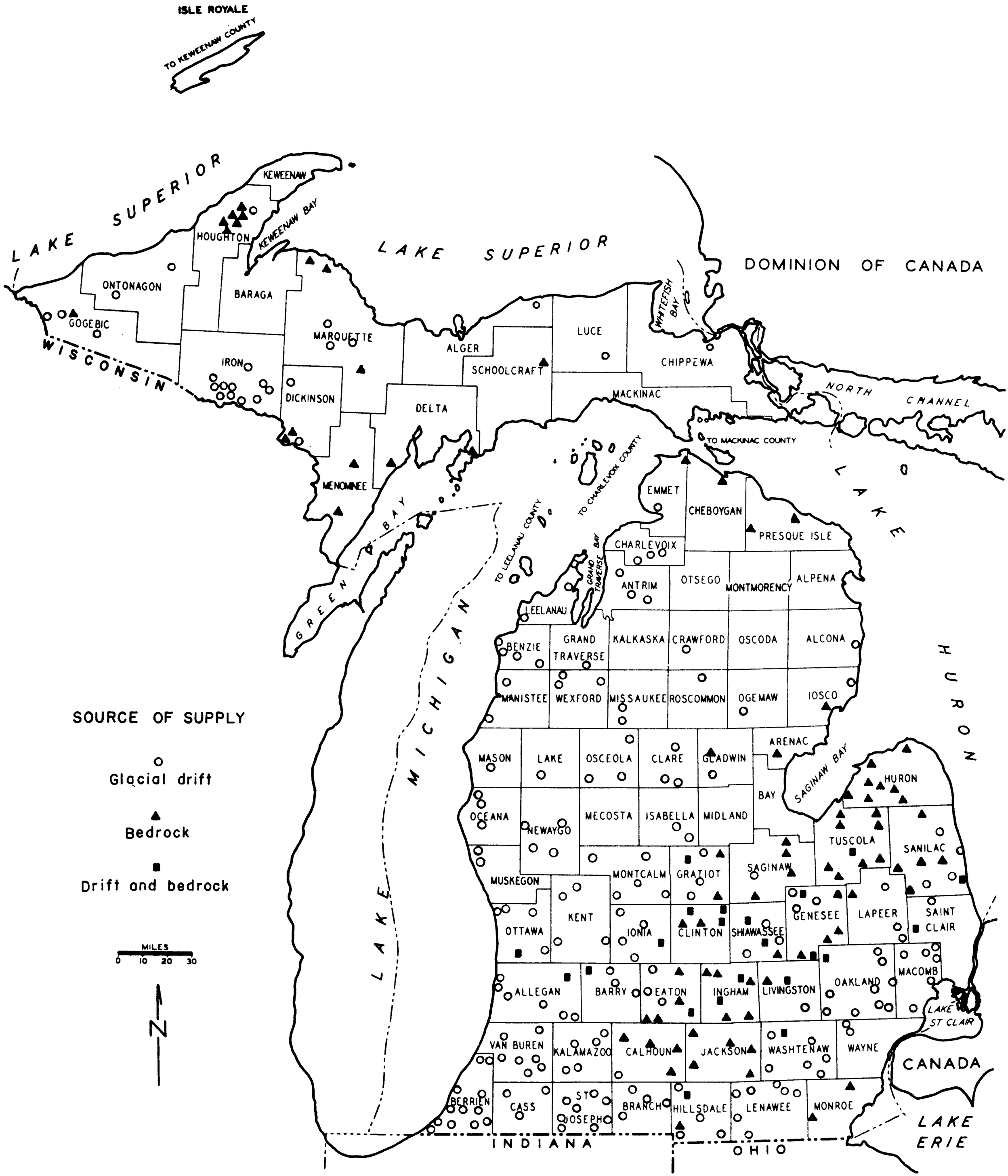
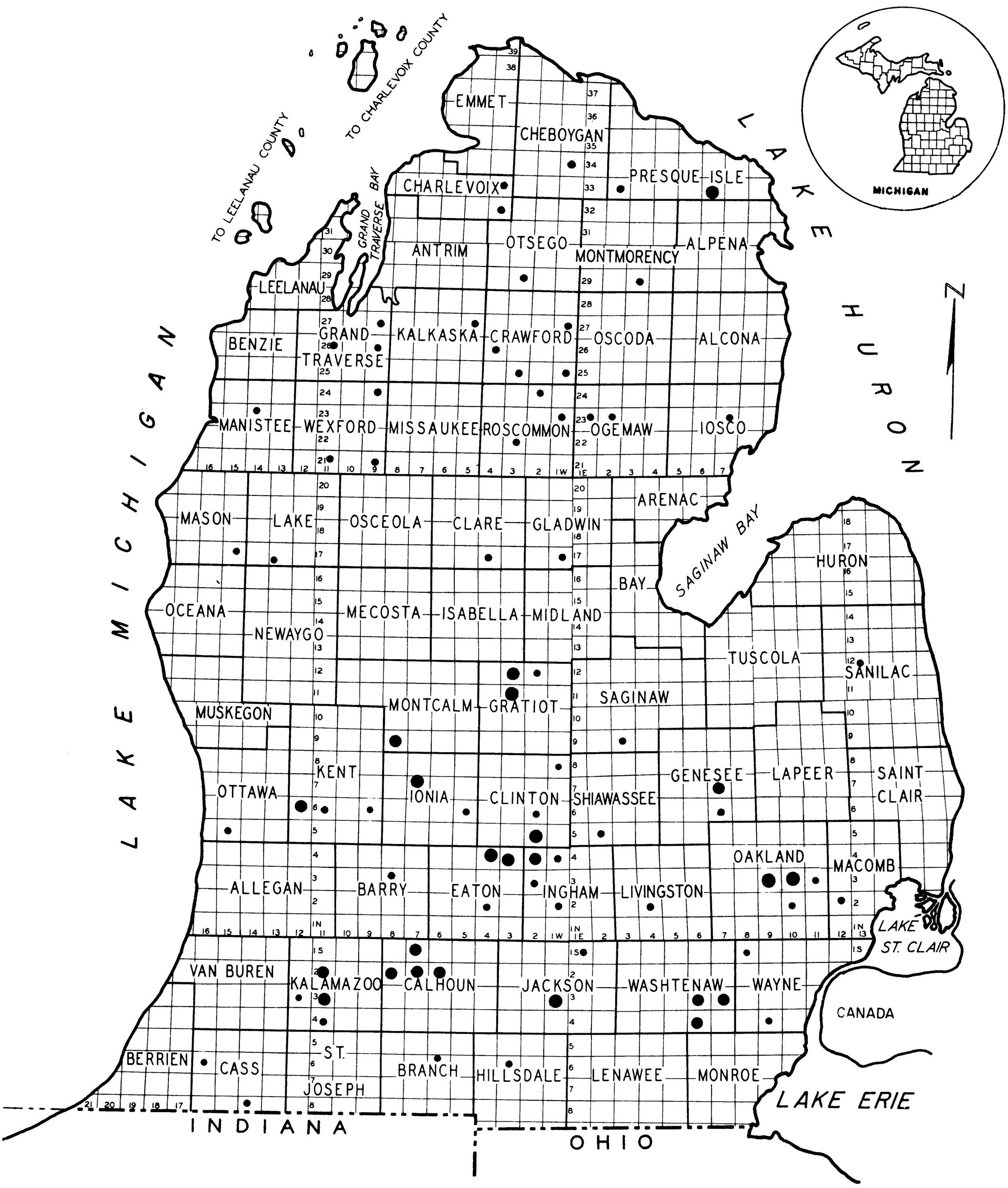
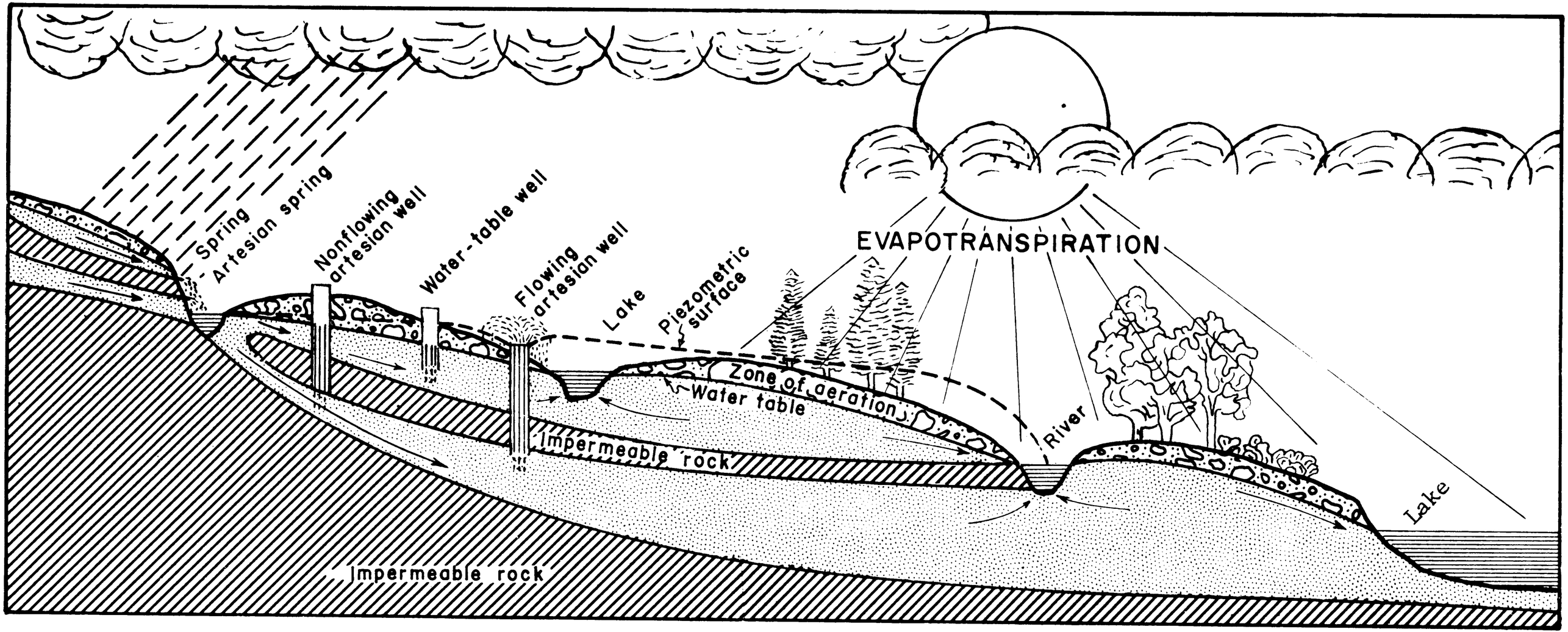
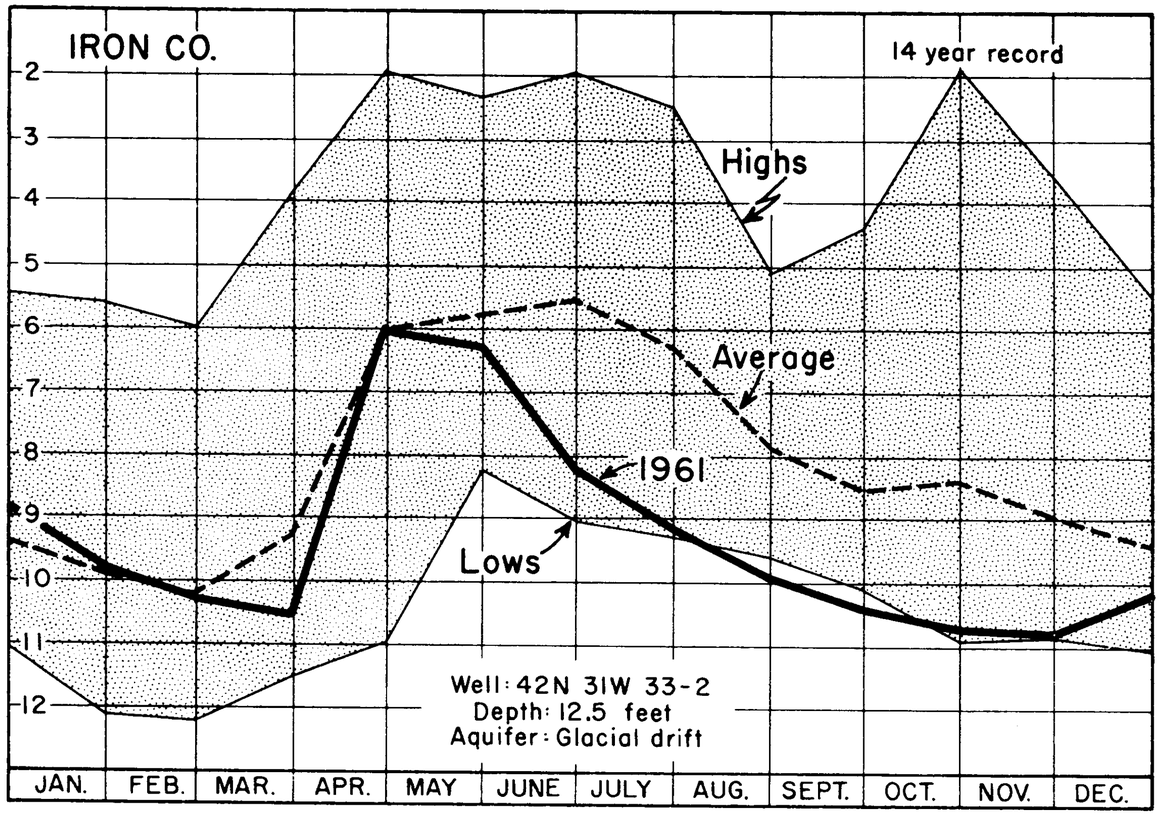

ISLE ROYALE
TO KEWEENAW COUNTY
LAKE SUPERIOR
KEWEENAW
KEWEENAW BAY
HOUGHTON
ONTONAGON
BARAGA
GOGEBIC
WISCONSIN
MARQUETTE
IRON
DICKINSON
DELTA
ALGER
SCHOOLCRAFT
LUCE
CHIPPEWA
MACKINAC
WHITEFISH BAY
DOMINION OF CANADA
NORTH CHANNEL
TO MACKINAC COUNTY
MENOMINEE
GREEN BAY
TO LEELANAU COUNTY
TO CHARLEVOIX COUNTY
GRAND TRAVERSE BAY
EMMET
CHEBOYGAN
PRESQUE ISLE
CHARLEVOIX
ANTRIM
OTSEGO
MONTMORENCY
ALPENA
LEELANAU
BENZIE
GRAND TRAVERSE
KALKASKA
CRAWFORD
OSCODA
ALCONA
MANISTEE
WEXFORD
MISSAUKEE
ROSCOMMON
OGEMAW
IOSCO
MICHIGAN
LAKE HURON
SOURCE OF SUPPLY
Glacial drift
Bedrock
Drift and bedrock
MILES
0 10 20 30
N
MASON
LAKE
OSCEOLA
CLARE
GLADWIN
ARENAC
BAY
SAGINAW BAY
HURON
OCEANA
NEWAYGO
MECOSTA
ISABELLA
MIDLAND
TUSCOLA
SANILAC
MUSKEGON
MONTCALM
GRATIOT
SAGINAW
LAKE MICHIGAN
OTTAWA
KENT
IONIA
CLINTON
SHIAWASSEE
GENESEE
LAPEER
SAINT CLAIR
ALLEGAN
BARRY
EATON
INGHAM
LIVINGSTON
OAKLAND
MACOMB
LAKE ST CLAIR
VAN BUREN
KALAMAZOO
CALHOUN
JACKSON
WASHTENAW
WAYNE
CANADA
BERRIEN
CASS
ST JOSEPH
BRANCH
HILLSDALE
LENAWEE
MONROE
LAKE ERIE
INDIANA
OHIO

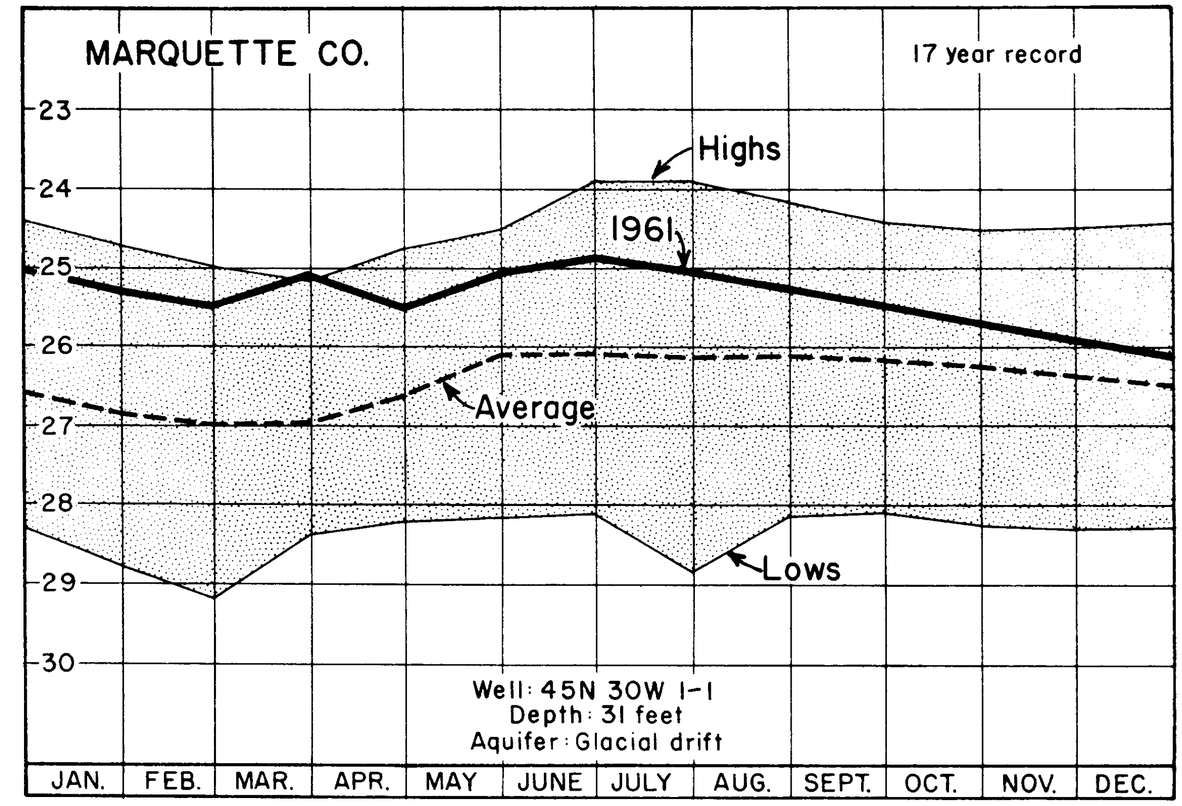

MICHIGAN
LAKE
LAKE HURON
N
TO CHARLEVOIX COUNTY
TO LEELANAU COUNTY
GRAND TRAVERSE BAY
SAGINAW BAY
LAKE ST. CLAIR
LAKE ERIE
CANADA
INDIANA
OHIO
EMMET
CHEBOYGAN
PRESQUE ISLE
CHARLEVOIX
ANTRIM
OTSEGO
MONTMORENCY
ALPENA
LEELANAU
GRAND TRAVERSE
BENZIE
KALKASKA
CRAWFORD
OSCODA
ALCONA
MANISTEE
WEXFORD
MISSAUKEE
ROSCOMMON
OGEMAW
IOSCO
ARENAC
MASON
LAKE
OSCEOLA
CLARE
GLADWIN
HURON
BAY
OCEANA
NEWAYGO
MECOSTA
ISABELLA
MIDLAND
TUSCOLA
SANILAC
MUSKEGON
MONTCALM
GRATIOT
SAGINAW
KENT
OTTAWA
IONIA
CLINTON
SHIAWASSEE
GENESEE
LAPEER
SAINT CLAIR
OAKLAND
MACOMB
ALLEGAN
BARRY
EATON
INGHAM
LIVINGSTON
VAN BUREN
KALAMAZOO
CALHOUN
JACKSON
WASHTENAW
WAYNE
BERRIEN
CASS
ST. JOSEPH
BRANCH
HILLSDALE
LENAWEE
MONROE
MICHIGAN

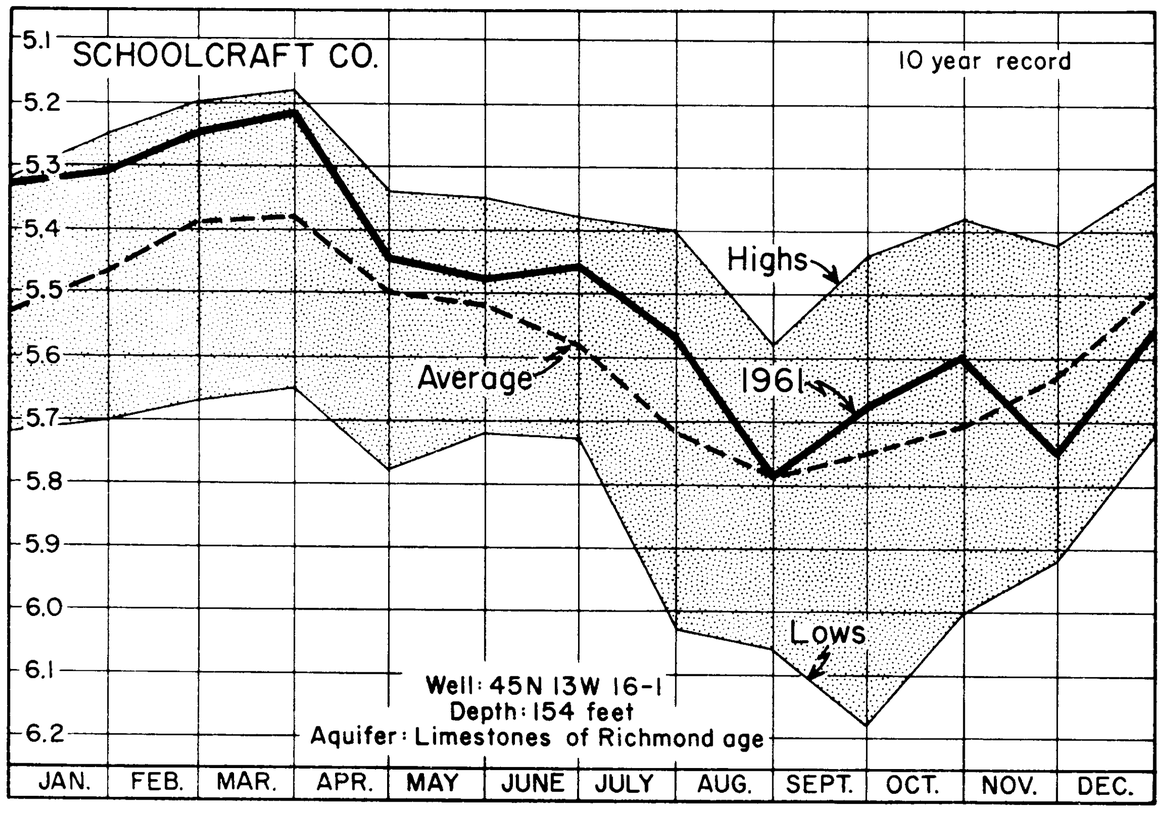
ISLE ROYALE
TO KEWEENAW COUNTY
EXPLANATION
Observation well
Two or more observation wells
N
0 10 20 30 Miles
R.30 W.
T. 49 N.
Diagram of geographical township
LAKE SUPERIOR
KEWEENAW
KEWEENAW BAY
HOUGHTON
ONTONAGON
BARAGA
GOGEBIC
MARQUETTE
IRON
DICKINSON
ALGER
SCHOOLCRAFT
LUCE
CHIPPEWA
MACKINAC
DELTA
MENOMINEE
WISCONSIN
Menominee River
WHITEFISH BAY
TO MACKINAC COUNTY
GREEN BAY
LAKE MICHIGAN
LAKE HURON

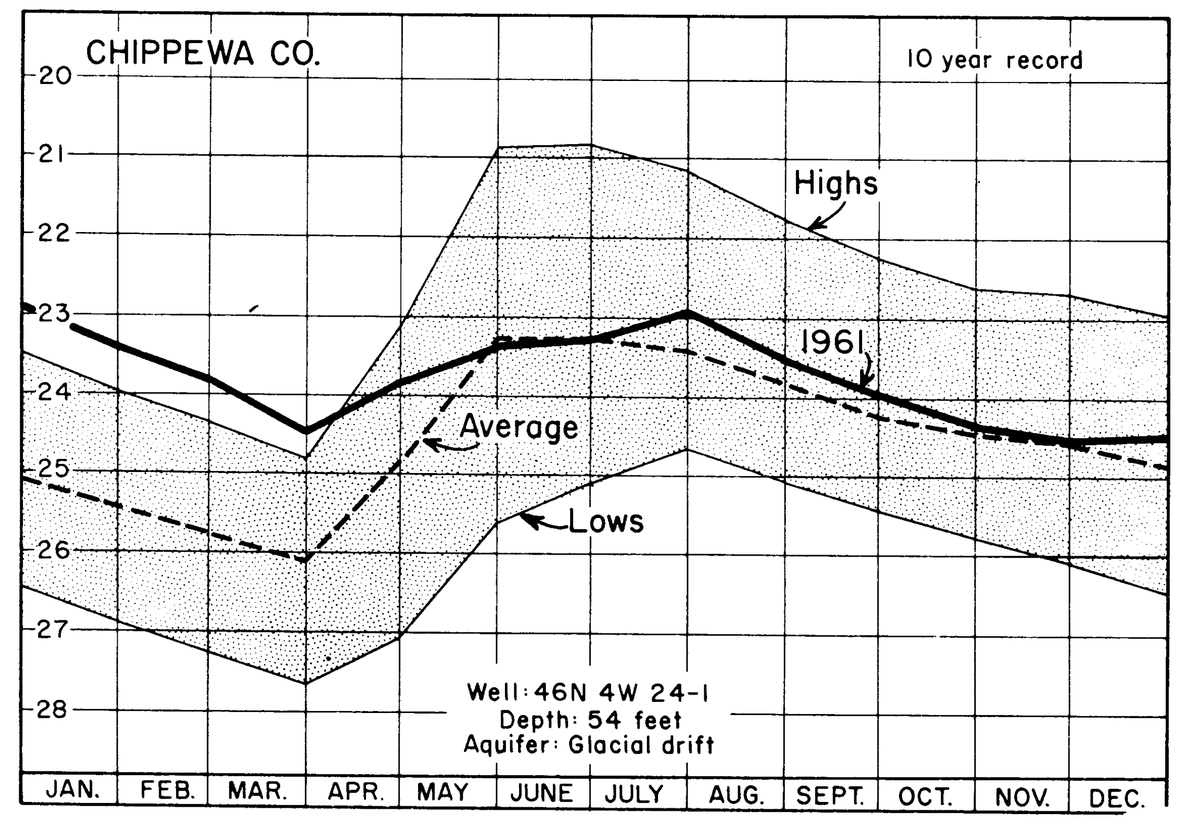

Spring
Artesian spring
Nonflowing artesian well
Water-table well
Flowing artesian well
Lake
Piezometric surface
EVAPOTRANSPIRATION
Zone of aeration
Water table
River
Impermeable rock
Lake
Impermeable rock

Water levels in feet below land-surface datum

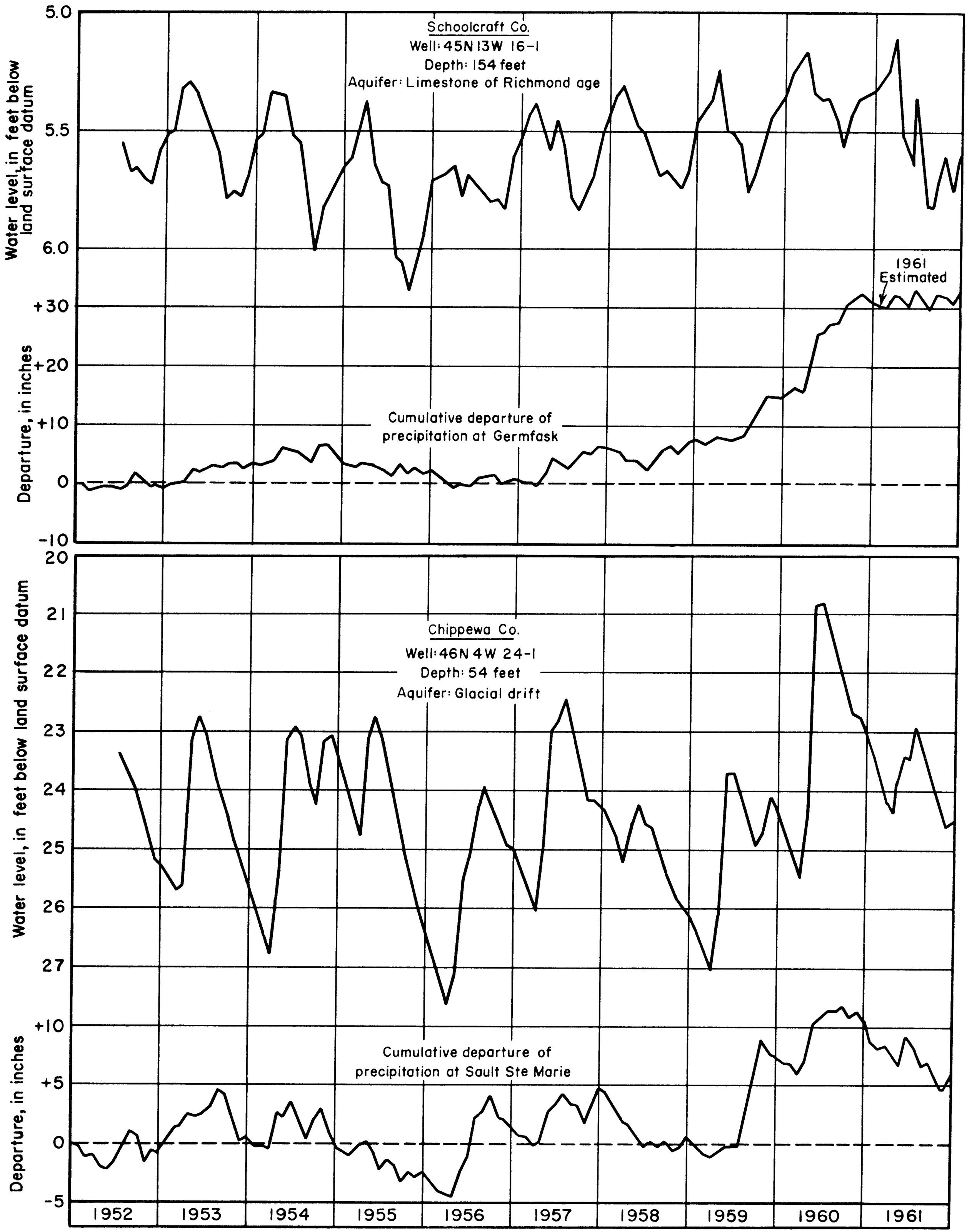


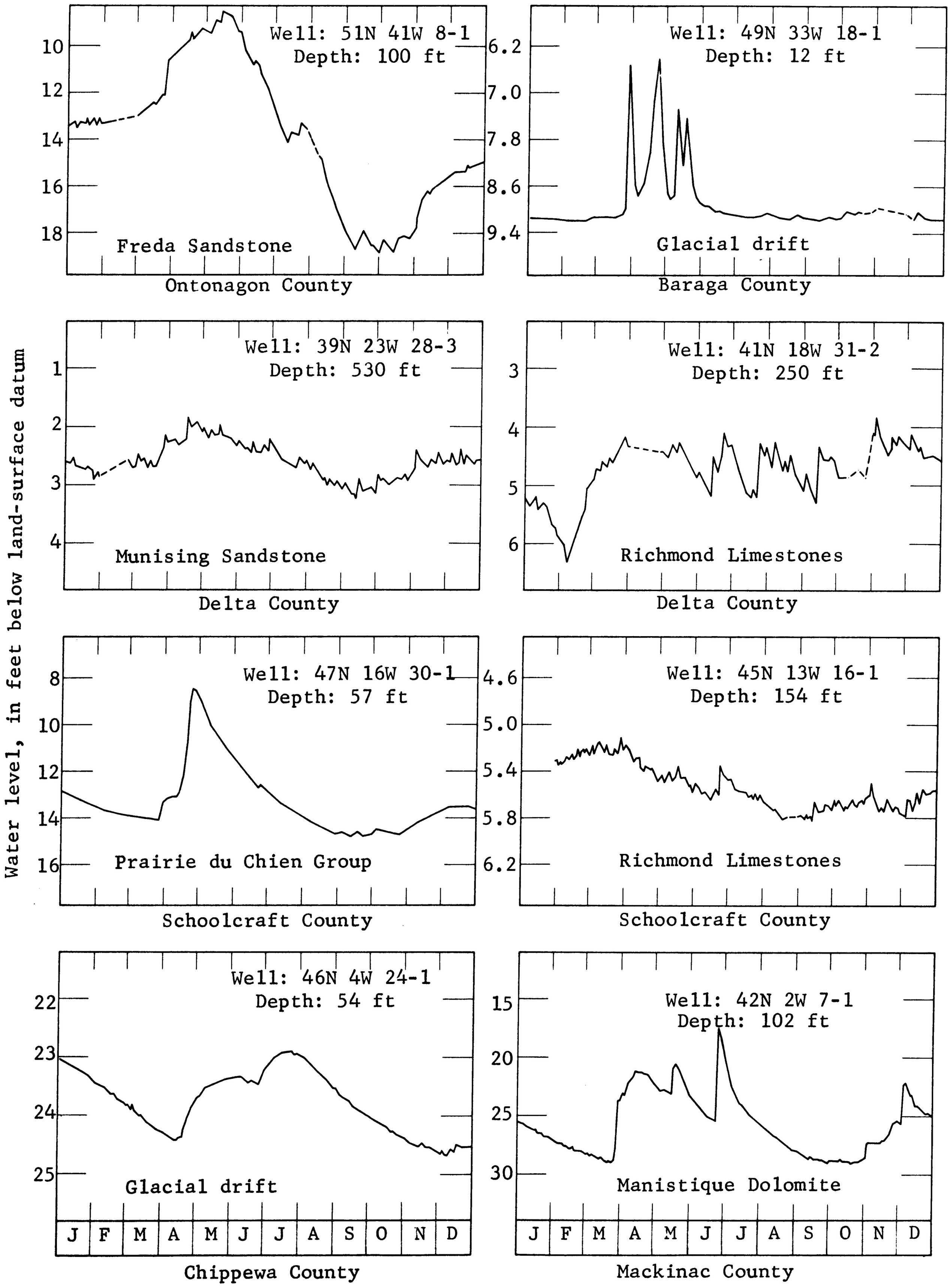




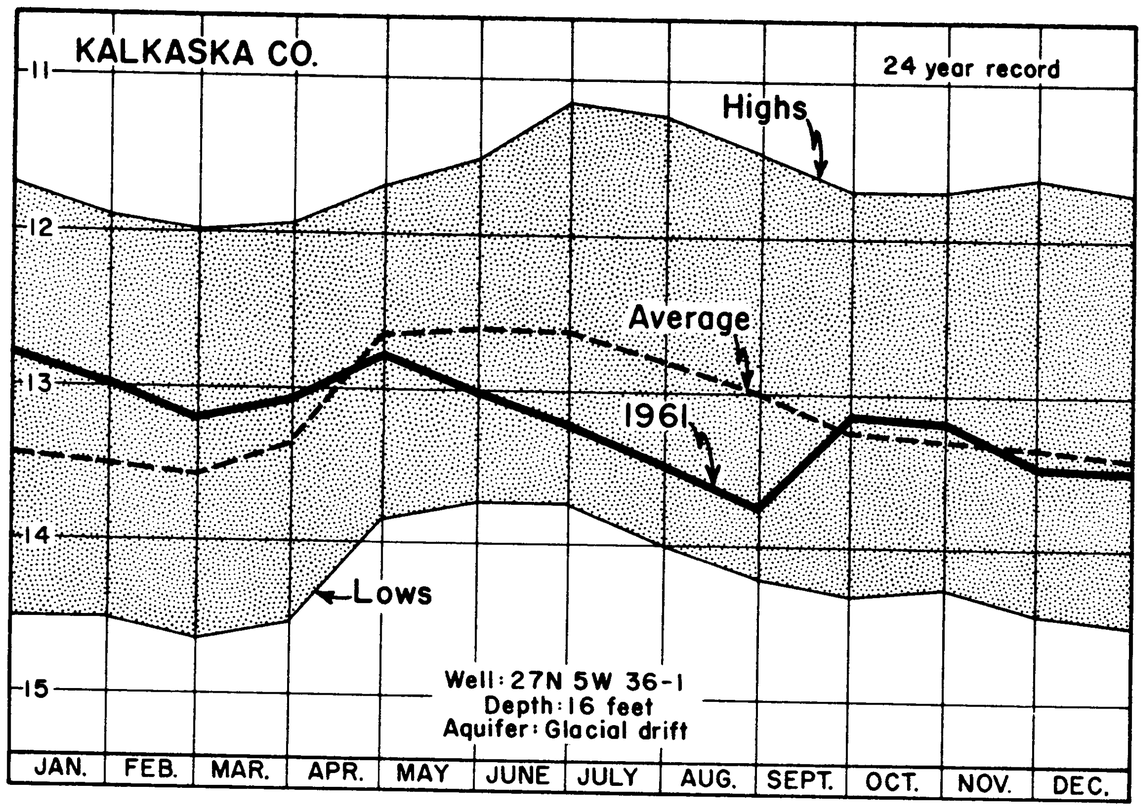


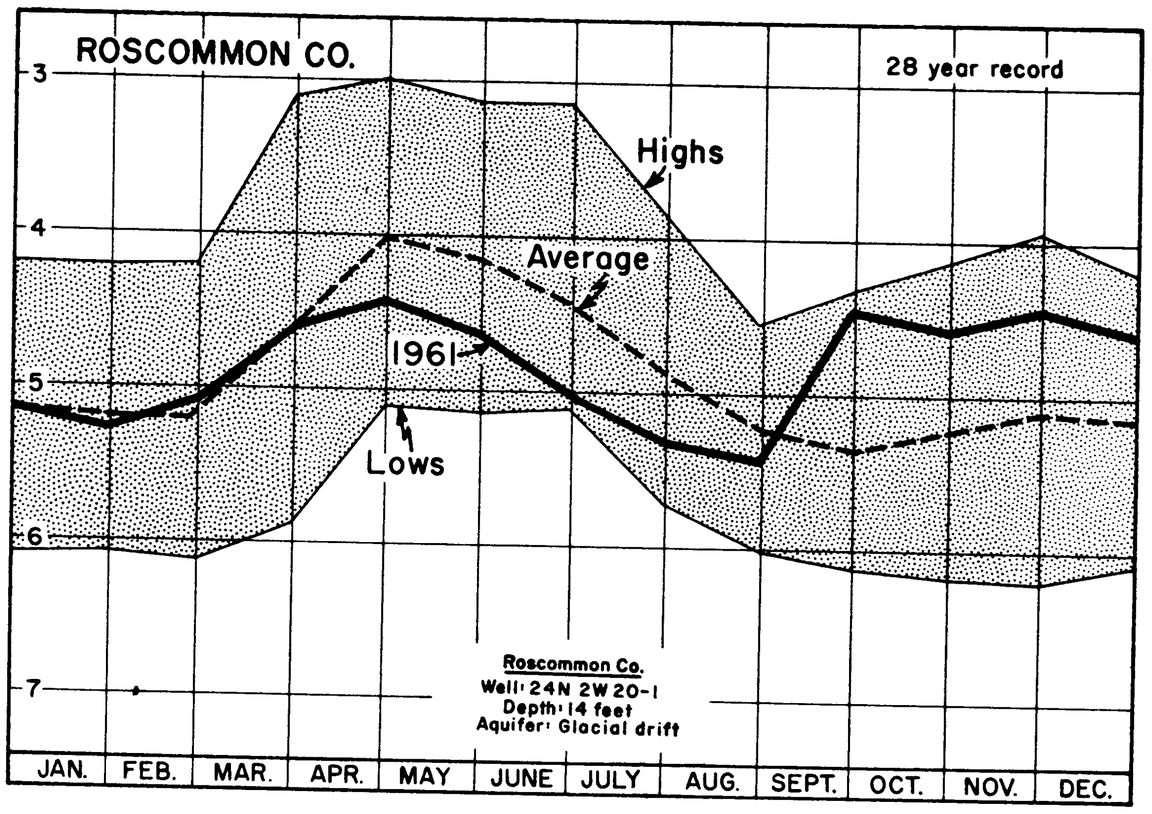
High, average, and low readings are for the period of record through 1960

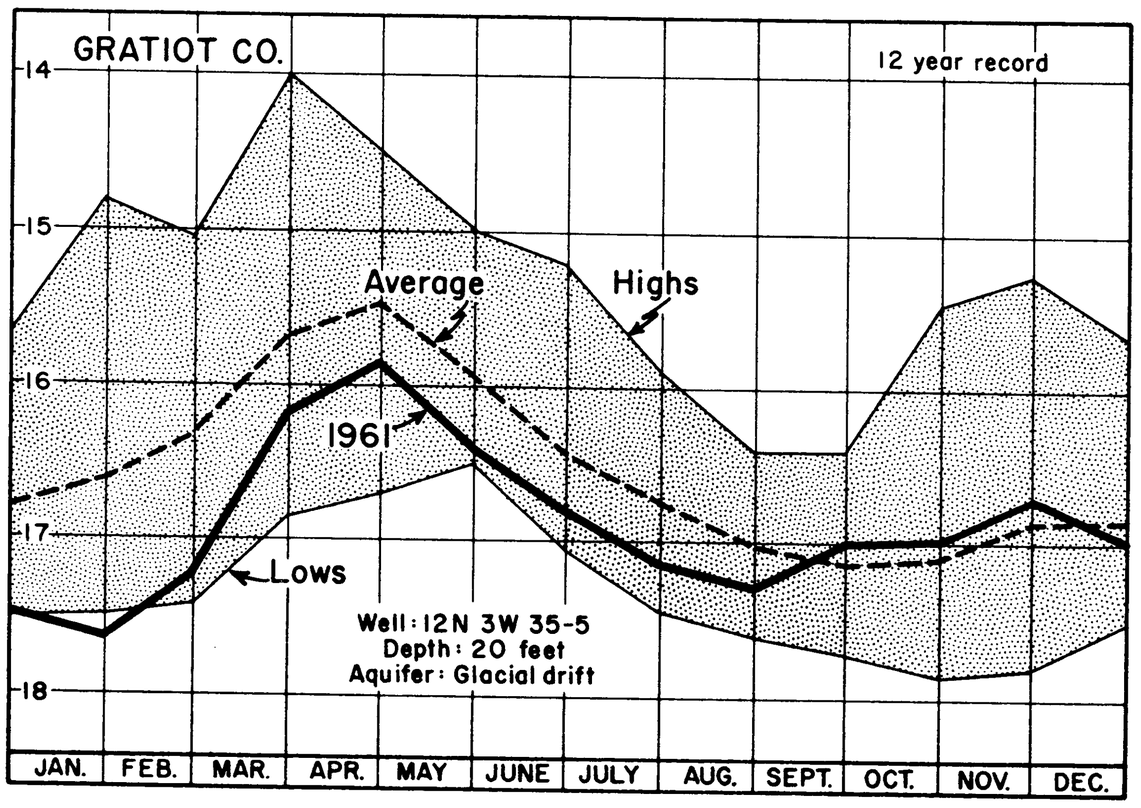

Schoolcraft Co.
Well: 45N 13W 16-1
Depth: 154 feet
Aquifer: Limestone of Richmond age
Water level, in feet below land surface datum
5.0
5.5
6.0
1961 Estimated
+30
+20
+10
0
-10
Departure, in inches
Cumulative departure of precipitation at Germfask
Chippewa Co.
Well: 46N 4W 24-1
Depth: 54 feet
Aquifer: Glacial drift
Water level, in feet below land surface datum
20
21
22
23
24
25
26
27
+10
+5
0
-5
Departure, in inches
Cumulative departure of precipitation at Sault Ste Marie
1952
1953
1954
1955
1956
1957
1958
1959
1960
1961

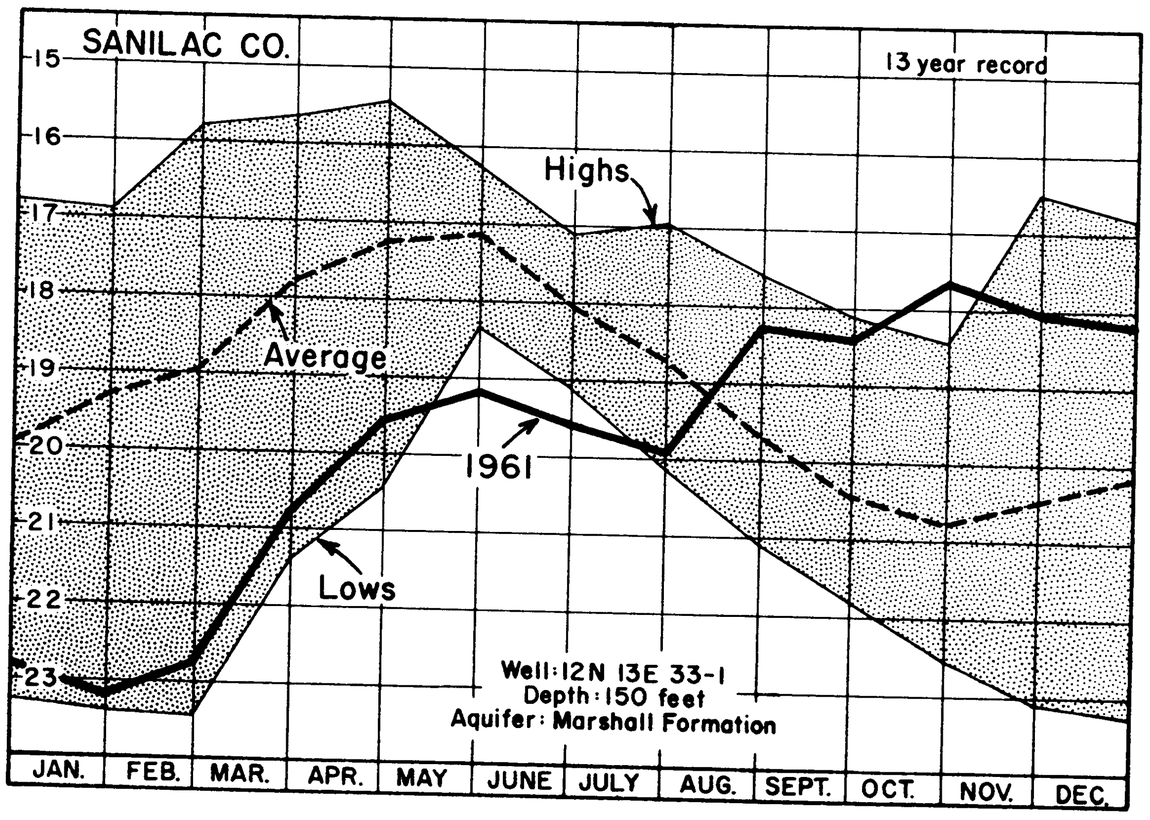

Well: 51N 41W 8-1
Depth: 100 ft
Freda Sandstone
Ontonagon County
Well: 49N 33W 18-1
Depth: 12 ft
Glacial drift
Baraga County
Well: 39N 23W 28-3
Depth: 530 ft
Munising Sandstone
Delta County
Well: 41N 18W 31-2
Depth: 250 ft
Richmond Limestones
Delta County
Well: 47N 16W 30-1
Depth: 57 ft
Prairie du Chien Group
Schoolcraft County
Well: 45N 13W 16-1
Depth: 154 ft
Richmond Limestones
Schoolcraft County
Well: 46N 4W 24-1
Depth: 54 ft
Glacial drift
Chippewa County
Well: 42N 2W 7-1
Depth: 102 ft
Manistique Dolomite
Mackinac County
Water level, in feet below land-surface datum
J F M A M J J A S O N D

Water levels in feet below land-surface datum

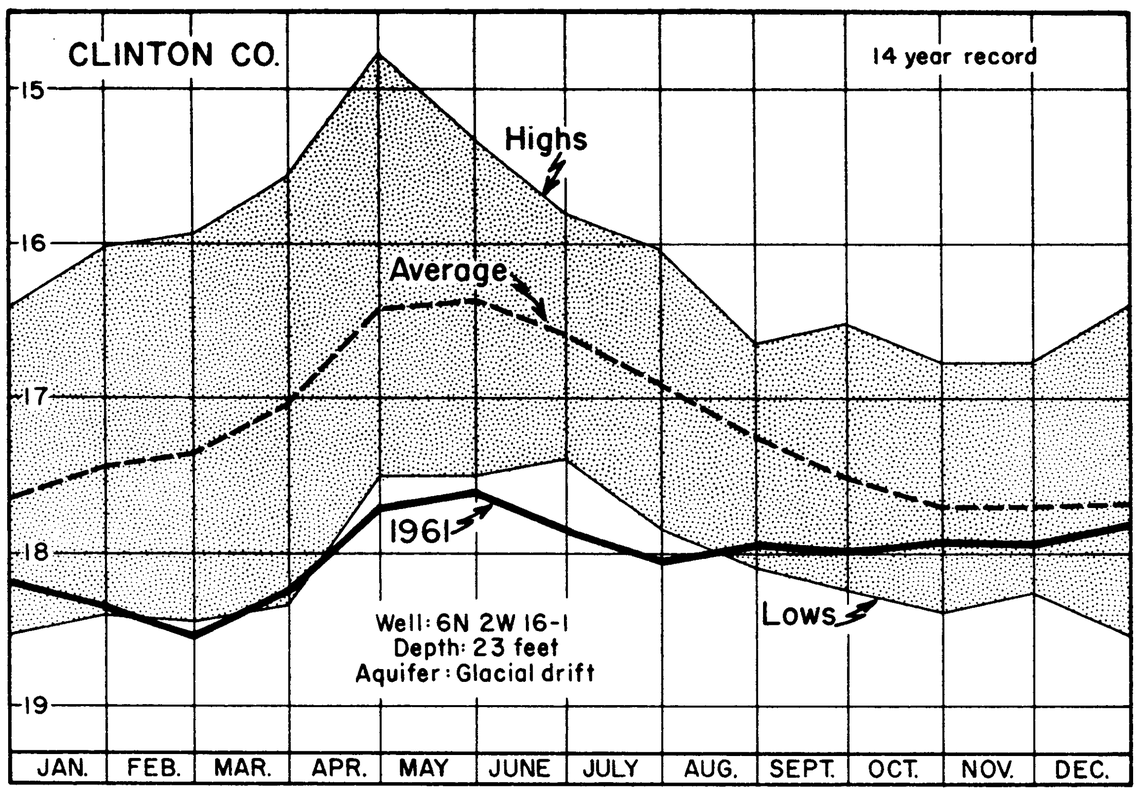


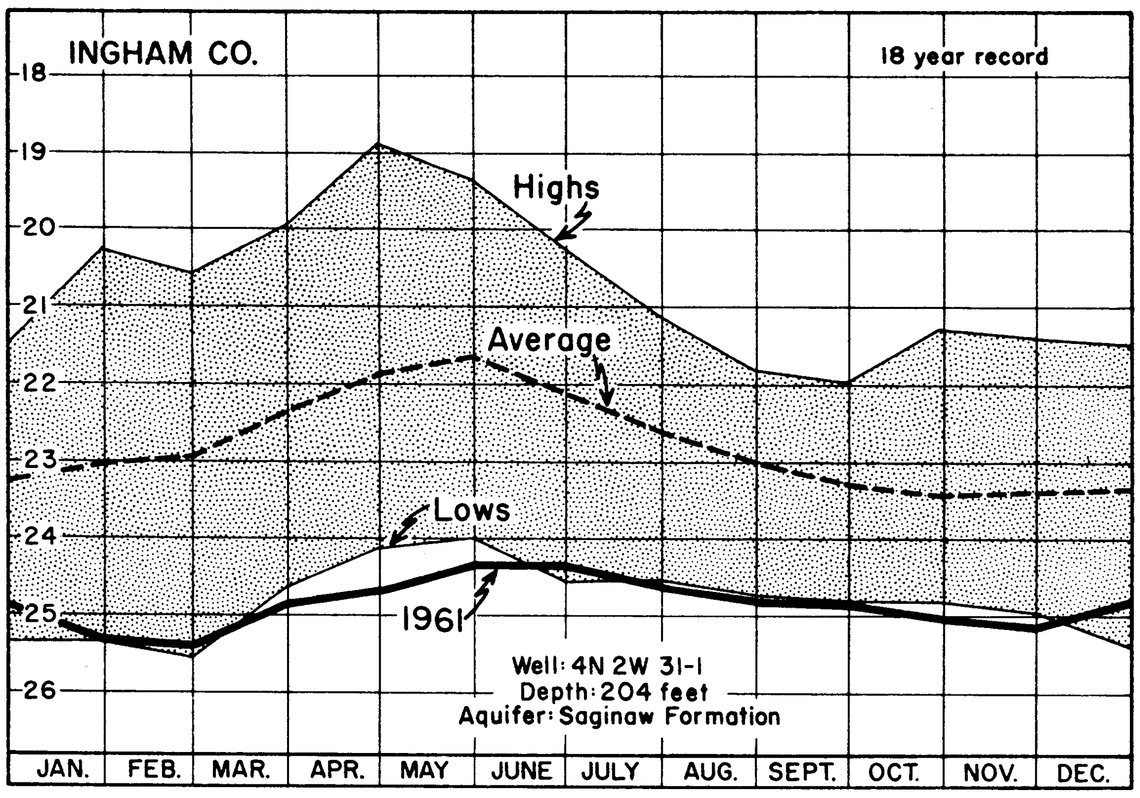


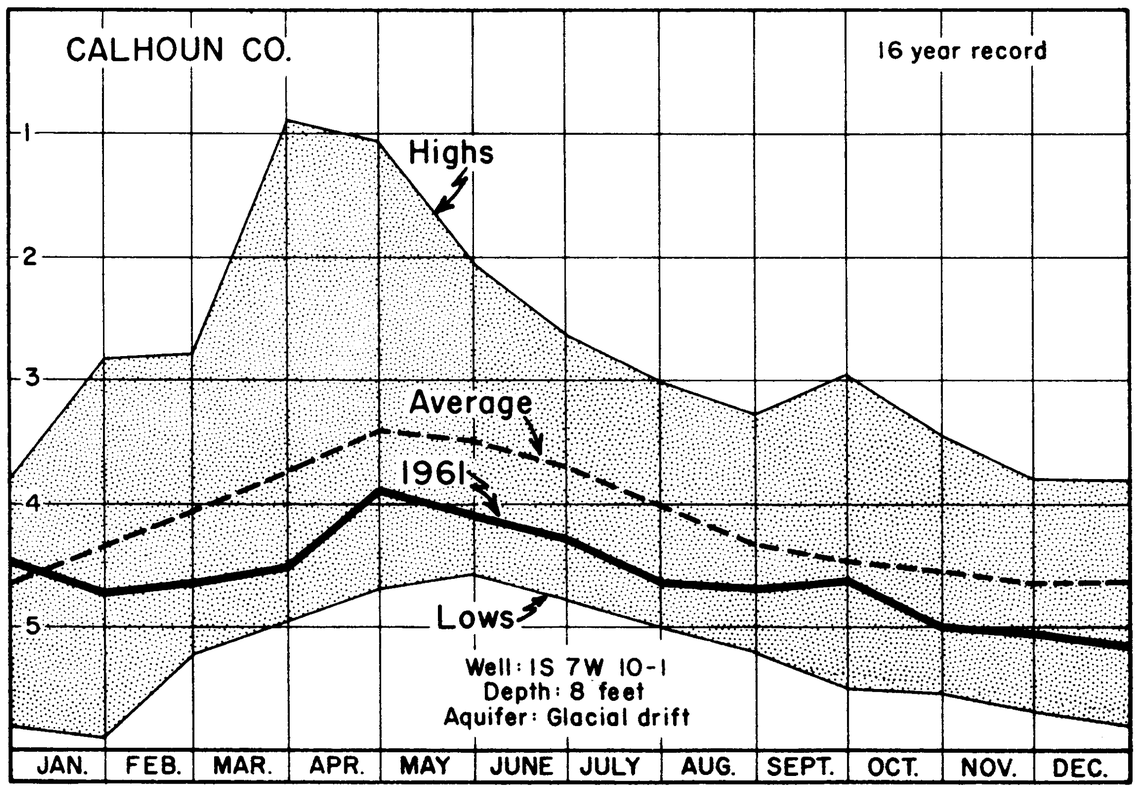


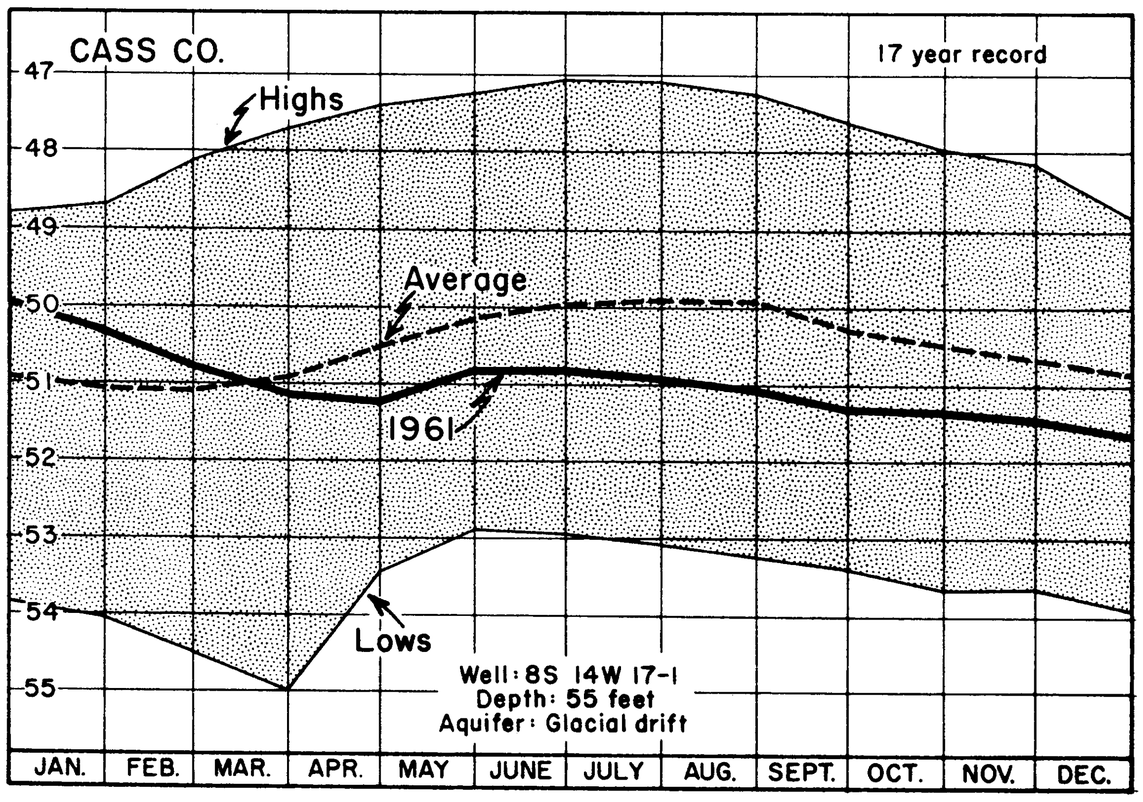


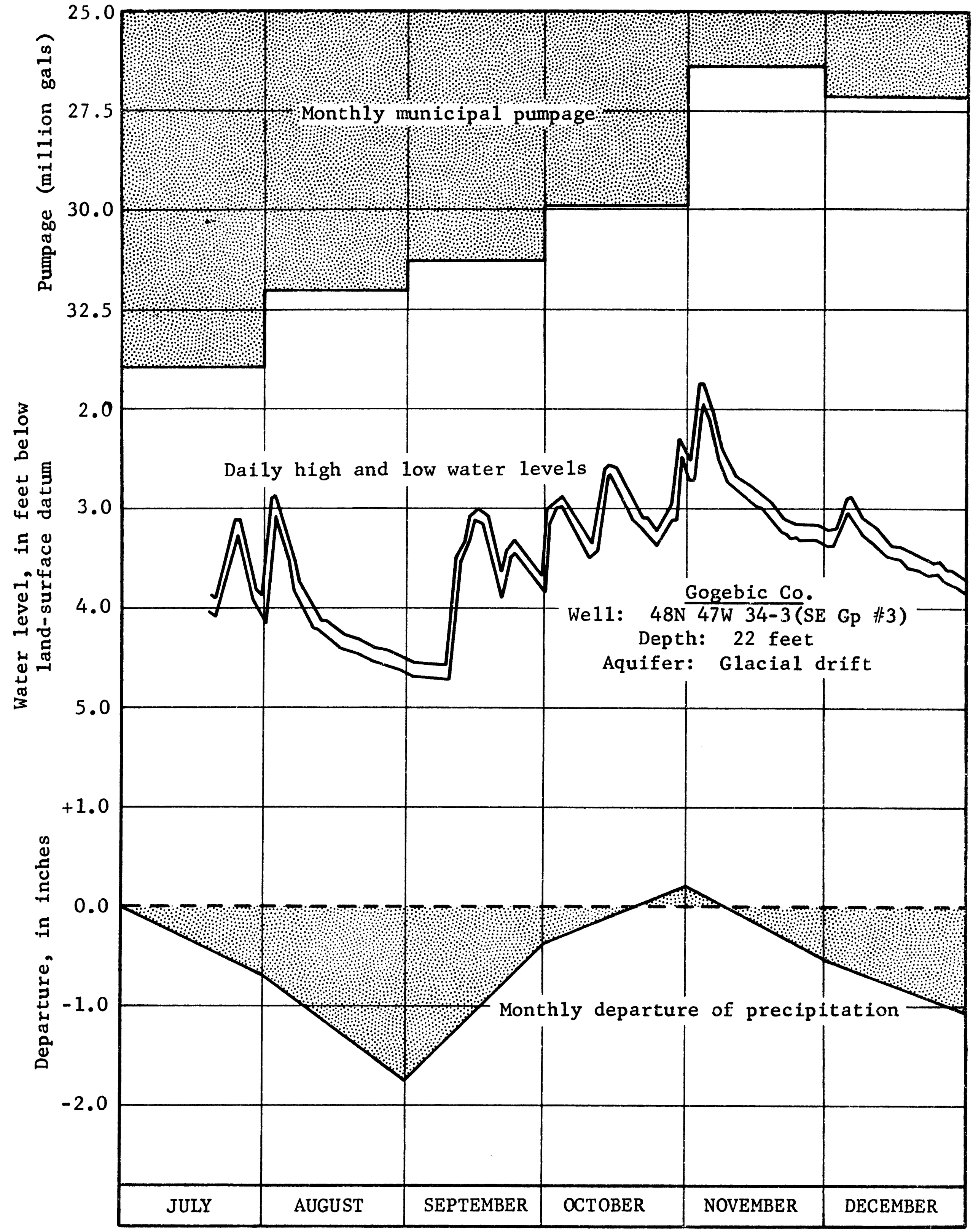
Water levels in feet below land-surface datum

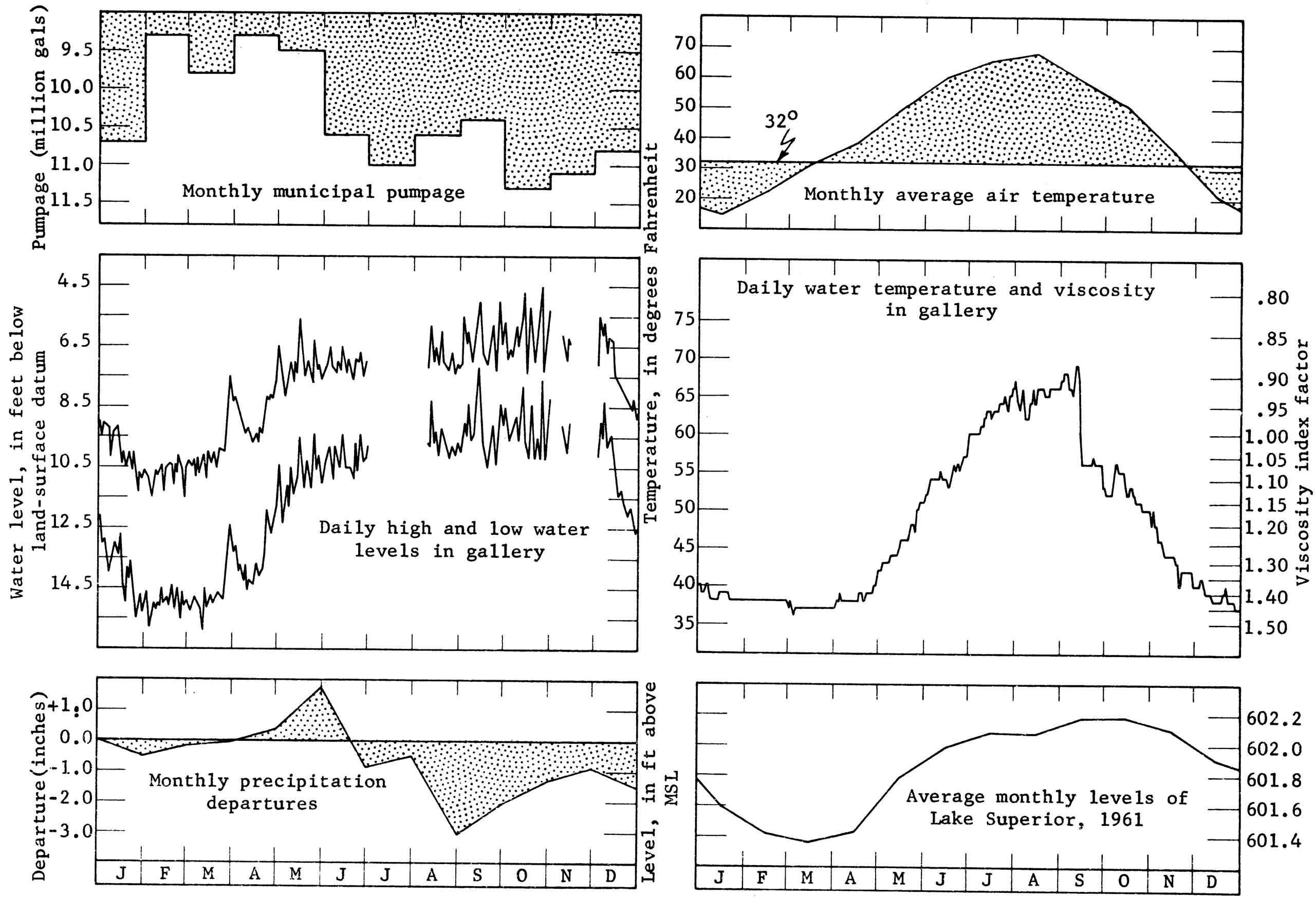


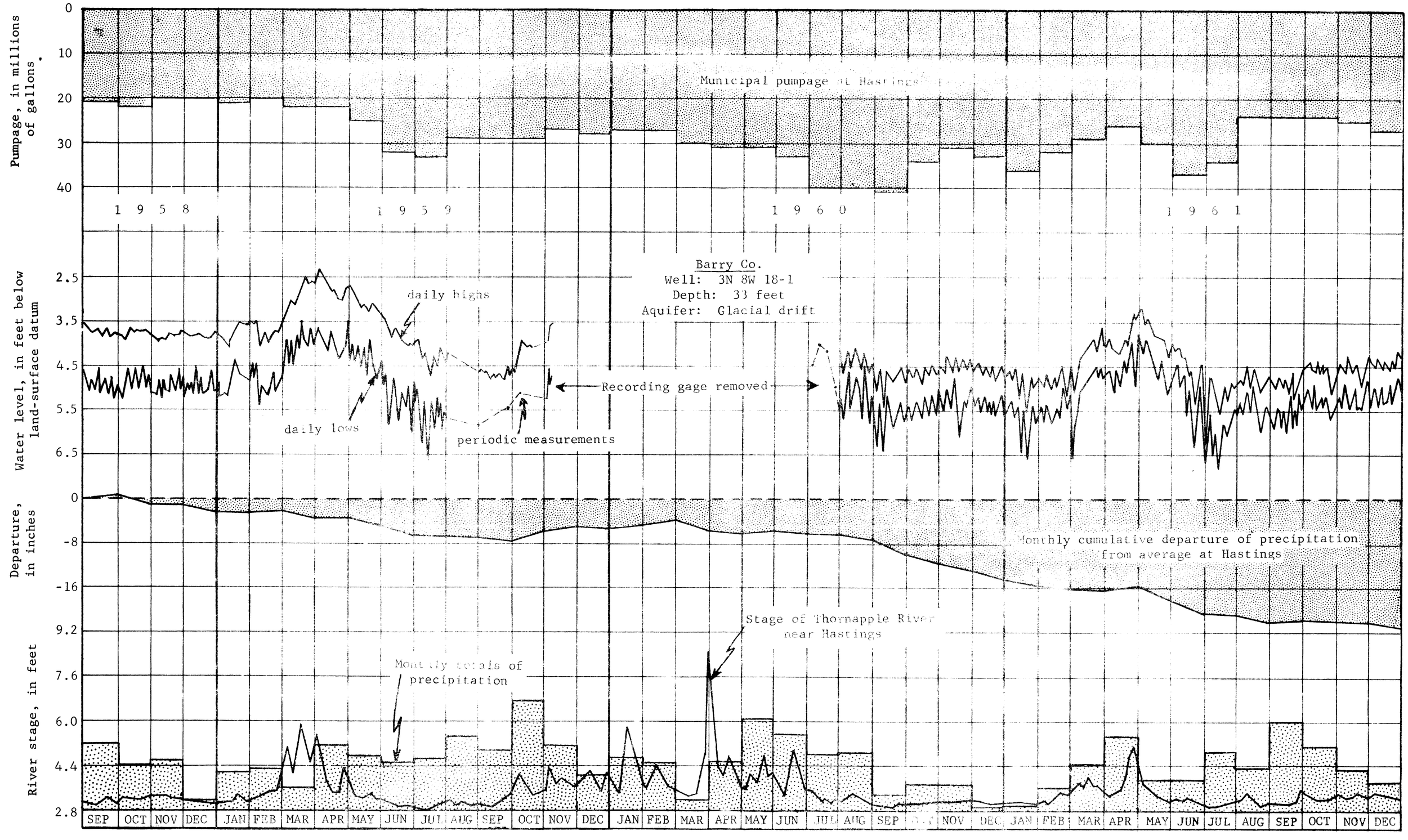


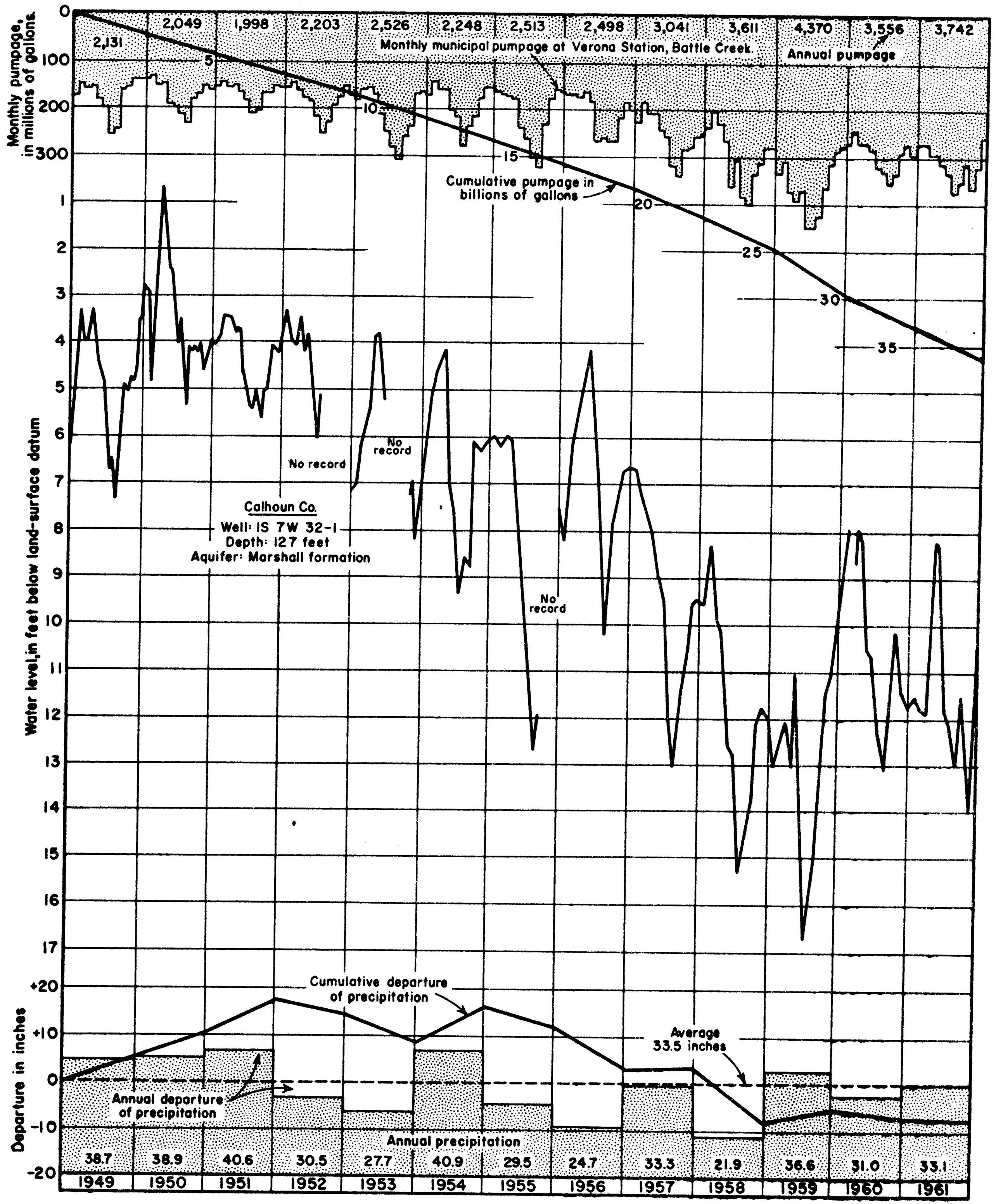


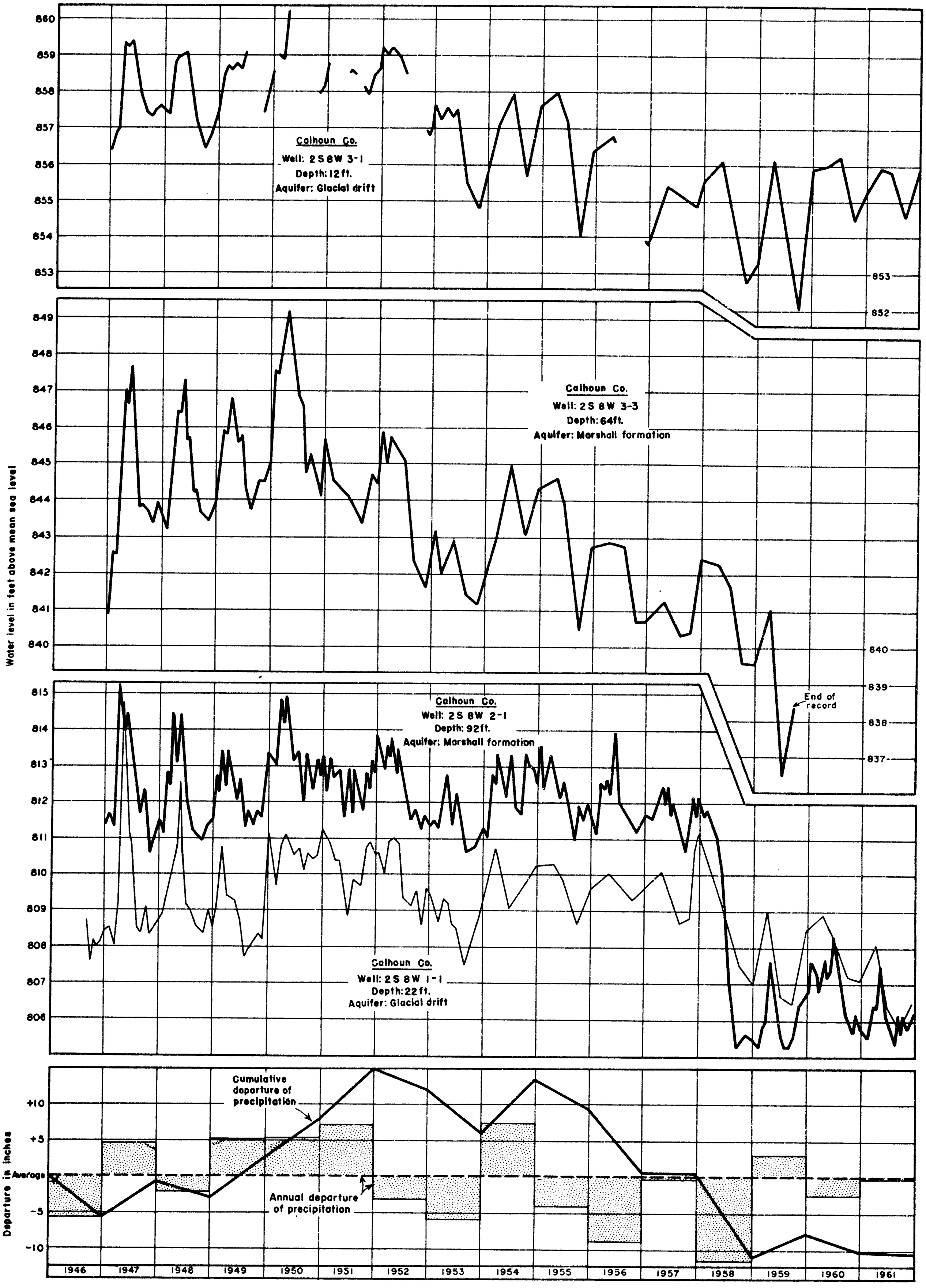


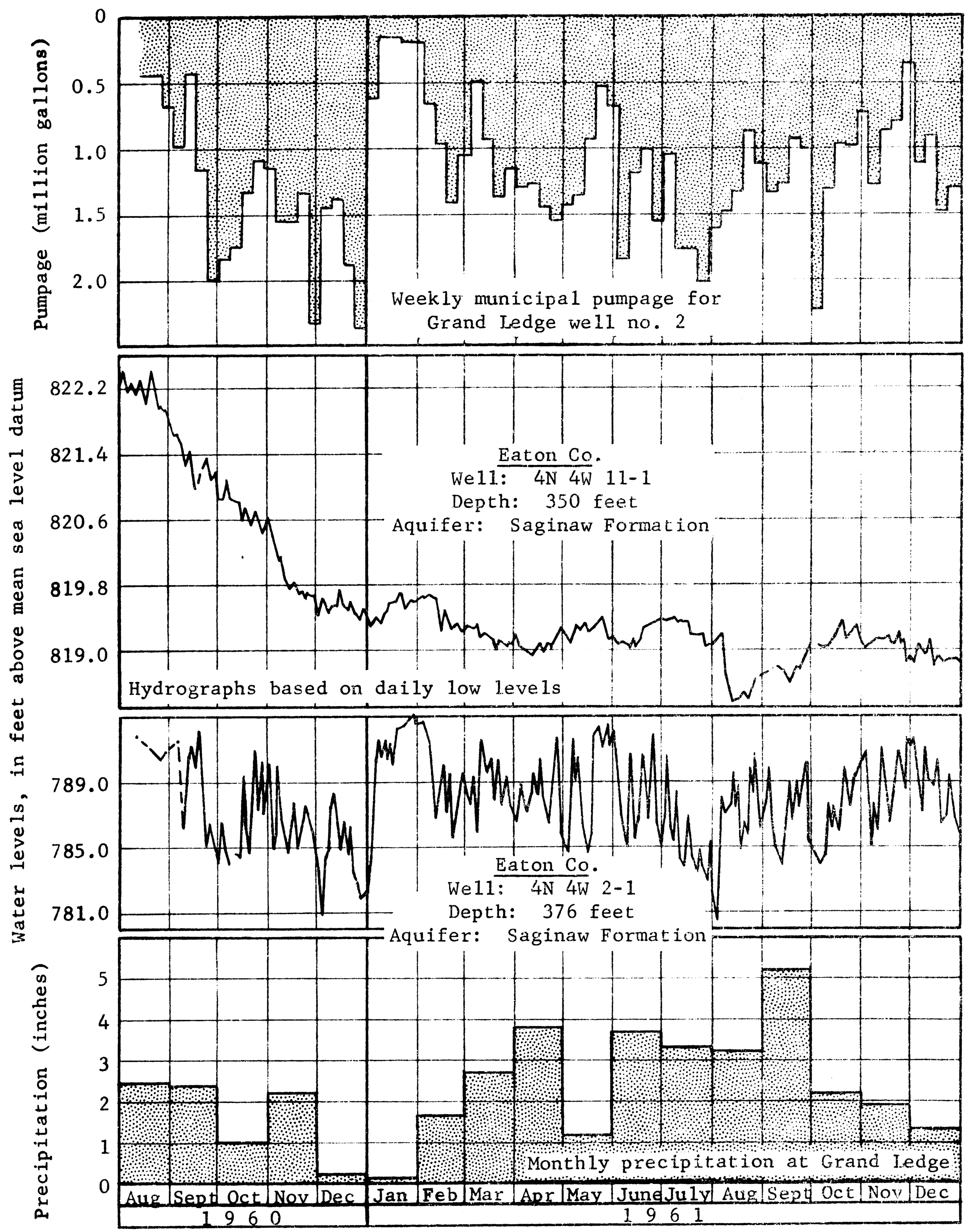

Pumpage (million gals)
25.0
27.5
30.0
32.5
Monthly municipal pumpage
Water level, in feet below land-surface datum
2.0
3.0
4.0
5.0
Daily high and low water levels
Gogebic Co.
Well: 48N 47W 34-3(SE Gp #3)
Depth: 22 feet
Aquifer: Glacial drift
Departure, in inches
+1.0
0.0
-1.0
-2.0
Monthly departure of precipitation
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER
DECEMBER

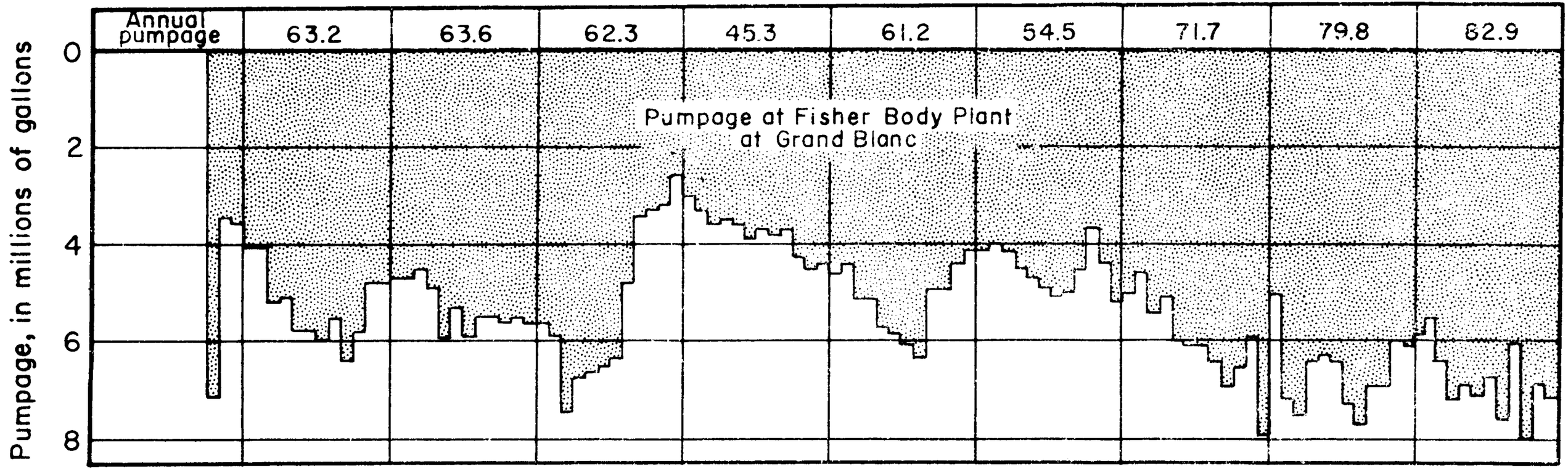

Pumpage (million gals)
9.5
10.0
10.5
11.0
11.5
Monthly municipal pumpage
70
60
50
40
30
20
32°
Monthly average air temperature
Water level, in feet below land-surface datum
4.5
6.5
8.5
10.5
12.5
14.5
Daily high and low water levels in gallery
Temperature, in degrees Fahrenheit
Daily water temperature and viscosity in gallery
75
70
65
60
55
50
45
40
35
.80
.85
.90
.95
1.00
1.05
1.10
1.15
1.20
1.30
1.40
1.50
Viscosity index factor
Departure (inches)
+1.0
0.0
-1.0
-2.0
-3.0
Monthly precipitation departures
J F M A M J J A S O N D
Level, in ft above MSL
602.2
602.0
601.8
601.6
601.4
Average monthly levels of Lake Superior, 1961
J F M A M J J A S O N D

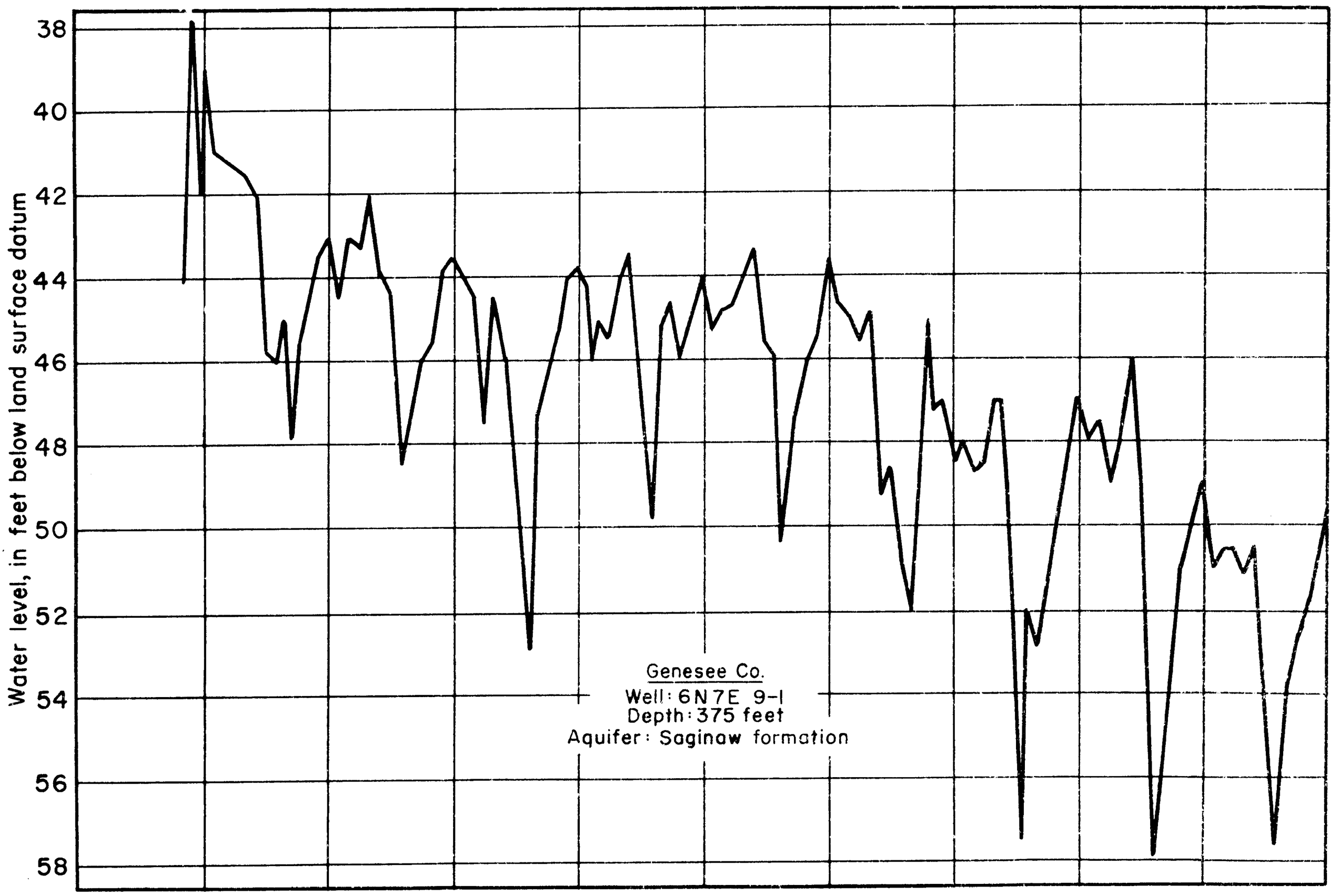

Pumpage, in millions of gallons
0
10
20
30
40
Municipal pumpage at Hastings
1 9 5 8
1 9 5 9
1 9 6 0
1 9 6 1
Barry Co.
Well: 3N 8W 18-1
Depth: 33 feet
Aquifer: Glacial drift
Water level, in feet below land-surface datum
2.5
3.5
4.5
5.5
6.5
daily highs
daily lows
periodic measurements
Recording gage removed
Departure, in inches
0
-8
-16
-24
Monthly cumulative departure of precipitation from average at Hastings
River stage, in feet
9.2
7.6
6.0
4.4
2.8
Stage of Thornapple River near Hastings
Monthly totals of precipitation
Precipitation, in inches
6
4
2
0
SEP OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC

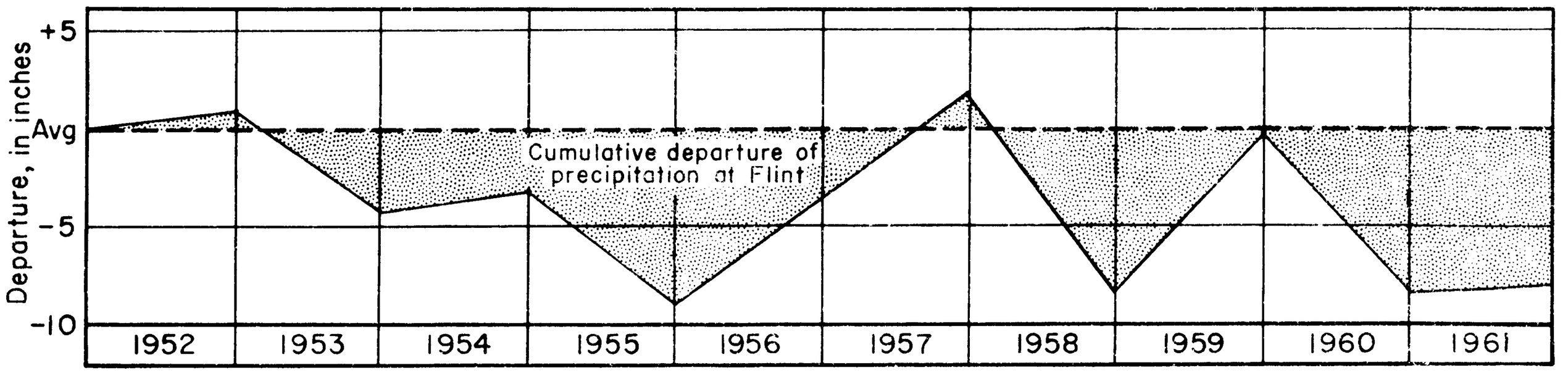

Monthly pumpage, in millions of gallons
2,131
2,049
1,998
2,203
2,526
2,248
2,513
2,498
3,041
3,611
4,370
3,556
3,742
Monthly municipal pumpage at Verona Station, Battle Creek.
Annual pumpage
Cumulative pumpage in billions of gallons
Water level, in feet below land-surface datum
No record
No record
No record
Calhoun Co.
Well: 1S 7W 32-1
Depth: 127 feet
Aquifer: Marshall formation
Departure in inches
Cumulative departure of precipitation
Average 33.5 inches
Annual departure of precipitation
Annual precipitation
38.7
38.9
40.6
30.5
27.7
40.9
29.5
24.7
33.3
21.9
36.6
31.0
33.1
1949
1950
1951
1952
1953
1954
1955
1956
1957
1958
1959
1960
1961

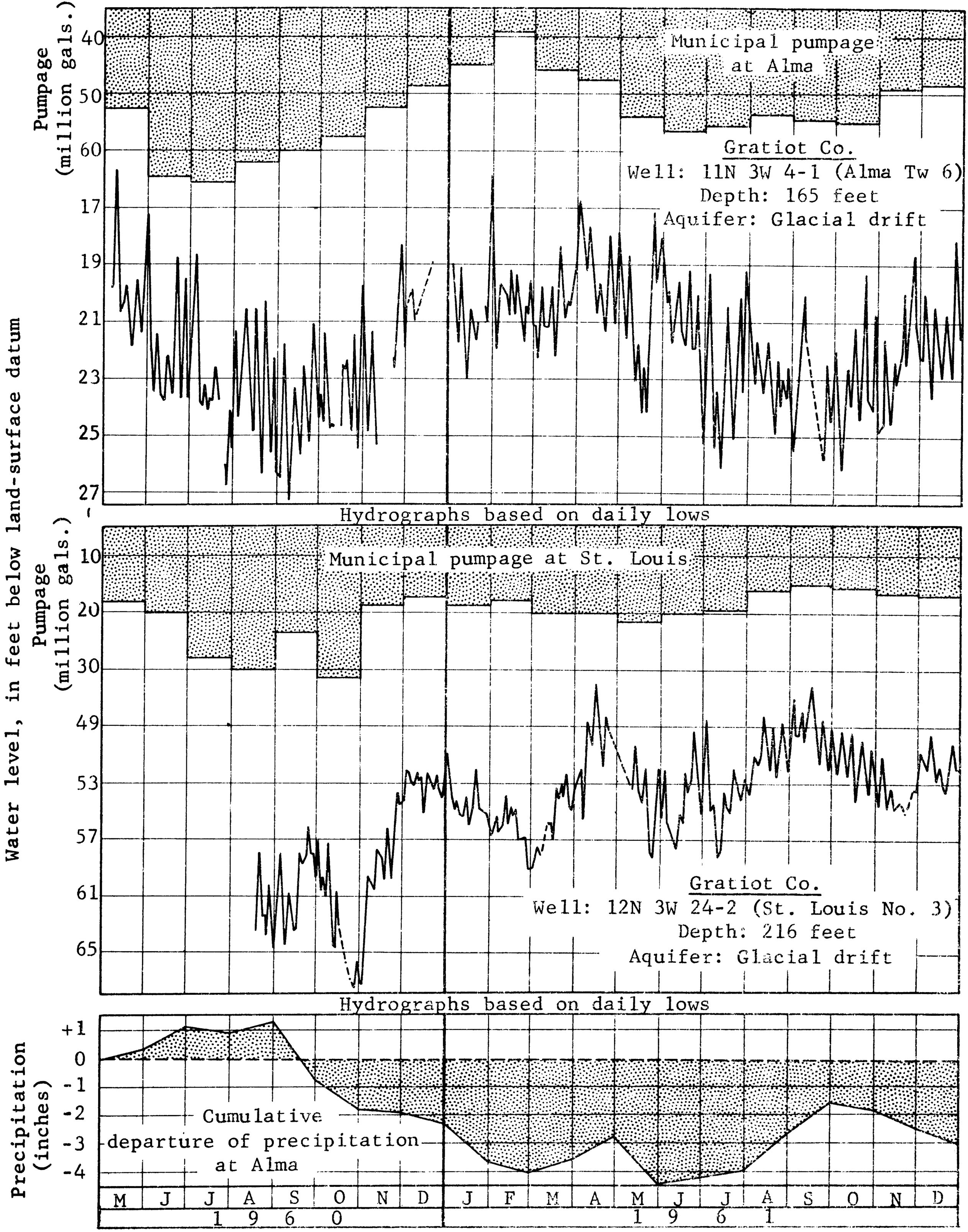

Water level in feet above mean sea level
Calhoun Co.
Well: 2 S 8W 3-1
Depth: 12 ft.
Aquifer: Glacial drift
Calhoun Co.
Well: 2 S 8W 3-3
Depth: 64ft.
Aquifer: Marshall formation
End of record
Calhoun Co.
Well: 2 S 8W 2-1
Depth: 92ft.
Aquifer: Marshall formation
Calhoun Co.
Well: 2 S 8W 1-1
Depth: 22 ft.
Aquifer: Glacial drift
Departure in inches
Cumulative departure of precipitation
Annual departure of precipitation
Average
1946
1947
1948
1949
1950
1951
1952
1953
1954
1955
1956
1957
1958
1959
1960
1961

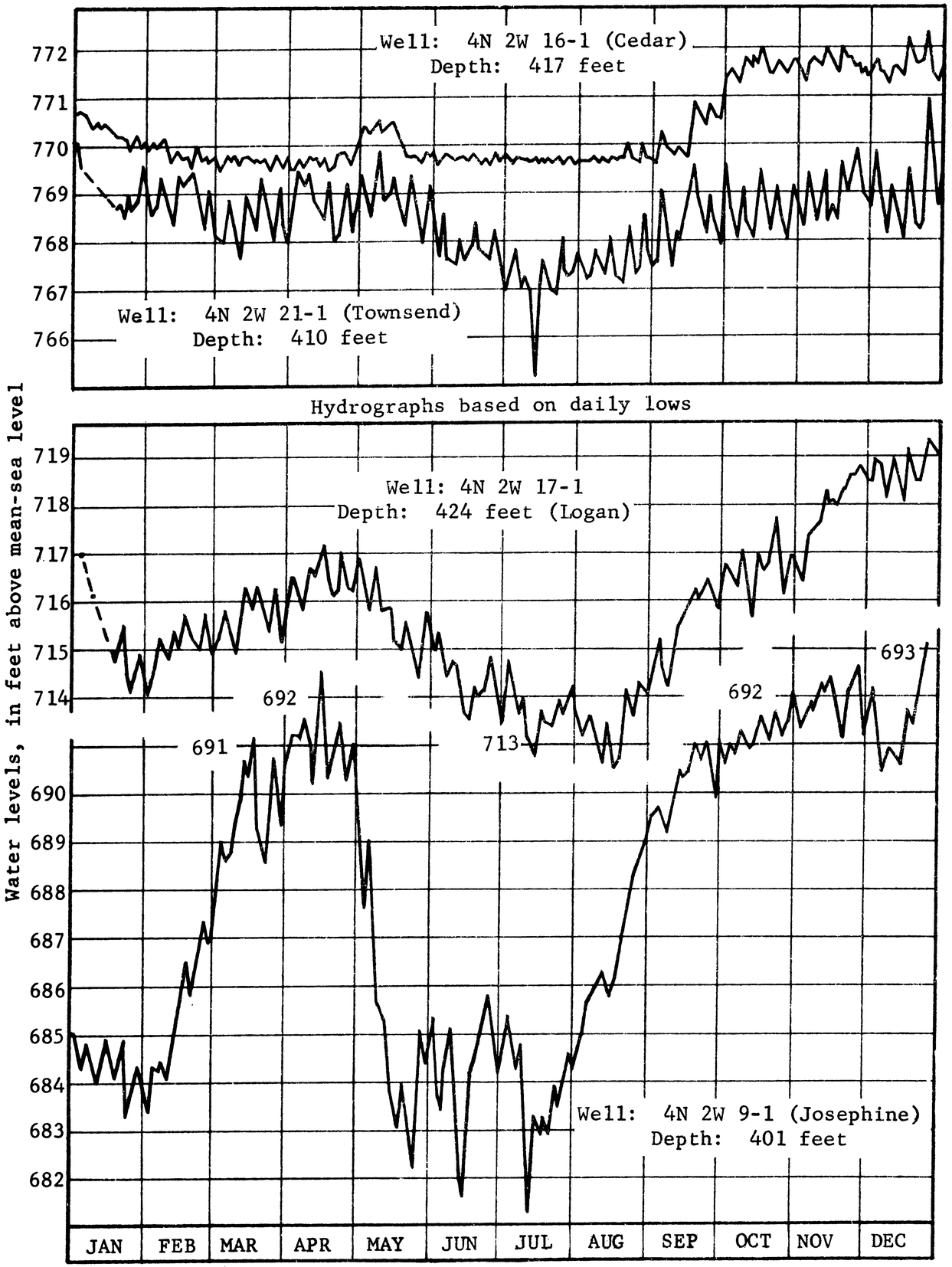

Pumpage (million gallons)
0
0.5
1.0
1.5
2.0
Weekly municipal pumpage for
Grand Ledge well no. 2
Water levels, in feet above mean sea level datum
822.2
821.4
820.6
819.8
819.0
Eaton Co.
Well: 4N 4W 11-1
Depth: 350 feet
Aquifer: Saginaw Formation
Hydrographs based on daily low levels
789.0
785.0
781.0
Eaton Co.
Well: 4N 4W 2-1
Depth: 376 feet
Aquifer: Saginaw Formation
Precipitation (inches)
5
4
3
2
1
0
Monthly precipitation at Grand Ledge
Aug
Sept
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
June
July
Aug
Sept
Oct
Nov
Dec
1960
1961


Annual pumpage
63.2
63.6
62.3
45.3
61.2
54.5
71.7
79.8
82.9
Pumpage at Fisher Body Plant at Grand Blanc
Pumpage, in millions of gallons
0
2
4
6
8

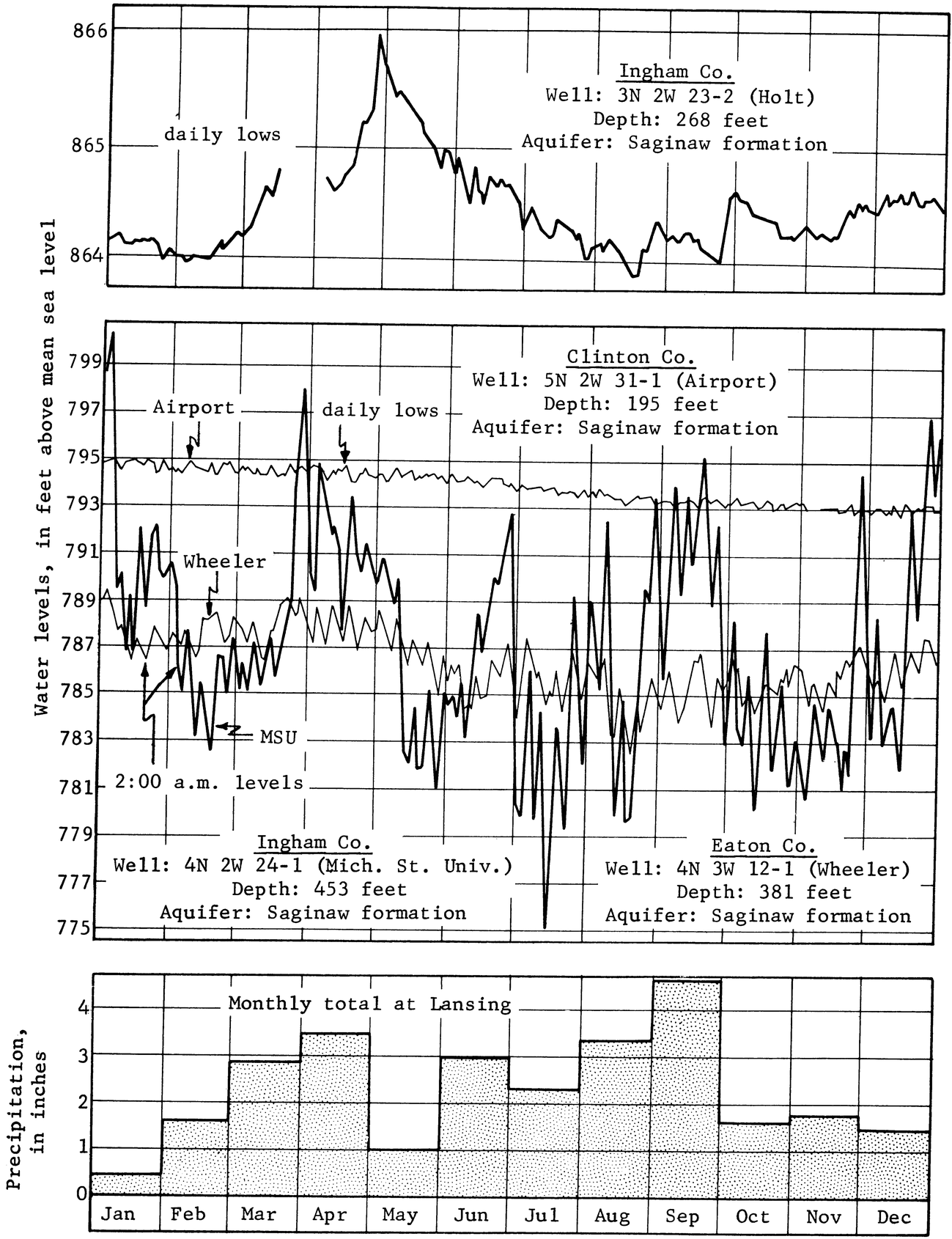

Water level, in feet below land surface datum
38
40
42
44
46
48
50
52
54
56
58
Genesee Co.
Well: 6N 7E 9-1
Depth: 375 feet
Aquifer: Saginaw formation


Departure, in inches
+5
Avg
-5
-10
Cumulative departure of precipitation at Flint
1952
1953
1954
1955
1956
1957
1958
1959
1960
1961

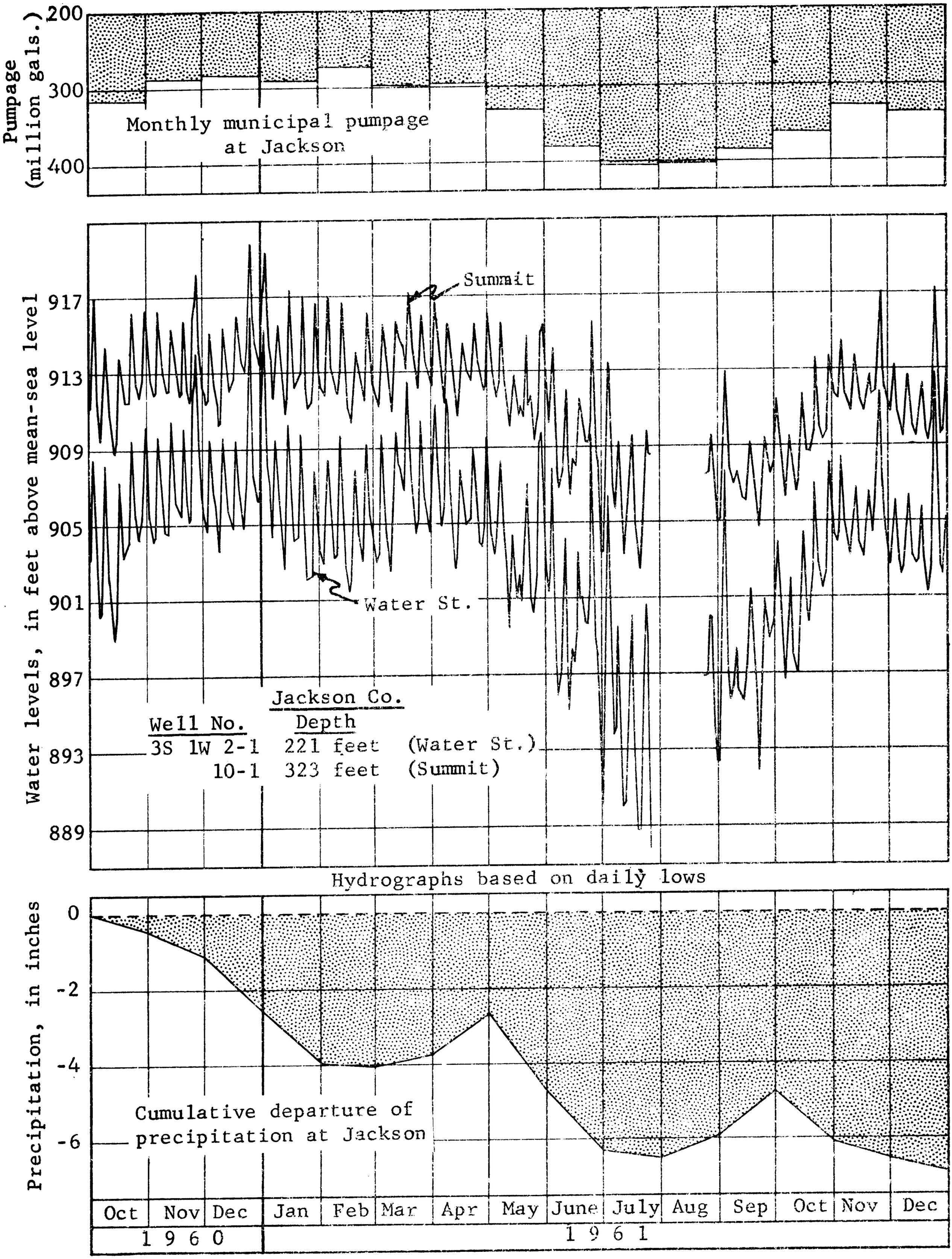

Pumpage (million gals.)
40
50
60
Municipal pumpage at Alma
Gratiot Co.
Well: 11N 3W 4-1 (Alma Tw 6)
Depth: 165 feet
Aquifer: Glacial drift
17
19
21
23
25
27
Water level, in feet below land-surface datum
Hydrographs based on daily lows
Pumpage (million gals.)
10
20
30
Municipal pumpage at St. Louis
49
53
57
61
65
Gratiot Co.
Well: 12N 3W 24-2 (St. Louis No. 3)
Depth: 216 feet
Aquifer: Glacial drift
Hydrographs based on daily lows
Precipitation (inches)
+1
0
-1
-2
-3
-4
Cumulative departure of precipitation at Alma
M J J A S O N D J F M A M J J A S O N D
1960
1961

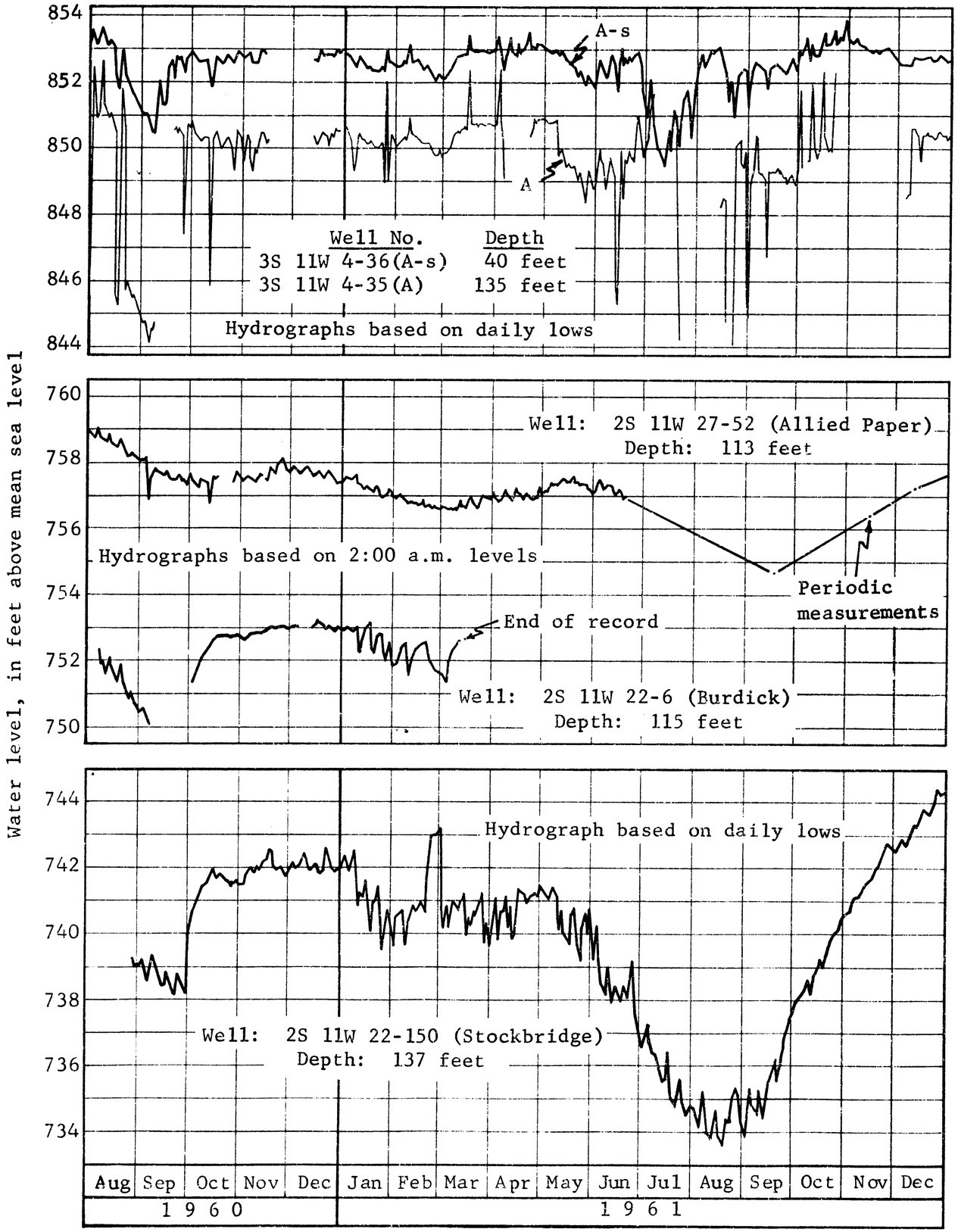

Well: 4N 2W 16-1 (Cedar)
Depth: 417 feet
Well: 4N 2W 21-1 (Townsend)
Depth: 410 feet
Hydrographs based on daily lows
Well: 4N 2W 17-1
Depth: 424 feet (Logan)
Well: 4N 2W 9-1 (Josephine)
Depth: 401 feet
Water levels, in feet above mean-sea level
772
771
770
769
768
767
766
719
718
717
716
715
714
692
691
713
693
692
690
689
688
687
686
685
684
683
682
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC

16A

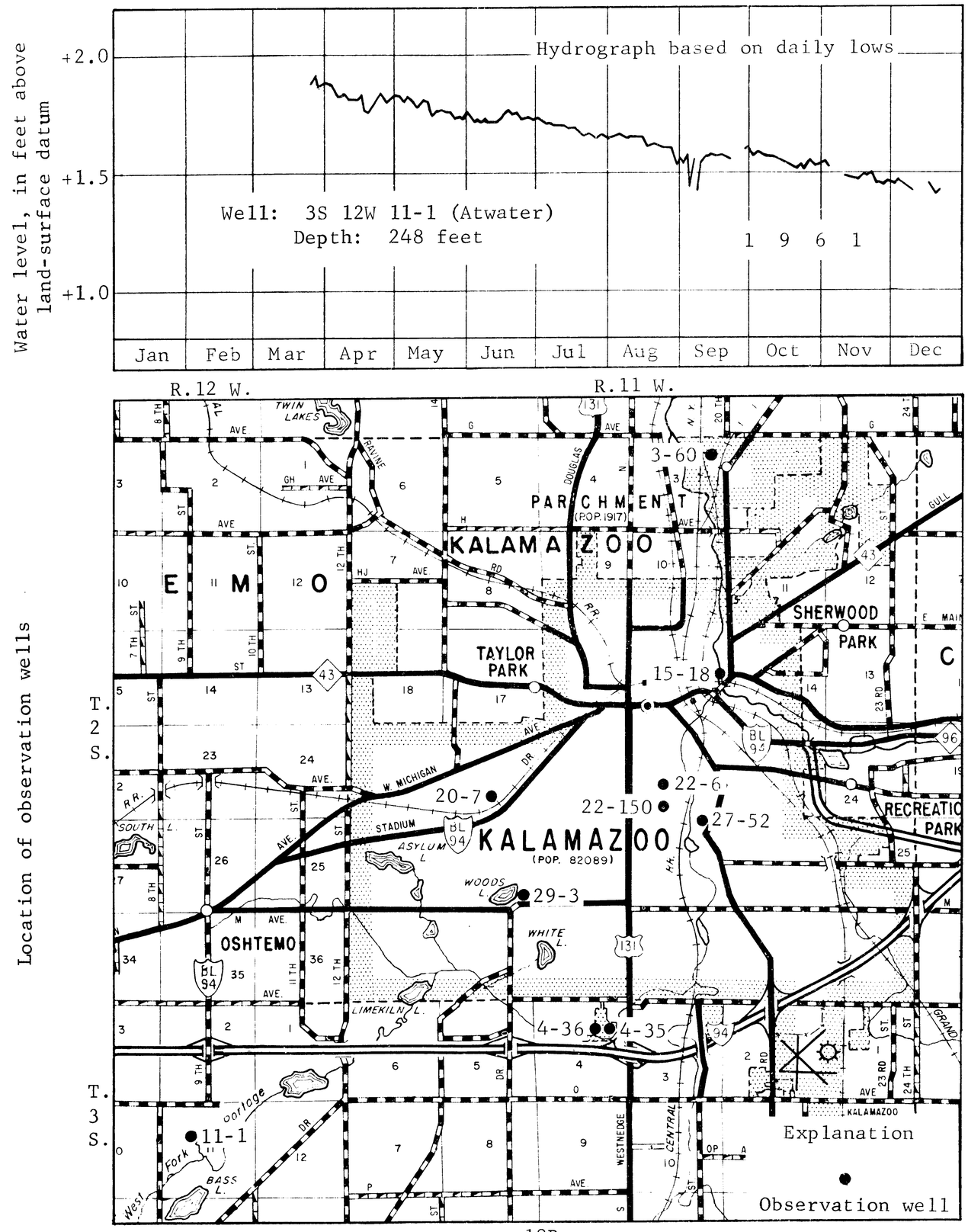

Ingham Co.
Well: 3N 2W 23-2 (Holt)
Depth: 268 feet
Aquifer: Saginaw formation
daily lows
866
865
864
Clinton Co.
Well: 5N 2W 31-1 (Airport)
Depth: 195 feet
Aquifer: Saginaw formation
Airport
daily lows
Wheeler
MSU
2:00 a.m. levels
Ingham Co.
Well: 4N 2W 24-1 (Mich. St. Univ.)
Depth: 453 feet
Aquifer: Saginaw formation
Eaton Co.
Well: 4N 3W 12-1 (Wheeler)
Depth: 381 feet
Aquifer: Saginaw formation
Water levels, in feet above mean sea level
799
797
795
793
791
789
787
785
783
781
779
777
775
Monthly total at Lansing
Precipitation, in inches
4
3
2
1
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec

16B

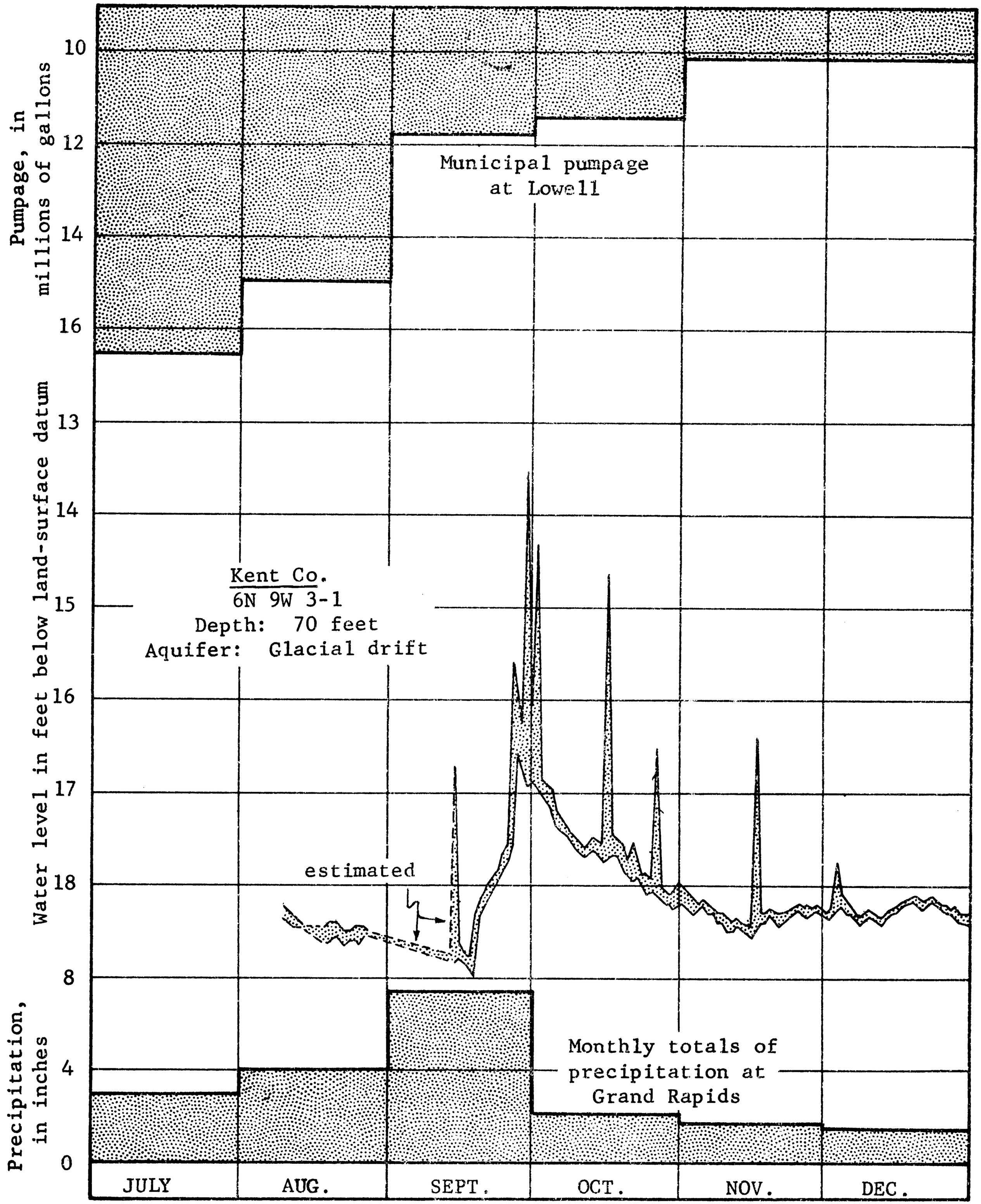

Pumpage (million gals.)
200
300
400
Monthly municipal pumpage at Jackson
Water levels, in feet above mean-sea level
917
913
909
905
901
897
893
889
Summit
Water St.
Jackson Co.
Well No.
Depth
3S 1W 2-1
221 feet
(Water St.)
10-1
323 feet
(Summit)
Hydrographs based on daily lows
Precipitation, in inches
0
-2
-4
-6
Cumulative departure of precipitation at Jackson
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
June
July
Aug
Sep
Oct
Nov
Dec
1960
1961

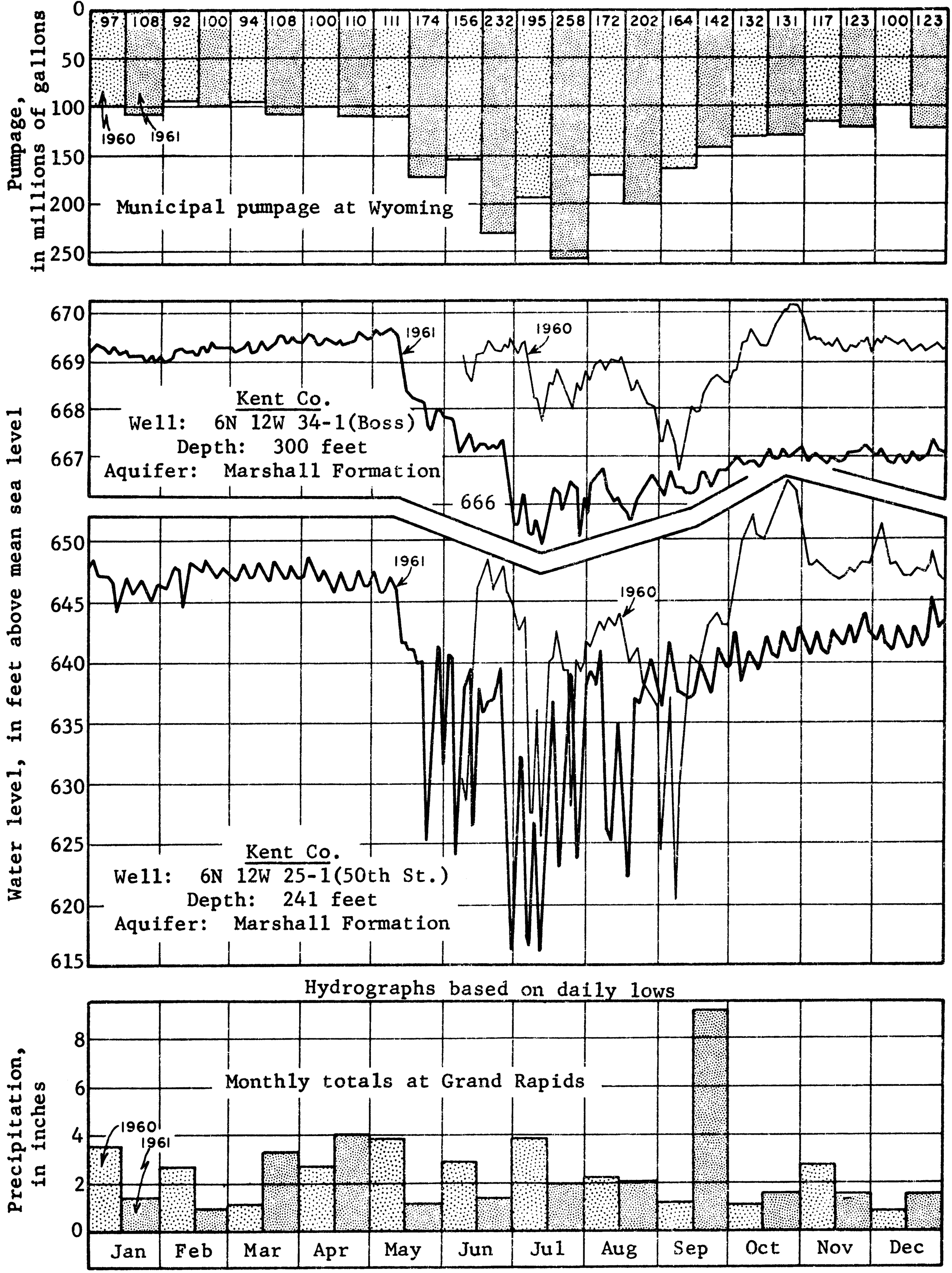

Water level, in feet above mean sea level
854
852
850
848
846
844
A-s
A
Well No. Depth
3S 11W 4-36(A-s) 40 feet
3S 11W 4-35(A) 135 feet
Hydrographs based on daily lows
760
758
756
754
752
750
Well: 2S 11W 27-52 (Allied Paper)
Depth: 113 feet
Hydrographs based on 2:00 a.m. levels
Periodic measurements
End of record
Well: 2S 11W 22-6 (Burdick)
Depth: 115 feet
744
742
740
738
736
734
Hydrograph based on daily lows
Well: 2S 11W 22-150 (Stockbridge)
Depth: 137 feet
Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1960
1961

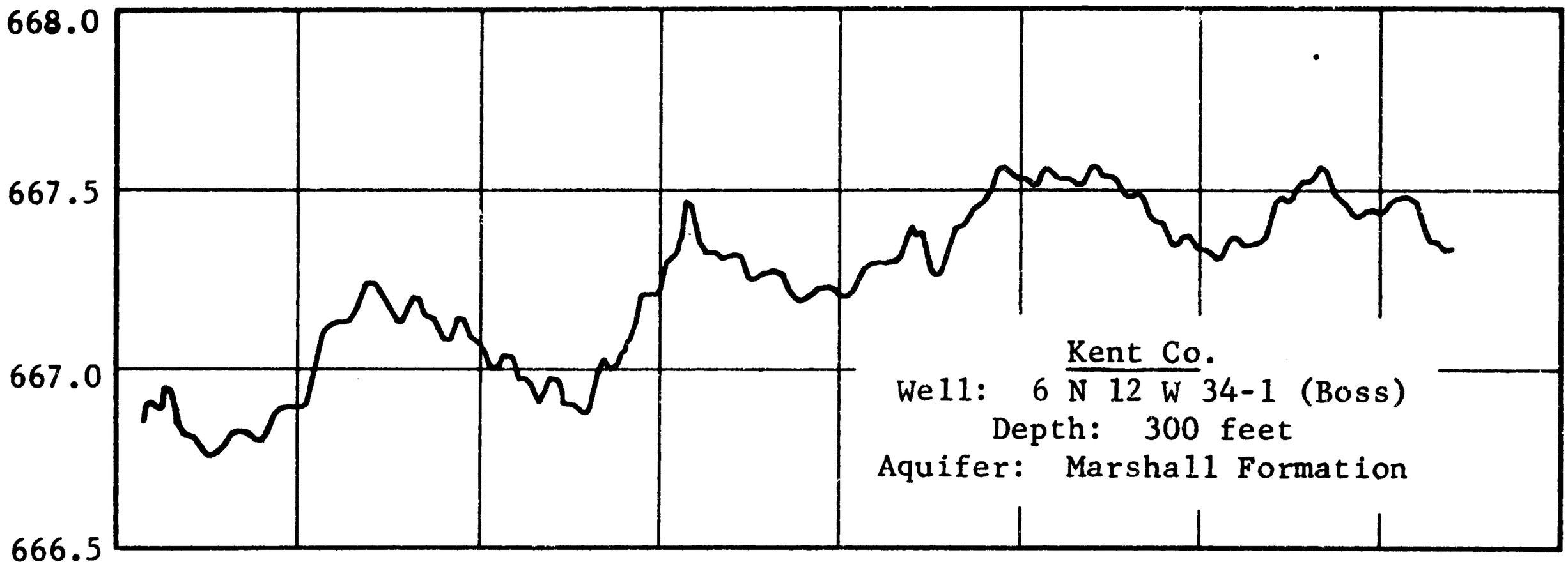
18A


Water level, in feet above land-surface datum
+2.0
+1.5
+1.0
Hydrograph based on daily lows
Well: 3S 12W 11-1 (Atwater)
Depth: 248 feet
1961
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
Location of observation wells
R.12 W.
R.11 W.
T. 2 S.
T. 3 S.
TWIN LAKES
PARCHMENT
(POP. 1917)
KALAMAZOO
(POP. 82089)
TAYLOR PARK
SHERWOOD PARK
RECREATION PARK
OSHTEMO
W. MICHIGAN
STADIUM
ASYLUM L.
WOODS L.
WHITE L.
LIMEKILN L.
BASS L.
West Fork
Portage
3-60
15-18
20-7
22-6
22-150
27-52
29-3
4-36
4-35
11-1
Explanation
Observation well

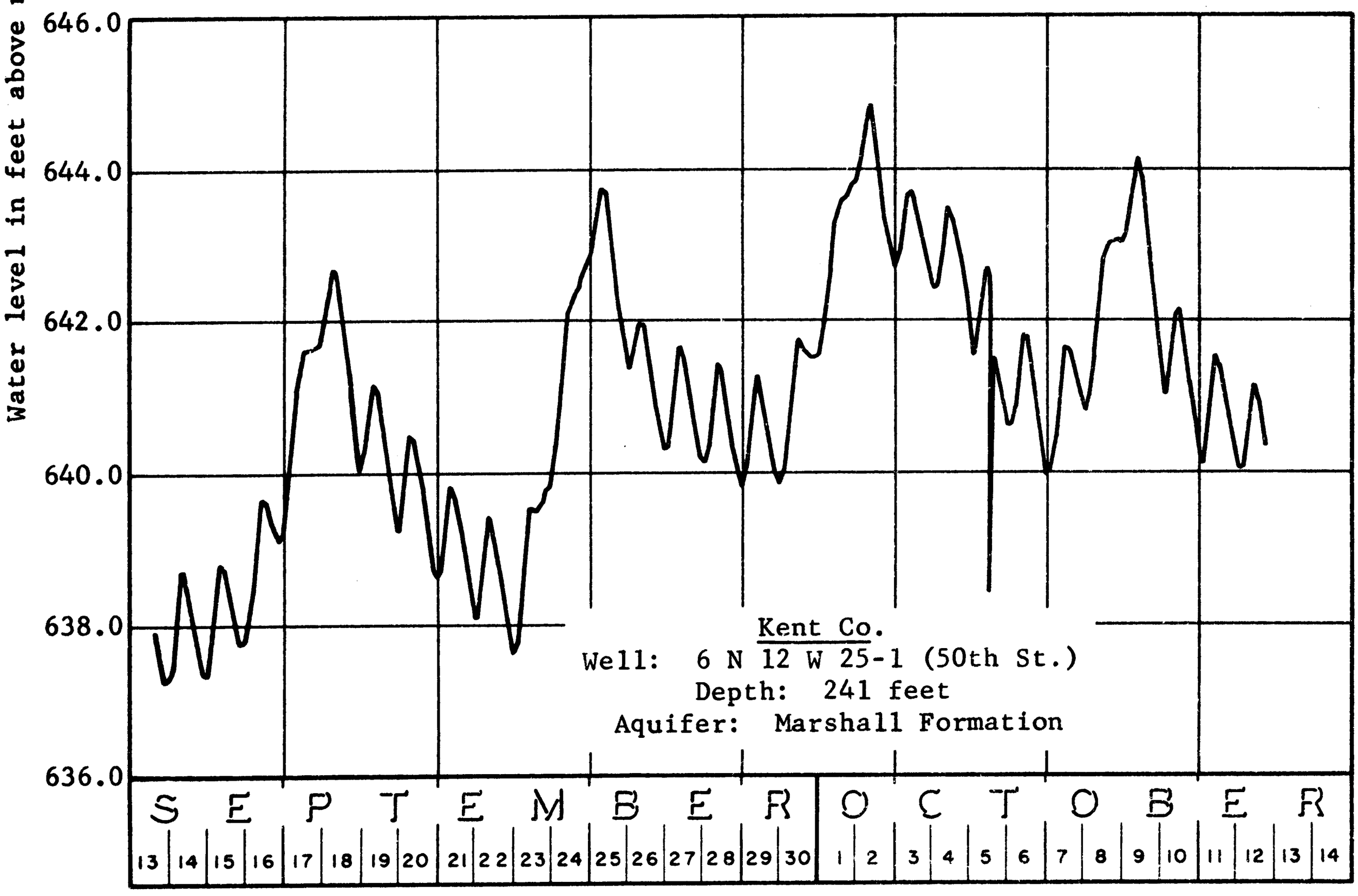
18B

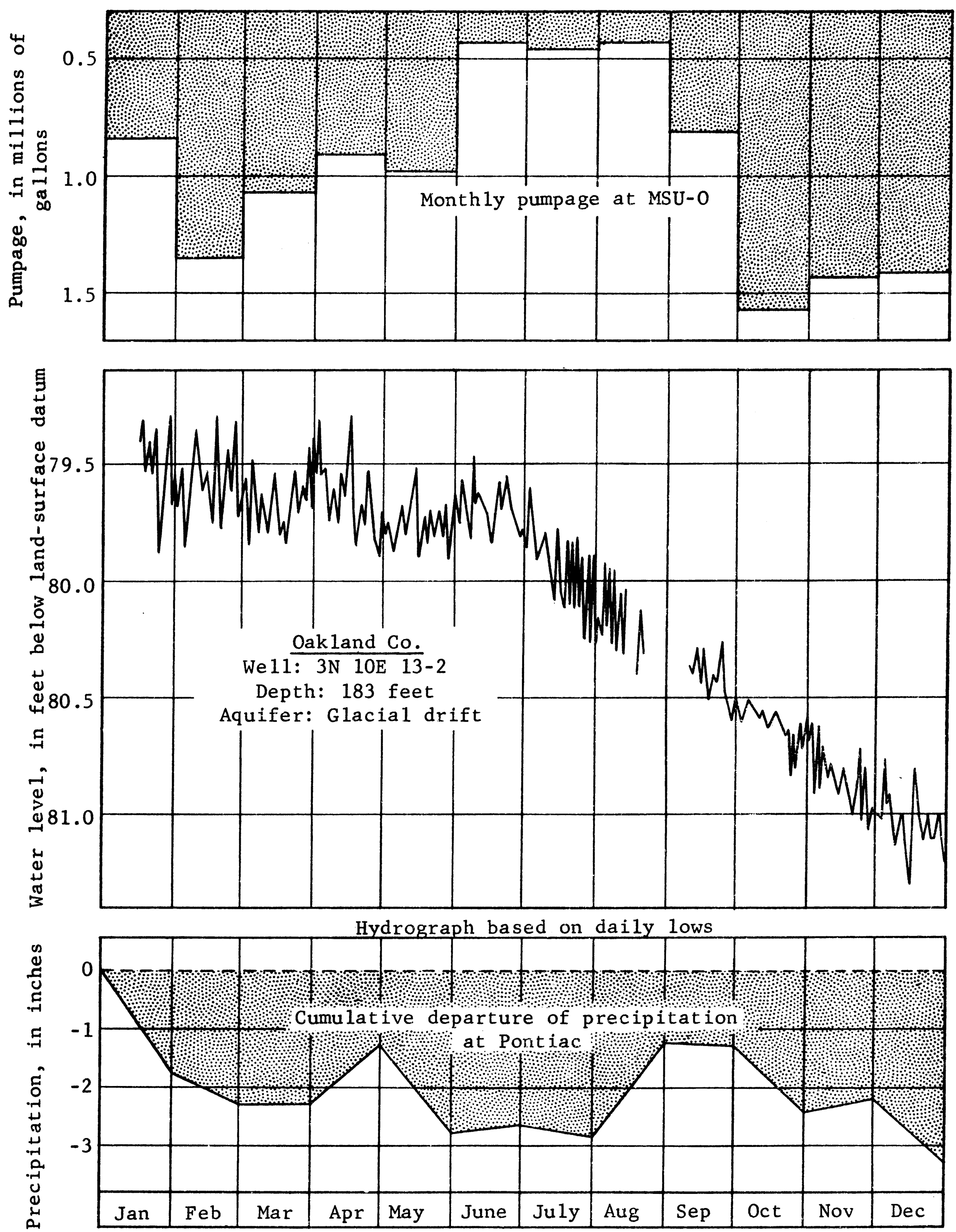

Pumpage, in millions of gallons
10
12
14
16
Municipal pumpage at Lowell
Water level in feet below land-surface datum
13
14
15
16
17
18
Kent Co.
6N 9W 3-1
Depth: 70 feet
Aquifer: Glacial drift
estimated
Precipitation, in inches
8
4
0
Monthly totals of precipitation at Grand Rapids
JULY
AUG.
SEPT.
OCT.
NOV.
DEC.

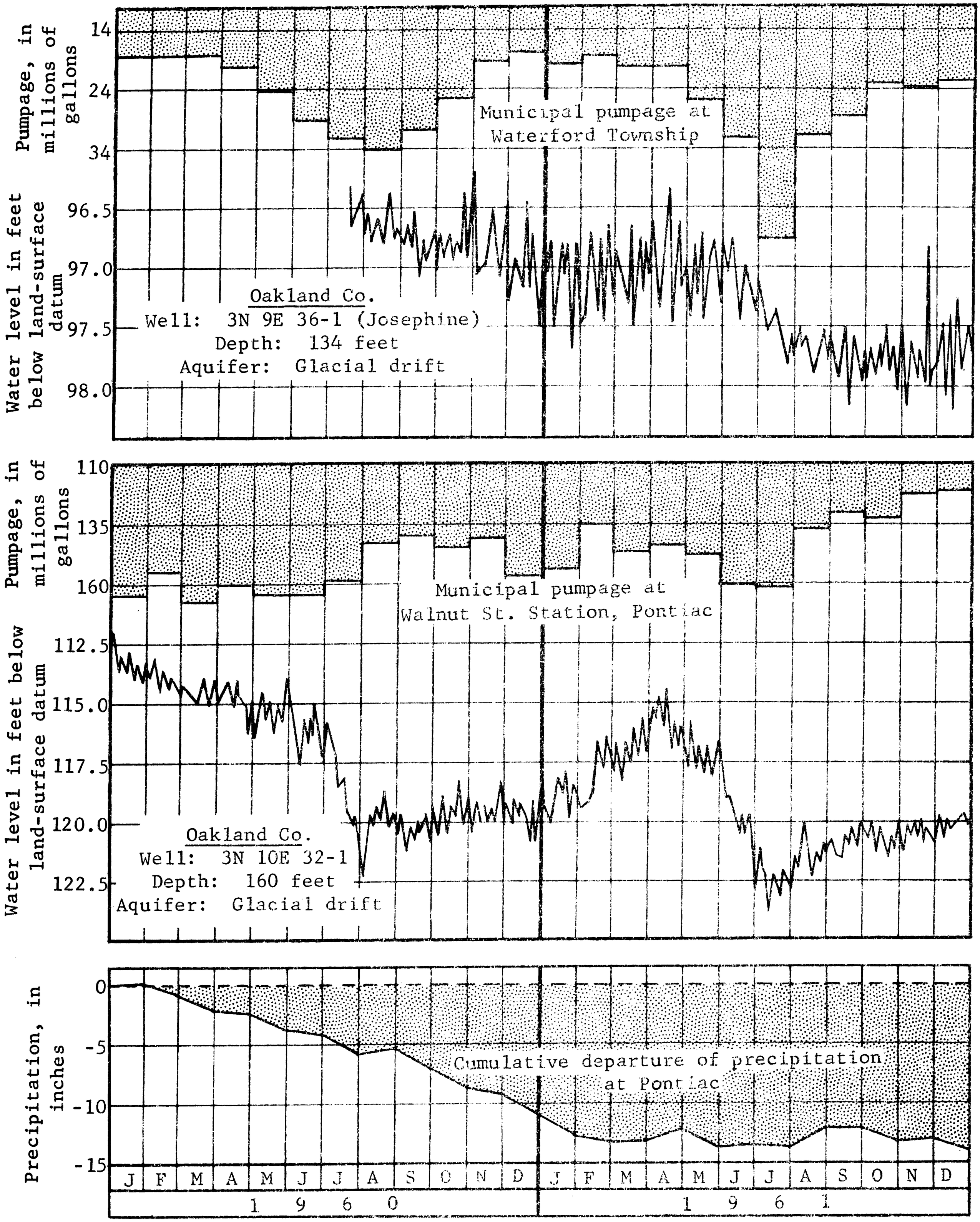

Pumpage, in millions of gallons
0
50
100
150
200
250
97 108 92 100 94 108 100 110 111 174 156 232 195 258 172 202 164 142 132 131 117 123 100 123
1960
1961
Municipal pumpage at Wyoming
Water level, in feet above mean sea level
670
669
668
667
666
650
645
640
635
630
625
620
615
1961
1960
Kent Co.
Well: 6N 12W 34-1(Boss)
Depth: 300 feet
Aquifer: Marshall Formation
Kent Co.
Well: 6N 12W 25-1(50th St.)
Depth: 241 feet
Aquifer: Marshall Formation
Hydrographs based on daily lows
Precipitation, in inches
8
6
4
2
0
Monthly totals at Grand Rapids
1960
1961
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec

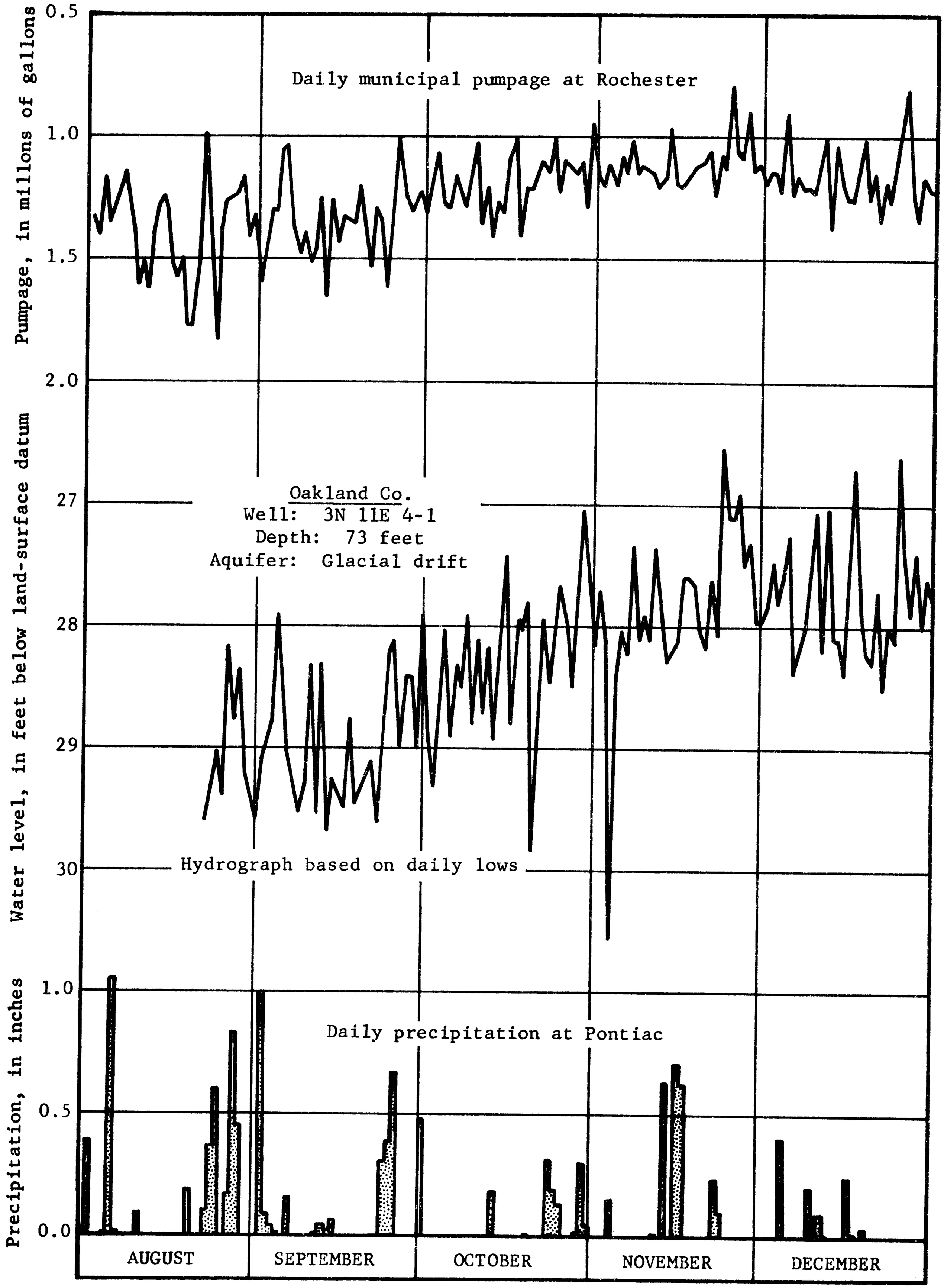


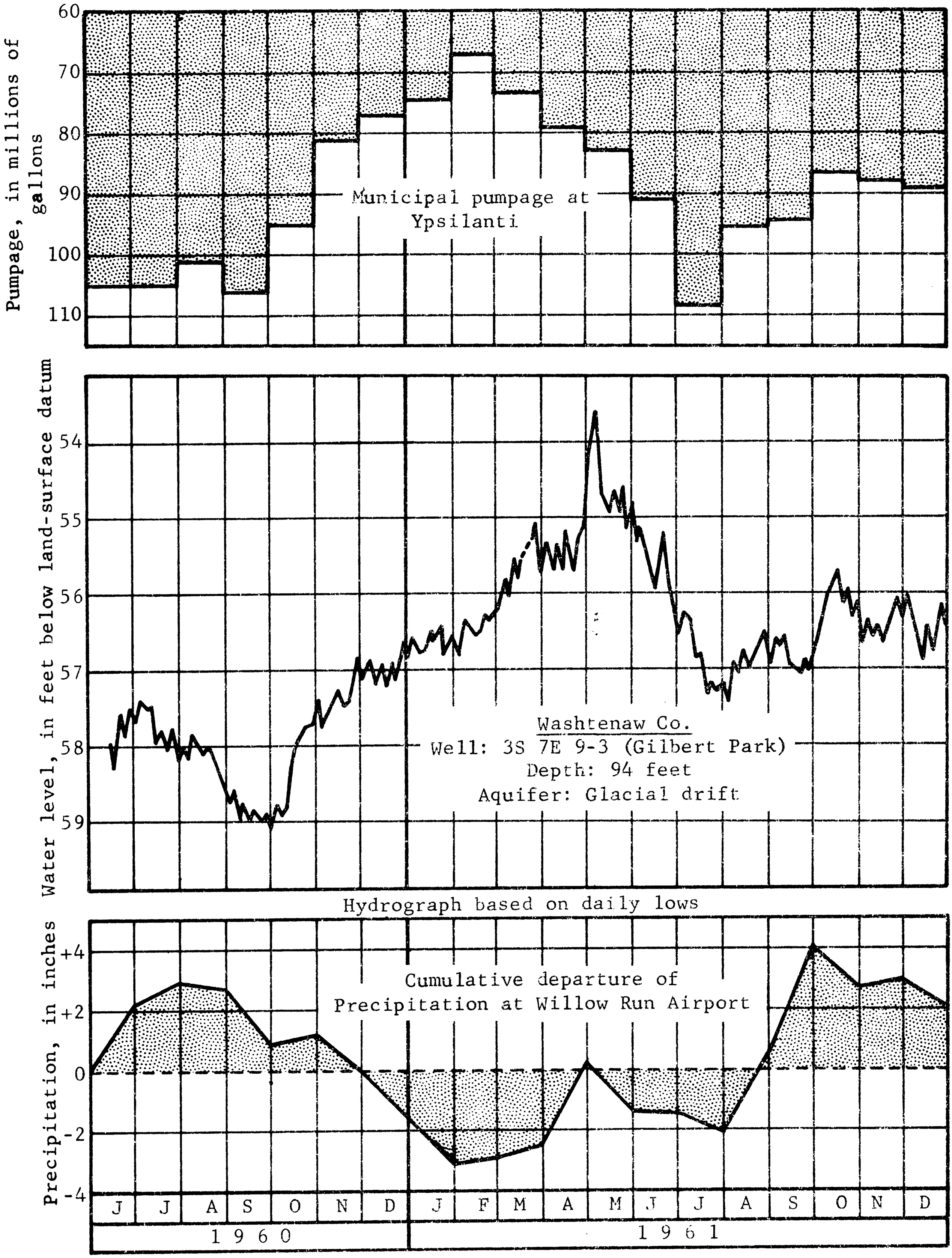
Facsimiles traced from original recorder charts and reduced to 2/3 of actual size.

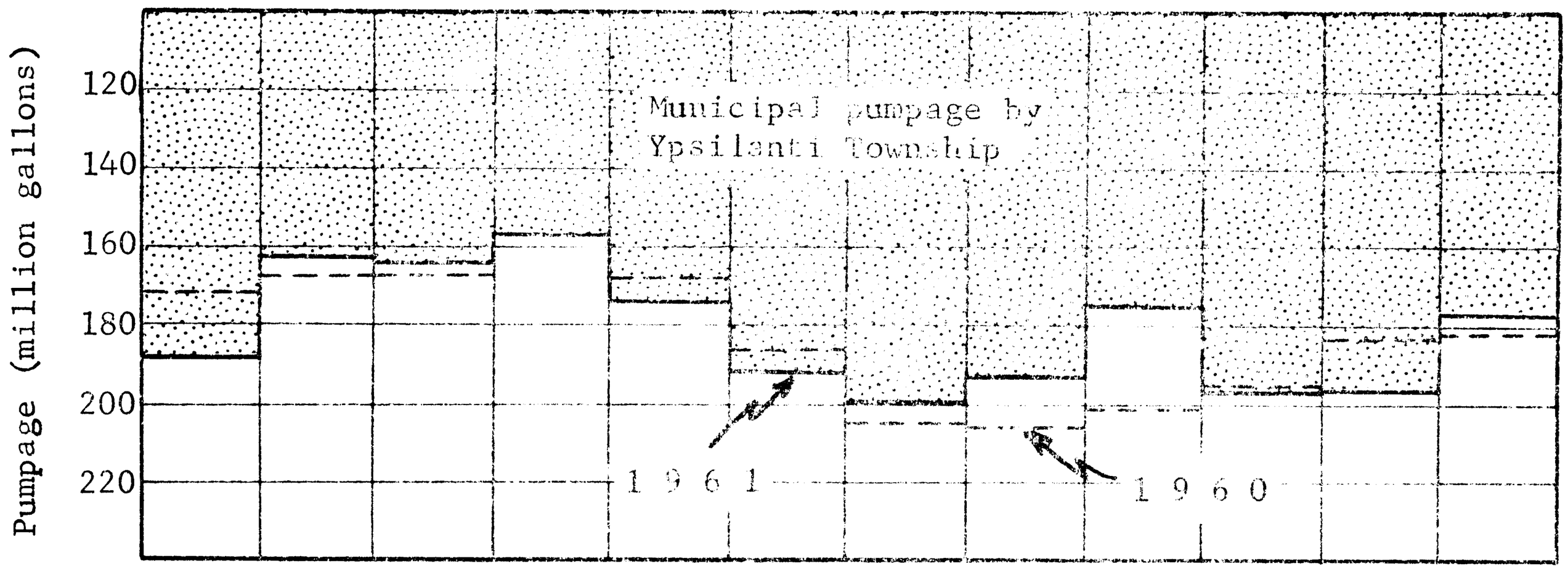


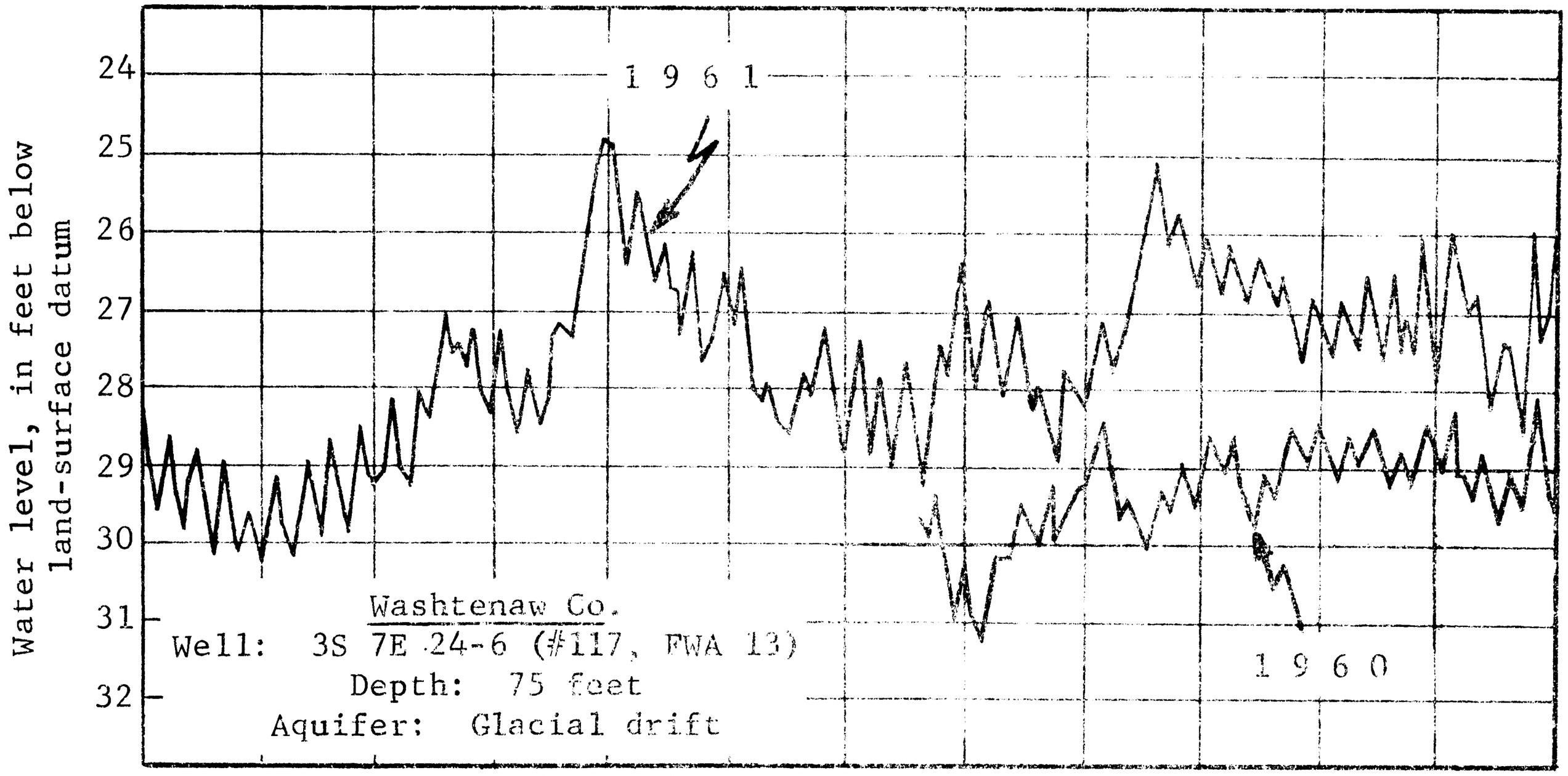

Pumpage, in millions of gallons
0.5
1.0
1.5
Monthly pumpage at MSU-O
Water level, in feet below land-surface datum
79.5
80.0
80.5
81.0
Oakland Co.
Well: 3N 10E 13-2
Depth: 183 feet
Aquifer: Glacial drift
Hydrograph based on daily lows
Precipitation, in inches
0
-1
-2
-3
Cumulative departure of precipitation at Pontiac
Jan
Feb
Mar
Apr
May
June
July
Aug
Sep
Oct
Nov
Dec


Pumpage, in millions of gallons
14
24
34
Municipal pumpage at Waterford Township
Water level in feet below land-surface datum
96.5
97.0
97.5
98.0
Oakland Co.
Well: 3N 9E 36-1 (Josephine)
Depth: 134 feet
Aquifer: Glacial drift
Pumpage, in millions of gallons
110
135
160
Municipal pumpage at Walnut St. Station, Pontiac
Water level in feet below land-surface datum
112.5
115.0
117.5
120.0
122.5
Oakland Co.
Well: 3N 10E 32-1
Depth: 160 feet
Aquifer: Glacial drift
Precipitation, in inches
0
-5
-10
-15
Cumulative departure of precipitation at Pontiac
J F M A M J J A S O N D
1 9 6 0
J F M A M J J A S O N D
1 9 6 1

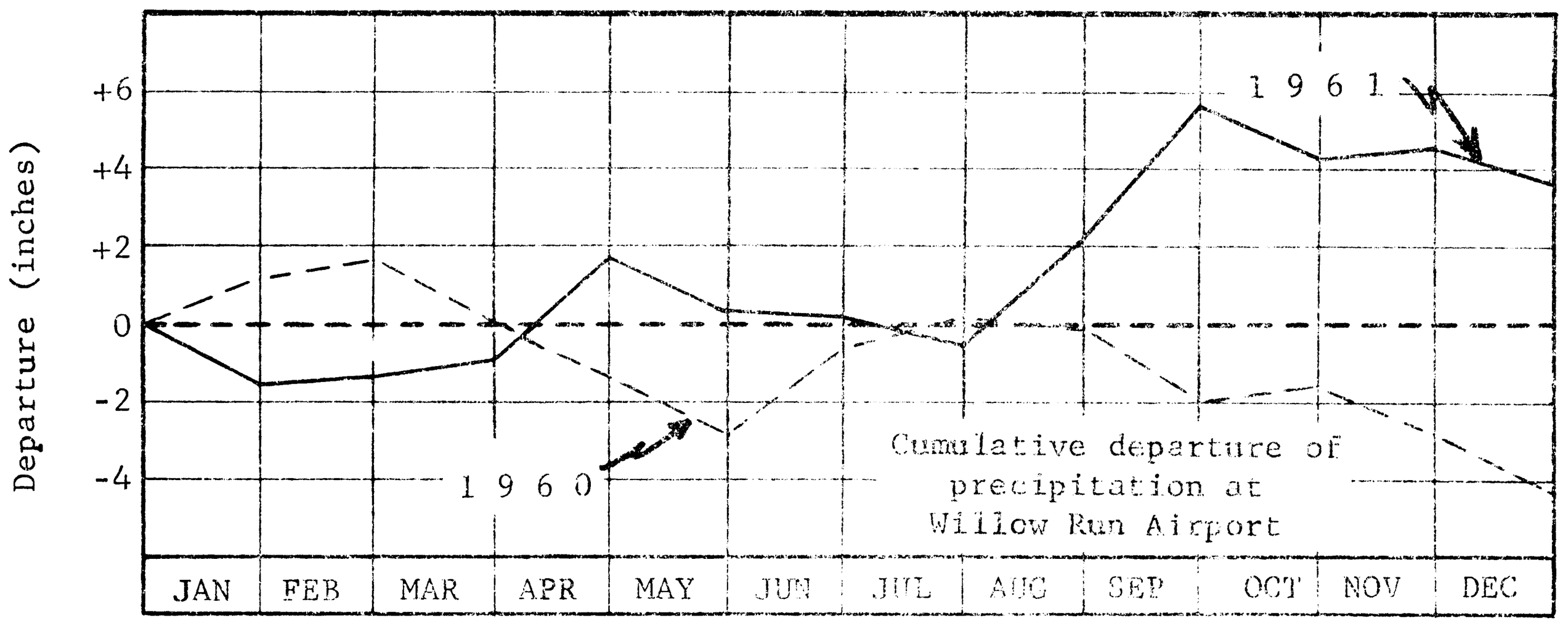

Pumpage, in millons of gallons
0.5
1.0
1.5
2.0
Daily municipal pumpage at Rochester
Water level, in feet below land-surface datum
27
28
29
30
Oakland Co.
Well: 3N 11E 4-1
Depth: 73 feet
Aquifer: Glacial drift
Hydrograph based on daily lows
Precipitation, in inches
1.0
0.5
0.0
Daily precipitation at Pontiac
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER
DECEMBER

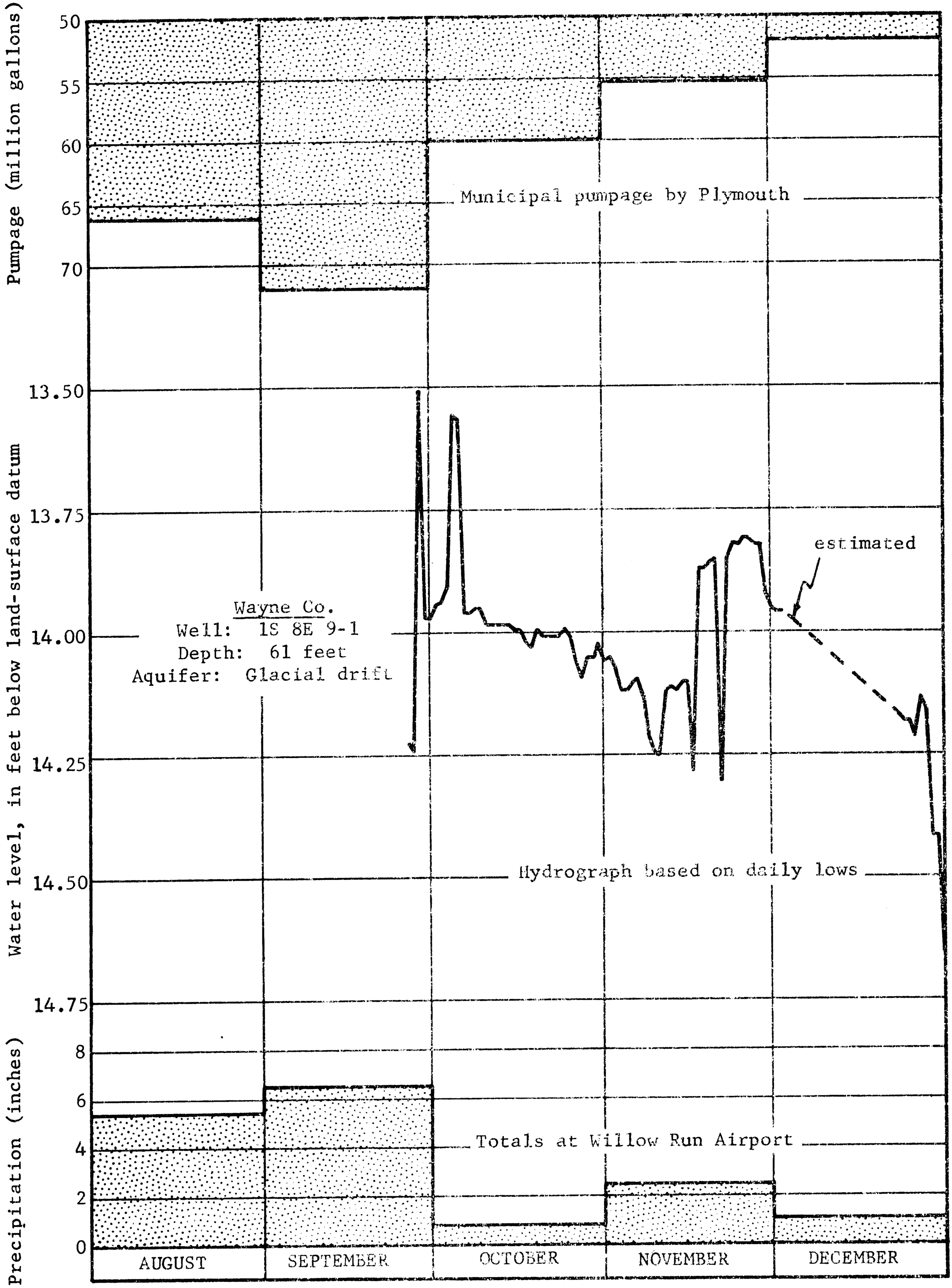

Pumpage, in millions of gallons
60
70
80
90
100
110
Municipal pumpage at Ypsilanti
Water level, in feet below land-surface datum
54
55
56
57
58
59
Washtenaw Co.
Well: 3S 7E 9-3 (Gilbert Park)
Depth: 94 feet
Aquifer: Glacial drift
Hydrograph based on daily lows
Precipitation, in inches
+4
+2
0
-2
-4
Cumulative departure of Precipitation at Willow Run Airport
J J A S O N D J F M A M J J A S O N D
1960
1961





Hydrographs based on daily low-levels




Pumpage (million gallons)
50
55
60
65
70
Municipal pumpage by Plymouth
Water level, in feet below land-surface datum
13.50
13.75
14.00
14.25
14.50
14.75
Wayne Co.
Well: 1S 8E 9-1
Depth: 61 feet
Aquifer: Glacial drift
estimated
Hydrograph based on daily lows
Precipitation (inches)
8
6
4
2
0
Totals at Willow Run Airport
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER
DECEMBER

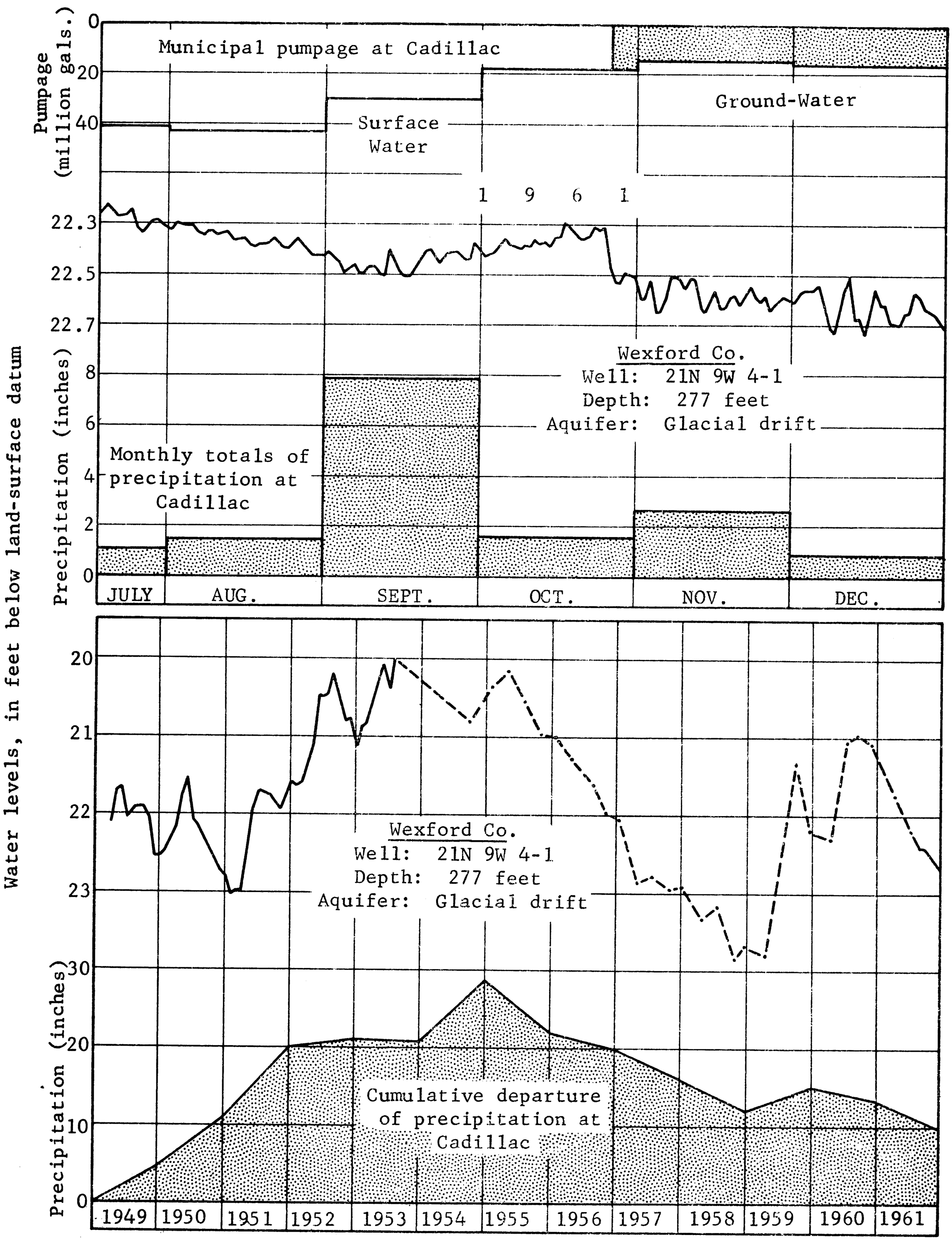

Pumpage (million gals.)
0
20
40
Municipal pumpage at Cadillac
Surface Water
Ground-Water
1 9 6 1
Water levels, in feet below land-surface datum
22.3
22.5
22.7
Wexford Co.
Well: 21N 9W 4-1
Depth: 277 feet
Aquifer: Glacial drift
Precipitation (inches)
8
6
4
2
0
Monthly totals of precipitation at Cadillac
JULY
AUG.
SEPT.
OCT.
NOV.
DEC.
20
21
22
23
Wexford Co.
Well: 21N 9W 4-1
Depth: 277 feet
Aquifer: Glacial drift
Precipitation (inches)
30
20
10
0
Cumulative departure of precipitation at Cadillac
1949
1950
1951
1952
1953
1954
1955
1956
1957
1958
1959
1960
1961

Table 1.--Records of Michigan observation wells and extremes in water levels observed in 1961 and for the period of record.

Owner: MDC - Mich. Dept. of Conservation; WMP - Wisconsin-Michigan Power Co.; MSHD - Mich. State Highway Dept.; USFS - U. S. Forest Service.

Chief Aquifer:

- Qgd - Glacial drift deposits of Pleistocene (Quaternary) age
- IPs - Saginaw Formation of Pennsylvanian age
- Mb - Bayport Limestone of Mississippian age
- Mm - Marshall Formation of Mississippian age
- Dt - Traverse Group of Middle and Late Devonian age
- Dtb - Thunder Bay Limestone of Middle Devonian age
- Ds - Sylvania Sandstone of Middle and Late (?) Devonian age
- Ss - Salina Formation of Late Silurian age
- Sm - Manistique Dolomite of Middle Silurian age
- Or - Limestones of Richmond age (Late Ordovician)
- Otb - Black River and Trenton Limestones of Ordovician age
- Op - Prairie du Chien Group of Early Ordovician age (previously designated as Au Train Formation)
- Єm - Munising Sandstone of Cambrian age
- pЄ - Rocks of Precambrian age (undifferentiated
- pЄf - Freda Sandstone of Keweenawan age (Precambrian)

Altitude: Land-surface datum in feet above mean-sea level.

F - 61: Frequency of measurement in 1961. R - Continuous recorder; D - Daily; W - Weekly; M - Monthly; Q - Quarterly; S - Semiannual; A - Annual.

Observed water-level extremes: 1961 measurements underscored are new extremes for entire period of record (in feet below or above (+) land surface).

Remarks: P - water level affected by pumping. Water-level measurements are made by the U. S. Geological Survey unless otherwise noted.

Well number	Location in section ¼ ¼	Owner	Depth (ft)	Dia. (in)	Chief aquifer	Altitude	Years of record	F 61	Observed water level extremes: Through 1960 Highest	Through 1960 Date	Through 1960 Lowest	Through 1960 Date	In 1961 Highest	In 1961 Date	In 1961 Lowest	In 1961 Date	Remarks
							NORTHERN PENINSULA										
							Alger County										
45N 19W 25-1	SW NE	USFS	66	6	Qgd		1959-61	M	6.35	6-29-60	12.66	8-26-59	9.93	4-27	11.38	11-22	
							Baraga County										
49N 33W 18-1	NE SW	Mich. College of Mining and Tech.	12	16	Qgd		1958-61	R	e4.90	4-25-60	9.40	2- 9-59	6.38	4-22	9.20	2-13	Meas. by owner.
48N 32W 12-1	SE SE	MSHD (WMP 14)	10	1¼	Qgd		1948-61	M	4.19	5- 3-51	6.72	3-15-49	5.01	5- 1	6.44	12-28	Meas. by WMP.
							Chippewa County										
46N 4W 24-1	NE SE	USFS (Raco CCC Camp)	54	6	Qgd		1952-61	R	20.70	7- 3-60	27.77	4-12-56	22.90	7-24	24.69	12-8,9	
							Delta County										
43N 19W 24-3	NW NW	Harry Clarage	405	4	Otb		1958-61	M	77.02	7-29-60	80.06	4- 9-59	78.62	2-23	79.40	11-22	
42N 19W 20-3	NE NE	USFS	134	6	Or		1958-61	M	23.76	6-27-60	25.86	3-31-59	25.06	4-26	25.59	9-29	
42N 18W 17-2	SW NE	USFS	60	6	Qgd		1958-61	M	21.20	5-25-60	24.97	3-31-59	23.37	5-31	24.86	10-27	
41N 19W 17-1	NE SW	USFS	58	6	Or	635±	1958-61	M	0.50	4-29-60	3.82	8-26-59	0.91	4-26	4.01	9-29	
41N 18W 31-2	SE SW	Charles Thompson	250	4	Or		1958-61	R	3.77	5- 7-60	5.91	8- 3-59	3.82	11- 3	6.31	2- 7	
40N 22W 4-2	NE NW	USFS	40	5	Qgd		1958-61	M	20.28	10-13-60	23.50	4-28-59	20.81	2-23	21.67	11-22	
4-4	NE NW	USFS	34	5	Qgd		1959-61	M	14.87	7-29-60	17.10	4-29-60	15.49	1-31	16.42	11-22	
39N 23W 28-3	SW NE	Marshall and Sherman Blake	530	5	Єm	680±	1958-61	R	1.52	5- 6-60	3.86	9-28-58	1.73	4-16	3.25	9-12	

38N 22W 24-1	NW SE	USFS (3)	36	6	Or	585±	1958-61	M	1.10	4-29-60	5.53	10-27-58	1.45	4-26	4.86	2-23	
							Dickinson County										
43N 29W 32-1	NW NE	Dickinson Co. (WMP 11)	12	1¼	Qgd		1948-61	M	5.12	4-18-51	dry	10-12-48	7.46	5- 1	dry	10- 2	Meas. by WMP.
42N 27W 33-1	NE NW	E. W. La Freniere (WMP 10)	12	36	Qgd		1945-46,58-61	M	2.74	5- 3-60	10.75	10- 3-55	4.66	5- 1	9.78	3-29	Do.
41N 30W 25-1	NE SW	Dickinson Co. (WMP 1)	20	1¼	Qgd		1948-61	M	2.66	5- 3-60	dry	10- 3-55	7.82	6- 1	dry	1-30	Do.
25-2	NW SE	Wm. Carrola (WMP 2)	16	36	Qgd		1945-46, 48-61	M	1.69	5- 3-60	dry	1-30-59	4.74	6- 1	9.60	10- 3	Do.
25-3	SE NE	Oscar Martinson (WMP 3)	12	48	Qgd		1945-46,48-61	M	1.57	5- 3-60	dry	11- -48	4.55	5- 1	8.78	3-29	Do.
							Gogebic County										
48N 47W 34-3	NE SE	City of Ironwood (SE well, Gp 3)	22	6	Qgd		1961	R					1.73	11-4	4.71	9- 9	P, Record started 7-19-61
							Iron County										
46N 34W 14-1	NE NW	Oliver Iron Mining Co. (WMP 18)	12	1¼	Qgd		1945-61	M	3.65	6- 2-54	8.60	3-15-49	5.88	6- 2	7.95	3- 1	Meas. by WMP.
46N 33W 18-1	SW NW	MSHD (WMP 17)	12	1¼	Qgd		1948-61	M	2.80	4-18-49	dry	2-28-56	5.91	6- 2	8.19	9- 1	Do.
45N 37W 23-1	SW NE	USFS (WMP 28)	8	1¼	Qgd		1948-61	M	0.75	8-31-51	4.72	9-11-48	1.23	5- 2	4.18	8-31	Do.
45N 35W 33-1	SE NW	MSHD (WMP 34)	12	1¼	Qgd		1948-61	M	1.93	7- 6-53	8.44	3-15-49	3.61	6- 1	5.69	12-28	Do.
45N 33W 8-1	SW SW	Basilio Prandi (WMP 20)	33	36	Qgd		1945-61	M	22.71	5- 3-60	32.16	3-15-49	24.69	6- 2	26.96	11-30	Do.
44N 37W 14-1	NW NW	USFS (Former James Lake CCC Camp)	102	6	Qgd		1959-61	R	93.8	11-29-60	95.75	10-22-59	94.11	12- 4	94.90	5-17	
44N 35W 6-1	SW SW	USFS (Paint River Profile 1)	6	1¼	Qgd	1468.15	1948-61	M	+0.10	5- 2-51	2.26	11-15-48	0.73	5- 2	2.32	8-31	Meas. by WMP.
6-2	SW SW	USFS (Paint River Profile 2)	13	1¼	Qgd	1475.14	1948-61	M	5.08	7- 6-53	8.92	11-15-48	6.77	5- 2	8.72	8-31	Do.
6-3	NW SW	USFS (Paint River Profile 3)	12	1¼	Qgd	1476.35	1948-61	M	4.03	7- 6-53	9.20	11-15-48	6.38	6- 1	8.96	10- 2	Do.
7-1	NW NW	USFS (Paint River Profile 4)	4	1¼	Qgd	1469.28	1948-61	M	1.12	5- 2-51	3.73	8- 1-47	1.94	5- 2	3.55	8-31	Do.
44N 35W 7-2	NW NW	USFS (Paint River Profile 5)	13	1¼	Qgd	1471.25	1948-61	M	2.50	7- 6-53	9.44	10-26-48	3.77	5- 2	5.34	8-31	Do.
7-3	NW NW	USFS (Paint River Profile 6)	17	1¼	Qgd	1475.83	1948-61	M	8.48	5- 2-51	13.40	10-26-48	11.02	5- 2	12.78	10- 2	Do.
44N 33W 10-1	SW SW	Iron Co. (WMP 21)	8	1¼	Qgd		1948-61	M	1.95	4-29-54	7.94	1-12-51	2.88	5- 1	7.89	3-29	Do.
43N 36W 1-1	SW NE	Iron Co. (WMP 27)	9	1¼	Qgd		1948-61	M	6.48	5- 2-60	9.02	6-30-52	7.67	5- 2	8.50	1-30	P, Meas. by WMP
43N 35W 11-1	SE NE	J. J. Javoroski (WMP 23)	47	36	Qgd		1945-61	M	38.61	9- 1-60	47.08	8-15-49	39.89	1-30	41.56	12-29	Do.
13-1	SW SE	F. V. Gendzwill (5)	65	36	Pc		1945-61	S	47.90	9-11-46	63.68	11-30-46	52.17	5- 9	52.28	10- 5	Mine drainage study
13-2	SW SE	Boyington (hole 4-44)	?	?	?		1945,47-61	S	66.39	1-14-52	71.56	3-24-49	67.87	10- 5	68.46	5- 9	Do.
20-1	SW SE	Mrs. B. Hendrikson (WMP 25)	48	1¼	Qgd		1945-61	M	41.66	6-20-53	48.29	8-15-49	41.81	6-29	44.46	7-31	Meas. by WMP.
24-1	SE NE	Spies-Johnson No. 73 (7)	?	3	Qgd?		1945-61	A	67.57	12-15-60	86.05	1-19-49	67.20	10- 5			Mine drainage study
26-1	SW NE	City of Iron River (1)	130	2	Qgd		1945-61	S	18.64	5-2 -60	44.58	3-24-50	18.52	5- 9	20.68	10- 5	P
43N 34W 19-1	NW SW	Spies-Johnson No. 3004 (8)	?	3	Qgd?		1945-61	S	60.25	12-15-60	89.5	10-20-45	59.87	10- 3	60.52	5- 9	Mine drainage study
19-2	NE SW	Spies-Johnson No. 3c (9)	?	3	Qgd?		1945-61	S	66.50	12-15-60	84.10	12-21-48	66.23	10- 5	66.72	5- 9	Do.
29-1	SW NE	Rogers Mine (11)	?	48	Qgd		1947-53,56-61	S	10.31	8-15-53	20.69	3-24-50	14.19	5- 9	14.74	10- 5	Do.
43N 32W 26-2	NE SW	Caya Mine (17)	?	?	Qgd?		1952-61	M	0.68	5-24-60	86.03	3-18-53	2.63	5-26	10.80	2-24	Do.
26-3	SW NE	Caya Mine	200+	4	?		1959-61	M	29.79	5- 2-60	36.26	10-27-60	31.02	5-26	37.50	2-24	
42N 36W 15-1	NE SW	MSHD (Brule River Profile No. 1)	6	1¼	Qgd	1543.92	1948-61	M	0.81	4-29-54	3.17	10-26-48	1.73	5- 2	2.70	8-31	Meas. by WMP.
15-2	NE SW	MSHD (Brule River Profile No. 2)	7	1¼	Qgd	1545.60	1948-61	M	0.46	7- 6-53	3.10	10-26-48	1.20	5- 2	2.69	1-31	Do.

Table 1.--Records of Michigan observation wells and extremes in water levels observed in 1961 and for the period of record.--Continued

Well number	Location in section ¼ ¼	Owner	Depth (ft)	Dia. (in)	Chief aquifer	Altitude	Years of record	F 61	Observed water level extremes: Through 1960 Highest	Through 1960 Date	Through 1960 Lowest	Through 1960 Date	In 1961 Highest	In 1961 Date	In 1961 Lowest	In 1961 Date	Remarks
							Iron County (Continued)										
42N 36W 15-3	NW SW	W. Young Estate (Brule Riv. Profile No. 3)	14	1¼	Qgd	1554.36	1948-61	M	3.67	4-29-54	8.29	10-26-48	5.52	6- 1	7.55	3- 2	Meas. by WMP.
42N 34W 7-1	SW NE	Zimmerman No. 1 (13)	171	12	Qgd	1165.32	1945-61	S	129.02	12-15-60	153.27	4-21-50	128.22	10- 5	128.96	5- 9	P, Mine drainage study.
42N 31W 33-1	NW SE	Iron Co. (WMP 7)	11	1¼	Qgd		1948-61	M	+0.20	5- 2-60	6.28	10-13-48	0.30	5- 1	4.00	1-30	Meas. by WMP.
33-2	NW SE	Joseph Giachino (WMP 8)	12	15	Qgd		1945-61	M	1.89	10-30-51	12.22	2-25-53	6.05	5- 1	10.83	11-29	Do.
41N 31W 10-1	SW NE	Iron Co. (WMP 5)	17	1¼	Qgd		1948-61	M	8.47	1- 3-52	dry	12-15-48	11.90	6-29	15.28	3-29	Do.
							Luce County										
49N 11W 2-5	NW NE	State (5)	7	1¼	Qgd		1959-61	M	+0.40	5-26-60	6.34	7-30-59	0.20	4-27	4.48	12-15	Lake Hydr. study.
49N 10W 6-6	SW SW	State (6)	8	1¼	Qgd		1959-61	M	1.98	5-31-60	8.02	8-26-59	2.69	5-24	6.50	10-30	Do.
46N 10W 25-20	NW NW	John Barrett Estate	20	48	Qgd		1958-61	M	0.11	5- 3-60	0.86	6-29-60	0.69	4-27	0.89	10-31	Freezes in winter.
							Mackinac County										
42N 2W 7-1	NE NE	USFS (Pontchartrain)	102	6	Sm		1956-61	R	13.1	5-11-60	29.35	11- 5-57	17.53	6-25	28.99	3-20 9-29	
9-1	NE NW	Kenneth Kerr	84	2	Sm		1956,59-61	M	+1.0	*	3.87	2-26-59	*		4.52	9-28	* Often flows. Not meas. in winter.
41N 5W 23-1	SW NW	MDC (Round Lake)	47	6	Ss		1956-61	M	4.30	5- 7-59	17.48	3-19-59	5.38	6-29	15.12	2-28	
							Marquette County										
49N 30W 22-1	SW NE	Marquette Co. (WMP 13)	17	1¼	Qgd		1948-61	M	0.64	5- 3-51	13.32	9- 2-48	8.62	5- 1	11.59	9- 1	Meas. by WMP.
47N 28W 1-1	NW SE	Inland Steel Co. (Morris Mine No. 1)	216	38	Qgd		1961	R					e62.5	12-31	70.99	10-26	P-recovery.
3-1	SW SW	Ely Township	75	8	Qgd		1961	R					13.60	8-22	14.87	12- 2	Record started 7-6-61.
4-1	NE NE	Inland Steel Co. (Blueberry Mine 8B)	68	8	Qgd	1577	1961	R					17.27	10-17	18.03	12-31	Record started 10-13-61.
10-1	NW NW	Clarance Carlson	17	6	Qgd		1961	M					8.35	9-27	10.18	12-22	Record started 7-6-61.
46N 28W 1-1	SE NW	Clarance Carlson	96	6	Qgd		1961	M					35.59	8-22	37.05	11-14	Record started Aug. 1961.
45N 30W 1-1	SW NW	Arnold Janofski (WMP 4)	31	36	Qgd		1945-61	R	23.82	7-18-60	29.28	3-15-49	23.90	3-26	26.12	12-31	Fed. key well.
45N 25W 28-1	NE NW	MDC (Gwinn CCC)	18	6	Qgd?		1958-61	M	0.67	4-26-60	4.82	3-31-59	2.05	4-20	4.10	8-30	
28-2	NW NE	Forsyth Twp.	100	240	Qgd		1961	R					8.2	8- 7	42.2	7-10	Record started 7-3-61.

28-3	NW NE	Forsyth Twp.	39	1¼	Qgd		1961		W					14.74	7-24	16.63	8-30	Record Start. 5-16-61., P.
44N 26W 28-1	NE SE	MDC (Esc. Riv. CCC)	31	6	Qgd		1953-61		M	1.90	5-17-60	2.83	8-30-57	2.03	5-17	2.50	9-26	Meas. by MDC.
								Menominee County										
37N 26W 19-1	NE SE	MSHD	164	4	Otb		1959-61		M	3.70	5- 2-60	5.13	10-27-60	4.24	4-25	6.77	2-24	
								Ontonagon County										
51N 41W 8-1	SE NW	Mich. Corrections Dept.	100	6	pef		1958-61		R	8.18	4-15-59	18.12	10-13-60	8.4	5-14	18.8	9-30 10-10	
52N 39W 30-1	NW NW	Village of Ontonagon	22	20	Qgd		1960-61		R	6.3	12- 6-60	13.1	12- 9-60	2.0	10-26	13.4	3-11	P
								Schoolcraft County										
47N 16W 30-1	NW NW	MDC (Cusino CCC Camp)	57	6	Op		1957-61		R	5.7	5-10-60	15.51	11- 7-57	8.5	4-26	14.8	9-12	
45N 18W 31-1	NE SW	USFS	229	5	Otb		1958-61		M	13.71	6-29-60	16.69	1-27-59	14.51	4-27	15.66	9-29	
45N 13W 16-1	SW SW	U.S. Fish and Wildlife Service	154	4	Or		1952-61		R	4.80	5- 8-60	6.28	9-26-55	5.11	3-28	5.84	9-13	
								SOUTHERN PENINSULA										
								Barry County										
3N 8W 18-1	SE NE	City of Hastings	33	6	Qgd		1958-61		R	2.32	4- 5-59	6.71	7-16-59	3.16	4-30	6.81	7-12	P
								Branch County										
6S 6W 22-1	NE SW	City of Coldwater (3)	130	6	Qgd		1949-61		W	10.08	4- 8-50	16.67	1-15-54	11.00	5-12	15.94	2-10	P, Meas. by owner.
								Calhoun County										
1S 7W 10-1	NW NW	K. N. Sabin	8	15	Qgd	907.99	1946-61		W	0.89	3-28-50	5.98	2-11-59	3.35	7- 5	5.15	12-27	
32-1	NE SE	City of Battle Creek (Verona 22)	127	8	Mm	830.79	1939-61		D	0.7	4-26-50	16.75	7-16-59	9.25	5- 8	13.50	8-16	P, Meas. by owner.
32-2	NE NW	Mrs. Harriett Rice	43	2	Mm	842.88	1946-61		Q	8.98	4-25-50	18.93	9-23-59	15.93	4- 4	17.50	9-18	P
2S 8W 1-1	SW SE	Sherman Mfg. Co.	22	2	Qgd	825.19	1946-61		Q	10.49	4-11-47	18.82	9-23-59	17.10	4- 4	19.47	9-18	
2-1	NW SE	Oliver Elec. Mfg. Co.	92	10	Mm	819.99	1946-61		R	4.75	4- 9-47	14.95	9-11-59	12.60	5- 3	14.77	8-25	P
3-1	SE SE	Dominic Conto	12	2	Qgd	862.02	1946-61		Q	1.75	4-28-50	9.89	9-23-59	6.10	4- 4	7.46	9-18	
3-2	SE NE	Eaton Mfg. Co.	80	10	Mm	833.39	1946-61		Q	13.43	4-25-50	25.41	9-23-59	21.43	12-19	22.53	4- 4	P
14-1	NE SE	City of Battle Creek	62	2	Qgd	916.05	1939-61		Q	9.10	5-31-52	32.76	3-26-41	11.53	6-21	12.28	12-19	
2S 8W 14-2	SE SE	City of Battle Creek (TW 1)	89	26	Qgd	914.97	1945-61		Q	6.22	5-29-50	12.86	10-18-46	8.36	6-21	9.19	12-19	
2S 7W 7-1	SW NE	Oliver Farm Implement Co.	74	6	Mm	834.30	1945-61		Q	15.00	4-11-47	24.68	9-23-59	19.50	4- 4	22.75	9-18	P
17-1	NW SW	City of Battle Creek	87	2	Mm	841.78	1945-61		Q	6.57	4-25-50	11.38	9-23-59	9.85	12-19	10.60	9-18	P
18-1	SW SW	Do.	87	2	Mm	832.49	1945-61		Q	+0.50	4-25-50	3.24	9-21-49	1.07	12-19	2.00	9-18	P
2S 6W 25-1	NE NE	City of Marshall (Ferguson)	59	6	Mm	904.85	1950-61		M	5.46	5- 9-50	9.59	10- 6-58	7.95	4-30	8.86	7-28	P, Meas. by owner.
25-2	SE NW	City of Marshall (Egeler)	67	6	Mm	901.15	1950-51, 56-61		Q	6.50	9-14-50	9.00	8-14-57	7.94	4- 4	8.30	6-21	P, Meas. stopped 6-61.
25-3	SW SE	City of Marshall (Filkin)	82	4	Mm	914.15	1950-61		Q	19.71	5- 3-50	26.32	12-19-56	23.47	4- 4	24.14	6-21	P, Meas. stopped 6-61.

Table 1.--Records of Michigan observation wells and extremes in water levels observed in 1961 and for the period of record.--Continued

Well number	Location in section (¼ ¼)	Owner	Depth (ft)	Dia. (in)	Chief aquifer	Altitude	Years of record	F 61	Observed water level extremes: Through 1960 Highest	Through 1960 Date	Through 1960 Lowest	Through 1960 Date	In 1961 Highest	In 1961 Date	In 1961 Lowest	In 1961 Date	Remarks
							Cass County										
6S 16W 1-1	SW NE	City of Dowagiac	159	10	Qgd	750.19	1949-61	W	+5.20	2-20-60	5.97	7-24-53	+2.37	4-21	3.88	8- 4	P, Meas. by owner.
8S 14W 17-1	NE NW	Ted Little	55	28	Qgd		1945-61	W	46.20	7-16-50	55.03	3-10-57	50.14	1- 1	51.65	12-31	
							Charlevoix County										
33N 4W 2-1	SW NE	MDC	94	6	Qgd		1948-61	Q	69.49	7-14-60	75.85	4-16-56	72.20	7-12	73.49	4-12	
32N 4W 10-1	NE SE	MDC (33)	17	2	Qgd		1934-41, 48-61	M	1.19	3-30-58	7.42	2-12-59	3.64	4-21	5.34	9-11	
							Cheboygan County										
34N 1W 1-1	NW SW	MDC (7)	11	2	Qgd		1938-41, 48-52, 55-61	Q	2.75	3-28-38	5.55	10-13-55	3.88	12-11	4.81	9-11	
							Clare County										
17N 4W 33-1	NW NW	Watervliet Paper Co.	15	1¼	Qgd		1958-61	M	8.52	5- 2-60	10.56	2-27-59	8.89	5- 1	10.28	8-25	
							Clinton County										
8N 1W 13-1	SW NW	Village of Elsie	298	12	IPs	699.68	1947-61	M	+3.78	6- 3-50	37.55	10-15-57	0.01	2-27	3.68	1-27	P, Meas. stopped 6-61.
6N 2W 16-1	SE SE	MSHD	23	14	Qgd	803.32	1948-61	M	14.59	4-19-52	18.53	12-29-53	17.62	5-26	18.55	2-27	Fed. key well
5N 2W 31-1	NW SW	Mich. Dept. of Aeronautics	195	6	IPs	e850	1949, 55, 60-61	R	45.0	3-21-49	53.00	9- 2-55	54.86	1- 7	57.33	12-15	P
32-1	SW SE	Mich. Health Dept.	135	4	IPs	849.21	1944-61	M	42.02	9-14-44	82.94	12- 1-60	81.49	5-29	90.80	11-27	P
							Crawford County										
27N 1W 20-1	SW SW	MDC (22)	15	2	Qgd		1934-57, 60-61	Q	1.55	7-11-43	5.92	10-12-55	4.11	4-14	4.79	7-19	
26N 4W 11-1	NW SW	MDC	12	15	Qgd	1147.59	1942-61	R	4.03	6- 1-43	9.85	9- 3-58	6.64	10- 2	8.56	8-30	
25N 3W 28-1	SW SW	MDC (8)	13	1¼	Qgd	1175.14	1934-37, 39-61	Q	8.60	7-28-60	11.28	10-22-58	9.93	4-21	10.51	9-30	
25N 1W 15-1	SE SE	USFS	56	6	Qgd		1948-61	R	29.36	7-27-60	35.97	4- 4-51	31.07	1- 7	32.13	9-18	
							Eaton County										
4N 4W 2-1	SW SW	City of Grand Ledge	376	12	IPs	846.59	1948-61	R	21.34	5- 5-50	29.72	9-14-59	26.77	2- 7	28.23	8-13	P
11-1	NW NE	Do.	350	8	IPs	788.9	1960-61	R	+3.8	9-19-60	8.3	12- 4-60	+3.8	8-28	6.2	7-29	P
4N 3W 10-1	SE NE	John Schneeberger	121	3	IPs	855.99	1944-61	M	31.28	5-27-48	38.59	10-28-59	38.21	1-31	39.36	11-27	P
12-1	SE SW	F. A. Wheeler	381	6	IPs	861.91	1953-61	R	67.51	11-23-53	79.4	7-16-59	72.3	1- 2	79.8	8-19	P
2N 4W 19-1	NW SW	City of Charlotte	25	240	Qgd	889.44	1947-61	Q	8.04	4- 7-47	16.48	9-23-59	15.45	6-15	15.95	9-18	P
							Genessee County										
7N 7E 9-1	SE SW	Consumers Power Co.	288	12	IPs	761.83	1946-61	Q	17.50	4-11-48	45.48	7-20-57	24.07	3-30	25.98	6-14	P, Meas. stopped 6-61.
17-1	SE NE	Do.	222	12	IPs	757.83	1946-61	R	24.23	2-12-50	37.99	8-24-55	25.14	12- 4	31.53	7-27	P
20-2	SW SW	City of Flint	169	2	Qgd	749.48	1947-61	Q	1.09	4-26-50	9.07	9-15-55	4.74	12-18	6.82	6-14	

	29-1	SE SW	C. F. Crain	14	1¼	Qgd	776.63	1946-61	Q	1.69	12-22-49	10.66	10-10-60	7.55	3-30	9.56	9-29		
	29-2	SW SE	Jack Palmer	8	18	Qgd	779.86	1946-61	Q	+0.20	6-29-48	dry	10-10-60	5.63	6-14	7.55	9-29		
	32-1	SW SW	A. W. Arndt	140	2	Qgd	792.27	1946-61	Q	18.51	6- 2-47	35.36	9- 2-59	32.73	3-30	34.99	9-29	P	
6N 7E	9-1	SW SE	Fisher Body Div., GMC	375	6	Ps	841.71	1952-61	R	37.79	11-24-52	59.9	8- 9-60	47.3	1- 3	57.9	7-12	P	
								Gladwin County											
17N 1W	7-1	SW NW	City of Beaverton	93	12	Qgd	721.50	1950-61	D,W	27.94	4- 6-59	49.35	6-26-50	30.33	4-25	46.98	3-27	P, Meas. by owner.	
								Grand Traverse County											
27N 9W	4-1	NW NE	MDC (18)	15	2	Qgd	687.01	1934-37, 41-44, 48-52, 55-61	M	0.74	5-19-60	2.54	7-26-35	0.91	8- 4	1.62	9-12		
26N 11W	27-1	NW SW	MDC (2)	14	2	Qgd	914.25	1935-37, 41-44, 48-61	Q	1.20	4-14-59	4.02	8-18-36	1.70	12-11	2.91	9-12		
26N 9W	13-1	SW SW	MDC (2)	14	2	Qgd	961.78	1934-37, 41-44 48-61	M	4.66	5-19-61	7.87	10-11-49	4.92	10- 5	7.00	9-12		
								Gratiot County											
12N 3W	24-2	NE SE	City of St. Louis (3)	216	16	Qgd		1960-61	R	50.00	12-12-60	67.6	10-28-60	44.6	4-17	59.1	2-28	P	
	34-1	SW SE	S. J. Brown	55	2	Qgd	727.12	1947-61	M	6.08	4-26-48	40.87	6-28-50	16.45	2-27	22.29	8-25	P	
	35-3	NW SW	Walter Stone	26	2	Qgd	732.62	1947-61	M	10.07	5- 3-48	24.30	8-27-58	17.67	3-31	19.92	8-25	P	
	35-5	SW NW	Reed Excavating Co.	20	36	Qgd	738.78	1950-61	M	13.74	4- 7-50	17.91	11-12-53	15.87	4-28	17.63	1-27		
12N 2W	18-1	NE NW	Mich. Chemical Co.	1350	5½	Mm		1957-61	R	212.3	12-31-60	267.7	8-30-57	195.71	12-31	212.26	1- 1		
11N 3W	3-6	NW NW	E. H. Waber	49	2	Qgd	733.20	1946-61	M	4.99	2-27-59	32.98	12-16-55	24.02	2-27	29.04	7-24	P	
	4-1	SW NE	City of Alma (TW 6)	165	8	Qgd	732.31	1955-58, 60-61	R	12.06	6-14-55	27.3	9- 9-60	14.3	4-10	26.2	10-6	P	
	36-1	SE SE	Village of Ithaca	785	8	Ps	804.50	1947-61	M	78.25	1-22-52	83.96	9- 4-49	80.10	4-28	80.73	2-27	Meas. stopped 8-61.	
								Hillsdale County											
6S 3W	23-2	NW NW	City of Hillsdale (TW 6)	26	6	Qgd		1957-61	W	1.62	6-27-60	12.96	9-18-57	1.75	5- 8	8.75	8-14	P	
								Ingham County											
4N 2W	4-1	NW SW	C & O R.R. (East 1)	38	12	Qgd	842.19	1953-61	M	25.98	3- 3-53	34.38	12-28-59	32.29	1-31	34.05	11-27	P	
	9-1	SE NW	City of Lansing (Seymour 1)	401	14	Ps	828.81	1929-61	R	15.63	3-26-31	154.77	4-10-56	135.5	12-28	145.7	7-13	P	
	16-1	NE SE	City of Lansing (Cedar)	417	12	Ps	829.11	1945-61	R	42.01	3-11-46	67.0	8-22-49	56.28	12-26	59.64	4-17	P	
	17-1	NW NE	City of Lansing (Logan)	424	20	Ps	858.72	1929, 31, 33-61	R	34.34	12- ?-29	149.64	4-11-56	139.1	12-26	146.2	8-17	P	
	17-2	NW NW	Olds Drop Forge (4)	417	12	Ps	872.55	1946-61	Q	104.86	12-10-46	148.47	4-10-56	143.75	12-28	149.47	9-26	P	
	19-1	SW SW	Waverly Hills Assoc.	87	2	Ps	833.94	1947-61	Q	0.00	3-29-50	8.74	12-29-60	6.31	9-26	7.38	12-28	P	
	21-1	NE NW	City of Lansing (Townsend)	410	14	Ps	834.10	1906, 19, 29-61	R	2.0	5- 9-06	74.33	8-21-59	62.34	12-26	68.93	7-13	P	
	22-1	SW NW	City of Lansing (P-5)	338	12	Ps	823.64	1930-61	M	7.1	7- ?-32	58.68	10-16-59	50.78	11-27	54.60	3-29	P	
	23-1	NE NW	City of Lansing(RS-7)	467	12	Ps	824.86	1930-32, 36-61	M	7.55	11-17-30	116.28	7-23-59	73.61	12-26	82.61	1-27	P, Meas. by owner.	
	24-1	NE SW	Mich. State Univ.	453	10	Ps	853.45	1945-61	R	25.47	3-25-46	e80.0	7-17-59	53.1	1- 2	78.6	7-14	P	
	28-1	NE NW	Atlas Drop Forge (2)	425	8	Ps	849.20	1944-45, 48-61	Q	30.28	4-23-48	54.40	8-19-48	51.60	3-29	54.57	6-27	P	
	31-1	SW SW	C. A. Weber	204	3	Ps	880.15	1944-61	M	18.92	4-26-52	25.57	2-27-59	24.16	6-27	25.42	2-27	P	
4N 1W	18-1	SE NE	Marble School	175	3	Ps	847.85	1952-61	M	20.09	4-27-53	34.05	7-31-59	32.96	3-29	36.63	7-27	P	
3N 2W	23-2	SE NE	Delhi Twp.	268	8	Ps	e880	1959-61	R	2.07	3-31-60	5.84	12-27-60	3.89	4-27	6.09	8-17	P	
2N 1W	5-1	SE SE	City of Mason (old 2)	150	6	Ps		1948-61	W	0.08	6-29-49	8.96	9-10-60	2.58	8-26	8.07	8- 5	P, Meas. by owner.	
								Ionia County											
7N 7W	23-1	NW NW	Michigan Tng. Unit at Ionia	127	6	Qgd	741.65	1960-61	R	28.65	11-12-60	30.53	12-14-60	28.36	4-28	34.12	10-13	P	

Table 1.--Records of Michigan observation wells and extremes of water levels observed in 1961 and for the period of record.--Continued

Well number	Location in section (¼ ¼)	Owner	Depth (ft)	Dia (in)	Chief aquifer	Altitude	Years of record	F 61	Observed water level extremes: Through 1960 Highest	Date	Lowest	Date	In 1961 Highest	Date	Lowest	Date	Remarks
Ionia County (Continued)																	
7N 7W 25-1	SW NE	Ionia State Hospital	23	6	Qgd	635.76	1960-61	R	12.51	8-25-60	13.74	10-19-60	9.34	4-28	17.42	10-28	P
6N 5W 33-1	- NE	Barley-Earhart Co.	15	180	Qgd		1957-61	M,R	4.35	4- 1-60	10.25	7-17-59	7.40	4-28	10.07	8-17	Recorder removed 7-61.
Iosco County																	
23N 7E 7-1	NE SE	USFS	341	6	Qgd		1948-61	Q	25.13	8- 3-52	28.10	4-27-59	25.99	4-17	26.70	12- 1	
Jackson County																	
1S 1E 36-9	SE SE	MDC (9)	9	1¼	Qgd	920.28	1956-61	W	0.42	5-10-56	6.80	12-30-58	1.00	5- 6	6.37	8- 4	Meas. by MDC.
3S 1W 11-2	NE NE	City of Jackson (4a)	360	6	Ps, Mm		1957-61	D	19.2	11-27-60	93.0	8-26-59	18.6	1- 2	90.0	7-16	P, Meas. by owner.
10-1	SW SE	Summit Township	323	12	Ps,Mm	e935	1960-61	R	14.7	12-26-60	24.66	12- 9-60	14.3	1- 2	32.4	7-20	P
3S 1W 2-1	SE NW	City of Jackson	221	8	Ps, Mm	e935	1960-61	R	17.5	11-28-60	36.0	10-14-60	17.7	1- 3	46.0	7-27	P
Kalamazoo County																	
2S 11W 3-60	NE NE	KVP Co. (61)	36	6	Qgd	763.18	1956-61	W	9.61	4- 4-60	12.82	9-18-59	10.15	5- 1	12.90	7-17	P
15-18	NE SE	Consumers Power Co.	64	12	Qgd	766.17	1946-61	Q,M	9.20	3-28-50	17.29	12-17-58	15.49	6-15	18.20	9-15	P
20-7	SW SE	Western Mich. Univ.	78	8	Qgd	868.68	1946-61	Q,M	33.44	6-19-50	38.15	9-17-59	35.86	3-23	37.53	10-16	
22-6	NE SW	City of Kalamazoo (Burdick)	115	6	Qgd	777.45	1946-61	R	11.22	3-11-52	31.48	9-11-59	24.25	1-17	26.10	3- 3	P, Record stopped 3-61.
22-150	SE SW	Do.(Stockbridge)	137	4	Qgd	764.7	1960-61	R	20.15	12-17-60	26.53	9-24-60	18.97	12-26	31.08	8-19	P
27-52	NE NE	Allied Paper Co. (7)	113	12	Qgd	802.59	1946-61	R,M	34.46	5- 5-50	64.37	9- 1-46	44.97	5-14	47.88	9-15	P, Recorder removed 6-61.
29-3	SW SE	Oakwood, Inc.	47	2	Qgd	880.72	1946-61	Q,M	26.12	8- 1-52	30.58	12-30-59	29.99	3-23	30.59	11-13	
3S 12W 11-1	SE NW	City of Kalamazoo (Atwater)	248	3	Qgd		1961	R					+1.96	3-27	+1.41	9- 8	Record started 3-61.
3S 11W 4-35	SE NE	City of Kalamazoo (A-D)	135	3	Qgd	854.03	1959-61	R	1.50	10- 3-60	12.89	11- 3-59	1.34	10-30	9.93	8-22	P
4-36	SE NE	Do. (A-S)	40	3	Qgd	854.01	1959-61	R	0.21	8-10-60	9.12	11- 4-59	0.04	10-30	4.55	7-12	P
4S 11W 21-2	NW SW	Willis Chamberlain	19	1¼	Qgd		1957-61	W	10.77	7-20-60	15.12	2- 8-59	12.00	5-24	14.09	12-27	
Kalkaska County																	
27 W 36-1	SE NW	MDC (100)	16	1¼	Qgd		1939-61	W	11.12	7-11-43	13.43	3-25-60	12.30	3-24	13.80	9- 8	
Kent County																	
6N 12W 17-1	SE NE	Jervis Corp. (1)	30	12	Qgd		1950-61	M	6.88	6- 8-56	16.45	2-12-54	9.60	5- 9	12.02	2-28	P, Meas. by owner.
17-2	SE NE	Do.	26	6	Qgd	606.05	1950-61	M	7.34	6- 1-56	16.32	2-12-54	9.50	5- 9	11.96	1-31	P, Do.
25-1	SW SW	City of Wyoming	241	12	Mm	e666	1960-61	R	10.0	10-24-60	45.8	9- 8-60	15.6	4- 3	50.4	7-12	P
34-1	SE NE	Do.	300	8	Mm	e735	1960-61	R	64.82	10-26-60	68.29	9- 9-60	65.29	5- 8	69.85	7-12	P

6N 11W 19-1	SE	Lear Mfg. Co.	301	8	Mm		1960-61	R	34.3	12- 5-60	68.5	9- 8-60	38.0	2-20	e75.2	7-1	P
6N 9W 3-1	SW NE	City of Lowell	70	12	Qgd		1961	R					13.52	9-29	18.98	9-18	Records started 8-61.
							Lake County										
17N 13W 4-1	SE NE	C & O R.R. (West Well)	83	8	Qgd		1957-61	Q	17.17	7- 6-60	20.36	5-23-58	18.23	4-11	19.08	9-12	
							Livingston County										
2N 4E 3-1	NW SW	Howell State Sanitarium.	148	8	Ps	916.13	1958-61	R	10.2	4-30-59	27.8	12-13-58	10.58	5- 8	26.77	6-30	P, Meas. by owner.
							Macomb County										
2N 12E 1-1	SE NE	B. H. Tolley	29	48	Qgd		1959-61	R	0.50	1-13-60	7.45	10-31-60	0.93	4-25	6.52	8-19	
							Manistee County										
23N 14W 21-1	NE SW	Village of Kaleva	70	8	Qgd		1959-61	R	8.49	5-15-60	10.90	10-23-60	9.63	3-13	11.19	8-25	P
							Mason County										
17N 15W 3-1	SE SW	USFS	32	6	Qgd	737.37	1948-61	M	13.90	6-30-60	19.45	8-24-58	15.21	4- 2	16.25	12- 2	
							Montcalm County										
9N 8W 10-1	SW NW	City of Greenville (1)	29	12	Qgd		1957-61	R	3.35	11-17-57	7.90	8- 6-59	4.39	1-16	6.38	6-15	Record stopped 6-61.
15-1	SW NW	City of Greenville (9)	65	12	Qgd		1950-61	M	11.40	4- 1-50	17.40	8- 1-58	13.40	5- 1	15.75	2- 1	P, Meas. by owner.
							Montmorency County										
29N 3E 21-1	NW NE	MDC (32)	14	2	Qgd		1945-61	Q	2.54	7- 6-60	5.91	1-27-56	4.12	12- 4	4.36	7- 5	
							Oakland County										
3N 9E 7-1	NE SW	Garfield Estates	77	6	Qgd		1961	R					40.05	8-5	0.55	11- 4	Record started 7-61.
3N 9E 36-1	NW NE	Waterford Twp. (Josephine St.)	134	12	Qgd		1960-61	R	96.03	11-16-60	97.49	12-28-60	95.92	4-16	98.26	12-16	P
3N 10E 13-2	SW NE	Mich. State Univ. at Oakland	183	6	Qgd		1961	R					78.84	2-25	81.3	12-15	P, Record started 1-61.
3N 10E 31-1	NE SW	City of Pontiac (Orchard Lake Rd.)	173	12	Qgd	926.4	1952-61	R	107.7	2-16-59	128.0	8-16-55	113.5	4-10	124.3	7-12	P
32-1	SE NW	City of Pontiac (6)	160	8	Qgd	921.88	1939-61	R	59.55	4-22-40	129.5	8- 5-55	115.4	4-10	123.9	7-13	P
3N 11E 4-1	SE NW	Village of Rochester	73	6	Qgd		1961	R					23.2	12-25	30.6	11-3	Record started 8-61.
2N 10E 22-1	NE NW	Cranbrook School (3)	65	6	Qgd		1950-61	W	11.00	4-30-56	17.60	9-26-55	12.60	5- 1	17.10	10-23	P, Meas. by owner.
							Ogemaw County										
23N 1E 4-1	SE NE	MDC (15)	21	4	Qgd		1934, 55-61	Q	1.14	4-27-60	4.26	10-10-55	2.09	4-14	2.77	9- 7	
23N 2E 2-1	NE NW	Charles Hudson	7	36	Qgd		1951-61	R	0.37	5- 5-52	4.30	3- 5-59	1.84	5-25	3.91	2-17	

Table 1.--Records of Michigan observation wells and extremes of water levels observed in 1961 and for the period of record.--Continued

Well number	Location in section (¼ ¼)	Owner	Depth (ft)	Dia. (in)	Chief aquifer	Altitude	Years of record	P 61	Observed water level extremes: Through 1960 Highest	Through 1960 Date	Through 1960 Lowest	Through 1960 Date	In 1961 Highest	In 1961 Date	In 1961 Lowest	In 1961 Date	Remarks
							Otsego County										
29N 3W 29-1	SW SE	MDC (106)	15	2	Qgd		1933-61	Q	5.56	5-14-47	9.74	10- 7-58	7.29	4-12	8.27	9-11	
							Ottawa County										
5N 15W 28-71	SE SE	City of Holland	108	1¼	Qgd		1946-55, 57-61	M	56.44	8- 8-46	dry	9-14-54	69.29	12- 2	74.06	3- 1	Meas. by owner.
							Presque Isle County										
33N 2E 30-1	NE SE	MDC (19)	14	2	Qgd		1934-44, 48-61	Q	0.61	7-12-60	5.69	1-27-56	1.40	4- 4	3.78	9-11	
33N 6E 8-1	NW NW	Albert Styma	61	6	Dt		1959-61	M	5.66	4- 4-60	15.92	12- 1-60	7.88	4- 4	14.89	2- 2	
15-1	NW NW	Harley Ennest	31	5	Dt		1959-61	R	2.8	5-10-60	11.6	8-26-60	4.40	3-27	10.50	2-14	P
21-1	NE NE	Mike Ardycan	43	5	Dt		1959-61	M	5.06	12-14-59	7.20	8- 6-59	4.27	4- 4	6.87	2- 2	
							Roscommon County										
24N 2W 20-1	NE NW	MDC (1)	14	8	Qgd	1145.30	1934-61	R	2.78	5- 3-51	6.23	12- 6-49	3.39	9- 1	5.48	8-31	Fed. key well.
23N 1W 3-1	SE SE	MDC (50)	12	2	Qgd	1188.95	1939-61	Q	1.62	6-15-43	7.31	12-14-49	4.17	4-14	5.76	9- 7	
22N 3W 22-1	SE NE	MDC (7)	14	2	Qgd	1170.58	1934-61	Q	2.56	4-27-60	4.85	12- 8-60	4.87	4- 6	5.70	12-20	
							Saginaw County										
9N 3E 16-2	SE NW	Ray Ellis	129	3	Ps		1958-61	W	35.41	1-27-59	53.84	9- 8-59	37.14	12-19	53.79	7-11	P
							Sanilac County										
12N 13E 33-1	SE SE	MSHD	150	3	Mm		1948-61	W	15.45	4-25-51	23.60	2-11-59	17.07	11-29	23.28	2-15	
							Shiawassee County										
5N 2E 16-1	NE SE	A. B. Cobb	26	1½	Qgd	896.00	1948-61	Q	17.28	5- 3-50	22.18	2-27-59	20.87	6-14	21.54	3-30	
							Washtenaw County										
3S 6E 16-1	SW NW	City of Ann Arbor	23	2	Qgd	817.43	1920-61	W	e+2.5	2- ?-30	e10.0	11- ?-27	0.0	11-22	5.75	9-20	P, Meas. by owner.
16-2	SE NW	Do.	23	192	Qgd		1948-61	W	+2.00	6-30-51	15.50	8-21-57	0.0	10-23	10.24	9- 6	P, Do.
3S 7E 9-2	SW NE	City of Ypsilanti (NR)	50	6	Qgd		1944-46, 48-53, 60-61	M	29.12	11- 5-45	40.8	7- 2-49	32.05	5-13	38.50	1- 7	P
9-3	SE NE	City of Ypsilanti (GP)	94	6	Qgd		1944-46, 48-53, 60-61	R	29.12	11- 5-45	59.15	10- 1-60	53.22	5- 8	57.45	8-4	P
24-1	NE SW	Ford Motor Co. (104)	87	4	Qgd	665.56	1943-45, 49-61	M	5.79	1- 5-50	16.43	10-16-56	13.80	9-23	15.21	12-16	P
24-2	NE SW	Do. (106)	53	4	Qgd	664.51	1943-45, 49-61	M	11.81	7-13-43	35.11	8- 5-60	31.54	9-23	36.33	1-21	P
24-4	NE SW	Do. (107)	53	4	Qgd	664.05	1943-45, 49-61	M	11.55	1- 5-50	36.93	8- 5-60	32.49	9-23	36.79	1-21	P
24-5	NW SW	Do. (109)	77	4	Qgd	665.56	1943-45, 49-61	M	15.15	6- 6-45	40.04	12-20-60	38.47	8-30	40.70	2-18	P
24-6	SW SW	Federal Works Agency (117)	75	6	Qgd	657.83	1944-45, 49-61	R	5.69	2-15-50	e31.25	8- 5-60	23.72	4-30	30.31	2- 1	P
3S 7E 24-7	- SW	Ford Motor Co. (124)	90	24	Qgd	686.5	1955-61	M	23.47	12-29-55	36.05	10-16-56	31.99	5-13	33.95	4-15	P, Meas. stopped 7-61.

								Washtenaw County (Continued)										
4S 6E 9-1	NW NW	Ypsilanti State Hosp. (TW 20)	184	6	Qgd		1946-61		W	51.22	5-15-48	88.14	6-17-49	55.66	11-14	73.17	1-4	P, Meas. by owner
10-1	SW NW	Ypsilanti State Hosp. (TW 22)	173	6	Qgd		1946-61		W	61.48	6-12-53	88.27	7- 8-55	56.77	10- 9	73.85	8-11	P, Do
								Wayne County										
1S 8E 9-1	SW NW	City of Plymouth	61	6	Qgd		1961		R					e11.0	9-28	e16.9	9-11	P
4S 9E 32-1	SW SE	Village of Waltz Improvement Assoc.	190	6	Ds		1959-61		R	6.75	2-10-60	13.44	8- 3-60	7.94	5-15	13.94	7-19	P
								Wexford County										
24N 9W 19-1	SW NW	MDC (38)	11	2	Qgd	944.16	1935-37, 49-61	41-44	Q	0.49	4- 6-59	3.74	8-19-36	1.21	4-10	2.42	9-12	
21N 11W 13-1	NW NE	USFS	62	6	Qgd		1948-61		M	46.28	6- 5-52	51.13	11- 1-58	48.39	1-10	49.57	11- 6	
21N 9W 4-1	NW NE	City of Cadillac	277	6	Qgd		1949-61		Q,R	19.99	7- 6-53	23.83	10- 6-58	21.63	4-10	22.74	12-15	P, recorder installed 7-61.

e - estimated

Table 2.--Reported ground-water pumpage by some Michigan municipalities, institutions, and industries (in million gallons).

Water User	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	1961 Total
NORTHERN PENINSULA													
ALGER COUNTY													
Burt Township	2.31	1.59	1.82	1.88	2.00	2.37	3.13	2.47	1.74	1.66	1.40	1.26	23.63
CHIPPEWA COUNTY													
Kincheloe Air Force Base near Kinross	11.0	9.9	11.2	11.1	14.0	15.8	23.8	25.6	17.4	16.3	14.2	15.2	185.5
GOGEBIC COUNTY													
City of Bessemer	11.7	11.3	12.8	11.8	12.2	12.3	13.3	11.9	13.4	10.4	9.6	11.7	142.4
City of Ironwood	29.9	27.4	31.1	30.7	30.1	32.2	32.8	32.4	31.3	29.9	26.4	27.2	361.4
Marenisco Township	3.84	3.47	4.14	3.87	4.53	4.64	4.39	4.15	3.61	3.22	2.98	3.28	46.12
City of Wakefield	6.60	6.20	6.49	6.49	6.42	6.54	7.43	7.00	5.79	6.38	5.95	5.68	76.97
HOUGHTON COUNTY													
City of Hancock	14.7	13.3	14.7	15.1	14.4	16.9	17.1	17.5	14.8	14.7	13.6	13.9	180.7
City of Houghton	27.6	26.8	28.5	27.6	27.6	27.5	28.2	26.8	24.9	30.0	26.5	24.8	326.8
IRON COUNTY													
City of Caspian	6.82	5.88	6.23	6.45	6.97	7.20	7.33	6.54	6.48	6.55	5.90	5.24	77.59
City of Gaastra	--	--	--	--	--	--	--	--	--	--	--	--	e3.42
City of Iron River	14.0	10.9	12.9	11.7	12.2	11.8	13.3	11.9	10.1	9.5	9.2	10.0	137.5
City of Stambaugh	6.94	6.74	7.31	7.10	7.57	8.24	8.13	8.83	8.13	8.28	7.08	7.27	91.62
Stambaugh Township	--	--	a2.22	--	--	a2.71	--	--	a3.53	--	--	a2.12	10.57
LUCE COUNTY													
City of Newberry	10.9	10.3	11.2	9.6	10.1	10.5	11.5	e10.5	e9.4	e9.4	e8.9	e8.8	e121.1
State Hospital at Newberry	9.14	9.29	11.88	9.61	10.87	13.34	11.73	15.37	10.63	10.00	12.22	9.69	133.77
MARQUETTE COUNTY													
State House of Corr. and Br. Prison at Marquette	8.50	7.03	7.50	6.97	7.11	7.19	7.05	8.92	9.17	7.87	7.80	7.72	92.83
ONTONAGON COUNTY													
Village of Ontonagon	10.7	9.3	9.8	9.3	9.5	10.6	11.0	10.6	10.4	11.3	11.1	10.8	124.4
SOUTHERN PENINSULA													
ALCONA COUNTY													
City of Harrisville	.82	.84	.74	.79	1.04	1.26	1.78	2.05	1.63	1.34	.97	.86	14.12
ALLEGAN COUNTY													
City of Allegan	26.8	23.9	24.8	21.2	33.7	41.3	30.8	31.1	24.2	23.3	21.6	22.9	325.6
City of Plainwell	8.74	8.17	9.11	9.56	13.13	15.78	17.35	13.04	10.90	9.78	11.13	9.22	135.91
City of Otsego	11.4	10.5	12.4	12.2	14.3	19.0	20.2	18.0	15.3	14.7	13.7	14.7	176.4
ANTRIM COUNTY													
Village of Mancelona	8.98	7.87	9.34	8.71	10.33	11.69	10.53	11.15	10.53	10.40	9.84	10.18	119.55
BARRY COUNTY													
City of Hastings	36.4	32.1	28.8	25.9	29.8	36.5	33.8	24.3	24.3	24.0	25.4	26.5	347.8
Village of Middleville	15.9	14.9	17.8	18.8	19.9	21.8	e17.3	19.4	18.5	19.9	9.6	15.0	e208.8
BENZIE COUNTY													
City of Frankfort	6.33	5.54	5.80	5.87	6.21	7.10	9.51	8.40	5.64	5.77	4.94	5.34	76.45
BERRIEN COUNTY													
Village of Berrien Springs	6.35	5.79	7.12	7.01	7.22	6.48	10.91	8.13	7.94	7.77	6.62	6.27	87.61
City of Buchanan	38.1	33.3	38.6	33.4	37.1	41.0	47.0	42.8	38.7	35.5	36.7	35.2	457.4
City of Coloma	e4.40	e3.94	e4.41	e4.62	e4.88	e5.04	e5.35	e5.51	e5.20	e4.88	e4.41	e4.88	e57.52
City of Niles	74.0	66.7	69.9	69.3	82.4	93.7	88.2	94.0	82.6	75.5	69.8	75.5	941.6
City of Watervliet	e6.2	e5.8	e6.2	e6.0	e6.2	e12.0	e12.4	e12.4	e12.0	e6.2	e6.0	e6.2	e97.6
BRANCH COUNTY													
City of Bronson	18.9	14.8	16.6	17.0	16.1	19.1	21.4	23.9	21.3	25.0	19.6	16.2	229.9
City of Coldwater	36.2	35.5	39.4	41.4	49.5	59.6	68.2	52.0	50.0	48.3	44.8	37.7	562.6
State Home and Tng. School at Coldwater	13.4	11.8	13.0	13.1	14.2	14.1	14.5	14.0	13.8	13.6	12.9	12.9	161.3
CALHOUN COUNTY													
City of Albion	113	101	111	112	123	105	105	127	120	125	116	106	1,364
Three new wells													35.1
American Legion Hosp. at Battle Creek	.547	.491	.414	.506	.619	.497	.453	.560	.415	.404	.456	.501	5.863
Village of Athens	e1.59	e1.59	e1.59	e2.61	e2.61	e2.61	e2.61	e2.61	e2.61	e2.61	e2.61	e2.61	e28.26
City of Battle Creek	268	269	293	292	313	333	373	350	312	364	321	254	3,742
Battle Creek Twp.	23.1	23.0	23.3	21.4	33.9	42.3	53.5	38.4	25.7	24.9	22.7	21.9	354.1
City of Marshall	25.2	25.2	27.6	26.2	31.4	37.4	45.2	40.0	34.1	30.5	26.6	27.6	377.0

Table 2.--Reported ground-water pumpage by some Michigan numicipalities, institutions, and industries (in million gallons).--Continued

Water User	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	1961 Total
CASS COUNTY													
City of Dowagiac	24.0	22.8	21.0	23.4	20.7	26.1	38.2	30.6	35.5	28.6	24.8	24.8	320.5
Village of Marcellus	1.67	1.63	2.61	2.00	2.25	2.44	4.93	2.35	1.92	1.89	1.69	1.61	26.99
CHARLEVOIX COUNTY													
City of East Jordan	8.00	9.73	7.92	6.43	9.10	14.19	12.51	17.37	9.05	7.80	7.10	7.31	116.51
CHEBOYGAN COUNTY													
City of Cheboygan	9.7	10.3	10.0	11.1	12.0	12.9	13.6	14.0	12.4	10.4	10.2	9.0	135.6
Village of Mackinac City	3.04	4.46	5.25	5.16	5.44	5.90	6.99	8.57	5.36	5.03	2.97	2.92	61.09
CLARE COUNTY													
City of Clare	12.2	12.7	15.3	16.4	20.8	39.0	24.1	36.7	33.4	18.5	12.1	11.7	252.9
City of Harrison	2.41	3.59	3.89	3.16	3.97	4.50	4.92	4.02	3.50	3.35	3.22	3.19	43.72
CLINTON COUNTY													
Village of Ovid	1.96	2.29	2.24	2.31	2.25	2.50	4.78	2.81	1.81	2.09	1.82	2.95	29.81
City of St. Johns	30.5	26.7	24.1	24.4	27.6	28.8	30.7	32.1	30.5	30.0	27.6	24.2	337.2
EATON COUNTY													
Village of Bellevue	--	--	--	--	--	--	--	--	--	--	--	--	e24.0
City of Olivet	--	--	--	--	--	--	--	--	--	--	--	--	e18.0
City of Charlotte	27.5	29.1	32.1	33.0	36.4	37.7	38.5	38.7	36.8	34.8	29.0	31.8	405.4
City of Eaton Rapids	25.9	24.9	40.7	34.8	30.8	31.7	38.2	39.2	35.7	27.1	25.9	27.3	382.2
City of Grand Ledge	11.9	11.2	11.9	11.5	13.3	14.2	15.8	15.9	14.5	13.3	11.0	11.3	155.8
EMMET COUNTY													
City of Harbor Springs	8.13	7.26	7.46	8.65	8.23	15.92	15.45	23.10	20.83	9.60	7.65	6.99	139.27
GENESEE COUNTY													
Beecher Metr. Dist.	21.9	19.8	20.2	20.6	22.1	27.0	28.3	28.4	27.9	25.7	24.5	26.3	292.7
City of Davison	7.66	7.02	8.45	8.44	9.05	10.62	13.72	10.39	13.41	9.47	8.71	8.65	115.59
Village of Fenton	15.1	17.3	16.4	14.6	16.1	17.7	21.9	18.2	17.1	16.4	15.2	14.2	200.2
Fisher Body Div., at Grand Blanc	5.95	5.66	6.42	7.22	6.91	7.09	6.75	7.61	6.02	8.01	6.87	7.17	81.68
Village of Flushing	6.41	5.94	6.82	6.58	7.92	8.68	9.70	7.60	7.37	7.23	7.38	6.41	88.04
Village of Linden	1.53	1.43	1.50	1.66	1.53	1.69	1.71	1.77	1.68	1.69	1.43	1.27	18.89
Village of Montrose	2.11	1.71	1.85	1.88	2.32	2.71	3.06	2.79	2.46	2.08	1.17	1.97	26.11
City of Mt. Morris	6.53	5.93	6.40	6.32	6.73	7.06	7.35	6.86	6.42	6.51	5.52	5.81	77.44
Village of Otisville	.99	1.36	1.33	1.13	1.19	1.13	1.29	1.03	1.08	1.00	.92	.94	13.39
GLADWIN COUNTY													
City of Beaverton	3.61	3.30	3.04	2.43	3.49	2.63	3.54	2.40	2.94	2.93	2.14	2.72	35.17
GRAND TRAVERSE COUNTY													
State Hosp. at Traverse City	13.7	12.4	13.9	13.8	14.0	15.0	14.9	14.4	13.7	12.8	12.0	12.2	162.8
GRATIOT COUNTY													
City of Alma	44.8	39.1	45.9	47.6	53.9	56.4	55.5	53.6	54.6	55.0	49.1	48.2	603.7
Village of Breckenridge	2.60	2.70	2.70	2.50	2.90	3.00	3.70	3.30	3.30	3.20	2.90	2.70	35.50
City of Ithaca	e3.75	3.75	4.30	e4.00	e4.50	e4.65	4.80	5.23	5.52	5.19	6.08	5.61	e57.36
City of St. Louis	18.7	17.7	20.0	20.1	21.6	20.1	19.5	16.1	15.0	15.4	16.6	16.7	217.5
HILLSDALE COUNTY													
Village of Jonesville	5.55	6.78	7.09	9.05	8.62	9.26	11.04	8.51	7.64	6.80	6.27	6.14	92.75
City of Hillsdale	--	--	--	--	--	--	21.90	1.84	--	--	--	--	b23.74
City of Reading	--	--	--	--	--	--	--	--	--	--	--	--	1.29
HURON COUNTY													
Village of Pigeon	e3.0	e2.7	e3.0	e3.3	e3.7	e3.9	e6.8	e7.4	e4.5	e4.3	e3.9	e3.4	e49.9
Village of Sebewaing	7.13	9.34	6.79	7.87	6.94	9.84	13.82	9.88	11.54	10.10	9.68	6.29	109.22
INGHAM COUNTY													
City of East Lansing	32.9	29.2	30.6	32.0	39.9	46.0	57.3	39.7	37.7	38.3	34.5	31.6	449.7
City of Lansing	509	444	473	455	519	539	589	566	506	523	483	494	6,100
Lansing Twp.	42.1	31.7	27.7	41.8	41.8	36.0	30.8	42.4	33.3	46.1	31.5	30.5	435.7
Village of Leslie	7.14	4.70	4.91	4.87	5.71	7.08	9.45	7.12	6.31	5.21	4.96	5.13	72.59
City of Mason	11.1	9.9	12.7	12.3	13.8	15.0	17.7	25.9	19.3	14.1	12.9	12.2	176.9
Meridian Twp.	9.07	8.25	8.75	8.72	11.76	12.38	13.91	10.84	11.01	10.79	9.46	9.70	124.04
Mich. State Univ. at East Lansing	83.9	84.7	85.3	85.8	93.7	88.6	84.4	76.6	77.6	98.7	86.9	70.9	1,017.1
Oldsmobile Forge Plant at Lansing	13.3	12.3	11.2	13.4	13.8	15.1	14.1	12.7	13.6	13.8	14.1	13.1	160.5
Village of Stockbridge	2.10	1.64	1.72	1.37	1.96	2.14	2.36	2.71	2.01	1.75	1.57	2.19	23.52

Table 2.--Reported ground-water pumpage by some Michigan municipalities, institutions, and industries (in million gallons).--Continued

Water User	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	1961 Total
IONIA COUNTY													
City of Ionia	30.7	31.1	34.1	32.1	34.7	34.5	35.5	34.7	34.5	35.2	35.4	34.4	406.9
State Hosp. at Ionia	10.3	9.4	10.3	10.1	10.5	10.5	11.8	11.9	11.3	10.9	10.4	10.6	127.9
Mich. Reform. at Ionia	22.7	20.4	23.9	22.5	26.0	25.4	29.5	28.2	22.0	26.4	24.3	24.2	295.5
Mich. Tng. Unit at Ionia	2.15	2.20	1.16	1.35	1.74	1.71	3.03	2.02	1.45	1.72	2.35	1.14	22.02
Village of Portland	9.51	8.23	9.05	7.98	10.71	11.53	14.07	11.30	11.31	11.47	9.25	13.87	128.28
Village of Saranac	8.16	7.44	8.81	8.43	9.30	9.48	14.19	7.73	6.71	7.33	7.20	7.13	101.92
ISABELLA COUNTY													
City of Mt. Pleasant	51.5	46.1	51.7	49.2	58.3	55.6	59.0	44.0	48.0	47.6	46.1	41.0	598.0
JACKSON COUNTY													
Village of Concord	2.25	1.47	1.74	1.56	2.29	1.98	3.28	1.85	1.91	1.58	1.40	1.65	22.96
Village of Grass Lake	1.22	1.19	1.20	1.24	1.21	1.31	2.01	1.62	1.21	1.20	1.22	1.22	15.85
City of Jackson	291	273	298	297	330	380	404	403	384	362	328	337	4,087
State Prison of S. Mich., at Jackson	37.4	33.9	37.7	34.3	43.8	45.4	51.5	49.6	46.3	46.1	40.5	42.2	508.7
KALAMAZOO COUNTY													
Village of Augusta	1.00	1.11	1.64	1.75	2.08	2.58	3.41	2.47	2.01	1.92	1.60	1.54	23.11
City of Galesburg	2.19	1.99	2.61	2.52	3.55	4.73	4.56	4.56	3.47	2.74	2.50	2.11	37.53
City of Kalamazoo	375	341	384	366	425	502	636	519	447	353	294	288	4,930
State Hosp. at Kalamazoo	17.7	17.2	17.8	17.2	17.4	13.8	17.7	17.1	18.7	18.5	16.4	21.1	210.6
Village of Vicksburg	5.20	4.88	5.44	5.27	6.23	6.90	7.23	7.27	7.17	6.27	6.30	6.61	74.77
KALKASKA COUNTY													
Village of Kalkaska	3.65	4.54	3.53	3.89	3.88	4.37	4.81	4.19	3.40	3.08	3.10	3.36	45.80
KENT COUNTY													
City of Cedar Springs	7.40	7.40	7.40	7.45	7.50	7.75	7.86	7.87	7.69	7.69	7.50	7.50	91.01
City of Grandville	10.9	14.3	13.3	13.3	23.0	34.1	46.4	32.2	16.6	14.2	15.3	14.6	248.2
Jervis Corp. at Grandville	5.99	4.59	5.84	5.53	10.69	9.92	9.62	10.25	6.55	7.49	11.34	14.31	102.12
City of Lowell	12.2	8.1	9.9	11.4	11.1	14.9	16.6	15.0	11.8	11.5	10.2	10.2	142.9
Paris Twp.	25.8	21.9	25.8	26.5	42.5	62.8	66.3	46.7	35.1	31.3	28.4	27.0	439.9
Village of Sparta	13.2	12.0	11.2	14.3	16.5	14.6	16.3	12.0	14.0	13.2	12.8	e16.2	e166.3
City of Wyoming	108	100	108	110	174	232	258	202	142	131	123	123	1,811
LAPEER COUNTY													
Village of Imlay City	5.03	5.45	6.61	6.39	8.02	9.19	11.29	6.85	10.20	7.82	5.52	8.25	90.62
City of Lapeer	12.9	12.1	13.5	12.1	13.1	17.1	18.0	17.7	17.6	15.9	15.5	15.3	180.8
State Home and Tng. School at Lapeer	20.3	20.5	22.5	20.9	22.5	20.7	22.3	18.8	18.9	20.4	19.7	21.6	249.1
LENAWEE COUNTY													
Village of Clinton	--	--	a13.8	--	--	a18.0	--	--	a18.0	--	--	a30.0	79.8
City of Hudson	8.24	7.81	8.40	8.01	7.46	7.33	8.27	9.34	8.47	7.19	7.10	5.81	93.43
City of Morenci	5.36	4.71	5.74	5.82	5.81	6.48	6.88	5.02	4.89	4.62	4.90	4.56	64.81
City of Tecumseh	68.9	67.3	71.1	72.5	64.3	71.1	74.5	69.6	74.6	68.3	62.1	74.3	838.5
LIVINGSTON COUNTY													
City of Brighton	5.85	5.12	5.61	5.29	6.96	9.75	17.75	13.51	9.05	14.93	8.45	6.32	108.59
City of Howell	19.8	17.4	20.4	21.0	21.4	20.4	20.6	21.0	20.3	20.3	18.9	19.8	241.3
State Hosp. at Howell	2.85	2.67	3.07	2.39	2.43	4.04	8.03	3.13	2.50	2.41	2.70	2.59	38.81
MACOMB COUNTY													
City of Fraser	12.6	11.4	12.6	12.4	16.0	20.2	23.8	17.9	16.2	16.4	13.7	13.4	186.6
Village of Richmond	6.13	6.18	6.85	6.70	e7.20	e7.90	8.30	7.48	7.79	7.34	6.79	6.50	e85.16
Village of Romeo	10.6	10.0	10.3	10.2	10.4	12.2	14.2	14.3	11.2	10.6	10.4	10.1	134.50
MANISTEE COUNTY													
City of Manistee	41.8	37.7	42.6	38.6	45.4	50.3	61.0	55.1	40.3	40.6	39.7	34.4	527.5
MASON COUNTY													
City of Scottville	4.11	4.30	5.22	4.96	6.94	7.51	10.05	9.10	6.92	4.61	5.50	4.35	73.57
MONROE COUNTY													
Village of Carleton	2.65	2.77	2.64	2.63	2.71	2.84	3.12	3.03	3.00	2.81	2.40	2.28	32.88
MONTCALM COUNTY													
City of Carson City	8.90	7.90	8.04	8.15	9.55	10.88	10.90	10.77	10.46	10.50	9.82	9.92	115.79
City of Greenville	30.9	27.2	25.1	23.8	27.0	32.2	31.9	e24.5	e23.5	22.5	19.8	20.7	e309.1
Village of Howard City	.66	.76	.85	1.02	1.00	1.14	1.50	1.22	.99	.81	.84	.80	11.59
Village of Lakeview	--	--	a4.46	--	--	a5.56	--	--	a4.73	--	--	a4.80	19.55
Village of Sheridan	1.13	.95	1.09	.96	1.82	2.07	3.26	1.85	1.70	1.28	1.06	1.14	18.31

Table 2.--Reported ground-water pumpage by some Michigan municipalities, institutions, and industries (in million gallons).--Continued

Water User	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	1961 Total
MUSKEGON COUNTY													
City of Montague	3.87	6.38	4.35	3.78	6.53	8.12	8.30	10.31	5.68	5.70	6.20	5.86	75.06
City of Whiteball	9.03	8.48	9.26	9.67	13.14	15.48	20.83	18.05	12.16	10.94	9.54	9.97	146.55
NEWAYGO COUNTY													
City of Fremont	11.2	12.9	11.7	12.6	13.2	17.3	28.4	29.4	29.4	25.7	24.2	30.8	246.8
OAKLAND COUNTY													
City of Birmingham	.066	.069	.077	.072	.062	.075	.068	.071	.070	.061	.066	.069	c.826
Cranbrook School	8.2	3.8	7.3	8.9	12.4	13.6	13.1	11.1	13.9	16.1	10.9	8.5	127.8
Mich. State Univ. at Oakland	.840	1.352	1.067	.906	.976	.427	.459	.427	.812	1.566	1.429	1.412	11.673
Village of Oxford	4.69	4.65	4.33	4.26	6.13	5.83	7.00	5.54	4.82	7.34	4.80	3.67	63.06
City of Pontiac	288	244	267	267	305	348	343	321	278	303	288	277	3,529
State Hosp. at Pontiac	14.1	12.6	14.3	13.9	15.2	15.3	14.5	13.6	14.9	8.0	.5	3.1	140.0
Village of Rochester	37.3	34.9	41.2	40.9	43.7	47.8	53.2	42.7	39.8	36.5	33.2	34.9	486.1
City of South Lyon	33.6	35.7	41.8	39.3	41.7	43.5	29.1	43.6	38.7	40.6	37.0	43.6	468.2
City of Sylvan Lake	3.53	3.63	3.04	3.42	3.84	4.69	6.48	5.43	4.42	3.42	4.17	3.65	49.72
City of Troy	21.2	20.4	22.9	23.7	29.9	33.1	26.6	30.7	32.1	29.0	25.4	21.8	316.8
Waterford Twp.	19.6	18.3	20.0	e20.0	25.7	31.9	49.1	31.6	28.5	22.9	23.6	22.5	e313.7
OCEANA COUNTY													
City of Hart	10.3	10.4	10.5	9.4	12.0	14.6	36.1	27.0	19.2	24.7	20.3	11.0	205.5
Village of Pentwater	.157	.156	.156	.161	.163	.168	4.321	4.576	.181	.170	.160	.158	10.527
OGEMAW COUNTY													
City of West Branch	5.83	6.56	7.26	5.82	7.32	8.61	8.37	8.71	6.86	6.81	6.29	5.79	84.23
OSCEOLA COUNTY													
City of Evart	e30.0	e30.0	e30.0	e25.0	e25.0	e25.0	e26.0	e26.0	e26.0	e35.0	e35.0	e35.0	e348.0
OTSEGO COUNTY													
City of Gaylord	8.58	9.75	10.99	10.40	10.68	11.17	11.69	11.17	15.45	8.84	8.49	8.82	126.03
N. Mich. T B San. at Gaylord	e1.43	e1.29	e1.43	e1.38	e1.43	e1.38	e1.43	e1.43	e1.38	e1.43	1.29	1.35	e16.65
OTTAWA COUNTY													
City of Grand Haven													
Lake Infil. Wells	54.7	50.3	53.1	46.3	72.4	100.2	117.0	106.1	75.9	58.9	54.1	50.0	839.0
Drift Wells	18.5	16.7	15.8	17.7	16.6	17.7	17.4	17.7	11.9	17.7	16.9	16.7	201.3
City of Hudsonville	--	--	a10.1	--	--	a15.8	--	--	a30.5	--	--	a13.3	69.7
Village of Spring Lake	9.89	7.99	8.91	9.34	13.27	20.22	23.50	17.96	10.65	9.11	8.79	8.77	148.4
City of Zeeland	19.2	18.2	21.3	22.1	25.6	32.1	28.5	32.2	36.2	35.4	30.9	26.3	328.0
SAGINAW COUNTY													
Bridgeport Twp.	5.69	5.01	5.18	5.42	6.10	7.72	8.42	7.81	7.24	6.35	5.80	6.44	77.18
Village of St. Charles	3.54	3.57	3.36	3.30	3.94	3.92	4.28	3.48	3.64	3.57	3.26	2.89	42.75
Thomas Twp.	3.18	4.34	3.23	2.94	3.60	2.95	3.17	3.53	3.86	4.10	3.59	4.12	42.61
ST. CLAIR COUNTY													
Village of Capac	3.91	3.32	4.03	3.62	4.29	4.19	6.89	5.50	4.94	4.04	4.57	3.76	53.06
City of Yale	3.62	3.61	4.40	4.79	5.25	5.43	6.87	5.92	5.80	4.21	4.12	4.96	58.98
ST. JOSEPH COUNTY													
Village of Constantine	--	--	a6.97	--	--	a8.13	--	--	a8.33	--	--	a6.54	29.97
City of Sturgis	44.1	38.6	44.2	42.2	48.4	55.2	61.1	57.1	54.5	51.2	50.6	46.9	594.1
City of Three Rivers	25.2	25.3	27.0	27.2	32.7	33.3	38.1	32.2	30.6	26.1	24.9	26.0	348.6
SANILAC COUNTY													
City of Croswell	8.68	8.38	8.51	10.78	14.73	12.87	17.94	28.44	21.41	20.13	17.58	13.25	182.7
Village of Deckerville	3.25	3.18	3.70	3.56	4.17	3.81	4.70	9.29	5.68	4.27	4.37	4.79	54.77
City of Sandusky	13.8	14.0	14.1	12.5	14.8	15.5	13.9	14.2	13.8	12.7	11.8	12.5	163.6
SHIAWASSEE COUNTY													
City of Corunna	6.32	5.23	5.69	5.41	5.90	6.59	6.71	6.45	6.14	5.88	5.51	5.72	71.55
City of Durand	10.5	9.8	11.6	11.1	11.4	10.7	12.5	10.3	11.1	10.7	10.2	10.1	130.0
City of Owosso	69.3	66.9	74.1	68.2	75.7	82.4	91.1	79.9	79.4	77.4	71.7	73.2	909.3
Village of Perry	1.86	1.59	1.76	1.68	1.96	2.16	2.74	1.95	1.71	1.81	1.59	1.65	22.46
TUSCOLA COUNTY													
State Hosp. at Caro	9.84	8.94	9.40	9.76	10.48	10.38	13.90	9.95	10.00	9.54	8.61	9.27	120.07
Village of Cass City	6.08	6.38	7.05	6.52	7.56	7.71	7.84	6.79	6.85	6.41	6.00	6.07	81.26
City of Vassar	11.6	15.2	13.1	10.8	12.3	16.6	22.1	15.9	14.5	13.1	13.1	11.4	169.7
VAN BUREN COUNTY													
Village of Bangor	13.0	12.9	15.3	14.1	16.0	18.8	22.1	21.2	19.7	20.3	19.4	18.2	211.0
Village of Hartford	5.17	4.91	5.08	5.27	8.42	9.19	12.36	8.34	7.36	6.59	5.34	5.59	83.62
Village of Lawton	25.9	23.6	15.3	19.9	16.3	17.8	20.2	15.7	20.7	40.5	16.6	17.1	249.6

Table 2.--Reported ground-water pumpage by some Michigan municipalities, institutions, and industries (in million gallons).--Continued

Water User	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	1961 Total
WASHTENAW COUNTY													
City of Ann Arbor	65.1	55.6	74.8	76.2	83.0	94.0	119.4	113.9	104.0	64.1	59.7	75.0	c984.8
Boys Tng. School at Whitmore Lake	.638	.511	.594	.549	.626	.677	.806	.848	.887	.802	.849	.738	8.525
Cassidy Lake Tech. School	1.3	1.2	1.3	1.4	1.4	1.5	e1.5	e1.5	e1.4	e1.3	e1.2	e1.2	e16.2
Village of Dexter	3.89	3.82	3.90	3.14	4.29	3.62	6.15	4.82	5.66	4.96	4.27	3.59	52.11
City of Saline	4.24	3.71	4.81	4.74	6.30	7.12	9.45	7.38	7.03	6.29	6.07	7.21	74.35
City of Ypsilanti	74.5	66.9	73.9	79.3	82.9	90.9	108.4	95.5	94.4	86.3	87.8	89.3	1,030.1
Ypsilanti Twp.	187	163	164	157	174	192	199	193	175	197	197	177	2,175
State Hosp. at Ypsilanti	15.7	14.4	14.1	15.7	15.7	17.7	20.7	20.8	16.1	14.7	13.2	13.2	192.0
Village of Manchester	3.67	3.56	4.00	4.09	4.12	4.75	4.88	5.40	5.60	3.88	4.08	4.41	52.44
WAYNE COUNTY													
City of Belleville	--	--	a15.4	--	--	a15.9	--	--	a13.1	--	--	a13.4	57.8
State Hosp. at Northville	21.6	19.4	21.6	21.4	21.0	20.6	21.8	21.0	20.0	21.2	21.2	21.6	252.4
City of Plymouth	51.2	46.2	50.1	50.2	54.4	59.7	67.0	66.3	72.1	60.1	55.3	52.0	684.6
State Home and Tng. School at Northville	2.20	1.86	1.93	1.70	1.74	2.05	1.83	2.59	1.76	1.47	2.19	2.41	23.73
WEXFORD COUNTY													
City of Cadillac	16.0	15.7	15.9	13.6	34.5	45.2	41.0	43.1	30.5	18.5	14.8	15.7	d304.5
City of Manton	.49	1.23	1.13	1.16	1.35	2.32	3.49	1.17	1.21	.72	.52	.83	15.62

a) Meters read quarterly
b) Pumped in summer months only
c) Also use surface water
d) Surface water used until Oct. 26
e) Estimated