81	-1.97	-1.78	-1.82	-1.91	-2.12	-1.64	-1.72	-.72	-.85
29	-1.60	-1.62	.....	.....	-1.75	-1.83	-2.00	-2.17	-1.61	-1.70	-.80	-.89
30	-1.61	-1.65	.....	.....	-1.80	-1.88	-2.04	-2.17	-1.59	-1.67	-.84	-.90
31	-1.62	-1.71	.....	.....	-1.83	-1.95	.....	.....	-1.57	-1.70	.....	.....

9. Palmer Corporation--Continued.

Highest and lowest daily water level, in feet with reference to land-surface datum, 1943
(From recorder charts)

Day	July		August		September		October		November		December	
	High	Low	High	Low	High	Low	High	Low	High	Low	High	Low
1	-0.55	-0.96	+0.15	+0.07	+1.16	+1.03	+0.16	+0.68	-1.25	-1.49	-1.30	-1.38
2	-.52	-.61	+.36	+.12	+1.08	+1.00	+.62	+.15	-1.49	-1.55	-1.34	-1.43
3	-.45	-.61	+.50	+.36	+1.13	+1.06	+.60	+.52	-1.52	-1.56	-1.44	-1.65
4	-.45	-.53	+.48	+.43	+1.08	+1.06	+.51	+.48	+1.42	-1.57	-1.64	-1.70
5	-.42	-.50	+.53	+.45	+1.09	+1.07	+.48	+.34	-1.36	-1.41	-1.64	-1.72
6	-.39	-.51	+.81	+.52	.....	.....	+.38	+.35	-1.38	-1.48	-1.59	-1.72
7	-.37	-.44	+.90	+.82	.....	.....	+.40	+.24	-1.42	-1.50	-1.50	-1.80
8	-.39	-.46	+.90	+.79	.....	.....	+.25	-.08	-1.39	-1.52	-1.78	-1.96
9	-.40	-.46	+.95	+.74	.....	.....	-.07	-.28	-1.28	-1.55	-1.73	-1.96
10	-.40	-.46	+.74	+.53	.....	.....	-.26	-.45	-1.50	-1.75	-1.66	-1.78
11	-.44	-.50	+.58	+.50	+1.32	+1.22	-.42	-.68	-1.67	-1.76	-1.60	-1.74
12	-.48	-.55	+.62	+.49	+1.37	+1.23	-.63	-.81	-1.68	-1.81	-1.66	-1.98
13	-.47	-.56	+.62	+.29	+1.58	+1.30	-.70	-.81	-1.78	-1.87	-1.96	-2.05
14	-.42	-.57	+.45	+.30	+1.56	+1.45	-.69	-.79	-1.80	-1.89	-2.02	-2.12
15	-.55	-.65	+.60	+.40	+1.49	+1.14	-.69	-.76	-1.74	-1.89	-1.55	-2.13
16	-.56	-.71	+.62	+.53	+1.15	+1.11	-.74	-.81	-1.55	-1.74	-1.48	-1.63
17	-.60	-.74	+.58	+.49	+1.16	+.90	-.82	-.87	-1.52	-1.64	-1.61	-1.70
18	-.65	-.78	+.55	+.47	.....	.....	-.87	-.93	-1.58	-1.65	-1.69	-1.88
19	-.58	-.65	+.58	+.40	.....	.....	-.92	-.96	-1.52	-1.64	-1.67	-1.85
20	-.42	-.65	+.63	+.49	.....	.....	-.96	-1.07	-1.48	-1.57	-1.68	-1.92
21	-.37	-.49	+.63	+.58	.....	.....	-1.07	-1.27	-1.45	-1.55	-1.77	-1.98
22	-.33	-.46	+.63	+.60	.....	.....	-1.27	-1.36	-1.42	-1.57	1.82	-2.13
23	-.27	-.40	+.66	+.60	.....	.....	-1.30	-1.39	-1.53	-1.66	-1.88	-2.12
24	-.22	-.28	+1.05	+.57	.....	.....	-1.22	-1.34	-1.55	-1.73	-1.92	-2.00
25	-.25	-.40	+1.08	+1.05	+.72	+.25	-1.13	-1.27	-1.69	-1.77	-1.75	-1.97
26	-.27	-.45	+1.17	+1.07	+.25	-.40	-1.17	-1.29	-1.67	-1.80	-1.68	-1.95
27	-.20	-.25	+1.20	+1.12	-.34	-.52	-1.10	-1.28	-1.68	-1.80	-1.64	-1.92
28	-.16	-.29	+1.22	+1.08	-.46	-.57	-1.24	-1.32	-1.54	-1.74	-1.62	-1.95
29	-.02	-.12	+1.20	+1.09	-.42	-.60	-1.24	-1.34	-1.37	-1.57	-1.62	-1.90
30	+.55	-.07	+1.18	+1.08	-.54	-.57	-1.29	-1.40	-1.33	-1.38	-1.87	-1.95
31	+.13	+.03	+1.18	+1.10	.....	.....	-1.22	-1.40	.....	.....	-1.91	-1.96

Seminole County

35 (*845, p. 51; 886, p. 68; 907, p. 25; 937, p. 19; 945, p. 20). C. S. Lee. Owner's well 1, on farm 3. SE¼NW¼ sec. 26, T. 20 S., R. 31 E., near edge of marsh bordering southeast side of Lake Jessup, 4.2 miles northeast of Oviedo. Measuring point is 3.50 feet above land-surface datum and 18.72 feet above mean sea level. Water levels, in feet above land-surface datum, 1943: Mar. 22, 19.80; May 8, 20.0; June 9, 20.1; July 30, 20.6.

GEORGIA

By M. A. Warren and S. M. Herrick

PROGRAM OF WORK

Measurements of water level and artesian pressure in selected wells in Georgia, begun in 1938 by the Geological Survey, United States Department of the Interior, in cooperation with the Department of Mines, Mining, and Geology of the Georgia State Division of Conservation, were continued in 1943. The observation-well program is carried on in connection with a general investigation, being made under the same cooperation, of ground-water conditions and resources in the State. In 1938 the program embraced wells in only three counties--Chatham, Dougherty, and Glynn--all three in the southern part of the State and two bordering the Atlantic Ocean. At the end of 1943 it included 231 wells in 29 counties, of which 7 counties are in the northern part of the State. Automatic water-stage recorders were maintained on 8 wells during the entire year of 1943 and on 4 wells during part of the year. During the year, also, 1,047 individual measurements of water level and artesian pressure were made on 218 wells not equipped with water-stage recorders. The measurements made in Baker and Early Counties were made by the Emory University Field Station, located 11 miles southwest of Newton; they form part of the hydrologic data collected by that station in connection with its research on malaria control. All these measurements and also readings of the recorders are given in the present report, and in addition, a few measurements made in some of the wells prior to 1943.

With the exception of Oconee County well 1, the 45 wells in the 7 northern counties were measured for the first time in 1943. They consist of 42 drilled and 2 dug wells, divided among the counties as follows: Clayton, 10; Cobb, 18; De Kalb, 2; Fulton, 12; Henry, 1; Oconee, 1; Spalding, 1. The city of Atlanta and its environs occupy parts of four of these counties.

The following table lists all counties in Georgia for which records of water-level measurements are given in this report and gives for each (1) the number of wells under observation at the end of 1943, (2) the number of measurements made in 1943 and (3) the number made prior to 1943 that are published in this report, and (4) the number of wells on which water-stage recorders were in operation throughout the year 1943 and (5) the number on which water-stage recorders were in operation during part of the year.

Distribution, by counties, of observation wells in Georgia, 1943

County	Number of wells at end of 1943	Tape measurements and pressure readings		Number of wells with recording gages in 1943	
		1943	Prior to 1943 published in this report	Throughout year	Part of year
Appling	1	1	0	0	0
Baker	10	153	0	0	0
Brantley	2	4	0	0	0
Bryan	27	53	6	0	0
Camden	17	42	0	0	0
Charlton	2	4	0	0	0
Chatham	60	255	7	6	1
Clayton	10	16	0	0	0
Cobb	18	29	0	0	0
Coffee	1	2	0	0	0
De Kalb	2	4	0	0	0
Dougherty	1	0	0	0	0
Early	3	73	0	0	0
Effingham	6	25	0	0	0
Evans	1	4	0	0	0
Fulton	12	28	0	0	1
Glynn	14	43	4	1	0
Henry	1	1	0	0	0
Liberty	14	46	2	0	0
Long	1	5	0	0	0
McIntosh	15	41	2	0	0
Mitchell	1	9	3	0	0
Montgomery	1	3	0	0	0
Oconee	1	0	0	1	0
Pierce	2	10	0	0	0
Screven	2	3	2	0	0
Spalding	1	0	0	0	1
Ware	1	5	0	0	0
Wayne	4	17	0	0	0
	231	876	26	8	3

Correction.--In Water-Supply Paper 945, on page 50, in the table corresponding to the above, Clarke County was listed as having 1 observation well, in which 21 measurements were made in 1942. This entry is in error. The well listed is at the Southern Piedmont Experiment Station and is actually in Oconee County, near the Clarke County line. The dates of the 21 measurements made in 1942 are given under Oconee County on page 81. This well is now equipped with a water-stage recorder.

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OCCURRENCE OF GROUND WATER

The geologic map of Georgia shows the State divided into three major geologic provinces, namely, the Paleozoic area, the crystalline area, and the Coastal Plain. The Paleozoic area, which is in the northwestern part of the State, is the smallest of the three, and no observation wells have been established in it. The crystalline area is considerably larger than the Paleozoic and lies south and east of it. Observation wells have been established in seven counties that lie in the crystalline area, but most of the wells are in the four counties in which the city of Atlanta and its environs are situated. The Coastal Plain is the largest of the three provinces and larger than the other two combined. It covers an area of about 35,000 square miles, or about 60 percent of the entire State. It embraces all that part of the State lying south of the Fall Line, which passes approximately through Columbus, Macon, Milledgeville, and Augusta, and marks the northern limit of the sedimentary rocks, which overlie the older crystalline rocks. More than 75 percent of the observation wells in Georgia are in this province. The Coastal Plain is underlain by water-bearing formations that range in age from upper Cretaceous to Recent.

The observation wells in the crystalline area of Georgia end in igneous and metamorphic rocks or surficial material weathered from them. Most of the observation wells in the Coastal Plain for which there are records end in limestones of Oligocene or upper Eocene age, which are the principal artesian aquifers in southeast Georgia. Chatham County well 343, a shallow well 12 miles southwest of Savannah, ends in deposits of Recent age and therefore serves to illustrate the fluctuation of the water table in formations of that age in this area.

FLUCTUATIONS OF WATER LEVEL

In wells in the crystalline area of Georgia, water levels fluctuate markedly from season to season with the precipitation. The water table therefore stands highest with respect to the surface of the ground during the months of April and May, when the precipitation is greatest, and lowest in December and January, when the precipitation is least. The fluctuations also differ from well to well, the proximity of the well to a main drainage channel and its position in relation to the topography of the surrounding country determining, in large measure, the fluctuations of its water level.

For example, in Fulton County well 31, which is near a perennial surface stream, the fluctuation in water level for the year was only 2.41 feet, whereas in well 26 in the same county, which is not near a surface stream, the fluctuation for the year was 4.3 feet. Again, in Fulton County well 77, which is in a broad valley, the fluctuation for the year was 4.1 feet, whereas in Cobb County well 36, which is on top of a fairly high hill, it was 14.5 feet, and this difference existed in spite of the fact that the two wells are near each other. Other factors responsible for differences in fluctuation from well to well are depth and method of construction: dug wells seem to respond much more sharply to seasonal precipitation than drilled wells.

In the Coastal Plain of Georgia, water levels in wells ending in the Ocala limestone, of upper Eocene age, declined during 1943, and in nearly all the wells the lowest water levels recorded since the first measurements were made, in 1939, were reached during the last half of the year. In the Savannah area, which includes the industrial area northeast of the city proper, artesian water levels averaged about 5½ feet lower during 1943 than during 1942. It is estimated that in 1943 the average daily pumpage in the Savannah area was 3½ to 4 million gallons more than the average daily pumpage in 1942. The following table lists the average water levels in Chatham County wells 8, 30, 50, 79, 84, 123, and 328 and the average daily metered pumpage in the Savannah area during 1943.

Average monthly water levels, in feet with reference to mean sea level, in wells in Chatham County and average daily metered pumpage, by months, in the Savannah area, 1943

Month	Well No.							Average daily metered pumpage (in millions of gallons)
	8	30	50	79	84	123	328	
January	-43.1	-43.3	-33.6	-32.0	-21.0	-3.45	+0.56	28.159
February	-44.7	-44.9	-34.1	-33.9	-21.7	-3.70	+.48	28.608
March	-45.0	-45.7	-35.5	-33.8	-23.1	-3.86	+.54	28.549
April	-45.4	-45.3	-35.2	-36.2	-24.4	-4.39	+.28	28.658
May	-47.2	-44.7	-35.4	-37.8	-25.2	-4.98	+.02	32.205
June	-51.4	-46.6	-36.2	-41.7	-26.7	-5.59	-.45	31.721
July	-53.8	-49.7	-39.4	-42.4	-27.6	-6.07	-.83	32.870
August	-56.4	-50.6	-40.3	-43.4	-28.7	-6.28	-.93	33.253
September	-55.2	-49.7	-39.0	-43.0	-28.0	-6.47	-.97	31.154
October	-55.3	-49.3	-39.4	-41.9	-26.8	-6.17	-.79	30.450
November	-54.7	-49.3	-38.8	-41.4	-26.8	-6.16	-.96	29.431
December	-53.3	-47.8	-38.6	-40.3	-25.6	-5.80	-.96	28.824
Average	-50.5	-47.2	-37.1	-39.0	-25.5	-5.24	-.33	30.324

In addition to the total metered pumpage in the Savannah area, which is the combined pumpage of the Savannah municipal waterworks and the Union Bag & Paper Corporation, it is estimated that all other users of artesian water in the Savannah area during 1943 pumped an average of 11 to 11½ million gallons a day. Wells 8 and 79 are within the Savannah city limits, wells 30 and 50 are in the industrial area northwest of Savannah, and well 84 is in the industrial area east of Savannah, 2.9 miles east of the city hall. Well 123 is near the center of Wilmington Island, about 8 miles southeast of the center of pumpage in the Savannah area, and well 328 is in the northeastern part of Tybee Island, at Fort Screven, approximately 15 miles east-southeast of the center of pumpage in the Savannah area.

The artesian water levels in Chatham County exclusive of Savannah were 1 foot to 6 feet lower in December 1943 than in December 1942. The decline was greatest in that part of the county bordering the Savannah area and probably least in the southern part of Ossabaw Island. In well 328, on Tybee Island, the artesian water level averaged 1.4 feet lower in December 1943 than in December 1942, and in well 123, on Wilmington Island, it averaged 2.2 feet lower. At Bloomingdale, about 11.5 miles west of the center of pumpage in the Savannah area, the water level was about 1.8 feet lower in December 1943 than in December 1942, and in Bryan County the water levels were 1 to 1.5 feet lower at the end of 1943 than at the end of the preceding year, the decline being least in the southeastern and extreme western parts of this county. In Liberty County the artesian water levels were 1 to 2 feet lower at the end of 1943 than at the end of 1942, the greatest decline being in the Hinesville and Camp Stewart area. No measurements were made in McIntosh County wells during December 1942, but a comparison of water levels in this county at the end of 1942 with those at the end of 1943 may be made by analogy. In Liberty County, which adjoins McIntosh County on the north, well measurements indicate that water levels were at about the same stages during the latter part of February 1943 as in December 1942, and it seems probable that this is true also of water levels in McIntosh County. Measurements were made in most wells in McIntosh County during 1943 in the months of February, July, and December, and these indicate that water levels were slightly less than 1 foot to 1.5 feet higher in February than in December. It may be assumed, therefore,

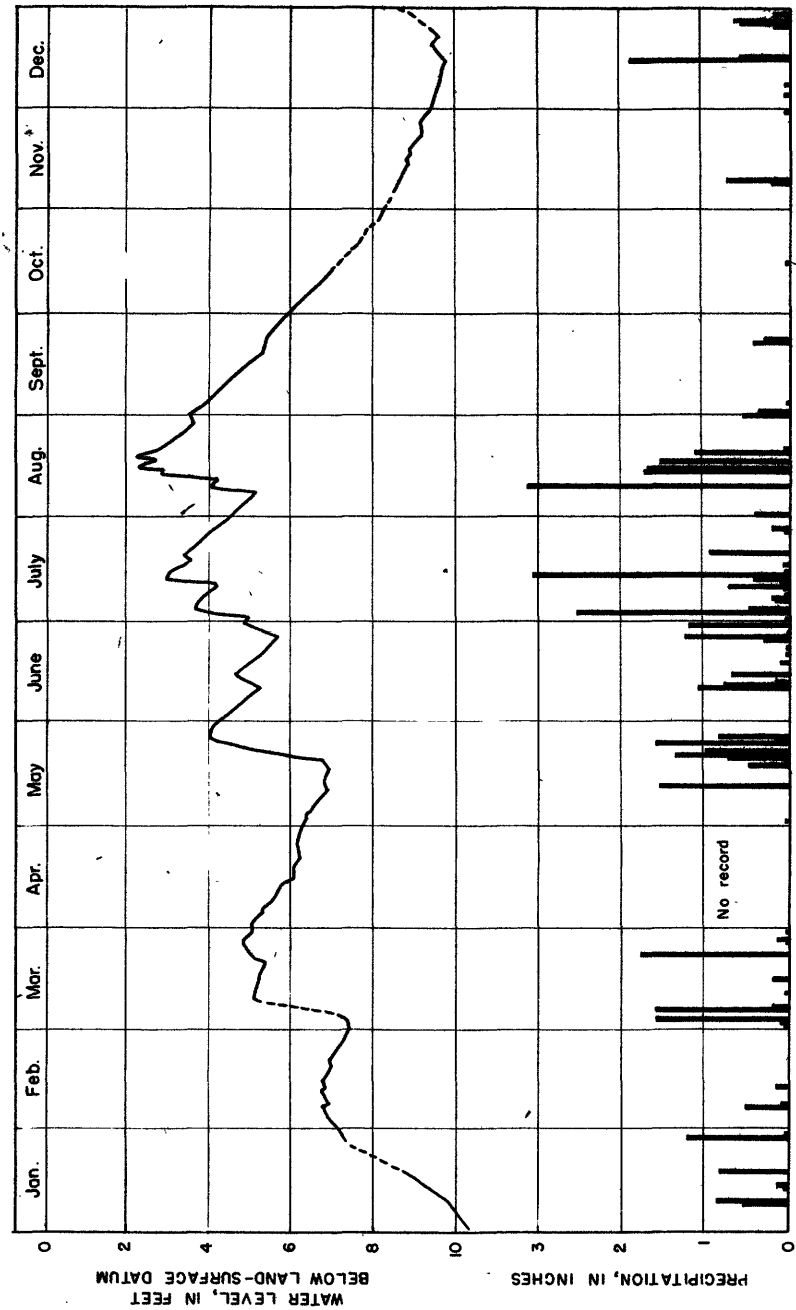

Figure 4.--Graphs showing fluctuations of water level in Chatham County well 345 during 1943 and precipitation at Savannah 2 station of the United States Weather Bureau. Both well and Weather Bureau station are at the Barbour Lathrop Plant Introduction Station of the United States Department of Agriculture, 12 miles southwest of Savannah.

that they declined about 1 foot to 1.5 feet during the year. The decline appears to have been least in the east-central part of the county.

The average water level during 1943 in Glynn County well 3, in the industrial area northwest of Brunswick, as determined by a recording-pressure gage, was 38.4 feet above mean sea level. For the period August to December, the average water level in this well was 38.1 feet above mean sea level, as compared with 39.6 feet above mean sea level for the same period in 1942. Most of this decline appears to be due to natural conditions, as the artesian water levels in wells in Camden, Wayne, Pierce, and Brantley Counties, which adjoin Glynn County on the west and south, and Charlton County, which is not far to the southwest, were 1½ to 2 feet lower during the last half of 1943 than during the last half of 1942.

Figure 4 shows the fluctuation of the water table in Chatham County well 343, which is 12 miles southwest of Savannah, at the Barbour Lathrop Plant Introduction Station of the United States Department of Agriculture. This well is 14.5 feet deep. During the year its water level ranged in stage from 10.3 feet below land-surface datum on January 1 to 2.2 feet below on August 19 and averaged about 6.4 feet below for the year. The records of precipitation shown at the bottom of this figure were made by a rain gage at Savannah No. 2 station of the United States Weather Bureau, which is also at the plant-introduction station and only about 15 feet west of this well. The fluctuations of water level in this shallow well reflect the effect of precipitation, but they show no correlation with the fluctuations in the deeper artesian wells in this locality.

WELL DESCRIPTIONS AND WATER-LEVEL MEASUREMENTS

Appling County

3 (*945, p. 55). Filtered Rosin Products Co. Near Baxley, about 0.1 mile east of Baxley city-limit sign and 300 feet south of U. S. Highway 341. Measuring point, top of hole in pump base, 1.2 feet above land-surface datum and about 205 feet above mean sea level. Water level, in feet below land-surface datum, 1943: Mar. 17, 130.3.

Baker County

1 (*937, p. 33; 945, p. 55). Emory University Field Station well 1. Fred Cross. About 1.1 miles east of Baker-Miller county line, 0.3 mile north of State Highway 91, about 0.25 mile northwest of Nochaway Church, and 30 feet southwest of pond. Measuring point, knife edge of iron bar over east side of well, 3.5 feet above land-surface datum, and 146.55 feet above mean sea level.

1. Emory University Field Station well 1--Continued.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 5	3.94	Apr. 28	2.63	July 21	7.40	Oct. 13	7.50
20	2.43	May 12	.93	Aug. 4	1.95	27	8.10
Feb. 3	2.60	26	3.20	18	4.73	Nov. 10	8.29
Mar. 3	1.00	June 9	4.60	Sept. 1	2.85	24	8.86
17	.82	22	6.45	15	5.07	Dec. 8	9.23
31	1.05	July 7	7.90	29	6.30	22	8.01
Apr. 14	1.77						

3 (*937, p. 33; 945, p. 55). Emory University Field Station well 3. Jette Craft. About 0.7 mile north of Baker-Miller county line, 1.6 miles west of Mimsville, 0.2 mile northwest of Milford-Cooktown road, and 90 feet north of field road. Well filled during 1943; measurements discontinued.

5 (*937, p. 34; 945, p. 56). Emory University Field Station well 5. D. G. Jones. About 1.8 miles northwest of Crestview and 75 feet east of county road. Measuring point, knife edge of iron bar over well, 3.3 feet above land-surface datum, and 218.27 feet above mean sea level.

Water level, in feet below land-surface datum, 1943

Jan. 13	6.50	Apr. 22	8.05	July 28	11.45	Oct. 20	20.58
27	5.63	May 5	9.63	Aug. 11	12.29	Nov. 3	21.15
Feb. 10	6.70	19	8.00	25	14.47	17	21.90
24	8.40	June 2	8.00	Sept. 8	17.60	Dec. 1	22.50
Mar. 10	4.95	16	9.05	22	19.27	15	22.25
24	4.30	30	11.50	Oct. 6	19.74	29	23.20
Apr. 7	6.15	July 14	10.90				

9 (*937, p. 35; 945, p. 56). Emory University Field Station well 9. Matthew Clias. About 5.2 miles north of Elmodel. 170 feet east of county road, and about 0.25 mile east of State Highway 37. Measuring point, knife edge of iron bar over well, 2.8 feet above land-surface datum, and 194.78 feet above mean sea level.

Water level, in feet below land-surface datum, 1943

Jan. 5	15.60	Mar. 17	9.60	May 26	13.00	Aug. 4	19.72
20	12.60	31	9.70	June 9	11.80	18	21.00
Feb. 3	11.90	Apr. 14	10.90	22	16.02	Sept. 1	21.90
17	12.21	28	12.20	July 7	17.35	15	(a)
Mar. 3	13.20	May 12	12.52	21	19.10		

12 (*947, p. 36; 945, p. 56). Emory University Field Station well 12. Alton Kidd. 0.14 mile north of Milford, and 75 feet east of county road. Measuring point, knife edge of iron bar over well, 3.0 feet above land-surface datum, and 187.55 feet above mean sea level.

Water level, in feet below land-surface datum, 1943

Jan. 5	17.02	Apr. 14	9.45	July 21	15.15	Oct. 13	20.98
20	14.60	28	11.74	Aug. 4	15.88	27	22.10
Feb. 3	11.10	May 12	11.30	18	17.13	Nov. 10	22.37
17	10.69	26	12.22	Sept. 1	18.50	24	23.73
Mar. 3	8.10	June 9	12.95	15	18.94	Dec. 8	23.95
17	9.01	22	13.50	29	19.81	22	24.70
31	8.63	July 7	14.40				

15 (*937, p. 36; 945, p. 57). Emory University Field Station well 15. R. L. Hall. About 7.3 miles north of Baker County courthouse at Newton, about 1,500 feet east of county road, at Old Hickory Hill Plantation. Measuring point, knife edge of iron bar over well, 3.6 feet above land-surface datum, and 168.64 feet above mean sea level.

Water level, in feet below land-surface datum, 1943

Jan. 5	8.76	Mar. 31	4.02	June 9	9.24	Aug. 18	12.68
20	5.11	Apr. 14	4.00	22	10.10	Sept. 1	13.30
Feb. 3	5.42	28	6.05	July 7	11.22	15	13.88
17	5.62	May 12	6.90	21	11.68	29	15.12
Mar. 3	5.28	26	7.77	Aug. 4	11.02	Oct. 13	(b)
17	2.65						

a Well dry Sept. 15 to Dec. 22. b Well dry Oct. 13 to Dec. 22.

16 (*937, p. 37; 945, p. 57). Emory University Field Station well 16. Ichaway Plantation, Inc. (W. R. Woodruff.) About 3.8 miles east of Elmodel, on north side of old county road, and 0.25 mile north of large dry pond. Well filled during 1943; measurements discontinued.

25 (*937, p. 37; 945, p. 57). Emory University Field Station well 35. P. H. Thompson, Jr. About 3.6 miles west of Patmos, 1 mile east of Baker-Early county line, and 0.6 mile north of Pine Grove Church. Measuring point, knife edge of iron bar over well, 0.3 foot above land-surface datum, and 201.78 feet above mean sea level.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 13	10.97	Apr. 22	10.25	July 28	15.35	Oct. 20	20.00
27	8.33	May 5	11.41	Aug. 11	14.25	Nov. 3	21.22
Feb. 10	10.20	19	9.98	25	17.22	17	20.08
24	11.86	June 2	10.80	Sept. 8	18.68	Dec. 1	20.26
Mar. 10	6.62	16	12.72	22	18.90	15	19.00
24	7.18	30	14.77	Oct. 6	19.64	29	17.65
Apr. 7	8.79	July 14	15.50				

27 (*937, p. 38; 945, p. 57). Emory University Field Station well 37. Doc Davis. About 6.3 miles northwest of Baker County courthouse at Newton, 2.9 miles south of Baker-Dougherty county line, 5.2 miles east of State Highway 37, and 150 feet north of county road. Measuring point, knife edge of iron bar over well, 0.3 foot above land-surface datum, and 171.40 feet above mean sea level.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level
Jan. 5	(a)	Mar. 31	5.38	Apr. 28	(b)
Mar. 17	6.38	Apr. 14	5.98		

29 (*937, p. 38; 945, p. 58). Emory University Field Station well 39. Ichaway Plantation, Inc. (W. R. Woodruff.) About 1.6 miles northeast of Pilgrims Home Church and 0.5 mile southeast of State Highway 91. Measuring point, knife edge of iron bar over well, 0.3 foot above land-surface datum, and 150.25 feet above mean sea level.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 5	(c)	Feb. 17	10.69	Mar. 31	2.52	May 12	9.79
20	9.15	Mar. 3	11.79	Apr. 14	4.42	26	11.57
Feb. 3	10.32	17	3.52	28	6.46	June 9	(d)

Brantley County

1 (*937, p. 39; 945, p. 58). N. S. McVeigh. At Waynesville, on north side of State Highway 50. Measuring point beginning Jan. 1, 1943, top of 1-inch casing, 1.1 feet above land-surface datum, and 0.41 foot below former measuring point, which was 57.5 feet above mean sea level. Water levels, in feet above land-surface datum, 1943: Feb. 24, 2.12; July 16, 1.45; Dec. 17, 0.65.

9 (*945, p. 58). U. S. Government. About 1.4 miles north of Atlantic Coast Line Railroad at Waynesville, about 0.1 mile east of county road from Waynesville to Browntown at site of abandoned Civilian Conservation Corps camp. Measuring point, top of 8-inch coupling on 8-inch well casing, 0.5 foot above land-surface datum, and about 61 feet above mean sea level. Water levels, in feet below land-surface datum, 1943: Feb. 24, 2.63; July 16, 3.38; Dec. 17, 4.04.

a Well dry Jan. 5 to Mar. 3.
b Well dry Apr. 28 to Dec. 22.
c Well dry Jan. 5.
d Well dry June 9 to Dec. 22.

Bryan County

18 (*907, p. 39; 937, p. 39; 945, p. 58). Mrs. S. P. Ratom. At Folley Farms, 5.75 miles southeast of Richmond Hill and 1 mile east of Bryan Neck road. Measurements discontinued.

27 (*886, p. 69; 907, p. 39; 937, p. 39; 945, p. 58). Henry Ford. About 8 miles south of Richmond Hill, 1 mile west of Bryan Neck road, 0.3 mile south of Belfast road, near west edge of Tivoli River marsh. Well casing broken below land surface; measurements discontinued.

41 (*886, p. 69; 907, p. 39; *937, p. 39; 945, p. 58). United States War Department. At Roding. No measurements made during 1943.

43 (*945, p. 58). United States War Department. At Roding, 0.5 mile west of State Highway 63, on south side of State Highway 144. No measurements made during 1943.

50 (*945, p. 58). United States War Department. At Clyde, about 100 feet southwest of intersection of State Highway 63 and county road. Measuring point, top of 3- by 1⅛-inch bushing in 3-inch coupling over well, 0.3 foot above land-surface datum, and about 22.5 feet above mean sea level. Water levels, in feet above land-surface datum, 1943: July 13, 9.3; Dec. 13, 8.4.

51 (*886, p. 71; 907, p. 39; *937, p. 39; 945, p. 59). United States War Department. At Clyde, about 600 feet southwest of former site of schoolhouse. Measuring point, top of 3-inch tee on 3-inch casing, 1 foot above land-surface datum, and about 24.5 feet above mean sea level. Water levels, in feet above land-surface datum, 1943: July 13, 8.6; Dec. 13, 7.7.

52 (*886, p. 71; 907, p. 39; *937, p. 39; 945, p. 59). United States War Department. At Clyde, a short distance northeast of former site of schoolhouse. Measuring point, top of 3-inch tee on 3-inch casing, 1 foot above land-surface datum, and about 28 feet above mean sea level. Water levels, in feet above land-surface datum, 1943: July 13, 4.93; Dec. 13, 4.14.

55 (*945, p. 59). United States War Department. At Clyde, a short distance east of former site of old Bryan County courthouse. Measuring point, top of 3-inch tee on 3-inch casing, 2.5 feet above land-surface datum, and about 36 feet above mean sea level. Water levels, in feet below land-surface datum, 1943: July 13, [illegible]; Dec. 13, 3.53.

63 (*907, p. 39; *937, p. 39; 945, p. 59). United States War Department. About 7 miles west of Richmond Hill, 4.5 miles north of Fleming, on east side of county road that connects Bashlor's Bridge with U. S. Highway 17. No measurements made during 1943.

71 (*907, p. 39; *937, p. 39; 945, p. 59). United States War Department. On south side of River Road, 5.5 miles west of State Highway 63. No measurements made during 1943.

85 (*937, p. 39; 945, p. 59). Henry Ford. About 0.1 mile southwest of Belfast road, and about 150 feet southeast of Seaboard Railway. Measuring point, top of 3-inch casing, 0.3 foot above land-surface datum, 21.24 feet above mean sea level. Water levels, in feet above land-surface datum, 1943: June 23, 6.4; Dec. 10, 5.8.

87 (*886, p. 71; 907, p. 39; *937, p. 40; 945, p. 59). Henry Ford. At Richmond Hill, about 500 feet west of intersection of U. S. Highway 17 and Bryan Neck road. Measuring point, top of 4-inch cross, 24.44 feet above mean sea level, and 2.5 feet above land-surface datum.

Water level, in feet with reference to land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Feb. 23	+0.83	Apr. 26	+0.45	July 13	-0.13	Dec. 10	-0.79
Mar. 19	+.63	May 25	+.61	Sept. 3	-.69	13	-.91
Apr. 22	+.43	June 23	-.05				

87a (*945, p. 59). Henry Ford. At Richmond Hill, about 500 feet west of intersection of U. S. Highway 17 and Bryan Neck road. Measuring point, top of 2⅛-inch casing, 1.1 feet above land-surface datum, and 22.90 feet above mean sea level.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Feb. 23	0.16	Apr. 26	0.48	July 13	0.94	Dec. 10	1.65
Mar. 19	.31	May 25	.34	Sept. 3	1.51	13	1.63
Apr. 22	.47	June 23	.92				

96 (*907, p. 39; *937, p. 40; 945, p. 59). J. W. Harden. About 1.7 miles south of Keller, 300 feet east of Bryan Neck road. Measuring point, top of 3-inch tee on 3-inch casing, 1.75 feet above land-surface datum. Water level affected by tide. Water levels, in feet above land-surface datum, 1943: June 23, 5:30 p.m., 7.85; Dec. 10, 4:40 p.m., 7.43.

112 (*907, p. 39; *937, p. 40; 945, p. 60). United States War Department. 12 miles west along River Road from State Highway 63, on south side of road. No measurements made during 1943.

119 (*907, p. 39; *937, p. 40; 945, p. 60). Henry Ford. At Kilkenny, about 4.5 miles southeast of Keller. Measuring point, top of 2-inch tee over well, 10.8 feet above mean sea level and 0.8 foot above land-surface datum. Water level affected by tide. Water level, in feet above land-surface datum, 1943: June 23, 4:30 p.m., 6.73.

143 (*937, p. 40; 945, p. 60). A. M. Casin. Near west end of Morgan Bridge over Ogeechee River, on north side of Pine Barren Road. Measuring point, top of 3-inch tee, 2.3 feet above land-surface datum, and 17.2 feet above mean sea level. Water level, in feet above land-surface datum, 1943: July 8, 13.07.

144. U. Butler. At Eldora, about 200 feet east of county road, on north side of two-story brick store. Used drilled domestic well, diameter 3 inches, depth about 400 feet, cased 140 feet. Measuring point, top of 3-inch casing, 1.7 feet above land-surface datum, and 67.4 feet above mean sea level. Water levels, in feet below land-surface datum: July 24, 1942, 20.24; May 3, 1943, 21.02; Sept. 2, 1943, 21.9.

145. Henry Ford. On east side of Belfast road, about 0.3 mile southeast of U. S. Highway 17, on north side of turpentine still. Used drilled industrial well, diameter 4 inches, depth about 500 feet, cased about 160 feet. Measuring point, top of 4-inch fitting on 4-inch casing, level with land-surface datum. Water levels, in feet above land-surface datum: July 7, 1942, 9.3; Oct. 13, 1942, 9.1; June 23, 1943, 8.2; Dec. 10, 1943, 7.52.

146 (*937, p. 40; 945, p. 60). L. W. Smith. About 2.25 miles northeast of Lanier, south side of State Highway 30, at site of abandoned Civilian Conservation Corps camp. Measuring point, top of 6-inch casing, 1.5 feet above land-surface datum, and about 68 feet above mean sea level. Water levels, in feet below land-surface datum, 1943: Jan. 28, 21.20; Mar. 4, 21.50; July 8, 21.94; Dec. 11, 22.86.

148 (*937, p. 40; 945, p. 60). Henry Ford. At Keller, about 80 feet west of Bryan Neck road and 200 feet north of Belfast road. Measuring point, top of 4-inch tee, 1 foot above land-surface datum. Water levels, in feet above land-surface datum, 1943: June 23, 5.20; Dec. 10, 4.52.

149 (*937, p. 40; 945, p. 60). Henry Ford. About 5.5 miles southeast of Richmond Hill, at the Jack Griswold place. Measuring point, top of 4-inch tee, about 1 foot above land-surface datum. Water levels, in feet above land-surface datum, 1943: June 23, 3.46; Dec. 10, 2.75.

150 (*945, p. 60). Henry Ford. At Richmond Hill, 1 mile north of U. S. Highway 17, about 200 feet east of State Highway 63. Measuring point, top of 4-inch tee on 4-inch casing, 0.9 foot above land-surface datum. Water levels, in feet above land-surface datum, 1943: July 13, 9.1; Dec. 13, 8.5.

151 (*945, p. 60). Henry Ford. About 0.9 mile west of Keller, on west bluff of Tivoli River, on north side of Belfast road. Measuring point, top of 4-inch tee on 4-inch casing, 1 foot above land-surface datum, and about 18 feet above mean sea level. Water levels, in feet above land-surface datum, 1943: June 23, 6.11; Dec. 10, 5.51.

161 (*945, p. 60). Henry Ford. At Kilkenny, about 4.5 miles southeast of Keller, about 300 feet north of club house near edge of marsh at oyster house. Water level affected by tide. Measuring point, top of 4-inch cross on 4-inch casing, 0.5 foot above land-surface datum, and about 7.8 feet above mean sea level.

Water level, in feet, 1943

Date	Hour	Water level in Ogeechee River, in feet with reference to half-tide level	Water level in well in feet above land-surface datum
June 23	4:50 p.m.	+0.2	10.02

162. Henry Ford. About 7.5 miles southeast of Richmond Hill, about 0.1 mile west of Fort McAllister, on south bank of Ogeechee River. Unused drilled domestic well, diameter 4 inches, depth 780 feet, cased 152 feet. Measuring point, top of 4-inch cross on 4-inch casing, 1 foot above land-surface datum, and about 16 feet above mean sea level. Water level affected by tide.

Water level, in feet, 1942-43

Date	Hour	Calculated elevation of water level in Ogeechee River, in feet with reference to half-tide level	Water level in well, in feet below land-surface datum
July 7, 1942	10:15 a.m.	-2.3	0.29
7	11:45 a.m.	-2.7	.34
June 23, 1943	3:58 p.m.	+2.3	.67

171. Deal Purvis. At Belfast, about 110 feet east of bluff, near center of nearly right-angle bend in Belfast River. Used drilled domestic well, diameter 3 inches, depth 600 feet, cased 120 feet. Measuring point, top of 3-inch cross, 0.7 foot above land-surface datum and about 18 feet above mean sea level. Water level affected by tide. Water levels, in feet above land-surface datum: Dec. 17, 1942, 5:45 p.m., 7.80; Dec. 10, 1943, 5:20 p.m., 6.46.

Camden County

3 (Well 20 in *886, p. 70; 907, p. 40; *937, p. 40; 945, p. 60). Town of St. Marys. On east side of State Highway 40, 0.25 mile north of Riverview Hotel in St. Marys. Measuring point, top of 6-inch tee, 2.3 feet above land-surface datum and 14.3 feet above mean sea level. Water levels, in feet above land-surface datum, 1943: Apr. 21, a/ 27.9; July 16, a/ 28.5; Dec. 18, a/ 27.3.

8 (*886, p. 71; 907, p. 40; *937, p. 41; 945, p. 60). M. L. Hill. In Kingsland, at owner's residence. Measuring point, top of 2- by 1-inch bushing in 2-inch tee, 1 foot above land-surface datum, and 36.5 feet above mean sea level. Water levels, in feet above land-surface datum, 1943: Feb. 25, 23.4; Apr. 21, 22.9; July 16, 22.6; Dec. 18, 22.0.

12 (*907, p. 40; *937, p. 41; 945, p. 60). Mr. J. J. Godley. (Formerly owned by Southwell & Hopkins.) In Kingsland, about 300 feet north of St. Marys road, on west side of U. S. Highway 17. Measuring point, top of 3-inch cross, 1.5 feet above land-surface datum, and 36.9 feet above mean sea level. Water levels, in feet above land-surface datum, 1943: Feb. 25, 23.1; Apr. 21, 22.8; July 16, 22.3; Dec. 18, 21.6.

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a St. Marys Kraft Corporation well 155, which is 4,327 feet N. 20° 10' E., flowing or pumping about 3,000 gallons a minute.

14 (*945, p. 61). R. T. Clark. At Scotchville, on northeast side of St. Marys road, 4.5 miles southeast of Kingsland. Measuring point, top of 4-inch tee on 4-inch casing, 4.0 feet above land-surface datum, and about 30 feet above mean sea level. Water level, in feet above land-surface datum, 1943: Dec. 18, 27.7.

18 (*886, p. 71; 907, p. 40; *937, p. 41; 945, p. 61). L. O. Harris. At St. Marys, about 0.8 mile north of Riverview Hotel, on east side of State Highway 40. Measuring point, top of 2-inch cross, 0.8 foot above land-surface datum, and 11.3 feet above mean sea level. Water levels, in feet above land-surface datum, 1943: Feb. 25, a/ 27.9; Apr. 21, a/ 27.4; July 16, 28.2; Dec. 18, a/ 27.8.

19 (*886, p. 71; 907, p. 40; *937, p. 41; 945, p. 61). Camden Training School. At St. Marys, 1 mile north of Riverview Hotel, on east side of State Highway 40. No measurements made during 1943.

39 (*886, p. 72; 907, p. 40; *937, p. 41; 945, p. 61). Southern Fertilizer & Chemical Co. At St. Marys, about 1.5 miles north of Riverview Hotel, near west bank of North River. No measurements made during 1943.

42 (*945, p. 61). South Camden Turpentine Co. About 0.2 mile east of Spring Bluff, on northeast side of road to Dover Bluff. Measuring point, top of 2-inch cross on 2-inch casing, 1.8 feet above land-surface datum, and about 23 feet above mean sea level. Water levels, in feet above land-surface datum, 1943: Feb. 25, 33.2; July 16, 32.8; Dec. 18, 31.8.

59 (*937, p. 42; 945, p. 61). Zack Colson. About 3.5 miles southeast of Woodbine, 0.6 mile south of Satilla River. Measuring point, top of 4-inch cross, 2 feet above land-surface datum, and about 26 feet above mean sea level. Water levels, in feet above land-surface datum, 1943: Feb. 25, 30.4; July 16, 29.5.

61 (*907, p. 41; *937, p. 42; 945, p. 61). Camden Properties. At Billysville, 2 miles east of Colesburg, at west end of tenant quarters. Measuring point, top of 3-inch cross, 1.8 feet above land-surface datum, and about 24 feet above mean sea level. Water levels, in feet above land-surface datum, 1943: Feb. 25, 36.0; Apr. 21, 35.8; July 16, 35.3; Dec. 18, 34.4.

66 (*886, p. 72; 907, p. 41; 937, p. 42; 945, p. 61). Arthur Lucas. At Point Peter, about 2 miles east of St. Marys. At owner's house. No measurements made during 1943.

68 (*907, p. 41; *937, p. 42; 945, p. 61). Kings Bay Club. At Kings Bay, about 10 miles east of Kingsland and about 4 miles north of St. Marys. Measuring point, top of 3-inch cross, 1.5 feet above land-surface datum, and about 11 feet above mean sea level. Water levels, in feet above land-surface datum, 1943: Feb. 25, 43.7; July 16, 43.0.

78 (*907, p. 41; *937, p. 42; 945, p. 61). White Oak Public School. At White Oak, on west side of Seaboard Railway, at schoolhouse. Measuring point, top of 2-inch cross, 2.5 feet above land-surface datum, and about 17 feet above mean sea level. Water levels, in feet above land-surface datum, 1943: Apr. 21, 41.3; July 16, 41.1; Dec. 18, 40.0.

87 (*937, p. 42; 945, p. 61). Camden Properties. At Cabin Bluff, 13 miles southeast of Woodbine, near west bank of Cumberland River. No measurements made during 1943.

92a (*937, p. 42; 945, p. 61). Camden Race Track. About 2.2 miles southeast of Kingsland, on north side of St. Marys road, at race track. Measuring point, top of 2-inch side outlet tee, 1.1 feet above land-surface datum, and about 26 feet above mean sea level. Water levels, in feet above land-surface datum, 1943: Feb. 25, 32.1; Apr. 21, 31.9; July 16, 31.3.

118 (*937, p. 43; 945, p. 61). L. B. Harrel. About 9.5 miles west of Kingsland, along old Folkston road, about 0.1 mile south of road. Measuring point, top of 3-inch cross, level with land-surface datum. Water levels, in feet above land-surface datum, 1943: Feb. 25, 38.3; July 16, 37.4; Dec. 18, 36.9.

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a St. Marys Kraft Corporation well 155, which is 2,198 feet N. 31° 18' E., flowing or pumping about 3,000 gallons a minute.

144 (*907, p. 41; *937, p. 43; 945, p. 61). T. C. Haygood. At Woodbine, on east side of U. S. Highway 17, 0.5 mile south of road to Folkston. Measuring point, top of 3-inch cross, 1 foot above land-surface datum. Water levels, in feet above land-surface datum, 1943: Feb. 25, 36.8; Apr. 21, 36.1; July 16, 35.6; Dec. 18, 33.9.

Charlton County

4 (*937, p. 43; 945, p. 62). U. S. Government. About 7 miles southwest of Folkston, at Civilian Conservation Corps camp BS-1. Measuring point, top of 6-inch casing, 1 foot above land-surface datum, and 74.1 feet above mean sea level. Water level, in feet below land-surface datum, 1943: Feb. 26, 12.64; July 16, when visit made, pump house had been torn down, pump removed from well, and well filled with brickbats.

7 (*937, p. 43; 945, p. 62). State of Georgia. 1 mile southwest of Folkston, at State convict camp. Measuring point, top of 4-inch casing, 1.0 foot above land-surface datum, and 74.95 feet above mean sea level. Water levels, in feet below land-surface datum, 1943: Feb. 26, 14.42; July 16, 15.22; Dec. 18, 15.86.

Chatham County

8 (*845, p. 53; 886, p. 72; 907, p. 41; *937, p. 43; 945, p. 62). City of Savannah. In Savannah, on west side of Stiles Avenue, about 600 feet south of Louisville road. Measuring point, top edge of horizontal bar that supports air line in well, 1.3 feet below land-surface datum and 8.32 feet above mean sea level. Water level affected by pumpage in Savannah area. Average daily range of fluctuations during 1943 was 2.7 feet.

Highest and lowest weekly water level, in feet below land-surface datum, 1943
(From recorder charts)

Week	Date	Highest level	Date	Lowest level
Jan. 1-2	Jan. 2	53.7	Jan. 1	55.5
3-9	9	50.8	3	56.8
10-16	15	50.5	10	55.2
17-23	20	50.7	22	54.1
24-30	24	49.9	30	55.3
Jan. 31-Feb. 6	Feb. 3	49.3	Feb. 1	55.4
Feb. 7-13	7	51.0	12	57.4
14-20	15	54.8	16	58.9
21-27	24	53.0	27	56.8
Feb. 28-Mar. 6	Mar. 3	52.3	28	56.9
Mar. 7-11	9	52.7	Mar. 11	55.9
12-19		(a)		(a)
21-27	21	52.7	23	56.4
Mar. 28-Apr. 3	28	52.7	Apr. 2	58.3
Apr. 4-10	Apr. 4	52.9	9	59.1
11-17	11	54.4	13	57.9
18-24	19	52.4	22	57.4
Apr. 25-May 1	27	49.8	25	54.3
May 2-8	May 2	50.8	May 8	55.2
9-15	10	52.8	15	55.5
16-22	16	53.5	22	62.4
23-29	24	57.5	29	65.0
May 30-June 5	31	61.2	June 5	66.0
June 6-12	June 12	59.4	7	65.3
13-19	19	53.3	14	64.1
20-26	20	55.5	25	63.4
June 27-July 3	27	58.5	July 1	63.1
July 4-10	July 5	58.1	5	61.6
11-17	12	58.1	16	69.9
18-24	20	60.1	19	69.6
25-31	26	62.5	27	68.9

a No record.

8. City of Savannah--Continued.

Highest and lowest weekly water level, in feet below land-surface datum, 1943
(From recorder charts)

Week	Date	Highest level	Date	Lowest level
Aug. 1-7	Aug. 2	63.5	Aug. 1	67.1
8-14	9	62.9	11	69.0
15-21	16	63.7	18	68.8
22-28	23	63.7	28	70.3
Aug. 28-Sept. 4	30	64.3	29	69.3
Sept. 5-11	Sept. 8	60.7	Sept. 5	68.3
12-18	13	62.7	18	66.8
19-25	20	62.9	25	66.5
Sept.26-Oct. 2	27	62.5	29	67.6
Oct. 3-9	Oct. 4	62.5	Oct. 9	65.5
10-16	11	62.3	16	67.5
17-23	18	63.0	22	69.2
24-30	25	62.6	28	69.1
Oct. 31-Nov. 6	Nov. 1	62.8	Nov. 3	69.8
Nov. 7-13	12	62.5	9	67.7
14-20	20	60.7	16	67.1
Nov. 28-Dec. 4	29	60.4	Dec. 1	65.0
Dec. 5-11	Dec. 6	59.6	8	64.9
12-18	13	59.6	17	71.8
19-25	25	59.1	21	71.8
26-31	28	54.4	26	59.5

28 (*886, p. 72; 907, p. 42; *937, p. 44; 945, p. 63). Reliance Fertilizer Co. In Savannah, about 200 feet south of Louisville road, 2 miles west of West Broad Street. Water level affected by pumpage in Savannah area. Measuring point, hole in pump base plate, 1.5 feet above land-surface datum, 17.87 feet above mean sea level. Water levels, in feet below land-surface datum, 1943: Mar. 27, 62.7; July 24, 67.6; Dec. 9, 65.1.

29 (*907, p. 42; *937, p. 44; 945, p. 63). Portwentworth Corporation. At Port Wentworth, about 300 feet east of U. S. Highway 17, near elevated steel tank. Measuring point, top of hole in pump base plate, 1.5 feet above land-surface datum, and 17.3 feet above mean sea level. Water level, in feet below land-surface datum, 1943: Jan. 28, 27.6.

30 (*845, p. 53; *886, p. 73; 907, p. 42; *937, p. 44; 945, p. 63). Dixie Asphalt Corporation. Near west bank of Savannah River, 1 mile northeast of U. S. Highway 17, and 3.4 miles northwest of Savannah city hall. Measuring point, hole in pump base plate, 0.2 foot above land-surface datum, and 11.5 feet above mean sea level. Water level affected by pumpage in Savannah area.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 5	a 58.2	Apr. 17	56.9	July 19	61.2	Oct. 2	60.4
14	54.6	24	a 60.4	24	61.4	16	61.0
22	54.5	May 8	a 58.2	31	62.2	23	60.5
30	55.5	15	56.5	Aug. 7	61.6	30	a 64.7
Feb. 6	54.0	22	57.6	14	61.7	Nov. 6	61.4
13	57.0	June 5	59.5	21	62.1	13	60.0
20	56.4	12	60.2	28	62.2	20	a 64.6
27	57.6	19	51.9	Sept. 4	a 66.1	Dec. 1	59.2
Mar. 19	a 61.7	23	60.3	11	a 64.4	9	59.9
27	56.4	July 3	a 63.3	18	a 64.8	15	57.0
Apr. 3	56.4	10	60.8	25	61.0	23	60.3
10	a 60.8						

a Pump on well operating; water level very nearly stable after pump has been operating 30 minutes, at which time draw-down is about 4.0 feet.

43 (*907, p. 43; *937, p. 45; 945, p. 63). Southern Cotton Oil Co. well 215A (south well). 40 feet north of Lathrop Avenue, 1,200 feet southwest of southwest bank of Savannah River, 1.75 miles northwest of city hall. Measuring point, top of hole in pump base plate, 1 foot above land-surface datum, and 8.8 feet above mean sea level. Water level affected by pumpage in Savannah area. Water level, in feet below land-surface datum, 1943: Aug. 5, 74.0.

46 (*886, p. 73; 907, p. 43; *937, p. 45; 945, p. 63). Union Bag & Paper Corporation well 5. About 800 feet southwest of Savannah River, and 2.4 miles northwest of Savannah city hall. Well in continuous use. Measuring point, top of concrete base for pump motor, 0.4 foot above land-surface datum, and about 10.5 feet above mean sea level. Measurements furnished through courtesy of Union Bag & Paper Corporation. Well pumping about 3,500 gallons a minute.

Water level, in feet below land-surface datum, 1942-43

Date	Water level	Date	Water level	Date	Water level
Apr. 28, 1942	108.6	Feb. 27, 1943	123.6	July 30, 1943	126.6
May 21	112.6	Mar. 9	122.6	Aug. 5	130.6
June 19	116.6	20	119.6	Sept. 3	126.6
July 29	115.6	Apr. 22	126.6	29	131.6
Oct. 2	112.6	May 28	126.6	Nov. 2	127.6
Nov. 15	115.6	June 22	119.6	Dec. 7	122.6
Feb. 8, 1943	123.6				

47 (*886, p. 73; 907, p. 43; 937, p. 45; 945, p. 63). National Gypsum Co. Near west bank of Savannah River, 1 mile northeast of U. S. Highway 17, 3.25 miles northwest of city hall. Measuring point, hole in pump base plate, 3 feet above land-surface datum, and 12.0 feet above mean sea level. Water level affected by pumpage in Savannah area. Water level, in feet below land-surface datum, 1943: July 31, 62.8.

48 (*907, p. 43; *937, p. 45; 945, p. 63). United States War Department, Savannah Army Service Forces Depot. On west bank of Savannah River, 3.8 miles northwest of Savannah city hall. Measuring point, top of hole in pump base plate, 1.5 feet above land-surface datum, and 15.7 feet above mean sea level. Water level, in feet below land-surface datum, 1943: Aug. 7, 54.9.

50 (*886, p. 74; 907, p. 43; *937, p. 45; 945, p. 63). Hercules Powder Co. About 95 feet south of Louisville road, 3.2 miles west of West Broad Street, in Savannah. Measuring point, top of 4-inch casing, 1.0 foot above land-surface datum, and 14.83 feet above mean sea level.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 14	47.29	Apr. 17	48.94	July 3	51.88	Oct. 16	52.93
22	47.49	24	48.96	19	53.72	30	53.63
Feb. 6	46.97	May 8	47.90	31	54.19	Nov. 13	52.62
20	48.91	22	50.43	Aug. 14	54.06	Dec. 1	51.85
Mar. 19	49.74	June 5	52.40	28	54.29	9	51.90
27	48.99	19	45.86	Sept.11	52.34	23	53.50
Apr. 10	49.33	26	51.80	25	53.39		

63 (*907, p. 43; *937, p. 46; 945, p. 64). Colonial Ice Co. In Savannah, 5 feet northwest of McGuire Street, about 105 feet northeast of Indian Street. Measuring point since Jan. 2, 1941, top of 12-inch casing, 0.1 foot lower than hole in 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 levels, in feet below land-surface datum, 1943: Aug. 5, 73.42; Dec. 9, 70.31.

76 (*907, p. 44; *937, p. 46; 945, p. 64). Pierpont Manufacturing Co. About 600 feet southwest of Savannah River, 2.1 miles northwest of Savannah city hall. Measuring point, top of 3-inch casing, 1 foot above land-surface datum, and 13.1 feet above mean sea level. Water level affected by pumpage in Savannah area. Water levels, in feet below land-surface datum, 1943: Aug. 5, 85.7; Dec. 9, 80.4.

79 (*886, p. 75; 907, p. 44; *937, p. 46; 945, p. 64). Benton Transfer Co. (Formerly owned by Georgia Ice Co.) In Savannah, about 25 feet west of centerline of Whitaker Street extended, about 55 feet south of Victory Drive. Measuring point, top edge of 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 fluctuation during 1943 about 1.4 feet.

Highest and lowest weekly water level, in feet below land-surface datum, 1943.
(From recorder charts)

Week	Date	Highest level	Date	Lowest level
Jan. 1-2	Jan. 1	69.22	Jan. 2	70.42
3-9	9	68.85		70.65
10-16	15	68.76	10	70.17
17-23	18	a 68.92	18	b 72.01
24-30	25	68.90	30	71.62
Jan. 31-Feb. 6	Feb. 5	68.83	Feb. 1	71.30
Feb. 7-13	8	69.25	12	72.55
14-20	14	70.81	17	74.18
21-27	23	70.79	26	74.47
Feb. 28-Mar. 6	Mar. 6	70.74	28	73.31
Mar. 7-11	8	70.55	Mar. 11	71.32
11-19		(c)		(c)
20-27	22	71.21	26	72.25
Mar. 28-Apr. 3	28	71.40	Apr. 1	73.61
Apr. 4-10	Apr. 4	72.07	9	75.58
11-17	12	73.32	16	75.65
18-24	19	72.23	22	75.70
Apr. 25-May 1	28	71.97	26	75.37
May 2-8	May 2	72.24	May 8	76.92
9-15	10	73.88	9	76.64
16-22	17	73.95	22	77.12
23-29	25	75.74	23	79.25
May 30-June 5	30	76.40	June 4	80.42
June 6-12	June 6	78.52	7	81.16
13-19	19	76.20	16	81.16
20-26	20	76.71	21	81.00
June 27-July 3	27	78.20	30	81.04
July 4-10	July 4	77.96	July 9	81.39
11-17	12	77.68	16	81.28
18-24	21	78.93	23	84.06
25-31	25	79.26	30	82.81
Aug. 1-7	Aug. 1	79.35	Aug. 6	83.39
8-14	9	78.52	11	84.27
15-21	16	79.07	17	82.34
22-28	22	79.63	28	82.79
Aug. 29-Sept. 4	30	80.42	Sept. 4	85.07
Sept. 5-11	Sept. 11	79.64	5	84.80
12-18	13	78.64	17	81.80
19-25	20	78.74	24	81.32
Sept. 26-Oct. 2	28	78.35	Oct. 1	80.43
Oct. 3-9	Oct. 4	78.26	5	80.66
10-16	10	78.29	16	80.78
17-23	18	78.72	22	81.47
24-30	25	78.61	29	81.30
Oct. 31-Nov. 6	Nov. 1	78.44	Nov. 6	81.80
Nov. 7-13	8	78.31	7	81.20
14-20	15	77.96	17	80.39
21-27	27	76.85	22	79.61
Nov. 28-Dec. 4	28	76.5	Dec. 3	78.30
Dec. 5-11	Dec. 6	75.66	9	78.28
12-18	13	75.51	18	83.83
19-25	25	78.36	19	83.40
26-31	29	74.43	26	78.36

a 8 a.m. b 2:00 p.m. c No record.

81 (*907, p. 45; *937, p. 47; 945, p. 65). 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. Measuring point, top of 6-inch casing, level with land-surface datum, and 15.1 feet above mean sea level.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level
May 3	39.68	Aug. 8	45.45	Dec. 15	43.56
July 8	44.72	Sept. 4	46.23		

84 (*907, p. 45; *937, p. 47; 945, p. 65). Standard Oil Co. About 150 feet south of Savannah River, and 2.9 miles east of Savannah city hall. Measuring point, top hole in pump base plate, 0.5 foot above pumphouse floor, and 6.1 feet above mean sea level. Water level affected by pumpage in Savannah area and also by tide.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 14	26.12	Apr. 10	29.47	July 3	32.85	Sept.25	33.95
30	27.06	17	30.57	19	32.75	Oct. 16	32.40
Feb. 13	26.84	May 8	30.86	31	34.00	Nov. 6	32.90
27	27.72	22	30.63	Aug. 14	34.09	20	31.87
Mar. 19	28.68	June 5	31.34	28	34.47	Dec. 9	30.8
27	28.54	19	32.84	Sept.18	33.31	23	31.64

86 (*945, p. 66). Southern Cotton Oil Co. well 215C. In Savannah, about 180 feet north of Lathrop Avenue property line, about 1,050 feet south of Savannah River, 1.8 miles northwest of Savannah city hall. Measuring point, hole in pump base plate, 2 feet above land-surface datum, and 9.2 feet above mean sea level. Water level affected by pumpage in Savannah area. Water levels, in feet below land-surface datum, 1943: Aug. 5, a/ 83.6; Dec. 9, 68.2.

87 (*907, p. 45; 937, p. 47; 945, p. 66). Savannah Gas Co. In Savannah, about 80 feet south of Bay Street on east side of Reynolds Street, about 55 feet west of Central of Georgia Railway. Measuring point, hole in pump base plate, 1.5 feet above land-surface datum, and 20.46 feet above mean sea level. Water level, in feet below land-surface datum, 1943: Aug. 10, b/ 66.3.

88 (*945, p. 66). W. P. Dowling. About 1,100 feet northwest of Central Junction, 100 feet northeast of Seaboard Railway, and 3.9 miles northwest of Savannah city hall. Measuring point, top of 8-inch casing, 0.5 foot below land-surface datum, and 16.86 feet above mean sea level. Water level affected by pumpage in Savannah area.

Highest and lowest weekly water level, in feet below land-surface datum, 1943
(From recorder charts)

Week	Date	Highest level	Date	Lowest level
Jan. 1-2	Jan. 1	44.65	Jan. 2	45.05
3-9	4	44.10	8	45.75
10-16	11	44.88	16	45.78
17-23	19	45.19	20	46.08
24-30	25	45.17	30	46.38
Jan. 31-Feb. 6	Feb. 3	43.90	31	46.37
Feb. 7-13	8	45.27	Feb. 12	47.11
14-20	14	46.52	16	47.48
21-27	22	46.50	25	47.75
Feb. 28-Mar. 6	Mar. 3	46.40	Mar. 4	47.78
Mar. 7-11	8	46.77	11	47.64
12-18		(c)		(c)
19-27	22	46.70	19	47.91

a Pump on well operating; capacity about 1,200 gallons a minute.
b Pump on well operating; capacity about 550 gallons a minute.
c No record.

645857O—45——5

88. W. P. Dowling--Continued.

Highest and lowest weekly water level, in feet below land-surface datum, 1943
(From recorder charts)

Week	Date	Highest level	Date	Lowest level
Mar. 28-Apr. 3	Apr. 2	46.43	Apr. 3	47.62
Apr. 4-10	5	46.71	6	48.10
11-17	13	46.75	15	47.62
18-24	24	46.45	22	47.56
Apr. 25-May 1	27	42.65	25	46.45
May 2-8	May 3	44.55	May 8	46.66
9-15	10	46.05	15	47.45
16-22	16	47.03	22	48.85
23-29	24	47.96	28	50.07
May 30-June 5		(a)		(a)
June 6-12	June 7	49.81	June 9	51.03
13-19	19	44.82	13	50.05
20-26	20	46.11	26	49.77
June 27-July 3	28	49.30	July 1	50.18
July 4-10	July 5	49.58	9	50.71
11-17	11	50.29	16	51.69
18-24	19	50.95	22	52.19
25-31	26	51.42	31	52.11
Aug. 1-7	Aug. 2	51.50	Aug. 5	52.23
8-14	9	51.41	13	52.32
15-21	16	51.35	20	52.21
22-28	23	51.54	28	52.29
Aug. 29-Sept. 4	Sept. 1	51.56	Sept. 4	52.39
Sept. 5-11	8	47.66	5	52.20
12-18	13	50.49	17	51.62
19-25	21	50.81	22	51.67
Sept.26-Oct. 2	27	50.80	30	51.81
Oct. 3-9	Oct. 4	50.75	Oct. 8	51.72
10-16	11	50.73	13	51.61
17-23	18	50.92	20	51.84
24-30	25	50.63	29	51.79
Oct. 31-Nov. 6	Nov. 1	51.28	Nov. 6	52.00
Nov. 7-13	12	50.35	7	51.80
14-20	15	50.41	17	51.02
21-27	22	50.26	21	50.94
Nov. 28-Dec. 4	29	49.80	Dec. 2	50.41
Dec. 5-11	Dec. 6	49.54	9	50.20
12-18	15	48.59	18	50.72
19-25	25	47.52	22	51.48
26-31	28	43.95	26	47.52

100. Producers Cooperative Association. In Savannah, about 1.1 miles east-southeast of Savannah city hall, 1,000 feet south of Savannah River, and about 100 feet north of west end of main building. Unused drilled industrial well, diameter 6 inches, depth 310 feet. Measuring point, top of 6-inch casing, 0.7 foot above land-surface datum, and about 6 feet above mean sea level. Water-stage recorder maintained on well Aug. 29 to Nov. 13, 1943. Water levels affected by pumping in Savannah area. Average range of daily fluctuations for September, 1.8 feet; for October, 1.4 feet. Maximum range of daily fluctuations, which occurred on Aug. 30, was 3.04 feet. Minimum range of daily fluctuations, which occurred on Oct. 19, was 0.75 foot. Average monthly water level, in feet below land-surface datum, during September, 44.9; during October, 43.6.

Highest and lowest weekly water level, in feet below land-surface datum, 1943
(From recorder charts)

Aug. 29-Sept. 4	Aug. 30	45.46	Sept. 4	49.32
Sept. 5-11	Sept.11	45.05	5	48.60
12-18	13	44.58	17	47.74
19-25	23	43.39	25	45.49
Sept.26-Oct. 2	27	42.81	Oct. 1	45.40

a No record.

100. Producers Cooperative Association--Continued.

Highest and lowest weekly water level, in feet below land-surface datum, 1943
(From recorder charts)

Week	Date	Highest level	Date	Lowest level
Oct. 3-9	Oct. 4	43.10	Oct. 5	45.56
10-13		(a)		(a)
14-16	14	42.50	15	45.17
17-23	17	42.55	22	43.88
24-30		(a)		(a)
Oct. 31-Nov. 6	Nov. 1	42.19	Nov. 6	44.13
Nov. 7-13	8	41.80	7	44.10

105 (*845, p. 54; 886, p. 75; 907, p. 45; 937, p. 47; 945, p. 67). Pratt Gay. On south side of Louisville road, near its intersection with Pine Barren road, and 8 miles west of Savannah. Measuring point, top of 3-inch casing, about 1 foot above land-surface datum. Water levels, in feet below land-surface datum, 1943: Jan. 28, 5.65; Sept. 2, 9.20; Dec. 11, 8.80.

109 (*845, p. 54; 886, p. 75; 907, p. 45; *937, p. 47; 945, p. 67). Georgia State Highway Department. South of west abutment of bridge over Savannah River on U. S. Highway 17, and 7 miles northwest of Savannah. Measuring point, base of pitcher pump, 4.0 feet above land-surface datum, and 7.8 feet above mean sea level. Water level affected by pumpage in Savannah area and also by tide. Water levels, in feet below land-surface datum, 1943: Jan. 28, 5:20 p.m., 15.50; July 9, 9:45 a.m., 19.40; Sept. 2, 6:45 p.m., 20.89.

112 (*907, p. 46; *937, p. 47; 945, p. 67). Mrs. L. O. Givern. At Bloomingdale, about 200 feet north of Central of Georgia Railway station, about 90 feet west of town street. Measuring point, top of 2-inch tee, 2.7 feet above land-surface datum, and 1.46 feet above top of 4-inch coupling, 24.66 feet above mean sea level. (Elevation of measuring point erroneously given in Water-Supply Paper 937 as 24.4 feet above mean sea level.) No measurements made during 1943.

117 (*907, p. 46; *937, p. 47; 945, p. 67). United States War Department. At Fort Screven, on Tybee Island, about 300 feet south of old lighthouse. Measuring point, top of 9-inch cap on well, 0.25 foot above land-surface datum, and 6.7 feet above mean sea level. Water level affected by tide. Water level, in feet below land-surface datum, 1943: July 10, 12:55 p.m., 6.65.

121 (*886, p. 75; 907, p. 46; 937, p. 48; 945, p. 68). Robert Schneider. 50 feet north of Tybee road, in northwestern part of Tybee Island. Measuring point, top of 1-inch cross, level with land-surface datum, and 5.8 feet above mean sea level. Water level affected by tide.

Water level, in feet below land-surface datum, 1943

Date	Hour	Water level	Date	Hour	Water level
Feb. 13	2:30 p.m.	5.27	July 27	12:35 p.m.	7.98
Apr. 17	1:58 p.m.	6.77	Oct. 30	2:30 p.m.	7.65
June 19	1:50 p.m.	7.21	Dec. 9	5:55 p.m.	6.42

122 (*907, p. 46; 937, p. 48; 945, p. 68). Georgia State Highway Department. Near southwest end of steel truss bridge over Bull River on Tybee road, 7 miles east of Savannah. Measuring point, top of 3-inch tee, 0.5 foot above land-surface datum, and 9.07 feet above mean sea level. Water level affected by tide.

a No record.

122. Georgia State Highway Department--Continued.

Water level, in feet, 1943

Date	Hour	Water level in Bull River, in feet with reference to mean sea level	Water level in well, in feet below land-surface datum
Jan. 2	3:30 p.m.	+1.8	11.73
22	3:45 p.m.	-3.5	12.24
Mar. 19	5:30 p.m.	+1.4	12.33
May 8	2:25 p.m.	.0	13.34
Dec. 9	5:15 p.m.	+.9	14.17

123 (*886, p. 75; 907, p. 46; *937, p. 48; 945, p. 68). Henry Walthour Estate. On Wilmington Island, on southwest side of dirt road, about 0.5 mile south of Tybee road. Measuring point, top of 3-inch casing, 0.5 foot above land-surface datum, and 5.2 feet above mean sea level. Daily fluctuation of water level, due mostly to tides, ranges from about 0.3 foot during neap tides to 1.1 feet during highest spring tides. Average daily range of fluctuation during 1943 was 0.65 foot.

Highest and lowest weekly water level, in feet below land-surface datum, 1943
(From recorder charts)

Week	Date	Highest level	Date	Lowest level
Jan. 1-2		(a)		(a)
3-9	Jan. 8	7.38	Jan. 6	8.62
10-16	10	7.57	11	8.42
17-23	19	7.87	20	8.66
24-30	28	7.98	30	8.58
Jan. 31-Feb. 6	Feb. 6	7.48	31	8.59
Feb. 7-13	7	7.87	Feb. 12	8.69
14-20	20	8.20	19	8.87
21-27	21	8.13	27	8.98
Feb. 28-Mar. 6	Mar. 6	7.57	Mar. 4	9.09
Mar. 7-19		(a)		(a)
20-27	21	8.22	24	9.10
Mar. 28-Apr. 3	28	8.39	Apr. 3	9.29
Apr. 4-10	Apr. 4	8.48	7	9.37
11-17	12	8.69	17	9.57
18-24	19	8.51	21	9.62
Apr. 25-May 1	25	8.64	May 1	9.82
May 2-8		(a)		(a)
9-15	May 12	9.53	15	10.19
16-22	21	9.29	18	10.30
23-29	25	8.95	23	10.03
May 30-June 5	June 2	9.15	June 5	10.18
June 6-12	6	9.52	12	10.51
13-19	17	9.82	19	10.98
20-26	20	10.02	20	10.99
June 27-July 3	27	10.21	July 1	11.09
July 4-10	July 4	10.28	10	11.05
11-17	17	10.07	13	11.26
18-26		(a)		(a)
27-31	29	10.57	31	11.20
Aug. 1-7	Aug. 2	10.55	Aug. 7	11.30
8-14	14	10.30	12	11.47
15-21	16	10.13	18	11.33
22-28	22	10.61	28	11.53
Aug. 29-Sept. 4	29	10.89	Sept. 4	11.67
Sept. 5-11	Sept. 11	10.59	6	11.71
12-18	13	10.32	18	11.59
19-25	24	10.70	19	11.48
Sept. 26-Oct. 2	Oct. 2	10.48	28	10.42
Oct. 3-9	8	10.39	Oct. 5	11.33
10-16		(a)		(a)
17-23	17	10.57	18	11.31

a No record.

123. Henry Walthour Estate--Continued.

Highest and lowest weekly water level, in feet below land-surface datum, 1943
(From recorder charts)

Week	Date	Highest level	Date	Lowest level
Oct. 24-30	Oct. 26	10.40	Oct. 29	11.26
Oct. 31-Nov. 6	Nov. 5	10.44	Nov. 1	11.32
Nov. 7-13	8	10.54	10	11.38
14-20	16	10.57	14	11.36
21-27	27	10.19	25	11.11
Nov. 28-Dec. 4	29	9.51	Dec. 3	10.95
Dec. 5-9	Dec. 8	10.05	5	10.85
9-15		(a)		(a)
16-25	16	10.22	24	11.11
26-31	30	9.73	27	10.90

126 (*845, p. 54; 886, p. 76; 907, p. 47; *937, p. 49; 945, p. 69). Atlantic Mutual Fire Insurance Co. At south end of Wilmington Island. No measurements made during 1943.

128 (*945, p. 69). Southeastern Medical Center. (Formerly owned by National Order of Railway Conductors Home.) On Oatland Island, about 4 miles southeast of Savannah, on east side of main building. Measuring point, top of hole in pump base plate, 0.5 foot above land-surface datum, and about 16 feet above mean sea level. Water level affected by tide.

Water level, in feet below land-surface datum, 1943

Date	Hour	Water level	Date	Hour	Water level
Feb. 13	1:30 p.m.	27.46	July 27	10:35 a.m.	31.89
Apr. 17	11:45 a.m.	29.95	Nov. 6	12:15 p.m.	31.7
June 19	11:55 a.m.	32.13			

131 (*886, p. 76; 907, p. 47; *937, p. 49; 945, p. 69). C. E. Oliver. On east side of State Highway 21, 0.8 mile northwest of crossing of Atlantic Coast Line Railroad at Monteith. Measuring point, top of 3-inch cross, 14.3 feet above mean sea level and 1.5 feet above land-surface datum.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level
Jan. 28	8.16	May 22	9.08	Sept. 2	11.36
May 3	8.69	July 8	10.20	Dec. 15	11.25

133 (*945, p. 69). Georgia State Highway Department. About 2.6 miles north of Monteith, at foot of shoulder east of State Highway 21, on north bank of Black Creek. Measuring point, top of 2-inch elbow, level with land-surface datum, and 6.85 feet above mean sea level. Water levels, in feet above land-surface datum, 1943: Jan. 28, 0.50; May 3, 1.0.

134 (*945, p. 69). Mrs. Americus Oglesby. 4 miles south of Savannah, about 100 feet southwest of intersection of Waters Avenue and Montgomery road. Measuring point, top of 3-inch casing, 0.3 foot above land-surface datum, and 20.37 feet above mean sea level. Water levels, in feet below land-surface datum, 1943: July 7, 32.34; Sept. 2, 33.18.

137 (*907, p. 47; *937, p. 49; 945, p. 70). C. P. Rowland. In Montgomery, in northern part, on east side of Ferguson Avenue. Measuring point, top of 3-inch casing, 0.2 foot above land-surface datum. Water levels, in feet below land-surface datum, 1943: Apr. 3, 13.65; July 7, 14.65; Sept. 2, 15.20; Dec. 11, 14.93.

143 (*886, p. 76; 907, p. 47; *937, p. 49;.945, p. 70). M. B. Lane. In Anderson, about 600 feet north of Seaboard Railway. Measuring point, top of 4-inch tee, 7.07 feet above mean sea level and 2.6 feet above land-surface datum. Water levels, in feet above land-surface datum, 1943: Feb. 23, 3.76; June 23, 2.7; Dec. 10, 2.5.

a No record.

144 (*945, p. 70). J. F. Zipperer. On north side of U. S. Highway 17, 0.2 mile east of its intersection with Fort Argyle road. No measurements made during 1943.

145 (*886, p. 76; 907, p. 47; *937, p. 49; 945, p. 70). A. G. Gillespie. On north side of U. S. Highway 17, about 0.25 mile east of Little Ogeechee River. Measuring point, top of 3-inch elbow, 1.1 feet above land-surface datum, and about 12.5 feet above mean sea level.

Water level, in feet with reference to land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Feb. 23	+0.24	May 25	-0.36	July 13	+1.38	Dec. 10	+2.08
Apr. 26	-.32	June 23	+1.02	Sept. 3	+2.07		

166 (*945, p. 70). Chatham County. At school on north side of Pine Barren road, 0.8 mile west of Louisville road. Measuring point, top of 3-inch casing, 0.4 foot above land-surface datum. Water level, in feet below land-surface datum, 1943: July 8, 10.09; Sept. 3, 11.05.

169 (*907, p. 48; *937, p. 49; 945, p. 70). L. J. Carter. On north side of Pine Barren road, 2.75 miles east of Ogeechee River. Measuring point, top of 3-inch tee, 1.3 feet above land-surface datum. Water level, in feet above land-surface datum, 1943: July 8, 0.95.

174 (*907, p. 48; *937, p. 49; 945, p. 70). Mrs. Eda W. Sapp. About 750 feet north of Pine Barren road, 0.5 mile east of Ogeechee River. Measuring point, top of 3-inch tee, 2.5 feet above land-surface datum. Water levels, in feet above land-surface datum, 1943: July 8, 7.35; Sept. 3, 6.58.

188 (*907, p. 48; *937, p. 50; 945, p. 70). A. C. Colbert. At Burroughs, between Atlantic Coast Line Railroad and Seaboard Railway. Measurements discontinued.

194 (*886, p. 76; 907, p. 48; *937, p. 50; 945, p. 70). Mrs. W. W. Keller, Sr. At Drakie's Bluff, on west bank of Savannah River, about 8 miles northwest of Savannah. Measuring point, top of 4-inch casing, 12.74 feet above mean sea level and 0.4 foot above land-surface datum. Water level, in feet below land-surface datum, 1943: July 8, 21.59.

199 (*886, p. 76; 907, p. 48; *937, p. 50; 945, p. 70). Mrs. Hattie F. Keller. At Meinhard, about 0.25 mile south of Monteith road and 750 feet west of Savannah & Atlanta Railway. Measuring point, top of bushing in 5-inch tee, 3 feet above land-surface datum and 20.3 feet above mean sea level.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level
Jan. 28	9.84	July 7	11.72	Dec. 15	13.10
May 3	10.43	Sept. 2	12.97		

203 (*845, p. 54; 886, p. 76; 907, p. 48; 937, p. 50; 945, p. 70). Atlantic Coast Line Railroad. At house of section foreman, in Cherokee Hill. No measurements made during 1943.

213 (*886, p. 76; 907, p. 48; *937, p. 50; 945, p. 70). J. L. Budreau. At intersection of Burroughs road and U. S. Highway 17. Measuring point, end of 3-inch overflow pipe, 0.5 foot above land-surface datum, and 0.73 foot below bench mark. Bench mark, northeast end of concrete base for gasoline pumps at J. F. Zipperer's store.

Water level, in feet below land-surface datum, 1943

Apr. 22	1.30	July 13	2.18	Dec. 10	3.02
June 23	1.97	Sept. 3	2.93	13	2.85

242 (*945, p. 71). J. L. Budreau. On east side of Burroughs road, 0.9 mile south of U. S. Highway 17. Measuring point, top of 6-inch elbow, 0.8 foot above land-surface datum. Water levels, in feet with reference to land-surface datum, 1943: Feb. 23, +0.3; June 23, -0.59.

256 (*937, p. 50; 945, p. 71). Mrs. W. M. Price. At Bloomingdale, on south side of Central of Georgia Railway, opposite depot. Measuring point, top of 2-inch casing, about 1 foot above land-surface datum, and 25.9 feet above mean sea level. Water levels, in feet below land-surface datum, 1943: Jan. 28, 2.5; July 7, 3.7.

266 (*907, p. 48; *937, p. 50; 945, p. 71). Dr. J. F. Chisholm. 1 mile east of Augusta road, 3.5 miles north of Monteith. 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 datum. Water levels, in feet below land-surface datum, 1943: May 3, 5.76; July 7, 6.91; Sept. 2, 7.94.

269 (*907, p. 48; *937, p. 51; 945, p. 71). J. W. Pierpont Estate. In east part of Isle of Hope. Measuring point, lower east inside edge of 8-inch tee, 10.8 feet above mean sea level and 0.8 foot above land-surface datum. Water level affected by tide.

Water level, in feet, 1943

Date	Hour	Elevation of tide in Skidaway River, in feet with reference to half-tide level	Water level in well, in feet below land-surface datum
Apr. 3	2:25 p.m.	-5.0	16.42
July 7	1:55 p.m.	+1.6	17.96
Sept. 2	12:15 p.m.	+3.2	18.36
Dec. 11	2:10 p.m.	-3.2	17.85

273 (*907, p. 49; *937, p. 51; 945, p. 71). C. A. Gross. On west side of Isle of Hope Road, 1.5 miles north of Isle of Hope. Measuring point, top of 3-inch casing, 8.9 feet above mean sea level, and level with land-surface datum. Water level affected by tide. Water levels, in feet below land-surface datum, 1943: Apr. 3, 2:10 p.m., 22.15; July 7, 2:30 p.m. 25.33; Sept. 2, 12:30 p.m., 25.65; Dec. 11, 2:30 p.m., 23.64.

275 (*886, p. 77; 907, p. 49; *937, p. 51; 945, p. 71). Mrs. R. J. Travis. At Avalon. Measuring point, top of concrete base for gasoline pump, east of garage, 2.54 feet above land-surface datum and 7.7 feet above mean sea level. Water level affected by tide. Water level, in feet below land-surface datum, 1943: Apr. 3, 3:40 p.m., 4.11.

276 (*907, p. 49; 937, p. 51; 945, p. 71). Dr. J. F. Chisholm. Near Atlantic Coast Line Railroad, 2.5 miles northeast of Monteith. Measurements discontinued.

279 (*907, p. 49; *937, p. 51; 945, p. 71). J. B. Pound Hotel Corporation. (Formerly owned by DeWitt Hotel Corporation.) On Wilmington Island, at General Oglethorpe Hotel. Measuring point, top of 12-inch plate cap on well, 11.1 feet above mean sea level and 4 feet below land-surface datum.

Water level, in feet below land-surface datum, 1943

Date	Hour	Water level	Date	Hour	Water level
Jan. 5	5:20 p.m.	19.48	Aug. 28	1:45 p.m.	a 25.40
Feb. 6	3:25 p.m.	20.36	Oct. 30	1:20 p.m.	a 24.77
June 5	11:55 a.m.	21.8	Nov. 6	12:35 p.m.	a 24.71
July 27	2:20 p.m.	a 24.53	Dec. 9	4:23 p.m.	a 24.1

312 (*907, p. 49; *937, p. 51; 945, p. 71). Miss Mamie Taylor. About 50 feet northeast of Louisville road, and about 0.4 mile northwest of intersection with Pine Barren road. No measurements made during 1943.

314 (*907, p. 49; *937, p. 52; 945, p. 71). J. M. Breckenridge. About 600 feet west of White Bluff Road, 0.3 mile north of Buckhalter road. Measuring point, top of pump base plate, 1 foot above land-surface datum. Water levels, in feet below land-surface datum, 1943: Apr. 3, 31.78; July 7, 34.63; Sept. 2, 35.67; Dec. 11, 34.00.

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a One centrifugal pump operating, draw-down about 1.5 feet.

321 (*907, p. 49; *937, p. 52; 945, p. 72). R. C. Hinley. About 8.25 miles south of Savannah city hall, 100 feet north of Vernonburg Avenue, 0.1 mile east of White Bluff Road. Measuring point, ½-inch tap hole in 3- by 1-inch reducer, about 16.5 feet above mean sea level and 1.7 feet above land-surface datum. Water levels, in feet below land-surface datum, 1943: Apr. 3, 12.38; July 7, 13.80; Sept. 2, 14.48; Dec. 11, 14.05.

326 (*937, p. 52; 945, p. 72). R. E. Heller. In eastern part of Coffee Bluff. Measuring point, top of 3-inch tee, 6.6 feet above mean sea level and 1.7 feet above land-surface datum.

Water level, in feet, 1943

Date	Hour	Water level in Forest River, in feet, with reference to half-tide level	Water level in well, in feet above land-surface datum
Apr. 3	5:00 p.m.	-1.0	2.82
July 7	11:58 a.m.	+2.7	2.11
Sept. 2	11:00 a.m.	+3.6	1.63
Dec. 11	12:25 p.m.	+.4	1.42

328 (*907, p. 50; *937, p. 52; 945, p. 72). United States War Department. At Fort Screven, on Tybee Island. Measuring point beginning Jan. 1, 1943, top of 3-inch casing, about level with land-surface datum and 9.85 feet above mean sea level. During 1942 grading operation raised land surface around well about 4 feet and well casing was extended to bring it above land surface. Present measuring point is 2.93 feet above measuring point referred to in Water-Supply Papers 907, 937, and 945. Daily fluctuation of water level, due mostly to tides, ranges from about 1.7 feet during lowest neap tides to 4.5 feet during highest spring tides. During 1943 the average daily range of fluctuation of water level was 3.1 feet. Highest water level in well lags about 40 minutes behind highest tide in Savannah River measured about 0.25 mile northeast.

Highest and lowest weekly water level, in feet below land-surface datum, 1943
(From recorder charts)

Week	Date	Highest level	Date	Lowest level
Jan. 1-2		(a)		(a)
3-9	Jan. 7	7.04	Jan. 6	11.67
10-16	10	7.60	10	11.13
17-23	21	7.59	20	10.82
24-30	28	7.71	25	10.78
Jan. 31-Feb. 6	Feb. 4	6.98	Feb. 5	11.26
Feb. 7-13	8	7.68	7	11.61
14-20	20	7.80	18	11.32
21-27	21	7.68	21	10.90
Feb. 28-Mar. 6	Mar. 6	6.70	Mar. 4	11.39
Mar. 7-19		(a)		(a)
20-27	21	7.40	24	11.15
Mar. 28-Apr. 3	Apr. 3	7.48	Apr. 2	11.31
Apr. 4-10	4	7.48	5	11.60
11-17	11	7.88	17	11.10
18-24	24	7.21	21	11.78
Apr. 25-May 1	25	7.26	May 1	11.48
May 2-8		(a)		(a)
9-15	May 12	8.56	9	11.23
16-22	22	7.63	20	11.94
23-29	24	7.48	28	11.60
May 30-June 5	30	8.16	31	11.79
June 6-12	June 7	8.43	June 6	11.44
13-19	18	8.20	18	12.48
June 27-July 3	July 3	8.57	July 1	12.39
July 4-10	4	8.73	10	12.01
11-16	15	8.67	16	13.03
17-19		(a)		(a)
20-24	20	8.71	24	12.50

a No record.

328. United States War Department--Continued.

Highest and lowest weekly water level, in feet below land-surface datum, 1943
(From recorder charts)

Week	Date	Highest level	Date	Lowest level
July 25-31	July 29	9.31	July 30	12.73
Aug. 1-7	Aug. 1	9.06	Aug. 6	12.19
8-14	14	8.48	12	13.02
15-21	16	8.38	15	12.69
22-28	23	9.11	26	12.64
Aug. 29-Sept. 4	29	9.21	Sept. 2	12.68
Sept. 5-11	Sept. 11	8.63	10	12.75
12-18	12	8.39	15	12.96
19-25	25	9.13	22	12.26
Sept. 26-Oct. 2	Oct. 2	8.98	28	12.42
Oct. 3-9	6	8.66	Oct. 9	12.47
10-16		(a)		(a)
17-23	17	9.10	17	12.22
24-30	26	8.98	28	12.68
Oct. 31-Nov. 6	Nov. 4	9.05	Nov. 6	12.59
Nov. 7-13	12	9.10	10	12.80
14-20	14	9.33	14	12.40
21-27	27	8.93	27	12.39
Nov. 28-Dec. 4	29	8.88	Dec. 1	12.48
Dec. 5-11	Dec. 10	8.97	10	12.83
12-18	12	8.92	13	12.43
19-25	25	9.01	22	12.54
26-31	26	8.57	27	12.54

330 (*937, p. 53; 945, p. 73). State Highway Department. On southeast side of U. S. Highway 17, 6 miles southwest of Savannah. Measuring point, top of 3-inch coupling on 3-inch casing, 0.5 foot below land-surface datum.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Feb. 23	1.02	Apr. 22	1.64	July 13	2.88	Dec. 13	3.35
26	1.00	26	1.62	Sept. 3	3.66	14	3.41
Mar. 19	1.27	June 23	2.43	Dec. 10	3.45	16	3.56

331 (*945, p. 73). J. E. Poythress. At Jelma Inn, about 13 miles northwest of Savannah, 0.4 mile southeast of Chatham-Effingham county line, along State Highway 21, about 50 feet northeast of highway. Measuring point, top of concrete base for pump around well casing, 0.8 foot above land-surface datum, and 23.14 feet above mean sea level.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level
Jan. 28	10.47	July 8	12.20	Dec. 11	13.50
May 20	11.55	Sept. 2	13.16		

332 (*945, p. 73). Louis Lucas. At Bloomingdale, about 50 feet north of U. S. Highway 80, 0.3 mile east of Bloomingdale crossroad. Measuring point, top of 2-inch inner casing, 0.9 foot above land-surface datum, and 24.40 feet above mean sea level.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 28	1.69	Apr. 6	2.21	June 10	2.7	Sept. 2	3.89
Mar. 4	2.18	May 3	2.38	July 7	2.94	Dec. 11	3.94

a No record.

343 (*945, p. 73). U. S. Department of Agriculture. At Barbour Lathrop Plant Introduction Station, about 12 miles southwest of Savannah, 300 feet north of U. S. Highway 17, and 200 feet northeast of Fort Argyle road. Measuring point, north edge of shoulder of 6-inch tile inside well, level with land-surface datum, and 18.67 feet above mean sea level.

Highest and lowest weekly water level, in feet below land-surface datum, 1943
(From recorder charts)

Week	Date	Highest level	Date	Lowest level
Jan. 1-2	Jan. 2	10.23	Jan. 1	10.34
3-9	9	9.79	3	10.23
10-16	16	8.95	10	9.79
17-23		(a)	17	8.95
24-30	30	7.07		(a)
Jan. 31-Feb. 6	Feb. 4	6.72	31	7.10
Feb. 7-13	11	6.70	Feb. 12	6.95
14-20	14	6.81	19	7.10
21-27	21	7.02	27	7.55
Feb. 28-Mar. 6	Mar. 6	6.55	Mar. 1	7.53
Mar. 7-13	11	5.86	7	6.55
14-20	15	6.00	20	6.24
21-27	26	4.8	21	6.2
Mar. 28-Apr. 3	28	4.9	Apr. 3	5.4
Apr. 4-10	Apr. 4	5.4	10	5.9
11-17	11	5.8	17	6.2
18-24	18	6.05	22	6.24
Apr. 25-May 1	25	6.2	May 1	6.4
May 2-8	May 3	6.3	8	6.8
9-15	14	6.8	10	6.95
16-22	22	5.3	17	6.9
23-29	27	4.0	23	5.3
May 30-June 5	30	4.13	June 5	4.96
June 6-12	June 12	4.85	10	5.41
13-19	14	4.69	19	5.25
20-26	20	5.25	25	5.74
June 27-July 3	July 3	3.71	27	5.50
July 4-10	4	3.71	July 10	4.29
11-17	13	2.9	11	4.16
18-24	18	3.51	24	4.10
25-31	25	4.10	31	4.65
Aug. 1-7	Aug. 1	4.65	Aug. 7	5.25
8-14	14	2.78	8	5.20
15-21	19	2.08	15	3.03
22-28	22	2.80	28	3.71
Aug. 29-Sept. 4	31	3.61	Sept. 4	4.07
Sept. 5-11	Sept. 5	4.07	11	4.61
12-18	12	4.61	18	5.25
19-25	19	5.25	25	5.58
Sept. 26-Oct. 2	26	5.58	Oct. 2	6.15
Oct. 3-9	Oct. 3	6.15	9	6.72
10-16	10	6.72	16	7.4
17-23	17	7.4	23	7.8
24-30	24	7.8	30	8.28
Oct. 31-Nov. 6	31	8.28	Nov. 6	8.6
Nov. 7-13	Nov. 7	8.6	13	8.87
14-20	16	8.80	20	9.1
21-27	21	9.1	23	9.24
Nov. 28-Dec. 4	28	9.22	Dec. 4	9.55
Dec. 5-11	Dec. 5	9.55	11	9.74
12-18	18	9.54	14	9.82
19-25	25	9.44	24	9.65
26-31	31	8.7	26	9.44

a No record.

Clayton County

7. J. R. Dubberly. At Forest Park, about 0.5 mile south of highway bridge over Central of Georgia Railway and 43 feet west of center of U. S. Highway 41. Used drilled domestic well, diameter 8 inches, depth 184 feet, cased 14 feet. Measuring point, top of 8-inch casing, 1.5 feet below land-surface datum. Water levels, in feet below land-surface datum, 1943: Apr. 22, 21.9; Dec. 21, 30.92.

11. Pete Kacoonis. At Hapeville, about 0.26 mile south of Fulton-Clayton county line and 192 feet east of center of U. S. Highway 41. Unused drilled domestic well, diameter 6 inches, depth 320 feet, cased 65 feet. Measuring point, top of 6-inch casing, 1.4 feet above land-surface datum. Water level, in feet below land-surface datum, 1943: Dec. 21, 45.5.

14. John E. Dawson. At Mountain View, 0.6 mile east of U. S. Highway 41 and about 100 feet south of east-west road. Used drilled domestic well, diameter 6 inches, depth 110 feet. Measuring point, top of tile curbing, 0.5 foot above land-surface datum. Water levels, in feet below land-surface datum, 1943: Apr. 27, 59.5; Dec. 21, 60.65.

15. W. M. Lyle. At Mountain View, 0.6 mile east of U. S. Highway 41, and about 100 feet south of east-west road. Used dug domestic well, diameter about 4 feet, depth about 67.5 feet. Measuring point, upper surface of wooden floor inside well, 5.0 feet below land-surface datum. Water levels, in feet below land-surface datum, 1943: Apr. 27, 60.0; Dec. 21, 59.2.

18. Aristocrat Dairy. At Morrow, about 0.9 mile south of Central of Georgia Railway station, and 600 feet west of center of State Highway 54. Unused drilled industrial well, diameter 6 inches, depth 503 feet, cased 73 feet. Measuring point, top of 6-inch casing, 1.2 feet above land-surface datum. Water levels, in feet below land-surface datum, 1943: Apr. 27, 42.3; Dec. 21, 44.83.

26. A. C. Crane. At Forest Park, about 3 miles south of Fulton-Clayton county line along U. S. Highway 41 and 100 feet south of tourist court on east side of highway. Unused drilled domestic well, diameter 6 inches, depth 165 feet. Measuring point, small hole at top of 6-inch casing, 1.0 foot above land-surface datum. Water levels, in feet below land-surface datum, 1943: Apr. 28, 16.0; Dec. 21, 27.4.

27. J. L. Paul. In vicinity of city of Forest Park, about 4.0 miles south of Fulton-Clayton line along U. S. Highway 41 and 150 feet east of center of highway. Used drilled domestic well, diameter 5 inches, depth 200 feet. Cased 200 feet. Measuring point, top of 5-inch casing, 0.4 foot above land-surface datum. Water level, in feet below land-surface datum, 1943: Apr. 28, 30.3.

41. Estes Manufacturing Co. At Rex, about 0.05 mile west of Southern Railway and 6 feet west of southwest corner of chair factory. Unused drilled industrial well, diameter 5 inches, depth 425 feet. Measuring point, top of 5-inch casing, 0.4 foot above land-surface datum. Water level, in feet below land-surface datum, 1943: Dec. 21, 4.38.

42. Estes Manufacturing Co. At Rex, about 0.05 mile west of Southern Railway and 36 feet northwest of northwest corner of dwelling. Unused drilled domestic well, diameter 6 inches, depth 225 feet. Measuring point, top of 6-inch casing, 0.4 foot above land-surface datum. Water levels, in feet below land-surface datum, 1943: June 25, 18.18; Dec. 21, 19.23.

44. City of Forest Park. At Forest Park, about 0.4 mile south of Central of Georgia Railway, on eastern edge of municipal baseball field. Unused drilled municipal well, diameter 10 inches, depth 250 feet. Measuring point, top of 10-inch casing, 3.3 feet below land-surface datum. Water level, in feet below land-surface datum, 1943: Dec. 21, 8.24.

Cobb County

5. City of Smyrna. At Smyrna, about 340 feet west of center of Whitfield Street, in open field. Unused drilled municipal well, diameter 8 inches, depth 138 feet, cased 40 feet. Measuring point, top of 9-inch coupling, 0.3 foot above land-surface datum. Water level, in feet below land-surface datum, 1943: Mar. 19, 10.5.

6. City of Smyrna. At Smyrna, at junction of Old Roswell, New Roswell, and Highland roads. Unused drilled municipal well, diameter 8 inches, depth 175 feet, cased 50 feet. Measuring point, top of 9-inch coupling, 0.6 foot above land-surface datum. Water level, in feet below land-surface datum, 1943: Mar. 19, 17.1.

11. Mrs. J. H. Carmichael. At Oakdale, about 0.8 mile northwest of Log Cabin Drive underpass under Georgia Power Co. electric railway and 102 feet east of center of Log Cabin Drive. Used drilled domestic well, diameter 6 inches, depth 60 feet. Measuring point, top of 6-inch casing, 1.1 feet below land-surface datum. Water levels, in feet below land-surface datum, 1943: Apr. 1, 25.2; Dec. 22, 30.75.

14. J. A. Rust. At Smyrna, about 1.75 miles along U. S. Highway 41 northwest of Locust Grove Baptist Church in Oakdale, and 250 feet west of center of U. S. Highway 41. Used drilled industrial well, diameter 6 inches, depth 117 feet, cased 80 feet. Measuring point, top of 6-inch casing, level with land-surface datum. Water levels, in feet below land-surface datum, 1943: Mar. 22, 38.3; Dec. 22, 43.9.

16. F. L. McMillan. At Smyrna, about 1.75 miles along U. S. Highway 41 northwest of Locust Grove Baptist Church in Oakdale, and 200 feet east of center of U. S. Highway 41. Used drilled domestic well, diameter 6 inches, depth 113.5 feet. Measuring point, small hole at base of pump, 1.8 feet below land-surface datum. Water level, in feet below land-surface datum, 1943: Dec. 22, 44.29.

21. Lewis Ray. At Oakdale, on U. S. Highway 41 about 0.45 mile north of highway bridge over Nashville, Chattanooga & St. Louis Railway, and about 42 feet east of center of highway. Used drilled domestic well, diameter 6 inches, depth 86 feet, cased 40 feet. Measuring point, top of 6-inch casing, 0.9 foot above land-surface datum. Water levels, in feet below land-surface datum, 1943: Mar. 24, 32.9; Apr. 1, 33.0; Dec. 22, 33.93.

25. J. T. Cox. At Oakdale, on Log Cabin Drive, about 0.35 mile northwest of its underpass under Georgia Power Co. electric railway, and 300 feet west of center of Log Cabin Drive. Used drilled domestic well, diameter 6 inches, depth 70.5 feet, cased 12 feet. Measuring point, top of 6-inch casing, 1.3 feet above land-surface datum. Water levels, in feet below land-surface datum, 1943: Mar. 24, 13.5; Dec. 22, 16.46.

27. R. D. Webb. At Oakdale, on Log Cabin Drive, about 0.45 mile northwest of its underpass under Georgia Power Co. electric railway and approximately 150 feet north of center of Log Cabin Drive. Used drilled domestic well, diameter 6 inches, depth 65 feet. Measuring point, top of 6-inch casing, 0.5 foot above land-surface datum. Water levels, in feet below land-surface datum, 1943: Mar. 24, 20.1; Dec. 22, 24.43.

32. Mrs. F. C. Arnold. At Oakdale, about 1.15 miles south of Southern Railway, along the Oakdale road, about 35 feet east of center of road. Used drilled domestic well, diameter 6 inches, depth 78 feet. Measuring point, top of 6-inch casing, 2.1 feet above land-surface datum. Water levels, in feet below land-surface datum, 1943: Mar. 30, 13.64; Dec. 23, 39.56.

36. E. W. Bruton. Near Bolton, on U. S. Highway 78, about 0.5 mile west of highway bridge over Chattahoochee River, and 188 feet south of center of highway. Used drilled domestic well, diameter 6 inches, depth 125 feet. Measuring point, top of 6-inch casing, 1.1 feet above land-surface datum. Water levels, in feet below land-surface datum, 1943: Mar. 30, 21.8; Dec. 23, 35.31.

44. Mrs. J. A. West. At Oakdale, about 0.65 mile south of Southern Railway along the Oakdale road, about 62 feet east of center of road. Used drilled domestic well, diameter 6 inches, depth 86 feet, cased 34 feet. Measuring point, top of 6-inch casing, 1.4 feet above land-surface datum. Water levels, in feet below land-surface datum, 1943: Mar. 30, 37.2; Dec. 23, 41.76.

48. J. J. Watkins. At Oakdale, about 0.3 mile south of Southern Railway along the Oakdale road, 17 feet southeast of southeast corner of dwelling. Used drilled domestic well, diameter 5.5 inches, depth 77 feet. Measuring point, top of 5½-inch galvanized-iron casing, 2.1 feet above land-surface datum. Water levels, in feet below land-surface datum, 1943: Mar. 31, 38.9; Dec. 23, 36.55.

52. C. C. Johnson. At Oakdale, about 0.2 mile north of Southern Railway long the Oakdale road, 100 feet west of center of road. Used drilled domestic well, diameter 5.5 inches, depth 43.5 feet. Measuring point, top of 5½-inch galvanized-iron casing set in concrete block, 0.8 foot above land-surface datum. Water levels, in feet below land-surface datum, 1943: Mar. 31, 13.5; Dec. 23, 21.02.

57. Jim Lawson. At Oakdale, about 0.35 mile north of Church Street and 80 feet west of center of north-south road, inside private dwelling. Used drilled domestic well, diameter 6 inches, depth 150 feet, cased 16 feet. Measuring point, top of 6-inch galvanized-iron casing, 7.8 feet above land-surface datum. Water levels, in feet below land-surface datum, 1943: Apr. 1, 19.4; Dec. 23, 23.1.

71. Mrs. Lillian Mavell. At Oakdale, about 0.1 mile east of Camp Highland Road and approximately 27 feet northeast of northeast corner of dwelling. Used drilled domestic well, diameter 6 inches, depth 109 feet, cased 40 feet. Measuring point, top of 6-inch casing, 0.8 foot above land-surface datum. Water levels, in feet below land-surface datum, 1943: Apr. 2, 54.2; Dec. 23, 58.42.

74. A. P. Hogan. At Marietta, about 0.55 mile southeast of intersection of State Highways 3-E and 220, on State Highway 3-E, 28 feet southwest of southwest corner of dwelling. Used drilled domestic well, diameter 7 inches, depth 93 feet. Measuring point, hole in steel cap over 7-inch casing, 1.6 feet above land-surface datum. Water level, in feet below land-surface datum, 1943: June 7, 42.94.

83. National Park Service, U. S. Dept. of Interior. At Kennesaw Mountain National Park, about 0.55 mile west of U. S. Highway 41 and 250 feet north of center of east-west road. Unused drilled domestic well, diameter 6 inches, depth 51 feet, cased 33 feet. Measuring point, top of 6-inch casing, 2.4 feet above land-surface datum. Water level, in feet below land-surface datum, 1943: June 8, 4.04.

85. D. C. Hames. Near Kennesaw Mountain National Park, on U. S. Highway 41 about 0.4 mile northwest of highway bridge over Nashville, Chattanooga & St. Louis Railway, 45 feet east of center of highway. Unused drilled domestic well, diameter 6 inches, depth 52 feet. Measuring point, top of 6½-inch coupling, 0.3 foot above land-surface datum. Water level, in feet below land-surface datum, 1943: June 8, 21.88.

Coffee County

3 (*945, p. 74). Town of Nicholls. In Nicholls, about 0.1 mile north of Atlanta, Birmingham & Coast Railroad, on east side of city street, near elevated steel water tank. Measuring point, top of hole in pump base plate, 1.8 feet above land-surface datum, and about 190 feet above mean sea level. Water levels, in feet below land-surface datum, 1943: Mar. 17, 117.13; Apr. 27, 117.20.

DeKalb County

17. Frank Carter. In Atlanta, on U. S. Highway 42, about 0.55 mile south of highway bridge over Southern Railway, 98 feet east of center of highway. Used drilled domestic well, diameter 6 inches, depth 250 feet. Measuring point, top of 6-inch casing, 5.5 feet below land-surface datum. Water levels, in feet below land-surface datum, 1943: June 28, 25.88; Dec. 22, 26.55.

18. J. M. Ketchersid. Near Conley, on U. S. Highway 42, about 1.6 miles south of highway bridge over Southern Railway, 85 feet west of center of highway. Used drilled domestic well, diameter 6 inches, depth 155 feet, cased 97 feet. Measuring point, top of 6-inch casing, 5.5 feet below land-surface datum. Water levels, in feet below land-surface datum, 1943: June 28, 34.6; Dec. 22, 37.13.

Dougherty County

3 (*845, p. 54; 886, p. 77; 907, p. 50; *937, p. 53; 945, p. 74). City of Albany well 3. In Albany, southwest of intersection of Jackson and Roosevelt Streets, in rear of municipal water-pumping station. Well plugged with concrete by city of Albany. Measurements discontinued in 1942.

Early County

2 (*937, p. 53; 945, p. 75). Emory University Field Station well 19. Plez Douglas. About 2.4 miles northeast of Damascus, 1.4 miles east of Seaboard Railway, 60 feet south of county road. Measuring point, knife edge on iron bar over well, 0.3 foot above land-surface datum, and 207.70 feet above mean sea level.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 13	0.65	Apr. 22	0.98	July 28	1.30	Oct. 20	13.30
27	.00	May 5	2.00	Aug. 11	2.03	Nov. 3	14.40
Feb. 10	.04	19	1.57	25	3.94	17	14.80
24	.40	June 2	2.00	Sept. 8	6.67	Dec. 1	15.07
Mar. 10	.01	16	4.20	22	9.99	15	11.30
24	.00	30	5.75	Oct. 6	12.47	29	9.90
Apr. 7	.53	July 14	3.00				

6 (*937, p. 54; 945, p. 75). Emory University Field Station well 23. P. F. Chandler. About 1.3 miles north of Douglasville, 2.7 miles east of Seaboard Railway, and 50 feet west of T-junction of county roads. Measuring point, knife edge on iron bar over well, 0.3 foot above land-surface datum, and 228.45 feet above mean sea level.

Water level, in feet below land-surface datum, 1943

Jan. 13	1.20	Apr. 7	1.55	June 30	3.42	Sept. 8	8.65
27	.19	22	2.20	July 14	3.90	22	10.50
Feb. 10	.60	May 5	3.20	28	.90	Oct. 6	12.14
24	1.50	19	2.30	Aug. 11	2.83	20	14.00
Mar. 10	.55	June 2	1.60	25	5.20	Nov. 3	(a)
24	1.10	16	3.10				

18 (*937, p. 54; 945, p. 75). Emory University Field Station well 53. E. B. Davis. About 0.8 mile southeast of Douglasville, 3,125 feet south of county road, north of Big Cypress Pond. Measuring point, knife edge on iron bar over well, 0.3 foot above land-surface datum, and 220.87 feet above mean sea level.

Water level, in feet below land-surface datum, 1943

Jan. 13	2.38	Apr. 22	3.47	July 28	3.00	Oct. 20	8.80
27	2.42	May 5	4.14	Aug. 11	3.64	Nov. 3	12.20
Feb. 10	2.40	19	3.70	25	5.39	17	13.40
24	3.12	June 2	3.17	Sept. 8	6.69	Dec. 1	14.08
Mar. 10	2.45	16	3.90	22	8.17	15	15.15
24	1.81	30	4.93	Oct. 6	8.67	29	10.02
Apr. 7	2.78	July 14	3.70				

a. Well dry Nov. 3 to Dec. 29.

Effingham County

6 (*937, p. 54; 945, p. 75). W. B. Butler. (Formerly owned by Waldo Bradley.) At Eden, on east side of U. S. Highway 80 about 0.3 mile northwest of crossing of Central of Georgia Railway. Measuring point, top of 3-inch tee, 1.2 feet above land-surface datum, and about 38 feet above mean sea level.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 28	1.41	Apr. 6	1.82	June 10	2.19	Sept. 2	2.90
Mar. 4	1.80	May 3	1.92	July 8	2.35	Dec. 11	3.30

7 (*886, p. 77; 907, p. 51; *937, p. 54; 945, p. 76). Central of Georgia Railway. At Meldrim, between Central of Georgia and Seaboard Railways, about 200 feet west of station. Measuring point, since Jan. 1, 1943, top of 8-inch casing, 0.7 foot above land-surface datum, 32.45 feet above mean sea level, and 1.41 feet lower than former measuring point. In April 1943, 8-inch cap and tee removed from well casing, and suction pump for railroad water tank installed on well.

Water level, in feet with reference to land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level
Jan. 28	+1.03	Apr. 6	+0.60	Dec. 11	-0.90
Mar. 4	+.66	Sept. 2	-.57		

10 (*886, p. 77; 907, p. 51; *937, p. 55; 945, p. 76). H. M. Edwards. About 2.2 miles northwest of Bloomingdale, about 100 feet north of U. S. Highway 80. Measurements discontinued after April 1943. During May 1943, 2.09 feet of 3-inch well casing removed and jet pump installed on well, leaving no opening for measuring water level. Measuring point, top of 3-inch casing, 2 feet above land-surface datum. Water levels, in feet below land-surface datum, 1943: Jan. 28, 9.52; Mar. 4, 9.93; Apr. 6, 9.98.

16 (*937, p. 55; 945, p. 76). Coastal Service Co. At Springfield, in northern part, near bottom of valley south of Jacks Branch, about 300 feet east of State Highway 21. No measurements made during 1943.

18 (*937, p. 55; 945, p. 76). Steel Bridge Club. (Formerly owned by H. B. Robertson.) 4 miles southwest of Guyton, near east end of steel bridge over Ogeechee River, on Springfield-Statesboro road, on south side of road. Measuring point, top of 3-inch elbow, 1.8 feet above land-surface datum and 47.12 feet above mean sea level. Water levels, in feet above land-surface datum, 1943: Apr. 6, 2.81; May 3, 2.84; Sept. 2, 2.14; Dec.11, 1.63.

20 (*937, p. 55; 945, p. 76). J. D. Hagin. (Formerly owned by Pineora Manufacturing Co.) At Pineora, 3 miles south of Guyton, 0.2 mile west of Central of Georgia Railway. Measuring point, top of 4-inch coupling on 4-inch casing, 2 feet above land-surface datum.

Water level, in feet below land-surface datum, 1943

Jan. 28	38.50	July 8	39.12	Dec. 11	40.23
May 3	38.78	Sept. 2	39.59		

Evans County

3 (*945, p. 76). City of Claxton. At Claxton, at city waterworks plant, about 300 feet south of Seaboard Railway. Measuring point, 1-inch tap hole in 4-inch educator pipe, 3.40 feet above top of 8-inch coupling on 8-inch casing, 3.55 feet above land-surface datum, and about 186 feet above mean sea level. Water levels, in feet below land-surface datum, 1943: Mar. 4, a/ 112.32; June 14, a/ 113.20; Aug. 2, a/ 113.47; Sept. 18, a/ 113.91.

a 8-inch well, 43 feet northwest, pumping 170 gallons a minute.

Fulton County

7. City of College Park. In College Park, at base of west side of large steel filter tank of city waterworks. Unused drilled municipal well, diameter 10 inches, depth unknown. Measuring point, top of 10-inch casing, 3.8 feet below land-surface datum. Water levels, in feet below land-surface datum, 1943: Jan. 9, 41.03; Dec. 21, 39.8.

8. City of College Park. At College Park, about 30 feet north of Oglethorpe Street extended. Unused drilled municipal well, diameter 10 inches, depth unknown. Measuring point, top of 10-inch casing, level with land-surface datum. Water level, in feet below land-surface datum, 1943: Jan. 9, 55.0.

20. City of East Point. At East Point, on Plant Street about 0.1 mile south of Taylor Avenue, 38 feet east of center of street. Unused drilled municipal well, diameter 10 inches, depth 250 feet. Measuring point, top of 10-inch casing, level with land-surface datum. Water level affected by pumpage in nearby well. Water levels, in feet below land-surface datum, 1943: Jan. 22, 58.5; Apr. 29, 56.5; Dec. 21, 71.44.

26. O'Neill Bros. At East Point, about 98 feet east of Central of Georgia Railway and 6 feet west of O'Neill Bros.' warehouse. Unused drilled industrial well, diameter 10 inches, depth 350 feet. Measuring point, bored hole in bottom of wooden recorder shelter, 2.1 feet above land-surface datum. Equipped with automatic water-stage recorder.

Water level, in feet below land-surface datum, 1943
(From recorder charts)

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Aug. 30	21.49	Sept. 29	22.39	Oct. 24	23.1	Nov. 18	23.79
31	21.53	30	22.38	25	23.1	19	23.81
Sept. 1	21.55	Oct. 1	22.38	26	23.13	20	23.85
2	21.56	2	22.4	27	23.17	21	23.86
3	21.61	3	22.45	28	23.23	22	23.89
8	21.73	4	22.52	29	23.28	23	23.95
9	21.77	5	22.57	30	23.3	24	23.99
10	21.85	6	22.6	31	23.35	25	24.01
11	21.89	7	22.6	Nov. 1	23.42	26	24.01
13	21.93	8	22.6	2	23.43	27	24.03
14	21.96	9	22.63	3	23.46	28	24.04
15	22.01	10	22.69	4	23.48	29	24.05
16	22.04	11	22.77	5	23.5	30	24.11
17	22.08	12	22.78	6	23.55	Dec. 1	24.14
18	22.12	13	22.78	7	23.57	2	24.15
19	22.11	14	22.8	8	23.58	3	24.23
20	22.14	15	22.8	9	23.59	4	24.27
21	22.17	16	22.86	10	23.63	5	24.27
22	22.23	17	22.9	11	23.63	6	24.25
23	22.25	18	22.95	12	23.64	7	24.29
24	22.23	19	22.97	13	23.68	8	24.35
25	22.26	20	23.0	14	23.69	9	24.4
26	22.29	21	23.05	15	23.69	10	24.4
27	22.33	22	23.08	16	23.68	11	24.42
28	22.36	23	23.1	17	23.78		

29. Adair & McCarthy. At East Point, about 275 feet northeast of center of Central Street and 40 feet northeast of northeast corner of Furman Fertilizer Co.'s shed. Unused drilled industrial well, diameter 6 inches, depth 300 feet. Measuring point, small hole in steel cap over top of 6-inch casing, 1.5 feet above land-surface datum. Water levels, in feet below land-surface datum, 1943: Jan. 19, 19.7; Mar. 9, 16.63; Apr. 29, 14.94; Dec. 21, 19.27.

31. City of East Point. At East Point, about 0.25 mile southwest of junction of Semmes Street and Neely Avenue and 15 feet south of small surface stream. Unused drilled municipal well, diameter 10 inches, depth 600 feet. Measuring point, top of 10-inch casing, 0.8 foot above land-surface datum. Water levels, in feet below land-surface datum, 1943: Jan. 15, 11.84; Mar. 9, 11.57; Apr. 29, 10.63; Dec. 21, 13.04.

32. International Minerals & Chemical Corporation. At East Point, about 0.25 mile south of junction of Taylor Avenue and Central Street and 52 feet east of main fertilizer shed. Unused drilled industrial well, diameter 10 inches, depth 506 feet. Measuring point, top of 3-inch reducer on top of former air line set inside 10-inch casing, 2.6 feet above land-surface datum. Water levels, in feet below land-surface datum, 1943: Jan. 16, 48.72; Apr. 22, 46.66; Dec. 21, 56.29.

39. Gate City Cotton Mill. At East Point, about 170 feet south of center of Willingham Drive and 50 feet east of cotton mill. Unused drilled industrial well, diameter 6 inches, depth 900 feet. Measuring point, small hole at base of pump, 1.7 feet above land-surface datum. Water levels, in feet below land-surface datum, 1943: Jan. 22, 13.5; Dec. 21, 19.3.

43. American Agriculture & Chemical Co. At East Point, about 130 feet northeast of center of Central Street and 28 feet east of fertilizer shed. Unused drilled industrial well, diameter 10 inches, depth 300 feet. Measuring point, small hole near top of 10-inch casing, 1.4 feet above land-surface datum. Water levels, in feet below land-surface datum, 1943: Jan. 22, 24.8; Mar. 9, 24.33; Apr. 29, 23.77; Dec. 21, 28.62.

76. Mason Public School. At Bolton, about 140 feet south of center of U. S. Highway 78 and 53 feet southeast of southeast corner of school building. Used drilled municipal well, diameter 6 inches, depth 110 feet, cased 20 feet. Measuring point, top of 6-inch casing, 1.6 feet below land-surface datum. Water levels, in feet below land-surface datum, 1943: Mar. 25, 41.7; Dec. 22, 42.5.

77. Mrs. Cory C. Helms. At Bolton, about 0.1 mile north of intersection of Bolton road and U. S. Highway 78, 95 feet east of center of Bolton road. Used drilled domestic well, diameter 8 inches, depth 84 feet, cased 44 feet. Measuring point, top of inside edge of galvanized-iron casing in center of concrete block, 4.8 feet below land-surface datum. Water levels, in feet below land-surface datum, 1943: Mar. 25, 20.8; Dec. 22, 24.92.

82. Chattahoochee Brick Co. At Bolton, about 0.5 mile northwest of Bolton road, 0.1 mile west of Southern Railway, and 25 feet south of nearest tenement house. Used drilled domestic well, diameter 6 inches, depth 58 feet. Measuring point, top of 6-inch casing, 1.7 feet above land-surface datum. Water levels, in feet below land-surface datum, 1943: Mar. 25, 14.2; Dec. 22, 24.72.

Glynn County

1 (*907, p. 51; *937, p. 55; 945, p. 76). Atlantic Refining Co. well 1. At Arco, about 1 mile north of Brunswick, 1,400 feet northwest of office of Atlantic Refining Co. No measurements made during 1943.

3 (*845, p. 54; 886, p. 78; 907, p. 51; *937, p. 56; 945, p. 77). Atlantic Refining Co. well 3. At Arco, about 1 mile north of Brunswick, about 1,100 feet southwest of office of Atlantic Refining Co. Measuring point, top of 12-inch valve, 3.5 feet above land-surface datum, and 14.0 feet above mean sea level. Water level affected by pumpage in Brunswick area. Average daily range of fluctuation during 1943, about 0.9 foot.

Highest and lowest weekly water levels, in feet above land-surface datum, 1943
(From recorder charts)

Week	Date	Highest level	Date	Lowest level
Jan. 1-2	Jan. 2	30.9	Jan. 1	28.6
3-9	3	30.5	9	28.0
10-16	14	29.6	11	27.9
17-23	17	29.3	22	27.9
24-30	27	29.5	24	27.9
Jan. 31-Feb. 6	Feb. 4	29.4	31	27.6
Feb. 7-13	10	30.3	Feb. 12	27.6
14-25		(a)		(a)

a No record.

3. Atlantic Refining Co. well 3--Continued.

Highest and lowest weekly water levels, in feet above land-surface datum, 1943
(From recorder charts)

Week	Date	Highest level	Date	Lowest level
Feb. 26-27	Feb. 26	29.0	Feb. 27	28.4
Feb. 28-Mar. 6	28	29.3	Mar. 5	27.7
Mar. 7-13	Mar. 7	28.5	9	26.9
14-20	17	30.0	20	27.0
21-27	26	28.5	23	26.1
Mar. 28-Apr. 3	Apr. 2	28.4	29	26.2
Apr. 4-5	5	28.0	Apr. 4	26.9
6-12		(a)		(a)
13-17	13	28.9	17	27.0
18-24	24	28.6	21	27.1
Apr. 25-May 1	27	28.8	30	26.7
May 2-8	May 5	28.6	May 3	27.0
9-15	12	28.6	14	27.1
16-22	22	28.7	18	27.4
23-29	26	29.0	27	27.4
May 30-June 5	June 1	28.7	June 5	26.9
June 6-12	8	28.5	8	26.9
13-19	15	28.6	18	27.0
20-26	25	32.6	20	27.0
June 27-July 3	27	31.4	July 2	27.2
July 4-10	July 7	28.6	9	27.2
11-17	15	29.3	17	26.9
18-24	22	28.4	24	26.2
25-31	25	28.3	31	26.6
Aug. 1-7	Aug. 7	28.0	Aug. 3	26.6
8-14	11	28.4	13	26.4
15-21	18	28.0	21	26.2
22-28	22	28.4	26	26.7
Aug. 29-Sept. 4	29	27.7	Sept. 3	25.5
Sept. 5-11	Sept. 5	27.4	7	25.4
12-18	12	27.5	17	25.3
19-25	24	27.6	21	25.5
Sept. 26-Oct. 2	Oct. 2	28.6	30	26.7
Oct. 3-9	6	29.0	Oct. 3	26.9
10-16	11	28.2	10	27.2
17-23	20	28.1	23	27.1
24-30	24	27.8	30	26.6
Oct. 31-Nov. 6	Nov. 5	27.4	Nov. 1	26.5
Nov. 7-13	13	28.2	10	26.7
14-20	16	27.9	14	27.0
21-27	21	27.9	26	27.0
Nov. 28-Dec. 4	29	28.0	Dec. 4	26.8
Dec. 5-11	Dec. 5	30.7	10	26.9
12-18	18	27.9	17	26.1
19-25	25	35.0	21	27.1
26-31	27	36.4	31	32.7

13 (*907, p. 51; *937, p. 56; 945, p. 77). U. S. Department of Commerce. On St. Simon Island, at lighthouse. Water level affected by tide. Measuring point, top of 4½-inch tee, 2 feet above land-surface datum, and 13.5 feet above mean sea level. Water levels, in feet above land-surface datum, 1943: Feb. 24, 5:50 p.m., 33.4; Apr. 22, 10:55 a.m., 35.1; July 15, 3:30 p.m., 33.9; Dec. 18, 9:20 a.m., 33.7.

33 (*886, p. 73; 907, p. 51; *937, p. 56; 945, p. 77). Sea Island Co. On Lanier Island, at Sea Island Yacht Club, on west bank of Frederica River, south of causeway. Measuring point, top of 3-inch tee, 0.5 foot above land-surface datum, and about 7.36 feet above mean sea level.

a No record.

33. Sea Island Co.--Continued.

Water level, in feet, 1943

Date	Hour	Water level in Frederica River, in feet with reference to mean sea level	Water level in well, in feet above land-surface datum
Feb. 24	5:30 p.m.	-3.6	37.0
Apr. 22	10:30 a.m.	+3.9	37.9
July 15	6:00 p.m.	+3.6	37.7

37 (*937, p. 56; 945, p. 77). F. G. Horne. On St. Simon Island, about 0.25 mile south of Fort Frederica. Measuring point, top of 3-inch cross, 1.7 feet above land-surface datum, and about 14 feet above mean sea level. Water level affected by tide. Water levels, in feet above land-surface datum, 1943: Feb. 24, 6:55 p.m., 31.5; Apr. 22, 12:05 p.m., 31.2; July 15, 5:00 p.m., 30.6; Dec. 18, 10:20 a.m., 29.9.

44 (*886, p. 78; 907, p. 51; *937, p. 56; 945, p. 77). Sea Island Co. On St. Simon Island, on north side of Sea Island road, 0.5 mile west of Cloister Hotel, at Gun Club. Measuring point, top of 3-inch cross on 3-inch casing, 0.8 foot above land-surface datum, and about 7 feet above mean sea level. Water level affected by tide.

Water level, in feet, 1943

Date	Hour	Water level in Black Bank River, in feet with reference to mean sea level	Water level in well, in feet above land-surface datum
Feb. 24	6:15 p.m.	-3.9	37.0
Apr. 22	11:20 a.m.	+3.6	37.2
July 15	4:15 p.m.	-.4	36.3
Dec. 18	9:40 a.m.	-.9	35.9

45 (*907, p. 52; *937, p. 56; 945, p. 77). City of Brunswick. In northeastern part of city, in H. E. Coffin Park. Measuring point, top of 6-inch tee, 1.6 feet above land-surface datum, and 8.11 feet above mean sea level. Water level affected by pumpage in Brunswick area. Water levels, in feet above land-surface datum, 1943: Feb. 24, 3.3; Apr. 22, 31.8; July 16, 31.7.

63 (*945, p. 78). S. L. Lewis. About 0.7 mile west of Southern Junction, about 300 feet northeast of U. S. Highway 341, 0.5 mile southeast of Burnett Creek. Measuring point, top of 3-inch cross, 2.0 feet above land-surface datum, and about 26 feet above mean sea level. Water levels, in feet above land-surface datum, 1943: Feb. 24, 18.6; July 16, 17.8; Dec. 16, 17.4.

100 (*886, p. 78; 907, p. 52; *937, p. 57; 945, p. 78). New England Tourist Camp. On U. S. Highway 17, about 6.1 miles south of bridge over Altamaha River, about 300 feet east of highway. Measuring point, top of 3-inch cross, 1.5 feet above land-surface datum, and 16.9 feet above mean sea level. Water levels, in feet above land-surface datum, 1943: Feb. 24, 20.8; Apr. 22, 20.4; July 15, 20.4; Dec. 17, 19.8.

128 (*937, p. 57; 945, p. 78). A. C. Harrison. At Thalman, about 0.1 mile south of crossing of Seaboard Railway and Atlanta, Birmingham & Coast Railway. Measuring point, top of 3-inch cross, 1 foot above land-surface datum, and 20.75 feet above mean sea level. Water levels, in feet above land-surface datum, 1943: Feb. 24, 33.4; July 16, 33.0; Dec. 16, 32.4.

138 (*886, p. 79; 907, p. 52; 937, p. 57; 945, p. 78). G. F. Cowman. About 300 feet south of marsh edge of South Brunswick River, east side of U. S. Highway 17. Measuring point, top of 3-inch cross, 1.5 feet above land-surface datum, and about 8 feet above mean sea level. Water level affected by tides. Water levels, in feet above land-surface datum, 1943: Feb. 24, 3:25 p.m., 32.7; Apr. 21, 6:35 p.m., 31.9; July 16, 11:30 a.m., 32.6; Dec. 17, 4:40 p.m., 32.0.

143 (*907, p. 52; *937, p. 57; 945, p. 78). J. F. McKee. On St. Simon Island, about 0.5 mile east of Frederica road, 0.4 mile north of Sea Island road, at Black Banks. Measuring point, top of 3-inch cross, 1.2 feet above land-surface datum, and about 7 feet above mean sea level. Water level affected by tide. Water levels, in feet above land-surface datum, 1943: Feb. 24, 6:35 p.m., 17.8; Apr. 22, 11:40 a.m., 17.7; July 15, 4:40 p.m., 16.5; Dec. 17, 10:00 a.m., 16.7.

192 (*907, p. 52; *937, p. 57; 945, p. 78). Edgar Rittenhouse. In Brunswick, 0.25 mile north of Palmetto Cemetery, about 400 feet east of old canal. Measuring point, top of 3-inch cross, 1.8 feet above land-surface datum, and about 11 feet above mean sea level. Water level affected by pumpage in Brunswick area. Water levels, in feet above land-surface datum, 1943: Feb. 25, 22.3; Apr. 22, 22.1; July 15, 21.1; Dec. 17, 21.1.

207. Glynn County. In Brunswick, on south side of Palmetto Cemetery, about 0.25 mile west of Atlantic Coast Line Railroad, 24 feet north of northeast corner of swimming pool at Negro recreation center. Used drilled domestic well, diameter 3 to 2 inches, depth 645 feet, cased 520 feet. Measuring point, top of 3-inch cross on 3-inch casing, 1.7 feet above land-surface datum, and about 10 feet above mean sea level. Water level affected by pumpage in Brunswick area.

Water level, in feet above land-surface datum, 1940-41, 1943

Date	Water level	Date	Water level	Date	Water level
Dec. 23, 1940	a 32.8	Aug. 10, 1941	28.3	July 15, 1943	25.7
27	a 34.9	Feb. 25, 1943	27.5	Dec. 17	26.1
Oct. 14, 1941	28.8				

Henry County

11. D. J. Arnold. At Hampton, about 70 feet west of center of U. S. Highway 41 and 6 feet south of wooden shed. Unused drilled industrial well, diameter 6 inches, depth 173 feet. Measuring point, top of 6¼-inch coupling, 2.3 feet above land-surface datum. Water level, in feet below land-surface datum, 1943: Mar. 9, 29.9.

Liberty County

18 (*937, p. 57; 945, p. 78). E. P. Way. In McIntosh, about 0.25 mile northwest of Atlantic Coast Line Railroad, on southwest side of State Highway 38. Measuring point, top of 3-inch tee, 0.4 foot above land-surface datum, and about 21 feet above mean sea level.

Water level, in feet above land-surface datum, 1943

Feb. 26	21.2	Apr. 26	20.9	Dec. 16	19.1
Mar. 19	21.0	May 25	20.7		

19 (*907, p. 52; *937, p. 58; 945, p. 78). Atlantic Coast Line Railroad. In McIntosh, about 300 feet southwest of crossing of railroad and State Highway 38, about 10 feet northwest of railroad. Measuring point, top of 3-inch tee over well, about 21 feet above mean sea level and 1.4 feet above land-surface datum. Water levels, in feet above land-surface datum, 1943: Feb. 26, 2.88; Apr. 26, 2.74.

28 (*945, p. 78). Midway Church. In Midway, in front of Midway Church, at northeast corner of intersection of U. S. Highway 17 and road to Colonels Island. Measuring point, top of 2-inch tee on 2-inch casing, 2.25 feet above land-surface datum. Water levels, in feet above land-surface datum, 1943: July 13, 7.35; Dec. 13, 7.15.

36 (*907, p. 52; *937, p. 58; 945, p. 78). W. M. Woods. Dorchester Station, about 0.1 mile east of Seaboard Railway station, on north side of Sunbury road. Measuring point, top of 3-inch tee on 3-inch casing, 2.7 feet above land-surface datum, and about 20 feet above mean sea level. Water levels, in feet above land-surface datum, 1943: July 13, 15.2; Dec. 13, 14.7.

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a Wells of Brunswick Pulp & Paper Co. partly shut down.

38 (*907, p. 52; *937, p. 58; 945, p. 78). Dana Stevens. About 0.4 mile south of Dorchester Village schoolhouse. Measuring point, top of 1½-inch pipe, 2 feet above land-surface datum. Water levels, in feet below land-surface datum, 1943: July 13, 9.28; Dec. 13, 10.03.

43 (*907, p. 53; *937, p. 58; 945, p. 79). C. H. Ricks. About 2 miles southeast of Dorchester Village, on north side of road to Colonels Island. Measuring point, top of 3-inch tee, 0.75 foot above land-surface datum. Water levels, in feet below land-surface datum, 1943: July 13, 2.80; Dec. 13, 3.50.

45 (*907, p. 53; *937, p. 58; *945, p. 79). E. P. Way. At Sunbury, 0.3 mile north of Fort Morris. Measuring point, top of 2½-inch tee over well, 1.1 feet above concrete surfacing around well, about 23 feet above mean sea level. Water levels affected by tide.

Water level, in feet, 1943

Date	Hour	Water level in Midway River, in feet with reference to half-tide level	Water level in well, in feet above land-surface datum
July 13	5:50 p.m.	+3.1	3.6
Dec. 13	4:05 p.m.	-3.7	2.3

53 (*886, p. 79; 907, p. 53; *937, p. 58; 945, p. 79). F. F. Branan. About 2.5 miles south of Midway, on west side of U. S. Highway 17. Measuring point, top of 3- by 2-inch reducer on 3-inch casing, 2 feet above land-surface datum, and about 13 feet above mean sea level. Water levels, in feet above land-surface datum, 1943: Feb. 23, 26.4; Apr. 22, 26.2; July 14, 25.6; Dec. 14, 25.1.

75 (*937, p. 58; 945, p. 79). Mrs. E. P. Way. (Formerly owned by G. A. Breachley.) About 3.7 miles south of Riceboro along U. S. Highway 17, about 100 feet east of highway. Measuring point, top of 3-inch cross, 1.9 feet above land-surface datum. Water levels, in feet above land-surface datum, 1943: Feb. 23, 22.3; Apr. 22, 22.0; July 14, 21.5; Dec. 14, 21.1.

95 (*937, p. 58; 945, p. 79). W. M. S. Howard. On Colonels Island, in northwestern part, near marsh. Measuring point, top of 3- by 2-inch reducer, 2.7 feet above land-surface datum, and about 8 feet above mean sea level. Water levels affected by tide. Water levels, in feet above land-surface datum, 1943: July 13, 7:45 p.m., 15.2; Dec. 13, 5:50 p.m., 13.9.

137 (*907, p. 53; *937, p. 59; 945, p. 79). H. A. Bacon. At Hinesville, about 0.5 mile northeast of Liberty County courthouse along State Highway 38, on north side of highway. Measuring point, top of 2-inch tee, 0.9 foot above land-surface datum, and about 47 feet above mean sea level. Water levels, in feet below land-surface datum, 1943: Feb. 26, 2.50; Apr. 26, 3.05; July 17, 4.16; Dec. 16, 4.33.

140 (*907, p. 53; *937, p. 59; 945, p. 79). Mrs. Amber Kiddy. At Allenhurst, about 0.1 mile southeast of Atlantic Coast Line Railroad, at site of old sawmill. Measuring point, top of 10-inch tee, 0.5 foot above land-surface datum, and about 47 feet above mean sea level.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level
Feb. 26	1.24	Apr. 26	1.26	July 17	2.02
Mar. 19	1.58	May 25	1.30	Dec. 16	2.57

170 (*937, p. 59; 945, p. 79). J. H. Woodall. On north side of U. S. Highway 17, 0.3 mile northeast of Freedman's Grove. Measuring point, top of 3-inch tee on 3-inch casing, 1.2 feet above land-surface datum.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Feb. 23	11.6	Apr. 22	11.3	May 25	11.25	Dec. 13	10.2
Mar. 19	11.6	26	11.3	July 13	10.65		

177. P. E. Youmans. In northeastern part of Colonels Island, about 20 feet north of owner's residence. Used drilled domestic well, diameter 3 inches, depth 490 feet. Cased 100 feet. Measuring point, top of 3-inch cross on 3-inch casing, 1.7 feet above land-surface datum and about 15 feet above mean sea level. Water levels affected by tide. Water levels, in feet above land-surface datum: July 8, 1942, 3:20 p.m., 12.1; Dec. 19, 1942, 11:00 a.m., 11.6; July 13, 1943, 6:30 p.m., 11.6; Dec. 13, 1943, 5:10 p.m., 10.5.

Long County

8 (*907, p. 53; *937, p. 59; 945, p. 79). Town of Ludowici. In Ludowici, about 100 feet northwest of Atlantic Coast Line Railroad. Measuring point, hole in pump base plate, 2.7 feet above land-surface datum and 68.7 feet above mean sea level.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level
Mar. 19	11.53	May 25	11.68	Dec. 16	12.99
Apr. 26	11.69	July 17	12.25		

McIntosh County

11 (*886, p. 79; 907, p. 53; *937, p. 59; 945, p. 80). C. A. Stebbins. At Darien, southeast of State Highway 131, northeast of city park, and about 25 feet west of swimming pool. 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 datum. Water levels, in feet above land-surface datum, 1943: Feb. 23, 9.1; Apr. 22, 8.7; July 14, 8.2; Dec. 17, 7.9.

14 (*937, p. 59; 945, p. 80). C. H. Stebbins. At South Newport, northeast of intersection of U. S. Highway 17 and Harris Neck road. Measuring point, top of 3-inch tee, 1.9 feet above land-surface datum and about 17 feet above mean sea level. Water levels, in feet above land-surface datum, 1943: Feb. 23, 19.7; Apr. 22, 19.2; July 14, 18.8; Dec. 14, 18.2.

22 (*937, p. 60; 945, p. 80). D. E. McDonald. At Eulonia, on west side of U. S. Highway 17, about 0.25 mile south of road to Townsend. Measuring point, top of 3-inch tee, 0.6 foot above land-surface datum. Water levels, in feet above land-surface datum, 1943: Feb. 23, 19.5; July 14, 18.8; Dec. 14, 18.4.

25 (*937, p. 60; 945, p. 80). A. D. Burns. At Crescent, on south side of State Highway 131, a short distance southeast of post office. Measuring point, top of 3-inch tee, 1 foot above land-surface datum. Water levels, in feet above land-surface datum, 1943: Feb. 23, 3.18; July 14, 2.75; Dec. 14, 2.32.

27 (*907, p. 54; *937, p. 60; 945, p. 80). C. B. Mallard. On east side of State Highway 131, about 0.4 mile south of right-angle bend in road near Crescent, near bluff on south branch of Sapelo River. Measuring point, top of 3- by 2-inch reducer on 3-inch casing, 1 foot above land-surface datum and about 30 feet above mean sea level. Water level affected by tide. Water levels, in feet above land-surface datum, 1943: Feb. 23, 4:40 p.m., 6.66; July 14, 5:00 p.m., 6.43; Dec. 14, 1:30 p.m., 5.84.

38 (*937, p. 60; 945, p. 80). E. P. Maggioni & Co. At Harris Neck, on west bank of Barbours Island River, southeast of Harris Neck airport. No measurements made during 1943.

43 (*937, p. 60; 945, p. 80). Shellman Bluff public well. At Shellman Bluff, between houses of Mallard Jones and Doby Hamons. Measuring point, top of 3-inch tee, 1 foot above land-surface datum and about 15 feet above mean sea level. Water levels, in feet above land-surface datum, 1943: Feb. 23, 2:15 p.m., 19.2; July 14, 10:50 a.m., 18.2; Dec. 14, 11:05 a.m., 18.3.

45 (*937, p. 60; 945, p. 80). New Masonic Lodge. Half a mile south of Shellman Bluff. Measuring point, top of 3-inch tee, 0.5 foot above land-surface datum, and about 28 feet above mean sea level. Water levels, in feet above land-surface datum, 1943: Feb. 23, 2:40 p.m., 4.50; July 14, 11:20 a.m., 3.61; Dec. 14, 11:30 a.m., 3.82.

53 (*907, p. 54; *937, p. 60; 945, p. 80). Townsend Band Mill. In Townsend, about 300 feet east of Seaboard Railway, north of Townsend, on Eulonia road. Measuring point, top of 4-inch tee on 4-inch casing, 0.8 foot above land-surface datum, and 20.4 feet above mean sea level. Water levels, in feet above land-surface datum, 1943: July 14, 23.6; Dec. 17, 22.6.

85 (*907, p. 54; *937, p. 60; 945, p. 80). R. C. Collins. About 0.7 mile west of Crescent, on south side of State Highway 131. Measuring point, top of 3-inch coupling, 1 foot above land-surface datum. Water levels, in feet below land-surface datum, 1943: Feb. 23, 3.38; July 14, 3.97; Dec. 14, 4.38.

103 (*907, p. 54; *937, p. 60; 945, p. 80). A. M. Durant. At Valona, on east side of owner's residence. Measuring point, top of 3-inch cross on 3-inch casing, 0.8 foot above land-surface datum, and about 10 feet above mean sea level. Water level, in feet above land-surface datum, 1943: July 14, 5:30 p.m., 24.7.

130 (*907, p. 54; *937, p. 60; 945, p. 80). James O'Brien Estate. At Ridgeville, on east side of State Highway 131, 0.5 mile south of road to dock. Measuring point, top of 3-inch cross, 1.3 feet above land-surface datum. Water levels, in feet above land-surface datum, 1943: Feb. 23, 16.6; July 14, 16.4; Dec. 17, 15.6.

141 (*907, p. 54; *937, p. 61; 945, p. 80). Sam Gardner. About 6 miles southeast of Townsend, on east side of Briardam road. Measuring point, top of 3- by 2-inch bushing, 0.8 foot above land-surface datum. Water levels, in feet above land-surface datum, 1943: July 14, 20.0; Dec. 17, 19.2.

144 (*907, p. 54; *937, p. 61; 945, p. 80). Col. Talbot Smith. About 1.5 miles northeast of Darien, about 0.25 mile east of State Highway 131, near marsh. Measuring point, top of 4-inch cross, 1.5 feet above land-surface datum, and about 20 feet above mean sea level. Water level affected by tide. Water levels, in feet above land-surface datum, 1943: Feb. 23, 6:15 p.m., 21.5; July 14, 6:35 p.m., 21.3; Dec. 17, 10:55 a.m., 19.9.

180. D. C. Cowart. In Eulonia, about 75 feet west of center line of U. S. Highway 17, and about 50 feet south of center line of State Highway 131 extended. Used drilled domestic well, diameter 3 inches, depth about 550 feet. Measuring point, top of 3-inch cross on 3-inch casing, 1.8 feet above land-surface datum.

Water level, in feet above land-surface datum, 1942-43

Date	Water level	Date	Water level	Date	Water level
Aug. 11, 1942	23.0	Feb. 23, 1943	22.7	July 14, 1943	22.0
Sept.15	22.8	Apr. 22	22.2	Dec. 14	21.3

Mitchell County

9. City of Camilla. At Camilla, at waterworks plant, about 80 feet east of center line of Ellis Street and 50 feet north of center line of Twitty Street. Used drilled municipal well, diameter 12 inches, depth 300 feet. Measuring point, ¼-inch tap hole over pump column, 1.5 feet above land-surface datum, and 182.7 feet above mean sea level.

Water level, in feet below land-surface datum, 1941-43

Dec. 2, 1941	a 63.90	May 27, 1943	50.11	June 5, 1943	a 50.75
2	63.73	28	a 50.34	7	a 50.60
Feb. 5, 1942	56.90	29	a 50.37	July 27	a 53.44
May 27, 1943	a 50.30	31	a 50.40	Sept.13	a 54.90

a 8-inch well, 53.5 feet north, pumping about 300 gallons a minute, caused draw-down of about 0.2 foot.

Montgomery County

1 (*945, p. 81). H. V. Thompson. In Ailey, about 0.25 mile southeast of Seaboard Railway station, about 200 feet south of railroad. Measuring point, top of hole in pump base plate, 1.6 feet above land-surface datum, and 256.6 feet above mean sea level. Water levels, in feet below land-surface datum, 1943: Mar. 5, 106.68; June 15, 104.60; Sept. 20, 106.68.

Oconee County

1 (*945, p. 81). U. S. Department of Agriculture. At Southern Piedmont Experiment Station, about 2 miles northwest of Watkinsville. Measuring point, top of inside southeast edge of concrete cover for well, level with land-surface datum and about 767 feet above mean sea level.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 4	30.96	Feb. 1	29.09	Feb. 15	27.79	Mar. 1	26.94
11	30.59	8	28.40	22	27.30	6	26.77
25	29.02						

Highest and lowest weekly water level, in feet below land-surface datum, 1943
(From recorder charts)

Week	Date	Highest level	Date	Lowest level
Mar. 7-13	Mar. 13	26.55	Mar. 8	26.76
14-20	20	26.42	14	26.60
21-27	27	26.06	21	26.42
Mar. 28-Apr. 3	Apr. 3	25.70	29	26.08
Apr. 4-10	10	25.20	Apr. 4	25.70
11-17	17	24.96	11	25.20
18-24	24	24.72	18	24.96
Apr. 25-May 1	May 1	24.57	25	24.72
May 2-8	8	24.39	May 2	24.57
9-15	12	24.25	9	24.39
16-22	22	24.23	17	24.33
23-29	26	24.19	29	24.31
May 30-June 5	30	24.31	June 5	24.43
June 6-12	June 6	24.43	12	24.60
13-19	13	24.60	19	24.83
20-26	20	24.83	26	25.03
June 27-July 3	27	25.03	July 3	25.25
July 4-10	July 6	25.20	4	25.24
11-17	17	24.98	11	25.21
18-24	24	24.58	18	24.98
25-31	31	24.22	25	24.58
Aug. 1-7	Aug. 7	23.98	Aug. 1	24.22
8-14	14	23.86	8	23.98
15-21	17	23.95	21	23.95
22-28	22	23.95	28	24.05
Aug. 29-Sept. 4	29	24.05	Sept. 4	24.35
Sept. 5-11	Sept. 5	24.35	11	24.71
12-18	12	24.71	18	25.04
19-25	19	25.04	25	25.37
Sept. 26-Oct. 2	26	25.37	Oct. 2	25.71
Oct. 3-9	Oct. 3	25.71	9	26.07
10-16	10	26.07	16	26.40
17-23	17	26.40	23	26.79
24-30	24	26.79	30	27.12
Oct. 31-Nov. 6	31	27.12	Nov. 6	27.44
Nov. 7-13	Nov. 7	27.44	13	27.76
14-20	14	27.76	20	28.05
21-27	21	28.05	27	28.33
Nov. 28-Dec. 4	28	28.33	Dec. 4	28.63
Dec. 5-11	Dec. 5	28.63	11	28.88
12-18	12	28.88	17	29.15
19-25	19	29.15	25	29.40
26-31	26	29.36	31	29.56

Pierce County

2 (*907, p. 54; *937, p. 61; 945, p. 81). City of Blackshear. At Blackshear, in northeastern part of town, about 25 feet northwest of elevated concrete municipal water tank. Measuring point, top of 1-inch pipe nipple in 8-inch flange, 2.2 feet above land-surface datum, and 150.6 feet above mean sea level.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level
Feb. 26	59.44	May 25	59.49	Dec. 19	61.07
Apr. 26	59.52	July 17	60.0		

5 (*937, p. 61; 945, p. 81). Town of Patterson. In Patterson, about 140 feet east of Atlantic Coast Line Railroad station. Measuring point, top of hole in pump base plate, 1.5 feet above land-surface datum and about 104 feet above mean sea level.

Water level, in feet below land-surface datum, 1943

Feb. 26	34.08	May 25	33.90	Dec. 19	35.40
Mar. 18	33.87	July 17	34.45		

Screven County

3. City of Sylvania. In Sylvania, 0.1 mile west of State Highway 21, at waterworks plant. Used drilled municipal well, diameter 10 to 8 inches, depth 490 feet. Measuring point, top edge of hole in pump base plate, 0.1 foot above concrete floor of pump house, and 0.7 foot above land-surface datum. Water levels, in feet below land-surface datum: June 8, 1939, 109.2; Apr. 9, 1943, 103.1; May 21, 1943, 103.5.

8. W. W. Yant. In Dover, on southwest side of Central of Georgia Railway. Used drilled domestic well, diameter 3 inches, depth 255 feet. Cased 90 feet. Measuring point, top of 2-inch valve over well casing, 2.0 feet above land-surface datum and about 105 feet above mean sea level. Water levels, in feet above land-surface datum: June 8, 1939, 15.8; Apr. 8, 1943, 15.1.

Spalding County

12. Georgia State Experiment Station. At Experiment, about 240 feet west of Central of Georgia Railway and 15 feet northeast of northeast corner of Flynt Building. Dug, domestic well, diameter about 4 feet, depth 30.5 feet. Measuring point, bored hole in wooden floor of recorder shelter, 3.1 feet above land-surface datum. Equipped with automatic water-stage recorder.

Water level, in feet below land-surface datum, 1943
(From recorder charts)

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Oct. 12	20.12	Oct. 25	20.42	Nov. 8	20.84	Nov. 29	20.92
13	20.11	26	20.45	9	20.87	30	21.04
14	20.12	27	20.49	13	20.88	Dec. 1	21.03
15	20.15	28	20.58	14	20.95	2	21.02
18	20.32	29	20.63	15	20.89	3	21.07
20	20.33	30	20.61	24	20.97	4	21.06
21	20.38	31	20.65	25	21.0	5	21.05
22	20.41	Nov. 1	20.72	26	20.95	6	21.0
23	20.43	6	20.81	27	20.92	7	21.04
24	20.42	7	20.83	28	20.93	8	21.08

Ware County

6 (*945, p. 81). State of Georgia. At Laura S. Walker State Park, 9 miles southeast of Waycross, 1.7 miles south of State Highway 50, along State Highway 177, near elevated tank. Measuring point is 2.5 feet above land-surface datum.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level
Feb. 23	54.33	July 17	54.87	Sept.25	55.70
June 18	54.7	Aug. 6	54.97		

Wayne County

1 (*907, p. 54; *937, p. 61; 945, p. 81). City of Jesup. In Jesup, west of crossing of Southern Railway and Atlantic Coast Line Railroad. Measuring point, ½-inch tap hole in top of 10-inch bushing, 2 feet above land-surface datum and 98.0 feet above mean sea level.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Feb. 26	a 36.08	Apr. 26	a 36.33	June 17	36.03	Aug. 4	36.24
Mar. 18	a 36.18	May 25	35.63	July 17	36.02	Dec. 16	36.98

3 (*907, p. 55; *937, p. 61; 945, p. 81). A. W. Hurn. In Gardi, at northwest side of Hurn residence, about 200 feet southwest of Southern Railway. Measuring point, top of 3-inch coupling, 1.8 feet above land-surface datum, and 63.9 feet above mean sea level. Water levels, in feet below land-surface datum, 1943: July 17, 4.66; Dec. 16, 5.45.

4 (*907, p. 55; *937, p. 61; 945, p. 81). State Highway Department. On southeast side of State Highway 25, 0.3 mile southeast of Mt. Pleasant. Measuring point, top of 6-inch tee, 1 foot above land-surface datum. Water levels, in feet above land-surface datum, 1943: July 17, 4.00; Dec. 16, 3.30.

10 (*937, p. 61; 945, p. 81). Town of Screven. In Screven, about 600 feet west of Atlantic Coast Line Railroad station. Measuring point, top of hole in pump base plate, 1.2 feet above land-surface datum, and about 124.5 feet above mean sea level. Water levels, in feet below land-surface datum, 1943: Feb. 26, 57.75; Apr. 26, 57.91; May 25, 57.86.

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a Well 2, 94 feet east, pumping 420 gallons a minute. Water level stable after pump on well 2 has been operating about 30 minutes, at which time draw-down in well 1 is 0.7 foot.

MARYLAND

By R. R. Bennett, R. R. Meyer, and A. H. Horton

PROGRAM OF WORK

The observation-well program in Maryland, which was begun as early as 1932 with periodic measurements in a well near Oclesville, Montgomery County, was continued in 1943 by the Geological Survey, United States Department of the Interior, in cooperation with the Maryland Department of Geology, Mines, and Water Resources. Until 1943, periodic measurements had been made in only one or two wells in any one year. In 1943, however, the program was considerably expanded by the regular observation of selected wells in Baltimore City and Baltimore County. At the end of the year 72 wells were under observation, and during the year 867 individual measurements of water level were made. Automatic water-stage recorders were maintained during part of the year on 6 wells and throughout the year on 1 well.

In Baltimore City and Baltimore County the observation-well program forms part of an investigation of the ground-water resources in this highly industrialized area being made under the cooperation of the Federal and State bureaus named above. The investigation was begun in 1943 because of deleterious conditions existing in the area. The water-bearing formations have been drawn upon extensively for many years as a source of water for industries, military establishments, and public and domestic supplies. Owing to the heavy, concentrated pumpage and to the improper maintenance of many of the wells, the piezometric surface has declined substantially below its original position, and many wells have become contaminated with salt water or highly acidic water.

Records of water level in the Montgomery County well have been made since April 1932.

OCCURRENCE OF GROUND WATER[1/]

All the wells observed in Maryland in 1943, except one, are in the Baltimore area. Most of the ground water used in this area is obtained from formations of the Potomac group, which is of Lower Cretaceous age. The Potomac group has been divided, in descending order, into the Patapsco, Arundel, and Patuxent formations. On their outcrops the Patapsco and Patuxent formations are composed mainly of sand and gravel, with smaller amounts of clay. The Arundel formation is predominately clay. In detail the sediments of these formations are irregularly bedded and lenticular, and it is not possible, from drillers' logs, to trace individual beds more than a mile or so. The formations of the Potomac group crop out along the Fall Zone and dip southeastward, toward Chesapeake Bay and the Atlantic Ocean. To the east they appear to thicken, inasmuch as the underlying crystalline-rock floor dips eastward more steeply than the formations of the Potomac group.

The ground water in the formations of the Potomac group occurs under artesian conditions except at the outcrops. It is reported, however, that many years ago, in parts of the area, some artesian wells flowed.

The only well observed in 1943 not in the Baltimore area is in Montgomery County, near Colesville. This well draws its supply from surficial materials.

FLUCTUATIONS OF WATER LEVEL

Most of the ground water in the Baltimore area is utilized by industries situated in the part of the area surrounding the estuary that heads into Baltimore--the mouth of the Patapsco River. So far as can be determined from the meager data now available, the fluctuations of water level in this artesian area bear little or no relation to the precipitation: it appears that below-normal precipitation in any one year has practically no effect on the water levels. Pumpage is the chief factor affecting them. No reliable estimate is available for the earlier years, but the pumpage in recent years is estimated at about 50 million gallons a day. Water levels in

1/ For earlier reports that contain considerable information on ground-water resources in Maryland see Darton, N. H., Artesian-well prospects in the Atlantic Coastal Plain region: U. S. Geol. Survey Bull. 138, pp. 124-155, 1896; Clark, W. B., Mathews, E. B., and Berry, E. W., The surface and underground-water resources of Maryland, including Delaware and the District of Columbia: Maryland Geol. Survey, vol. 10, pt. 2, pp. 169-542, 1918.

observation wells in this area have been recorded for too short a period to make it practicable, at this time, to give detailed interpretive statements as to their fluctuations. In general, however, it appears that the piezometric surface is now as much as 100 feet below its position before pumping began. The daily range of the fluctuations is rather large; hence it has seemed desirable to report, for all wells equipped with automatic recorders, the highest and the lowest water level observed each day.

The Montgomery County well is 20 feet deep and, therefore, precipitation is the chief factor that determines the fluctuations of its water level. During the period January to July 1943 the water level fluctuated about normally, that is, between 12.97 and 16.92 feet below land-surface datum, but it was below normal during the period August to December; no new high or low stage was reached. The highest stage for the year, 12.97 feet below land-surface datum, was reached sometime during the period March 10-31 (from range of recorder pen); the lowest stage, 18.19 feet below land-surface datum, was maintained throughout the period Oct. 11-15. The water level was 2.03 feet lower at the end of 1943 than at the end of 1942.

WELL-NUMBERING SYSTEM

The numbers assigned to the observation wells in Maryland indicate their location. The wells are first grouped by counties, or under "Baltimore City" if they are situated within the corporate limits of Baltimore. For the wells outside of Baltimore, the system is applied to the counties by means of the 5-minute longitude and latitude lines. A typical number is divided by hyphens into three parts, as Bal-Gf-51, the first part representing the county, the second the position of the well as indicated on the county map by 5-minute quadrangles, and the third, the number of the well in a particular 5-minute quadrangle. Thus, well Bal-Gf-51 is in Baltimore County, in the seventh tier of 5-minute quadrangles from the top (north) of the county map, and in the sixth tier of 5-minute quadrangles from the left side (west) of the county map. Its number in the particular 5-minute quadrangle in which it is situated is 51. Maryland is well suited to this type of numbering system, as all counties are covered by quadrangle maps on a scale of 1:62,500.

Because of the great number of wells in Baltimore City and their concentration in a comparatively small area, a special numbering system is used to identify them. All wells within the city limits are referred to

mile squares, which are in turn referred to the Washington Monument, which is considered the center of the city. Thus well 2S3E-9 is in the square mile that is 2 miles south and 3 miles east of the Washington Monument, and the figure 9 indicates that it is the ninth well observed in that square mile.

WELL DESCRIPTIONS AND WATER-LEVEL MEASUREMENTS

Baltimore City

4N2W-9. Baltimore Country Club. In Baltimore, at Falls and Harvest Roads, 1.44 miles west and 3.35 miles north from Washington Monument. Unused drilled well, diameter 6 inches, depth 114 feet. Measuring point, arrow on top of brick curbing, 0.30 foot above land surface. Water levels, in feet below land-surface datum, 1943: Nov. 16, 12.07; Nov. 30, 12.72; Dec. 10, 12.95; Dec. 31, 13.23.

2S3E-9. J. S. Young Co. In Baltimore, at Boston and Luzerne Streets, outside shed 6, 1.37 miles south and 1.94 miles east from Washington Monument. Unused drilled industrial well, depth 137 feet. Measuring point, top of discharge pipe, 2.50 feet above land surface.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
June 2	37.09	July 6	35.80	Aug. 6	37.83	Sept. 9	37.45
7	35.89	13	36.27	13	37.84	Oct. 8	37.74
15	36.22	21	36.85	19	38.65	Nov. 5	35.71
22	36.14	31	37.75	Sept. 1	37.80	Dec. 10	37.61
28	35.72						

2S3E-11. J. S. Young Co. In Baltimore, at Boston and Luzerne Streets, outside machine shop, 100 feet southwest of well 2S3E-9. Unused drilled industrial well, diameter 8 inches, depth 160 feet. Measuring point, top of casing, 1.50 feet above land surface.

Water level, in feet below land-surface datum, 1943

June 2	34.21	July 6	34.61	Aug. 6	36.16	Sept. 9	35.58
7	34.75	13	34.47	13	35.55	Oct. 8	36.12
15	34.90	21	35.04	19	36.54	Nov. 5	35.13
22	34.92	31	35.96	Sept. 2	35.99	Dec. 10	35.58
28	34.81						

2S5E-1. U. S. Army's well 106. In Baltimore, on Holabird Avenue at Pumphrey Street, 1.81 miles south and 4.13 miles east from Washington Monument. Unused drilled well, diameter 12 inches, depth 290 feet. Measuring point, end of discharge pipe, 2.00 feet above land surface.

Water level, in feet below land-surface datum, 1943

Apr. 2	81.00	June 28	83.27	Aug. 6	88.05	Sept. 1	89.59
May 15	83.55	July 6	82.48	11	90.06	9	90.70
28	84.99	13	84.58	18	89.08	Oct. 8	90.54
June 15	82.24	21	87.88	25	91.50	Nov. 5	89.14
22	80.89	31	89.80				

2S5E-4. U. S. Army. In Baltimore, on Holabird Avenue at Pumphrey Street, 20 feet east of well 2S5E-1. Unused drilled well, diameter 6 inches, depth 192 feet. Measuring point, top of casing, 3.60 feet above land surface.

Water level, in feet below land-surface datum, 1943

May 15	77.79	June 28	78.19	Aug. 6	78.98	Sept. 1	79.67
28	77.95	July 6	78.28	11	79.10	9	79.90
June 7	78.06	13	78.42	18	79.30	Oct. 8	79.53
15	78.15	21	78.55	25	79.50	Nov. 5	78.95
22	78.18	31	78.83				

3S5E-3. Federal Yeast Co.'s well Air lift 1. In Baltimore, 2.25 miles south and 4.09 miles east from Washington Monument. Unused drilled industrial well, diameter 3 inches, depth 131.3 feet. Measuring point, top of casing, 0.50 foot above land surface.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
May 10	40.40	June 22	41.99	July 19	42.32	Sept. 9	44.24
31	41.73	28	41.94	31	42.86	Oct. 8	44.66
June 1	41.60	July 5	42.02	Aug. 25	43.90	Nov. 5	44.46
7	41.80	12	42.10	Sept. 1	44.10	Dec. 10	44.86
15	41.94						

3S5E-4. Federal Yeast Co.'s well Air lift 2. In Baltimore, 2.25 miles south and 4.09 miles east from Washington Monument. Unused drilled industrial well, diameter 3 inches, depth 73.0 feet. Measuring point, top of casing, 1.00 foot above land surface.

Water level, in feet below land-surface datum, 1943

May 10	41.63	June 7	42.06	July 12	42.02	Aug. 6	44.11
17	41.83	15	42.13	19	43.13	11	44.20
21	42.30	22	40.90	26	43.41	Sept. 9	44.39
28	42.30	28	41.74	31	43.89	Dec. 10	45.54
31	42.22	July 5	41.13				

3S5E-6. Federal Yeast Co.'s well Air lift 4. In Baltimore, 2.25 miles south and 4.09 miles east from Washington Monument. Unused drilled industrial well, diameter 6 inches, depth 125.5 feet. Measuring point, top of casing, 0.30 foot above land surface.

Water level, in feet below land-surface datum, 1943

May 10	41.33	June 7	41.95	July 12	41.78	Sept. 9	44.05
17	41.58	15	42.04	19	42.84	Oct. 8	44.37
21	41.91	22	43.66	31	43.62	Nov. 5	43.91
28	42.07	28	41.46	Aug. 4	43.78	Dec. 10	45.24
31	42.00	July 5	40.91	11	43.97		

3S5E-7. Federal Yeast Co.'s well Air lift 5. In Baltimore, 2.25 miles south and 4.09 miles east from Washington Monument. Unused drilled industrial well, diameter 6 inches, depth 124.6 feet. Measuring point, top of casing, 2.30 feet above land surface.

Water level, in feet below land-surface datum, 1943

May 10	39.38	July 5	38.80	Aug. 6	42.33	Oct. 8	42.27
31	39.95	12	39.74	11	41.86	Nov. 5	41.91
June 22	38.55	19	40.78	Sept. 9	42.00	Dec. 10	43.19
28	39.40	31	41.69				

3S5E-8. Federal Yeast Co.'s well Air lift 6. In Baltimore, 2.25 miles south and 4.09 miles east from Washington Monument. Unused drilled industrial well, diameter 8 inches, depth 285 feet. Measuring point, top of casing, 2.50 feet above land surface. Automatic water-stage recorder installed Aug. 16.

Water level, in feet below land-surface datum, 1943

May 10	74.49	May 31	77.14	June 28	78.14	July 31	82.89
17	76.59	June 7	77.02	July 5	69.53	Aug. 6	83.67
21	75.50	15	71.03	12	79.11	11	84.13
28	59.08	22	72.19	19	83.17		

Daily highest and lowest water level, in feet below land-surface datum, 1943
(From recorder charts)

Day	August		September		October		November		December	
	High	Low	High	Low	High	Low	High	Low	High	Low
1	.....	.....	81.20	84.80	84.27	86.90	78.35	82.60	80.93	84.75
2	.....	.....	81.20	85.75	80.35	86.40	79.80	83.05	79.34	81.10
3	.....	.....	85.00	86.78	78.80	80.35	79.72	83.44	.....	.....
4	.....	.....	81.92	85.99	78.58	83.73	80.30	84.17	.....	.....

3S5E-8. Federal Yeast Co.'s well Air lift 6--Continued.
Daily highest and lowest water level, in feet below land-surface datum, 1943
(From recorder charts)

Day	August		September		October		November		December	
	High	Low	High	Low	High	Low	High	Low	High	Low
5	.....	.....	79.40	82.10	82.55	84.35	80.12	83.46	.....	.....
6	.....	.....	79.00	80.60	81.50	84.65	81.80	84.20	.....	.....
7	.....	.....	80.15	85.95	81.05	86.42	83.68	85.50	.....	.....
8	.....	.....	84.87	87.95	84.42	87.03	79.21	85.69	.....	.....
9	.....	.....	84.30	89.20	81.80	86.73	79.00	81.76	85.50	89.90
10	.....	.....	83.90	84.98	80.10	81.80	79.40	82.12	87.74	90.84
11	.....	.....	81.78	85.24	79.75	86.20	78.95	83.28	86.15	89.54
12	.....	.....	79.38	81.75	84.90	87.10	81.55	83.95	84.67	86.16
13	.....	.....	79.38	84.62	82.47	86.11	81.50	83.50	84.12	87.48
14	.....	.....	82.92	85.58	82.25	86.23	82.07	83.50	85.85	88.28
15	.....	.....	82.25	85.64	85.05	86.75	.....	.....	84.44	87.37
16	83.61	85.36	81.15	86.82	85.05	82.00	.....	.....	85.00	87.20
17	80.30	85.09	83.80	88.10	.....	.....	.....	.....	.....	.....
18	80.30	84.60	83.74	86.60	82.00	84.10	.....	.....	.....	.....
19	79.95	82.20	85.30	87.70	82.70	84.74	82.54	85.00	.....	.....
20	79.95	84.30	83.80	88.12	82.05	85.40	.....	.....	.....	.....
21	81.28	84.30	81.20	83.17	82.05	85.70	.....	.....	.....	.....
22	78.90	81.15	81.02	84.87	83.25	86.00	.....	.....	.....	.....
23	78.90	83.60	83.42	87.25	82.10	85.75	.....	.....	.....	.....
24	81.80	83.60	84.02	87.00	.....	.....	.....	.....	.....	.....
25	82.30	85.60	80.85	86.39	79.37	82.00	79.50	80.42	.....	.....
26	81.35	85.45	79.40	81.05	78.50	80.90	79.70	83.50	.....	.....
27	.....	.....	79.34	83.98	78.85	82.51	81.58	84.08	.....	.....
28	.....	.....	82.15	84.67	80.61	85.58	84.08	85.57	.....	.....
29	78.90	80.70	81.50	83.97	82.65	85.20	81.73	85.82	.....	.....
30	78.90	84.37	80.74	86.05	79.85	85.68	82.02	84.78	.....	.....
31	84.10	85.80	.....	.....	77.63	79.85	.....	.....	.....	.....

3S5E-9. Federal Yeast Co.'s well Air lift 7. In Baltimore, 2.25 miles south and 4.09 miles east from Washington Monument. Unused drilled industrial well, diameter 6 inches, depth 130.5 feet. Measuring point, top of air line, 3.00 feet above land surface.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
May 10	41.29	June 7	41.71	July 12	41.70	Sept. 9	43.97
17	40.54	15	41.52	19	42.71	Oct. 8	44.23
21	41.74	22	40.60	31	43.49	Nov. 5	43.85
28	41.93	28	41.35	Aug. 6	43.67	Dec. 10	45.05
31	41.94	July 5	40.82	11	43.80		

6S2E-1. U. S. Industrial Alcohol Co.'s well 4241. In Baltimore, at Birch and Curtis Streets, 5.50 miles south and 1.62 miles east from Washington Monument. Used drilled industrial well, diameter 10 inches, depth 245 feet. Measuring point, top of air line, 3.00 feet above land surface. Well pumping at time of each measurement.

Water level, in feet below land-surface datum, 1943

July 6	121	Aug. 6	121	Aug. 26	120	Oct. 8	121
14	122	13	118	Sept. 2	119	Nov. 5	118
21	119	19	121	10	121	Dec. 10	118
31	121						

6S2E-4. U. S. Industrial Alcohol Co.'s well 3700. In Baltimore, 100 feet east of well 6S2E-1, in same well field. Used drilled industrial well, diameter 10 inches, depth 227 feet. Measuring point, top of air line, 2.8 feet above land surface. Well pumping at time of each measurement.

6S2E-4. U. S. Industrial Alcohol Co.'s well 3700--Continued.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
July 6	170	Aug. 6	172	Aug. 26	172	Oct. 8	171
14	171	13	170	Sept. 2	170	Nov. 5	166
21	169	19	172	10	172	Dec. 10	165
31	171						

6S2E-6. U. S. Industrial Alcohol Co.'s well 1325. In Baltimore, 100 feet east of well 6S2E-1, in same well field. Unused drilled industrial well, diameter 8 inches, depth 228 feet. Measuring point, top of air line, 3.70 feet above land surface.

Water level, in feet below land-surface datum, 1943

July 6	96.97	Aug. 6	98.76	Aug. 26	100.07	Oct. 8	102.69
14	97.19	13	99.42	Sept. 2	100.58	Nov. 5	104.03
21	97.64	19	99.64	10	101.06	Dec. 10	105.48
31	98.52						

Baltimore County

Bal-Ff 1. City of Baltimore. At Back River sewage disposal plant. Longitude 76°29'45", latitude, 39°17'55". Unused drilled well, diameter 6 inches, depth 156 feet. Measuring point, top of casing, at land surface.

Water level, in feet below land-surface datum, 1943

June 18	42.13	July 12	41.73	Aug. 11	42.62	Sept. 9	42.55
22	41.27	19	42.05	18	42.62	Oct. 8	42.18
28	41.27	26	42.11	25	42.38	Nov. 4	42.20
July 6	41.58	Aug. 5	43.85	Sept. 1	42.35	Dec. 9	42.58

Bal-Gf 1. Bethlehem Steel Co.'s well Wire Mill 3. At Sparrows Point. Unused drilled industrial well, diameter 12 to 6 inches, depth 260 feet. Measuring point, top of casing, 11.50 feet above land surface. Automatic water-stage recorder installed May 7.

Daily highest and lowest water level, in feet below land-surface datum, 1943
(From recorder charts)

Day	May		June		July		August	
	High	Low	High	Low	High	Low	High	Low
1	.....	.....	46.56	47.46	40.10	40.96	40.87	41.62
2	.....	.....	46.97	47.57	39.97	40.52	40.57	41.06
3	.....	.....	47.08	48.00	40.06	40.59	40.12	40.72
4	.....	.....	47.52	48.03	39.40	40.27	.....	.....
5	.....	.....	47.38	48.00	38.51	39.58	39.23	39.67
6	.....	.....	47.86	.....	39.38	39.94	38.73	39.67
7	.....	40.53	46.13	46.60	39.62	40.53	38.53	39.70
8	39.62	41.25	44.60	46.20	39.38	40.44	38.25	39.10
9	41.25	41.28	44.30	44.78	39.87	41.16	38.10	38.43
10	39.28	41.28	43.74	44.50	40.92	41.51	37.67	38.10
11	38.00	39.28	43.59	43.91	40.88	41.43	37.32	38.27
12	37.25	38.00	43.15	43.59	40.88	42.00	37.08	37.80
13	37.83	39.50	42.31	43.15	41.61	42.80	36.84	37.50
14	.....	.....	42.02	42.42	42.14	43.55	37.17	37.75
15	41.35	43.50	41.28	42.05	42.75	43.60	36.95	37.87
16	41.16	42.43	41.08	41.90	42.82	43.70	36.95	38.46
17	39.87	41.16	41.02	41.90	43.07	43.81	36.79	37.60
18	39.74	40.32	40.92	42.45	42.81	43.81	37.20	37.99
19	39.94	40.83	41.31	42.22	42.49	43.21	37.09	37.68
20	.....	.....	40.46	41.72	42.55	43.21	36.90	37.47
21	39.92	40.37	39.95	40.94	42.68	43.54	36.80	37.30
22	39.90	41.24	40.16	40.94	41.84	42.79	36.70	37.11
23	39.70	42.02	40.30	40.93	41.27	42.03	36.46	37.35
24	41.75	42.76	40.47	41.75	41.16	41.58	36.60	36.95
25	42.76	43.79	40.95	41.45	40.95	41.31	36.27	36.85

Bal-Gf 1. Bethlehem Steel Co.'s well Wire Mill 3--Continued.

Daily highest and lowest water level, in feet below land-surface datum, 1943
(From recorder charts)

Day	May		June		July		August	
	High	Low	High	Low	High	Low	High	Low
26	43.55	44.80	40.72	41.15	40.76	41.71	36.30	36.85
27	44.55	45.18	40.10	40.72	.....	.....	36.25	36.85
28	44.74	45.30	39.68	40.55	41.35	42.17	36.18	36.85
29	44.34	45.04	39.93	40.81	40.88	41.58	35.94	36.76
30	44.57	46.60	40.40	40.98	40.75	41.27	35.90	36.60
31	46.15	47.19	.....	.....	40.82	41.82	36.05	36.68

Daily highest and lowest water level, in feet below land-surface datum, 1943
(From recorder charts)

Day	September		October		November		December	
	High	Low	High	Low	High	Low	High	Low
1	35.85	36.37	36.55	38.35	35.37	36.18	.....	.....
2	35.92	36.40	36.35	37.24	35.35	36.75	.....	.....
3	35.80	36.37	37.00	38.24	36.03	36.60	.....	.....
4	35.60	36.04	37.80	39.18	35.40	36.12	.....	.....
5	35.35	35.91	37.47	38.35	35.06	35.50	.....	.....
6	35.36	35.93	37.47	37.83	34.93	35.40	.....	.....
7	35.40	36.60	37.26	37.73	34.92	35.33	35.67	36.05
8	36.10	37.07	37.23	37.73	34.38	35.25	35.37	36.02
9	35.90	36.50	36.77	37.43	33.72	35.20	35.52	36.06
10	35.81	36.57	36.72	37.58	34.63	35.35	35.53	36.15
11	35.73	35.87	36.53	37.55	34.70	35.43	35.95	36.35
12	35.79	36.50	36.41	37.01	34.18	35.43	35.42	36.35
13	35.62	36.70	36.45	37.10	34.35	35.18	.....	.....
14	36.10	36.73	36.52	38.45	34.82	35.53	.....	.....
15	35.70	36.62	38.29	40.05	33.71	35.06	.....	.....
16	35.78	39.30	37.02	39.15	33.71	35.11	.....	.....
17	39.30	42.55	36.92	37.72	34.37	35.33	36.43	36.80
18	40.90	43.60	36.93	38.98	34.32	34.61	36.36	36.67
19	38.35	40.90	37.80	38.98	34.37	34.83	36.38	36.78
20	38.05	40.40	37.00	37.80	34.70	35.24	36.22	37.00
21	40.40	43.08	36.35	37.04	.....	.....	36.14	37.35
22	43.02	44.13	36.33	36.68	35.48	35.96	36.43	37.12
23	41.60	44.06	.....	36.62	.....	.....	36.68	37.31
24	39.50	41.60	.....	.....	.....	.....	36.85	37.53
25	38.27	39.50	.....	.....	35.17	35.55	36.36	36.96
26	38.02	38.48	.....	.....	35.13	35.75	35.99	36.87
27	37.56	38.22	.....	.....	35.24	35.61	35.90	36.56
28	37.52	37.98	35.07	35.57	35.28	36.01	35.88	36.57
29	37.53	38.02	35.45	36.16	.....	.....	35.95	36.62
30	37.60	38.15	36.00	36.36	.....	.....	35.90	36.46
31	.....	.....	35.78	36.55	.....	.....	35.89	36.55

Bal-Gf 3. Bethlehem Steel Co.'s well Wire Mill 5. At Sparrows Point. Unused drilled industrial well, diameter 12 to 4½ inches, depth 622 feet. Measuring point, top of air line, 12.00 feet above land surface.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
May 10	93	June 15	93	July 6	99	Aug. 4	95
10	a 148	22	95	12	98	Sept. 8	80
28	92	28	100	19	93	Oct. 7	109
June 7	89						

a Pumping.

Bal-Gf 4. Bethlehem Steel Co.'s well Wire Mill 6. At Sparrows Point. Unused drilled industrial well, diameter 12 to 6 inches, depth 440 feet. Measuring point, top of discharge pipe, 11.10 feet above land surface.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
May 10	93.10	June 28	99.39	Aug. 4	99.87	Sept. 8	96.93
28	95.20	July 6	99.88	11	98.17	Oct. 7	104.45
June 7	91.41	12	100.79	18	99.01	Nov. 4	100.46
15	95.24	19	100.65	25	97.14	Dec. 9	103.15
22	95.34	26	89.07	Sept. 1	96.83		

Bal-Gf 6. Bethlehem Steel Co.'s well Wire Mill 8. At Sparrows Point. Unused drilled industrial well, diameter 12 to 4½ inches, depth 625 feet. Measuring point, top of discharge pipe, 11.70 feet above land surface. Automatic water-stage recorder installed Oct. 6.

Water level, in feet below land-surface datum, 1943

May 10	89.15	June 22	90.90	July 19	88.76	Aug. 18	91.28
28	87.15	28	94.80	26	91.11	25	87.48
June 7	83.15	July 6	92.24	Aug. 4	89.01	Sept. 1	90.00
15	89.06	12	92.91	11	89.71	8	87.26

Daily highest and lowest water level, in feet below land-surface datum, 1943
(From recorder charts)

Day	October		November		December	
	High	Low	High	Low	High	Low
1	.....	.....	99.02	99.48	.....	.....
2	.....	.....	98.58	99.18	.....	.....
3	.....	.....	98.62	101.25	102.72	108.63
4	.....	.....	99.00	99.47	102.96	103.57
5	.....	.....	98.90	102.24	102.88	103.24
6	103.96	105.59	98.90	99.17	102.97	103.35
7	103.70	105.68	98.86	99.15	102.97	103.30
8	103.02	104.47	98.73	100.30	103.03	103.35
9	101.14	104.25	100.15	101.15	103.03	103.90
10	.....	.....	100.82	101.20	103.37	103.67
11	99.34	100.73	100.81	102.02	103.65	104.32
12	99.62	100.75	101.84	102.70	103.80	104.27
13	99.45	100.73	102.17	103.48	104.14	.....
14	99.15	101.20	102.65	103.02	.....	.....
15	.....	.....	102.25	102.75	.....	.....
16	.....	.....	102.30	102.88	106.03	106.25
17	.....	.....	102.62	103.18	97.27	106.28
18	.....	.....	102.62	102.92	96.80	97.27
19	.....	.....	102.72	110.80	96.24	96.80
20	.....	.....	103.08	108.29	96.19	96.56
21	.....	.....	.....	.....	95.85	96.50
22	.....	.....	.....	103.93	95.95	96.60
23	.....	.....	103.83	104.25	96.42	97.31
24	100.03	100.35	104.00	104.25	.....	.....
25	99.68	100.12	103.91	104.10	.....	.....
26	99.68	99.98	.....	.....	.....	.....
27	99.05	99.85	.....	.....	.....	.....
28	98.96	99.28	.....	.....	.....	.....
29	99.27	100.81	.....	.....	.....	.....
30	99.39	99.69	.....	.....	95.52	95.80
31	95.00	99.79	.....	.....	95.53	95.77

Bal-Gf 8. Bethlehem Steel Co.'s well Wire Mill 10. At Sparrows Point. Used drilled industrial well, diameter 12 to 7 inches, depth 618 feet. Measuring point, top of air line, 2.00 feet above land surface. Well pumping at time of each measurement.

Bal-Gf 8. Bethlehem Steel Co.'s well Wire Mill 10--Continued.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Apr. 9	113	June 7	117	July 6	127	Sept. 8	121
May 10	80	15	123	12	128	Oct. 7	136
10	125	22	124	19	126	Nov. 4	131
21	123	28	128	Aug. 4	123	Dec. 9	135
28	121						

Bal-Gf 9. Bethlehem Steel Co.'s well Wire Mill 11. At Sparrows Point. Unused drilled industrial well, diameter 12 to 4½ inches, depth 456 feet. Measuring point, top of air line, 2.00 feet above land surface. Well pumping at time of each measurement.

Water level, in feet below land-surface datum, 1943

Apr. 9	188	June 7	184	July 6	203	Sept. 8	201
May 10	210	15	187	12	204	Oct. 7	211
21	189	22	188	19	211	Nov. 4	210
28	190	28	201	Aug. 4	203	Dec. 9	211

Bal-Gf 12. Bethlehem Steel Co.'s well Tin Mill 1. At Sparrows Point. Used drilled industrial well, diameter 16 to 4½ inches, depth 677 feet. Measuring point, top of air line, 12.00 feet above land surface.

Water level, in feet below land-surface datum, 1943

May 12	85	June 22	90	July 26	88	Sept. 1	84
14	83	28	93	Aug. 4	87	7	84
28	82	July 6	92	11	87	Oct. 8	93
31	121	12	93	16	87	Nov. 3	107
June 7	82	19 a	146	26	84	Dec. 9	92
15	89						

Bal-Gf 14. Bethlehem Steel Co.'s well Tin Mill 2. At Sparrows Point. Used drilled industrial well, diameter 12 to 4½ inches, depth 369 feet. Measuring point, top of air line, 3.00 feet above land surface.

Water level, in feet below land-surface datum, 1943

May 12	52.00	June 7	71.82	July 6	58.10	Sept. 7	44
12 a	133	15	59.64	12	58.75	Oct. 8	48
14	75.62	22	58.23	19	60.02	Nov. 3	46
21	53.70	28	62.08	Aug. 4	51	Dec. 9	45
28	68.70						

Bal-Gf 16. Bethlehem Steel Co.'s well Tin Mill 3. At Sparrows Point. Used drilled industrial well, diameter 12 to 6 inches, depth 659 feet. Measuring point, top of air line, 12.00 feet above land surface.

Water level, in feet below land-surface datum, 1943

May 12	82	May 21	87	June 28	99	Sept. 7	80
12 a	158	28	79	July 6	88	Oct. 8	91
14	79	June 7	76	12	89	Nov. 3	86
14	80.71	15	82	19	98	Dec. 9	90
14 a	158	22	88	Aug. 4	82		

Bal-Gf 18. Bethlehem Steel Co.'s well Tin Mill 4. At Sparrows Point. Used drilled industrial well, diameter 12 to 6 inches, depth 321 feet. Measuring point, top of discharge pipe, 10.50 feet above land surface.

Water level, in feet below land-surface datum, 1943

May 12	49.52	June 15	57.56	July 19	58.36	Aug. 25	43.46
14	71.76	22	56.23	26	51.97	Sept. 1	42.62
14	76.85	28	60.55	Aug. 4	47.62	7	42.05
21	51.24	July 6	55.99	11	45.47	Oct. 8	44.53
28	67.05	12	57.15	18	44.66	Dec. 9	41.11
June 7	70.54						

Bal-Gf 25. Bethlehem Steel Co.'s well Tin Mill 8. At Sparrows Point. Unused drilled industrial well, diameter 16 to 4½ inches, depth 330 feet. Measuring point, top of discharge pipe, 10.50 feet above land surface. Well plugged in August 1943.

a Pumping.

Bal-Gf 25. Bethlehem Steel Co.'s well Tin Mill 8--Continued.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
May 12	49.80	May 21	51.46	June 15	58.03	July 6	56.09
14	71.75	28	68.07	22	56.49	12	57.17
14	77.46	June 7	70.98	28	60.81		

Bal-Gf 27. Bethlehem Steel Co.'s well Tin Mill 10. At Sparrows Point. Used drilled industrial well, diameter 12 to 7 inches, depth 581 feet. Measuring point, top of air line, 1.00 foot above land surface.

Water level, in feet below land-surface datum, 1943

May 12	83	June 22	83	July 12	86	Sept. 7	80
14	83.60	28	85	19	84	Oct. 8	89
28	80	July 6	98	Aug. 4	84	Dec. 9	86
June 15	78						

Bal-Gf 28. Bethlehem Steel Co.'s well Sheet Mill 1. At Sparrows Point. Used drilled industrial well, diameter 16 to 6 inches, depth 177 feet. Measuring point, top of air line, 4.40 feet above land surface.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level
July 19	32.15	Sept. 7	32.16	Nov. 3	26.47
Aug. 4	31.72	Oct. 8	27.91		

Bal-Gf 29. Bethlehem Steel Co.'s well Sheet Mill 2. At Sparrows Point. Used drilled industrial well, diameter 16 to 6 inches, depth 233 feet. Measuring point, top of air line, 4.00 feet above land surface.

Water level, in feet below land-surface datum, 1943

July 19	32.05	Aug. 4	31.71	Oct. 8	27.82
26	32.31	Sept. 7	32.95	Nov. 3	25.45

Bal-Gf 30. Bethlehem Steel Co.'s well Hot Strip 1. At Sparrows Point. Used drilled industrial well, diameter 12 to $4\frac{1}{2}$ inches, depth 247 feet. Measuring point, air gage, 3.78 feet above land surface.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
July 26	28	Aug. 18	26	Sept. 7	26	Nov. 3	24
Aug. 4	27	25	24	Oct. 8	24	Dec. 10	24.00
11	25	Sept. 1	24				

Bal-Gf 31. Bethlehem Steel Co.'s well Hot Strip 2. At Sparrows Point. Used drilled industrial well, diameter 12 to 7 inches, depth 336 feet. Measuring point, top of air line, 3.35 feet above land surface.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level
Aug. 4	48.46	Oct. 8	44.81	Dec. 10	41.37
Sept. 7	39.56	Nov. 3	42.83		

Bal-Gf 32. Bethlehem Steel Co.'s well Hot Strip 3. At Sparrows Point. Used drilled industrial well, diameter 12 to 7 inches, depth 668 feet. Measuring point, top of air line, 4.00 feet above land surface. Well pumping at time of each measurement.

Water level, in feet below land-surface datum, 1943

Aug. 4	155	Oct. 8	158	Dec. 10	155
Sept. 7	153	Nov. 3	158		

a Pumping.

Bal-Gf 33. Bethlehem Steel Co.'s well Hot Strip 4. At Sparrows Point. Unused drilled industrial well, diameter 12 to 7 inches, depth 330 feet. Measuring point, top of air line, 3.00 feet above land surface.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level
Aug. 4	45.02	Oct. 8	43.69	Dec. 10	40.28
Sept. 7	41.70	Nov. 3	42.36		

Bal-Gf 34. Bethlehem Steel Co.'s well Hot Strip 5. At Sparrows Point. Unused drilled industrial well, diameter 12 to 8 inches, depth 233 feet. Measuring point, top of air line, 4.00 feet above land surface.

Water level, in feet below land-surface datum, 1943

Aug. 4	28	Oct. 8	26	Dec. 10	25
Sept. 7	31	Nov. 3	25		

Bal-Gf 36. Bethlehem Steel Co.'s well Hot Strip 7. At Sparrows Point. Used drilled industrial well, diameter 12 to 7 inches, depth 685 feet. Measuring point, top of air line, 4.00 feet above land surface. Water levels, in feet below land-surface datum, 1943: Oct. 8, a/ 145; Nov. 3, 97.

Bal-Gf 37. Bethlehem Steel Co.'s well Hot Strip 8. At Sparrows Point. Used drilled industrial well, diameter 12 to 10 inches, depth 234 feet. Measuring point, top of air line, 3.00 feet above land surface.

Water level, in feet below land-surface datum, 1943

Aug. 4	29	Sept. 7	a 145	Nov. 3	26
11	41	Oct. 8	26	Dec. 10	26

Bal-Gf 38. Bethlehem Steel Co.'s well Hot Strip 9. At Sparrows Point. Used drilled industrial well, diameter 12 to 7 inches, depth 335 feet. Measuring point, top of air line, 3.00 feet above land surface.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
July 26	45	Aug. 25	37	Sept. 7	37	Nov. 3	38
Aug. 4	42	Sept. 1	37	Oct. 8	40	Dec. 10	37
18	39						

Bal-Gf 46. Bethlehem Steel Co.'s well Forty-Inch Mill 1. At Sparrows Point. Unused drilled industrial well, diameter 12 to 6 inches, depth 210 feet. Measuring point, top of discharge pipe, 9.40 feet above land surface.

Water level, in feet below land-surface datum, 1943

July 26	35.87	Aug. 18	30.72	Sept. 7	29.02	Nov. 4	27.95
Aug. 4	33.72	25	29.65	Oct. 7	29.33	Dec. 9	27.48
11	31.63	Sept. 1	29.12				

Bal-Gf 47. Bethlehem Steel Co.'s well Forty-Inch Mill 2. At Sparrows Point. Unused drilled industrial well, diameter 12 to 4½ inches, depth 418 feet. Measuring point, top of discharge pipe, 9.70 feet above land surface.

Water level, in feet below land-surface datum, 1943

July 26	83.76	Aug. 18	83.83	Sept. 7	80.00	Nov. 4	82.94
Aug. 4	84.53	25	81.03	Oct. 7	89.53	Dec. 9	88.50
11	82.46	Sept. 1	80.24				

Bal-Gf 48. Bethlehem Steel Co.'s well Forty-Inch Mill 3. At Sparrows Point. Unused drilled industrial well, diameter 12 to 4½ inches, depth 421 feet. Measuring point, top of discharge pipe, 9.35 feet above land surface. Water levels, in feet below land-surface datum, 1943: Aug. 4, 80.37; Sept. 7, 80.10; Oct. 7, 88.31; Dec. 9, 82.06.

Bal-Gf 50. Bethlehem Steel Co.'s well Forty-Inch Mill 5. At Sparrows Point. Unused drilled industrial well, diameter 12 to 5 inches, depth 286 feet. Measuring point, top of discharge pipe, 9.60 feet above land surface. Automatic water-stage recorder installed July 17.

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a Pumping.

Bal-Gf 50. Bethlehem Steel Co.'s well Forty-Inch Mill 5--Continued.

Daily highest and lowest water level, in feet below land-surface datum, 1943
(From recorder charts)

Day	July		August		September		October		November		December	
	High	Low	High	Low	High	Low	High	Low	High	Low	High	Low
1	.....	.....	61.77	62.97	49.07	50.04	51.00	52.03	47.82	48.77	50.08	51.53
2	.....	.....	59.68	61.87	49.33	49.82	50.62	51.95	47.27	51.45	50.25	51.82
3	.....	.....	.....	.....	49.13	49.45	51.95	55.17	48.12	49.83	49.57	50.25
4	.....	.....	.....	.....	48.91	49.17	52.92	56.12	47.65	48.12	48.70	49.65
5	.....	.....	54.08	54.76	46.90	48.97	52.25	53.95	46.92	47.70	48.38	48.95
6	.....	.....	53.70	54.55	48.05	49.64	51.95	52.30	46.61	46.88	48.35	48.57
7	.....	.....	52.77	53.78	48.95	49.47	51.44	52.03	46.70	46.95	48.26	48.78
8	.....	.....	52.45	53.45	48.66	51.07	51.34	52.00	46.53	47.06	48.22	48.79
9	.....	.....	52.17	52.45	49.40	50.23	51.07	51.95	46.11	46.62	48.22	48.60
10	.....	.....	51.92	52.25	49.37	50.28	50.90	51.35	46.45	46.70	48.20	48.58
11	.....	.....	.....	.....	49.57	50.23	50.63	51.35	46.40	46.91	48.23	49.11
12	.....	.....	51.82	52.27	49.31	50.07	50.58	51.27	46.00	46.95	.....	.....
13	.....	.....	51.50	52.27	49.32	51.87	50.58	51.10	45.79	46.45	.....	.....
14	.....	.....	50.90	51.60	49.99	50.72	50.85	55.69	46.00	46.40	.....	.....
15	.....	.....	.....	.....	50.07	50.55	53.20	58.23	45.50	46.00	.....	.....
16	.....	.....	.....	.....	50.08	57.48	51.77	55.25	45.30	46.34	49.95	50.38
17	66.36	66.80	50.54	50.98	57.48	61.65	51.25	51.77	.....	.....	49.87	50.54
18	65.63	66.73	51.07	51.48	57.05	62.81	51.15	55.83	45.85	46.50	.....	.....
19	65.59	65.77	50.78	51.14	53.15	57.05	52.20	53.70	46.43	47.63	.....	.....
20	65.42	66.07	50.68	51.09	52.53	59.40	51.10	52.25	47.60	48.35	.....	.....
21	64.75	66.75	50.58	51.00	59.40	62.29	50.40	51.10	47.52	48.25	.....	.....
22	63.35	64.75	50.60	51.26	62.29	63.55	50.19	50.45	47.45	48.87	.....	.....
23	62.80	63.30	.....	.....	57.16	63.52	49.97	50.40	48.36	49.03	.....	.....
24	62.37	63.17	.....	.....	54.23	57.16	49.75	50.10	.....	.....	.....	.....
25	62.12	62.45	49.72	50.00	52.68	54.23	49.52	49.92	.....	.....	.....	.....
26	62.02	64.37	49.75	50.34	53.10	54.77	49.37	49.75	48.23	48.83	.....	.....
27	62.67	65.41	49.83	50.34	52.15	53.10	48.90	49.37	48.02	48.61	.....	.....
28	62.67	63.75	49.62	49.94	51.84	52.40	48.47	49.18	48.37	48.74	.....	.....
29	62.20	62.90	48.34	49.94	51.89	52.33	49.05	49.78	48.37	48.92	.....	.....
30	62.23	63.20	48.75	50.30	51.83	52.00	49.45	49.97	48.66	50.08	.....	.....
31	61.65	63.42	49.35	49.75	.....	.....	48.77	49.90	.....	.....	.....	.....

Bal-Gf 51. Bethlehem Steel Co.'s well Forty-Inch Mill 6. At Sparrows Point. Unused drilled industrial well, diameter 12 to 8 inches, depth 420 feet. Measuring point, top of discharge pipe, 9.20 feet above land surface.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level
Aug. 4	84.85	Oct. 7	88.98	Dec. 9	87.51
Sept. 7	80.35	Nov. 4	83.51		

Bal-Gf 52. Bethlehem Steel Co.'s well Forty-Inch Mill 7. At Sparrows Point. Used drilled industrial well, diameter 12 to 6 inches, depth 655 feet. Measuring point, top of air line, 10.00 feet above land surface.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Aug. 4	89	Aug. 25	84	Sept. 7	84	Nov. 4	89
11	89	Sept. 1	84	Oct. 7	92	Dec. 9	91
18	87	Oct. 7	84				

Bal-Gf 53. Bethlehem Steel Co.'s well Forty-Inch Mill 8. At Sparrows Point. Used drilled industrial well, diameter 12 to 6 inches, depth 668 feet. Measuring point, top of air line, 10.00 feet above land surface.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level
Aug. 4	86	Oct. 7	90	Dec. 9	88
Sept. 7	78	Nov. 4	82		

Bal-Gf 78. Bethlehem Steel Co.'s well Rail Mill 25. At Sparrows Point. Used drilled industrial well, diameter 16 to 7 inches, depth 651 feet. Measuring point, top of air line, 4.00 feet above land surface. Well pumping at time of each measurement.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level
Aug. 5	135	Oct. 7	143	Dec. 9	141
Sept. 7	123	Nov. 4	141		

Bal-Gf 79. Bethlehem Steel Co.'s well Open Hearth 1. At Sparrows Point. Unused drilled industrial well, diameter 12 to 6 inches, depth 209 feet. Measuring point, edge of iron-plate platform on top of well box, 8.80 feet above land surface. Automatic water-stage recorder installed July 20.

Daily highest and lowest water level, in feet below land-surface datum, 1943
(From recorder charts)

Day	July		August		September		October		November		December	
	High	Low	High	Low	High	Low	High	Low	High	Low	High	Low
1	.....	.....	39.56	39.95	32.50	32.75	32.61	33.45	31.55	32.18	31.23	32.03
2	.....	.....	39.43	39.59	32.53	32.90	.....	.....	30.88	31.60	31.95	32.35
3	.....	.....	38.28	39.56	.....	32.96	33.34	33.49	30.81	31.31	31.72	32.09
4	.....	.....	37.40	38.28	.....	.....	33.02	33.37	30.95	31.31	31.16	31.72
5	.....	.....	36.98	37.40	.....	.....	32.98	33.13	30.48	30.98	30.90	31.16
6	.....	.....	36.60	37.18	.....	.....	32.84	33.11	30.35	30.60	30.54	31.00
7	.....	.....	36.00	36.60	31.08	32.44	32.74	32.98	30.39	30.62	30.49	30.85
8	.....	.....	.....	.....	32.29	32.66	32.75	33.04	29.92	30.51	30.45	30.87
9	.....	.....	.....	.....	32.25	32.62	32.52	33.01	29.69	30.18	30.49	30.67
10	.....	.....	.....	.....	32.37	32.93	32.56	33.14	30.08	30.35	30.38	30.72
11	.....	.....	35.16	35.56	32.61	32.89	32.39	33.14	29.98	30.33	30.38	31.26
12	.....	.....	34.83	35.35	32.61	32.83	32.29	32.58	29.78	30.50	30.25	31.20
13	.....	.....	34.38	34.94	32.46	32.83	32.42	32.64	29.63	30.22	30.27	31.17
14	.....	.....	34.00	34.38	32.44	32.86	32.42	32.56	30.20	30.48	30.76	31.14
15	.....	.....	34.18	34.36	32.53	32.93	32.36	32.61	29.50	30.21	30.88	31.42
16	.....	.....	33.86	34.32	32.47	32.70	32.19	32.44	29.44	29.60	31.37	31.59
17	.....	.....	33.66	34.24	32.67	33.49	32.19	32.84	29.41	29.60	31.42	31.60
18	.....	.....	34.14	34.39	33.48	33.87	32.60	32.85	29.41	29.60	31.32	31.50
19	.....	.....	33.98	34.19	33.17	33.70	32.51	33.04	29.44	29.94	31.05	31.37
20	39.17	39.42	33.78	34.05	32.90	33.17	32.62	32.96	29.92	30.37	31.07	31.65
21	39.17	39.43	33.67	33.88	.....	.....	32.36	32.68	30.14	30.47	31.10	31.65
22	39.28	39.61	33.66	33.82	33.25	33.38	32.18	32.55	30.11	31.03	31.18	31.86
23	39.55	39.87	.....	.....	33.00	33.36	32.40	32.60	30.87	31.34	31.95	32.05
24	39.50	39.85	.....	.....	33.18	33.46	32.26	32.56	31.14	31.39	31.95	32.25
25	39.37	39.65	33.04	33.26	32.95	33.42	31.97	32.37	30.82	31.22	31.39	31.97
26	.....	.....	33.07	33.46	33.16	33.44	31.74	32.07	30.73	30.92	30.82	31.45
27	39.50	39.66	33.12	33.47	33.04	33.41	31.38	31.87	30.58	30.81	30.76	30.96
28	39.44	39.66	33.02	33.39	33.14	33.32	31.20	31.46	30.75	31.10	30.74	30.89
29	39.42	39.71	32.50	33.39	33.25	33.38	31.40	31.93	30.80	31.05	30.79	31.20
30	39.40	39.95	32.53	32.72	33.11	33.31	.....	.....	30.82	31.23	30.90	31.15
31	39.78	40.01	32.60	32.72	.....	.....	.....	.....	.....	.....	30.90	31.15

Bal-Gf 89. Bethlehem Steel Co.'s well Blast Furnace 1. At Sparrows Point. Unused drilled industrial well, diameter 8 to 4½ inches, depth 286 feet. Measuring point, edge of baffle bell, 2.70 feet above land surface.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
July 26	51.90	Aug. 18	54.63	Sept. 7	54.13	Nov. 3	54.10
Aug. 5	54.30	25	54.24	Oct. 7	54.15	Dec. 9	53.52
11	54.34	Sept. 1	54.19				

Bal-Gf 93. Bethlehem Steel Co.'s well Blast Furnace 4. At Sparrows Point. Used drilled industrial well, diameter 10 to 4½ inches, depth 490 feet. Measuring point, top of iron plate at pump base, 4.65 feet above land surface.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
July 26	100.83	Aug. 13	93.75	Sept. 1	96.28	Oct. 7	106.92
Aug. 5	101.60	23	95.40	7	98.70	Nov. 3	97.72
11	107.36						

Bal-Gf 100. Bethlehem Steel Co.'s well Blast Furnace 8. At Sparrows Point. Unused drilled industrial well, diameter 12 to 4½ inches, depth 285 feet. Measuring point, edge of baffle bell, 3.20 feet above land surface.

Water level, in feet below land-surface datum, 1943

July 26	101.57	Aug. 18	59.06	Sept. 7	57.85	Nov. 3	48.21
Aug. 5	63.94	25	56.39	Oct. 7	61.08	Dec. 9	54.73
11	60.52	Sept. 1	55.85				

Bal-Gf 105. Bethlehem Steel Co.'s well Spray Pond 1. At Sparrows Point. Used drilled industrial well, diameter 16 to 4½ inches, depth 538 feet. Measuring point, top of air line, 3.00 feet above land surface. Well pumping at time of each measurement. Water levels, in feet below land-surface datum, 1943: Aug. 5, 155; Sept. 7, 156; Oct. 7, 163; Nov. 3, 147.

Bal-Gf 107. Bethlehem Steel Co.'s well Benzol Boiler 1. At Sparrows Point. Used drilled industrial well, diameter 10 to 4 inches, depth 271 feet. Measuring point, edge of baffle bell, 7.90 feet above land surface. Water levels, in feet below land-surface datum, 1943: July 26, 113.67; Aug. 11, 61.78; Aug. 25, 57.39; Dec. 9, 56.12.

Bal-Gf 108. Bethlehem Steel Co.'s well Benzol Boiler 2. At Sparrows Point. Used drilled industrial well, diameter 10 to 4 inches, depth 271.5 feet. Measuring point, edge of baffle bell, 7.10 feet above land surface. Water levels, in feet below land-surface datum, 1943: July 26, 115.07; Aug. 11, 62.76; Aug. 25, 58.37; Dec. 9, 57.11.

Bal-Gf 129. Bethlehem Steel Co.'s well Coke Oven 21. At Sparrows Point. Unused drilled industrial well, diameter 12 to 4½ inches, depth 279 feet. Measuring point, top of discharge pipe, 1.00 foot below land surface.

Water level, in feet below land-surface datum, 1943

July 26	124.30	Aug. 11	66.51	Aug. 25	62.37	Sept. 7	55.31
Aug. 5	71.35	18	67.46	Sept. 1	62.52	Oct. 7	69.60

Bal-Gf 130. Bethlehem Steel Co.'s well Coke Oven 22. At Sparrows Point. Unused drilled industrial well, diameter 12 to 4½ inches, depth 309 feet. Measuring point, top of 6-inch flange, 2.00 feet below land surface.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level
Aug. 5	71.34	Oct. 7	66.49	Dec. 9	58.47
Sept. 7	52.90	Nov. 4	44.57		

Bal-Gf 131. Bethlehem Steel Co.'s well Coke Oven 23. At Sparrows Point. Unused drilled industrial well, diameter 8 to 6 inches, depth 274 feet. Measuring point, edge of tee in 4-inch discharge pipe, 1.50 feet above land surface.

Water level, in feet below land-surface datum, 1943

Aug. 5	73.56	Oct. 7	68.50	Dec. 9	61.39
Sept. 7	52.32	Nov. 4	44.16		

Bal-Gf 136. Bethlehem Steel Co.'s well Coke Oven 28. At Sparrows Point. Unused drilled industrial well, diameter 12 to 4½ inches, depth 494.5 feet. Measuring point, edge of baffle bell, at land surface.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
July 26	87.09	Aug. 18	88.56	Sept. 7	84.17	Nov. 4	85.68
Aug. 5	87.87	25	83.43	Oct. 7	92.46	Dec. 9	100.55
11	93.13	Sept. 1	83.32				

Bal-Gf 138. Bethlehem Steel Co.'s well Coke Oven 30. At Sparrows Point. Used drilled industrial well, diameter 16 to 6 inches, depth 295 feet. Measuring point, top of air line, 3.00 feet above land surface.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level
Aug. 5	63	Oct. 7	59	Dec. 9	52
Sept. 7	50	Nov. 4	42		

Bal-Gf 139. Bethlehem Steel Co.'s well Coke Oven 31. At Sparrows Point. Used drilled industrial well, diameter 16 to 7 inches, depth 615 feet. Measuring point, top of air line, 3.00 feet above land surface. Water levels, in feet below land-surface datum, 1943: Sept. 7, 76; Oct. 7, 84; Nov. 4, 80; Dec. 9, a/ 168.

Bal-Gf 140. Bethlehem Steel Co.'s well Coke Oven 32. At Sparrows Point. Used drilled industrial well, diameter 14 to 7 inches, depth 302 feet. Measuring point, air gage, 2.00 feet above land surface.

Water level, in feet below land-surface datum, 1943

Aug. 5	73	Oct. 7	71	Dec. 9	64
Sept. 7	54	Nov. 4	47		

Bal-Gf 166. Bethlehem Steel Co.'s well Town Water 1. At Sparrows Point. Used drilled industrial well, diameter 10 to 4½ inches, depth 222 feet. Measuring point, edge of baffle bell, 6.60 feet above land surface.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
July 26	39.25	Aug. 18	33.08	Sept. 8	31.33	Nov. 3	29.80
Aug. 4	38.93	25	32.22	Oct. 7	31.68	Dec. 2	32.71
11	34.60	Sept. 1	31.19				

Bal-Gf 167. Bethlehem Steel Co.'s well Town Water 2. At Sparrows Point. Used drilled industrial well, diameter 10 to 4½ inches, depth 301 feet. Measuring point, edge of baffle bell, 6.40 feet above land surface. Water levels, in feet below land-surface datum, 1943: Sept. 8, 54.38; Oct. 7, 56.25; Nov. 3, 53.43; Dec. 2, 63.05.

Bal-Gf 168. Bethlehem Steel Co.'s well Town Water 3. At Sparrows Point. Used drilled industrial well, diameter 10 to 4½ inches, depth 308.5 feet. Measuring point, edge of baffle bell, 6.40 feet above land surface. Water levels, in feet below land-surface datum, 1943: Sept. 8, 54.49; Oct. 7, 56.40; Nov. 3, 53.59; Dec. 2, 60.62.

Bal-Gf 169. Bethlehem Steel Co.'s well Town Water 4. At Sparrows Point. Used drilled industrial well, diameter 10 to 4½ inches, depth 224 feet. Measuring point, edge of baffle bell, 4.80 feet above land surface.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level
Aug. 4	41.43	Oct. 7	33.20	Dec. 2	34.11
Sept. 8	32.76	Nov. 3	31.33		

a Pumping.

Bal-Gf 170. Bethlehem Steel Co.'s well Town Water 5. At Sparrows Point. Used drilled industrial well, diameter 10 to 4½ inches, depth 224 feet. Measuring point, edge of baffle bell, 5.40 feet above land surface. Water levels, in feet below land-surface datum, 1943: Sept. 8, 32.11; Oct. 7, 32.50; Nov. 3, 30.65; Dec. 2, 33.31.

Bal-Gf 171. Bethlehem Steel Co.'s well Town Water 6. At Sparrows Point. Used drilled industrial well, diameter 10 to 6 inches, depth 290 feet. Measuring point, edge of baffle bell, 5.50 feet above land surface.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
July 26	73.80	Aug. 25	61.65	Sept. 8	58.84	Nov. 3	58.29
Aug. 11	65.30	Sept. 1	58.73	Oct. 7	60.66	Dec. 2	61.66
18	59.35						

Bal-Gf 172. Bethlehem Steel Co.'s well Town Water 7. At Sparrows Point. Used drilled industrial well, diameter 10 to 4½ inches, depth 317 feet. Measuring point, edge of baffle bell, 5.50 feet above land surface.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
July 26	69.38	Aug. 18	57.37	Sept. 8	54.96	Nov. 3	54.20
Aug. 4	70.38	25	57.60	Oct. 7	56.65	Dec. 2	56.79
11	60.99	Sept. 1	54.88				

Bal-Gf 173. Bethlehem Steel Co.'s well Town Water 8. At Sparrows Point. Used drilled industrial well, diameter 10 to 4½ inches, depth 226 feet. Measuring point, edge of baffle bell, 5.00 feet above land surface. Water levels, in feet below land-surface datum, 1943: Sept. 8, 33.28; Oct. 7, 34.04; Nov. 3, 31.81; Dec. 2, 34.39.

Bal-Gf 174. Bethlehem Steel Co.'s well Town Water 9. At Sparrows Point. Used drilled industrial well, diameter 10 to 4½ inches, depth 319 feet. Measuring point, edge of baffle bell, 5.90 feet above land surface.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level
Aug. 4	89.51	Oct. 7	76.84	Dec. 2	58.37
Sept. 8	74.26	Nov. 3	73.42		

Bal-Gf 175. Bethlehem Steel Co.'s well Town Water 10. At Sparrows Point. Used drilled industrial well, depth 300 feet. Measuring point, top of air line, 2.00 feet above land surface.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Aug. 4	76	Aug. 25	57	Sept. 8	55	Nov. 3	55
11	63	Sept. 1	54	Oct. 7	58	Dec. 2	a 77
18	59						

Bal-Gf 176. Bethlehem Steel Co.'s well Town Water 11. At Sparrows Point. Used drilled industrial well, diameter 14 to 7 inches, depth 322 feet. Measuring point, top of air line, 2.00 feet above land surface.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level
Aug. 4	a 117	Oct. 7	a 102	Dec. 2	56
Sept. 8	a 103	Nov. 3	a 102		

Bal-Gf 177. Baltimore Transit Co. In Bay Shore Park. Longitude 76° 25' 30", latitude 39°12'30". Unused drilled well, diameter 6 inches, depth 709 feet. Measuring point, lock flange on well platform, 1.20 feet above land surface. Automatic water-stage recorder installed July 24.

a Pumping.

Bal-Gf 177. Baltimore Transit Co.--Continued.

Daily highest and lowest water level, in feet below land-surface datum, 1943
(From recorder charts)

Day	July		August		September		October		November		December	
	High	Low	High	Low	High	Low	High	Low	High	Low	High	Low
1	.....	.....	45.04	45.15	.....	.....	44.92	45.93	44.27	45.66	45.30	45.58
2	.....	.....	45.05	45.10	.....	.....	44.92	45.18	43.74	44.27	45.19	45.75
3	.....	.....	44.90	45.10	43.18	43.46	45.18	45.68	43.74	44.48	45.56	46.08
4	.....	.....	44.95	45.06	42.95	43.17	.....	.....	44.36	44.46	45.80	46.16
5	.....	.....	45.08	45.50	42.89	42.99	.....	.....	43.86	44.30	45.62	46.21
6	.....	.....	44.95	45.47	42.75	42.99	.....	.....	43.73	44.12	45.88	46.21
7	.....	.....	44.70	44.93	42.65	43.02	46.07	46.32	43.99	44.13	45.80	46.34
8	.....	.....	44.67	44.93	42.92	43.32	46.13	46.44	43.34	44.06	45.80	46.34
9	.....	.....	44.50	44.67	42.90	43.28	45.75	46.44	43.14	44.01	45.85	46.23
10	.....	.....	44.30	44.77	42.90	43.43	45.65	46.38	43.96	44.27	45.94	46.38
11	.....	.....	44.35	44.77	43.03	43.43	45.47	46.38	43.97	44.28	46.04	47.18
12	.....	.....	44.18	44.40	43.08	43.43	45.23	45.60	43.70	44.56	45.85	47.11
13	.....	.....	44.10	44.60	42.86	43.40	45.19	45.53	43.70	44.54	45.98	47.07
14	.....	.....	44.60	45.10	42.80	43.05	44.96	45.37	44.54	45.16	46.43	46.73
15	.....	.....	.....	.....	42.72	43.01	44.64	45.15	44.22	44.90	46.43	47.27
16	.....	.....	.....	.....	42.72	43.05	44.00	44.74	44.22	44.99	46.90	47.33
17	.....	.....	.....	.....	43.02	43.97	44.00	45.02	44.75	45.32	47.00	47.32
18	.....	.....	.....	.....	43.95	44.46	44.55	45.00	44.55	44.75	46.90	47.08
19	.....	.....	.....	.....	43.78	44.04	44.56	45.30	44.51	44.70	46.94	47.24
20	.....	.....	.....	.....	43.67	43.90	44.90	45.22	44.68	44.89	46.83	47.58
21	.....	.....	.....	.....	43.68	44.12	44.48	44.92	44.72	44.92	46.78	47.58
22	.....	.....	.....	.....	44.04	44.26	44.25	44.71	44.68	45.65	46.85	47.68
23	.....	.....	.....	.....	43.85	44.26	44.66	44.81	45.60	45.78	47.58	47.96
24	45.02	45.27	.....	.....	43.86	44.34	44.63	44.81	45.30	45.78	47.78	48.20
25	44.70	45.00	.....	.....	44.05	44.34	44.18	44.66	44.98	45.30	47.22	47.75
26	44.70	45.08	.....	.....	44.21	44.30	44.22	44.57	44.81	45.25	46.92	47.60
27	45.00	45.10	.....	.....	44.18	44.33	43.76	44.57	44.81	45.10	46.92	47.41
28	44.82	45.00	.....	.....	44.24	44.63	43.70	43.91	44.99	45.65	46.85	47.21
29	44.81	44.97	.....	.....	44.63	44.92	43.72	44.50	45.23	45.62	46.94	47.54
30	44.80	45.16	.....	.....	.....	.....	44.30	44.67	45.30	45.65	46.96	47.44
31	45.06	45.15	.....	.....	.....	.....	44.52	44.89	.....	.....	46.96	47.42

Montgomery County

Mont-Ff 1 (*817, pp. 80-82; *840, p. 120; *845, p. 149; *886, p. 252; *907, pp. 56-57; *937, pp. 62-63; *945, pp. 82-83). Walter M. Brown. At rear of dwelling owned by Walter M. Brown, 500 feet northeast of the gaging station on Northwest Branch of Anacostia River, 1.5 miles southwest of Colesville. Abandoned dug well, 20 feet deep, lined with loose stones. Highest recorded stage, 11.90 feet below land-surface datum Apr. 22, 1933; lowest, 18.41 feet below land-surface datum Oct. 6, 1932. Equipped with automatic water-stage recorder beginning June 1, 1934.

Mean daily water level, in feet below land-surface datum, 1943
(From recorder charts)

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	14.64	15.31	14.12	13.56	14.33	14.82	15.86	16.96	17.97	18.17	17.63	16.70
2	14.69	15.22	14.19	13.61	14.41	14.84	15.90	16.99	17.98	18.17	17.63	16.70
3	14.72	15.20	14.22	13.73	14.41	14.87	15.93	17.03	18.01	18.17	17.53	16.72
4	14.69	14.91	14.31	13.81	14.49	14.93	15.96	17.07	18.01	18.17	17.46	16.73
5	14.74	14.23	14.35	13.79	14.56	14.97	15.97	17.11	18.01	18.17	17.44	16.73
6	14.76	13.76	14.27	13.91	14.57	15.02	16.02	17.15	18.01	18.18	17.42	16.73
7	14.76	13.49	13.91	13.99	14.60	15.06	16.07	17.18	18.00	18.18	17.42	16.74
8	14.76	13.49	13.92	14.01	14.65	15.11	16.10	17.22	17.99	18.18	17.37	16.75
9	14.76	13.57	13.92	14.08	14.71	15.12	16.14	17.25	17.98	18.18	16.58	16.76
10	14.77	13.65	13.99	14.12	14.74	15.11	16.19	17.29	17.98	18.18	16.52	16.77
11	14.81	13.54	.....	14.21	14.75	15.14	16.22	17.34	17.98	18.19	16.55	16.77
12	14.81	13.13	.....	14.20	14.54	15.19	16.25	17.38	17.98	18.19	16.58	16.77
13	14.87	13.08	.....	14.24	14.25	15.21	16.28	17.42	17.99	18.19	16.59	16.78
14	14.87	13.08	.....	14.32	14.25	15.25	16.30	17.45	17.99	18.19	16.61	16.80
15	14.86	13.23	.....	14.41	14.27	15.28	16.33	17.48	17.99	18.19	16.62	16.82

Mont-Ff 1. Walter M. Brown--Continued.

Mean daily water level, in feet below land-surface datum, 1943
(From recorder charts)

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
16	14.91	13.35	.....	14.46	14.28	15.31	16.37	17.52	18.00	18.18	16.61	16.83
17	14.97	13.39	.....	14.49	14.28	15.35	16.41	17.54	18.01	18.18	16.61	16.85
18	15.01	13.50	.....	14.55	14.30	15.34	16.44	17.59	18.03	18.17	16.62	16.85
19	15.02	13.53	.....	14.43	14.32	15.37	16.48	17.63	18.06	18.16	16.62	16.86
20	15.12	13.54	.....	14.19	14.35	15.40	16.51	17.65	18.07	18.15	16.62	16.87
21	15.12	13.58	.....	14.01	14.39	15.44	16.54	17.68	18.08	18.13	16.63	16.88
22	15.13	13.67	.....	13.99	14.44	15.48	16.58	17.71	18.09	18.12	16.64	16.89
23	15.14	13.73	.....	14.04	14.53	15.52	16.63	17.74	18.10	18.11	16.65	16.92
24	15.19	13.78	.....	14.04	14.55	15.57	16.67	17.77	18.11	18.09	16.65	16.95
25	15.21	13.88	.....	14.05	14.57	15.60	16.70	17.80	18.12	18.09	16.66	16.95
26	15.28	13.91	.....	14.08	14.59	15.65	16.74	17.83	18.12	18.03	16.66	16.92
27	15.32	13.97	.....	14.15	14.65	15.69	16.78	17.87	18.13	17.92	16.66	16.66
28	15.32	14.02	.....	14.16	14.70	15.72	16.81	17.89	18.13	17.71	16.67	16.59
29	15.34	.....	.....	14.25	14.75	15.76	16.84	17.92	18.15	17.67	16.68	16.58
30	15.37	.....	.....	14.25	14.78	15.81	16.88	17.93	18.16	17.65	16.69	16.58
31	15.38	.....	.....	.....	14.80	.....	16.92	17.95	.....	17.64	.....	16.58

MISSISSIPPI

By R. W. Adams

PROGRAM OF WORK

The observation-well program in Mississippi, begun in 1938, was continued in 1943 by the Geological Survey, United States Department of the Interior, in cooperation with the Mississippi State Geological Survey. Periodic measurements were made in 26 selected wells, the measurements reaching a total of 68 for the year. In addition, automatic water-stage recorders were maintained throughout the year at 8 wells. No new wells were added to the program. Numerous measurements, not included in this report, were made at military establishments. Most of the observation wells in the State are artesian.

Detailed investigations of ground-water conditions were made, at the request of the War Department, in two military areas, and reports[1/] on them were published by the State.

FLUCTUATIONS OF WATER LEVEL

Water levels in observation wells throughout the State, with one exception, declined in 1943, owing, principally, to increased pumpage and natural discharge. In Washington County well 65, at Estill, however, measured water levels were slightly higher. The average of water levels measured on this well in 1943 was 0.5 foot higher than the average of comparable levels measured in 1942.

WATER-LEVEL MEASUREMENTS

Note.--The datum formerly used in recording the measurements made in many of the wells in Mississippi, as published in earlier reports, was mean sea level.

Bolivar County

13 (*907, p. 62; 937, p. 66; 945, p. 86). Town of Shelby. SW¼NE¼ sec. 12, T. 24 N., R. 6 W. Measuring point, chiseled cross on casing tee, 155.58 feet above mean sea level and 2.0 feet above land-surface datum. Water levels, in feet above land-surface datum, 1943: Apr. 2, 4:13 p.m., 15.2; July 4, 4:50 p.m., 15.6; Dec. 27, 5:54 p.m., 14.0.

1/ Brown, G. F., and Adams, R. W., Geology and ground-water supply at Camp McCain: Mississippi Geol. Survey Bull. 55, 116 pp., 1943. Brown, G. F., and Guyton, W. F., Geology and ground-water supply at Camp Van Dorn: Mississippi Geol. Survey Bull. 56, 68 pp., 1943.

18 (*886, p. 281; 907, p. 62; 937, p. 66; 945, p. 86). Town of Gunnison. NE¼SW¼ sec. 8, T. 24 N., R. 7 W. Measuring point is level with land-surface datum and 153.77 feet above mean sea level. No measurements made in 1943.

35 (*886, p. 281; 907, p. 62; 937, p. 66; 945, p. 86). Town of Beulah. SW¼NE¼ sec. 27, T. 22 N., R. 8 W. Measuring point, chiseled cross on casing elbow, 147.53 feet above mean sea level and 1.4 feet above land-surface datum. Water levels, in feet above land-surface datum, 1943: Apr. 2, 2:38 p.m., 29.6; July 4, 8:10 p.m., 29.0; Dec. 27, 7:20 p.m., 24.9.

50 (*886, p. 281; 907, p. 62; 937, p. 66; 945, p. 86). Jones Bayou Gin Co. NE¼SE¼ sec. 17, T. 21 N., R. 5 W. Measuring point, chiseled cross on casing elbow, 134.70 feet above mean sea level, and 1.0 foot above land-surface datum. Water levels, in feet above land-surface datum, 1943: Apr. 2, 5:14 p.m., 16.9; July 4, 5:40 p.m., 16.3; Dec. 28, 8:50 a.m., 15.4.

Coahoma County

11 (*907, p. 62; 937, p. 66; 945, p. 86). Norfleet & Wilsford. NW¼SW¼ sec. 7, T. 29 N., R. 2 W. Measuring point, chiseled cross on casing tee, 181.88 feet above mean sea level and 1.0 foot above land-surface datum. Water levels, in feet above land-surface datum, 1943: Apr. 1, 6:30 p.m., 38.8; July 4, 1:45 p.m., 37.8; Dec. 27, 2:50 p.m., 35.8.

32 (*907, p. 62; 937, p. 66; 945, p. 86). Coahoma County Agricultural High School. SW¼NW¼ sec. 36, T. 28 N., R. 4 W. Measuring point, chiseled cross on well head, 176.74 feet above mean sea level and at land-surface datum. Water levels, in feet above land-surface datum, 1943: Apr. 1, 7:35 p.m., 38.2; July 4, 2:55 p.m., 37.9; Dec. 27, 3:35 p.m., 37.2.

DeSoto County

3 (*945, p. 86). H. P. Sullivan. NW¼NE¼ sec. 32, T. 1 S., R. 9 W. Measuring point is at land-surface datum and 209.57 feet above arbitrary datum previously used. Water levels, in feet above land-surface datum, 1943: Apr. 1, 4:35 p.m., 10.9; July 4, 10:25 a.m., 8.8; Dec. 27, 12:20 p.m., 6.4.

Forrest County

29 (*907, p. 62; 937, p. 67; 945, p. 86). City of Hattiesburg. SE¼NW¼ sec. 10, T. 4 N., R. 13 W., under north end of United Service Organizations building. Measuring point is 3.95 feet above land-surface datum and about 160 feet above mean sea level. No measurements made in 1943.

30 (*907, p. 62; 937, p. 67; 945, p. 86). City of Hattiesburg. SE¼NE¼ sec. 10, T. 4 N., R. 13 W., under south end of United Service Organizations building and connected to stilling well on east side of building. Equipped with water-stage recorder. Measuring point, top of 4-inch standpipe, 159.46 feet above mean sea level and 7.7 feet above land-surface datum.

Highest and lowest weekly water level, in feet above land-surface datum, 1943
(From recorder charts)

Week ending	Date	Hour	Highest level	Date	Hour	Lowest level
Jan. 9	Jan. 4	5 a.m.	4.2	Jan. 8	4 p.m.	3.5
16	10	7 a.m.	3.7	15	6 p.m.	3.3
23	18	6 a.m.	3.7	19	11 a.m.	3.3
30	24	6 a.m.	3.5	29	1 p.m.	3.2
Feb. 6	Feb. 6	9 a.m.	3.9	Feb. 2	11 a.m.	3.2
13	8	6 a.m.	3.8	11	5 p.m.	3.3
20	14	4 a.m.	3.6	18	10 a.m.	3.1
27	21	7 a.m.	3.6	27	2 p.m.	3.1
Mar. 6	Mar. 3	4 a.m.	3.5	Mar. 5	6 p.m.	3.1
13	7	8 a.m.	3.5	9	4 p.m.	3.0

30. City of Hattiesburg--Continued.

Highest and lowest weekly water level, in feet above land-surface datum, 1943
(From recorder charts)

Week ending	Date	Hour	Highest level	Date	Hour	Lowest level
Mar. 20	Mar. 20	12 p.m.	4.0	Mar. 14	1 p.m.	3.2
27	22	6 a.m.	5.0	26	4 p.m.	3.5
Apr. 3	28	6 a.m.	3.7	Apr. 3	2 p.m.	3.3
10	Apr. 10	12 p.m.	3.9	4	2 p.m.	3.4
17	12	8 a.m.	4.0	16	1 p.m.	3.4
24	19	7 p.m.	3.8	24	4 p.m.	3.5
May 1	26	3 p.m.	3.6	29	8 a.m.	3.4
8	May 2	7 p.m.	3.6	May 6	10 a.m.	3.2
15	11	4 a.m.	3.3	15	9 p.m.	3.2
22	16	8 p.m.	3.3	22	5 a.m.	3.0
29	26	7 p.m.	3.2	26	7 a.m.	3.0
June 5	31	4 p.m.	3.2	June 5	1 p.m.	2.8
12	June 11	11 p.m.	3.1	8	4 p.m.	2.8
19	19	6 p.m.	4.2	13	3 a.m.	2.9
26	21	7 p.m.	4.4	26	10 p.m.	3.3
July 3	27	6 p.m.	3.4	July 3	2 a.m.	3.1
10	July 4	4 p.m.	3.2	10	10 p.m.	2.9
17	16	5 p.m.	3.0	11	11 p.m.	2.9
24	19	2 a.m.	3.0	24	10 p.m.	2.8
31	31	6 p.m.	3.0	26	9 a.m.	2.7
Aug. 7	Aug. 2	10 p.m.	3.1	Aug. 5	8 p.m.	2.8
14	9	8 p.m.	3.1	14	9 p.m.	2.9
21	18	9 p.m.	3.2	21	11 a.m.	2.8
28	22	11 p.m.	2.8	28	9 p.m.	2.6
Sept. 4	Sept. 4	10 p.m.	2.7	Sept. 2	11 p.m.	2.5
11	5	11 p.m.	2.9	10	10 p.m.	2.5
18	18	11 p.m.	2.8	16	2 p.m.	2.4
25	20	10 p.m.	3.1	19	2 a.m.	2.7
Oct. 2	Oct. 1	9 a.m.	2.9	28	9 p.m.	2.8
9	4	9 a.m.	3.0	Oct. 9	3 p.m.	2.7
16	10	4 p.m.	2.8	15	2 p.m.	2.6
23	18	10 a.m.	3.0	22	1 p.m.	2.6
30	29	10 a.m.	3.1	24	4 a.m.	2.6
Nov. 6	Nov. 6	12 p.m.	3.1	Nov. 3	11 a.m.	2.6
13	13	9 a.m.	3.3	9	8 a.m.	3.1
20	19	11 a.m.	3.3	17	5 p.m.	3.0
27	23	2 p.m.	3.3	26	10 p.m.	3.0
Dec. 4	29	10 a.m.	3.5	Dec. 4	4 p.m.	3.1
11	Dec. 6	3 a.m.	3.4	11	5 p.m.	3.0
18	14	6 a.m.	3.4	17	6 p.m.	3.0
25	25	11 p.m.	3.5	20	5 p.m.	3.1

41 (*937, p. 67; 945, p. 87). William Beard. NE¼NE¼ sec. 23, T. 3 N., R. 13 W. Measuring point is 4.6 feet above land-surface datum and about 284 feet above mean sea level. Water level, in feet below land-surface datum, 1943: May 22, 8:10 a.m., 32.9.

50 (*907, p. 63; 937, p. 68; 945, p. 87). Dixie Tung Empire Corporation. NE¼NE¼ sec. 28, T. 1 N., R. 12 W. Measuring point is 5.8 feet above land-surface datum and about 255 feet above mean sea level. No measurements made in 1943.

Grenada County

12 (*886, p. 281; 907, p. 63; 937, p. 68; 945, p. 87). Holcomb School. SW¼SW¼ sec. 15, T. 22 N., R. 3 E. Measuring point, top of plug on well head, 185.59 feet above mean sea level and 2.7 feet above land-surface datum. Water level, in feet above land-surface datum, 1943: Apr. 3, 2:05 p.m., 27.7.

16 (*886, p. 281; 907, p. 63; 937, p. 68; 945, p. 87). Town of Holcomb. NW¼NW¼ sec. 22, T. 22 N., R. 3 E. Measuring point, chiseled cross on top of casing tee, 193.64 feet above mean sea level and 3.0 feet above land-surface datum. Water levels, in feet below land-surface datum, 1943: Apr. 3, 1:40 p.m., 4.2; Dec. 28, 8:05 p.m., 5.3.

Harrison County

118 (*886, p. 281; 907, p. 63; 937, p. 68; 945, p. 88). City of Gulfport. NW¼NW¼ sec. 9, T. 8 S., R. 11 W. Measuring point is 1.7 feet above land-surface datum and 18 feet above mean sea level. Equipped with water-stage recorder.

Highest and lowest weekly water level, in feet above land-surface datum, 1943
(From recorder charts)

Week ending	Date	Hour	Highest level	Date	Hour	Lowest level
Jan. 9	Jan. 3	6 p.m.	19.7	Jan. 8	1 p.m.	16.5
16	14	5 p.m.	20.3	10	10 a.m.	18.1
23	20	10 a.m.	20.6	21	2 p.m.	17.1
30	26	5 a.m.	20.5	30	10 a.m.	18.8
Feb. 6	Feb. 3	6 p.m.	20.6	Feb. 8	9 a.m.	18.8
13	10	5 p.m.	20.8	13	8 p.m.	18.9
20	15	7 a.m.	20.7	17	10 a.m.	19.0
27	22	4 p.m.	20.8	26	10 p.m.	18.9
Mar. 6	Mar. 1	4 p.m.	20.5	Mar. 4	9:30 a.m.	17.2
13	11	5 p.m.	20.8	7	12:30 a.m.	18.7
20	14	5 p.m.	20.4	17	9 a.m.	18.7
27	26	2 p.m.	18.7	22	11 p.m.	18.7
Apr. 3	28	4 p.m.	21.0	Apr. 3	8 a.m.	19.5
10	Apr. 9	12:30 p.m.	21.2	4	2 a.m.	19.5
17	11	1 p.m.	21.1	15	9 p.m.	18.7
24	18	2 p.m.	21.0	23	11 p.m.	18.5
May 1	25	4 p.m.	20.4	May 1	8 p.m.	15.5
8	May 3	1 p.m.	19.4	5	10 p.m.	15.2
15	13	12 noon	19.7	15	8 p.m.	15.7
22	17	9 a.m.	19.3	22	8 p.m.	14.6
29	26	2 p.m.	19.4	29	8 p.m.	15.3
June 5	31	6 a.m.	19.0	June 5	9 p.m.	13.4
12	June 11	7 p.m.	17.5	12	10 p.m.	13.1
19	14	5 a.m.	17.7	19	10 p.m.	12.0
26	24	4 p.m.	17.7	25	10 p.m.	13.3
July 3	28	6 a.m.	18.0	29	1 p.m.	13.1
10	July 5	2 p.m.	17.9	July 10	10 p.m.	13.1
17	12	1 p.m.	17.7	16	10 p.m.	12.1
24	19	5 a.m.	17.5	..	.....	13.1
31	25	6 a.m.	17.7	31	10 p.m.	13.5
Aug. 7	Aug. 6	4 a.m.	17.7	Aug. 4	12 p.m.	12.9
14	11	7 a.m.	17.7	14	10 p.m.	13.0
21	15	4 p.m.	17.7	20	12 p.m.	13.2
28	23	6 a.m.	17.9	27	8 p.m.	12.2
Sept. 4	30	6 a.m.	17.4	Sept. 3	8 p.m.	12.7
11	Sept. 7	6 a.m.	17.7	9	9 p.m.	12.7
18	13	10 a.m.	18.2	16	6 p.m.	13.0
25	20	4 a.m.	18.1	25	7 p.m.	13.6
Oct. 2	29	4 a.m.	18.7	27	5 p.m.	15.9
9	Oct. 6	6 a.m.	19.0	Oct. 9	5 p.m.	15.7
16	13	4 a.m.	18.3	16	7 p.m.	15.7
23	19	4 a.m.	18.7	18	5 p.m.	15.9
30	24	8 a.m.	18.5	25	7 p.m.	15.4
Nov. 6	Nov. 5	6 a.m.	18.2	Nov. 6	6 p.m.	15.4
13	7	12 noon	18.4	9	5 p.m.	15.9
20	15	2 a.m.	19.1	16	5 p.m.	16.1
27	27	2 a.m.	18.9	21	5 p.m.	16.7
Dec. 4	Dec. 4	8 a.m.	19.1	Dec. 4	9 p.m.	16.6
11	6	5 a.m.	19.0	11	3 p.m.	16.5
18	14	5 a.m.	18.7	16	12 noon	9.9
25	25	12 p.m.	18.2	21	3 a.m.	15.2

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147 (*937, p. 69; 945, p. 88). Gulf & Ship Island Railroad. NE¼NW¼ sec. 18, T. 5 S., R. 11 W. Measuring point is 2.8 feet above land-surface datum and about 145 feet above mean sea level. No measurements made in 1943.

Holmes County

38 (*845, p. 162; 886, p. 282; 907, p. 63; 937, p. 69; 945, p. 89). Town of Tchula. NW¼NW¼ sec. 8, T. 15 N., R. 1 E. Measuring point, top of plug in well head, 118.25 feet above mean sea level and at land-surface datum. Water levels, in feet above land-surface datum, 1943: Apr. 3, 10:38 a.m., 19.2; July 5, 5:22 p.m., 18.1; Dec. 28, 5:11 p.m., 19.1.

59 (*845, p. 162; 886, p. 282; 907, p. 63; 937, p. 69; 945, p. 89). M. L. Smith, Thornton. SE¼NW¼ sec. 8, T. 14 N., R. 1 W. Measuring point, chiseled cross on top of casing tee, 111.72 feet above mean sea level and at land-surface datum. Water levels, in feet above land-surface datum, 1943: Apr. 3, 10 a.m., 125.8; July 5, 4:55 p.m., 123.7; Dec. 28, 4:40 p.m., 121.8.

Humphreys County

10 (*886, p. 282; 907, p. 63; 937, p. 69; 945, p. 89). Wister Henry, Belzoni. NW¼NE¼ sec. 35, T. 16 N., R. 3 W. Measuring point is 0.5 foot above land-surface datum and 114.90 feet above mean sea level. No measurements made in 1943.

18 (*845, p. 162; 886, p. 282; 907, p. 64; 937, p. 69; 945, p. 89). J. C. Halbrook, Belzoni. NW¼SE¼ sec. 3, T. 15 N., R. 3 W. Measuring point is 1.4 feet above land-surface datum and 109.40 feet above mean sea level. No measurements made in 1943.

56 (*886, p. 282; 907, p. 64; 937, p. 70; 945, p. 89). Town of Louise. NE¼NE¼ sec. 15, T. 13 N., R. 4 W. Measuring point, chiseled cross on union on 4-inch pump discharge pipe, about 108.0 feet above mean sea level and 2.0 feet above land-surface datum. Water levels, in feet above land-surface datum, 1943: Apr. 2, 9:30 p.m., 21.5; July 5, 2:40 p.m., 20.9; Dec. 28, 3:07 p.m., 19.7.

Issaquena County

24 (*886, p. 282; 907, p. 64; 937, p. 70; 945, p. 89). W. W. Gary. At Valley Park, in SE¼NE¼ sec. 12, T. 9 N., R. 7 W. Measuring point, chiseled cross on top of casing tee, 98.13 feet above mean sea level and 3.3 feet above land-surface datum. No measurements made in 1943.

Jackson County

9 (*907, p. 64; 937, p. 70; 945, p. 89). Camp McClellan. SE¼NW¼ sec. 35, T. 6 S., R. 9 W. Measuring point is 2.6 feet above land-surface datum and about 45 feet above mean sea level. No measurements made in 1943.

65 (*907, p. 64; 937, p. 71; 945, p. 89). Gulf Hills Development Co. NW¼NE¼ sec. 24, T. 7 S., R. 9 W. Measuring point is 2.4 feet above land-surface datum and about 19 feet above mean sea level. No measurements made in 1943.

Jones County

27 (*907, p. 65; 937, p. 71; 945, p. 90). U. S. Dept. of Agriculture starch plant. At Laurel, in NE¼SE¼ sec. 7, T. 8 N., R. 11 W. Measuring point, top of well casing, about 268.0 feet above mean sea level and 0.2 foot above land-surface datum. Equipped with water-stage recorder.

27. U. S. Dept. of Agriculture starch plant--Continued.

Highest and lowest weekly water level, in feet below land-surface datum, 1943
(From recorder charts)

Week ending	Date	Hour	Highest level	Date	Hour	Lowest level
Jan. 16	Jan. 10	8 p.m.	124.3	Jan. 15	5 p.m.	126.9
23	18	11 a.m.	125.8	23	4 a.m.	126.8
30	30	8 a.m.	126.3	29	4 p.m.	127.8
Feb. 6	Feb. 1	6 a.m.	125.5	Feb. 4	5 p.m.	127.7
13	7	6 p.m.	126.1	13	2 p.m.	128.1
20	15	10 a.m.	126.8	19	11 a.m.	129.4
27	27	1 a.m.	126.9	27	1 p.m.	128.5
Mar. 6	Mar. 4	5 a.m.	127.5	Mar. 4	5 p.m.	128.9
13	12	8 p.m.	126.1	10	3 p.m.	130.7
20	20	7 p.m.	124.7	19	5 p.m.	127.9
27	25	10 a.m.	118.3	26	5 a.m.	127.4
Apr. 3	30	11:30 p.m.	124.5	Apr. 3	9 p.m.	127.4
10	Apr. 10	12 p.m.	122.8	4	12 noon	127.1
17	16	2 p.m.	120.1	15	9 a.m.	125.2
24	18	4 a.m.	122.3	22	4 p.m.	125.6
May 1	May 1	12 p.m.	116.6	29	10 a.m.	124.7
8	3	7 a.m.	115.3	May 6	4 p.m.	124.8
15	10	10 a.m.	116.9	15	1 p.m.	126.6
22	18	3 p.m.	115.0	17	8 p.m.	126.7
29	24	8 a.m.	122.5	27	4 p.m.	126.4
June 5	30	12 noon	124.7	June 4	8 p.m.	127.2
12	June 7	6 a.m.	124.3	11	2 p.m.	126.9
19	19	4 a.m.	124.6	17	6 p.m.	127.1
26	26	10 a.m.	115.7	25	6 p.m.	127.3
July 3	July 2	5 a.m.	119.5	28	7 p.m.	126.7
10	4	2 p.m.	118.4	July 8	8 p.m.	125.6
17	12	5 a.m.	123.1	14	5 p.m.	125.9
24	19	5 a.m.	107.5	24	1 p.m.	125.7
31	26	6 a.m.	117.9	30	8 p.m.	127.6
Aug. 7	Aug. 2	6 a.m.	117.8	Aug. 5	12 noon	127.4
14	10	4 a.m.	123.1	10	8 p.m.	126.8
21	16	6 a.m.	114.9	17	2 p.m.	133.8
Sept. 4	30	6 a.m.	103.7	Sept. 2	7 p.m.	133.8
11	Sept. 7	4 a.m.	112.1	8	10 a.m.	132.0
18	13	7 a.m.	110.3	16	8 p.m.	131.8
25	20	5 a.m.	124.6	24	8 p.m.	131.7
Oct. 2	27	6 a.m.	110.6	Oct. 1	9 p.m.	131.6
9	Oct. 4	2 p.m.	126.5	8	9 p.m.	131.1
16	11	4 a.m.	127.7	14	9 p.m.	136.2
23	21	7 a.m.	119.7	22	4 p.m.	141.2
30	26	10 a.m.	130.0	25	7 p.m.	140.8
Nov. 6	Nov. 1	6 a.m.	110.4	Nov. 4	11 p.m.	134.2
13	8	5 a.m.	129.1	10	6 p.m.	135.5
20	15	6 a.m.	132.7	18	12 noon	136.7
27	27	5 a.m.	127.6	24	7 p.m.	136.4
Dec. 4	29	5 a.m.	114.6	Dec. 3	8 p.m.	133.9
11	Dec. 6	5 a.m.	115.8	9	3 a.m.	135.2
18	13	3 a.m.	115.2	15	2 p.m.	134.3
25	25	12 p.m.	114.9	23	8 p.m.	134.7

28 (*907, p. 65; 937, p. 71; 945, p. 89). Gilchrist-Fordney Lumber Co. At Laurel, in NE¼SW¼ sec. 32, T. 9 N., R. 11 W. Measuring point is 0.2 foot above land-surface datum and 270.82 feet above mean sea level. No measurements made in 1943.

30 (*907, p. 64; 937, p. 71; 945, p. 89). Ed Howard. SE¼SE¼ sec. 11, T. 9 N., R. 11 W. Measuring point, top of wooden curbing, about 304.0 feet above mean sea level and 3.0 feet above land-surface datum. Water level, in feet below land-surface datum, 1943: May 24, 3:15 p.m., 14.8.

M. Brannon (*907, p. 65; 937, p. 72; 945, p. 90). NE¼SW¼ sec. 25, T. 7 N., R. 13 W. Measuring point is 3.2 feet above land-surface datum and about 352 feet above mean sea level. No measurements made in 1943.

Town of Ovett (*907, p. 65; 937, p. 72; 945, p. 90). NE¼SW¼ sec. 18, T. 6 N., R. 10 W. Measuring point, chiseled cross on top of well elbow, about 175.0 feet above mean sea level and 0.8 foot above land-surface datum. Water levels, in feet above land-surface datum, 1943: July 10, 3:45 p.m., 2.9; July 22, 11:25 a.m., 2.8.

Leflore County

60 (*845, p. 162; 886, p. 282; 907, p. 66; 937, p. 72; 945, p. 91). Mrs. D. B. Jameson. At Schlater, in NW¼SW¼ sec. 31, T. 21 N., R. 1 W. Measuring point, chiseled cross on well head, 133.64 feet above mean sea level and 1.5 feet above land-surface datum. Water levels, in feet above land-surface datum, 1943: Apr. 2, 11:40 a.m., 13.6; July 4, 10:35 p.m., 12.9; Dec. 28, 10:40 a.m., 12.2.

136 (*845, p. 163; 886, p. 283; 907, p. 66; 937, p. 72; 945, p. 91). A. P. Haynes. (Formerly owned by C. M. Journey.) At Greenwood, in NE¼NW¼ sec. 12, T. 19 N., R. 1 E. Measuring point, chiseled cross on well head, 131.30 feet above mean sea level and 0.5 foot above land-surface datum. Water levels, in feet above land-surface datum, 1943: Apr. 3, 12:45 p.m., 35.5; July 5, 10:30 a.m., 33.4; Dec. 28, 7:00 p.m., 30.6.

152 (*907, p. 66; 937, p. 72; 945, p. 91). City of Greenwood. NE¼NW¼ sec. 15, T. 19 N., R. 1 E. Measuring point, chiseled cross on well head, 148.11 feet above mean sea level and 2.5 feet above land-surface datum. Equipped with water-stage recorder.

Highest weekly water level, in feet above land-surface datum, 1943
(From recorder charts)

Week ending	Date	Hour	Highest level
Jan. 2	Jan. 2	5 p.m.	12.3
9	3	5 p.m.	11.8
16	16	3 p.m.	12.3
Apr. 3	Mar. 31	4 p.m.	13.9
10	Apr. 10	2 p.m.	14.3
17	15	11 a.m.	14.0
May 1	May 1	1 p.m.	13.3
8	8	9 p.m.	15.5
15	9	12 noon	15.3
22	22	6 p.m.	13.8
29	23	6 p.m.	13.7
June 5	June 3	3 p.m.	13.5
12	11	5 a.m.	18.3
19	14	2 p.m.	15.5
26	21	12 noon	17.5
July 3	July 2	4 p.m.	19.8
10	8	9 p.m.	14.9
17	16	1 p.m.	20.2
24	22	2 a.m.	16.6
31	30	7 a.m.	14.6
Aug. 7	Aug. 2	11 p.m.	14.4
14	12	8 p.m.	13.6
21	16	8 p.m.	13.1
28	22	7 p.m.	12.3
Sept. 4	Sept. 2	8 p.m.	13.9
11	7	9:30 p.m.	15.5
18	18	10:30 p.m.	14.9
25	22	2 a.m.	15.0
Oct. 2	28	9 p.m.	15.0
9	Oct. 6	2 a.m.	12.8
16	16	8 a.m.	12.4
23	20	12 noon	12.8
30	26	.....	12.7
Nov. 6	Nov. 5	3 p.m.	12.6

152. City of Greenwood--Continued.

Highest weekly water level, in feet above land-surface datum, 1943
(From recorder charts)

Week ending	Date	Hour	Highest level
Nov. 13	Nov. 7	12 noon	12.8
20	19	3 p.m.	12.9
27	21	5 p.m.	13.0
Dec. 4	Dec. 4	2 p.m.	13.5
11	..	.....	15.0
18	15	6 p.m.	18.7
25	22	11 a.m.	20.5

Oktibbeha County

2 (*907, p. 66; 945, p. 91). Mississippi State College. NE¼SW¼ sec. 1, T. 18 N., R. 14 E. Measuring point, top of well casing, 2.33 feet above land-surface datum and 383.28 feet above mean sea level. Equipped with water-stage recorder.

Highest and lowest weekly water level, in feet below land-surface datum, 1943
(From recorder charts)

Week ending	Date	Hour	Highest level	Date	Hour	Lowest level
Jan. 9	Jan. 9	3 p.m.	177.4	Jan. 4	11 p.m.	177.8
16	16	9 p.m.	177.3	10	7 p.m.	177.5
23	18	8 p.m.	177.3	20	12:30 a.m.	177.7
30	24	6:30 p.m.	177.3	30	11 p.m.	177.5
Feb. 6	Feb. 5	11:30 p.m.	177.2	Feb. 1	10 p.m.	177.6
13	10	2 p.m.	177.2	11	8 a.m.	177.5
20	16	5 a.m.	177.3	20	10 p.m.	177.7
27	23	7 p.m.	177.2	27	5 a.m.	177.5
Mar. 6	Mar. 6	3 a.m.	177.1	Mar. 3	5 a.m.	177.5
13	12	3 p.m.	177.2	8	7 a.m.	177.5
20	18	7 p.m.	177.1	14	9 a.m.	177.4
27	27	1 a.m.	177.0	23	11 a.m.	177.4
Apr. 3	28	12 a.m.	177.1	Apr. 3	11 a.m.	177.4
10	Apr. 9	7 p.m.	177.2	4	12 a.m.	177.4
17	12	1 a.m.	177.0	15	11 a.m.	177.4
24	19	3 a.m.	177.1	24	11 a.m.	177.4
May 1	26	2 a.m.	177.4	May 1	10 a.m.	177.7
8	May 2	6 p.m.	177.5	8	12 p.m.	177.8
15	11	2 a.m.	177.6	14	10 a.m.	177.9
22	16	5 a.m.	177.8	22	8 p.m.	178.0
29	25	.....	177.8	29	8 a.m.	178.1
June 5	31	5 a.m.	178.0	June 5	1 p.m.	178.3
12	June 6	8 p.m.	178.2	12	10 p.m.	178.4
19	13	3 a.m.	178.3	19	4 p.m.	178.6
26	22	6 p.m.	178.5	26	6 a.m.	178.7
July 3	28	9 a.m.	178.5	July 3	10 a.m.	178.8
10	July 7	2 p.m.	178.7	10	10 p.m.	178.8
17	11	1 a.m.	178.8	17	1 p.m.	179.1
24	19	2 p.m.	178.8	24	11 p.m.	179.1
31	26	4 p.m.	179.0	31	11 a.m.	179.2
Aug. 7	Aug. 2	6 p.m.	179.0	Aug. 1	1 a.m.	179.1
14	8	5 p.m.	179.0	10	4 a.m.	179.1
Sept.11	Sept. 5	3 p.m.	179.1	Sept. 9	10 a.m.	179.3
18	18	9 p.m.	179.0	12	12 noon	179.2
25	19	5 p.m.	178.8	22	10 a.m.	179.0
Oct. 2	Oct. 1	7 p.m.	178.8	..	.....	179.0
9	9	5 p.m.	178.8	Oct. 6	6 a.m.	179.0
16	13	5 p.m.	178.7	12	1 p.m.	178.9
23	20	3 a.m.	178.7	22	9 a.m.	178.9
30	24	4 p.m.	178.7	29	9 a.m.	178.8
Nov. 6	Nov. 6	4 p.m.	178.5	Nov. 2	1 a.m.	178.8
13	7	3 p.m.	178.4	10	9 a.m.	178.7

2. Mississippi State College--Continued.

Highest and lowest weekly water level, in feet below land-surface datum, 1943
(From recorder charts)

Week ending	Date	Hour	Highest level	Date	Hour	Lowest level
Nov. 20	Nov. 20	6 p.m.	178.5	Nov. 19	8 a.m.	178.6
27	27	7 p.m.	178.4	24	12 noon	178.6
Dec. 4	29	4 p.m.	178.3	30	2 a.m.	178.4
11	Dec. 8	4 p.m.	178.2	Dec. 5	10 a.m.	178.4
18	12	4 p.m.	178.2	17	12 noon	178.5
25	25	4 p.m.	178.2	23	11 p.m.	178.5

Quitman County

15 (*907, p. 67; 937, p. 72; 945, p. 92). Town of Marks. SE¼NW¼ sec. 35, T. 28 N., R. 1 W. Measuring point, top of well casing, at land-surface datum and about 161.5 feet above mean sea level. Equipped with water-stage recorder.

Highest and lowest weekly water level, in feet above land-surface datum, 1943
(From recorder charts)

Week ending	Highest level	Lowest level	Week ending	Highest level	Lowest level
Jan. 2	15.0	14.8	June 12	15.2	14.9
9	15.0	14.6	19	15.3	14.9
16	15.0	14.2	26	15.3	14.8
23	15.0	12.0	July 3	15.1	14.7
30	15.0	13.8	10	15.0	14.5
Feb. 6	15.0	14.7	17	14.6	14.2
13	15.1	14.3	24	14.5	14.0
20	15.0	13.0	31	14.3	14.0
27	15.1	14.3	Aug. 14	14.2	13.8
Mar. 6	15.0	12.8	21	14.2	13.7
13	15.6	13.7	28	14.0	13.5
20	15.6	15.0	Sept. 4	13.8	13.5
27	15.6	15.2	11	13.7	13.3
Apr. 3	15.4	15.0	18	13.7	13.2
10	15.5	15.0	25	13.6	13.3
17	15.3	14.8	Oct. 2	13.6	13.3
24	15.5	15.0	9	13.6	13.0
May 1	15.3	15.0	16	13.2	12.6
8	15.7	15.0	23	13.0	12.6
15	15.4	14.8	30	12.9	....
22	15.2	15.0	Dec. 18	12.8	10.2
29	15.3	15.0	25	12.8	12.5
June 5	15.2	15.0			

21 (*907, p. 67; 937, p. 73; 945, p. 93). W. R. Harrington. NE¼NE¼ sec. 8, T. 27 N., R. 2 W. Measuring point, top of casing tee, 1 foot below land-surface datum and 164.19 feet above mean sea level. Water levels, in feet above land-surface datum, 1943: Apr. 1, 8:35 p.m., 35.5; July 3, 8:03 p.m., 34.2; Dec. 27, 4:55 p.m., 31.7.

32 (*845, p. 163; 886, p. 283; 907, p. 67; 937, p. 73; 945, p. 93). City Cafe. At Lambert, in SW¼SE¼ sec. 15, T. 27 N., R. 1 W. Measuring point, top of concrete drinking fountain on east side of cafe, 2.2 feet above land-surface datum and 161.85 feet above mean sea level. Water levels, in feet above land-surface datum, 1943: Apr. 1, 10:10 p.m., 6.52; July 5, 6.35; Dec. 12, 11:45 a.m., 5.95.

Sunflower County

39 (*907, p. 67; 937, p. 73; 945, p. 93). E. L. Coleman and others. At Doddsville, in NW¼SW¼ sec. 28, T. 21 N., R. 3 W. Measuring point, chiseled cross on top of casing elbow, about 127.0 feet above mean sea level and 0.5 foot above land-surface datum. Water levels, in feet above land-surface datum, 1943: Apr. 2, 12:10 p.m., 29.0; July 4, 9:55 p.m., 28.3; Dec. 28, 10:05 a.m., 27.3.

Tallahatchie County

24 (*845, p. 163; 886, p. 283; 907, p. 67; 937, p. 73; 945, p. 93). Town of Tutwiler. SW¼SW¼ sec. 20, T. 25 N., R. 2 W. Measuring point, chiseled cross on well head, 158.07 feet above mean sea level, and 3.0 feet above land-surface datum. Water levels, in feet above land-surface datum, 1943: Apr. 1, 9:05 a.m., 9.6; July 5, 8.5; Dec. 12, 12:30 p.m., 8.4.

68 (*907, p. 68; 937, p. 73; 945, p. 93). Town of Sumner. NW¼NE¼ sec. 11, T. 24 N., R. 2 W. Measuring point, top of 8-inch casing, 0.5 foot above land-surface datum and 158.8 feet above mean sea level. Equipped with water-stage recorder.

Highest and lowest weekly water level, in feet above land-surface datum, 1943
(From recorder charts)

Week ending	Highest level	Lowest level	Week ending	Highest level	Lowest level
Jan. 9	57.5	56.3	July 10	59.5	58.5
16	60.5	57.5	17	58.9	58.3
23	60.7	59.5	24	59.7	58.5
30	60.1	58.5	31	60.5	58.5
Feb. 6	58.7	56.5	Aug. 7	60.5	58.3
13	58.3	56.5	14	59.5	56.5
20	62.3	56.3	21	58.9	57.5
27	60.5	56.5	28	59.5	57.9
Mar. 6	60.5	56.5	Sept. 4	59.1	57.9
13	63.0	56.5	11	58.7	57.5
20	58.7	58.5	18	59.3	57.7
27	60.7	58.5	25	58.5	56.3
Apr. 3	60.5	56.5	Oct. 2	58.5	56.7
10	59.7	58.3	9	58.5	56.9
17	59.7	58.3	16	58.7	56.9
24	60.1	58.3	23	58.9	56.9
May 1	60.5	58.3	30	58.5	56.9
8	59.7	58.3	Nov. 6	58.5	56.9
15	59.7	58.5	13	58.5	56.9
22	59.9	58.5	20	62.5	54.5
29	59.7	58.5	27	57.7	54.5
June 5	59.5	58.1	Dec. 4	58.5	56.5
12	60.3	58.7	11	58.5	56.9
19	60.5	58.7	18	64.3	56.5
26	60.1	58.3	25	64.3	58.5
July 3	59.5	58.3			

171 (*845, p. 163; 886, p. 283; 907, p. 68; 937, p. 73; 945, p. 93). Philipp Stave Mill. At Philipp, in NW¼SW¼ sec. 21, T. 22 N., R. 1 E. Measuring point, chiseled cross on top of casing tee, 139.26 feet above mean sea level and 1.0 foot above land-surface datum. Water levels, in feet above land-surface datum, 1943: Apr. 2, 10:40 a.m., 12.4; July 4, 11:25 p.m., 10.4; Dec. 28, 11:25 a.m., 10.9.

Tunica County

17 (*907, p. 68; 937, p. 73; 945, p. 94). G. D. Perry, Sr. S½SE¼ sec. 7, T. 5 S., R. 11 W. Measuring point, top of well casing, about 193.0 feet above mean sea level and 0.5 foot above land-surface datum. Water levels, in feet above land-surface datum, 1943: Apr. 1, 5:45 p.m., 27.2; July 4, 1:00 p.m., 26.8; Dec. 27, 2:00 p.m., 23.2.

Washington County

25 (*886, p. 283; 907, p. 68; 937, p. 74; 945, p. 94). Wagner Plantations. S½SW¼ sec. 10, T. 18 N., R. 6 W. Measuring point, sawed cross on top of casing tee, 122.87 feet above mean sea level, and at land-surface datum. Water levels, in feet above land-surface datum, 1943: Apr. 2, 6:58 p.m., 37.8; July 5, 12:15 p.m., 36.7; Dec. 28, 1:25 p.m., 34.0.

65 (*886, p. 283; 907, p. 68; 937, p. 74; 945, p. 94). W. D. Atterbury. At Estill, in NE¼NE¼ sec. 25, T. 16 N., R. 7 W. Measuring point, chiseled cross on top of casing tee, 122.07 feet above mean sea level and 2.4 feet above land-surface datum. Water levels, in feet above land-surface datum, 1943: Apr. 2, 7:48 p.m., 76.3; July 5, 1:32 p.m., 76.8; Dec. 28, 2:10 p.m., 76.3.

70 (*886, p. 284; 907, p. 68; 937, p. 74; 945, p. 94). Town of Hollandale. SW¼SE¼ sec. 6, T. 15 N., R. 6 W. Measuring point, top of 6-inch well casing, 0.2 foot above land-surface datum. No measurements made in 1943.

Yazoo County

2 (*845, p. 163; 886, p. 284). Town of Eden. At Eden, in SE¼SW¼ sec. 8, T. 13 N., R. 1 W. Measuring point, top of 3-inch elbow above flushing valve, 6.7 feet above land-surface datum. Water level, in feet above land-surface datum, 1943: Apr. 3, 9:45 a.m., 29.8.

25 (*845, p. 163; 886, p. 284; 907, p. 68; 937, p. 74; 945, p. 95). Yazoo City. At Yazoo City, in SW¼NE¼ sec. 32, T. 12 N., R. 2 W. Measuring point, center of tapped hole in 4-inch pipe at generator, 112.71 feet above mean sea level. Water levels, in feet above land-surface datum, 1943: Apr. 3, 27.9; July 5, 3:30 p.m., 23.9; Dec. 28, 3:47 p.m., 22.0.

NORTH CAROLINA

By M. J. Mundorff

PROGRAM OF WORK

The program of water-level measurements in observation wells in North Carolina, begun in 1931, was continued in 1943 by the Geological Survey, United States Department of the Interior, in cooperation with the North Carolina State Department of Conservation and Development. A systematic survey of the ground-water resources of the State, begun in 1941, was also continued. For this survey the State has been divided into several unit areas. The report on the first unit-area, which is made up of Edgecombe, Halifax, Nash, Northampton, and Wilson Counties, was completed in 1943, as was also the field work in the second unit-area, which is made up of Alamance, Caswell, Forsyth, Guilford, Rockingham, and Stokes Counties. Special investigations, most of them of areas in the Coastal Plain, were made for the armed services and for defense projects.

At the beginning of 1943, the observation-well program included 25 wells, or 1 more than at the end of 1942. The added well was Cherokee County well 1, at Murphy, in the extreme western part of the State. However, measurements in one well included in the program in 1942--Onslow County well 1, at Jacksonsville, known as the New River well--were discontinued early in 1943, bringing the number again to 24. The New River well, which had flowed continuously for many years, did not flow in 1941, but early in January 1943 it again began to flow and continued to flow throughout the year. Therefore no measurements for this well are given in the present report. Of the 24 wells for which records appear, 8 were equipped with automatic water-stage recorders, which provided a continuous record, 2 were measured daily, 2 were measured twice weekly, 3 were measured weekly, and 9 were measured monthly. The location of the wells is shown in figure 5.

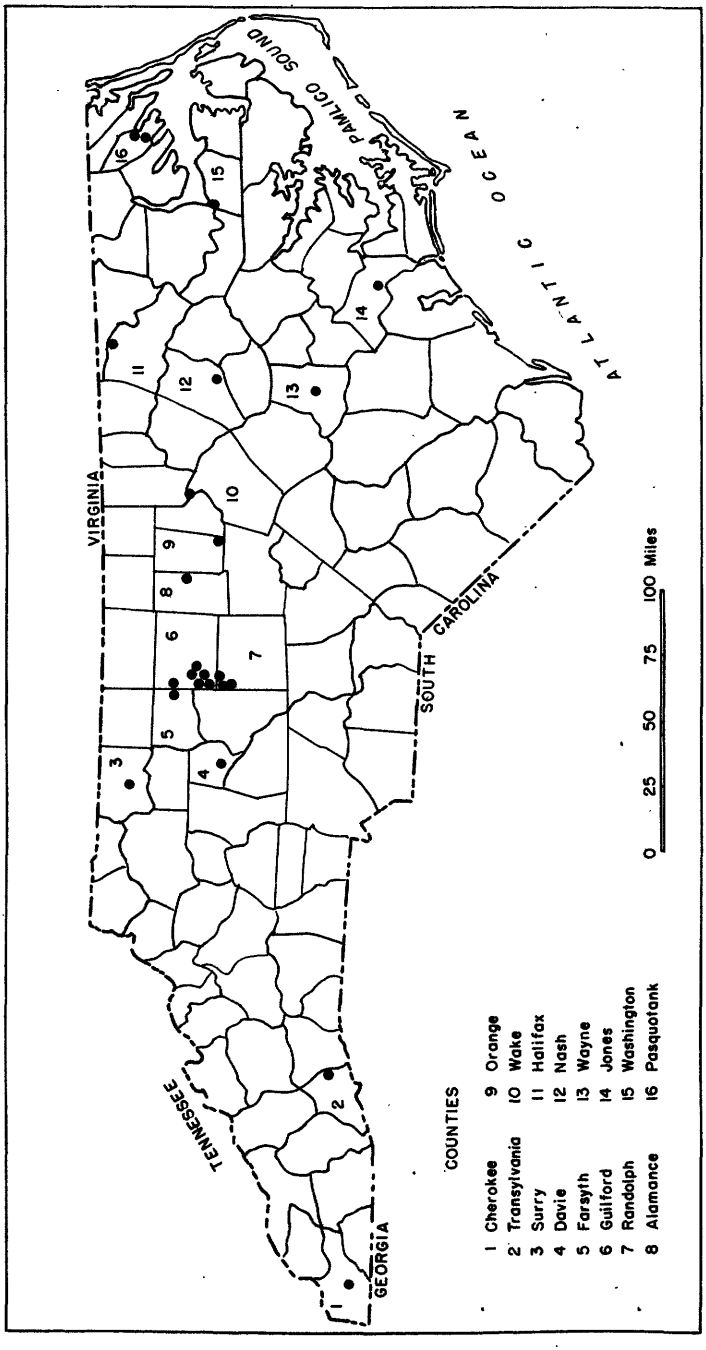

Figure 5.--Map of North Carolina showing location of observation wells, 1943.

FLUCTUATIONS OF WATER LEVEL

During the first 6 months of 1943 the average precipitation for the State was about normal, and, as these are the months in which most of the recharge to ground-water supplies occurs, the ground water was at normal levels in most wells. In July the average precipitation was 1.93 inches above normal, but in each of the remaining 5 months of the year it was below normal. The average for these 5 months was 7.53 inches below normal, and the average for the year was 6.00 inches below normal. Three wells reached record lows in 1943--one in Forsyth County, during January, and one each in Guilford and Pasquotank Counties, during December. In most of

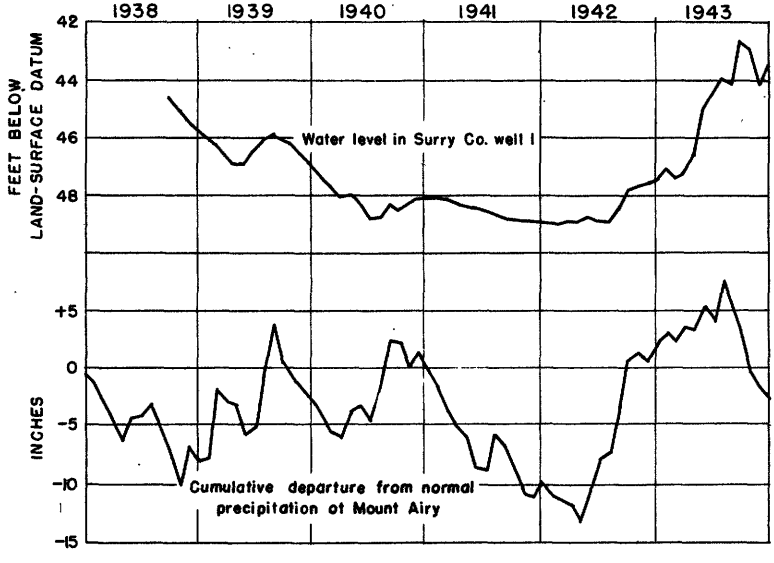

Figure 6.--Graphs showing fluctuations of water level in Surry County well 1 (Terrell well), 4 miles south of Dobson, N. C., and cumulative departure from normal precipitation at Mount Airy.

the wells, however, the water levels were maintained at nearly normal stages, because, as is usual, the summer and autumn precipitation had much less effect on them than the winter and spring precipitation.

In the two observation wells in the western part of the State--Cherokee County well 1 and Transylvania County well 1--the fluctuations were similar. In each the water level rose gradually during the period January to April,

leveled off during May, and then declined rather steadily during the remainder of the year. In each the water level was lower at the end of the year than at the beginning--1.27 feet lower in the Elliott well (Cherokee County well 1) and 1.38 feet lower in the Baldwin well (Transylvania County well 1).

In the wells in the north-central and central parts of the State, which include Alamance, Davie, Forsyth, Guilford, Orange, Randolph, Surry, and Wake Counties, the fluctuations differed, but in most of them the net gain or loss in water level for the year was small.

In the Terrell well (Surry County well 1), near Dobson, the water level, which had been at extremely low stages in 1940 and 1941, recovered somewhat in 1942 as the result of rainfall almost 12 inches in excess of normal. In the first half of 1943, with a continuation of above-normal precipitation, the water level rose markedly and on October 7 reached the highest stage recorded for this well--42.52 feet below land-surface datum, or 7.48 feet above the assumed datum previously used. The relation of the water level at the end of each month to the cumulative departure from the average monthly precipitation for the period of record of the well is shown in figure 6.

The water level in the Kurfee well (Davie County well 1), at Mocksville, rose steadily through the months of January to March 1943 and was 7.06 feet higher on March 31 than on January 1. It was nearly constant through April, declined through May and June, fluctuated but little in July, declined steadily through the remaining months, and on December 31 showed a net loss for the year of 0.03 foot.

In nine wells in the High Point area, which covers parts of Forsyth, Guilford, and Randolph Counties, the water levels are measured monthly, and for one well (Guilford County well 2, near High Point) a continuous record is obtained by means of an automatic recorder. In two of the nine wells measured monthly, Forsyth County well 19 and Guilford County well 4, the water levels declined somewhat in January, rose considerably in February and March, declined slightly in April, rose considerably in May, fluctuated only slightly through the summer, and declined somewhat during the last 3 months of the year. These two wells are about 10 miles north of High Point and only about 2 miles apart. For each there was a net gain

in water level for the year--0.87 foot for Forsyth County well 19, although the lowest stage ever recorded in this well was reached on January 30, and 0.48 foot for Guilford County well 4. In the remaining seven wells in the High Point area measured monthly--four in Guilford County and three in Randolph County--the water levels rose almost continuously through the first 4 months of the year. Two of the wells showed slight gains in water level in May and the other five showed slight to moderate losses. In six of the seven wells the water levels declined in June; in one the level rose, but very slightly. In July, three of the wells showed moderate declines in water level, three showed small rises, and one showed no change. Through the remaining 5 months of the year all seven wells declined in water level, and the decline was fairly uniform for the seven. At the end of the year three of the wells showed net gains averaging 0.87 foot, and four showed net losses, which for three of the four averaged 0.54 foot. (The fourth of these four wells went dry.) Guilford County well 8, which is in High Point, reached its lowest recorded stage on December 23. The water level in Guilford County well 2, the only well in the High Point area for which a continuous record is available, rose steadily through the first four months of the year, declined in May and June, remained about constant in July, declined through the remaining 5 months, and showed a net gain for the year of 0.12 foot.

In Alamance County well 1, known as the Governor Holt well, the water level declined 1.84 feet during the period January 1-17, rose more than 5 feet during the remainder of January and the first week of February, declined rapidly during the last three weeks of February, rose during March, and, except for several short periods, declined during the remainder of the year. On December 31, 1943, it was 4.10 feet lower than on December 31, 1942.

In the McCauley well (Orange County well 1), in Chapel Hill, the water rose uniformly during the first 5 months of the year and declined uniformly during the last 7 months, finally showing a net loss of 0.41 foot for the year.

In the Fishdam well (Wake County well 1), the water level rose in January, declined in February, and rose again in March. Although there were several periods of recovery during the remainder of the year, in every month there was a net loss in water level. The stage was 6 feet lower at the end of 1943 than at the end of 1942.

In the eastern part of North Carolina, which includes Halifax, Jones, Nash, Onslow, Pasquotank, Washington, and Wayne Counties, the range in fluctuation of the water levels was greater than in the other parts of the State.

In Halifax County well 1, which is the Freuler well, at Roanoke Rapids, the water level fluctuated considerably during the first 4 months of the year, rising during each rainfall and declining thereafter. Notable rises occurred in June and July, the highest stage of the year--3.82 feet below land-surface datum--being reached on July 14. After that rise the water level declined nearly continuously, and at the end of the year it was 2.61 feet lower than at the end of the preceding year.

In the Alston well (Nash County well 1), the fluctuations of the water level were rather marked at several times during the year. It rose considerably in January, declined in February, rose again in March, and declined in April and May, except that sometime during the period April 17-21 it rose about 0.5 foot. In June and July it rose again, slightly in June and considerably in July. It then began a steady decline, which continued, interrupted by only two minor rises, until the last week in December, when it rose nearly 13 feet. The stage on December 29, 1943, was exactly the same as on December 30, 1942.

The water level in the Brick Pit well (Wayne County well 1) showed a small net gain for the first four months of 1943, but declined steadily in May. During June and July, although two small rises were recorded, there was a net decline in water level. In the first week of August there was a slight rise, after which began a decline that continued until the last week of December, when again there was a slight rise. For the year there was a net loss, for on December 26, 1943, the water level was 3.06 feet lower than on December 26, 1942.

The water in Pasquotank County well 31T, which is 3 miles west of Elizabeth City and 1,000 feet north of the city well field, was at a high level at the beginning of the year and maintained a fairly high level throughout most of the first quarter of the year. The recorder charts showed a decline in April, which was interrupted, however, by one rise of 0.49 foot. Throughout the rest of the year the water level declined steadily, almost without interruption, and on December 21 reached its low-

est recorded stage--8.00 feet below land-surface datum, or 9.50 feet below the measuring point. Pasquotank County well 33T is 1,000 feet south of well 31T and in the center of the Elizabeth City well field. The water level in this well rose uniformly and continuously during the period January 1 to May 31, and, although it fluctuated slightly thereafter, a small net gain was recorded for the last half of the year. The net gain for the entire year of 1943 was nearly 5 feet.

In Washington County well 1, the Lucas well, the water level rose in January, declined in February, and rose slightly in March and April. Only a few measurements were made during May, June, and July, but a small net loss is indicated for this 3-month period. During the last week of July, all of August and September, and most of October, the water level declined almost continuously. No records for November and December are available.

In Jones County well 1, the Weeks well, which is on the southeastern edge of Maysville, the water was at a high stage on January 1, 1943, and remained at a high stage during the first 3 months of the year. During April and the first part of May its level declined considerably, but it rose to a high stage about the middle of May and fluctuated only slightly from then until the beginning of June. It declined in June but rose again in July to a high stage, and it remained at high stages until near the end of that month. It then began to decline and continued to decline, except for one small rise in August, until near the end of December, when it rose about 7.5 feet. On the last day of December it was 0.3 foot higher than on the first day of January.

WELL DESCRIPTIONS AND WATER-LEVEL MEASUREMENTS

Alamance County

1 (W77, p. 134; 817, p. 216; 840, p. 305; 845, p. 336; 886, p. 516; 907, p. 72; 937, p. 76; 945, p. 103). Governor Holt well. J. W. Thompson. On south side of Haw River-Graham highway, 0.25 mile west of Haw River. Land-surface datum is 4.5 feet below measuring point and 29.00 feet above assumed datum previously used.

Mean daily water level, in feet below land-surface datum, 1943
(From recorder charts)

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	19.88	.....	20.20	18.70	19.44	21.31	22.06	22.02	.....	23.48	24.74	25.12
2	19.92	.....	20.33	18.75	19.58	21.36	22.14	.....	.....	23.52	24.79	25.14
3	20.10	.....	20.38	18.87	19.62	21.40	22.16	.....	24.22	23.59	24.70	25.16
4	20.25	.....	20.52	a18.98	19.72	21.48	22.18	.....	.....	23.65	24.82	25.17
5	20.50	.....	20.60	a19.09	19.87	21.57	22.19	.....	.....	23.73	24.85	25.18
6	20.72	.....	20.36	a19.20	19.96	21.65	22.21	.....	.....	23.80	24.87	25.18
7	20.87	16.52	19.44	a19.30	20.03	21.71	22.23	.....	.....	23.85	24.90	25.17
8	20.99	.....	19.23	a19.39	20.14	21.72	22.28	22.88	.....	23.86	24.91	25.17

a Estimated

1. Governor Holt well--Continued.

Mean daily water level, in feet below land-surface datum, 1943
(From recorder charts)

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
9	21.09	.....	19.25	a19.48	20.25	21.32	22.30	.....	.....	23.89	24.89	25.17
10	21.18	.....	19.28	a19.56	20.34	20.98	22.33	.....	.....	23.95	24.89	25.18
11	21.27	.....	19.28	19.64	20.39	20.87	22.05	.....	.....	24.03	24.87	25.16
12	21.34	.....	19.31	19.70	20.42	20.87	21.77	.....	.....	24.08	24.87	25.15
13	21.44	.....	19.37	19.72	20.51	20.93	21.55	.....	.....	24.22	24.85	25.14
14	21.51	18.22	19.48	19.81	20.59	20.99	21.37	23.36	.....	24.14	24.85	25.16
15	21.55	18.50	19.52	19.88	20.68	21.04	21.29	23.39	.....	24.15	24.85	25.19
16	21.63	18.69	19.53	20.04	20.75	21.14	a21.30	23.45	.....	24.14	24.85	25.22
17	21.72	18.87	19.55	20.11	20.80	21.20	21.38	23.54	.....	24.18	24.85	25.25
18	21.50	19.00	19.62	20.17	20.86	21.25	.....	.....	.....	24.25	24.87	25.26
19	20.44	19.14	19.65	20.82	20.89	21.25	.....	.....	.....	24.29	24.89	25.26
20	20.03	19.21	19.65	18.92	20.93	21.28	.....	23.69	.....	24.33	24.91	25.27
21	19.89	19.26	19.72	18.72	20.96	21.33	.....	.....	.....	24.37	24.93	25.28
22	19.85	19.37	19.34	18.72	21.02	21.41	.....	23.86	.....	24.43	24.95	25.28
23	19.95	19.49	18.94	18.78	21.12	21.47	.....	.....	.....	24.48	24.99	25.30
24	20.09	19.59	18.80	18.84	21.16	21.58	.....	.....	.....	24.53	25.02	25.33
25	20.25	19.73	18.77	18.92	21.18	21.67	.....	.....	23.21	24.55	25.03	25.35
26	20.40	19.83	18.75	19.00	21.13	21.75	21.98	.....	23.25	24.58	25.04	25.33
27	19.80	19.94	18.76	19.09	21.10	21.80	.....	24.20	23.35	24.60	25.04	25.13
28	18.35	20.09	18.71	19.16	21.11	21.87	.....	.....	23.37	24.62	25.06	24.92
29	.....	.....	18.64	19.28	21.14	21.90	.....	.....	23.42	24.65	25.08	24.67
30	17.14	.....	18.65	19.37	21.19	21.98	.....	.....	23.46	25.66	25.09	24.40
31	.....	.....	18.66	.....	21.26	.....	.....	.....	.....	24.69	.....	24.22

Cherokee County

1. Elliott well. At Murphy, in rear of First Baptist Church. Dug well, about 5 feet square, depth 50 feet. Lined with rock masonry from bottom to 15 feet below surface, then with brick masonry to 3.5 feet above surface. Wood curb, 4 feet square, extends 3 feet above brick masonry. Float tape gage, at top of wood curb, is read daily. Measuring point, index of tape gage, 6.53 feet above land surface datum.

Water level, in feet below land-surface datum, 1943

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	40.84	40.14	39.23	38.85	38.75	39.08	39.65	39.91	40.10	40.57	41.09	41.78
2	40.87	40.12	39.23	38.82	38.76	39.09	39.68	39.94	40.12	40.57	41.11	41.79
3	40.87	40.06	39.22	38.81	38.73	39.08	39.50	39.95	40.12	40.60	41.12	41.61
4	40.85	40.00	39.27	38.85	38.75	39.13	39.62	39.95	40.14	40.73	41.14	41.64
5	40.84	39.92	39.25	38.78	38.78	39.17	39.63	39.96	40.16	40.76	41.13	41.65
6	40.82	39.48	39.18	38.77	38.77	39.19	39.64	39.94	40.16	40.79	41.15	41.65
7	40.87	39.64	39.23	38.76	38.77	39.19	39.66	39.95	40.17	40.80	41.18	41.66
8	40.83	39.63	39.30	38.74	38.76	39.22	39.69	39.95	40.18	40.79	41.17	41.67
9	40.79	39.62	39.33	38.71	38.79	39.23	39.72	39.96	40.20	40.79	41.18	41.80
10	40.75	39.68	39.32	38.68	38.82	39.24	39.75	39.96	40.24	40.72	41.24	41.81
11	40.74	39.64	39.26	38.68	38.78	39.24	39.77	39.97	40.27	40.77	41.27	41.82
12	40.71	39.65	39.22	38.63	38.73	39.27	39.80	39.99	40.28	40.79	41.40	41.82
13	40.70	39.62	39.17	38.62	38.81	39.32	39.82	40.00	40.29	40.78	41.40	41.83
14	40.67	39.48	39.21	38.67	38.85	39.34	39.67	40.00	40.30	40.78	41.42	41.86
15	40.62	39.47	39.23	38.74	38.87	39.35	39.75	39.99	40.30	40.79	41.43	41.89
16	40.70	39.44	39.22	38.76	38.89	39.36	39.78	39.98	40.34	40.79	41.40	41.93
17	40.69	39.45	39.20	38.75	38.93	39.36	39.83	39.97	40.37	40.74	41.44	41.94
18	40.67	39.43	39.15	38.72	38.94	39.38	39.85	39.97	40.39	40.78	41.47	41.96
19	40.35	39.47	39.14	38.48	38.93	39.42	39.85	40.00	40.42	40.80	41.50	41.97
20	40.33	39.40	39.13	38.50	38.92	39.43	39.84	40.02	40.39	40.82	41.49	41.97
21	40.39	39.34	39.00	38.68	38.92	39.45	39.84	40.04	40.23	40.84	41.52	41.99
22	40.37	39.32	38.71	38.74	38.93	39.47	39.85	40.04	40.33	40.86	41.54	42.00
23	40.36	39.30	38.92	38.74	38.95	39.47	39.86	40.04	40.42	40.88	41.59	42.03
24	40.34	39.27	39.02	38.66	38.96	39.41	39.89	40.05	40.43	40.89	41.60	42.07
25	40.32	39.28	39.02	38.69	38.92	39.44	39.90	40.05	40.45	40.88	41.71	42.08
26	40.29	39.27	38.97	38.71	38.93	39.46	39.92	40.04	40.48	40.90	41.72	41.99
27	40.22	39.26	38.90	38.70	39.02	39.47	39.92	40.05	40.54	40.91	41.71	42.02

a Estimated.

1. Elliott well--Continued.

Water level, in feet below land-surface datum, 1943

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
28	40.19	39.25	38.86	38.72	39.04	39.48	39.91	40.05	40.55	40.94	41.71	42.04
29	40.18	.....	38.93	38.74	39.07	39.48	39.92	40.05	40.57	41.01	41.71	42.05
30	40.17	.....	38.94	38.74	39.04	39.62	39.91	40.06	40.58	41.03	41.74	42.08
31	40.18	.....	38.90	.....	39.07	.....	39.88	40.09	.....	41.04	.....	42.11

Davie County

1 (*777, p. 131; 817, p. 214; 840, p. 303; 845, p. 334; 886, p. 514; 907, p. 70; 937, p. 78; 945, pp. 103-104). Kurfee well. At Mocksville, 1 block south of courthouse on U. S. Highways 64 and 601. Land-surface datum is 3.60 feet below measuring point, and 29.80 feet above assumed datum previously used.

Mean daily water level, in feet below land-surface datum, 1943
(From recorder charts)

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	26.78	.....	22.08	19.70	19.58	20.56	21.66	21.73	23.08	24.34	25.60	26.46
2	26.80	.....	22.08	19.70	19.61	20.57	21.71	21.77	23.12	24.39	25.64	26.49
3	26.80	.....	22.05	19.79	19.58	20.63	21.74	21.80	23.20	.....	25.66	26.52
4	26.80	.....	22.10	19.84	19.66	20.68	21.74	21.83	23.27	.....	25.70	26.56
5	26.77	23.60	22.11	19.76	19.72	20.73	21.69	21.87	23.33	.....	25.73	26.59
6	26.73	22.48	21.57	19.82	19.72	20.76	21.67	21.93	23.37	.....	25.75	26.61
7	26.67	22.76	21.66	19.87	19.71	20.79	21.76	21.98	23.41	.....	25.78	26.65
8	26.62	22.88	21.79	19.85	19.76	20.83	21.81	22.01	23.45	.....	25.80	26.67
9	26.57	22.88	21.82	19.85	19.81	20.86	21.85	22.05	23.49	.....	25.83	26.70
10	26.51	22.83	21.72	19.85	19.84	20.89	21.79	22.09	23.54	.....	25.87	26.72
11	26.46	22.75	21.58	19.94	19.84	20.90	21.87	22.14	23.59	.....	25.91	26.74
12	26.41	22.75	21.52	19.88	19.83	20.94	21.60	22.19	23.63	.....	25.94	26.75
13	26.36	22.68	21.50	19.88	19.94	20.98	21.33	22.22	23.65	.....	25.96	26.75
14	26.32	22.69	21.55	19.98	20.00	21.01	21.53	22.24	23.68	.....	26.00	26.76
15	26.28	22.62	21.51	20.09	20.08	21.03	21.56	22.28	23.71	24.90	26.02	26.77
16	26.25	22.58	21.43	20.13	20.09	21.05	21.56	22.32	23.71	24.93	26.04	26.79
17	26.22	22.52	21.25	20.12	20.10	21.09	21.55	22.35	23.82	24.97	26.08	26.80
18	26.03	22.46	21.11	20.13	20.10	21.14	21.53	22.43	23.88	25.02	26.11	26.81
19	25.09	22.41	21.04	19.41	20.11	21.18	21.50	22.49	23.91	25.07	26.14	26.82
20	25.32	22.32	20.93	19.55	20.13	21.21	21.47	22.54	23.94	25.12	26.16	26.83
21	25.43	22.24	20.54	19.59	20.15	21.24	21.46	22.59	23.95	25.16	26.19	26.84
22	25.39	22.21	20.17	19.61	20.24	21.27	21.46	22.63	23.99	25.20	26.22	26.85
23	25.34	22.19	20.15	19.57	20.33	21.32	21.47	22.67	24.03	25.24	26.25	26.87
24	25.30	22.15	19.95	19.52	20.35	21.38	21.52	22.71	24.06	25.28	26.27	26.87
25	25.26	22.13	19.79	19.51	20.30	21.42	21.54	22.75	24.11	25.31	26.30	26.88
26	25.22	22.10	19.72	19.50	20.28	21.46	21.55	22.80	24.16	25.35	26.33	26.71
27	25.07	22.08	19.62	19.50	20.41	21.49	21.56	22.84	24.21	25.39	26.35	26.70
28	23.87	22.08	19.67	19.51	20.45	21.52	21.57	22.88	24.25	25.43	26.38	26.76
29	23.76	.....	19.78	19.57	20.49	21.55	21.58	22.94	24.29	25.48	26.40	26.70
30	24.02	.....	19.78	19.56	20.51	21.62	21.62	22.98	24.32	25.52	26.43	26.76
31	24.05	.....	19.72	.....	20.52	.....	21.68	23.04	.....	25.56	.....	26.81

Forsyth County

19 (*777, pp. 138-139; *817, pp. 218-224; *840, pp. 309-315; 845, pp. 340, 341; 886, p. 521; 907, p. 77; 937, p. 81; 945, p. 104). W. C. Michael. On High Point-Kernersville highway, 1 mile south of Kernersville and 40 feet west of highway. Flat topography. Land-surface datum is 1.87 feet below measuring point and 54.60 feet above assumed datum previously used.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 30	45.81	Apr. 23	44.51	July 29	43.53	Oct. 28	43.52
Feb. 24	44.63	May 27	43.91	Aug. 26	43.91	Nov. 24	43.73
Mar. 26	44.37	July 1	43.93	Sept.30	43.48	Dec. 23	43.93

Guilford County

2 (*777, p. 138; 817, p. 219; 840, pp. 308-315; 845, p. 339; 886, p. 519; 907, p. 78; 937, p. 81; 945, pp. 104-105). Lindale Dairy Corporation. About 1.5 miles northwest of High Point city limits and 0.5 mile north of U. S. Highway 70, on edge of hill. Land-surface datum is 1.39 feet below measuring point and 37.00 feet above assumed datum previously used.

Mean daily water level, in feet below land-surface datum, 1943
(From recorder charts)

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	28.88	27.89	27.02	26.13	26.11	26.33	26.72	26.67	27.07	27.33	27.92	28.38
2	28.87	27.90	27.04	26.10	26.14	26.32	26.75	26.67	27.05	27.34	27.93	28.40
3	28.84	27.89	26.98	26.22	26.03	26.32	26.75	26.66	27.07	27.39	27.89	28.41
4	28.79	27.80	27.09	26.25	26.13	26.39	26.70	26.66	27.11	27.44	27.94	28.43
5	28.83	27.72	27.06	26.08	26.17	26.42	26.64	26.67	27.11	27.49	27.94	28.45
6	28.82	27.47	26.88	26.17	26.14	26.43	26.64	26.73	27.09	27.52	27.95	28.46
7	28.78	27.49	26.87	26.19	26.11	26.44	26.67	26.74	27.07	27.50	27.99	28.45
8	28.74	27.51	27.04	26.11	26.13	26.45	26.69	26.73	27.11	27.46	27.96	28.48
9	28.70	27.47	27.06	26.10	26.17	26.46	26.72	26.74	27.14	27.44	27.95	28.51
10	28.68	27.43	26.95	26.04	26.17	26.46	26.73	26.75	27.19	27.49	28.05	28.52
11	28.70	27.36	26.84	26.15	26.12	26.44	26.75	26.79	27.21	27.60	28.07	28.51
12	28.66	27.45	26.80	26.02	26.07	26.47	26.77	26.83	27.21	27.60	28.09	28.52
13	28.67	a27.31	26.81	26.02	26.17	26.50	26.76	26.80	27.21	27.58	28.04	28.53
14	28.63	27.27	26.92	26.15	26.20	26.50	26.72	26.78	27.20	27.56	28.12	28.58
15	28.60	27.30	a26.86	26.20	26.27	26.50	26.68	26.79	27.18	27.55	28.13	28.62
16	28.61	27.30	a26.76	26.24	26.29	26.47	26.69	26.80	27.20	27.48	28.05	28.67
17	28.61	27.24	26.74	26.23	26.29	26.48	26.70	26.80	27.26	27.59	28.12	28.69
18	28.58	27.24	26.69	26.23	26.27	26.53	26.70	26.89	27.32	27.65	28.17	28.66
19	28.43	27.19	26.62	26.04	26.24	26.56	26.66	26.93	27.31	27.64	28.18	28.65
20	28.52	27.12	26.56	26.05	26.21	26.57	26.61	26.94	27.25	27.67	28.18	28.67
21	28.43	27.06	26.54	26.10	26.20	26.56	26.59	26.95	27.20	27.69	28.19	28.70
22	28.37	27.07	26.46	26.15	26.25	26.56	26.57	26.95	27.23	27.68	28.22	28.69
23	28.35	27.07	26.50	26.12	26.33	26.58	26.60	26.97	27.27	27.72	28.26	28.76
24	28.33	27.04	26.43	26.08	26.28	26.63	26.64	26.96	27.28	27.73	28.28	28.82
25	28.31	27.07	26.33	26.08	26.23	26.64	26.64	26.96	27.31	27.71	28.31	28.81
26	28.30	27.01	26.27	26.07	26.21	26.64	26.62	27.00	27.37	27.71	28.30	28.75
27	28.31	27.05	26.16	26.08	26.29	26.62	26.59	27.01	27.40	27.75	28.28	28.74
28	28.13	26.98	26.21	26.07	26.32	26.60	26.57	27.02	27.41	27.78	28.30	28.76
29	28.05	.....	26.33	26.14	26.34	26.59	26.57	27.05	27.41	27.84	28.32	28.75
30	28.05	.....	26.28	26.09	26.33	26.65	26.58	27.06	27.38	27.84	28.35	28.80
31	27.99	.....	26.19	.....	26.32	.....	26.64	27.08	.....	27.86	.....	28.81

4 (*777, pp. 138-139; *817, pp. 218-221; *840, pp. 308-315; 845, p. 339; 886, pp. 518-519; 907, p. 78; 937, p. 81; 945, p. 105). W. O. Atkins. About 0.3 mile west of Colfax and 300 feet south of U. S. Highway 421. Flat topography. Land-surface datum is 0.85 foot below measuring point and 42.00 feet above assumed datum previously used.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 30	31.95	Apr. 23	30.35	July 29	30.13	Oct. 28	29.93
Feb. 24	31.05	May 27	29.24	Aug. 26	30.25	Nov. 24	30.70
Mar. 26	30.25	July 1	29.30	Sept.30	29.74	Dec. 23	31.25

5 (*777, pp. 138-139; *817, pp. 218-221; 840, pp. 308-315; 845, p. 339; 886, pp. 518-519; 907, p. 78; 937, p. 82; 945, p. 105). Isaac Tonkins. Near Groomtown, about 6 miles southwest of Greensboro, on a hill. No measurements made in 1943.

7 (*777, pp. 138-139; *817, pp. 218-221; *840, pp. 308-315; 845, p. 339; 886, pp. 518-519; 907, p. 78; 937, p. 82; 945, p. 105). E. J. Welch. At 1403 E. Lexington Avenue, High Point, 80 feet north of street, on low flat ridge. Land-surface datum is 0.57 foot below measuring point and 33.00 feet above assumed datum previously used.

a Estimated.

7. E. J. Welch well--Continued.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 30	20.65	Apr. 23	20.66	July 29	22.50	Oct. 28	22.77
Feb. 24	21.42	May 27	21.49	Aug. 26	22.60	Nov. 24	22.99
Mar. 26	20.45	July 1	22.37	Sept.30	22.71	Dec. 23	23.10

8 (*777, pp. 138-139; 817, pp. 218-221; *840, pp. 308-315; 845, p. 339; 886, pp. 518-519; 907, p. 78; 937, p. 82; 945, p. 105). Welch Place. At 1304 E. Lexington Avenue, High Point, about 800 feet west of well 7, on gentle slope. Land-surface datum is 0.64 foot below measuring point and 37.00 feet above assumed datum previously used.

Water level, in feet below land-surface datum, 1943

Jan. 30	27.60	Apr. 23	25.12	July 29	27.28	Oct. 28	30.04
Feb. 24	26.11	May 27	26.03	Aug. 26	28.30	Nov. 24	30.47
Mar. 26	25.05	July 1	26.59	Sept.30	29.28	Dec. 23	30.82

12 (*777, pp. 138-139; *817, pp. 218-221; *840, pp. 308, 315; 845, p. 340; 886, pp. 518, 520; 907, p. 79; 937, p. 82; 945, p. 106). John Blair Estate. 113 S. Tate Street, South High Point, 80 feet northeast of street. Flat topography. Land-surface datum is 4.40 feet below measuring point and 42.70 feet above assumed datum previously used.

Water level, in feet below land-surface datum, 1943

Jan. 30	34.42	Apr. 23	31.79	July 29	32.13	Oct. 28	34.29
Feb. 25	33.28	May 27	31.52	Aug. 26	32.75	Nov. 24	35.21
Mar. 26	32.69	July 1	32.18	Sept.30	34.20	Dec. 23	35.45

14 (*777, pp. 138-139; *817, pp. 218, 221; *840, pp. 308-315; 845, p. 340; 886, pp. 518, 521; 907, p. 79; 937, p. 82; 945, p. 106). Clodfelter Dairy. At southeastern corner of High Point, 0.5 mile east of U. S. Highway 311, near Springfield Church, on low flat ridge. Land-surface datum is 1.40 feet below measuring point and 27.60 feet above datum previously used.

Water level, in feet below land-surface datum, 1943

Jan. 30	16.96	Apr. 23	14.77	July 29	15.78	Oct. 28	17.05
Feb. 25	16.32	May 27	15.15	Aug. 26	16.72	Nov. 24	17.70
Mar. 26	15.68	July 1	15.85	Sept.30	17.01	Dec. 23	18.04

15 (*777, pp. 138-139; *817, pp. 218-221; *840, pp. 308-315; 845, p. 340; 886, 518-521; 907, p. 79; 937, p. 82; 945, p. 106). C. C. Robbins. About 0.3 mile south of High Point corporation limits, 110 feet west of U. S. Highway 311. No measurements made in 1943.

Halifax County

1 (*777, p. 133; 817, p. 213; 840, p. 302; 845, p. 333; 886, p. 513; 907, p. 69; 937, p. 75; 945, pp. 106-107). Freuler well. At Roanoke Rapids, 500 feet north of U. S. Highway 158 and 0.5 mile west of Seaboard Railway station. Land-surface datum is 2.50 feet below measuring point and 12.50 feet above datum previously used.

Mean daily water level, in feet below land-surface datum, 1943
(From recorder charts)

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	6.85	5.30	5.94	....	5.73	6.46	6.69	5.68	7.00	7.63	8.51	9.10
2	6.81	5.44	5.93	....	5.78	6.46	6.73	5.78	7.03	7.70	8.53	9.12
3	6.75	5.51	5.91	....	5.66	6.51	6.73	5.84	7.10	7.73	8.53	9.14
4	6.70	5.32	6.07	....	5.86	6.58	6.70	5.87	7.12	7.81	8.58	9.17
5	6.87	5.25	6.03	....	5.90	6.61	6.71	5.92	7.14	7.85	8.60	9.19
6	6.87	4.73	5.45	5.38	5.84	6.60	6.73	5.96	7.19	7.91	8.61	9.20
7	6.82	4.67	5.14	5.41	5.90	6.62	6.80	6.00	7.20	7.89	8.63	9.21
8	6.78	4.86	5.43	5.33	5.95	6.56	6.73	6.03	7.08	7.90	8.61	9.23

1. Freuler well--Continued.

Mean daily water level, in feet below land-surface datum, 1943
(From recorder charts)

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
9	6.78	4.94	5.52	5.41	6.00	6.26	6.27	6.12	7.09	7.90	8.57	9.26
10	6.79	4.99	5.41	5.33	5.99	5.86	5.81	6.15	7.19	7.98	8.65	9.28
11	6.87	4.98	5.35	5.54	5.98	6.00	5.49	6.23	7.23	8.03	8.69	9.30
12	6.81	5.21	5.40	5.35	5.75	6.09	5.65	6.25	7.28	8.03	8.70	9.30
13	6.95	5.09	5.46	5.46	5.92	6.16	3.39	6.25	7.32	8.07	8.70	9.32
14	6.85	5.20	5.65	5.63	5.99	6.21	3.32	6.30	7.32	8.09	8.76	9.36
15	6.87	5.40	5.61	5.74	6.06	6.25	3.62	6.36	7.37	8.10	8.78	9.39
16	6.95	5.48	5.57	5.74	6.07	6.26	3.88	6.39	7.43	8.11	8.76	9.40
17	7.00	5.45	5.60	5.78	6.09	6.32	4.12	6.47	7.46	8.16	8.82	9.41
18	6.59	5.58	5.68	5.79	6.12	6.33	4.19	6.52	7.50	8.20	8.84	9.42
19	5.92	5.52	5.64	5.25	6.10	6.41	4.44	6.55	7.51	8.21	8.87	9.44
20	6.17	5.49	5.66	5.20	6.13	6.46	4.56	6.60	7.51	8.24	8.89	9.47
21	6.05	5.49	5.73	5.35	6.15	6.50	4.70	6.62	7.44	8.24	8.90	9.49
22	6.08	5.61	5.64	5.46	6.22	6.53	4.81	6.66	7.42	8.29	8.92	9.50
23	6.09	5.67	....	5.46	6.28	6.59	4.98	6.70	7.38	8.32	8.97	9.52
24	6.15	5.66	....	5.45	6.21	6.65	5.10	6.74	7.40	8.38	9.00	9.56
25	6.17	5.79	....	5.47	6.20	6.68	5.19	6.74	7.43	8.34	9.00	9.58
26	6.28	5.71	....	5.50	6.20	6.69	5.24	6.81	7.52	8.30	9.00	9.32
27	6.30	5.85	....	5.58	6.33	6.70	5.33	6.82	7.61	8.30	9.01	9.14
28	5.45	5.84	....	5.56	6.26	6.72	5.38	6.88	7.62	8.34	9.03	9.23
29	5.20	....	....	5.69	6.39	6.75	5.42	6.90	7.62	8.38	9.06	9.22
30	5.22	....	5.06	5.60	6.39	6.52	5.48	6.95	7.64	8.42	9.08	9.20
31	5.30	....	5.15	....	6.43	....	5.60	6.98	....	8.47	....	9.23

Jones County

1 (945, p. 107). Geo. E. Weeks. At southeastern edge of Maysville. Land-surface datum is 2.7 feet below measuring point and 0.70 foot below assumed datum previously used.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 1	1.5	Apr. 2	2.0	July 2	0.9	Oct. 5	7.5
5	2.0	6	2.9	6	1.2	8	7.8
8	1.0	9	3.4	10	.6	12	7.8
12	1.6	13	2.7	13	1.0	15	8.0
15	1.9	16	3.4	16	.6	19	8.4
19	1.4	20	2.5	20	1.1	22	8.3
22	1.6	23	2.9	24	..6	26	9.15
26	2.1	27	3.9	27	2.1	29	9.2
29	.6	30	4.2	30	2.7	Nov. 2	9.2
Feb. 2	1.7	May 4	4.0	Aug. 3	3.1	5	9.2
5	1.8	7	5.2	6	3.7	9	9.2
9	2.0	11	5.5	10	2.2	12	9.2
12	1.8	14	2.2	13	3.0	16	9.2
16	2.6	18	3.1	17	2.6	19	9.2
19	2.85	21	3.2	20	2.0	23	9.2
23	2.5	25	1.2	24	3.4	26	9.2
26	3.6	28	1.3	27	4.05	30	9.2
Mar. 2	4.1	June 1	2.8	Sept. 1	3.5	Dec. 3	9.2
5	4.3	4	3.2	4	4.1	7	9.2
10	2.3	8	3.7	7	3.5	10	9.2
13	2.4	11	3.2	10	5.2	14	9.2
16	2.9	15	4.2	14	4.5	17	9.15
19	3.05	18	4.6	17	6.2	21	8.7
23	2.8	22	5.2	21	6.5	24	8.6
26	2.4	25	5.7	25	6.9	28	1.1
30	1.4	29	6.7	27	7.1	31	1.2
				30	7.3		

Nash County

1 (#777, p. 135; 817, p. 216; 840, p. 304; 845, p. 336; 886, p. 515; 907, p. 72; 937, p. 79; 945, p. 108). Alston well. About 0.5 mile north of Tar River, 100 yards east of State Highway 58, and 8 miles south of Nashville. Land-surface datum is 21.50 feet above assumed datum previously used.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 2	3.50	Apr. 3	6.05	July 3	9.14	Oct. 2	12.09
6	5.14	7	6.57	7	8.20	6	12.23
9	5.31	10	7.10	10	7.50	9	12.30
13	5.15	14	7.54	14	3.50	13	12.44
16	5.27	17	7.91	17	3.80	16	12.48
20	2.00	21	7.45	21	5.78	20	12.59
23	2.14	24	7.60	24	6.25	23	12.64
27	1.44	29	7.75	28	7.14	27	12.75
30	1.75	May 1	7.87	31	6.75	30	12.79
Feb. 3	1.64	5	8.28	Aug. 4	8.24	Nov. 3	12.92
6	1.42	8	8.37	7	8,37	6	12.96
10	2.59	12	8.52	11	8.77	10	13.30
13	3.08	15	8.77	14	9.05	13	13.09
17	4.87	19	9.05	18	9.50	17	13.18
20	5.28	22	9.08	21	9.70	20	13.24
24	6.44	26	9.14	25	10.16	24	13.30
27	6.65	29	9.28	28	10.27	27	13.35
Mar. 3	7.54	June 2	9.38	Sept. 1	10.64	Dec. 8	13.46
6	7.47	5	9.50	4	10.74	11	13.46
10	7.24	9	9.52	8	11.04	15	13.46
13	6.74	12	9.57	11	11.18	18	13.47
17	7.12	16	9.32	15	11.42	22	13.46
20	7.26	19	9.15	18	11.60	25	13.48
24	7.87	23	8.98	22	11.65	29	4.56
27	6.70	26	9.00	25	11.80		
31	5.76	31	8.94	30	11.97		

Onslow County

1 (*945, p. 108).. New River well. Balus J. Holleman. At Jacksonville, in front of Riverview Hotel, 40 feet south of U. S. Highway 17 and 400 feet east of New River. No measurements made in 1943.

Orange County

1 (845, p. 337; 886, pp. 516-517; 907, p. 73; 937, p. 77; *945, p. 109). McCauley well. At Chapel Hill, on west side of Chi Psi Fraternity house on Cameron Street, on low hill. Equipped with float-tape gage and Lietz weekly recorder. Land-surface datum is 47.40 feet above assumed datum previously used.

Water level, in feet below land-surface datum, 1943
(From recorder charts)

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	45.24	44.19	.....	42.81	42.23	41.91	42.11	42.36	43.02	43.73	44.55	45.19
2	45.23	44.18	.....	42.78	42.21	41.90	42.13	42.38	43.04	43.78	44.57	45.21
3	45.21	44.16	43.45	42.82	42.15	41.91	42.13	42.38	43.08	43.80	44.59	45.23
4	45.18	44.11	43.48	42.79	42.19	41.94	42.09	42.40	43.11	43.83	44.62	45.24
5	45.17	44.08	43.45	42.74	42.17	41.95	42.07	42.41	43.14	43.88	44.64	45.26
6	45.13	43.97	43.25	42.76	42.12	41.95	42.09	42.45	43.14	43.89	44.66	45.28
7	45.11	.....	43.31	42.74	42.10	41.95	42.10	42.46	43.16	43.90	44.69	45.29
8	45.08	.....	43.34	42.69	42.10	41.96	42.11	42.47	43.19	43.91	44.69	45.32
9	45.04	.....	43.29	42.67	42.10	41.92	42.15	42.50	43.21	43.93	44.70	45.34
10	45.02	.....	.....	42.63	42.08	41.91	42.15	42.51	43.26	43.97	44.74	45.36
11	45.00	.....	.....	42.67	42.04	41.91	42.15	42.52	43.28	44.03	44.76	45.37
12	44.98	.....	.....	42.59	42.01	41.93	42.17	42.57	43.30	44.05	44.78	45.38
13	44.97	43.79	.....	42.55	42.05	41.94	42.14	42.57	43.34	44.07	44.80	45.51
14	44.94	43.78	.....	42.63	42.06	41.94	42.11	42.58	43.35	44.09	44.83	45.43

1. McCauley well--Continued.

Water level, in feet below land-surface datum, 1943
(From recorder charts)

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
15	44.91	.....	43.19	42.66	42.07	41.93	42.12	42.61	43.37	44.11	44.84	45.46
16	44.91	.....	43.18	42.64	42.05	41.91	42.15	42.64	43.40	44.12	44.85	45.48
17	44.90	.....	43.16	42.61	42.05	41.93	42.17	42.66	43.44	44.18	44.88	45.50
18	44.84	.....	43.16	42.58	42.00	41.94	42.17	42.69	43.48	44.20	44.91	45.51
19	44.65	.....	43.13	42.45	41.98	41.96	42.17	42.72	43.49	44.22	44.92	45.52
20	44.62	.....	43.11	.....	41.95	41.97	42.16	42.75	43.50	44.25	44.94	45.55
21	44.57	.....	43.07	42.40	41.95	41.97	42.17	42.77	43.49	44.27	44.96	45.57
22	44.54	43.59	43.03	42.41	41.98	41.96	42.18	42.78	43.52	44.28	44.99	45.59
23	44.51	43.59	.....	42.37	41.99	41.98	42.21	42.80	43.55	44.32	45.01	45.62
24	44.49	43.55	.....	42.35	41.96	41.02	42.25	.....	43.57	44.34	45.03	45.65
25	44.46	43.56	.....	42.32	41.92	42.03	42.26	42.86	43.60	44.36	45.06	45.65
26	44.43	43.52	.....	42.30	41.91	42.02	42.28	42.90	43.64	44.37	45.07	45.63
27	44.41	43.54	.....	42.29	41.95	42.02	42.27	42.92	43.68	44.40	45.08	45.62
28	44.35	43.51	.....	42.27	41.94	42.02	42.27	42.94	43.69	44.42	45.10	45.64
29	44.30	.....	42.92	42.29	41.95	42.03	42.28	42.97	42.71	44.46	45.13	45.65
30	44.26	.....	42.89	42.22	41.93	42.06	42.31	42.99	43.72	44.48	45.16	45.66
31	44.24	.....	42.85	.....	41.92	.....	42.34	43.01	.....	44.41	.....	45.68

Pasquotank County

31T (*817,pp. 226-227; 840, p. 317; 845, p. 344; 886, p. 526;907, p. 85; 937, p. 87; 945, p. 110). 3 miles west of Elizabeth City and 1,000 feet north of city well fields. Measuring point is 1.50 feet above land-surface datum.

Mean daily water level, in feet below land-surface datum, 1943
(From recorder charts)

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	a1.40	a0.84	2.76	1.05	3.65	5.02	5.90	6.29	6.84	7.27	a7.62	7.87
2	a1.55	.91	2.90	1.24	3.79	5.05	5.93	6.30	6.85	7.28	a7.63	7.88
3	a1.67	1.15	2.96	1.52	3.87	5.08	5.95	6.31	6.86	7.29	a7.64	7.88
4	a1.79	.78	3.08	1.63	3.91	5.12	5.97	6.33	6.87	7.30	a7.64	7.89
5	1.93	.53	3.20	1.73	4.06	5.17	5.99	6.36	6.88	7.31	a7.65	7.89
6	2.08	.48	2.71	1.89	4.16	5.21	6.01	6.38	6.89	7.32	a7.66	7.90
7	....	.57	.82	2.05	4.19	5.25	6.00	6.40	6.90	7.33	a7.66	7.90
8	....	.66	1.21	2.12	4.26	5.29	6.01	6.42	.6.90	7.35	a7.67	7.91
9	....	.84	1.51	2.21	4.35	5.42	6.02	6.44	6.91	7.38	a7.68	7.91
10	....	a1.00	1.60	2.03	4.44	5.35	6.02	6.45	6.92	7.41	a7,68	7.91
11	....	a1.03	1.66	2.07	4.48	5.38	6.02	6.46	6.92	7.43	a7.69	7.92
12	....	a .90	1.75	2.12	4.44	5.41	6.04	6.49	6.95	7.45	a7.70	7.92
13	1.92	a1.20	1.84	1.84	4.27	5.43	6.05	6.52	6.98	7.45	a7.70	7.92
14	2.00	a1.40	1.96	2.02	a4.30	5.46	6.07	6.54	7.01	7.46	a7.71	7.93
15	2.05	a1.55	2.08	2.27	a4.35	5.49	....	6.55	7.03	7.46	a7.72	7.93
16	2.19	1.70	2.16	2.46	a4.41	5.52	....	6.56	7.03	7.47	7.72	7.94
17	2.29	a1.83	1.91	2.58	a4.47	5.55	....	6.56	7.04	7.48	7.73	7.97
18	1.77	a1.92	.77	2.72	a4.53	5.57	....	6.57	7.05	7.49	7.73	7.98
19	.51	a1.99	a .92	2.67	4.58	5.60	....	6.59	7.06	7.50	7.74	7.98
20	.63	a2.06	a1.03	2.23	4.61	5.62	....	6.62	7.07	7.51	7.76	7.99
21	.68	a2.12	a .73	2.25	4.63	5.65	....	6.65	7.11	7.52	7.78	8.00
22	.80	a2.18	a .45	2.46	4.63	5.68	....	6.67	7.14	7.53	7.79	....
23	1.00	a2.22	.55	2.62	4.69	5.70	....	6.69	7.16	7.54	7.81	....
24	1.15	2.26	.65	2.73	4.73	5.73	....	6.71	7.18	7.56	7.82	....
25	1.23	2.37	.86	2.86	4.74	5.76	....	6.73	7.20	7.57	7.83	....
26	1.35	2.47	1.13	2.98	4.75	5.78	....	6.73	7.21	7.58	7.84	....
27	1.11	2.55	.61	3.18	4.80	5.81	6.23	6.74	7.22	a7.58	7.85	....
28	.48	2.66	.45	3.33	4.86	5.83	6.25	6.75	7.24	a7.59	7.86	....
29	a .59	....	.55	3.45	4.91	5.85	6.26	6.80	7.25	a7.60	7.86	....
30	a .70	....	.63	3.60	4.95	5.87	6.27	6.83	7.27	a7.61	7.87	....
31	a .77	....	.80	....	4.98	....	6.28	6.84	....	a7.62	....	....

a Estimated.

33T (*845, pp.344-345; 886, p. 526; 907, p. 86; 937, p. 88; 945, p. 110). 3 miles west of Elizabeth City in city well field, about 20 feet west of pump house. Measuring point is 0.50 foot above land-surface datum.

Mean daily water level, in feet below land-surface datum, 1943
(From recorder charts)

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	16.56	.....	14.87	13.95	12.86	12.35	12.28	a12.17	12.17	12.17	.....	12.00
2	16.55	15.74	14.83	13.87	12.85	12.34	12.28	a12.18	12.16	12.16	.....	11.99
3	16.54	15.73	14.80	13.85	12.80	12.34	12.28	a12.20	12.15	12.17	.....	11.98
4	16.53	15.68	14.80	13.79	12.80	12.34	12.26	12.20	12.16	12.19	.....	11.98
5	16.52	15.66	14.77	13.72	12.79	12.33	12.24	12.20	12.15	12.22	.....	11.98
6	16.50	15.58	14.70	13.68	12.77	12.32	12.23	12.20	12.14	12.26	.....	11.96
7	.....	15.58	14.71	13.63	12.77	12.30	12.23	12.20	12.13	.....	.....	11.95
8	.....	15.56	14.69	13.58	12.77	12.30	12.24	12.20	12.13	.....	.....	11.95
9	.....	15.51	14.66	13.56	12.76	12.30	12.24	12.20	12.13	.....	.....	11.94
10	.....	a15.47	14.62	13.52	12.75	12.29	12.24	12.20	12.15	.....	.....	11.92
11	.....	a15.43	14.60	13.50	12.72	12.28	12.24	12.20	12.17	.....	.....	11.92
12	.....	15.42	14.58	13.42	12.70	12.28	12.24	12.22	12.18	12.22	.....	11.89
13	16.35	15.36	14.57	13.38	12.70	12.27	12.23	12.21	12.18	12.22	.....	11.90
14	16.34	15.34	14.56	13.38	a12.67	12.26	12.21	12.19	12.17	12.20	.....	11.91
15	16.34	15.32	14.52	13.35	a12.63	12.26	.....	12.19	12.17	12.17	.....	11.93
16	16.33	15.27	14.48	13.31	a12.59	12.25	.....	12.18	12.17	12.13	12.07	11.93
17	16.32	15.25	14.47	13.27	a12.55	12.25	.....	12.18	12.19	12.17	12.10	11.92
18	16.27	15.23	14.44	13.25	12.51	12.26	.....	12.18	12.25	12.20	12.11	11.89
19	16.25	15.19	14.42	13.18	12.51	12.27	.....	12.19	12.26	12.20	12.08	11.87
20	16.28	15.17	14.40	13.16	12.48	12.28	.....	12.20	12.24	12.22	12.07	11.87
21	16.20	15.14	14.35	13.14	12.46	12.25	.....	12.20	12.22	12.23	12.06	11.85
22	16.18	15.10	14.33	13.13	12.46	12.25	.....	12.21	.....	12.21	12.05	.....
23	16.14	15.06	14.33	13.11	12.43	12.25	.....	12.23	.....	12.23	12.05	.....
24	16.11	15.00	14.31	13.08	12.40	12.26	.....	12.23	.....	12.24	12.04	.....
25	16.09	14.99	14.28	13.05	12.38	12.25	.....	12.23	.....	12.23	12.04	.....
26	16.05	14.95	14.25	13.04	12.36	12.25	.....	12.22	.....	12.20	12.03	.....
27	a15.90	14.93	14.15	13.01	12.37	12.24	12.13	12.20	.....	.....	12.01	.....
28	a15.80	14.90	14.15	12.90	12.36	12.23	12.13	12.18	.....	.....	12.01	.....
29	a15.75	.....	14.14	12.93	12.36	12.23	12.14	12.18	12.22	.....	12.00	.....
30	.....	.....	14.06	12.88	12.35	12.25	a12.15	12.18	12.22	.....	11.99	.....
31	.....	.....	14.01	.....	12.35	.....	a12.16	12.18	.....	.....	.....	.....

a Estimated.

Randolph County

9 (*817, pp. 218-221; *840, pp. 308-311; 845, p. 339; 886, p. 520; 907, p. 79; 937, p. 82; 945, p. 111). W. C. Warner. On hill about 2 miles southwest of Climax. No measurements made in 1943.

9B (*817, pp. 218-222: *840, pp. 308,312; 845, pp. 339, 340; 886, p. 520; 907, p. 80; 937, p. 82; 945, p. 111). W. C. Warner. Location same as well 9. No measurements made in 1943.

10 (*777, pp. 138-139; *817, pp. 218-222; *840, pp. 309-314; 845, pp. 339-340; 886, p. 520; 907, p. 80; 937, p. 83; 945, p. 111). W. F. Beason. Near Cedar Square Church, on hill, 6 miles northwest of Randleman. No measurements made in 1943.

11 (*817, pp. 218-222; *840, pp. 309-312; 845, pp. 339,340; 886, p. 520; 907, p. 80; 937, p. 83; 945, p. 111). Emery Taylor. Near Coletranes Mill, on broad ridge, about 7 miles northwest of Randleman. No measurements made in 1943.

20 (*777, pp. 138, 139; *817, pp. 218-224; *840, pp. 310, 313; 845, pp. 340-341; 886, p. 521; 907, p. 80; 937, p. 83; 945, p. 111). Dr. Bush. At Archdale, on low ridge, 100 feet east of paved road to High Point and 480 feet north of State Highway 62. Land-surface datum is 1.20 feet below measuring point and 33.10 feet above assumed datum previously used.

20. Dr. Bush--Continued.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 30	24.46	Apr. 23	22.65	July 29	22.50	Oct. 28	23.95
Feb. 25	23.74	May 27	22.37	Aug. 26	22.54	Nov. 24	24.32
Mar. 26	23.40	July 1	22.50	Sept.30	23.50	Dec. 23	24.68

21 (*777, pp. 138-139; *817, pp. 218-224; *840, pp. 310-315; 845, pp. 340-341; 886, p. 552; 907, p. 81; 937, p. 37; 945, p. 113). J. W. Young . On low hill, about 2 miles west of Randleman and 1 mile north of U. S. Highway 311. No measurements made in 1943.

23 (*777, pp. 138,139; *817, pp. 219-224; *840, pp. 310, 313; 845, pp. 340,341; 886, p. 522; 907, p. 81; 937, p. 83; 945, p. 113). Mrs. Lonnie Pugh. At New Salem, on flat-topped ridge, 40 feet north of road. No measurements made in 1943.

25 (*777, pp. 138-139; *817, pp. 219-224; *840, pp. 310, 313; 845, pp. 340, 341; 886, p. 522; 907, p. 81; 937, p. 83; 945, p. 112). J. S. White. On low flat hill, 1 mile southwest of Trinity and 120 feet southeast of State Highway 62. Land-surface datum is 2.70 feet below measuring point and 36.30 feet above assumed datum previously used.

Water level, in feet below land-surface datum, 1943

Jan. 30	28.62	Apr. 23	26.38	July 29	27.23	Oct. 28	29.03
Feb. 25	27.53	May 27	27.00	Aug. 26	27.30	Nov. 24	29.48
Mar. 26	27.32	July 1	27.38	Sept.30	28.45	Dec. 23	29.96

27 (*777, pp. 138, 139; *817, pp. 219-224; *840, pp. 310,313; 845, pp. 340, 341; 886, p. 522; 907, p. 81; 937; p. 83; 945, p. 112). Walter Lambeth. About 3 miles southwest of Trinity, 650 feet north of State Highway 62, on edge of steep hill. Land-surface datum is 0.40 foot below measuring point and 34.00 feet above assumed datum previously used.

Water level, in feet below land-surface datum, 1943

Jan. 30	21.90	Apr. 23	14.98	July 29	21.50	Oct. 28	23.80
Feb. 25	20.30	May 27	15.09	Aug. 26	21.70	Nov. 24	a 25.40
Mar. 26	18.39	July 1	15.02	Sept.30	23.66	Dec. 23	(a)

Surry County

1 (*845, p. 337; 886, p. 517; 907, p. 73; 945, pp. 112-113). A. D. Terrell. 4 miles south of Dodson, 1.8 miles east of Fairview, about 0.5 mile north of State Highway 268, and 50 feet west of county road. Land-surface datum is 1.00 foot below measuring point and 50.00 feet above assumed datum previously used.

Water level, in feet below land-surface datum, 1943

Jan. 4	47.38	Apr. 10	46.97	July 19	43.77	Oct. 17	42.69
10	47.45	20	46.45	27	43.96	24	42.76
17	47.48	28	46.55	Aug. 2	44.02	31	42.98
24	47.48	May 4	46.44	7	44.29	Nov. 11	43.00
31	47.00	10	46.46	15	44.12	14	43.25
Feb. 7	47.17	17	46.04	23	44.40	21	43.25
15	47.29	22	45.39	25	44.12	30	43.29
20	47.35	June 4	44.94	Sept. 5	44.22	Dec. 4	43.29
Mar. 6	47.37	7	44.28	12	42.98	12	43.49
13	47.37	12	43.92	19	42.77	19	43.69
21	47.25	15	45.03	26	42.74	29	43.22
27	47.19	24	44.91	Oct. 7	42.52		
Apr. 5	47.10	30	44.48	10	42.69		

a Well dry.

Transylvania County.

1 (*777, p. 136; 817, p. 215; 840, p. 304; 845, p. 335; 886, p. 515; 907, p. 71; 937, p. 77; 945, p. 114). Baldwin well. Near Blantyre, about 200 yards west of depot. Land-surface datum is 1.00 foot below measuring point and 40.00 feet above assumed datum previously used.

Water level, in feet below land-surface datum, 1943

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	32.14	31.41	30.57	29.36	28.62	28.46	29.02	29.03	29.42	30.42	31.72	32.75
2	.....	31.38	30.52	29.34	28.61	28.46	29.10	29.02	29.42	30.44	31.75	32.77
3	.....	31.34	30.45	29.32	28.55	28.48	29.06	29.01	29.44	30.49	31.78	32.80
4	32.21	31.30	30.40	29.30	28.57	28.46	29.14	28.99	29.45	30.59	31.83	32.84
5	.....	31.21	30.31	29.26	28.57	28.49	29.16	28.98	29.51	30.61	31.86	32.85
6	.....	31.21	30.27	29.24	28.53	28.56	29.18	28.99	29.52	30.66	31.89	32.86
7	.....	31.16	30.26	29.21	28.51	28.57	29.03	28.99	29.54	30.70	31.92	32.88
8	.....	31.15	30.26	29.16	28.50	27.60	29.13	28.99	29.55	30.72	31.95	32.91
9	32.30	31.10	30.21	29.12	28.50	28.62	.....	28.99	29.55	30.74	31.95	32.93
10	.....	31.08	30.30	29.07	28.50	.....	29.12	28.99	29.63	30.75	32.00	32.95
11	.....	31.08	30.22	29.04	28.46	28.63	29.23	29.01	29.64	30.85	32.15	32.97
12	.....	30.97	30.13	29.01	28.43	28.65	29.25	29.02	29.72	30.90	32.26	32.99
13	.....	30.97	30.11	28.98	28.45	28.72	29.27	29.03	29.74	30.94	32.30	33.00
14	.....	30.97	30.08	28.96	28.46	28.75	29.28	29.03	29.75	30.97	32.29	33.05
15	32.05	31.11	30.02	28.96	28.44	28.75	29.28	29.05	29.80	31.00	32.45	33.07
16	.....	31.04	29.98	28.96	28.47	28.71	29.28	29.06	29.82	30.99	32.33	33.10
17	.....	30.97	29.91	28.92	28.47	28.74	29.29	29.06	29.84	31.05	32.39	33.14
18	.....	30.92	29.89	28.91	28.46	28.77	29.29	29.08	29.95	31.07	32.32	33.15
19	31.76	30.89	29.84	28.80	28.44	28.81	29.27	29.13	29.98	31.16	32.49	33.16
20	.....	30.94	29.75	28.72	28.43	28.84	29.24	29.14	29.99	31.20	32.50	33.18
21	31.72	30.84	29.69	28.76	28.43	28.82	29.24	29.18	29.90	31.24	32.50	33.20
22	.....	30.77	29.61	28.76	28.44	28.89	29.20	29.20	30.06	31.30	32.53	33.22
23	31.69	30.72	29.61	28.75	28.44	28.91	29.18	29.22	30.05	31.33	32.59	33.25
24	.....	30.65	29.61	28.72	28.44	28.95	29.18	29.24	30.18	31.37	32.59	33.33
25	31.66	30.61	29.55	28.71	28.43	28.99	29.17	29.25	30.17	31.38	32.61	33.33
26	31.61	30.54	29.50	28.70	28.40	28.99	29.14	29.26	30.28	31.42	32.62	33.31
27	31.56	30.53	29.45	28.68	28.40	29.02	29.10	29.29	30.33	31.47	32.63	33.32
28	31.53	30.50	29.44	28.67	28.45	29.04	29.09	29.30	30.34	31.52	32.66	33.34
29	.....	.....	29.46	28.66	28.47	28.92	29.05	29.33	30.39	31.59	32.72	33.49
30	.....	.....	29.45	28.62	28.47	28.95	29.04	29.36	30.41	31.62	32.74	33.43
31	31.43	.....	29.40	.....	28.46	.....	29.04	29.39	.....	31.67	.....	33.52

Wake County

1 (*777, p. 134; 817, p. 215; 840, p. 304; 845, p. 335; 886, p. 515; 907, p. 71; 937, p. 79; 945, p. 114). Fishdam well. 1 mile downstream from bridge across Neuse River on U. S. Highway 15 and about 2 miles west of Northside, on left bank of river. Land-surface datum is 15.00 feet above assumed datum previously used.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 4	9.03	Apr. 21	8.93	Aug. 15	14.30	Oct. 31	15.68
17	9.08	May 9	9.30	30	14.93	Nov. 7	15.77
31	8.38	23	10.72	Sept. 5	14.98	14	15.91
Feb. 14	8.30	June 20	11.60	14	15.19	28	15.98
28	9.73	July 11	13.13	28	15.28	Dec. 12	16.03
Mar. 28	7.20	20	13.79	Oct. 3	15.37	18	16.15
Apr. 4	9.13	30	13.54	19	15.53		

Washington County

1 (*945, p. 115). R. H. Lucas. About 1.5 miles west of Plymouth and 50 yards south of U. S. Highway 64. Land-surface datum is 1.40 feet below present measuring point and 0.50 foot below measuring point previously used. Automatic water-stage recorder installed July 23.

1. R. H. Lucas well--Continued.

Water level, in feet below land-surface datum, 1943
(From recorder charts beginning July 23)

Day	Jan.	Feb.	Mar.	Apr.	May	July	Aug.	Sept.	Oct.	Nov.
1	.....	.....	.....	.....	.....	.....	14.52	15.31	.....	.....
2	.....	13.69	.....	13.80	.....	.....	14.60	15.34	16.30	16.84
3	.....	.....	.....	.....	.....	.....	14.65	15.40	16.33	.....
4	14.61	.....	.....	.....	.....	.....	14.72	15.44	16.37	.....
5	.....	13.70	.....	.....	.....	.....	14.74	15.47	16.39	.....
6	.....	.....	.....	13.37	.....	.....	14.19	15.48	16.40	.....
7	.....	.....	.....	.....	.....	.....	14.06	15.51	16.42	.....
8	14.58	.....	.....	.....	.....	.....	14.05	15.55	16.43	.....
9	.....	.....	14.27	13.37	.....	.....	14.07	15.58	16.46	.....
10	.....	.....	.....	.....	.....	.....	14.15	15.63	16.51	.....
11	.....	.....	.....	.....	.....	.....	14.24	15.68	16.54	.....
12	14.38	.....	.....	.....	.....	.....	14.31	15.72	16.55	.....
13	.....	.....	14.28	13.16	.....	.....	14.37	15.76	16.56	.....
14	.....	.....	.....	.....	.....	.....	14.41	15.78	16.59	.....
15	14.31	.....	.....	.....	.....	.....	14.47	15.82	16.59	.....
16	.....	14.96	14.27	13.33	.....	.....	14.54	15.86	16.62	.....
17	.....	.....	.....	.....	.....	.....	14.62	15.90	16.67	.....
18	.....	.....	.....	.....	.....	.....	14.68	.....	16.69	.....
19	14.09	14.04	14.16	.....	.....	.....	14.73	.....	16.71	.....
20	.....	.....	.....	.....	.....	.....	14.79	16.00	16.74	.....
21	.....	.....	.....	.....	.....	.....	14.82	16.01	16.75	.....
22	14.06	.....	.....	.....	.....	.....	14.87	16.04	16.77	.....
23	.....	14.07	.....	.....	.....	14.19	14.93	16.05	16.80	.....
24	.....	.....	.....	.....	.....	14.11	14.99	.....	16.81	.....
25	.....	.....	.....	.....	14.40	14.00	15.04	.....	16.78	.....
26	14.06	14.08	.....	.....	.....	14.12	15.10	.....	16.76	.....
27	.....	.....	.....	.....	.....	14.15	15.14	.....	16.76	.....
28	.....	.....	.....	.....	14.05	14.20	15.17	.....	16.76	.....
29	.....	.....	.....	.....	.....	14.27	15.20	.....	16.76	.....
30	13.69	.....	13.92	.....	.....	14.35	15.21	.....	.....	.....
31	.....	.....	.....	.....	.....	14.45	15.26	.....	.....	.....

Wayne County

1 (*777, p. 135; 817, p. 215; 840, p. 303; 845, p. 335; 886, p. 514; 907, p. 70; 937, p. 79; 945, p. 115). Borden Brick & Tile Co. Brick Pit well. About 3.5 miles south of Goldsboro, 200 feet east of U. S. Highway 117 and Neuse River. Land-surface datum is 7.00 feet above assumed datum previously used.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 2	2.20	Apr. 10	1.60	July 18	2.96	Oct. 23	4.68
9	2.24	17	1.78	24	3.00	30	4.76
16	2.36	24	1.54	31	3.16	Nov. 6	4.88
23	2.34	May 1	1.64	Aug. 7	4.14	13	4.96
30	1.92	8	1.96	14	3.44	20	5.04
Feb. 6	.52	15	2.02	21	3.50	27	5.14
13	1.52	22	2.24	28	3.80	Dec. 5	5.20
20	1.64	29	2.34	Sept. 4	3.74	11	5.28
27	1.78	June 5	2.58	11	3.94	18	5.34
Mar. 6	1.86	19	1.84	18	4.10	26	5.18
20	1.96	26	2.98	25	4.16		
27	1.74	July 3	3.02	Oct. 2	4.30		
Apr. 3	1.52	10	3.04	16	4.56		

SOUTH CAROLINA

By M. A. Warren

INTRODUCTION

The observation-well program in Beaufort and Jasper Counties, S. C., begun in 1939 in connection with an investigation of ground-water conditions in the heavily pumped artesian area centering in Savannah, Ga., was continued in 1943 by the Geological Survey, United States Department of the Interior, in coöperation with the Division of Mines, Mining, and Geology of the Georgia State Division of Conservation. The purpose of the program in South Carolina is to obtain information on the changes in artesian water levels in the parts of the Savannah area that lie north and northeast of the city itself. During the year 3 measurements were made in one well and 1 measurement was made in each of nine wells, making a total of 12 measurements, all of which are listed in this report. In addition, there are also listed 3 measurements, hitherto unpublished, made in wells in Jasper County prior to 1943.

In Sumter County, a shallow bored well on property of the Poinsett Forest State Park, 2 miles south of Wedgeville, was selected in 1942 by the Geological Survey for observation in order to obtain information on the fluctuation of the water table in this locality. The present report lists all the measurements so far made in this well, amounting to 45, of which 28 were made during 1943.

The artesian water levels in the southern part of Jasper County and that part of Beaufort County west of Port Royal Sound continued to decline in 1943 owing to the continued heavy pumpage in the industrial section of the Savannah area. This pumpage was estimated to average 3½ to 4 million gallons a day more in 1943 than in 1942. The greatest decline in water level in the South Carolina part of the Savannah area occurred in the wells situated nearest the city of Savannah.

WELL DESCRIPTIONS AND WATER-LEVEL MEASUREMENTS

Beaufort County

1 (*945, p. 116). E. C. Gale. At Red Bluff, 7 miles south of Pritchardville, about 200 feet east of New River. Measuring point, top of 4-inch casing, 0.44 foot above concrete floor of pump pit, 5.7 feet below land-surface, and about 6 feet above mean sea level. Water level affected by tide. Water level, in feet below land-surface datum, 1943: July 9, 11:55 a.m., 17.66.

4 (*945, p. 116). G. O. Rentz. At Hardeeville, on north side of Bluffton road, 0.35 mile southeast of U. S. Highway 17. Measuring point, top of thread protector on 3-inch casing, 0.9 foot above land surface and 25.2 feet above mean sea level. Water level, in feet below land-surface datum, 1943: July 9, 17.52.

9 (*945, p. 117). Sim Ullman. At Bluffton, about 0.1 mile west of State Highway 46 and 100 feet west of main street. Measuring point, top of west side of 2-inch casing, 0.4 foot above land-surface and 21.6 feet above mean sea level. Water level affected by tide. Water level, in feet below land-surface datum, 1943: July 9, 2:15 p.m., 20.65.

10 (*945, p. 117). A. H. Crosby. At Bluffton, on north side of State Highway 46 about 300 feet west of its intersection with main street of Bluffton. Measuring point, top of 3-inch casing, 0.65 foot above land surface and 23.6 feet above mean sea level. Water level affected by tide. Water level, in feet below land-surface datum, 1943: July 9, 2:30 p.m., 21.61.

13 (*945, p. 117). R. B. Crosby. About 4.5 miles southeast of Hardeeville, about 300 feet southeast of junction of State Highways 46 and 170, in front of residence of R. B. Crosby. Measuring point, top of 3-inch casing, level with land surface and about 8 feet above mean sea level. Water level, in feet below land-surface datum, 1943: July 9, 12:40 p.m., 7.90.

15 (*945, p. 117). Mrs. F. P. Heyward. At Hardeeville, on south side of Bluffton road, 0.35 mile southeast of U. S. Highway 17. Measuring point, top of 4-inch casing, 2.2 feet above land surface and 25.8 feet above mean sea level. Water level, in feet below land-surface datum, 1943: July 9, 21.09.

20 (*945, p. 117). Harry Hector. Near bluff 4 miles east of Bluffton, 0.2 mile southwest of dock at Buckingham Ferry. Measuring point, top 1½- by 1¼-inch coupling over 2-inch casing, 0.5 foot above land surface and about 12 feet above mean sea level. Water level affected by tide. Water level, in feet below land-surface datum, 1943: July 9, 3:22 p.m., 9.43.

63 (*945, p. 117). Honey Horn Plantation. On Hilton Head Island, near garage and shop of Honey Horn Plantation, about 2.5 miles east of Jenkins Island dock. No measurements made in 1943.

66 (*945, p. 117). U. S. Marine Corps. At Camp McDougal, on Hilton Head Island, about 300 feet west of old lighthouse, in pump house. No measurements made in 1943.

Jasper County

1 (*945, p. 117). Fish and Wildlife Service, U. S. Dept. of Interior. About 300 feet north of U. S. Highway 17, 0.9 mile east of Georgia-South Carolina State line, at headquarters of Savannah River Refuge. Measuring point, top of 8-inch casing, level with concrete base for pump, 0.7 foot above land surface and 10.8 feet above mean sea level. Water level affected by tide. Water levels, in feet above land-surface datum, 1943: Jan. 28, 5:45 p.m., 27.58; July 9, 10:00 a.m., 31.50; Sept. 2, 7:40 p.m., 32.80.

5. J. S. Denham. On Delta Plantation, on west side of Screven Ferry road, 0.3 mile south of Red Bluff road. Used drilled domestic well, diameter 4 inches, depth about 300 feet. Measuring point, top of ¼-inch tap hole in 1½- by 4-inch reducer, 1.16 feet above floor of concrete pump pit and 7 feet below land surface. Water levels, in feet below land-surface datum: Aug. 19, 1942, 29.65; July 9, 1943, 31.75.

10. H. L. Platt. At Good Hope School (colored), about 0.4 mile north of Old House. Used drilled well, diameter 3 inches, depth about 150 feet. Measuring point, top of 3-inch tee, 1.2 feet above land surface and 11.1 feet above mean sea level. Water levels, in feet above land-surface datum: Feb. 11, 1941, 1:25 p.m., 1.28; Mar. 19, 1941, 11:15 p.m., 1.12; July 9, 1943, 6:00 p.m., 0.26.

Sumter County

1. Poinsett State Park. Near Burnt Gin Lake, 2 miles southeast of Wedgefield, 1.3 miles east of State Highway 261, in northwest quadrant of intersection of county roads. Unused bored well, diameter 6 inches, depth 18 feet. Cased with eight 2-foot lengths of sewer tile with uncemented joints. Measuring point, top of 6-inch tile, 0.7 foot above land surface and about 195 feet above mean sea level.

Water level, in feet below land-surface datum, 1942-43

Date	Water level	Date	Water level	Date	Water level
Sept. 25, 1942	13.23	Dec. 27, 1942	14.82	Mar. 28, 1943	12.40
26	13.20	31	14.89	31	12.52
Oct. 3	13.38	Jan. 3, 1943	14.95	Apr. 4	12.84
11	13.55	10	15.01	11	12.69
18	13.74	17	15.05	15	12.60
25	13.83	24	14.98	18	12.36
31	14.04	28	14.90	25	12.42
Nov. 1	14.03	31	14.90	30	12.23
8	14.12	Feb. 7	14.92	May 2	12.06
15	14.26	14	14.83	9	12.02
22	14.40	21	14.68	16	12.32
29	14.44	28	14.30	23	12.38
Dec. 8	14.57	Mar. 7	14.00	30	12.60
13	14.69	14	13.62	June 15	13.70
20	14.75	21	13.22	29	14.06

TENNESSEE

By R. G. Kazmann

PROGRAM OF WORK

The observation-well program in Tennessee is at present confined to the highly industrialized Memphis area, where it was begun in connection with an investigation of the ground-water resources in the western part of the State.[1/] Artesian water is pumped in the area for municipal supply, for industrial use, and for air conditioning. The growth of defense industries, however, is at present the index to the increase in draft. The program was carried on in 1943, as it has been since July 1940, by the Geological Survey, United States Department of the Interior, in cooperation with the Memphis Board of Light, Gas, and Water Commissioners. During the year weekly measurements of water level were made in two wells, and automatic water-stage recorders were maintained throughout the year on six wells. In all, 1,983 individual measurements of water level were made during the year. Records of these measurements and of the lowest daily recorder readings are given in the present report, and also given are the hitherto unpublished records of measurements made prior to 1943 in the two wells measured periodically.

In September 1943, at a meeting between officials of the two cooperating parties, arrangements were made for increasing the scope and intensity of the ground-water investigations in the area. The first task undertaken was to obtain as complete a record as possible of the pumpage in the area. Such a record was begun in 1940 and carried along in succeeding years, but it has not been comprehensive. Next, it was necessary to devise a numbering system for the accurate location and identification of all known wells and of any wells that might be visited and reported on in the future. For an explanation of the system adopted see page 140.

1/ Wells, F. G., Ground-water resources of western Tennessee: U. S. Geol. Survey Water-Supply Paper 656, 319 pp., 1933.

FLUCTUATIONS OF WATER LEVEL[2/]

The chief factor affecting water levels in the Memphis area is the withdrawal of water, by pumping, from the underground reservoirs. These reservoirs are sands, known as the 1,400-foot sand, the 500-foot sand, and the shallow sand, which is encountered at depths of 40 to 130 feet below the surface. All the wells at present included in the well-measurement program are in the 500-foot sand, and all showed declines in water level in 1943, although their rates of decline remained the same or increased only slightly. The following examples will illustrate this point: In well 79:5-193, known locally as the Central Avenue well, in Peabody Park, the average net loss in head during the period 1939-42 was 4.4 feet a year, and the lowest stage reached in 1943 was 4.4 feet lower than the lowest in 1942. In well 79:3-A, known locally as the Sycamore Avenue shaft, the average net decline in water level during the period 1939-42 was 3.9 feet a year, and the lowest stage reached in 1943 was 4.1 feet lower than the lowest in 1942. In well 79:1-3, listed in earlier water-supply papers as well T-3, the average net loss during the period 1940-42 was 1.1 feet a year, and the lowest stage reached in 1943 was 1 foot lower than the lowest in 1942.

Pumpage

As pumpage is primarily responsible for the steady decline in the water levels in the area, it is worth while to note the amount of it. The daily pumpage from the 500-foot sand rose in 1943 to a peak of more than 150 percent of the daily pumpage in May 1941. It is estimated that during the months of July and August an average of about 120 million gallons of water a day were pumped from this sand. Besides this heavy withdrawal from the 500-foot sand, about 12 million gallons a day were pumped from the 1,400-foot sand and somewhat more than 5 million gallons a day from the shallow sand. These figures are based on data furnished the Geological Survey by 13 water users in the area whose daily pumpage ranges from less than 100,000 to more than 20,000,000 gallons a day and also on data gathered on personal visits to several plants pumping water at which meters have not been installed. When meters become more readily available and therefore are more widely installed, estimates of pumpage probably will be more nearly accurate.

2/ In Water-Supply Paper 945, on page 124, the scale designation on the left of figure 10, which reads "Water level, in feet below land surface," should be corrected to read "Water level, in feet below measuring point."

In Memphis and in all the other industrial areas in Shelby County, the "tooling-up" process required for production for war had been completed by the end of 1942. The increased use of water in these areas in 1943, therefore, is the reflection of increased production by the American industrial machine. As compared with 1941, the average daily pumpage of the four largest water users in the Memphis area increased 14 percent in 1942 and 30 percent in 1943.

At present there appears to be no reason to believe that the ground-water supply of the Memphis area has been overdeveloped and that, consequently, it is threatened with exhaustion. The annual declines in water levels, although appreciable, are not alarming and merely represent adjustments of the artesian conditions to the increased use of the water. The water levels may continue to decline for some time before a balance is reached between the withdrawals of water and the natural replenishment of the water-bearing beds. The purpose of the intensive investigation now under way is to determine the amount of natural input of water to the sands and the levels to which the water in the artesian wells may decline before an equilibrium is reached.

WELL-NUMBERING SYSTEM

According to the system devised in 1943 for numbering the observation wells in Tennessee, each number is made up of three items, the first and second of which are separated by a colon, and the second and third by a hyphen. The first item represents the county in which the well is situated the second, the well field, and the third, the well itself. The first item necessitated numbering all the counties in the State in alphabetic order. As all wells for which records are given in this report are in Shelby County, the seventy-ninth county in the State in alphabetic order, the numbers for all of them have 79 as their first item. To provide for the second item, the well fields were assigned arbitrary numbers, but it is planned to number new fields consecutively in the order in which they are recorded by the Geological Survey. For example, the number 79:1-1 indicates county 79, Shelby County; well field 1, the field made up of the test wells of the Memphis Light, Gas, and Water Division; and well 1 in that field, as numbered by the owner. (Well 79:1-1 was formerly known as well T-1.)

Under the new numbering system the Parkway well field of the Memphis Light, Gas, and Water Division now bears the number 7, and the well on North Parkway at the end of North Garland Street is therefore numbered 79:7-17. (Its former number was written simply as 17.) The old, abandoned Auction Avenue well field, where the water of about 100 wells flowed through tunnels into the so-called "wet well," is now field 3, and the shafts that were used to inspect the tunnels and drifts of that field, 25 in all, have been lettered to differentiate them from the wells.

WELL DESCRIPTIONS AND WATER-LEVEL MEASUREMENTS

Shelby County

79:1-1 (*907, p. 100; 937, p. 96; 945, p. 125). Formerly designated as well T-1. Memphis Light, Gas, and Water Division. On O. K. Robertson Road, 2.24 miles north of Frayser, and 0.36 mile north of U. S. Highway 51, 4.5 miles north of Memphis city limits (1940). Drilled test well, diameter 6 inches, depth 434 feet. Measuring point, top of 6-inch coupling, 4.30 feet above land-surface datum, 100 feet above arbitrary datum previously used, and 233 feet above mean sea level. Equipped with water-stage recorder.

Lowest daily water level, in feet below land-surface datum, 1943
(From recorder charts)

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	21.91	21.82	19.20	20.48	.....	22.60	25.38	27.13	27.29	27.42	26.97
2	.....	21.89	22.11	19.13	20.40	.....	22.68	25.44	27.18	27.29	27.42	26.93
3	.....	21.79	22.15	19.11	20.36	.....	22.71	25.47	27.20	27.34	27.42	27.00
4	a22.31	21.77	22.15	19.03	20.39	.....	22.74	25.51	27.24	27.38	27.40	27.04
5	.....	21.77	22.13	19.00	20.39	.....	22.80	25.60	27.25	27.38	27.32	.....
6	.....	21.79	22.16	18.99	20.52	.....	22.84	25.64	27.24	27.40	27.28	26.99
7	.....	21.82	22.18	19.03	20.68	19.38	22.91	25.66	27.19	27.40	27.18	26.99
8	.....	21.61	22.21	19.18	20.84	19.56	23.02	25.66	27.19	27.37	27.20	26.98
9	.....	21.49	22.14	19.57	.....	19.85	23.12	25.74	27.28	27.35	27.30	27.07
10	.....	21.55	22.07	20.15	21.06	20.16	23.24	25.78	27.33	27.40	27.30	27.03
11	20.69	21.57	22.02	20.33	21.24	20.55	23.39	25.84	27.33	27.39	27.30	27.03
12	20.53	21.44	22.00	20.46	21.38	20.94	23.54	25.92	27.33	27.34	27.29	26.96
13	20.50	21.40	21.78	20.62	21.46	21.21	23.60	25.96	27.30	27.26	27.24	26.99
14	20.22	21.40	21.79	20.86	21.49	21.37	23.86	25.99	27.28	27.30	27.24	.....
15	20.02	21.32	21.65	20.92	21.48	21.44	23.76	26.02	27.31	27.32	27.11	.....
16	19.91	21.34	21.90	21.04	21.49	21.52	.....	26.08	27.37	27.34	27.09	.....
17	20.02	21.25	21.90	21.06	21.61	21.63	23.96	26.22	27.42	27.37	27.08	.....
18	20.14	21.23	21.80	21.06	21.59	21.74	.....	26.43	27.41	27.36	27.02	.....
19	20.56	21.22	21.29	21.05	21.52	21.83	24.12	26.50	27.37	27.34	27.01	.....
20	20.65	21.18	21.28	.....	21.45	21.92	24.15	26.57	27.33	27.34	26.98	27.09
21	20.86	21.20	21.17	.....	21.44	22.00	24.24	26.62	27.31	27.35	27.01	27.03
22	20.90	21.22	21.22	.....	21.38	21.99	24.36	.....	27.33	27.40	27.19	27.14
23	21.02	21.19	21.14	.....	21.30	22.06	24.50	26.67	27.36	27.39	27.22	27.19
24	21.18	21.34	20.88	.....	21.02	22.17	24.62	26.72	27.36	27.41	27.22	27.19
25	21.46	21.45	20.63	.....	20.86	22.26	.....	26.76	27.35	27.46	27.20	27.18
26	21.58	21.62	20.28	20.84	20.72	22.32	24.89	26.82	27.38	27.46	27.15	26.98
27	21.59	21.65	.....	20.72	.....	22.36	24.92	26.87	27.35	27.44	27.15	26.97
28	21.64	21.69	.....	20.63	.....	22.42	24.98	26.97	27.34	.....	27.13	26.89
29	21.68	.....	.....	20.56	.....	22.46	25.10	27.01	27.34	.....	27.06	26.82
30	21.70	.....	19.61	20.47	.....	22.51	25.21	27.09	27.32	.....	27.01	26.79
31	21.88	.....	19.42	.....	a19.64	.....	25.34	27.11	.....	.....	.....	26.84

79:1-2 (*907, pp. 100-101; 937, p. 97; 945, p. 125). Formerly designated as well T-2. Memphis Light, Gas, and Water Division. On Schiebler road about 0.2 mile north from its intersection with Yale road, 1.7 miles northeast of Raleigh, and 1.4 miles northwest of Bartlett. Drilled test well, diameter 6 inches, depth 344 feet. Measuring point, top of 6-inch coupling, 3.0 feet above land-surface datum, 100 feet above arbitrary datum previously used, and about 303 feet above mean sea level. Equipped with water-stage recorder.

a Tape measurement.

79:1-2. Memphis Light, Gas, and Water Division--Continued.

Lowest daily water level, in feet below land-surface datum, 1943
(From recorder charts)

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	74.71	74.02	74.25	73.97	74.27	74.59	75.33	76.67	77.84	77.69	a77.83	77.50
2	74.72	74.00	74.36	74.01	74.24	74.56	75.37	76.74	77.84	77.68	.....	77.42
3	74.84	73.85	74.37	74.05	74.25	74.51	75.43	76.45	77.84	77.70	.....	77.46
4	74.86	73.85	74.35	74.00	74.28	74.58	75.42	76.79	77.86	77.72	.....	77.49
5	74.89	73.84	74.28	73.96	74.24	74.58	75.40	76.88	77.86	.....	.....	77.49
6	74.82	73.84	74.30	73.93	74.24	74.50	75.40	76.91	77.80	.....	77.78	77.42
7	74.77	74.03	74.37	73.83	74.22	74.49	75.40	76.94	.....	.....	.....	77.37
8	74.76	73.97	74.45	73.80	74.24	74.51	75.45	76.96	.....	.....	77.67	77.36
9	74.76	73.93	74.38	73.74	74.21	74.51	75.46	77.03	.....	.....	77.74	77.39
10	.....	73.92	74.29	73.77	74.18	74.51	75.54	77.07	.....	.....	77.77	77.39
11	74.54	74.08	74.23	73.78	74.14	74.51	75.58	77.13	.....	a77.76	77.80	77.39
12	74.52	74.13	74.18	73.70	74.20	74.57	75.70	77.19	.....	.....	77.80	77.36
13	74.48	74.16	74.07	73.80	74.23	74.63	75.72	77.20	a77.69	.....	77.78	77.42
14	74.43	74.21	74.08	73.90	74.28	74.66	75.74	77.21	.....	.....	77.78	77.48
15	74.23	74.33	73.91	73.93	74.31	74.64	75.79	77.24	.....	.....	77.62	77.54
16	74.10	74.38	73.94	73.93	74.40	74.68	75.87	77.26	.....	.....	.....	77.59
17	74.17	74.30	73.99	73.95	74.49	74.72	.....	77.36	.....	.....	.....	77.62
18	74.16	74.30	73.98	73.93	74.53	74.80	.....	77.41	.....	a77.70	.....	77.62
19	74.31	74.28	73.98	73.89	74.56	74.84	76.07	77.45	.....	.....	.....	77.60
20	74.29	74.24	74.01	73.96	74.61	74.88	76.08	77.52	a78.22	.....	.....	77.61
21	74.09	74.13	74.07	74.02	74.69	74.91	76.14	77.57	.....	.....	.....	77.58
22	73.89	74.12	74.18	74.01	74.70	74.93	76.21	77.62	.....	.....	77.62	77.64
23	73.82	74.08	74.21	74.03	74.69	74.97	76.28	77.66	.....	.....	77.62	77.73
24	73.82	74.20	74.18	74.08	74.61	75.03	76.34	77.67	.....	.....	77.61	77.73
25	73.89	74.23	74.14	74.08	74.63	75.09	76.42	77.68	.....	a77.80	77.61	77.70
26	73.88	74.27	74.08	74.10	74.70	75.13	76.45	77.72	.....	.....	77.59	77.53
27	73.89	74.27	74.01	74.12	74.74	75.13	76.45	77.74	77.76	.....	77.55	77.54
28	73.85	74.19	74.06	74.18	74.63	75.20	76.48	77.78	77.76	.....	77.53	77.51
29	73.86	.....	74.10	74.18	.....	75.26	76.51	77.78	77.75	.....	77.49	77.45
30	73.95	.....	74.09	74.23	.....	75.31	76.59	77.82	77.74	.....	77.50	77.45
31	74.00	.....	74.03	.....	74.63	.....	76.64	77.83	.....	.....	.....	77.46

79:1-3 (*907, p. 101; 937, pp. 97-98; 945, pp. 126-127). Formerly well T-3. Memphis Light, Gas, and Water Division. On Macon road, 0.6 mile east of its intersection with Raleigh-La Grange road and 6.7 miles east of Memphis city limits. Drilled test well, diameter 6 inches, depth 383.5 feet. Measuring point, top of 6-inch coupling, 2.4 feet above land-surface datum, 100 feet above arbitrary datum previously used, and about 332 feet above mean sea level. Equipped with water-stage recorder.

Lowest daily water level, in feet below land-surface datum, 1943
(From recorder charts)

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	76.32	76.51	76.39	75.75	76.14	76.12	76.64	77.00	77.43	77.36	77.75	77.72
2	76.23	76.38	76.51	75.83	76.06	76.11	76.66	76.98	77.43	77.37	77.76	77.65
3	76.17	76.20	.....	75.90	76.08	76.16	76.69	77.00	77.43	.....	77.78	77.77
4	76.32	76.21	.....	76.00	76.14	76.27	76.66	77.03	77.44	77.68	77.73	77.80
5	76.41	76.16	.....	75.84	76.09	76.30	76.65	77.12	77.43	77.70	77.64	77.78
6	76.29	76.16	.....	75.83	76.09	76.26	76.67	77.13	77.37	77.73	77.61	77.69
7	76.18	76.36	.....	75.77	76.07	76.25	76.69	77.13	77.31	77.70	77.59	77.71
8	76.22	76.23	76.60	75.80	76.11	76.29	76.73	77.12	77.33	77.63	77.70	77.68
9	76.22	76.16	76.52	75.76	76.13	76.29	76.74	77.10	77.41	77.61	77.79	77.78
10	76.22	76.14	76.35	75.86	76.08	76.28	76.74	77.13	77.42	77.68	77.82	77.78
11	76.26	76.26	76.25	75.87	76.00	76.24	76.78	77.19	77.38	77.61	77.82	77.78
12	76.27	76.33	76.23	75.82	76.06	76.25	76.83	77.21	77.35	77.57	77.77	77.71
13	76.28	76.31	76.17	75.95	76.05	76.33	76.85	77.22	77.36	77.50	77.73	77.75
14	76.24	76.34	76.14	76.05	76.05	76.35	76.82	77.21	77.36	77.59	77.73	77.79
15	76.13	76.42	75.89	76.07	76.01	76.34	76.83	77.21	77.41	77.58	77.61	.....
16	76.10	76.48	75.84	76.00	76.01	76.32	76.84	77.17	77.48	77.62	77.66	.....
17	76.31	76.38	75.87	75.95	76.04	76.36	76.90	77.26	77.54	77.64	77.69	.....
18	76.39	76.38	75.82	75.93	76.05	76.42	76.91	77.32	77.52	77.60	77.66	.....
19	.....	76.36	75.76	75.83	76.00	76.42	76.86	77.30	77.43	77.58	77.67	.....
20	.....	76.29	75.82	75.88	76.01	76.41	76.80	77.26	77.36	77.58	77.64	77.82
21	.....	76.22	.....	75.94	76.09	76.51	76.84	77.30	77.40	77.60	77.65	77.76

a Tape measurement.

79:1-3. Memphis Light, Gas, and Water Division--Continued.

Lowest daily water level, in feet below land-surface datum, 1943
(From recorder charts)

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
22	.....	76.27	75.96	75.91	76.37	76.51	76.86	77.31	77.44	77.68	77.76	77.82
23	.....	76.22	75.95	75.86	76.01	76.51	76.92	77.33	77.48	77.64	77.79	77.94
24	.....	76.39	75.88	75.91	75.95	76.54	76.93	77.34	77.49	77.58	77.78	77.94
25	76.45	76.42	75.78	75.90	75.97	76.60	76.96	77.36	77.45	77.66	77.74	77.83
26	76.49	76.44	75.67	75.90	76.06	76.62	76.94	77.38	77.44	77.66	77.67	77.66
27	76.49	76.44	75.71	75.94	76.12	76.59	76.92	77.37	77.46	77.63	77.67	77.78
28	76.44	76.29	75.84	76.02	76.14	76.57	76.94	77.41	77.42	77.63	77.66	77.75
29	76.40	.....	75.90	76.02	76.14	76.59	76.95	77.42	77.43	77.65	77.72	77.80
30	76.42	.....	75.88	76.08	76.09	76.66	77.01	77.44	77.40	77.61	77.74	77.76
31	76.45	.....	75.80	.....	76.08	.....	77.03	77.43	.....	77.63	.....	77.83

79:3-A (*817, pp. 316-317; 840, p. 375; *845, pp. 437, 438-439; 886, p. 648; 907, pp. 97-98; 937, pp. 95-96; 945, p. 128). Formerly designated as Sycamore Avenue well, established as an observation well in 1938 to replace the Auction Avenue "wet well," 150 yards to the south. Memphis Light, Gas, and Water Division. In Memphis, on southwest corner of Fifth and Sycamore Streets. This well is a work shaft connecting with drifts and tunnels of the old Auction Avenue well field, with which the Auction Avenue "wet well" also connected; water levels at the two locations are believed to be about the same. Measuring point, cast-iron rim of 30-inch manhole, 0.4 foot above land-surface datum, 42 feet above arbitrary datum used 1938-39, 142 feet above arbitrary datum used 1940-42, and about 230 feet above mean sea level. Equipped with water-stage recorder.

Lowest daily water level, in feet below land-surface datum, 1943
(From recorder charts)

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	42.05	41.05	38.96	42.35	44.64	51.30	54.65	56.38	52.06	48.76	47.09
2	.....	41.71	41.35	39.06	42.34	44.88	51.55	.....	56.63	52.14	48.75	47.15
3	.....	41.44	41.50	39.07	41.85	45.28	51.55	54.01	56.67	52.14	48.76	47.21
4	a41.00	41.57	41.61	39.00	41.97	45.87	51.53	54.31	56.66	51.83	48.70	47.22
5	.....	41.58	41.61	38.87	42.36	46.19	50.74	54.38	56.42	51,42	.....	47.17
6	.....	41.59	41.50	38.98	43.03	46.20	50.95	54.40	55.64	.....	.....	46.90
7	.....	41.59	41.50	38.97	44.10	45.64	52.00	54.36	.....	.....	.....	46.90
8	.....	41.24	41.25	38.99	44.98	46.20	52.40	54.40	55.34	.....	48.04	46.88
9	.....	40.66	41.09	39.87	45.08	46.98	52.85	54.15	55.55	.....	47.93	.....
10	.....	40.52	41.14	40.75	45.10	47.45	53.08	54.20	55.74	.....	47.96	.....
11	39.85	40.54	41.10	40.90	45.84	48.07	53.25	54.80	55.74	50.96	47.90	.....
12	39.60	40.46	41.07	40.92	45.97	48.56	52.74	55.05	55.30	51.17	47.81	.....
13	39.45	40.42	41.20	41.60	46.53	48.60	53.10	55.10	54.26	51.43	47.85	46.75
14	39.25	40.29	41.21	42.32	46.91	48.20	53.60	55.16	54.45	51.43	47.93	46.73
15	39.10	39.95	41.16	42.39	46.91	48.54	53.62	55.17	54.78	51.18	47.83	46.76
16	39.12	39.73	.....	42.36	46.96	49.32	54.02	54.67	55.02	50.97	47.42	46.78
17	39.20	39.85	.....	42.33	46.61	50.15	54.32	.....	55.08	50.71	47.25	46.88
18	39.13	40.16	.....	42.24	47.26	50.30	54.34	.....	54.98	50.77	47.23	46.84
19	39.50	40.25	.....	41.20	47.71	50.32	53.85	.....	54.47	49.71	47.53	46.83
20	39.73	40.25	.....	40.88	48.23	50.32	54.31	.....	54.27	49.86	47.73	46.79
21	40.15	40.13	.....	40.63	48.53	50.18	54.95	.....	53.91	50.20	.....	46.66
22	40.87	39.77	40.40	40.55	48.53	50.42	55.14	.....	53.47	50.43	47.78	46.95
23	41.27	39.74	40.62	40.49	48.03	50.98	55.45	a54.18	.....	50.42	47.78	47.12
24	41.38	40.00	40.62	40.64	46.82	51.30	55.70	.....	.....	50.21	47.83	47.14
25	41.61	40.27	40.69	40.70	45.67	51.55	55.75	.....	.....	49.85	47.83	46.99
26	42.10	40.71	40.68	40.47	46.08	51.55	55.20	.....	.....	49.60	47.64	46.53
27	42.45	40.97	40.37	40.69	46.13	51.53	54.56	56.76	51.38	49.47	47.47	45.84
28	42.60	41.00	39.85	41.33	46.14	50.73	54.62	56.92	51.38	49.40	47.35	45.41
29	42.75	.....	39.37	41.73	46.07	50.42	54.62	56.92	51.54	.....	47.05	45.49
30	42.75	.....	39.01	42.25	45.65	50.98	54.63	56.00	51.76	.....	46.98	45.67
31	42.61	.....	39.02	.....	45.11	.....	54.63	55.86	.....	.....	.....	45.83

a Tape measurement.

79:5-193 (*817, pp. 317-319; 840, p. 374; 845, p. 438; 886, p. 648; 907, pp. 96-97; 937, pp. 94-95; 945, pp. 127-128). Formerly designated as Central Avenue well. Memphis Light, Gas, and Water Division. In Memphis, in Peabody Park, near Central Avenue and Tanglewood Street. This is an abandoned well of the old Central Avenue well field. Measuring point, rim of 13-inch (inside diameter) T-pipe, 4.5 feet above land-surface datum, 85 feet above arbitrary datum used 1936-39, 185 feet above arbitrary datum used 1940-42, and about 292 feet above mean sea level.

Lowest daily water level, in feet below land-surface datum, 1943
(From recorder charts)

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	a87.53	86.69	86.35	87.02	87.61	88.70	.....	93.53	.....	.....	a92.13	91.08
2	.....	86.55	86.55	87.01	87.47	88.90	.....	93.35	.....	.....	.....	91.11
3	.....	86.69	86.60	87.02	87.07	89.02	.....	93.34	.....	.....	.....	91.30
4	.....	87.98	86.62	86.96	87.40	89.15	.....	93.52	.....	92.12	.....	91.35
5	.....	87.05	86.62	a86.52	87.50	89.20	.....	93.67	.....	91.55	.....	91.34
6	.....	87.28	86.56	.....	87.79	89.17	91.60	93.72	a95.28	92.00	.....	91.04
7	.....	87.28	86.56	.....	87.77	89.15	91.93	93.69	.....	93.25	.....	91.10
8	.....	86.93	86.60	.....	87.97	89.35	92.25	93.56	.....	92.95	a92.06	91.37
9	.....	86.93	86.75	.....	87.96	89.55	92.44	93.48	.....	92.59	.....	91.51
10	.....	87.05	86.79	.....	87.92	89.69	92.50	93.57	.....	.....	.....	91.52
11	a86.75	87.09	86.77	.....	88.15	89.83	92.55	93.84	.....	92.59	.....	91.44
12	.....	87.23	86.80	86.51	88.35	89.84	92.60	94.02	.....	92.75	.....	91.22
13	.....	87.23	86.85	86.89	88.80	89.84	92.70	94.03	a93.13	.....	.....	90.91
14	.....	87.02	86.85	87.29	89.07	89.85	92.82	94.05	.....	92.57	.....	90.84
15	.....	86.73	86.67	87.29	89.15	89.98	92.82	94.02	.....	.....	a91.58	90.97
16	.....	86.72	86.70	87.28	89.25	90.48	92.90	94.03	.....	.....	.....	91.15
17	.....	86.58	86.66	87.35	89.36	90.86	92.95	94.37	.....	.....	.....	91.47
18	a86.31	86.63	86.65	87.35	89.54	90.83	92.95	94.38	94.23	92.12	.....	91.55
19	.....	86.65	86.86	87.03	89.80	91.05	93.14	94.35	93.74	92.19	92.35	.....
20	.....	86.65	87.15	87.08	90.02	91.05	93.33	94.23	93.97	92.20	92.75	91.78
21	.....	86.33	87.22	87.37	90.15	91.08	93.53	94.14	94.05	92.76	92.30	91.90
22	.....	86.10	87.35	87.43	90.15	91.24	93.63	94.45	94.08	92.95	92.10	92.05
23	.....	86.25	87.35	87.48	90.03	91.45	93.80	94.45	94.09	92.84	92.10	92.17
24	.....	86.52	87.35	87.46	89.42	91.47	93.80	94.23	93.96	92.70	92.10	92.17
25	a86.55	86.62	87.32	87.35	89.01	91.43	93.75	94.51	94.15	92.61	92.38	91.88
26	.....	86.75	87.25	87.14	88.99	91.48	93.63	94.74	94.25	92.61	91.68	.....
27	.....	86.74	87.13	87.16	88.25	91.70	93.55	.....	93.58	92.55	91.70	90.86
28	.....	86.55	87.01	87.37	89.32	91.68	93.48	.....	93.55	92.49	91.56	91.04
29	.....	.....	87.11	87.46	89.32	.....	93.50	.....	93.10	92.65	91.30	91.15
30	.....	.....	87.11	87.61	89.20	.....	93.56	a94.33	.....	.....	91.18	91.48
31	.....	.....	87.06	.....	88.86	.....	93.56	.....	.....	.....	.....	91.57

79:7-17 (*907, p. 99; 937, p. 98; 945, p. 127). Formerly designated as well 17. Memphis Light, Gas, and Water Division. In Memphis, on North Parkway at end of North Garland Street. Formerly part of North Parkway well field. Drilled well, diameter 8 inches, depth 522 feet. Measuring point, top of 12-inch flange, 1.4 feet below top of wood floor over concrete well pit, 7.1 feet above land-surface datum, 100 feet above arbitrary datum previously used, and about 257 feet above mean sea level. Equipped with water-stage recorder.

Lowest daily water level, in feet below land-surface datum, 1943
(From recorder charts)

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	75.81	70.81	71.20	76.68	78.08	80.72	85.16	88.65	91.60	83.90	79.55	77.54
2	75.58	71.31	72.10	76.98	75.01	79.55	86.36	87.52	91.35	84.01	79.71	76.78
3	75.60	73.26	70.46	76.58	77.96	79.80	87.05	89.00	88.90	84.01	79.77	77.12
4	72.76	74.43	70.17	76.58	79.31	80.31	85.66	88.32	88.32	80.08	79.10	77.30
5	.....	76.02	70.17	74.88	76.61	81.98	85.02	88.39	86.80	79.86	79.43	77.31
6	.....	76.40	69.87	75.28	77.47	79.28	88.30	88.22	92.70	79.95	79.85	76.84
7	.....	74.70	69.57	73.69	78.13	80.68	89.70	89.08	86.70	82.40	79.40	76.78
8	.....	74.83	73.35	75.47	78.40	82.44	89.56	88.32	88.55	82.40	78.53	76.82
9	.....	74.98	74.27	75.93	76.75	82.52	90.22	87.88	89.00	83.16	78.90	77.05
10	.....	74.90	72.44	76.14	79.16	83.25	91.12	90.90	89.34	83.16	78.92	77.15
11	a69.89	76.02	71.30	74.79	81.52	83.61	90.25	91.62	85.95	78.79	78.60	74.75
12	.....	76.11	71.74	75.12	80.38	84.20	90.05	88.70	85.40	82.26	79.58	74.09
13	.....	73.91	71.95	75.51	84.07	81.68	91.84	89.52	84.58	81.36	80.32	76.61

a Tape measurement.

79:7-17. Memphis Light, Gas, and Water Division--Continued.

Lowest daily water level, in feet below land-surface datum, 1943
(From recorder charts)

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
14	70.85	72.79	71.70	76.14	84.95	82.75	92.72	90.92	85.30	81.06	79.51	72.65
15	72.75	73.19	73.40	75.10	83.87	85.57	90.78	89.72	85.62	81.36	78.18	76.06
16	73.20	72.32	74.94	74.62	81.76	88.42	90.78	90.90	86.01	81.51	77.52	77.48
17	70.80	73.98	75.00	74.79	83.10	89.33	91.22	91.96	86.15	80.96	76.75	77.90
18	69.93	77.06	74.90	74.75	85.49	.....	91.00	89.68	86.85	79.25	76.80	78.60
19	70.93	75.38	78.85	74.85	86.00	.....	92.55	89.86	84.52	79.25	78.40	79.01
20	73.20	71.73	79.51	76.16	83.61	.....	93.20	89.91	82.44	82.58	79.18	78.44
21	75.55	70.60	79.94	76.43	83.84	85.75	93.45	89.12	82.20	83.92	79.19	78.45
22	76.45	71.97	80.52	74.56	82.32	89.54	92.34	87.90	85.40	83.97	77.99	78.96
23	76.81	72.42	79.92	.....	78.85	.....	93.15	86.40	85.42	82.92	77.99	78.60
24	75.88	71.90	79.86	.....	77.47	.....	90.70	90.60	84.60	82.92	78.30	78.42
25	74.91	72.21	79.27	.....	77.53	87.92	90.20	91.65	84.25	81.30	78.65	77.66
26	75.70	74.58	78.98	74.79	80.53	.....	88.09	93.80	83.30	81.30	78.80	76.15
27	76.89	74.80	77.09	74.90	82.11	86.01	87.90	93.51	82.15	81.19	77.80	76.55
28	76.89	71.91	76.86	76.69	80.48	85.86	87.95	90.74	82.04	80.88	77.01	77.28
29	.....	.....	76.98	77.87	80.28	87.00	88.22	88.10	83.76	80.92	77.28	77.98
30	.....	.....	77.00	76.60	78.93	87.70	88.98	86.61	83.74	81.95	78.45	78.38
31	.....	.....	74.43	.....	77.61	.....	89.04	89.90	.....	81.95	.....	78.27

79:20-4. Memphis Generating Co., 788 South Fourth Street, Memphis. In Memphis, in west-central section of company's property, adjoining South Fourth Street, about 200 yards south of railroad overpass. Used drilled industrial well. Measuring point, top of 14-inch casing, about 0.8 foot above land-surface datum and about 281 feet above mean sea level.

Water level, in feet below land-surface datum, 1940-43

Date	Hour	Water level	Date	Hour	Water level
Sept. 26, 1940	3:17 p.m.	90.34	June 24, 1941	11:40 a.m.	99.45
Oct. 2	3:20 p.m.	91.96	July 2	1:00 p.m.	99.20
9	3:00 p.m.	91.35	Aug. 4	1:00 p.m.	99.20
17	2:45 p.m.	89.56	8	2:15 p.m.	106.20
31	3:00 p.m.	91.74	11	12:30 p.m.	103.90
Nov. 7	10:30 a.m.	90.33	18	1:00 p.m.	103.55
14	3:10 p.m.	89.34	27	2:30 p.m.	103.20
21	2:00 p.m.	89.20	Sept. 6	11:15 a.m.	102.00
29	3:45 p.m.	90.04	11	3:40 p.m.	102.63
Dec. 5	2:30 p.m.	90.92	16	2:30 p.m.	101.80
11	4:00 p.m.	90.07	18	2:30 p.m.	101.70
18	3:45 p.m.	90.10	20	11:00 a.m.	102.40
24	11:00 a.m.	89.08	23	2:30 p.m.	104.16
31	3:30 p.m.	88.62	26	11:15 a.m.	102.60
Jan. 6, 1941	3:45 p.m.	84.66	29	1:15 p.m.	100.40
14	1:20 p.m.	87.92	Oct. 1	11:00 a.m.	103.40
20	10:00 a.m.	87.61	6	2:40 p.m.	102.85
27	11:30 a.m.	86.60	9	1:00 p.m.	104.00
Feb. 3	3:00 p.m.	86.60	13	2:45 p.m.	100.33
11	1:15 p.m.	87.40	15	1:00 p.m.	103.00
17	1:15 p.m.	86.70	18	11:00 a.m.	100.26
25	11:00 a.m.	88.50	20	2:00 p.m.	99.70
Mar. 4	1:00 p.m.	89.77	22	10:15 a.m.	101.78
10	11:15 a.m.	88.62	25	11:00 a.m.	101.23
18	3:15 p.m.	90.20	27	4:15 p.m.	102.60
25	2:30 p.m.	88.70	29	1:45 p.m.	101.00
Apr. 2	11:30 a.m.	87.52	Nov. 1	9:15 a.m.	96.50
8	11:30 a.m.	90.07	4	12:45 p.m.	97.29
15	2:00 p.m.	92.35	8	11:30 a.m.	97.12
23	10:00 a.m.	89.22	12	10:20 a.m.	96.50
29	11:00 a.m.	91.82	15	10:30 a.m.	94.80
May 5	11:00 a.m.	92.58	18	3:30 p.m.	95.08
14	8:40 a.m.	92.86	20	10:30 a.m.	94.45
21	4:00 p.m.	98.78	22	9:30 a.m.	93.39
26	3:30 p.m.	96.69	26	11:00 a.m.	94.59
29	2:00 p.m.	99.70	Dec. 1	1:00 p.m.	94.35
June 3	1:30 p.m.	97.27	3	11:30 a.m.	93.45
9	1:30 p.m.	98.58	5	11:30 a.m.	94.40
16	4:00 p.m.	98.90	8	4:30 p.m.	93.67

79:20-4. Memphis Generating Co.--Continued.

Water level, in feet below land-surface datum, 1940-43

Date	Hour	Water level	Date	Hour	Water level
Dec. 10, 1941	12:00 noon	92.37	Nov. 2, 1942	1:10 p.m.	95.04
12	11:30 a.m.	94.40	9	1:00 p.m.	93.50
15	2:00 p.m.	93.40	16	1:00 p.m.	93.90
17	12:00 noon	91.77	23	1:10 p.m.	94.88
19	2:00 p.m.	92.60	30	12:35 p.m.	92.49
23	11:45 a.m.	93.68	Dec. 7	1:00 p.m.	93.99
27	12:30 p.m.	92.07	14	1:00 p.m.	90.85
30	1:30 p.m.	92.89	21	1:00 p.m.	92.70
Jan. 2, 1942	1:30 p.m.	91.78	28	12:30 p.m.	89.35
6	1:00 p.m.	91.59	Jan. 4, 1943	1:00 p.m.	91.15
9	2:30 p.m.	93.52	11	1:00 p.m.	91.48
13	12:45 p.m.	94.12	18	1:00 p.m.	90.18
20	11:00 a.m.	92.90	25	8:30 a.m.	89.67
23	8:00 a.m.	93.00	Feb. 1	1:00 p.m.	90.66
27	12:00 noon	92.75	8	1:00 p.m.	90.10
Feb. 3	11:00 a.m.	93.12	15	1:00 p.m.	91.32
6	4:00 p.m.	93.42	22	12:00 noon	90.30
10	11:15 a.m.	92.80	Mar. 1	12:30 p.m.	93.12
17	11:00 a.m.	90.60	8	1:00 p.m.	92.24
21	8:15 a.m.	88.62	15	12:00 noon	92.43
24	10:45 a.m.	88.90	22	12:00 noon	89.40
Mar. 3	10:45 a.m.	91.45	29	12:30 p.m.	89.90
10	11:45 a.m.	92.28	Apr. 5	1:00 p.m.	90.83
13	10:00 a.m.	92.33	12	12:00 noon	91.35
17	8:00 a.m.	90.08	19	2:00 p.m.	91.05
24	8:00 a.m.	88.35	26	12:00 noon	89.47
27	8:00 a.m.	87.80	May 10	12:30 p.m.	93.31
31	8:00 a.m.	89.60	17	1:00 p.m.	95.20
Apr. 4	3:45 p.m.	91.52	24	11:15 a.m.	91.22
7	8:00 a.m.	91.18	31	12:10 p.m.	96.25
13	8:00 a.m.	89.30	June 8	8:30 a.m.	97.19
17	8:00 a.m.	90.90	14	1:00 p.m.	98.18
21	8:00 a.m.	89.65	21	1:00 p.m.	103.70
27	8:00 a.m.	90.70	28	2:00 p.m.	104.65
May 4	8:00 a.m.	95.65	July 5	2:00 p.m.	100.95
11	8:00 a.m.	94.00	12	12:00 noon	104.95
18	10:15 a.m.	95.16	19	11:45 a.m.	106.95
22	9:15 a.m.	94.31	26	12:00 noon	109.20
25	10:15 a.m.	93.15	Aug. 2	12:00 noon	107.80
June 1	9:30 a.m.	96.50	9	11:45 a.m.	107.30
8	8:50 a.m.	98.92	16	11:30 a.m.	108.90
15	8:50 a.m.	97.24	23	12:00 noon	108.80
22	8:31 a.m.	97.63	30	12:45 p.m.	108.40
29	8:50 a.m.	97.40	Sept. 6	2:15 p.m.	109.00
July 6	8:20 a.m.	97.79	13	11:45 a.m.	106.67
13	7:30 a.m.	100.40	20	1:15 p.m.	103.40
20	7:30 a.m.	101.30	27	1:15 p.m.	101.70
27	7:35 a.m.	101.49	Oct. 4	12:45 p.m.	107.20
Aug. 3	7:45 a.m.	103.84	11	1:15 p.m.	104.35
10	7:35 a.m.	100.21	25	1:40 p.m.	104.20
24	11:17 a.m.	103.73	Nov. 1	1:00 p.m.	99.24
31	7:30 a.m.	98.20	8	1:40 p.m.	104.70
Sept. 7	7:30 a.m.	96.98	15	12:45 p.m.	103.20
14	10:30 a.m.	97.55	22	12:30 p.m.	100.60
21	10:38 a.m.	97.98	29	2:20 p.m.	99.83
Oct. 5	2:00 p.m.	100.05	Dec. 13	1:00 p.m.	97.93
12	7:30 a.m.	101.11	20	2:40 p.m.	97.60
26	1:05 p.m.	99.06	27	1:30 p.m.	96.40

79:32-4. Bannon Ice & Fuel Co., Seventh Street and Auction Avenue, Memphis. In Memphis, at company's plant, in northeast corner of engine room, next to ice-making machinery. Used drilled industrial well, diameter 8 inches (?), depth unknown. Measuring point, top of 4- by 2-inch reducer, 3.7 feet above land-surface datum and about 234 feet above mean sea level.

Water level, in feet below land-surface datum, 1939-43

Date	Hour	Water level	Date	Hour	Water level
Dec. 15, 1939	.....	41.20	Dec. 4, 1940	1:45 p.m.	42.57
16	.....	41.27	6	12:30 p.m.	42.45
17	.....	41.07	9	1:45 p.m.	41.17
18	.....	40.18	11	11:00 a.m.	42.78
19	.....	40.65	13	1:00 p.m.	43.19
20	.....	40.85	16	9:15 a.m.	42.10
21	.....	40.98	18	10:45 a.m.	42.58
22	.....	40.95	20	11:45 a.m.	43.16
26	.....	37.73	23	2:45 p.m.	42.24
27	.....	38.53	30	10:10 a.m.	40.60
28	.....	40.20	Jan. 2, 1941	9:50 a.m.	40.96
29	.....	39.50	3	11:30 a.m.	42.10
30	.....	39.84	6	1:00 p.m.	41.85
31	.....	37.15	13	9:50 a.m.	40.96
Jan. 2, 1940	.....	37.25	14	1:50 p.m.	41.97
3	.....	36.95	16	1:00 p.m.	41.76
4	.....	36.95	20	2:15 p.m.	41.77
6	.....	38.30	21	1:15 p.m.	42.49
7	.....	38.05	23	2:00 p.m.	43.04
8	.....	37.80	25	10:00 a.m.	42.26
Aug. 27	12:45 p.m.	45.51	27	10:20 a.m.	41.28
28	12:00 noon	47.15	30	11:45 a.m.	41.59
29	12:00 noon	47.00	Feb. 1	11:30 a.m.	42.46
30	11:30 a.m.	47.10	3	9:40 a.m.	40.70
31	12:00 noon	47.10	10	10:15 a.m.	40.70
Sept. 2	12:00 noon	44.65	12	1:00 p.m.	42.39
3	12:00 noon	43.85	14	4:45 p.m.	42.94
5	12:00 noon	47.10	17	3:00 p.m.	41.80
6	12:00 noon	47.05	20	3:00 p.m.	42.20
7	11:45 a.m.	47.24	22	10:30 a.m.	42.33
8	3:00 p.m.	44.85	24	3:15 p.m.	41.24
9	12:00 noon	45.40	26	1:00 p.m.	41.94
26	9:40 a.m.	46.72	Mar. 1	11:30 a.m.	42.30
Oct. 2	9:15 a.m.	44.35	3	11:35 a.m.	40.36
3	11:20 a.m.	44.76	6	1:15 p.m.	41.30
4	3:00 p.m.	45.48	10	10:30 a.m.	40.32
5	8:45 a.m.	45.51	12	1:15 p.m.	41.72
7	2:00 p.m.	44.60	17	3:40 p.m.	41.75
8	1:00 p.m.	44.98	20	11:30 a.m.	41.87
9	12:00 noon	44.98	24	2:00 p.m.	40.85
11	9:00 a.m.	44.30	27	1:30 p.m.	42.19
14	10:45 a.m.	42.94	31	3:25 p.m.	41.42
17	3:15 p.m.	42.94	Apr. 3	1:00 p.m.	42.22
18	8:40 a.m.	43.09	5	10:30 a.m.	42.96
19	9:45 a.m.	43.95	7	3:00 p.m.	42.20
21	9:00 a.m.	42.77	10	1:00 p.m.	43.28
23	3:00 p.m.	44.35	14	3:20 p.m.	44.35
25	2:35 p.m.	43.63	17	3:00 p.m.	46.78
29	4:00 p.m.	45.09	18	1:05 p.m.	46.46
31	3:45 p.m.	43.24	21	3:20 p.m.	45.38
Nov. 4	4:30 p.m.	41.47	24	11:45 a.m.	44.22
6	12:45 p.m.	42.63	26	11:30 a.m.	44.67
12	4:00 p.m.	41.65	28	12:15 p.m.	43.46
13	2:20 p.m.	41.95	30	1:30 p.m.	45.17
20	9:20 a.m.	43.04	May 3	11:00 a.m.	47.25
21	12:25 p.m.	43.75	5	10:35 a.m.	46.66
23	11:35 a.m.	43.78	7	2:15 p.m.	47.52
29	4:00 p.m.	42.72	9	2:30 p.m.	48.30
Dec. 2	10:15 a.m.	41.48	12	9:00 a.m.	45.96
3	3:15 p.m.	42.72	15	8:15 a.m.	47.60

79:32-4. Bannon Ice & Fuel Co.--Continued.

Water level, in feet below land-surface datum, 1939-43

Date	Hour	Water level	Date	Hour	Water level
May 19, 1941	3:30 p.m.	48.80	Nov. 26, 1941	11:30 a.m.	48.27
22	11:20 a.m.	51.53	Dec. 1	1:30 p.m.	46.89
24	8:15 a.m.	51.32	3	11:15 a.m.	47.60
26	10:45 a.m.	49.30	5	11:00 a.m.	47.87
June 9	8:15 a.m.	50.93	8	4:00 p.m.	46.70
11	11:15 a.m.	53.78	10	11:30 a.m.	46.40
16	3:40 p.m.	51.70	12	11:00 a.m.	46.50
24	11:20 a.m.	52.82	15	1:30 p.m.	46.05
26	9:40 a.m.	54.63	17	11:45 a.m.	47.45
30	11:00 a.m.	54.70	19	1:30 p.m.	47.54
July 2	4:15 p.m.	57.50	23	11:30 a.m.	46.70
5	10:15 a.m.	54.50	27	1:00 p.m.	45.82
7	3:30 p.m.	53.83	30	9:30 a.m.	44.74
9	10:40 a.m.	55.40	Jan. 2, 1942	2:00 p.m.	48.38
11	9:30 a.m.	55.65	6	1:30 p.m.	45.12
14	9:00 a.m.	52.70	9	2:00 p.m.	46.02
17	11:50 a.m.	55.20	13	1:00 p.m.	46.30
19	9:20 a.m.	54.70	20	10:30 a.m.	47.20
21	2:45 p.m.	53.95	23	8:30 a.m.	48.60
24	1:45 p.m.	55.67	27	11:45 a.m.	47.57
28	4:30 p.m.	53.95	Feb. 3	10:45 a.m.	46.98
30	3:30 p.m.	55.45	6	4:30 p.m.	48.20
Aug. 2	10:15 a.m.	56.13	10	10:45 a.m.	45.82
4	12:00 noon	53.93	17	10:45 a.m.	43.58
8	1:30 p.m.	57.20	21	8:30 a.m.	46.48
11	3:20 p.m.	55.70	24	11:00 a.m.	45.25
18	2:00 p.m.	55.43	Mar. 3	10:15 a.m.	45.20
19	3:05 p.m.	57.02	10	11:25 a.m.	44.94
21	1:25 p.m.	56.19	17	8:15 a.m.	45.00
25	9:45 a.m.	53.62	24	8:15 a.m.	45.05
27	2:15 p.m.	56.40	27	8:30 a.m.	45.75
29	8:45 a.m.	55.85	31	8:30 a.m.	45.75
Sept. 2	4:30 p.m.	53.62	Apr. 4	4:00 p.m.	46.32
4	1:40 p.m.	54.02	7	8:30 a.m.	43.90
6	8:30 a.m.	54.05	13	8:30 a.m.	42.12
8	3:30 p.m.	53.44	17	8:30 a.m.	43.22
11	2:15 p.m.	54.38	21	8:30 a.m.	43.15
16	2:50 p.m.	54.06	27	8:30 a.m.	43.63
18	2:45 p.m.	54.27	May 4	8:30 a.m.	48.80
20	10:30 a.m.	54.97	11	8:30 a.m.	47.65
23	3:30 p.m.	54.73	18	10:30 a.m.	45.94
26	10:45 a.m.	55.48	22	9:30 a.m.	47.98
29	11:30 a.m.	53.13	25	10:30 a.m.	45.17
Oct. 1	10:30 a.m.	54.00	June 1	10:15 a.m.	50.00
3	4:40 p.m.	55.67	8	9:05 a.m.	52.58
6	2:50 p.m.	54.67	15	9:15 a.m.	51.30
9	1:30 p.m.	56.20	22	8:52 a.m.	51.83
11	11:00 a.m.	55.06	29	9:10 a.m.	51.66
13	3:15 p.m.	53.10	July 6	8:40 a.m.	50.49
15	8:30 a.m.	53.33	13	7:45 a.m.	52.73
18	10:15 a.m.	53.38	20	8:00 a.m.	54.40
20	1:30 p.m.	52.74	27	8:10 a.m.	55.44
22	10:50 a.m.	53.72	Aug. 3	8:32 a.m.	57.88
25	11:30 a.m.	54.38	10	10:10 a.m.	55.69
27	4:00 p.m.	52.32	17	9:45 a.m.	56.46
29	3:00 p.m.	52.03	24	11:28 a.m.	56.22
Nov. 1	8:45 a.m.	49.95	31	7:45 a.m.	54.78
4	1:00 p.m.	49.20	Sept. 7	8:50 a.m.	55.47
8	11:15 a.m.	48.70	14	10:45 a.m.	55.47
12	11:30 a.m.	48.34	21	10:15 a.m.	54.26
15	11:00 a.m.	46.49	Oct. 5	10:20 a.m.	52.62
18	3:00 p.m.	46.26	12	7:45 a.m.	53.08
20	11:00 a.m.	47.41	26	8:45 a.m.	51.47
22	9:00 a.m.	47.77	Nov. 2	9:15 a.m.	49.06

79:32-4. Bannon Ice & Fuel Co.---Continued.

Water level, in feet below land-surface datum, 1939-43

Date	Hour	Water level	Date	Hour	Water level
Nov. 9, 1942	9:25 a.m.	49.68	June 7, 1943	8:35 a.m.	51.20
16	9:20 a.m.	50.14	14	8:30 a.m.	54.20
23	9:20 a.m.	49.37	21	9:10 a.m.	56.55
30	12:20 p.m.	48.35	28	9:00 a.m.	57.20
Dec. 7	8:55 a.m.	47.56	July 5	8:10 a.m.	57.06
14	9:10 a.m.	46.45	12	8:30 a.m.	59.25
21	8:35 a.m.	48.83	19	8:30 a.m.	60.56
28	8:45 a.m.	46.06	26	8:20 a.m.	61.14
Jan. 4, 1943	8:30 a.m.	45.30	Aug. 2	8:15 a.m.	59.75
11	9:00 a.m.	44.39	9	8:20 a.m.	60.25
18	9:15 a.m.	44.33	16	8:00 a.m.	50.90
25	8:50 a.m.	47.10	23	8:30 a.m.	60.65
Feb. 1, 1943	9:10 a.m.	46.98	30	8:15 a.m.	51.26
8	9:10 a.m.	45.48	Sept. 6	8:00 a.m.	60.76
15	8:40 a.m.	44.87	13	8:30 a.m.	60.10
22	9:00 a.m.	44.81	20	8:30 a.m.	58.65
Mar. 1	9:30 a.m.	46.90	27	8:30 a.m.	57.06
8	9:50 a.m.	46.68	Oct. 4	8:30 a.m.	57.06
15	8:30 a.m.	46.04	11	8:45 a.m.	56.10
22	8:30 a.m.	47.33	18	8:30 a.m.	54.96
29	8:20 a.m.	44.70	25	9:00 a.m.	54.84
Apr. 5	8:30 a.m.	45.32	Nov. 1	8:40 a.m.	53.63
12	7:30 a.m.	47.24	8	9:00 a.m.	52.68
19	10:00 a.m.	46.27	15	8:30 a.m.	52.70
26	8:27 a.m.	45.73	22	8:20 a.m.	52.84
May 10	8:30 a.m.	51.23	29	8:50 a.m.	51.78
17	7:35 a.m.	52.94	Dec. 13	8:45 a.m.	52.56
24	7:45 a.m.	51.48	20	9:00 a.m.	51.80
31	8:30 a.m.	50.12	27	9:00 a.m.	52.85

VIRGINIA

By D. J. Cederstrom and J. M. Berdan

PROGRAM OF WORK

The periodic measurement of water levels in wells in Virginia began in June 1928 with a measurement made in a dug well at Rosslyn, Arlington County, near Washington, D. C. Ever since that time this well, known as the Ross well, has furnished a continuing record of water-level fluctuations and for several years past has been equipped with an automatic water-stage recorder. Since the summer of 1931 the Geological Survey, United States Department of the Interior, has carried on a program of water-level measurements in the State, in which, during the years 1931-33 and beginning again in 1938, the Virginia Geological Survey, Arthur Bevan, State Geologist, has cooperated. At the end of 1943, 30 observation wells were included under the program, of which 9 are equipped with water-stage recorders. Tape measurements of water level were made from time to time during the year in all the wells--in 24 of them weekly or about weekly, in 3, quarterly, in 2, at irregular intervals, and in 1 (Camp Peary well D6), irregularly until the end of May and weekly thereafter. The total number made during the year was 1,180.

The observation-well program in Virginia forms part of a long-range, systematic investigation of the ground-water resources of the State, which was begun in 1938 by the Federal and State Geological Surveys. More progress was made on this investigation in 1943 than in either of the two preceding years. During the first half of the year the program of water-level measurements was intensified at Camp Peary, near Williamsburg, and well waters in the area were sampled for possible increases in chloride content. Later, when a surface-water supply for the camp became available, wells were used only to supplement that supply, and the intensive program was discontinued. One well, however, on which an automatic water-stage recorder is maintained, was selected for continuing observation. During

the second half of the year, work on a comprehensive report on the Coastal Plain south of the James River, which had been in progress for some time, was completed. A report entitled "Deep wells in the Coastal Plain of Virginia" was published in The Commonwealth (Richmond, Va.), vol. 10, No. 4, pp. 20-21, 56, and reprinted, with tables of well records, as Virginia Geological Survey Reprint Series No. 6. Another report, "Chloride in ground waters of the Coastal Plain of Virginia," was issued as Virginia Geological Survey Bulletin 58.

FLUCTUATIONS OF WATER LEVEL

The northern part of Virginia, which is represented in this report by Arlington and Fairfax Counties, lies west of the Fall Zone, and the observation wells in these counties are in crystalline rocks. The wells are shallow, and the chief factor determining the fluctuations of their water levels is precipitation. The southeastern part of the State, which includes Chesterfield, Isle of Wight, Nansemond, Prince George, Southampton, Sussex, Warwick, and York Counties, lies along the Fall Zone and east of it, on the Coastal Plain, and in this part all but one of the observation wells tap water deep in sedimentary rocks. Until recently it was thought that the fluctuations of water level in the artesian wells were determined almost entirely by industrial pumping, but it now seems likely that they are determined also, to some degree, by precipitation or the lack of it.

The precipitation and departure from normal at Washington, D. C., in 1943, which are representative of the precipitation in the northern part of Virginia, are given for each month of the year in the following table:

Precipitation and departure from normal precipitation at Washington, D. C., in inches, 1943
(From Monthly Meteorological Summary, U. S. Weather Bureau)

Month	Recorded precipitation	Normal precipitation	Departure from normal	Accumulated departure from normal
January	2.87	3.55	-0.68	-0.68
February	2.02	3.27	-1.25	-1.93
March	4.31	3.75	+.56	-1.37
April	3.30	3.27	+.03	-1.34
May	4.04	3.70	+.34	-1.00
June	2.43	4.13	-1.70	-2.70
July	1.46	4.71	-3.25	-5.95
August	.74	4.01	-3.27	-9.22
September	2.88	3.24	-.36	-9.58
October	4.29	2.84	+1.45	-8.13
November	4.23	2.37	+1.86	-6.27
December	1.57	3.32	-1.78	-8.05

It will be seen from the preceding table that the accumulated departure from normal precipitation at the end of the year was -8.05 inches. At the end of 1942 the accumulated departure was +9.87 inches. A comparison of the figures for the two years indicates a notable lack of precipitation in 1943, which is reflected in net declines in water level in all the wells in the area.

The table that follows, which is made up of data for 1943 on seven wells in northern Virginia, shows for each its water level in early January and in late December, its highest and lowest levels during the year, the range in level, and the net decline for the year. Only one of the so-called Swart wells, all of which are less than 12 feet in depth, is included among those listed.

Summary of water levels in 7 observation wells in northern Virginia in 1943
(Net decline and range are given in feet; water levels, in feet below land-surface datum)

Well	Water level Jan. 5	Water level Dec. 25-27	Net decline	Highest level	Lowest level	Range in level
Ross	20.95	23.80	-2.85	a 18.09	23.80	5.71
Halls Hill	24.75	27.74	-2.99	21.16	27.74	6.58
Jefferson	21.12	25.08	-3.96	19.00	28.97	9.97
Bell	.68	6.55	-5.87	.16	(b)	....
Swart 162	.85	.95	-.10	.40	2.82	2.42
Bacon	12.02	17.60	-5.58	11.26	18.03	6.77
Carne (1429)	28.60	36.40	-7.80	24.34	36.85	12.51

a From recorder chart.
b Dry.

As shown by this summary table the greatest decline was in the Carne well, at Fairfax, whose water level was 7.80 feet lower at the end of the year than at the beginning. The greatest range in fluctuation, 12.51 feet, was also in the Carne well. The average net decline for the five deeper wells (all except Bell and Swart 162) was 4.63 feet, which represents a substantial decrease in ground-water storage. The water levels in all seven wells were highest sometime during the period March 1 to May 15, which was also a period of above-normal precipitation; from the middle of May to the middle of October, when the precipitation was considerably below normal, they declined more or less steadily. A reversal of the downward trend of the water levels occurred in five of the wells (all except Ross and Halls Hill) in the later part of October, in response to above-normal precipitation, which continued through November, as did also the rise in water level in these wells. In December, however, the downward trend was resumed in four of the five wells. In the fifth, Swart well 162, the water

level fluctuated somewhat in December. Most of the precipitation that brought about the temporary rises fell in two 48-hour periods, October 25-26 and November 8-9, in each of which there was slightly more than 3 inches of rainfall. In the Ross and Halls Hill wells, the downward trend of the water levels that began in May was not halted; they continued to decline and reached their lowest stages of the year at the end of December.

The records of the United States Weather Bureau at Richmond show that the precipitation in the southeastern part of Virginia, as in the northern part, was notably deficient in 1943. At the end of the year there was an accumulated departure from normal of -7.61 inches, as compared with an accumulated departure of +2.62 inches in 1942.

Only one water-table well in southeastern Virginia is included in the well-measurement program, but, as already stated, it is now thought that precipitation may affect artesian as well as water-table wells in the area. A comparison of the water-level records of one of the artesian observation wells with the records of the water-table observation well seems to bear out this theory. In Prince George County well 2 (the Federal Reformatory well), which is 3 miles west of Hopewell and near the Fall Zone, water occurs under artesian conditions; in Chesterfield County well 36, which is about 4 miles southwest of the Federal Reformatory well and on the Fall Zone, water occurs under water-table conditions. Yet the records of water level in the two wells are similar.

Records of other wells, notably the two pumped wells at Hopewell (Prince George County wells 13 and 15), and the Jeb S. White well at Wakefield (Sussex County well 90), which is not pumped but may be affected by the pumping of other wells, also suggest that, during periods of drought or near drought, recharge of the Coastal Plain sediments is adversely affected and that therefore artesian water levels in the greater part of the Coastal Plain area may be lower in drought years than in years of normal precipitation, or that, if water levels have been declining in a particular area, the rate of decline in that area is greater in drought years than in years of normal precipitation. In each of the wells at Hopewell the water level was lower in the 2-year period 1942-43 than in the preceding 3-year period 1939-41, and in the well at Wakefield, although there has been a decline in water level ever since it was first measured, the rate of decline has accelerated.

In the following paragraphs the fluctuations of water level in 1943 in southeastern Virginia are discussed by individual wells, grouped under areas. For convenience, the names of the areas are preceded by the names of the counties in which they are situated.

Chesterfield County (Petersburg area)

Chesterfield County well 36, which is near Petersburg, is a shallow, water-table well in granitic rock. It is known as the Pilcher well. The fluctuations in this well in 1943 and the precipitation at Richmond are shown in figure 7 . In January the water level was about normal, that is, 19 feet below the measuring point, or about 16.4 feet below land-surface datum. In February a gain of more than 2 feet was recorded in spite of the fact that the precipitation was 1.24 feet below normal. This gain occurred because there was practically no transpiration by plants, and therefore what precipitation there was had the opportunity to percolate down to the zone of saturation. Through March and until the middle of April, the water level remained fairly high in consequence of normal rainfall during that period, but from the middle of April to the middle of December it declined steadily and a net loss of about 3.75 feet was recorded. In 3 months of this 8-month period--June, July, and September--the precipitation was only slightly above normal, and in each of the remaining 5 months it was markedly deficient. The accumulated departure from normal for the period April 20 to December 30 was -6.35 inches, and for the entire year it was -7.61 inches. Near the end of the year the water level was 21.04 feet below the measuring point, or 18.34 feet below land-surface datum. This stage is within 0.75 foot of the lowest stage ever recorded, which occurred on January 14, 1942.

Prince George County (Hopewell area)

On April 15, 1943, the water level in Prince George County well 2 (Federal Reformatory well), 3 miles west of Hopewell, was about 21 feet below the measuring point, or 20.70 feet below land-surface datum, which is about 5 feet higher than the lowest stage recorded in June 1942. Sometime before April 27 it began to decline, and, except for temporary rises late in June and early in November, it continued to decline throughout the year. At the end of the year a net decline of 4.36 feet was recorded.

Figure 7.--Graphs showing fluctuations of water level in Chesterfield County well 36 (Pilcher well), near Petersburg, Va., and precipitation, by weeks, at Richmond.

Prince George County wells 13 and 15, owned, respectively, by the Old Dominion Water Co. and the Tubize-Chatillon Co., are both in Hopewell and only about half a mile apart. Both are markedly affected by the pumping of nearby wells owned and operated by the Solvay Process Co. The fluctuations of water level in the two are so similar that the weekly measurements made in well 15, which is equipped with an automatic recorder, serve to check those made in well 13. The measurements recorded for well 13 indicate that artificial recharge of the nearby Solvay Process Co.'s wells began about December 23, 1942. By the end of February 1943 the water level had risen to about 37.5 feet below the measuring point, or 35.44 feet below land-surface datum. It then declined steadily until, toward the end of March, it had reached 39 feet below the measuring point, at about which stage it remained until May 20. Because of this record of only slight decline during the 7-week period indicated, it is thought that artificial recharge of the Solvay Process Co.'s wells ceased late in February. Although the water level in well 13 declined somewhat thereafter, it was 1 foot to 1.5 feet higher than normal in March, April, and the first 3 weeks of May, which may be called the inactive period at the nearby industrial wells; that is, neither recharge nor pumping was in process during that period. This stabilization of the water level at higher than normal stages is attributed to the large volume of water that had been added to the underground reservoir just previous to the inactive period.

On May 20 the Solvay Process Co. began pumping its wells, and in response the water level in well 13 began to decline. By June 8 it had declined about 8 feet and by July 3 about 11 feet. The net decline due to pumping was about 13.5 feet on September 4 and 15 feet on November 1, the end of the pumping season, when the stage was about 54 feet below the measuring point. During the entire heavy pumping season of 1943 the water level was about 2 feet lower than during the corresponding season of 1942 and 4 feet lower than during the corresponding seasons of the years 1939-41.

Upon the cessation of heavy pumping by the Solvay Process Co., the water level in well 13 began to rise, and by December 1 it was 38.5 feet below the measuring point, or within 0.5 foot of its stage on May 20. During most of December it was less than 28 feet below the measuring point, or about 1 foot higher than it had been immediately before pumping began.

Notwithstanding the fact that the pumpage from these industrial wells in 1943 was less than the pumpage in previous years, the stages in well 13 in the nonpumping periods of 1943 seem abnormally high as compared with the stages in the nonpumping periods of earlier years. This gives rise to the thought that the Solvay Process Co. may have begun the artificial recharge of its wells with cold surface waters very soon or perhaps immediately after the shut-down of the wells on November 1.

Sussex County

In Sussex County well 90, the Jeb S. White well, at Wakefield, there has been a more or less steady decline in water level since it was first measured, in April 1940. Early in 1942 the rate of decline accelerated, and the accelerated rate continued in 1943, so that a net loss in water level of more than 2.5 feet was sustained at the end of the year. This continuing decline may be due to discharge of ground water from industrial wells at or near Franklin and, to a lesser extent, to waste of water by domestic flowing wells along the James River, but it is not yet certain but that it may be due in part, also, to lack of recharge resulting from the drought or near drought that prevailed in eastern Virginia during the years 1941-43. The trend of the water level in this well since measurements began is shown in figure 8. From this graph it will be seen that the net decline to the end of 1941 was only about 2 feet, but that by the end of 1943 it had increased to 6 feet.

Isle of Wight, Nansemond, and Southampton Counties (Franklin area)

The pumping of ground water for industrial use, which is heavy at and near Franklin, has a marked effect on artesian head in the surrounding area. The fluctuations in several of the wells affected, taken singly, are here discussed.

Measurements made in 1943 in Isle of Wight County well 161, which is owned by the Chesapeake-Camp Corporation, show that its water level has steadily declined, owing, for the most part, to the almost continuous heavy pumping at the Chesapeake-Camp Corporation pulp mill. The net loss in stage for the year was about 5 feet, from which 1.83 feet should be deducted, because this much of the loss was due to the removal of kerosene from the well. A comparison of the actual decline of about 3 feet in 1943 with the decline of 2.5 feet during the period June 1, 1942, to January 4, 1943,

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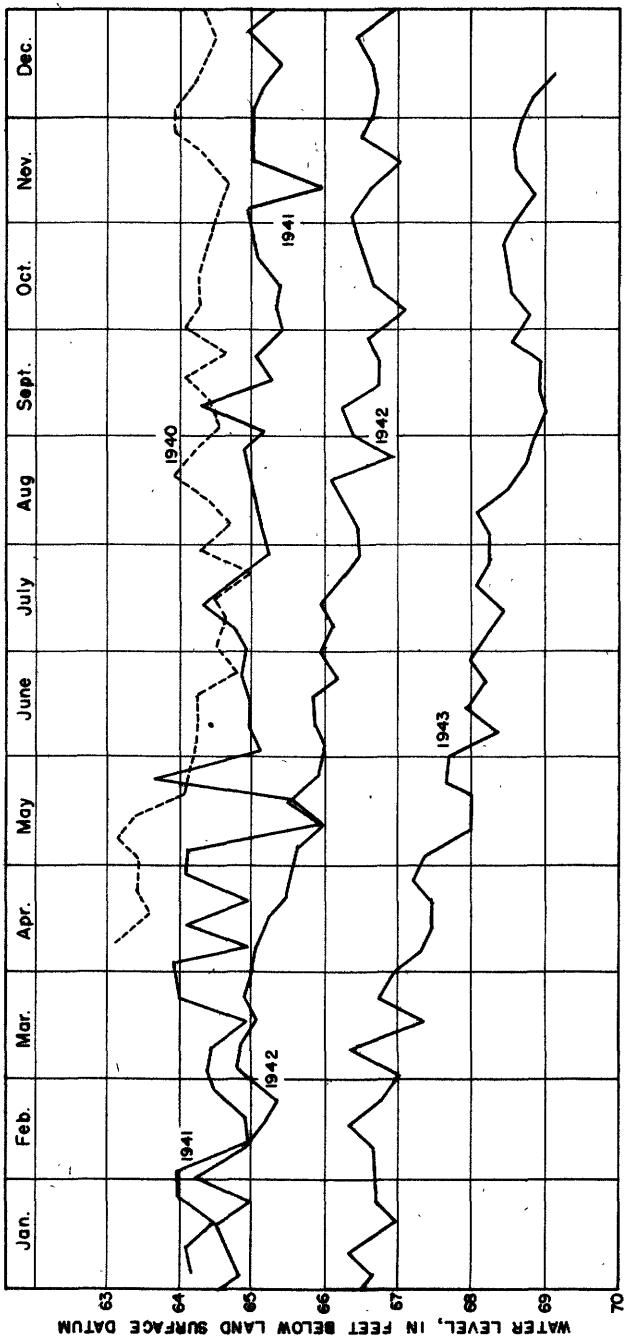

Figure 8.--Graphs showing fluctuations of water level in Sussex County well 90 (Jeb S. White well), in Wakefield, Va.

shows that the rate of decline did not decrease much in 1943. It appears, therefore, that safe yield is being exceeded somewhat and that further declines in water level, and consequently greater pump lifts, may be expected in the Franklin area. The net decline in water level since the well was first measured, on November 12, 1941, is about 23.5 feet.

In Southampton County well 205, which is in Franklin, the water level declined about 5.5 feet in 1943, that is, from about 17.5 feet below the measuring point on December 26, 1942, to about 23 feet below at the end of 1943. The net loss in water level in this well for the year is therefore slightly more than the net loss in Isle of Wight County well 161.

In Nansemond County well 97b, the Jones Peanut Factory well, in South Quay, a net decline in water level of 1.25 feet was recorded for the period April 14 to December 28, 1943. This is of interest because only a negligible decline was noted in 1942, and the greater decline in 1943 therefore suggests that the effects of industrial pumping in the Franklin area are extending southward.

Southampton County well 243, the Webb School well, which is about 4 miles southwest of Franklin, showed a net decline in water level of 0.5 foot during the period November 18, 1942, to March 8, 1943, and a further decline of 1 foot by December 28, 1943. The effects of pumping at and near Franklin on water levels in the surrounding area began to be evident at this well about April 28, 1942, and from then until the end of 1943 a decline of 3.3 feet was recorded. It may be noted, however, that, although the decline in water level in this well is increasing, the rate of decline appears to be decreasing.

Measurements of the water level in the courthouse well at Courtland (Southampton County well 89) show that there was a net decline of 2.08 feet during the period April 14 to December 28, 1943, and a net decline of 4.06 feet during the period March 6, 1942, to December 28, 1943, and that the rate of decline was greater in 1943 than in 1942.

The water level in Southampton County well 29, the Virginian Railway well at Sebrell, declined 0.49 foot during the period November 16, 1942, to April 14, 1943, and 2.15 feet during the period April 14 to December 27, 1943. In the report for 1942 on water levels in Virginia[1/] it was brought out that this well is apparently affected by ground-water developments at

1/ Meinzer, O. E., Wenzel, L. K., and others, Water levels and artesian pressure in the United States in 1943, part 2, Southeastern States, pp. 146-147, 1944.

and near Franklin and Courtland, 13 and 6 miles, respectively, to the southeast. During the period 1908-38 the water level declined at the rate of about 0.20 foot a year and this decline is attributed largely to the formation of a cone of depression resulting from the combined discharge of many flowing wells in this general area. The rate increased during the period 1938-41 to 0.65 foot a year, and during the period 1941-42 to 2.8 feet a year. The more rapid decline in the two later, shorter periods may be attributed to the construction of many additional wells on low ground in the flowing-well area and to the increased development of municipal and industrial ground-water supplies. But during the period June 26, 1942, to April 14, 1943, the rate of decline decreased to 2.1 feet a year, and dur-

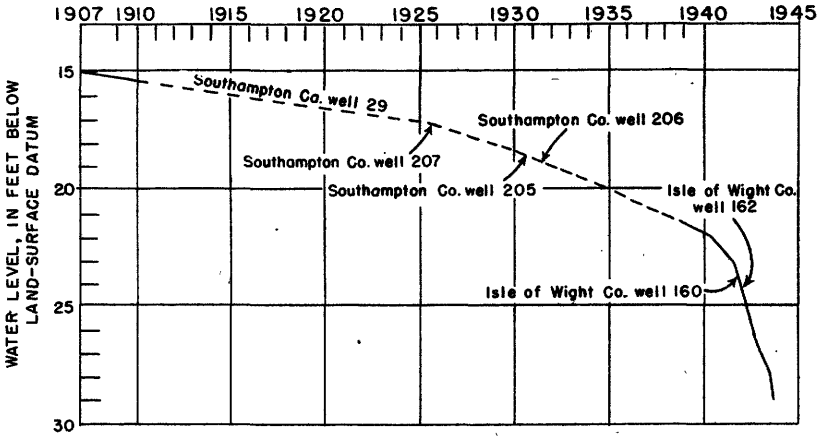

Figure 9.--Graph showing decline of water level in Southampton County well 29 (Virginian Railway well), in Sebrell, 1908-43. Arrows indicate time of construction of heavily pumped wells in the Franklin area. Isle of Wight County wells 160 and 162 are industrial wells of the Chesapeake-Camp Corporation; Southampton County wells 205, 206, and 207 are municipal wells in Franklin.

ing the period April 14 to December 28, 1943, it decreased to 1.77 feet a year. The fluctuations of water level in the Sebrell well during the period 1908-43 and the time of construction of the pumped wells affecting the level are shown in figure 9.

Thus the observations made on wells in the Franklin area lead to two general conclusions, (1) that the decline of water levels in the area may be due in part to lack of recharge of the Coastal Plain strata because of drought, and (2) that the rate of decline due to heavy pumping is diminishing and therefore the cone of depression centering at Franklin is tending to stabilize.

Warwick and York Counties (York-James peninsula)[2/]

Fort Eustis

Milstead No. 1 well was the only well at Fort Eustis, Warwick County, under observation in 1943, and the chief factor affecting it was the discharge from other wells at or near the fort, the water level fluctuating in response to the variations in discharge. During the period January 5 to September 28 it fluctuated between 14.09 and 8.05 feet below the measuring point, or 4.09 feet below land-surface datum and 1.95 feet above that datum, but only during the period June 29 to August 10, which was presumably the time of maximum consumption of ground water at the fort, and then not continuously, was it lower than 13 feet below the measuring point (1 foot above land-surface datum). From September 28 to the end of the year the water level was generally higher, and on December 29 it was 5.43 feet below the measuring point, or 4.57 feet above land-surface datum. As the measuring point at this well is 14.5 feet above sea level, it will be seen that the artesian head was above sea level throughout the year and that at the end of the year it was, temporarily at least, 9 feet above sea level, or nearly as high as would be expected if no heavy discharge of ground water were taking place.

Camp Peary

At the beginning of 1943 about 2 million gallons of ground water a day was being used at Camp Peary. Although excessive waste was curtailed early in January by the installation of pump-control apparatus, the demand for water increased as the construction of wells progressed, and by the end of February, when eleven 10-inch wells were in operation, the discharge of ground water at the camp was about 4 million gallons a day, but it did not increase much thereafter. A supply from surface water was made available on May 27, after which the wells were little used.

2/ The designations of the observation wells in the Fort Eustis and Camp Peary areas, on the York-James peninsula, as given in this report, are those used locally.

Until May 27, as shown in figure 10, a marked decline occurred in all the wells under observation. The water level in the Seabee Sawmill well (Camp Peary well 1), which is outside the group of pumping wells, was 22.9 feet below the measuring point on May 22, and the net decline from the date of the first measurement made in the well, in October 1942, was 21 feet. In Camp Peary well B1, which is about at the center of the Camp Peary well field, the water level declined about 26 feet during the period it was measured--November 2, 1942, to April 13, 1943--or about 10 feet more than the water level in the Seabee Sawmill well during the same period. Measurements in Camp Peary well D6, which is on the outer margin of the group of pumping wells at the camp, were begun January 30, 1943. On May 19 the water level was at its maximum depth--115.04 feet below the measuring point, or 113.04 feet below land-surface datum. But the stage on May 22, which was 107.61 feet below the measuring point and 30 feet lower than the stage on January 30, is regarded as more nearly representative of the average stage near the end of the pumping season. During the same period--January 30 to May 22--the level in the Seabee Sawmill well declined about 9.5 feet. In the Doyle & Russell Garage well, which is within the camp well field, measurements of water level began March 22, 1943, and by May 22 the net decline was about 9.5 feet, during which time the Seabee Sawmill well declined about 6.5 feet.

From the data given in the preceding paragraph the cone of depression resulting from the combined discharge of the 11 pumped wells in the Camp Peary area may be pictured. A better picture, however, is gained by an inspection of figure 10, which shows the fluctuations in water level in the observation wells in feet above or below sea level. The water levels were 7 or 8 feet above sea level before pumping began, but in the latter part of May they were 15 to 23 feet below sea level, the lowest stages being in the two observation wells that are near or within the well field. It may be noted that, although the water levels fluctuated markedly early in January owing to changes in pumping procedure, in the second week of April and in the middle part of May, which was near or at the end of the pumping season, they declined as rapidly and steadily as they had late in 1942. Safe yield was therefore being exceeded, and if the wells were to continue to discharge at the rate of 4 million gallons a day, then a

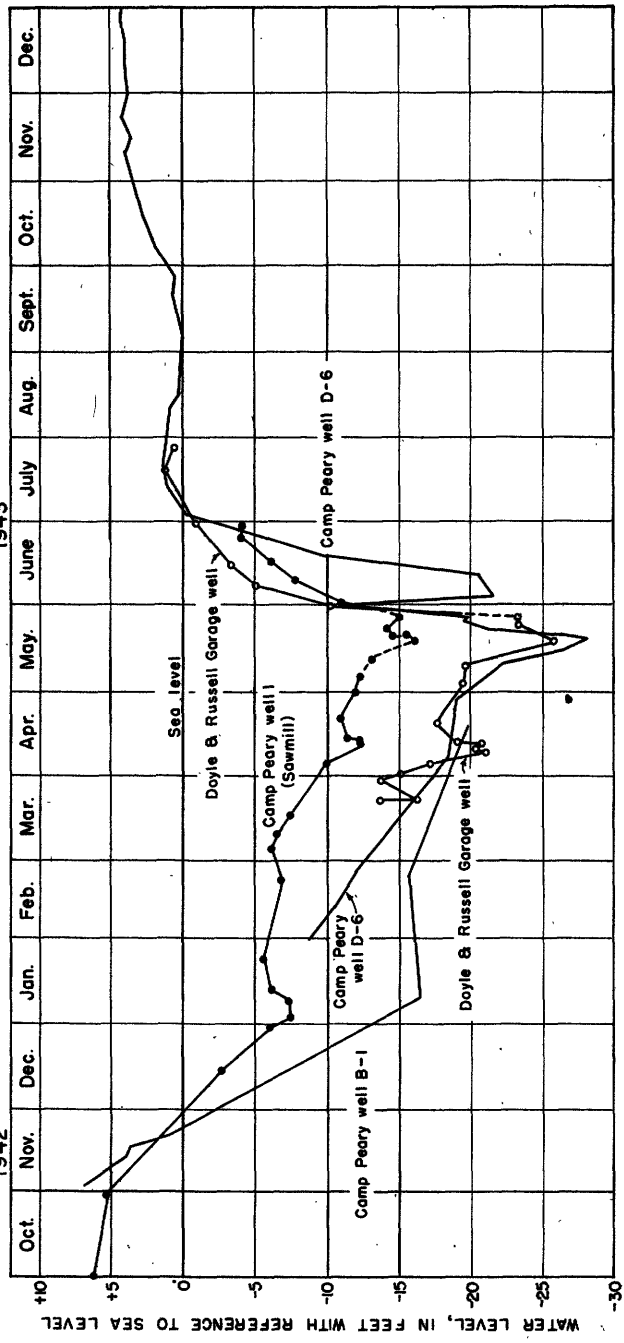

Figure 10.--Graphs showing fluctuations of water level in wells at or near Camp Peary, near Williamsburg, Va.

diminution of the ground-water supply must be expected and, furthermore, the chloride content of the yielded water might increase. During the period that ground water was used at the camp, samples were collected regularly for chemical analysis, but no marked variations in chloride content were observed.

When a surface-water supply was made available, on May 27, pumping ceased almost entirely except at Camp Peary well D5, which was operated at capacity until June 11 (?) and the pumping of which affects well D6. The heavy withdrawals are reflected in the records of water level at this well. From July 1 to October 1 six wells were pumped, but the combined discharge of the six was only 600,000 gallons a day. After October 1, merely as a maintenance procedure, each of the 11 wells at or near the camp was operated for half an hour a week.

By and large, water levels recovered quickly after heavy pumping ceased. On June 25 the stage in the Seabee Sawmill well (Camp Peary well 1) was 4.2 feet below sea level, which represents a net recovery of 11 feet since May 22. On July 19 the Doyle & Russell Garage well was 1.3 feet above sea level, showing that its net recovery was 24.7 feet since May 22. Camp Peary well D6 had risen to the same height on the same date, having made a net recovery of 21.3 feet since May 22. The stage in this well ranged from sea level to about 1 foot above sea level during August and September, a period of small discharge of the wells, but it rose to about 4 feet above sea level in the last quarter of the year, when the wells were almost entirely idle.

An automatic water-stage recorder will be maintained on Camp Peary well D6 in order to provide a continuing record of the fluctuations of water level in the Williamsburg area. There seems to be no likelihood, however, that the pumpage of ground water at Camp Peary will be large at any time in the near future.

WELL DESCRIPTIONS AND WATER-LEVEL MEASUREMENTS

Arlington County

Halls Hill well (*777, pp. 250, 253-258; 817, pp. 482-483; 840, p. 623; 845, p. 679; 886, p. 906; 907, p. 107; 937, p. 101; 945, p. 130). On Lee Highway, at Langston School. Measuring point is at land-surface datum:

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 4	24.75	Apr. 17	22.80	July 10	22.45	Oct. 9	25.95
11	24.98	24	21.30	24	23.00	16	26.24
16	24.90	May 1	21.25	31	23.35	23	25.95
23	24.80	8	21.16	Aug. 7	23.50	30	26.70
Feb. 6	24.00	15	21.45	14	23.75	Nov. 6	26.97
13	23.15	22	21.50	21	24.20	13	26.68
20	24.35	29	21.45	28	24.54	20	26.76
27	23.30	June 5	21.58	Sept. 4	24.80	27	26.93
Mar. 6	22.88	12	21.65	11	24.06	Dec. 4	27.30
13	22.90	19	22.21	18	25.38	11	27.30
20	22.13	26	22.10	25	25.61	18	27.45
27	21.69	July 3	22.35	Oct. 2	25.77	25	27.74
Apr. 3	21.80						

Ross well (*777, pp. 250, 254-258; 817, pp. 480, 482-483; 840, p. 623; 845, p. 678; 886, p. 906-907; 907, p. 107; 937, pp. 101-102; 945, pp. 130-131). At 1918 North Wayne Street, Rosslyn. Measuring point is 2.5 feet above land-surface datum.

Daily water level at 2 a.m., in feet below land-surface datum, 1943
(From recorder charts)

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	.....	19.37	18.17	18.09	19.60	20.40	21.36	21.97	22.51	23.23	23.19
2	.....	.....	19.53	18.19	18.57	.....	20.43	21.37	21.94	22.59	23.24	23.21
3	.....	.....	19.54	18.37	18.37	.....	20.47	21.39	22.00	22.64	23.22	23.23
4	.....	.....	19.40	18.50	18.24	.....	20.47	21.40	22.02	22.69	23.26	23.25
5	20.95	.....	19.57	18.11	18.57	a19.70	20.37	21.41	22.01	22.72	23.27	23.27
6	.....	a20.22	19.52	18.32	18.60	19.70	20.41	21.46	21.99	22.75	23.27	23.29
7	.....	20.13	19.19	18.51	18.39	19.78	20.54	21.54	21.96	22.74	23.30	23.26
8	.....	19.90	19.57	18.30	18.51	19.79	20.57	21.55	22.01	22.74	23.31	23.34
9	.....	19.81	19.69	18.39	18.63	19.75	20.61	21.57	22.04	22.75	23.25	23.34
10	.....	19.72	19.60	18.29	18.75	19.82	20.62	21.60	22.05	22.77	23.30	23.39
11	a20.80	19.55	19.38	18.47	18.66	.....	20.67	21.68	22.11	22.86	23.26	.....
12	20.72	19.59	19.25	18.45	18.57	a19.75	20.68	21.73	22.13	22.86	.....	.....
13	.....	19.22	.....	18.00	18.73	19.75	20.74	21.73	22.15	22.87	a23.27	.....
14	.....	19.20	19.42	18.18	18.86	19.77	20.72	21.69	22.15	22.88	23.32	.....
15	.....	19.29	19.29	18.57	19.00	19.86	20.74	21.72	22.13	22.90	23.32	.....
16	a20.75	19.37	19.06	18.74	19.01	19.76	20.80	21.74	22.17	22.85	23.25	.....
17	.....	19.34	18.91	18.65	18.98	19.84	20.86	21.70	22.22	22.94	23.30	.....
18	.....	19.20	19.02	18.96	18.98	19.90	20.87	21.82	22.31	22.99	23.33	a23.78
19	.....	19.25	18.81	18.88	18.95	20.01	20.89	21.86	22.32	22.97	23.34	.....

a Tape measurement.

Ross well--Continued.

Daily water level at 2 a.m., in feet below land-surface datum, 1943
(From recorder charts)

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
20	.....	19.20	18.66	18.59	18.93	20.02	20.90	21.87	22.43	23.03	23.34	.....
21	.....	19.12	18.78	18.64	19.02	20.00	20.92	21.87	22.44	23.06	23.35	.....
22	.....	19.23	.....	18.68	19.01	20.05	20.95	21.87	22.44	23.04	.....	.....
23	a20.80	19.29	.....	18.66	.....	20.06	21.03	21.88	22.44	23.09	.....	.....
24	20.90	19.24	.....	18.50	.....	20.16	21.10	21.94	22.44	23.10	.....	.....
25	.....	19.42	.....	18.28	.....	20.18	21.13	21.91	22.44	23.12	.....	a23.80
26	.....	19.48	.....	18.17	.....	20.20	21.12	21.92	22.47	23.13	.....	.....
27	.....	19.32	.....	18.34	.....	20.17	21.15	21.92	22.51	23.12	a23.10	.....
28	.....	19.47	18.19	18.30	.....	20.20	21.17	21.99	22.54	23.14	23.12	.....
29	.....	.....	18.46	18.27	a19.43	20.17	21.19	21.98	22.56	23.16	23.15	.....
30	a21.08	.....	18.46	18.49	19.42	20.25	21.20	21.95	22.59	23.17	23.16	.....
31	21.09	.....	18.18	.....	19.57	.....	21.25	21.98	.....	23.19	.....	.....

Chesterfield County

36 (*886, p. 913; 907, p. 119; 937, p. 112; 945, p. 151). Pilcher well. 3 miles north of Petersburg. Measuring point is 2.7 feet above land-surface datum. Equipped with automatic water-stage recorder.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 1	16.38	Apr. 2	17.35	July 16	16.37	Oct. 12	17.87
9	16.26	10	14.43	23	16.52	17	17.87
14	16.19	16	14.58	30	16.64	24	18.05
22	16.37	23	14.79	Aug. 7	16.82	31	18.02
29	16.34	30	14.98	17	17.18	Nov. 7	17.99
Feb. 6	15.35	May 6	15.17	22	18.41	14	17.05
12	14.28	14	15.30	28	17.57	22	17.95
19	14.14	29	15.62	Sept. 4	17.65	29	18.08
26	14.36	June 5	15.82	11	17.64	Dec. 5	18.28
Mar. 2	14.61	19	15.96	18	17.81	12	18.24
12	14.72	26	16.03	25	17.73	26	18.21
19	14.84	July 1	16.09	Oct. 3	17.78	19	18.34
27	14.78	10	16.11				

Fairfax County

Bacon well (*777, pp. 251, 254-258; 817, pp. 480, 482-483; 840, p. 621; 845, p. 678; 886, p. 907; 907, p. 108; 937, p. 102; 945, pp. 131-132). About 2 miles from Fairfax, on U. S. Highway 50. Measuring point is 2.0 feet above land-surface datum.

Daily water level at 2 a.m., in feet below land-surface datum, 1943
(From recorder charts)

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	12.97	a12.17	11.46	11.58	12.09	13.74	.....	16.42	17.32	17.99	.....
2	.....	12.98	12.18	11.49	11.68	12.10	13.82	a15.15	16.45	17.34	17.99	.....
3	.....	12.95	12.15	11.58	11.62	12.16	13.89	15.17	16.49	17.36	17.99	.....
4	a12.02	12.90	12.23	11.66	11.73	12.26	13.93	15.22	16.52	17.40	17.98	.....
5	.....	12.74	12.25	a11.55	11.82	12.34	13.96	15.26	16.53	17.42	17.98	.....
6	.....	12.55	12.28	11.63	11.84	12.42	14.00	15.32	16.55	17.45	17.99	a17.37
7	.....	12.08	12.06	11.72	11.86	12.45	14.06	15.38	16.57	17.47	18.02	.....
8	.....	11.80	12.11	11.71	11.93	12.52	14.08	15.41	16.63	17.48	18.03	.....
9	.....	11.80	.....	11.79	12.02	12.57	14.10	15.46	16.66	17.52	17.74	.....
10	.....	11.84	.....	11.77	12.10	12.57	14.12	15.53	16.70	17.54	17.34	.....
11	a12.37	11.80	.....	11.88	12.11	12.59	14.15	15.58	16.74	17.59	17.30	a17.40
12	.....	11.63	.....	11.86	12.10	12.66	14.15	15.64	16.78	17.60	17.30	.....
13	.....	11.43	.....	11.83	11.82	12.71	14.19	15.68	a16.80	17.63	17.30	.....
14	.....	11.38	.....	11.89	11.83	12.78	14.22	15.71	16.81	17.64	.....	.....
15	.....	a11.55	a11.75	.....	11.88	12.84	14.26	15.76	16.83	17.67	a17.30	.....

a Tape measurement.

Bacon well--Continued.

Daily water level at 2 a.m., in feet below land-surface datum, 1943
(From recorder charts)

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
16	.....	.....	11.67	.....	11.91	12.85	14.33	15.81	16.86	17.68	.....	.....
17	.....	.....	11.62	.....	11.91	12.89	14.39	15.83	16.90	17.70	.....	.....
18	a12.62	.....	11.54	.....	11.91	12.95	14.44	15.89	16.95	17.74	.....	a17.53
19	.....	.....	.....	a12.10	11.95	13.00	14.49	15.95	16.98	17.75	.....	17.53
20	.....	.....	.....	.....	11.99	13.07	14.51	15.99	17.00	17.77	.....	a17.53
21	.....	.....	.....	.....	12.02	13.13	14.54	16.03	17.00	17.79	.....	.....
22	.....	a11.80	a11.26	.....	11.84	.....	14.58	16.07	17.02	17.81	a17.29	.....
23	.....	11.84	11.29	.....	11.82	.....	14.64	16.11	17.05	17.83	17.29	.....
24	.....	11.86	11.31	.....	11.81	.....	14.70	16.14	17.09	17.86	17.29	.....
25	a12.78	11.96	11.26	.....	11.78	.....	14.75	16.18	17.14	17.87	17.30	.....
26	12.82	12.00	11.31	a11.40	11.76	.....	14.78	16.23	17.17	17.87	17.30	.....
27	12.82	11.98	11.30	11.45	11.83	.....	.....	16.27	17.22	17.87	17.29	a17.60
28	12.95	12.07	11.38	11.41	11.90	a13.56	.....	16.28	17.24	17.90	.....	.....
29	12.92	.....	11.45	11.55	11.95	13.61	.....	16.32	17.27	17.91	a17.30	.....
30	12.99	.....	11.48	11.57	12.00	13.66	.....	16.34	17.30	17.94	.....	.....
31	12.99	.....	11.43	.....	12.03	.....	.....	16.39	.....	17.96	.....	.....

Bell well (*777, pp. 250, 254-258; 817, pp. 482-483; 840, p. 722; 845, p. 678; 886, p. 907; 907, p. 108; 937, p. 103; 945, p. 132). At Ash Grove, about 1 mile northwest of Tysons Crossing, on road from Falls Church to Leesburg. Measuring point is 2.0 feet above land-surface datum.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 4	0.68	Apr. 3	0.82	July 10	3.48	Oct. 9	9.57
11	.78	10	.56	17	2.66	16	(b)
16	.80	17	.66	24	3.55	23	(b)
23	.90	24	.60	31	4.50	30	8.80
30	.85	May 1	.90	Aug. 7	5.62	Nov. 6	9.97
Feb. 6	.30	8	1.30	14	6.90	13	3.50
13	.50	15	.75	21	7.85	20	5.02
20	.70	22	.64	28	8.16	27	5.38
27	.74	June 5	1.10	Sept. 4	7.58	Dec. 4	5.83
Mar. 6	.16	12	.90	11	8.66	11	6.02
13	.24	19	.90	18	9.15	18	6.23
20	.47	26	2.61	25	9.40	25	6.55
27	.39	July 3	3.05	Oct. 2	9.70		

Jefferson School well (*845, pp. 676, 680; 886, p. 908; 907, p. 108; 937, p. 103; 945, p. 132). In Falls Church, near southeast corner of Jefferson School. Measuring point is 1.0 foot above land-surface datum.

Water level, in feet below land-surface datum, 1943

Jan. 4	21.12	Apr. 3	19.15	July 3	21.99	Oct. 9	27.25
11	21.10	10	18.70	10	22.39	16	27.58
16	21.10	17	19.60	17	22.76	23	28.97
23	21.05	24	19.00	24	23.25	30	27.08
30	21.56	May 1	19.20	31	23.68	Nov. 6	26.84
Feb. 6	20.50	8	20.85	Aug. 7	24.13	13	25.55
13	19.68	15	20.40	14	24.72	20	25.05
20	20.40	22	20.17	21	25.10	27	24.82
27	20.10	29	20.33	28	25.55	Dec. 4	24.85
Mar. 6	19.90	June 5	20.60	Sept. 4	25.75	11	24.90
13	20.00	12	20.54	11	26.00	18	24.98
20	19.15	19	21.00	18	26.25	25	25.08
27	18.70	26	21.60	25	26.25		

a Tape measurement.
b Well dry.

Swart wells 5, 10, 35, 60, 85, 110, and 135 (*817, pp. 482, 484-485; 840, p. 625; 845, pp. 682-683; 886, p. 909; 907, pp. 110-111; 937, pp. 104-105; 945, pp. 134-135). About 1.5 miles along U. S. Highway 50 from Fairfax, on the Swart farm. The number of each well indicates its distance, in feet, from Difficult Run. The altitude of the measuring points of the wells with reference to land-surface datum and to the assumed datum previously used is as follows:

Well	Above land-surface datum (feet)	Above assumed datum (feet)
5	2.5	448.37
10	1.2	446.63
35	1.2	446.02
60	1.2	445.73
85	1.2	445.45
110	1.1	445.56
135	1.2	445.84

Measurements in the Swart wells, as published in Water-Supply Papers 817, 840, 845, 886, 907, and 937 were obtained by subtracting the depth to water from the altitude of the measuring point above the assumed datum as given above. The measurements were listed as given in feet above assumed datum, but, as the first two digits were omitted to save space, it is necessary to add 440 to each measurement listed in these water-supply papers in order to obtain the true water levels in the wells in feet above the assumed datum.

The water levels in Swart wells 10, 35, 60, 85, 110, and 135 in 1942, as given in the table on page 134 of Water-Supply Paper 945, are in error. A corrected table for 1942, showing the levels in feet above assumed datum is therefore included in the present report.

Water levels, in feet above assumed datum, and weekly precipitation, in inches, 1942

Date	10	35	60	85	110	135	Precipitation
Jan. 5	2.74	3.15	3.45	4.05	4.69	4.68	0.00
12	2.03	2.53	2.25	3.95	3.91	4.59	.00
19	3.09	3.77	4.33	4.17	4.51	4.74	.84
26	2.44	2.67	2.98	3.66	4.49	4.78	Tr
Feb. 2	2.85	3.23	3.80	4.05	4.61	4.87	Tr
9	2.78	3.17	3.71	3.95	4.66	4.92	.00
16	4.43	4.12	4.63	4.65	4.81	4.99	.59
23	2.69	2.52	2.74	3.90	4.86	5.14	.00
Mar. 2	2.33	2.51	2.69	3.31	4.56	5.04	.72
9	3.18	3.86	4.23	3.95	4.86	5.04	.64
16	2.88	3.07	3.47	3.77	4.76	4.63	.01
23	3.01	3.52	3.93	4.80	4.86	5.24	.00
30	4.58	3.97	3.19	5.35	4.98	5.10	Tr
Apr. 6	2.98	2.92	3.08	3.80	4.81	5.17	.00
13	2.50	2.93	3.20	3.82	4.79	5.16	.00
20	2.09	2.50	2.35	3.55	4.46	5.07	.00
27	1.88	2.22	2.03	(a)	3.71	4.94	.00
May 4	1.95	(a)	(a)	(a)	3.96	4.84	.27
11	1.96	2.17	(a)	(a)	4.09	4.88	.00
18	2.07	2.47	(a)	3.45	4.36	4.87	.00
25	2.31	2.62	3.34	3.55	4.46	4.95	.00
June 1	1.63	1.82	(a)	3.25	4.06	4.79	.02
8	2.03	2.46	3.04	4.01	4.44	4.84	.10
15	1.66	1.86	1.93	2.53	4.15	4.94	.00
22	2.63	1.82	1.50	2.15	4.16	4.64	.45
29	2.55	2.89	3.10	3.78	4.52	4.81	.00
July 6	.19	2.07	2.12	3.65	4.58	4.84	.02
13	2.15	2.22	2.59	3.05	4.48	4.86	.00
20	1.17	1.35	1.38	(a)	3.85	4.69	.77
27	2.28	3.64	5.38	4.15	4.79	4.69	.03
Aug. 3	2.46	3.04	4.03	3.95	4.74	4.94	Tr
10	3.03	3.69	4.19	4.18	5.09	5.18	.02
17	2.35	2.68	3.01	4.19	5.14	5.49	.28

a Dry.

Water levels, in feet above assumed datum, and weekly precipitation, in inches, 1942

Date	10	35	60	85	110	135	Precipitation
Aug. 24	2.78	3.44	3.90	4.13	4.96	5.26	0.00
31	1.81	2.04	2.05	3.23	4.62	5.12	.00
Sept. 7	1.68	2.00	2.05	3.25	4.69	5.06	.39
14	1.84	2.12	2.24	3.21	4.56	5.07	.00
21	1.73	1.73	1.76	2.83	4.51	4.99	.00
28	2.43	3.07	3.68	3.98	4.86	5.26	.00
Oct. 5	2.68	2.32	3.63	2.95	4.76	4.96	.27
12	.69	1.92	2.01	3.05	4.56	4.94	.00
19	2.72	3.34	3.83	4.26	5.20	5.37	.00
26	3.58	4.34	4.33	4.26	5.46	5.34	1.37
Nov. 2	2.68	3.22	3.93	4.15	5.11	5.32	Tr
9	2.41	2.76	3.03	3.91	4.96	5.28	.00
16	2.30	2.57	2.83	3.61	4.70	4.20	.00
23	2.41	2.74	3.48	3.77	4.86	5.16	.57
30	2.58	3.00	3.60	4.03	5.00	5.28	.00
Dec. 7	2.59	3.01	3.33	4.03	5.01	5.16	.00
14	2.36	2.65	2.91	3.61	4.88	5.14	.00
21	2.21	2.82	2.77	3.52	3.61	3.89	.00
28	3.00	4.47	4.73	4.89	5.11	5.11	.19

Water levels, in feet with reference to land-surface datum, and weekly precipitation, in inches, 1943

Date	5	10	35	60	85	110	135	Precipitation
Jan. 4	-3.14	-2.52	-1.56	-1.00	-0.03	-0.24	+0.54	1.40
11	-3.28	-2.90	-1.29	-1.35	-.28	-.55	+.55	.00
18	-3.19	-2.68	-.88	-.77	-.02	+.66	+.53	.72
25	-3.29	-2.87	-1.84	-1.30	-.22	+.52	+.52	.09
Feb. 1	-2.91	-2.42	-1.15	-.68	.00	-.45	+.70	1.97
8	-2.85	-2.40	-1.75	-.59	-.05	+.75	+.65	.84
15	-3.25	-3.90	-1.35	-.75	+.20	.....	.....	1.02
22	-3.15	-2.68	-1.49	-.92	+.50	+.60	+.65	Tr
Mar. 1	-3.28	-2.90	-1.75	-1.31	-.30	+.26	+.64	.10
8	-3.04	-2.62	-1.50	-.90	-.25	+.45	+.84	1.55
15	-2.85	-1.35	-1.10	-.40	-.14	+.69	+.69	1.16
22	-2.90	-1.40	-1.05	-.44	-.10	+.73	+.70	1.35
29	-3.10	-2.00	-1.42	-.67	-.25	+.70	+.70	.25
Apr. 5	-3.40	-2.70	-1.96	-1.30	-.70	+.52	+.65	.02
12	-3.47	-2.73	-2.04	-1.50	-.78	+.70	+.65	.11
19	-1.40	-1.68	-.40	-.85	.00	+.65	+.60	2.30
26	-3.35	-2.42	-1.90	-1.05	-.60	+1.02	+1.06	.64
May 3	-3.50	-3.00	-2.45	-1.73	-.60	+.30	+.55	.04
10	-3.55	-3.15	-2.50	-1.70	-.62	+.40	+.50	.56
17	-3.25	-2.20	-1.80	-1.00	-.40	+.50	+.60	1.55
24	-3.30	-2.65	-1.90	-.90	-.44	+.35	+.60	.74
31	-3.45	-2.55	-2.00	-.32	-.44	+.40	+.70	1.61
June 7	-3.90	(a)	(a)	-1.32	-.90	+.15	+.55	.13
14	-3.80	(a)	-2.62	-1.62	-1.20	+.18	+.60	.87
21	-3.72	-2.76	-2.30	(a)	(a)	+.10	+.44	.39
28	-4.20	(a)	(a)	(a)	(a)	.00	+.44	.13
July 5	-4.47	-2.97	(a)	(a)	(a)	+.08	+.55	.55
12	-3.85	(a)	+.83	(a)	-.60	+.35	+.70	.88
19	-4.48	(a)	(a)	(a)	(a)	-.08	+.55	Tr
26	-4.50	(a)	(a)	(a)	(a)	-.13	+.46	.41
Aug. 2	-4.62	(a)	(a)	(a)	(a)	-.35	+.20	Tr
9	-7.76	(a)	(a)	(a)	(a)	-.62	-.08	.05
16	-4.88	(a)	(a)	(a)	(a)	-.78	-.32	.11
23	-4.95	(a)	(a)	(a)	(a)	-.60	-.55	.00
30	-4.79	(a)	(a)	(a)	(a)	-.59	-.54	.57
Sept. 6	-4.70	(a)	(a)	(a)	(a)	-.52	-.37	1.90
13	-4.84	(a)	(a)	(a)	(a)	-.80	-.85	Tr
20	-4.90	(a)	(a)	(a)	(a)	-1.06	-1.14	.32
27	-4.87	(a)	(a)	(a)	(a)	-.95	-.95	.45

a Dry.

Water levels, in feet with reference to land-surface datum, and weekly precipitation, in inches, 1943

Date	5	10	35	60	85	110	135	Precipitation
Oct. 4	-4.76	(a)	(a)	(a)	(a)	-0.94	-0.93	0.31
11	-4.72	(a)	(a)	(a)	(a)	-1.45	-1.04	.00
18	-4.60	(a)	(a)	(a)	(a)	-.72	-.35	.75
25	-4.48	(a)	(a)	(a)	(a)	-.67	-.45	1.42
Nov. 1	-3.90	(a)	(a)	(a)	-.98	-.20	-.16	2.02
8	-3.60	(a)	-2.09	-1.20	-.37	.00	-.09	4.11
15	-3.55	(a)	-2.00	-1.04	-.64	+.10	+.96	.01
22	-3.65	(a)	-2.05	-1.28	-.50	+.20	-.02	.11
29	-3.70	(a)	(a)	(a)	-1.00	.00	+.94	.00
Dec. 6	-3.77	(a)	(a)	(a)	-.98	-.10	-.05	.14
11	-3,75	(a)	-2.47	-1.10	-.88	.00	-.02	.04
18	-3.88	(a)	(a)	(a)	-1.40	-.27	-.06	Tr
20	-3.92	(a)	(a)	(a)	-1.29	-.08	-.08	.00
27	-3.14	-2.79	-1.24	-.44	-.30	+.30	-.10	1.35

Swart 162 (*817, pp. 482, 484-485; 840, p. 626; 845, p. 683; 886, p. p. 910; 907, p. 111; 937, pp. 105-106; 945, pp. 133-134). On the Swart farm, about 1.5 miles from Fairfax, on U. S. Highway 50. Measuring point is 2.6 feet above land-surface datum and 448.79 feet above assumed datum previously used.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 4	0.85	Apr. 12	1.40	July 12	1.45	Oct. 11	2.85
11	1.15	19	.40	19	1.76	18	2.53
18	.95	26	1.20	26	1.82	25	2.45
25	1.20	May 3	1.50	Aug. 2	2.02	Nov. 1	1.95
Feb. 1	.85	10	1.10	9	2.39	8	1.80
8	.74	17	.75	16	2.62	15	1.60
15	1.10	24	1.15	23	2.82	22	1.50
22	1.07	31	1.15	30	2.39	29	1.74
Mar. 1	1.25	June 7	1.55	Sept. 6	2.15	Dec. 6	2.75
8	.98	14	1.57	13	2.47	11	1.70
15	.80	21	1.66	20	2.82	18	1.82
22	.78	28	1.64	27	2.70	20	1.78
29	.98	July 5	1.70	Oct. 4	2.70	27	.95
Apr. 5	1.30						

1429 (*937, p. 106; 945, p. 135). Carne well. At Fairfax, about 0.25 mile northeast of Fairfax courthouse. Measuring point is at land-surface datum.

Water level, in feet below land-surface datum, 1943

Date		Date		Date		Date	
Jan. 3	28.60	Apr. 4	24.50	July 4	27.40	Oct. 3	34.42
10	28.9	11	24.60	11	27.80	10	35.35
17	28.00	18	25.15	18	28.50	17	35.75
24	27.95	25	25.95	25	29.5	24	36.23
31	28.5	May 2	24.34	Aug. 1	29.60	31	36.58
Feb. 7	27.20	9	24.65	8	30.78	Nov. 7	36.85
14	26.20	16	25.00	15	30.85	14	36.55
21	25.80	23	25.00	22	31.54	21	36.3
28	25.70	30	24.50	29	32.20	28	36.0
Mar. 7	25.90	June 6	25.50	Sept. 5	32.70	Dec. 4	35.90
14	25.60	13	25.80	12	33.35	12	36.5
21	25.80	20	26.30	19	33.95	19	36.7
28	24.40	27	26.85	26	34.50	26	36.4

a Dry.

Isle of Wight County

161 (*945, p. 151). Chesapeake-Camp Corporation. Measuring point is 10.5 feet above land-surface datum. Equipped with automatic water-stage recorder.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 4	9.52	Apr. 12	11.19	July 7 d	13.80	Oct. 4	15.66
11	10.21	19 a	7.96	12	14.07	11	15.88
18	10.21	26	10.51	19	14.37	18 ab	8.38
25	10.32	May 3	11.13	26	14.64	25	14.25
Feb. 1	10.38	10	11.58	Aug. 2	14.70	Nov. 1	15.01
8	10.39	17	11.66	9	14.86	8	15.33
15	10.31	24	11.79	16	15.06	15	15.61
22	10.80	31	12.18	23 b	15.28	22	15.65
Mar. 1	10.97	June 7	12.61	30	15.47	29	15.68
5	11.04	14 a	10.58	Sept. 6 a	11.07	Dec. 6	14.75
8	11.06	21	12.59	13	15.25	13	15.86
15	11.12	28	13.04	20	15.69	20 a	16.42
22	11.03	July 5 a	9.83	27	15.59	27 a	11.27
29	11.04	7 c	11.97				

Nansemond County

97b (*937, p. 112; 945, p. 151). Jones Peanut Factory. In South Quay. Measuring point is 2.6 feet above land-surface datum. Water levels, in feet below land-surface datum, 1943: Apr. 14, 3.75; July 9, 4.45; Nov. 4, 4.30; Dec. 28, 5.00.

Prince George County

2 (*886, p. 913; 907, p. 119; 937, p. 113; 945, p. 151). Federal Reformatory. 3 miles west of Hopewell and 5.5 miles northeast of Petersburg. Measuring point is 0.25 foot above land-surface datum.

Water level, in feet below land-surface datum, 1943

Apr. 15	20.70	June 22	21.42	Aug. 24	23.25	Oct. 26	24.39
27	21.21	29	21.53	31	23.48	Nov. 2	24.30
May 4	21.47	July 7	21.75	Sept. 7	23.64	9	24.19
11	21.69	13	22.04	14	23.87	16	24.23
18	22.00	20	22.29	21	23.87	23	24.42
25	22.00	28	22.49	29	24.13	20	24.53
June 1	21.99	Aug. 2	22.72	Oct. 5	24.20	Dec. 14	24.91
8	22.05	10	22.85	12	24.33	21	25.05
16	21.53	17	22.96	19	24.41	28	25.06

13 (*886, p. 914; 907, p. 119; 937, p. 113; 945, p. 152). Old Dominion Water Co. In Hopewell. Measuring point is 2.24 feet above land-surface datum.

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a Well 162, which is about 1,700 feet north-northwest, not pumping at the following times: 86⅓ hours during period Apr. 18-22; 34 hours during period June 12-13; 49½ hours during period July 4-6; 35-3/4 hours during period Sept. 5-6; 72⅛ hours during period Oct. 15-18; 2 hours Dec. 16; 98 hours during period Dec. 23-27.

b Well 160, which is about 3,900 feet northwest, not pumping 4¼ hours July 6; 6 hours Aug. 16; 70 hours during period Oct. 15-18.

c Before removing kerosene from well.

d After removing kerosene from well.

13. Old Dominion Water Co.--Continued.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 2	36.18	Apr. 3	36.79	July 3	47.80	Oct. 2	52.21
9	36.38	10	36.67	10	48.73	9	52.36
16	36.04	17	37.04	17	49.13	16	51.76
23	36.35	24	36.34	24	49.24	23	52.47
30	35.80	May 1	36.92	31	48.47	30	52.44
Feb. 6	30.34	8	36.91	Aug. 7	50.01	Nov. 6	45.56
13	36.41	15	36.89	14	56.95	13	41.52
20	35.15	22	37.09	21	50.23	20	39.02
27	35.44	29	42.29	28	50.38	27	37.02
Mar. 6	36.42	June 5	44.36	Sept. 4	50.30	Dec. 4	36.14
13	35.56	12	43.36	11	52.17	11	35.51
20	31.67	19	44.64	18	51.97	18	35.54
27	36.62	26	45.34	25	52.06	25	35.78

15 (*886, p. 914; 907, p. 120; 937, p. 113; 945, p. 152). Tubize-Chatillon Co. At Hopewell. Measuring point is 0.42 foot above land-surface datum.

Water level, in feet below land-surface datum, 1943

Date							
Jan. 1	32.90	Apr. 28	34.02	July 12	39.79	Sept.27	41.71
8	33.75	May 3	34.46	19	42.00	Oct. 4	41.87
15	33.65	10	34.23	26	42.12	11	41.88
22	33.52	17	34.44	Aug. 2	42.38	18	41.77
29	32.85	25	35.92	10	42.80	25	41.23
Feb. 6	32.61	31	37.02	16	43.45	Nov. 1	41.84
13	32.58	June 7	39.21	23	42.88	19	35.58
19	33.12	14	39.20	30	43.20	26	35.11
Mar. 5	33.15	21	39.11	Sept. 7	41.62	Dec. 3	34.78
12	33.37	28	39.03	13	41.58	9	32.82
19	33.42	July 5	39.49	20	42.08	30	33.46
26	32.63						

Southampton County

29 (*945, p. 152). Virginian Railway. At Sebrell. Measuring point is 0.33 foot above land-surface datum. Water levels, in feet below land-surface datum, 1943: Apr. 14, 27.09; July 9, 27.61; Nov. 4, 28.87; Dec. 27, 25.24.

89 (*945, p. 152). Southampton County Courthouse. At Courtland. Measuring point is 1.5 feet above land-surface datum. Water levels, in feet below land-surface datum, 1943: Apr. 14, 4.99; July 9, 5.68; Nov. 4, 6.87; Dec. 28, 7.07.

205 (*945, p. 153). City of Franklin. In Franklin. Measuring point is 1 foot above land-surface datum.

Water level, in feet below land-surface datum, 1943

Date							
Mar. 6	18.33	May 15	19.00	July 24	20.83	Oct. 9	22.67
13	18.33	22	18.92	31	20.83	16	17.25
20	18.25	29	20.00	Aug. 14	20.67	30	20.50
27	18.25	June 5	21.00	21	20.75	Nov. 6	21.00
Apr. 3	19.08	12	20.83	28	22.17	13	21.00
10	19.00	19	21.17	Sept. 4	22.50	27	21.83
17	19.08	26	20.92	11	23.00	Dec. 4	21.67
24	17.75	July 7	21.00	18	22.17	11	22.00
May 1	19.08	10	20.58	25	22.00	18	25.67
8	19.67	17	21.00	Oct. 2	24.00	25	22.50

243 (*937, p. 114; 945, p. 153). Webb School well. 4 miles west-southwest of Franklin. Measuring point is 0.25 foot above land-surface datum.

Water level, in feet below land-surface datum, 1943

Date							
Mar. 8	8.85	Mar. 29	7.84	Apr. 20	8.74	Nov. 4	9.77
16	8.73	Apr. 8	8.74	July 9	9.37	Dec. 28	9.85
24	8.80	14	8.75				

Sussex County

90 (*907, p. 120; 937, p. 114; 945, p. 153). Jeb S. White well. In Wakefield. Measuring point is 1.0 foot above land-surface datum.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 4	66.64	Apr. 5	67.28	July 5	68.21	Oct. 4	68.76
11	66.33	12	65.45	12	68.45	11	68.54
18	66.98	19	67.44	19	68.08	18	68.49
25	66.69	26	67.20	26	68.28	25	68.45
Feb. 1	66.61	May 3	67.35	Aug. 2	68.26	Nov. 1	68.58
8	66.63	10	67.95	9	68.08	8	68.81
15	66.30	17	67.98	16	68.53	15	68.60
22	66.76	24	67.63	23	68.75	22	68.55
Mar. 1	67.07	31	67.66	30	68.80	29	68.63
8	66.30	June 7	68.32	Sept. 6	69.00	Dec. 6	68.84
15	67.32	14	67.89	13	68.94	13	69.17
22	66.70	21	68.18	21	68.95	20	68.90
29	66.90	28	67.96	27	68.59	28	68.30

Warwick County

Milstead No. 1 well (*937, p. 114; 945, p. 153). At Fort Eustis. Measuring point is 10 feet above land-surface datum and 14.5 feet above sea level. Equipped with automatic water-stage recorder.

Water level, in feet with reference to land-surface datum, 1943

Jan. 5	-0.28	Apr. 6	+0.80	July 6	-2.67	Oct. 5	+2.11
12	-2.54	12	-2.18	13	-4.07	12	+1.30
19	+.30	20	-2.08	20	-2.72	19	+2.40
26	-1.19	27	-2.31	27	-3.79	26	+2.15
Feb. 2	-1.47	May 4	-2.94	Aug. 3	-3.00	Nov. 3	+2.18
9	-.36	11	-2.54	10	-3.36	9	+2.30
16	+.86	18	-2.33	17	-2.58	16	+2.47
23	+1.33	25	-.60	24	-2.79	24	+2.81
Mar. 2	+1.73	June 1	-2.12	31	-.57	Dec. 1	+3.38
10	+.50	8	-2.01	Sept. 7	+.13	8	+2.16
16	+.22	15	-2.77	14	+1.08	15	+3.37
23	+1.95	22	-2.55	21	-1.18	22	+2.93
30	-1.70	29	-4.09	28	-1.1	29	+4.57

York County

Camp Peary well 1 (*945, p. 154). U. S. Navy. At Seabee Sawmill. Measuring point is at land-surface datum. Measurements discontinued after June 25.

Water level, in feet below land-surface datum, 1943

Jan. 3	15.76	Feb. 22	15.20	Apr. 4	18.2	Apr. 28	20.20
6	15.81	Mar. 4	14.5	9	20.27	May 3	20.5
9	15.62	9	14.8	11	20.76	22	22.9
13	14.46	15	15.5	13	19.75	31	19.68
24	13.92	22	16.5	19	19.3	June 25	14.5
Feb. 19	15.03	29	17.3				

Doyle & Russell Garage well. At Camp Peary, in Barracks area, about 2.75 miles east-southeast of main gate on State Highway 168, about 1.5 miles southeast of Magruder. Drilled well, diameter of casing 6 to 4 inches, of strainer, 3-3/4 inches, depth 450 feet. Obtains water from Cretaceous sands 422 to 450 feet below surface; casing extends to 438 feet, 30-slot brass strainer to 450 feet. Measuring point, top of casing, 2.5 feet above land-surface datum and 71.25 feet above sea level. Measurements discontinued after July 27.

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Doyle & Russell Garage well--Continued.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Mar. 22	82.3	Apr. 10	89.15	May 10	88.37	June 14	72.2
23	85.0	11	89.45	18	95.06	25	70.5
29	82.3	12	87.75	24	91.9	July 9	67.5
Apr. 4	85.8	19	86.2	31	79.10	27	68.2
9	89.7	May 3	88.3	June 7	74.0		

Camp Peary well D6. At Camp Peary, in block 11, about 1 mile east of main gate on State Highway 168 and 1 mile southwest of Magruder. Drilled well, diameter of casing 10 inches, depth 436 feet; 25 feet of 8-inch Cook strainer opposite sands furnishing water. Obtains water from Cretaceous sands and gravels 414 to 436 feet below surface. Measuring point, V-slot in recorder platform, 1.76 feet above top of casing, 20 feet above land-surface datum, and 86.31 feet above sea level. Measurements made by U. S. Navy. Autonatic water-stage recorder installed May 7.

Water level, in feet below land-surface datum, 1943
(From recorder charts beginning May 7)

Jan. 30	92.86	May 27	a104.2	Aug. 9	83.4	Oct. 25	81.2
Feb. 12	94.68	28	102.05	16	84.1	Nov. 1	80.9
25	97.16	June 4	106.1	23	84.2	8	80.5
Apr. 12	102.81	11	105.1	30	84.3	15	80.9
May 7	105.6	18	104.2	Sept. 6	84.3	22	80.3
15	110.9	25	89.1	13	84.0	29	80.6
19	113.04	July 2	84.8	20	83.7	Dec. 6	80.5
21	107.15	12	83.6	27	83.8	13	80.4
22	105.61	19	83.0	Oct. 4	82.6	20	80.3
24	108.25	26	83.1	11	82.2	27	80.1
26	103.18	Aug. 3	83.2	18	81.6		

a Filter plant began furnishing surface water.

WEST VIRGINIA

By R. M. Jeffords

PROGRAM OF WORK

The periodic measurement of water levels in selected wells in West Virginia, begun in 1941 as part of a general investigation of the ground-water resources in the State, was continued in 1943 by the Geological Survey, United States Department of the Interior, in cooperation with the West Virginia Geological and Economic Survey, Paul H. Price, State Geologist, and R. C. Tucker, Acting State Geologist. Of the 37 wells observed during the year, 21 obtain water from alluvium or mantle rock, 15 from rocks of Pennsylvanian age, and 1 from rocks of Mississippian age. One well in Ohio[1/] is included because, as it is in an area directly across the Ohio River from a heavily pumped area in West Virginia, the record of fluctuations of its water level may aid in the interpretation of ground-water conditions in the nearby heavily pumped area. Measurements were made daily through July and biweekly thereafter in 4 wells, weekly throughout the year in 7 wells, biweekly in 1 well, monthly in 7 wells, and at irregular intervals in 16 wells. Automatic water-level recorders were in operation during most of the year on 7 wells, of which 2 are observation wells whose records are given in this report. In all, 926 individual measurements of water level and 98 measurements of flow from a mine drain were made in 1943, all of which are listed in this report. Not listed are single measurements in many more wells and several thousand measurements, distributed among other wells, that also were made during the year.

Other work on the general investigation of the ground-water resources in the State also was continued in 1943. Emphasis was placed on a study of conditions at several large industrial plants and in municipalities where the increased use of ground water is critically depleting the water-bearing formations. A preliminary report on the general investigation was published,[2/] and an investigation of the ground-water conditions at public

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1/ Listed as well 38-3-100, under Mason County, W. Va. (See p. 186.)

2/ Price, P. H., and Nace, R. L., Ground-water investigations in West Virginia: West Virginia Eng. Exper. Sta. Tech. Bull. 23, pp. 37-41, 1943.

water-supply plants was begun. Detailed pumping tests were completed, and studies were made to determine properties characteristic of the water pumped from the water-bearing alluvium along the Ohio River, which may be partially recharged by infiltration from the adjacent stream.

Acknowledgment is made to S. L. Galpin, hydrologist of the West Virginia Agricultural Experiment Station, for the records of measurements made in 1942 and 1943 of the flow at a drain from a sealed coal mine near Morgantown.

FLUCTUATIONS OF WATER LEVEL

The average precipitation in West Virginia during 1943, as recorded by the Weather Bureau, United States Department of Commerce, was 40.08 inches, which is 2.92 inches less than normal and 8.34 inches less than in 1942. The cumulative precipitation during the last 5 months of the year was 4.32 inches less than the average for that period, and in many areas the cumulative precipitation during the last 4 months was only 40 percent of normal.

The fluctuations of water level observed in the bedrock artesian aquifers in the State were caused primarily by variations in the pumpage from these formations. As these strata have a relatively wide extent and as the intake areas of most of them are distant from the wells in which the fluctuations are observed, the water levels do not accurately reflect variations in precipitation over short periods. Seven of these artesian wells showed a net decline in water level for 1943, and five showed a net decline for the period of record; but four showed a net rise for 1943 and six showed a net rise for the period of record. The graphs that make up figure 11 show the fluctuations of water level in three typical, widely separated wells in West Virginia during periods of more than a year. Two of these wells tap bedrock artesian aquifers; the third taps water in the alluvial deposits along the Ohio River.

In well 40-5-14, which is in the business district of Charleston, the water level was 1.5 feet higher, on the average, during the first 5 months of 1943 than during the first 5 months of 1942 and reached its highest observed stage in April. For the year, however, this well showed a net decline in water level of 0.26 foot. (See fig. 11.) The records of pumpage in Charleston are not complete, but preliminary data indicate that

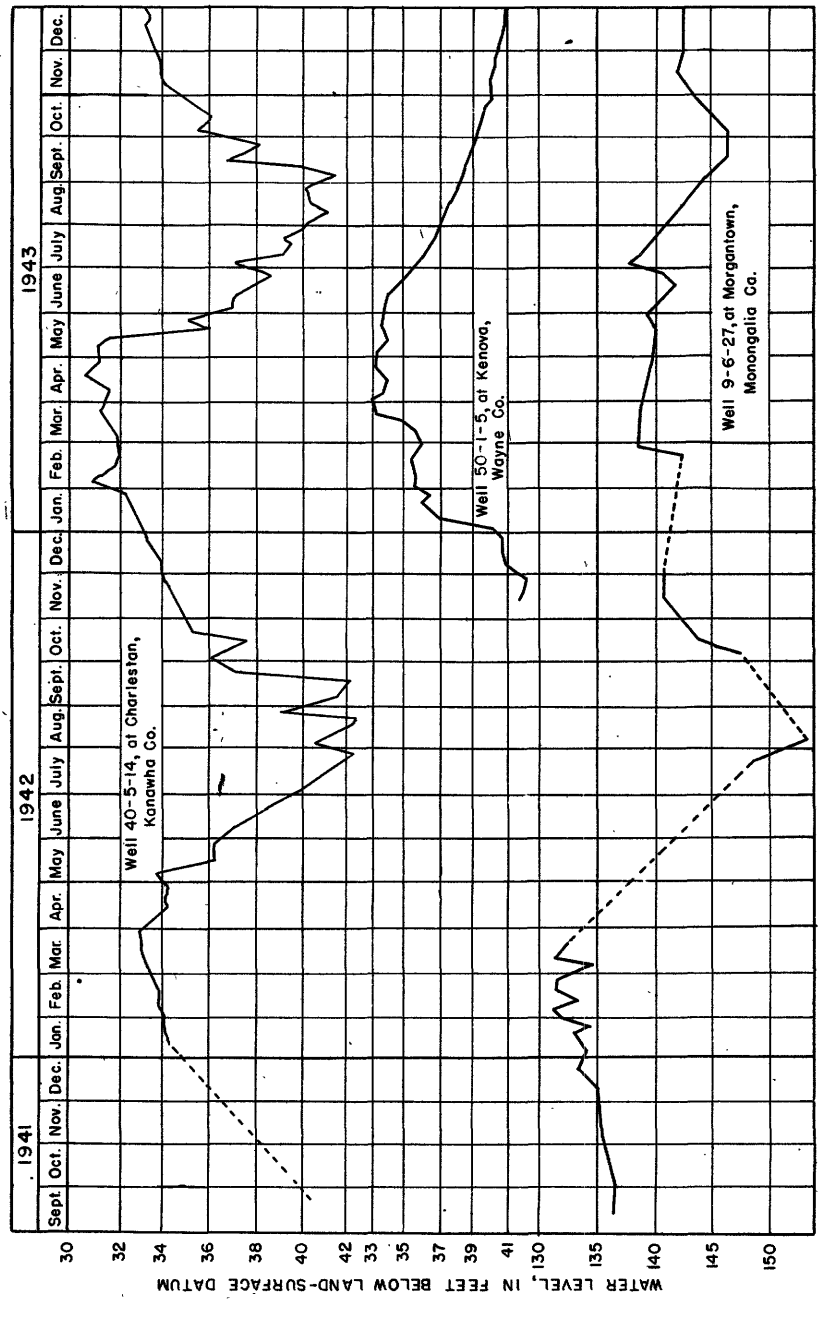

Figure 11.--Graphs showing fluctuations of water level in three typical observation wells in West Virginia.

during the winter at least 975,700 gallons of ground water a day is pumped in the city for use in cooling and air-conditioning systems, and that during the summer at least 2,145,500 gallons a day is pumped.

In well 9-6-27, at Morgantown, the water level averaged about 5 feet lower during the first 3 months of 1943 than during the corresponding period in 1942, but its decline during the summer of 1943 was not as great as during the summer of 1942. It is notable that, although the water level in this well showed a net rise of 0.22 foot in 1943, at the end of the year it was about 1.4 feet below its stage at the end of 1942 and about 9 feet below its stage at the end of 1941. (See fig. 11.)

The fluctuations of water level in the shallow water-table wells are closely related to variations in local precipitation. The flow of water in the drain from the sealed coal mine near Morgantown, Monongalia County, varies significantly with the precipitation, as shown in figure 12, and is considered an index to the flow of springs and the level of the water in shallow wells in the northern part of the State. The rate of flow from this drain at the end of 1942 was near the maximum for the period of record, owing to the large amount of water that had percolated down to the water table as the result of heavy precipitation and melting snow. Abrupt increases in flow again at the end of January and in March and April 1943 indicate that considerable water was percolating downward to the water table at these times also. Early in May the flow began slowly to decrease and, except after heavy rains, continued to decrease until the end of the year. Most of the water provided by light and moderate storms during this period either was retained by the dry soil or else was lost by evaporation and transpiration or as runoff that escaped over frozen ground, so that little water was added to the underground reservoirs, especially during the last 3 months of the year. At the end of the year the rate of flow from this drain was lower than at any other time during the 17-month period of record.

The yield of springs and wells in the southern part of the State and in the northeastern panhandle was reduced appreciably during the late summer, and although conditions improved somewhat in October, shallow ground-water supplies in these areas remained critically low.

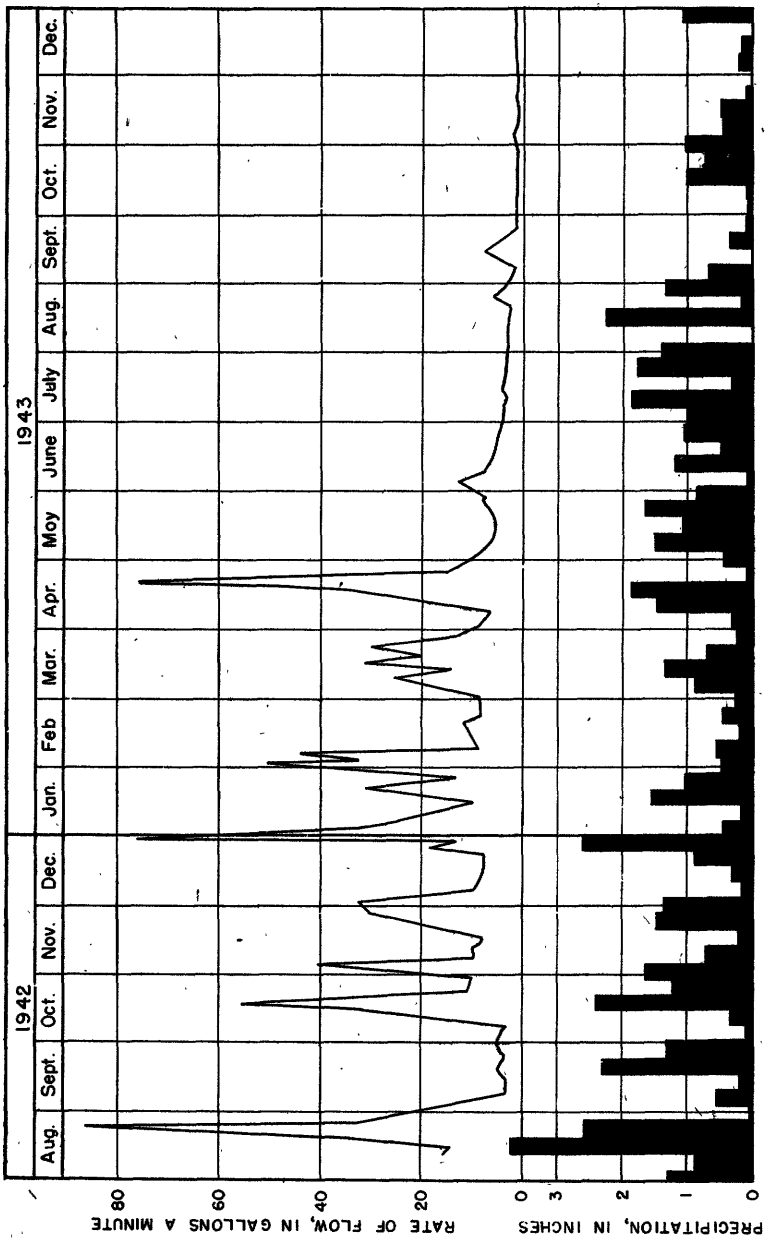

Figure 12.--Rate of flow in drain from coal mine near Morgantown, W. Va., and precipitation at Morgantown.

The deeper wells along the Ohio and other large rivers obtain their water from the relatively coarse alluvial deposits, and this may be locally under slight artesian pressure. In many of these deeper wells a principal source of recharge is the adjacent river, water from which, during floods or high stages, enters the water-bearing formations. In well 50-1-5, at Kenova, which is typical of many along the Ohio River, the water level rose abruptly early in January, after the flood in that month on the Ohio, and it rose again in March and April during periods of high river stage. It declined steadily during the remainder of the year, when the river was approximately at pool stage. (See fig. 11.)

The flood on the Ohio at the beginning of 1943 and the more than average precipitation during the first half of the year produced high water levels in the observation wells both in the valley alluvium and in the mantle rock. However, the cumulative deficiency in the precipitation during the summer and fall, low river stages, and increased local pumpage resulted in a net decline of water level for 1943 in 10 of 12 wells observed. A net rise of water level for the period of record is recorded for 8 of these wells.

The following tables summarize the fluctuations of water level in 23 observation wells for which records are available for a period sufficiently long to make the measurements significant.

Net changes in water level in 1943 and for period of record in 23 wells in West Virginia

Well	Date of first measurement	Difference between highest and lowest water levels, in feet	Net rise (+) or net decline (-), in feet	
			1943	Period of record
9-2-2	July 23, 1941	1.67	-0.90	-0.30
9-2-3	23, 1941	1.73	-.95	-.41
9-6-27	Sept.22, 1941	21.90	+.22	-5.77
9-6-45	20, 1941	22.17	+.34	+2.02
10-3-20	25, 1941	1.34	-.12	-.66
11-3-3	Aug. 29, 1941	18.06	+.79	+8.90
11-3-3A	Sept. 1, 1941	7.25	-1.51	+1.18
11-3-8	July 24, 1941	7.02	-.12	+2.84
11-3-9	Aug. 11, 1941	13.49	+3.07	+11.70
12-3-41	Jan. 16, 1942	23.82	-1.42	+.01
27-3-20	Feb. 9, 1943	7.75	-7.75	-7.75
27-3-22	Apr. 27, 1943	6.76	-4.89	-4.89
38-3-3	June 25, 1942	16.31	-7.66	-16.31
38-3-4	Nov. 24, 1942	2.81	-1.21	+1.23
38-3-5	23, 1942	3.10	-.26	+2.36
38-3-6	25, 1942	1.08	+.50	+.56
38-3-100	Dec. 11, 1942	11.61	-6.38	+1.06
38-4-3	June 26, 1942	11.93	-3.71	+2.13
40-3-1	Oct. 9, 1942	5.73	+.17	+.83
40-5-14	Sept.26, 1941	11.73	-.26	+7.93
42-4-1	Oct. 27, 1942	6.11	-1.09	-.64
42-4-2	26, 1942	13.39	-10.30	-9.51
50-1-5	Nov. 19, 1942	8.55	-.99	+.66

Highest and lowest recorded water levels for period of record in 23 wells in West Virginia

Well	Highest, in feet below land-surface datum	Date	Lowest, in feet below land-surface datum	Date
9-2-2	11.90	Sept. 11, 1941	13.57	Nov. 20, 1943
9-2-3	11.15	11, 1941	12.88	20, 1943
9-6-27	131.15	Feb. 6, 1942	153.05	Aug. 6, 1942
9-6-45	10.46	May 31, 1943	32.63	Sept. 22, 1941
10-3-20	52.46	Aug. 13, 1943	53.80	Nov. 5, 1943
11-3-3	2.23	May 31, 1943	20.29	1, 1943
11-3-3A	2.20	31, 1943	9.45	June 30, 1943
11-3-8	12.61	Feb. 17, 1942	19.63	Nov. 1, 1943
11-3-9	9.42	Mar. 10, 1942	22.91	Aug. 11, 1941
12-3-41	.21	Apr. 27, 1943	24.03	June 11, 1943
27-3-20	32.52	Feb. 9, 1943	40.27	Oct. 31, 1943
27-3-22	28.79	May 30, 1943	35.55	Nov. 30, 1943
38-3-3	48.60	June 25, 1942	64.91	Dec. 23, 1943
38-3-4	52.85	July 16, 1943	55.66	30, 1942
38-3-5	51.96	June 11, 1943	55.06	Nov. 23, 1942
38-3-6	54.17	Aug. 10, 1943	55.25	Dec. 19, 1942
				21, 1942
38-3-100	12.90	Mar. 26, 1943	24.51	11, 1942
38-4-3	34.50	23, 1943	46.43	June 26, 1942
40-3-1	7.77	Apr. 26, 1943	13.50	Oct. 11, 1943
40-5-14	30.77	21, 1943	42.50	Aug. 20, 1942
42-4-1	22.09	Feb. 24, 1943	28.20	Sept. 8, 1943
42-4-2	a .51	May 24, 1943	12.88	Oct. 8, 1943
50-1-5	38.08	Apr. 3, 1943	46.63	Nov. 26, 1942

a Above land-surface datum.

WELL-NUMBERING SYSTEM

Observation wells in West Virginia have been assigned segmented numbers that indicate their location by county, magisterial district, and geographic position within a district. For this purpose the counties are numbered consecutively in a general southward direction, beginning with Hancock County, which is at the northern tip of the State; the magisterial districts within each county are also numbered consecutively according to the same plan, beginning with the northernmost district; then, in each district, the individual wells are numbered consecutively, roughly according to their geographic location relative to other wells in the same district. Thus, in the segmented number 9-6-27, assigned to a well in Morgantown, 9 represents Monongalia County, 6 represents Morgan district, and 27 represents the individual well.

WELL DESCRIPTIONS AND WATER-LEVEL MEASUREMENTS

Fayette County

42-1-1. J. H. Simms. In Boomer, Falls district, at base of valley wall northeast of Kanawha River, 50 feet northeast of U. S. Highway 60, and 0.5 mile southeast of crossroads at Boomer. Unused dug well, diameter 30 inches, depth 26 feet. Measuring point, top of board floor of well cover, 0.5 foot above land surface. Water levels, in feet below land-surface datum: Oct. 24, 1942, 6.93; May 10, 1943, 6.72; Sept. 25, 1943, 7.00; Nov. 2, 1943, 5.77.

42-4-1 (*945, p. 158). Baldwin Supply Co. At Montgomery, Kanawha district.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 5	22.95	Apr. 7	24.00	July 14	27.11	Oct. 6	25.55
12	23.21	14	24.57	21	27.56	13	25.16
19	23.58	21	23.04	28	27.74	20	25.36
27	22.91	27	23.17	Aug. 4	27.70	27	25.38
Feb. 2	22.99	May 5	25.01	11	27.63	Nov. 3	24.68
9	22.68	12	24.74	18	28.06	10	24.96
17	22.41	19	25.19	25	27.87	17	24.82
24	22.09	26	24.99	Sept. 1	28.01	24	24.92
Mar. 3	23.17	June 2	25.77	8	28.20	Dec. 1	24.47
10	22.66	9	26.57	15	26.22	9	24.05
17	23.32	16	26.60	22	25.83	15	24.28
24	23.50	23	27.33	29	25.82	29	24.04
31	23.19	30	27.87				

42-4-2 (*945, p. 158). Virginian Railway Co. At Deepwater, Kanawha district.

Water level, in feet with reference to land-surface datum, 1943

Jan. 4	-0.10	Mar. 29	+0.01	May 24	+0.51	Sept. 24	-10.02
11	-.60	Apr. 5	-2.29	31	-2.90	29	-10.48
Feb. 1	-2.96	12	+.01	June 7	-.99	Oct. 8	-12.88
8	-3.43	19	-.11	14	-2.96	17	-11.09
14	-3.17	26	-.31	July 5	-3.53	22	-11.26
22	-.79	May 3	-.43	12	-3.52	29	-10.09
Mar. 1	-1.63	10	+.42	19	-3.48	Nov. 5	-12.60
9	-.91	17	+.20	25	-3.45	12	-10.40
16	-.18						

Harrison County

12-2-26 (*945, p. 158). City of Lumberport. At Lumberport, Eagle district. No measurements made during 1943.

12-3-41 (*945, p. 159). Hope Natural Gas Co. At Bridgeport Compresso Station, Clay district.

Water level, in feet below land-surface datum, 1943

Mar. 29	0.44	May 10	0.55	June 11	a 24.03	Nov. 5	2.00
Apr. 27	.21	11	.46	Aug. 13	6.28	24	1.86

Jackson County

30-2-1 (*945, p. 159). City of Ravenswood. At Ravenswood, Ravenswood district. Water level, in feet below land-surface datum, 1943: Mar. 17, 35.49.

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a Well about 150 feet away pumped continuously 10 days previous to measurement.

30-2-2. City of Ravenswood. At Ravenswood, Ravenswood district, on terrace of Ohio River, in center of old municipal pumping station, 500 feet west of railroad station. Abandoned drilled well, diameter 12 inches, depth 80 feet. Measuring point, top of casing, 3.5 feet above land surface. Water level, in feet below land-surface datum, 1943: May 30, 35.85.

Kanawha County

40-3-1 (*945, p. 159). L. T. Smith. At Nitro, Union district.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 25	10.64	May 12	9.83	July 28	11.66	Oct. 11	13.50
Feb. 1	10.57	24	10.92	Aug. 6	12.06	19	11.95
15	11.21	June 4	10.64	13	12.20	28	11.70
23	9.86	10	11.19	23	12.40	Nov. 9	11.39
Mar. 6	9.89	14	10.78	28	11.86	20	11.39
12	9.64	22	10.93	Sept. 4	12.09	27	11.49
16	9.14	29	11.19	14	12.05	Dec. 9	11.55
22	8.86	July 6	11.29	21	12.22	18	11.00
Apr. 26	7.77	16	11.35	27	12.66	29	10.47
May 6	8.88	21	12.01	Oct. 4	12.70		

40-5-14 (*937, p. 117; 945, p. 159). Coyle & Richardson Department Store. At Charleston, Charleston district.

Water level, in feet below land-surface datum, 1943

Jan. 11	32.94	May 14	32.09	July 31	40.42	Oct. 21	35.37
21	32.50	20	36.32	Aug. 12	41.25	Nov. 8	34.12
Feb. 4	31.08	29	35.22	20	40.44	12	34.00
25	32.10	June 5	37.02	26	40.38	18	34.00
Mar. 11	32.09	10	37.25	Sept. 7	41.69	30	33.70
25	31.35	26	38.80	16	40.04	Dec. 3	33.64
Apr. 7	31.72	July 1	37.03	25	36.94	10	33.52
21	30.77	9	39.39	30	38.02	17	33.36
29	31.40	15	39.67	Oct. 7	35.70	23	33.44
May 6	31.30	26	38.82	14	36.18	30	33.20

40-5-15 (*945, p. 159). Valley Bell Dairy. At Charleston, Charleston district. No measurements made during 1943.

40-10-1 (*945, p. 159). G. W. Gibson. At Shrewsbury, Cabin Creek district. Water levels, in feet below land-surface datum, 1943: May 10, 10.51; Sept. 25, 12.89; Nov. 2, 11.96.

Marion County

10-3-20 (*937, p. 117; 945, p. 160). Bethlehem Mines Corporation. At Barrackville, Fairmont district. Water levels, in feet below land-surface datum, 1943: June 1, 53.68; Aug. 13, 52.46; Nov. 5, 53.80.

Mason County

38-3-3 (*945, p. 160). West Virginia Industrial School for Colored Boys. At Lakin, Robinson district. Measuring point is 0.9 foot above land surface. (In Water-Supply Paper 945, p. 160, the altitude of the measuring point above land surface is erroneously given as 2 feet. To correct the measurements of water level given in that report, add 1.1 feet to each.)

Water level, in feet below land-surface datum, 1943

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	58.55	60.44	60.40	55.39	56.05	57.65	.....	.....	.....	.....	.....
2	.....	59.01	60.43	60.46	.....	56.36	58.08	61.27	.....	63.30	.....	.....
3	.....	59.05	60.56	60.57	55.00	56.52	58.19	.....	.....	.....	.....	.....
4	.....	59.23	60.49	.....	54.96	56.74	.....	61.51	.....	.....	.....	.....
5	57.25	59.25	60.50	60.68	54.93	56.95	58.47	.....	.....	.....	.....	.....

38-3-3. West Virginia Industrial School for Colored Boys--Continued.
Water level, in feet below land-surface datum, 1943

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
6	56.80	59.26	60.55	60.57	54.84	.....	58.78	61.49	.....	.....	.....	.....
7	56.42	59.06	.....	60.50	54.87	57.31	58.91	61.73	.....	.....	.....	.....
8	56.57	59.24	60.68	60.29	54.95	57.42	58.84	.....	.....	.....	.....	.....
9	56.54	59.35	60.68	59.90	.....	57.62	59.16	61.91	.....	.....	.....	.....
10	56.58	59.44	60.74	59.60	55.06	57.77	59.16	.....	.....	.....	.....	.....
11	56.44	.....	60.79	.....	55.13	57.90	.....	61.84	.....	.....	.....	.....
12	56.41	59.40	60.85	59.02	55.17	58.05	59.74	.....	.....	.....	64.18	.....
13	56.34	59.57	60.74	58.74	55.20	.....	59.82	.....	.....	.....	.....	.....
14	56.38	.....	.....	58.62	55.15	58.23	59.95	.....	.....	.....	.....	.....
15	56.06	59.74	61.19	58.47	54.97	57.93	60.05	.....	.....	63.56	.....	.....
16	56.20	59.72	60.91	58.35	.....	57.75	60.18	.....	.....	.....	.....	.....
17	56.29	59.76	60.96	58.70	54.65	57.45	60.17	.....	.....	.....	.....	.....
18	56.50	59.85	60.82	.....	54.52	57.20	.....	.....	.....	.....	.....	.....
19	56.98	60.12	60.82	58.39	54.38	56.95	60.25	.....	.....	.....	.....	.....
20	57.11	59.99	60.79	58.20	54.51	.....	60.56	.....	.....	.....	.....	.....
21	57.12	.....	.....	58.18	54.15	56.54	60.40	.....	.....	.....	.....	.....
22	57.28	59.99	60.78	57.69	54.20	56.33	60.72	.....	.....	.....	.....	.....
23	57.59	60.15	60.68	57.35	.....	56.14	60.69	.....	63.47	.....	.....	64.91
24	57.76	60.44	60.85	57.07	53.78	56.07	60.86	.....	.....	.....	.....	.....
25	57.88	60.30	60.47	.....	53.88	.....	.....	.....	.....	.....	.....	.....
26	58.19	60.25	60.40	56.37	54.01	56.69	60.99	.....	.....	.....	64.19	.....
27	58.21	60.23	60.36	56.10	54.46	.....	61.10	.....	.....	.....	.....	.....
28	58.45	.....	.....	55.83	54.75	57.24	61.03	.....	.....	.....	.....	.....
29	58.54	.....	60.35	55.70	55.23	57.48	61.19	.....	.....	64.18	.....	.....
30	58.70	.....	60.47	55.55	.....	57.69	61.25	.....	.....	.....	.....	.....
31	58.75	.....	60.63	.....	55.73	.....	61.23	.....	.....	.....	.....	.....

38-3-4 (*945, p. 160). V. K. Smith. At Kaylong, Robinson district.
Water level, in feet below land-surface datum, 1943

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.
1	.....	53.98	54.08	.....	.....	53.43	53.09	.....	.....	.....	.....
2	.....	.....	.....	.....	.....	53.39	53.09	53.02	.....	53.45	.....
3	.....	.....	.....	.....	53.87	53.38	53.08	.....	.....	.....	.....
4	.....	.....	.....	.....	53.85	53.36	.....	52.98	.....	.....	.....
5	55.19	.....	.....	54.05	53.85	53.37	53.03	.....	.....	.....	.....
6	55.06	.....	.....	.....	53.81	.....	53.02	53.03	.....	.....	.....
7	54.94	.....	.....	.....	53.79	53.33	53.03	.....	.....	.....	.....
8	54.83	53.98	54.16	.....	53.79	53.30	53.01	.....	.....	.....	.....
9	54.74	.....	.....	.....	.....	53.30	53.01	53.01	.....	.....	.....
10	.....	.....	.....	.....	53.75	53.28	53.00	53.01	.....	.....	.....
11	54.63	.....	.....	.....	53.74	53.27	.....	.....	.....	.....	.....
12	54.46	.....	.....	53.98	53.70	53.25	53.05	.....	.....	.....	53.84
13	.....	.....	.....	.....	53.70	.....	52.99	.....	.....	.....	.....
14	.....	.....	.....	.....	53.71	53.25	53.00	.....	.....	.....	.....
15	54.26	54.11	54.20	.....	53.70	53.24	52.98	.....	.....	53.56	.....
16	.....	.....	.....	.....	.....	53.22	52.85	.....	.....	.....	.....
17	.....	.....	.....	.....	53.69	53.20	52.97	.....	.....	.....	.....
18	54.14	.....	.....	.....	53.65	53.20	.....	.....	.....	.....	.....
19	.....	.....	.....	.....	53.64	53.19	52.97	.....	.....	.....	.....
20	54.09	.....	.....	.....	53.61	.....	52.98	.....	.....	.....	.....
21	.....	.....	.....	.....	53.60	53.18	52.99	.....	.....	.....	.....
22	.....	54.04	54.22	.....	53.58	53.16	52.97	.....	.....	.....	.....
23	.....	.....	.....	.....	.....	53.15	52.98	.....	53.38	.....	.....
24	.....	.....	.....	.....	53.54	53.15	52.98	.....	.....	.....	.....
25	.....	.....	.....	.....	53.52	.....	.....	.....	.....	.....	.....
26	.....	.....	.....	.....	53.49	53.13	52.97	.....	.....	.....	53.98
27	.....	.....	.....	.....	53.49	.....	52.97	.....	.....	.....	.....
28	.....	.....	.....	.....	53.48	53.08	52.96	.....	.....	.....	.....
29	.....	.....	54.15	.....	53.47	53.09	52.97	.....	.....	53.67	.....
30	.....	.....	.....	.....	.....	53.10	52.98	.....	.....	.....	.....
31	.....	.....	.....	.....	53.43	.....	52.99	.....	.....	.....	.....

38-3-5 (*945, p. 160). Homer Smith. At Kaylong, Robinson district.

Water level, in feet below land-surface datum, 1943

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	.....	54.16	52.47	.....	.....	52.02	52.13	.....	.....
2	.....	.....	.....	.....	.....	51.99	52.12	52.30	.....
3	.....	.....	.....	.....	52.15	51.99	52.13	.....	.....
4	.....	.....	.....	.....	52.23	52.02	.....	52.27	.....
5	52.34	.....	.....	52.38	52.17	52.04	52.01	.....	.....
6	52.32	.....	.....	.....	52.12	.....	52.07	52.38	.....
7	52.37	.....	.....	.....	52.13	51.97	52.06	.....	.....
8	52.41	52.38	52.64	.....	51.97	51.99	52.11	.....	.....
9	52.45	.....	.....	.....	.....	51.99	52.09	52.31	.....
10	.....	.....	.....	.....	52.16	51.99	52.10	52.36	.....
11	52.51	.....	.....	.....	52.10	51.96	.....	.....	.....
12	52.51	.....	.....	52.27	52.15	51.99	52.15	.....	.....
13	.....	.....	.....	.....	52.15	.....	52.17	.....	.....
14	.....	.....	.....	.....	52.15	51.98	52.18	.....	.....
15	52.43	53.03	52.62	.....	52.10	52.00	52.19	.....	.....
16	.....	.....	.....	.....	.....	52.03	52.20	.....	.....
17	.....	.....	.....	.....	52.07	51.97	52.21	.....	.....
18	52.39	.....	.....	.....	52.06	52.05	.....	.....	.....
19	.....	.....	.....	.....	52.09	52.05	52.18	.....	.....
20	52.48	.....	.....	.....	52.03	.....	52.16	.....	.....
21	.....	.....	.....	.....	52.05	52.05	52.17	.....	.....
22	.....	52.44	52.52	.....	52.10	52.02	52.24	.....	.....
23	.....	.....	.....	.....	.....	52.07	52.28	.....	52.70
24	.....	.....	.....	.....	52.03	52.05	52.29	.....	.....
25	.....	.....	.....	.....	52.01	.....	.....	.....	.....
26	.....	.....	.....	.....	51.98	52.07	52.28	.....	.....
27	.....	.....	.....	.....	52.00	.....	52.28	.....	.....
28	.....	.....	.....	.....	51.99	52.03	52.26	.....	.....
29	.....	.....	52.50	.....	52.02	52.07	52.27	.....	.....
30	.....	.....	.....	.....	.....	52.13	52.28	.....	.....
31	.....	.....	.....	.....	51.97	.....	52.28	.....	.....

38-3-6 (*945, p. 160). West Virginia Ordnance Works. At Kaylong, Robinson district.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 5	54.99	Feb. 1	54.85	Apr. 12	54.72	July 24	54.23
6	54.98	8	54.82	May 24	54.33	31	54.25
7	54.93	15	54.89	31	54.29	Aug. 4	54.22
9	54.80	22	54.77	June 8	54.26	10	54.17
11	54.74	Mar. 1	54.80	17	54.21	Sept.23	54.33
12	54.80	8	54.85	26	54.24	Oct. 15	54.28
13	54.79	15	54.81	July 2	54.32	29	54.36
15	54.74	22	54.73	9	54.25	Nov. 12	54.37
18	54.75	29	54.67	17	54.34	26	54.49
20	54.92	Apr. 5	54.65				

38-3-7 (*945, p. 160). Federal Public Housing Authority. At York Station, Robinson district. Casing obstructed; measurements discontinued after Aug. 10.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 6	46.95	Mar. 22	47.63	May 11	47.15	May 24	47.60
7	46.52	29	46.75	12	47.20	26	47.66
8	45.69	Apr. 5	46.92	13	47.27	27	47.71
11	44.96	16	47.12	14	47.32	28	47.74
15	44.73	May 1	46.80	15	47.28	29	47.77
Feb. 8	46.33	3	46.84	17	47.40	June 1	47.80
15	46.70	4	46.91	18	47.42	2	47.80
22	47.09	6	46.96	19	47.46	3	47.80
Mar. 1	47.14	7	46.99	20	47.50	4	47.80
8	47.55	8	47.04	21	47.52	5	47.82
15	47.70	10	47.10	22	47.56	7	47.78

38-3-7. Federal Public Housing Authority--Continued.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
June 8	47.80	June 23	47.90	July 2	48.11	July 10	48.30
9	47.80	24	47.92	3	48.16	12	48.39
10	47.77	26	47.87	5	48.20	13	48.37
11	47.76	28	48.00	6	48.21	14	48.42
12	47.75	29	48.03	7	48.24	15	48.47
18	47.34	30	48.07	8	48.25	30	48.66
19	47.82	July 1	48.10	9	48.27	Aug. 10	48.86
22	47.87						

38-4-3 (*945, p. 161). City of Point Pleasant. At Point Pleasant, Lewis district.

Water level, in feet below land-surface datum, 1943

Jan. 12	40.59	Apr. 13	40.60	July 17	45.00	Nov. 15	44.30
Mar. 17	40.61	22	36.50	Sept.22	45.46	23	44.20
23	34.50	29	41.50	Oct. 11	44.80	Dec. 2	45.30
30	41.50	July 7	45.30	26	43.80	11	44.30
Apr. 6	40.60						

(Gallia County, Ohio)

38-3-100. Ed Bing. 2.5 miles north-northeast of Addison, on terrace of Ohio River, 750 feet west of river, 500 feet east of State Highway 7, and 300 feet south of barn. (As the ground-water conditions in this area in Ohio are similar to those in the heavily pumped area in West Virginia on the opposite side of the Ohio River, the record of fluctuations of water level in this well may aid in the interpretation of ground-water conditions in the nearby West Virginia area.) Abandoned dug well, diameter 36 inches, depth 42 feet. Measuring point, top of southeast side of cement slab cover, 1.0 foot above land surface.

Water level, in feet below land-surface datum, 1942-43

Date	Water level	Date	Water level	Date	Water level
Dec. 11, 1942	24.51	Jan. 13, 1943	17.05	June 18, 1943	23.38
19	24.42	Mar. 26	12.90	Aug. 1	23.43
27	24.20	May 30	21.44		

Monongalia County

9-2-1 (*937, p. 117; 945, p. 161). D. C. Johnson. At Blacksville.[3/] No measurements made during 1943.

9-2-2 (*937, p. 117; 945, p. 161). Miller sawmill. At Blacksville.[3/] No pumping during 1943.

Water level, in feet below land-surface datum, 1943

Feb. 25	12.67	July 12	13.44	Nov. 20	13.57
Mar. 23	12.04	Aug. 20	13.45		

9-2-2A. Earl Miller sawmill. At Blacksville.[3/] On terrace north of Dunkard Creek, 0.25 mile east-northeast of Blacksville post office. Abandoned dug well that surrounds drilled well 9-2-2 but is not affected by it. Diameter 36 inches, depth about 12 feet. Measuring point, top of board cover over well pit at land surface. Water levels, in feet below land-surface datum: Sept. 11, 1941, 6.87; July 12, 1943, 7.97; Aug. 20, 1943, 8.15; Nov. 20, 1943, 8.73.

3/ The town of Blacksville is partly in Clay district, Monongalia County, W. Va., and partly in Wayne township, Greene County, Pa. This well is actually in Pennsylvania, a few feet north of the West Virginia boundary. It is listed in this report with West Virginia wells because Blacksville post office is in West Virginia.

9-2-3 (*937, p. 117; 945, p. 161). Eli Huss. At Blacksville.[3/]

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level
Feb. 25	11.93	Mar. 27	11.40	Aug. 20	12.70
Mar. 23	11.31	July 12	12.71	Nov. 20	12.88

9-6-1 (*937, p. 117; 945, p. 161). Baltimore & Ohio Railroad. At Sabraton, Morgan district. This is a flowing well.

Rate of flow, in gallons a minute, 1943

Date	Rate of flow	Date	Rate of flow	Date	Rate of flow	Date	Rate of flow
Feb. 19	44.5	June 30	26.8	Sept. 1	25.4	Nov. 1	18.7
Mar. 13	28.4	July 10	21.2	10	18.7	16	29.9
Apr. 24	29.9	Aug. 18	23.9	29	16.4	Dec. 31	26.8
May 21	46.6						

9-6-6 (*937, p. 118; 945, p. 161). A. J. W. Headlee. At Star City, Morgan district. Measurements discontinued.

9-6-27 (*937, p. 118; 945, p. 161). T. J. Johnson. At Morgantown, Morgan district.

Water level, in feet below land-surface datum, 1943

Feb. 20	142.40	Apr. 24	139.64	July 7	137.83	Oct. 2	146.28
Mar. 1	138.67	May 21	140.00	12	138.64	30	143.65
11	138.55	June 1	139.23	Aug. 17	142.48	Nov. 15	141.90
23	138.67	24	141.61	Sept. 2	144.24	25	142.25
29	138.97	30	140.51	18	146.01	Dec. 31	142.18

9-6-36 (*937, p. 118; 945, p. 161). Bethlehem Mines Corporation. At Richard, Morgan district. Measurements discontinued.

9-6-45 (*937, p. 118; 945, p. 161). Deckers Creek Sand Co. At Greer, Morgan district.

Water level, in feet below land-surface datum, 1943

Feb. 19	11.36	June 30	11.94	Sept. 1	12.05	Nov. 1	12.31
Mar. 13	10.74	July 10	12.40	10	11.83	16	11.76
Apr. 24	11.10	Aug. 18	11.69	29	a 29.68	Dec. 27	11.02
May 31	10.46						

9-6-46. Mr. Madire. In Morgantown, Morgan district, at 132 Prairie Street, about 100 feet southwest of corner of Prairie Street and University Avenue. Unused dug well, diameter 30 inches, depth 16 feet. Measuring point, top of board floor of well cover, at land surface.

Water level, in feet below land-surface datum, 1943

Oct. 2	14.43	Oct. 23	14.50	Nov. 27	14.90	Dec. 19	14.90
11	14.40	Nov. 12	14.20	Dec. 11	13.66	27	14.00
16	14.60						

9-6-S1. State of West Virginia. 1.5 miles northeast of Morgantown, Morgan district, adjacent to hydrology workshop on Agricultural Experiment Station farm. One of three drains from abandoned and sealed coal mine. Time required for 1 gallon to flow from outlet pipe is measured by stop watch. Measurements supplied through courtesy of S. L. Galpin, hydrologist, Agricultural Experiment Station.

3/ The town of Blacksville is partly in Clay district, Monongalia County, W. Va., and partly in Wayne township, Greene County, Pa. This well is actually in Pennsylvania, a few feet north of the West Virginia boundary. It is listed in this report with West Virginia wells because Blacksville post office is in West Virginia.

a Well 9-6-44, about 55 feet west, pumped irregularly.

9-6-51. State of West Virginia--Continued.

Rate of flow, in gallons a minute, 1942-43

Date	Rate of flow	Date	Rate of flow	Date	Rate of flow
Aug. 14, 1942	15.0	Jan. 6, 1943	24.0	May 22, 1943	6.1
15	14.0	15	9.5	26	7.0
18	33.3	16	8.6	27	7.7
19	28.6	21	30.0	30	6.7
24	85.7	22	24.0	June 1	8.8
25	30.0	25	13.3	2	10.5
Sept. 10	3.7	Feb. 2	50.0	3	12.0
16	3.2	3	30.0	7	8.6
18	5.0	5	42.9	10	6.6
23	3.8	9	7.1	11	6.2
30	5.0	10	6.7	14	5.6
Oct. 1	4.6	19	12.0	15	5.5
2	4.4	22	8.6	16	5.2
3	4.2	Mar. 1	8.0	17	5.4
5	3.8	2	7.8	21	4.8
6	3.7	8	25.0	28	4.1
8	3.5	9	20.0	29	4.0
9	3.4	10	16.7	July 6	3.7
14	3.1	12	14.6	10	3.6
16	31.6	13	16.7	12	3.5
17	54.6	14	23.1	15	3.9
19	19.4	15	30.0	22	3.2
20	12.8	16	20.0	26	2.9
21	11.1	17	19.4	29	3.0
27	9.5	20	30.0	31	3.0
28	10.2	23	20.7	Aug. 5	3.2
30	10.0	27	13.3	7	2.9
Nov. 2	30.0	28	11.8	11	2.9
4	40.0	29	10.9	14	2.8
9	9.7	30	9.7	19	2.5
12	10.2	31	9.2	24	6.4
13	10.0	Apr. 1	8.6	Sept. 1	2.3
16	8.8	8	6.7	6	2.2
17	8.0	17	13.3	7	2.2
18	7.6	18	33.3	15	7.5
20	7.1	20	75.0	25	2.1
23	6.6	21	60.0	Oct. 4	2.0
25	30.0	22	31.6	13	1.8
Dec. 1	31.6	23	28.6	19	1.7
9	9.9	26	15.0	22	1.8
11	8.5	28	12.0	25	1.7
12	8.2	30	10.0	Nov. 6	1.7
15	7.5	May 5	8.4	13	1.8
18	7.2	7	6.6	19	1.7
22	7.1	9	6.6	25	1.6
23	18.2	11	5.6	Dec. 4	1.5
29	13.0	12	7.2	11	1.5
31	75.0	17	5.7	18	1.4
Jan. 2, 1943	31.6	18	5.2		

Preston County

11-3-3 (*937, p. 118; 945, p. 162). Preston County Coal & Coke Co. At Cascade, Valley district.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Feb. 19	5.00	June 30	9.36	Sept. 1	5.52	Nov. 1	a 20.29
Mar. 13	3.46	July 10	5.70	10	5.60	16	5.10
Apr. 24	4.67	Aug. 18	4.95	29	a 18.34	Dec. 27	4.21
May 31	2.23						

a Wells 165 and 345 feet northwest pumped continuously.

11-3-3A. Preston County Coal & Coke Co. At Cascade, 0.7 mile east of post office, on terrace east of Deckers Creek, 150 feet south of State Highway 7. Shallow well surrounding casing of the deeper well 11-3-3. Fluctuations in the two wells differ. Diameter 14 inches, depth 7 feet. Measuring point, top of casing of well 11-3-3, 0.5 foot above land surface.

Water level, in feet below land-surface datum, 1941, 1943

Date	Water level	Date	Water level	Date	Water level
Sept. 1, 1941	4.89	July 10, 1943	5.90	Sept.10, 1943	5.61
May 31, 1943	2.20	Aug. 18	4.58	Nov. 16	4.58
June 30	9.45	Sept. 1	5.48	Dec. 27	3.71

11-3-4 (*937, p. 118; 945, p. 162). Masontown well 4. At Oak Park, Valley district. No measurements made during 1943.

11-3-5 (*937, p. 118; 945, p. 162). Masontown well 3. At Oak Park, Valley district. No measurements made during 1943.

11-3-8 (*937, p. 119; 945, p. 162). G. E. Lemmons. At Masontown, Valley district.

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
July 10	14.46	Sept. 1	16.35	Sept.29	18.58	Nov. 16	15.82
Aug. 18	12.92	10	17.15	Nov. 1	19.63	Dec. 27	14.58

11-3-9 (*937, p. 119; 945, p. 162). Martin L. Massie. At Masontown, Valley district.

Water level, in feet below land-surface datum, 1943

July 10	14.28	Sept. 1	22.24	Sept.29	22.24	Nov. 16	14.63
Aug. 18	11.10	10	21.29	Nov. 1	17.67	Dec. 27	11.21

11-3-14 (*937, p. 119; 945, p. 162). National Youth Administration. At Reedsville, Valley district. Water level, in feet above land-surface datum, 1943: Feb. 19, 0.74.

11-3-51 (*937, p. 119; 945, p. 162). Elmer Smith. At Sutherland, Valley district. No measurements made during 1943.

Putnam County

39-1-6. Town of Buffalo. At Buffalo, Buffalo district, on terrace of Kanawha River, 65 feet west of city pumping station, in northeast Buffalo. Unused drilled well, diameter 8 inches, depth 110 feet. Measuring point, top of pump seat, 1.2 feet above land surface. Water level affected by pumpage from nearby well. Water levels, in feet below land-surface datum, 1943: May 17, 59.80; July 8, 58.30; Oct. 18, 66.80.

39-1-7. C. C. Wears. At south edge of Buffalo, Buffalo district, on terrace of Kanawha River, about 150 feet east of U. S. Highway 35. Abandoned dug well, diameter 20 inches, depth 26 feet. Measuring point, top of stone casing, 0.4 foot above land surface. Water levels, in feet below land-surface datum, 1943: May 17, 4.62; Oct. 18, 6.65.

39-1-8. H. E. Fruth. At south edge of Buffalo, Buffalo district, on terrace east of Kanawha River, 1.35 miles southwest of church, and 50 feet north of Fruth Service Station. Unused drilled well, diameter 5-5/8 inches, depth 165 feet. Measuring point, top of casing, 1.6 feet above land-surface. Water levels, in feet below land-surface datum: Nov. 2, 1942, 33.54; May 9, 1943, 31.49; Sept. 24, 1943, 31.85.

39-1-10. Burgess Tate. At Woods, Buffalo district, on terrace of Kanawha River at Rose Tavern, 65 feet north of U. S. Highway 35 and 0.6 mile north of Little Buffalo Creek. Drilled stock well, diameter 6 inches, depth 127 feet. Yields saline water. Measuring point, top of casing, 2.12 feet above land surface. Water levels, in feet below land-surface datum: Nov. 3, 1942, 44.99; Sept. 24, 1943, 45.60.

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Wayne County

50-1-5 (*945, p. 162). Ashland Oil & Refining Co. In Kenova, Ceredo district. Measuring point is 4.9 feet above land surface. (In Water-Supply Paper 945, on p. 162, the altitude of the measuring point is erroneously given as at land surface. To correct the measurements given in that report, subtract 4.9 feet from each.)

Water level, in feet below land-surface datum, 1943

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 5	40.00	Apr. 3	33.18	July 12	35.89	Oct. 22	39.61
12	36.93	8	33.47	22	36.43	29	39.85
23	36.00	20	33.88	Aug. 20	37.59	Nov. 5	39.85
27	36.27	27	33.20	27	37.77	12	39.84
Feb. 6	35.47	May 6	33.28	Sept. 4	38.13	20	40.21
10	35.49	12	33.84	10	38.33	26	40.23
18	35.40	24	33.62	18	38.60	Dec. 3	40.37
Mar. 1	35.70	June 1	33.53	25	38.83	11	40.62
9	35.53	9	33.75	Oct. 1	39.01	17	40.64
20	35.97	16	33.91	8	39.08	24	40.77
26	33.25	29	34.98	16	39.50	31	40.99

Wetzel County

6-1-1. Owner unknown. At Proctor, Proctor district, on terrace east of Ohio River, 150 feet west of Baltimore & Ohio Railroad tracks, and 0.75 mile east of church. Abandoned dug well, diameter 21 inches, depth 25 feet. Measuring point, top of cement casing, 1.8 feet above land surface. Water levels, in feet below land-surface datum: Sept. 26, 1942, 5.90; Mar. 24, 1943, 2.16; July 12, 1943, 5.27; Aug. 20, 1943, 4.99.

Wood County

27-3-20. City of Parkersburg well 4. At Parkersburg, Parkersburg district, on terrace about 200 feet from Ohio River and 525 feet north of municipal pumping plant. Unused gravel-packed well, diameter 18 inches, depth 57 feet. Measuring point, top of elbow of discharge pipe, 5.8 feet below land surface which is 635 feet above sea level. Water level affected by stage in river and pumping of nearby wells. Recorder installed Apr. 27 and removed Nov. 1, when well was put in operation.

Lowest daily water level, in feet below land-surface datum, 1943
(From recorder charts)

Day	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.
1	.....	.....	.....	35.78	.....	.....	38.77	38.88	40.19	40.27
2	.....	.....	.....	35.72	.....	37.50	38.75	.....	40.20	.....
3	.....	.....	.....	36.13	34.52	37.28	38.71	.....	39.85	.....
4	.....	.....	.....	36.16	b34.81	37.15	39.00	.....	39.83	.....
5	.....	.....	.....	.....	34.92	37.15	39.80	39.02	39.90	.....
6	.....	.....	.....	.....	.....	37.08	38.68	38.86	39.93	.....
7	.....	.....	.....	.....	.....	37.65	38.64	38.85	39.94	.....
8	.....	.....	.....	.....	.....	38.32	38.70	38.80	39.81	.....
9	a32.52	.....	.....	.....	.....	38.35	38.72	38.78	39.85	.....
10	.....	.....	.....	.....	a36.27	38.30	38.81	39.04	39.87	.....
11	.....	.....	.....	.....	.....	38.13	39.14	39.23	39.87	.....
12	.....	.....	.....	36.35	.....	38.20	39.20	39.28	39.83	.....
13	.....	.....	.....	34.66	.....	b38.25	39.27	38.85	39.85	.....
14	.....	.....	.....	34.41	.....	38.34	39.11	38.85	39.90	.....
15	.....	.....	.....	34.15	.....	38.41	38.93	38.85	b39.90	.....
16	.....	.....	.....	33.67	.....	b38.55	38.92	39.05	39.90	.....
17	.....	a33.51	.....	33.57	.....	38.70	a39.10	39.18	39.88	.....
18	.....	.....	.....	34.36	.....	.....	39.24	39.30	39.87	.....
19	.....	.....	.....	34.95	a37.00	.....	39.35	39.77	40.00	.....
20	.....	.....	.....	34.85	.....	.....	39.38	39.59	40.00	.....

a Tape measurement.
b Interpolated.

27-3-20. City of Parkersburg well 4--Continued.

Lowest daily water level, in feet below land-surface datum, 1943
(From recorder charts)

Day	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.
21	.....	.....	.....	34.63	.....	.....	39.10	39.60	40.00	.....
22	.....	.....	.....	34.33	.....	.....	39.06	39.63	40.02	.....
23	.....	.....	.....	34.18	.....	.....	38.95	39.67	39.94	.....
24	.....	.....	.....	33.83	37.36	.....	38.95	39.68	40.03	.....
25	.....	.....	.....	33.73	37.47	a38.82	38.97	39.71	40.11	.....
26	.....	.....	.....	33.73	47.39	.....	39.24	39.71	40.19	.....
27	.....	.....	35.40	33.73	b37.34	.....	39.28	39.73	40.21	.....
28	.....	.....	35.33	.....	37.27	.....	39.28	39.73	40.26	.....
29	.....	.....	35.49	.....	.....	.....	39.22	39.74	40.25	.....
30	.....	.....	35.77	33.79	a37.45	.....	38.89	40.00	40.26	.....
31	.....	.....	.....	.....	.....	.....	38.85	.....	40.27	.....

27-3-22. City of Parkersburg test well F. At Parkersburg, Parkersburg district, on terrace about 700 feet from Ohio River and 600 feet northeast of municipal pumping plant. Unused drilled well, diameter 5 inches, depth 55 feet. Measuring point, top of casing, 3 feet above land-surface which is 610 feet above sea level. Automatic water-stage recorder installed on Sept. 21.

Lowest daily water level, in feet below land-surface datum, 1943
(From recorder charts beginning Sept. 21)

Day	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.
1	.....	.....	.....	.....	.....	.....	35.30	35.45
2	.....	.....	29.47	32.10	.....	.....	35.31	35.26
3	.....	.....	30.13	32.87	.....	.....	35.20	35.24
4	.....	31.47	.....	.....	34.38	.....	35.21	35.23
5	.....	.....	30.54	.....	.....	.....	35.20	.....
6	.....	31.59	.....	.....	.....	.....	35.16	.....
7	.....	.....	.....	32.83	.....	.....	35.17	.....
8	.....	.....	.....	.....	34.92	.....	35.18	.....
9	.....	.....	.....	33.51	.....	.....	35.19	.....
10	.....	.....	31.59	.....	.....	.....	35.24	.....
11	.....	31.98	.....	33.55	.....	.....	35.21	.....
12	.....	.....	.....	33.63	.....	.....	35.15	.....
13	.....	.....	.....	33.72	34.57	.....	35.15	.....
14	.....	30.13	.....	.....	.....	.....	35.20	.....
15	.....	.....	.....	33.78	.....	.....	35.22	.....
16	.....	.....	.....	.....	.....	.....	35.25	.....
17	.....	.....	.....	.....	.....	.....	35.21	.....
18	.....	.....	.....	.....	.....	.....	35.26	.....
19	.....	30.64	32.66	.....	.....	.....	35.27	.....
20	.....	.....	.....	.....	.....	.....	35.29	.....
21	.....	29.57	.....	.....	.....	34.55	35.24	.....
22	.....	29.47	.....	.....	34.44	34.89	35.26	.....
23	.....	.....	.....	.....	.....	34.95	35.22	35.39
24	.....	28.93	32.67	.....	.....	34.96	35.20	35.42
25	.....	.....	32.77	.....	.....	35.05	35.22	35.38
26	.....	.....	32.74	.....	.....	35.06	35.33	35.41
27	30.66	28.85	.....	.....	.....	35.07	35.35	35.42
28	31.16	.....	32.54	.....	.....	35.08	35.42	35.45
29	.....	.....	.....	.....	.....	35.08	35.41	35.50
30	30.70	28.79	32.87	.....	.....	35.16	35.42	35.55
31	.....	.....	.....	.....	.....	.....	35.43	.....

a Tape measurement.
b Interpolated.