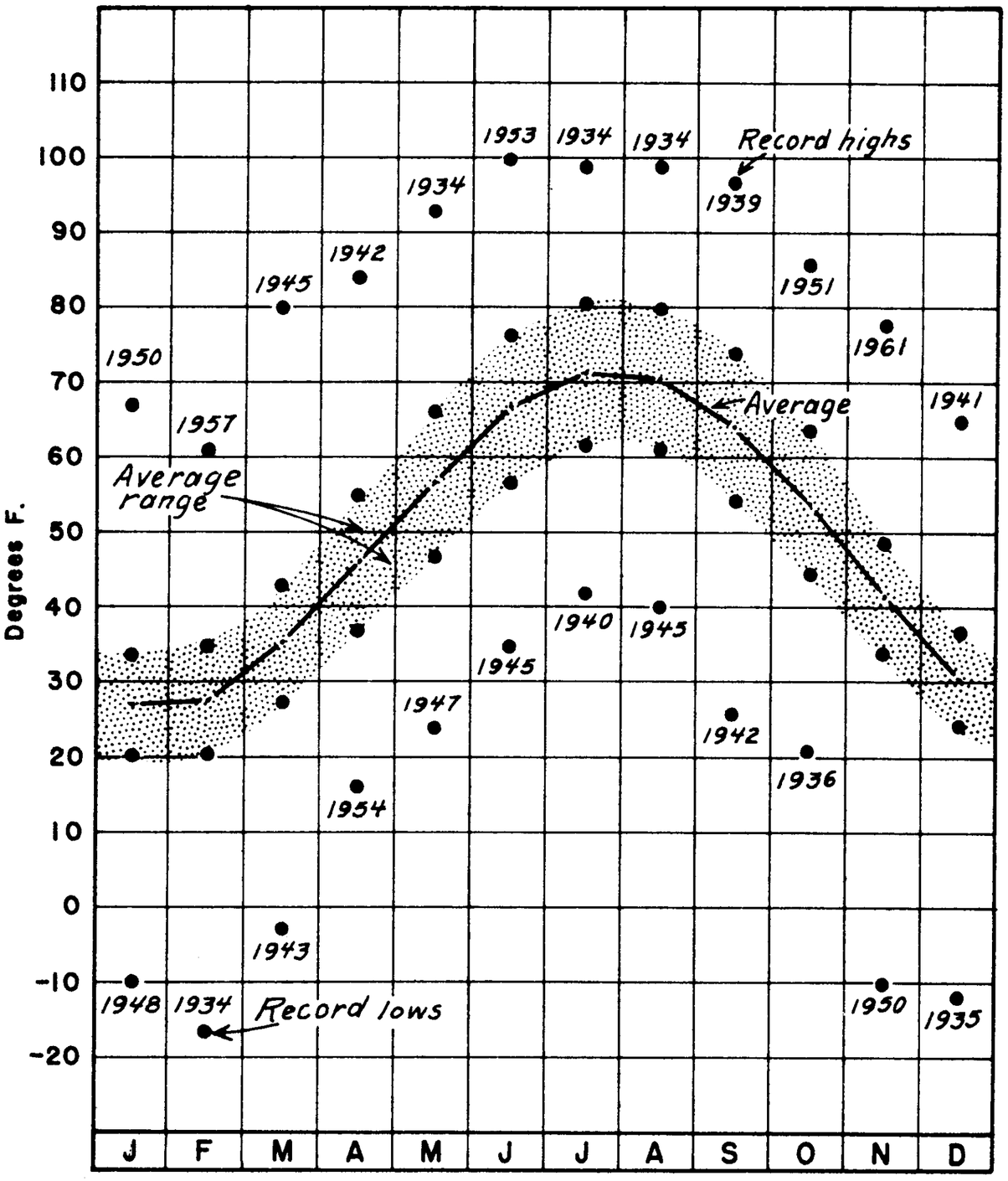
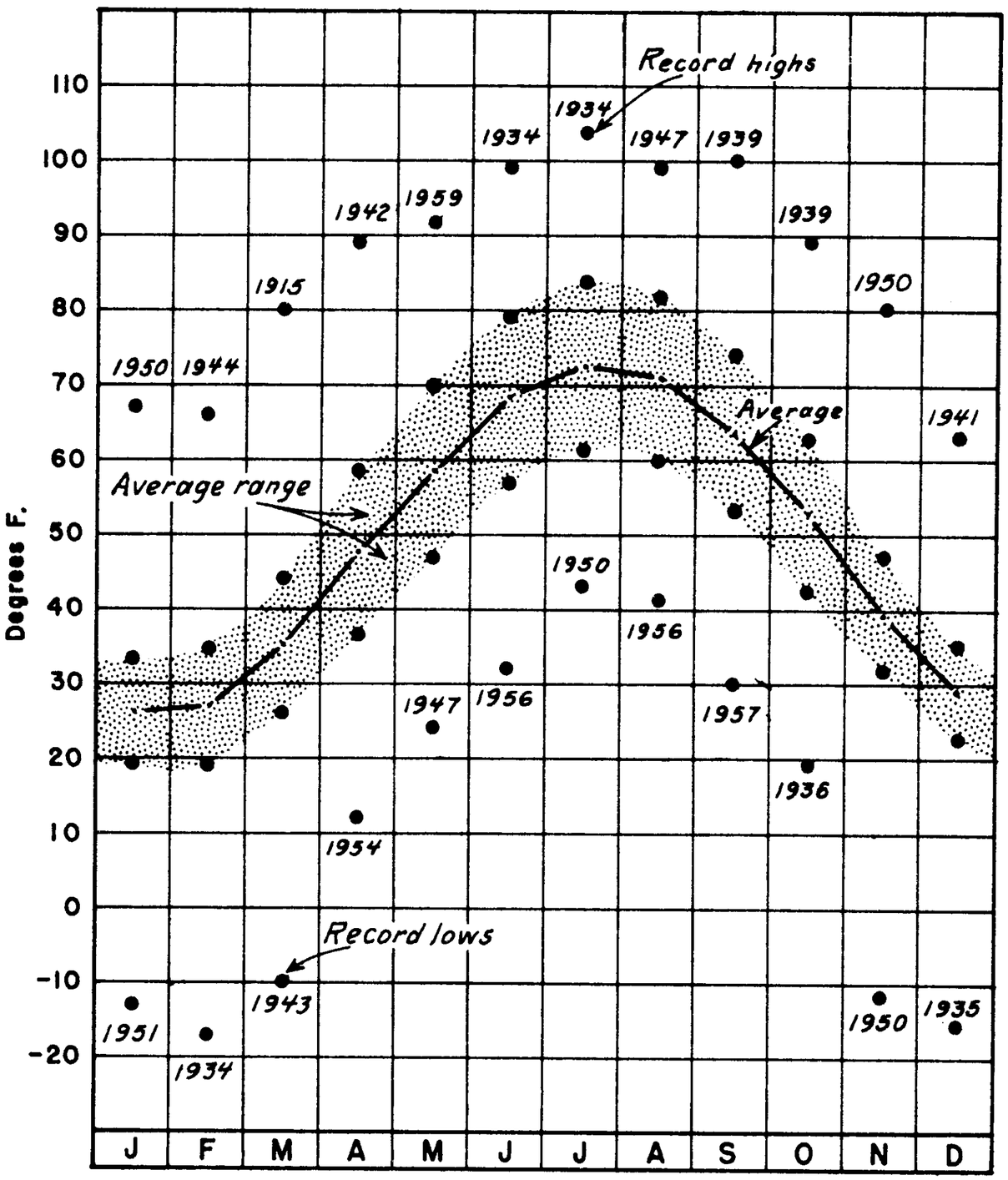
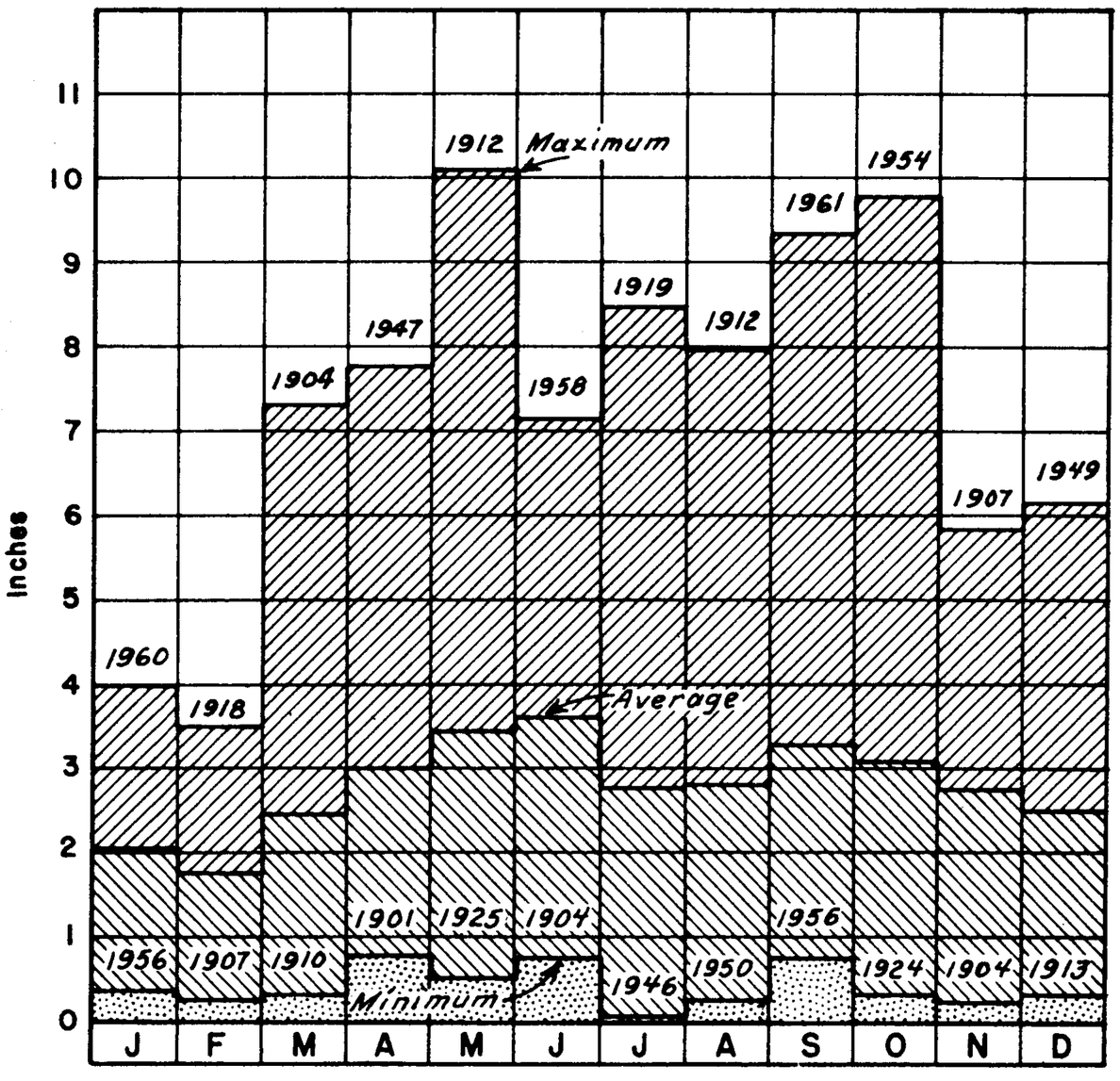


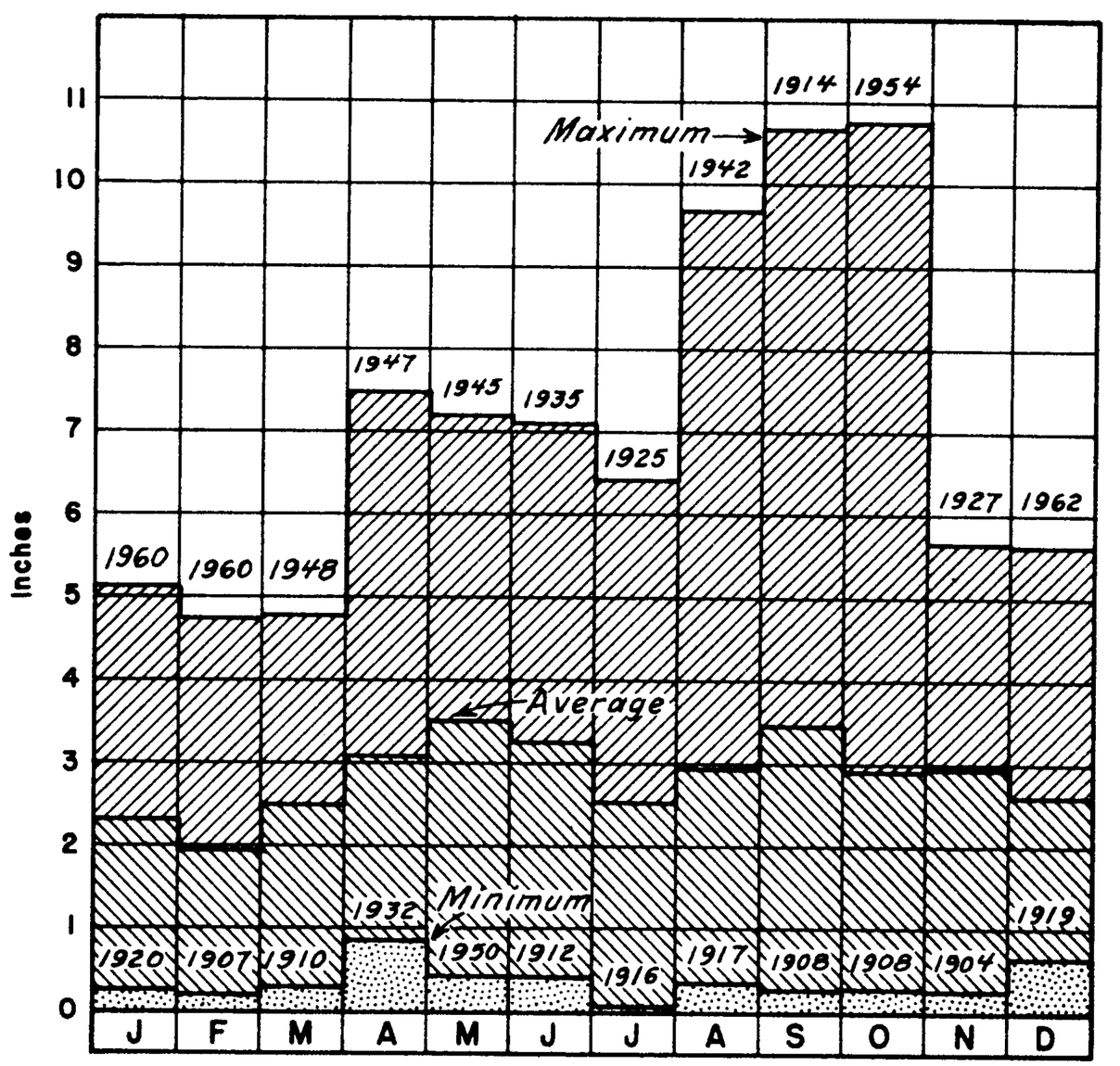
Monthly temperatures at South Haven, 1933-1962.



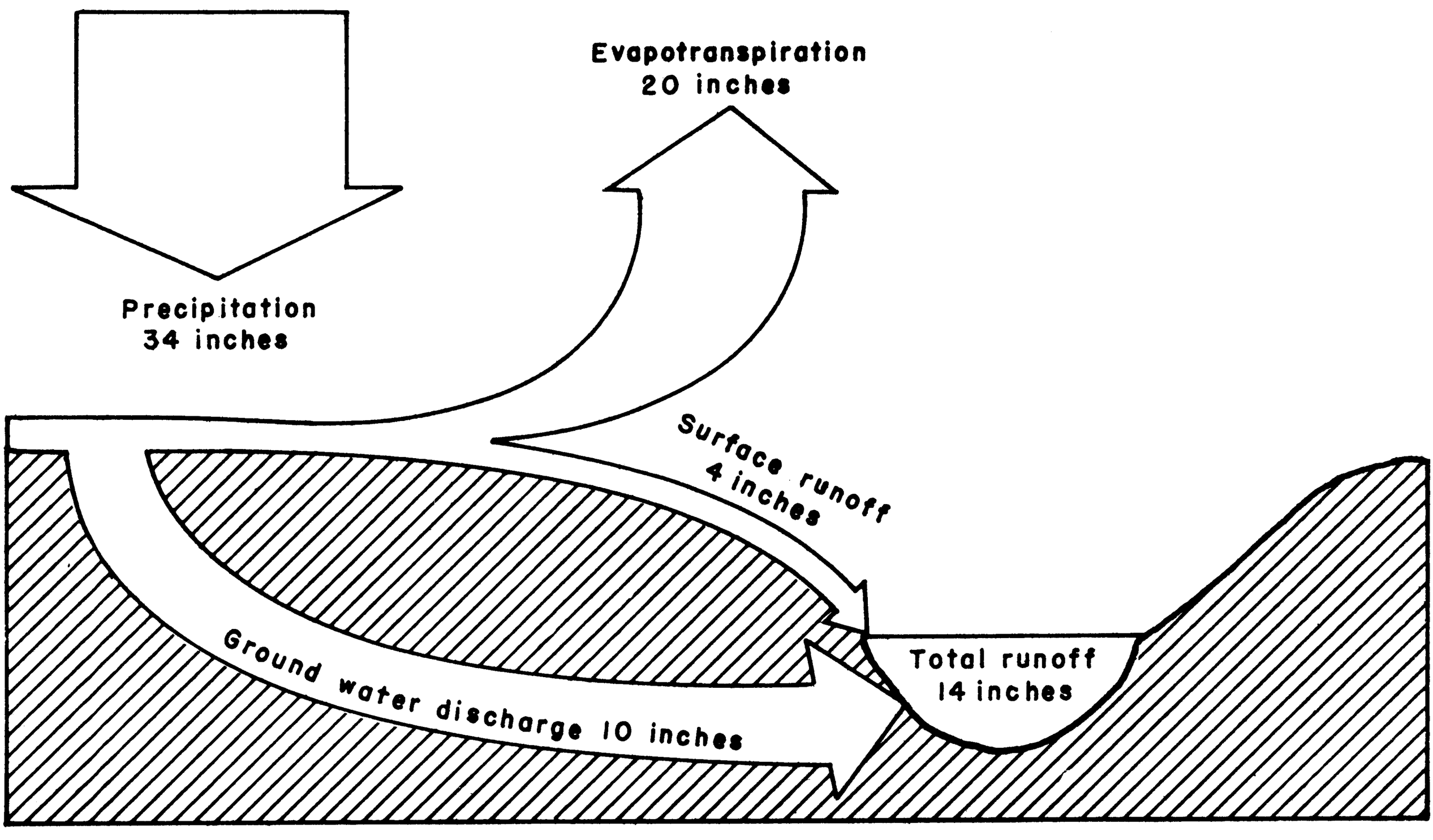
Monthly temperatures at Bloomingdale 1932-1961

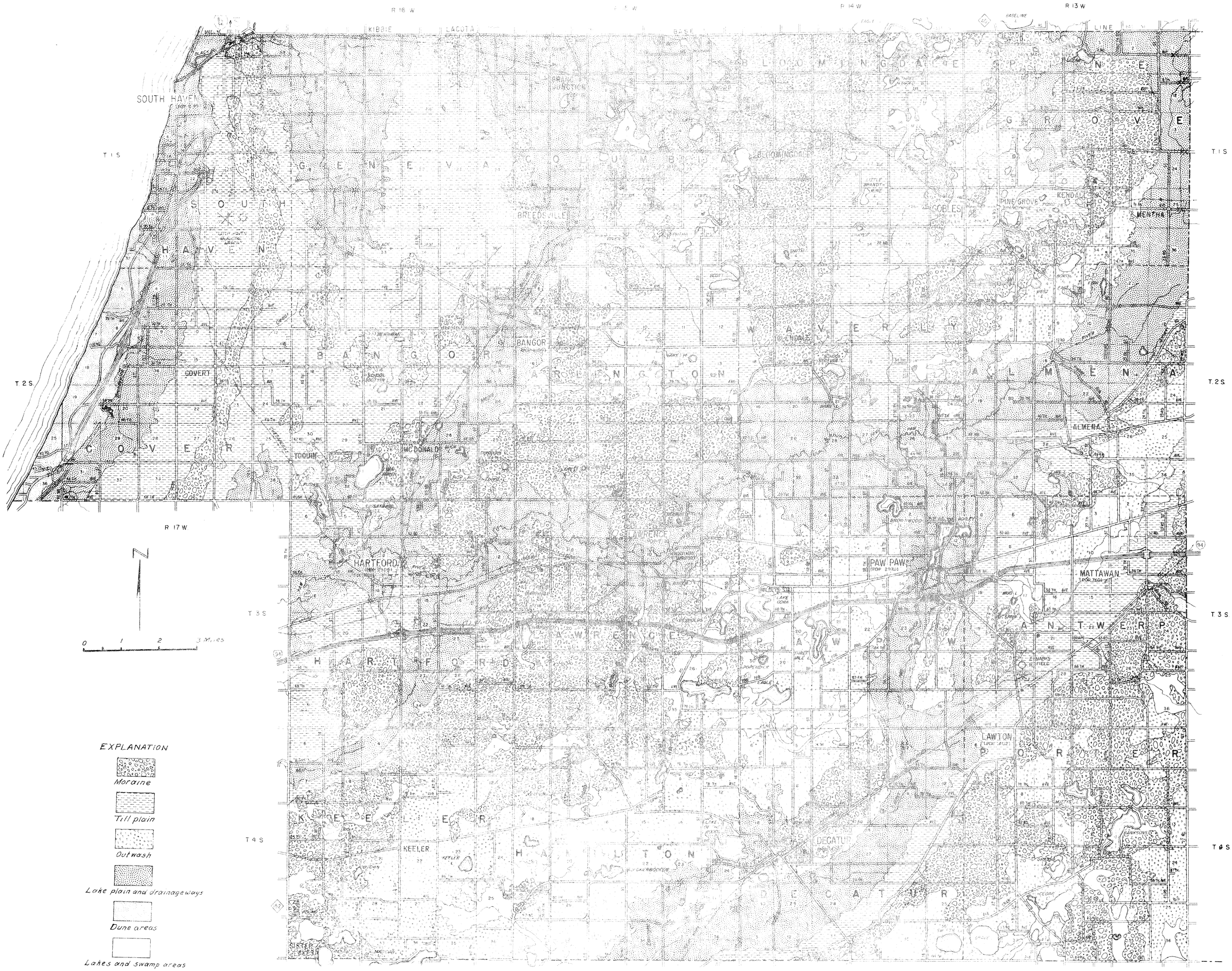


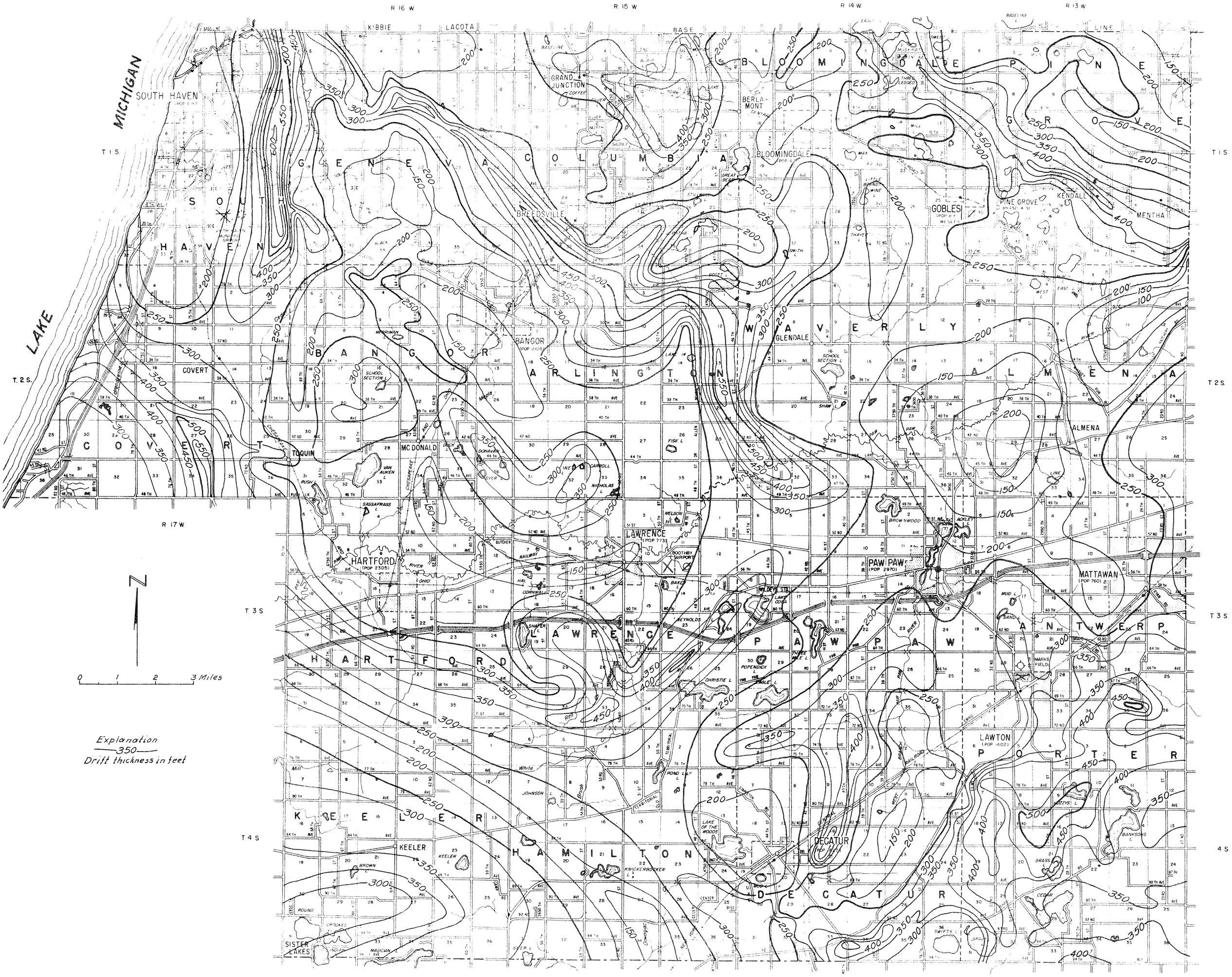
Monthly precipitation at South Haven, 1895-1963.



Monthly precipitation at Bloomingdale, 1904-1963.


Evapotranspiration
20 inches
Precipitation
34 inches
Surface runoff
4 inches
Ground water discharge 10 inches
Total runoff
14 inches


R 16 W
R 15 W
R 14 W
R 13 W
R 17 W
T 1 S
T 2 S
T 3 S
T 4 S
KIBBIE
LACOTA
BASE
LINE
SOUTH HAVEN
GENEVA
COLUMBIA
BLOOMINGDALE
PINE GROVE
SOUTH HAVEN
BREEDSVILLE
GOBLES
PINE GROVE
KENDALL
MENTHA
WAVERLY
BANGOR
ARLINGTON
ALMENA
COVERT
TOQUIN
McDONALD
ALMENA
COVER
LAWRENCE
HARTFORD
PAW PAW
MATTAWAN
ANTWERP
LAWRENCE
PAW PAW
HARTFORD
LAWTON
PORTER
KEELER
HAMILTON
DECATUR
KEELER
DECATUR
N
0 1 2 3 Miles
EXPLANATION
Moraine
Till plain
Outwash
Lake plain and drainage ways
Dune areas
Lakes and swamp areas


R 16 W
R 15 W
R 14 W
R 13 W
R 17 W
T 1 S
T 2 S
T 3 S
T 4 S
LAKE MICHIGAN
SOUTH HAVEN
GENEVA
COLUMBIA
BLOOMINGDALE
PINE GROVE
SOUTH HAVEN
BANGOR
ARLINGTON
WAVERLY
ALMENA
COVERT
TOQUIN
MC DONALD
GRAND JUNCTION
BERLAMONT
BLOOMINGDALE
GOBLES
KENDALL
MENTHA
BREEDSVILLE
BANGOR
GLENDALE
ALMENA
LAWRENCE
HARTFORD
PAW PAW
MATTAWAN
LAWRENCE
PAW PAW
ANTWERP
HARTFORD
LAWTON
PORTER
KEELER
HAMILTON
DECATUR
KEELER
SISTER LAKES
0 1 2 3 Miles
Explanation
350
Drift thickness in feet

Departure, in inches

+30
+20
+10
0
-10
-20
-30
-40
-50

Bloomingdale

South Haven

Paw Paw

1954 1955 1956 1957 1958 1959 1960 1961 1962 1963

PRECIPITATION IN INCHES

At Bloomingdale

50
45
40
35
Avg.
30
25
20
15

At South Haven

55
50
45
40
35
Avg.
30
25
20
15

1900 1910 1920 1930 1940 1950 1960 1963

EXPLANATION

Wells

- Municipal
- Industrial
- Irrigation,
- Domestic, stock, motels, spraying, test etc.
- Observation

Lakes

- Gaging site

Water level, in feet below land-surface datum

25.0
26.0
27.0
28.0
29.0
30.0

1963 1964

Keeler Township
Observation well 6
Depth: 121 feet
NW¼ of NW¼, sec. 22,
T. 4S, R. 16W.

JAN. FEB. MAR. APR. MAY JUNE JULY AUG. SEPT. OCT. NOV. DEC. JAN. FEB. MAR. APR. MAY JUNE

35.0
36.0
37.0
38.0

1963 1964

South Haven Township
Observation well 9
Depth: 132 feet
SW¼ of NE¼, sec. 22,
T. 1S., R. 17W.

JAN. FEB. MAR. APR. MAY JUNE JULY AUG. SEPT. OCT. NOV. DEC. JAN. FEB. MAR. APR. MAY JUNE

21.0
22.0
23.0
24.0
25.0
26.0

1963 1964

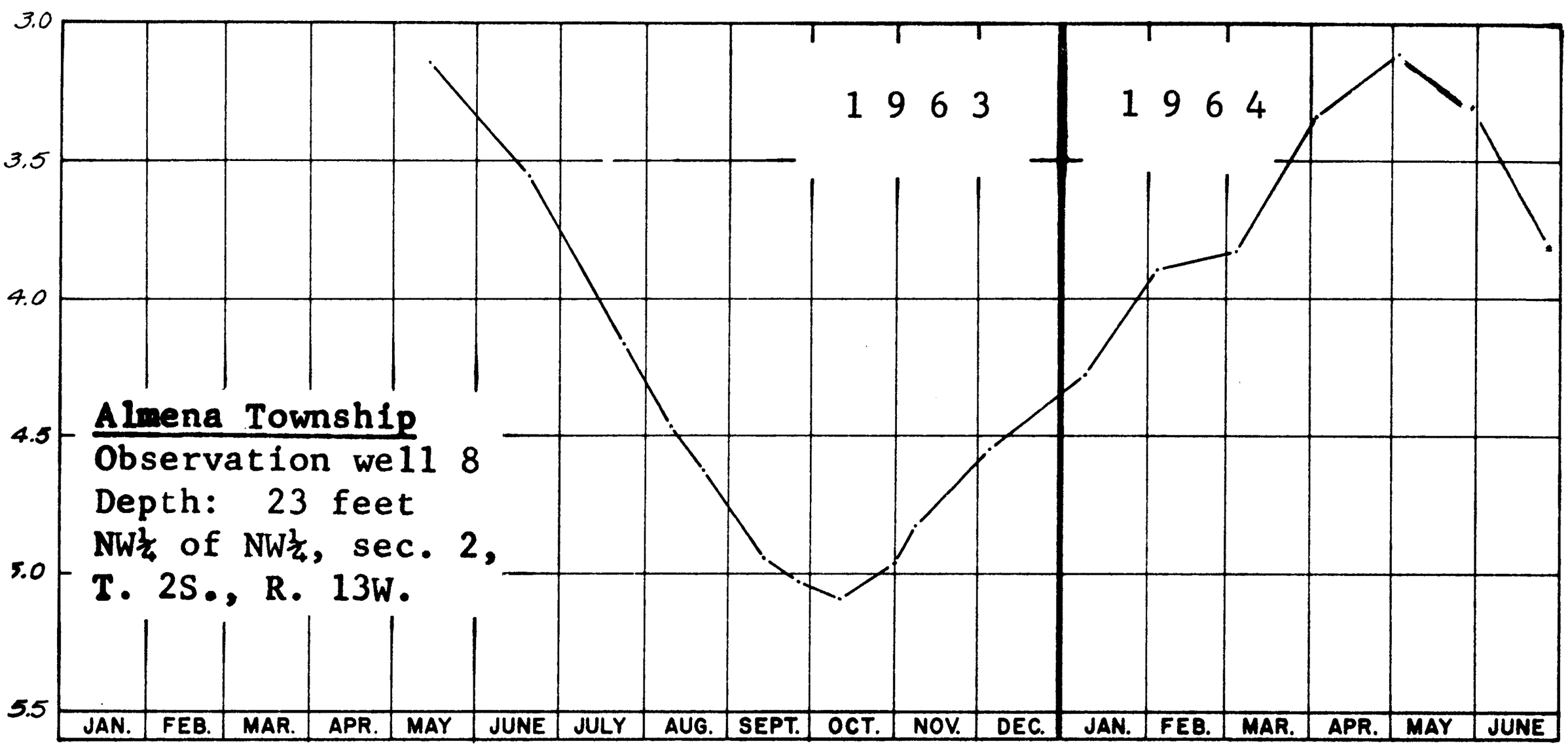
Keeler Township
Observation well 5
Depth: 170 feet
SE¼ of SW¼, sec. 14,
T. 4S., R. 16W.

JAN. FEB. MAR. APR. MAY JUNE JULY AUG. SEPT. OCT. NOV. DEC. JAN. FEB. MAR. APR. MAY JUNE

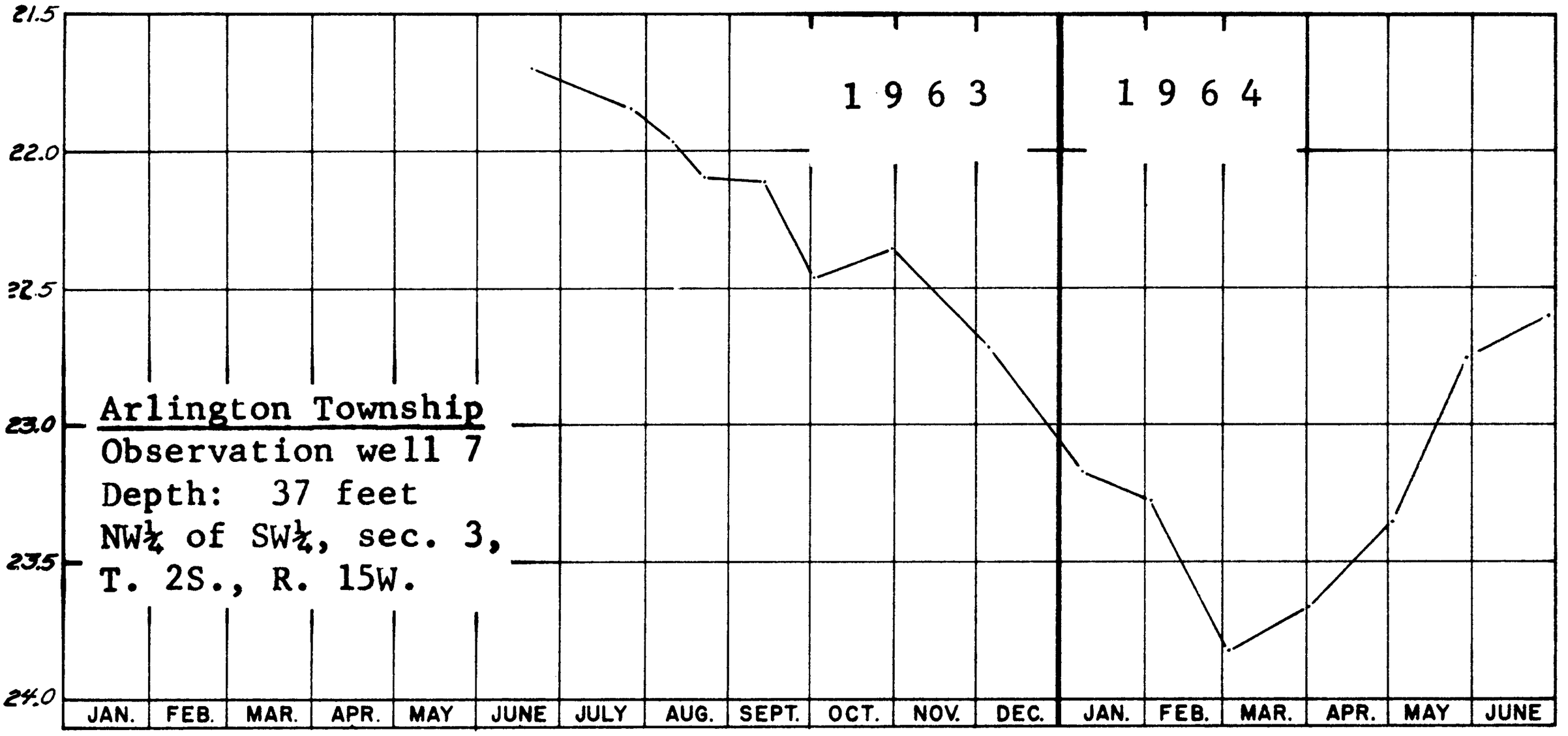
---- estimated

Water level, in feet below land-surface datum

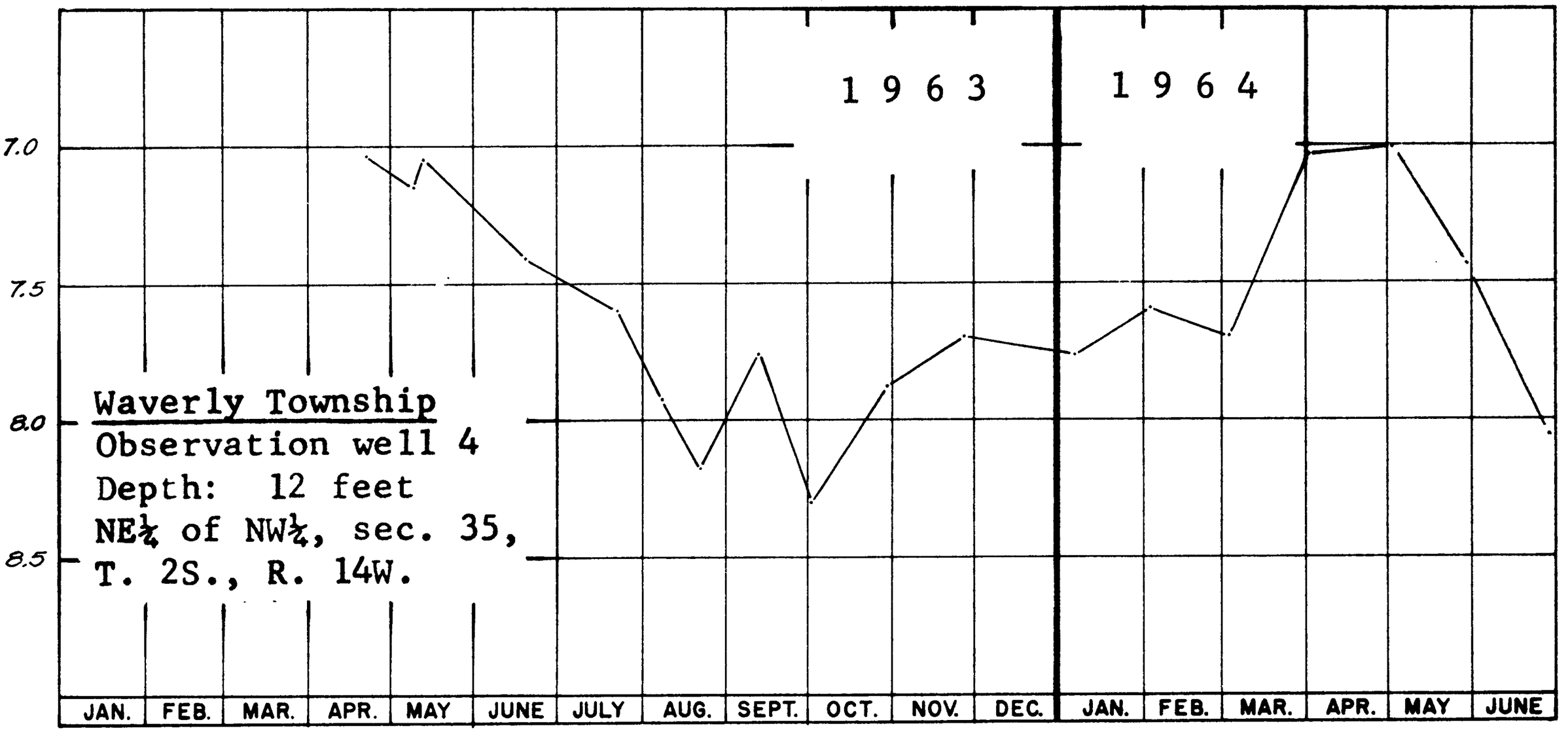
Almena Township
Observation well 8
Depth: 23 feet
NW¼ of NW¼, sec. 2,
T. 2S., R. 13W.



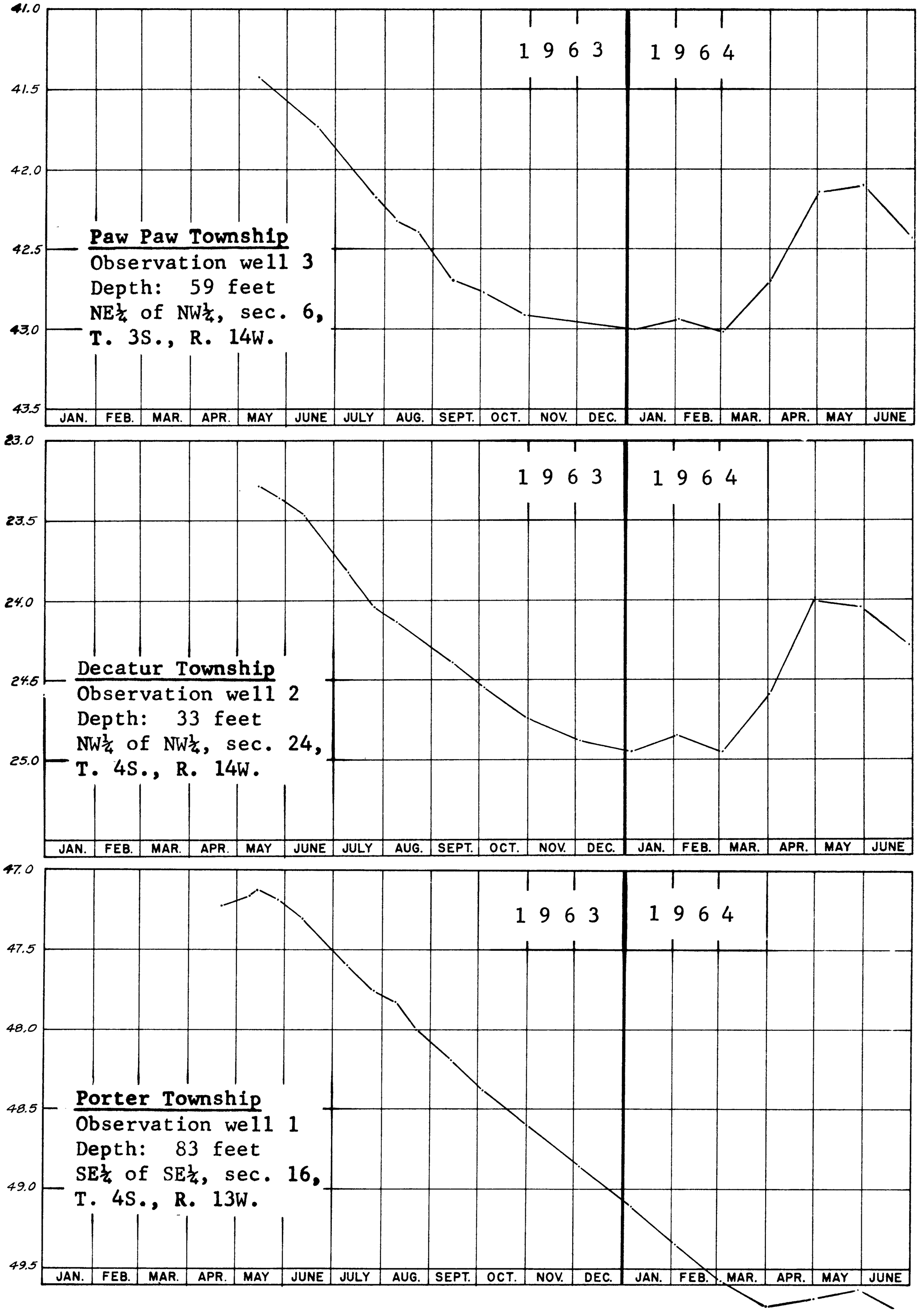
Arlington Township
Observation well 7
Depth: 37 feet
NW¼ of SW¼, sec. 3,
T. 2S., R. 15W.



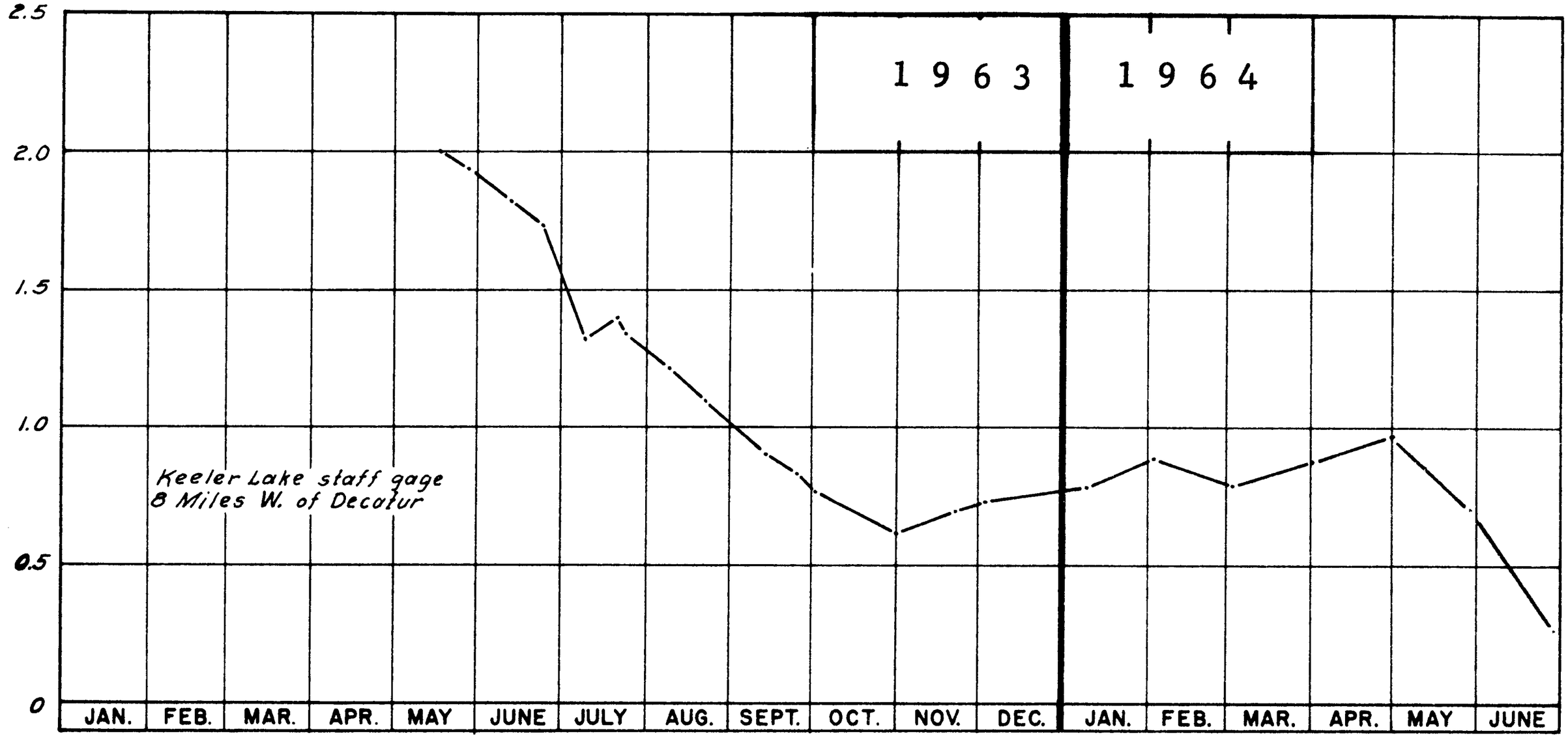
Waverly Township
Observation well 4
Depth: 12 feet
NE¼ of NW¼, sec. 35,
T. 2S., R. 14W.

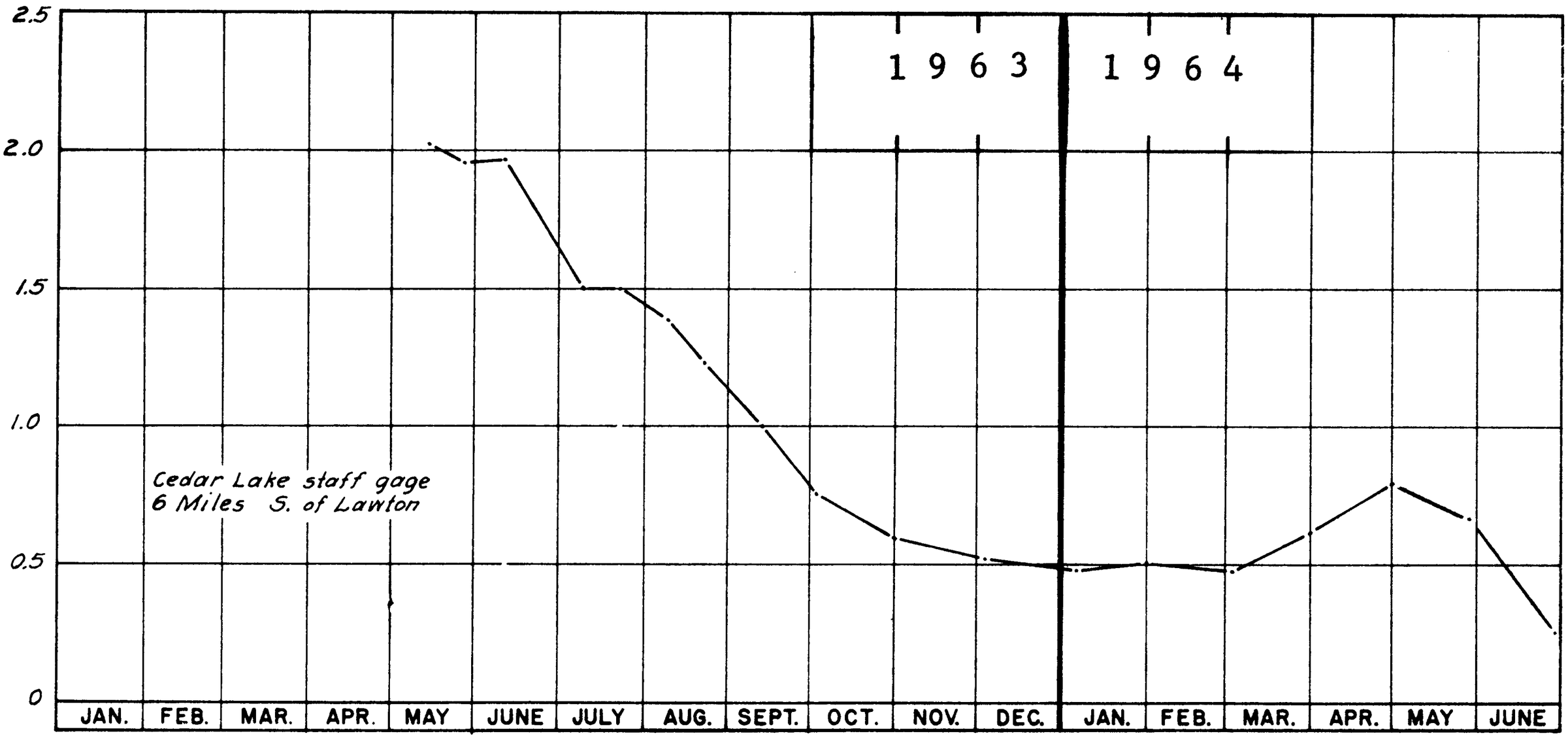


Water level, in feet below land surface datum



Gage height in feet above assumed datum.





Gage height in feet above assumed datum

2.0
1.5
0
5
0

1 9 6 3
1 9 6 4

Fish Lake staff gage
5 Miles S.E of Gobles

JAN. FEB. MAR. APR. MAY JUNE JULY AUG. SEPT. OCT. NOV. DEC. JAN. FEB. MAR. APR. MAY JUNE

Gage height in feet

5
0
0.5
0

1 9 6 3
1 9 6 4

Lake of the Woods staff gage
2 Miles W. of Decatur

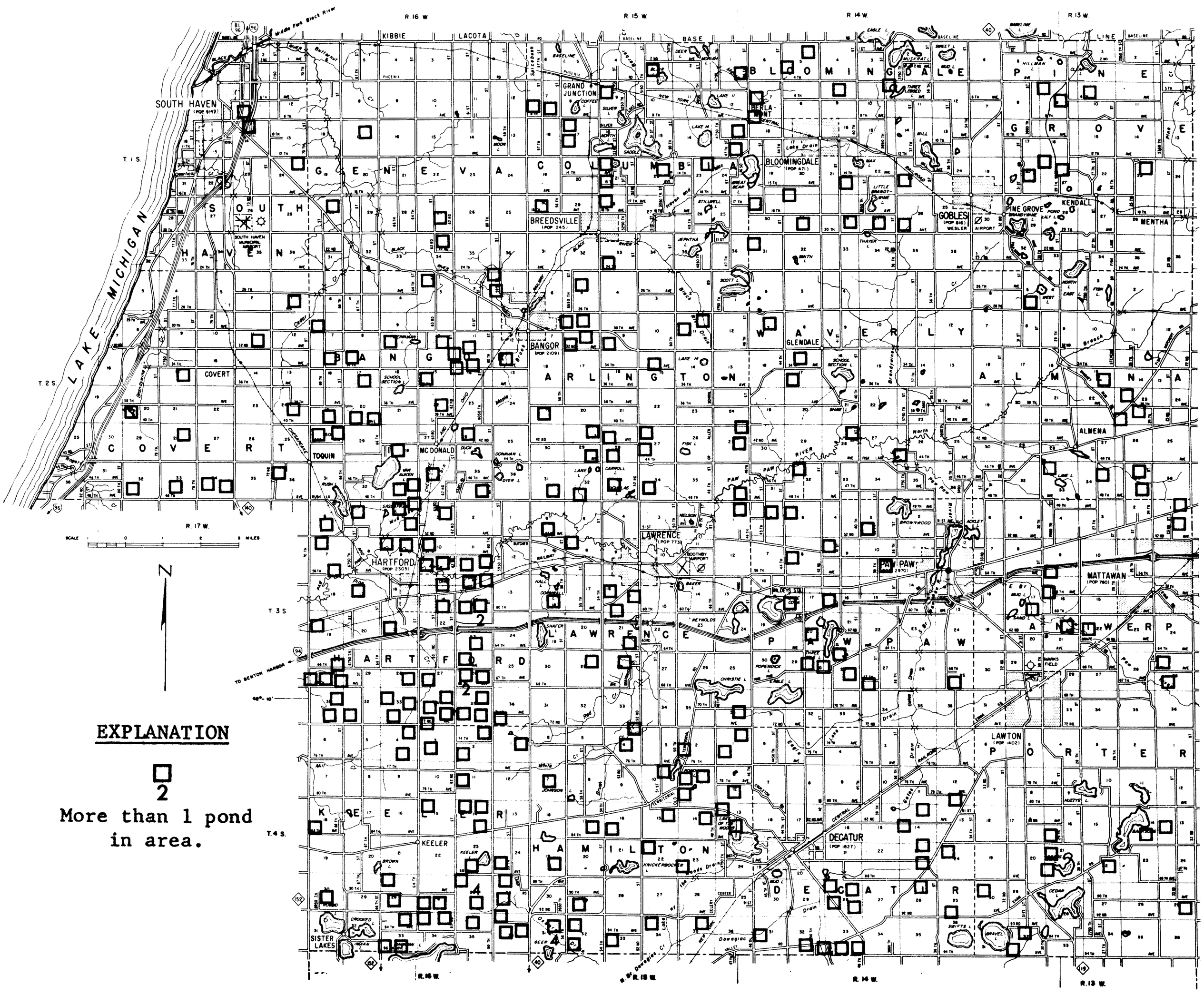
JAN. FEB. MAR. APR. MAY JUNE JULY AUG. SEPT. OCT. NOV. DEC. JAN. FEB. MAR. APR. MAY JUNE

Water level, in feet above mean sea level

582
581
580
579
578
577
576

Lake Michigan - Huron

1954 1955 1956 1957 1958 1959 1960 1961 1962 1963


R 16 W
R 15 W
R 14 W
R 13 W
R. 17 W.
SCALE 0 2 3 MILES
N
T 1 S.
T 2 S.
T. 3 S.
T. 4 S.
LAKE MICHIGAN
Middle Fork Black River
KIBBIE
LACOTA
BASE LINE
SOUTH HAVEN (POP. 6149)
SOUTH HAVEN MUNICIPAL AIRPORT
GRAND JUNCTION
COFFEE
HERLA-MONT
BLOOMINGDALE (POP 471)
BREEDSVILLE (POP 245)
GOBLES (POP 816)
WESLER AIRPORT
PINE GROVE
KENDALL
MENTHA
GLENDALE
BANGOR (POP 2109)
COVERT
TOQUIN
MC DONALD
ALMENA
LAWRENCE (POP 773)
BOOTHBY AIRPORT
PAW PAW (POP 2970)
MATTAWAN (POP 780)
HARTFORD (POP 2305)
MARKS FIELD
LAWTON (POP 1402)
DECATUR (POP 1827)
KEELER
SISTER LAKES
TO BENTON HARBOR
EXPLANATION
2
More than 1 pond in area.

N

LAKE MICHIGAN

Black River

Kalamazoo River

Paw Paw River

0 1 2 3 4 Miles

EXPLANATION

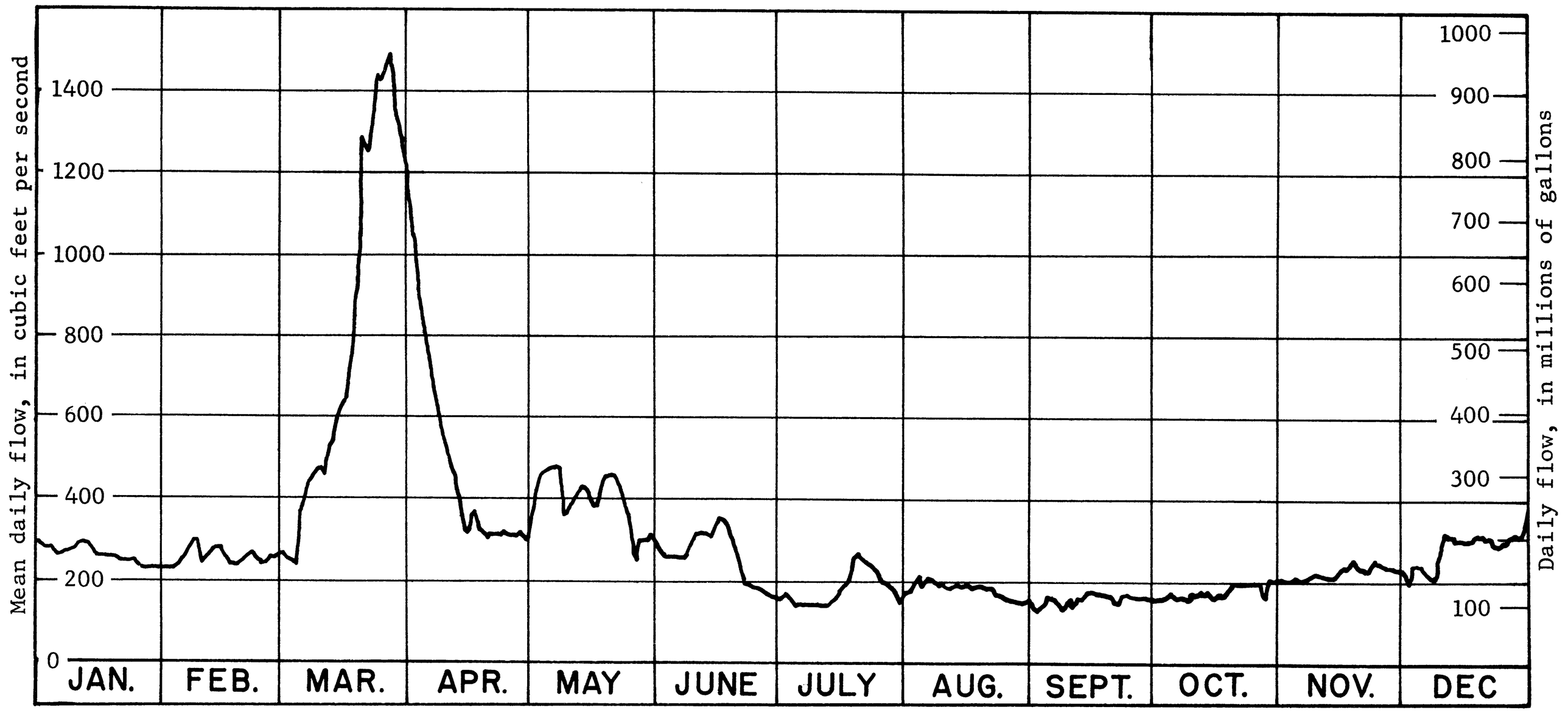
Cfsm

Less than 0.3

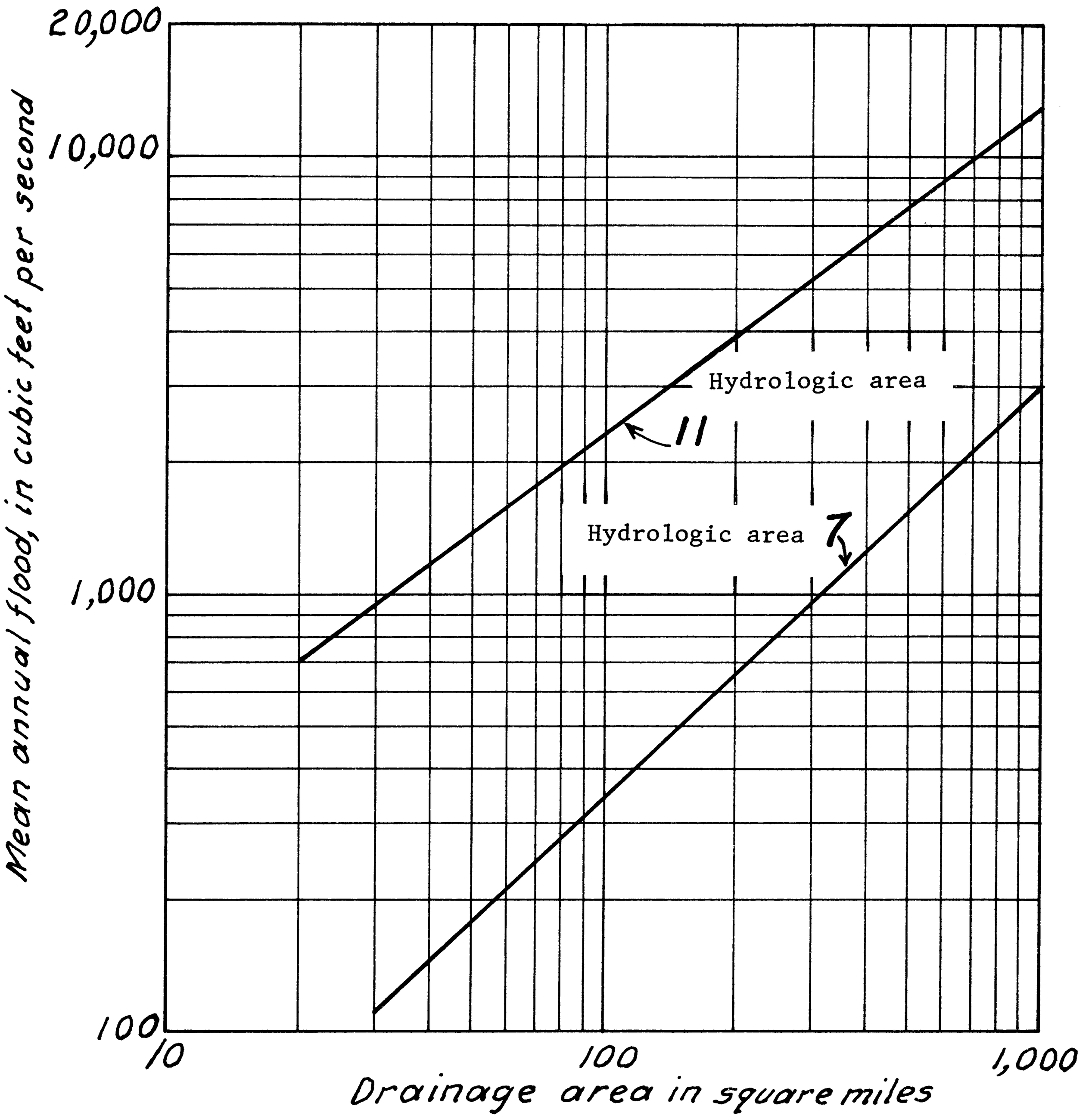
0.3 - 0.6

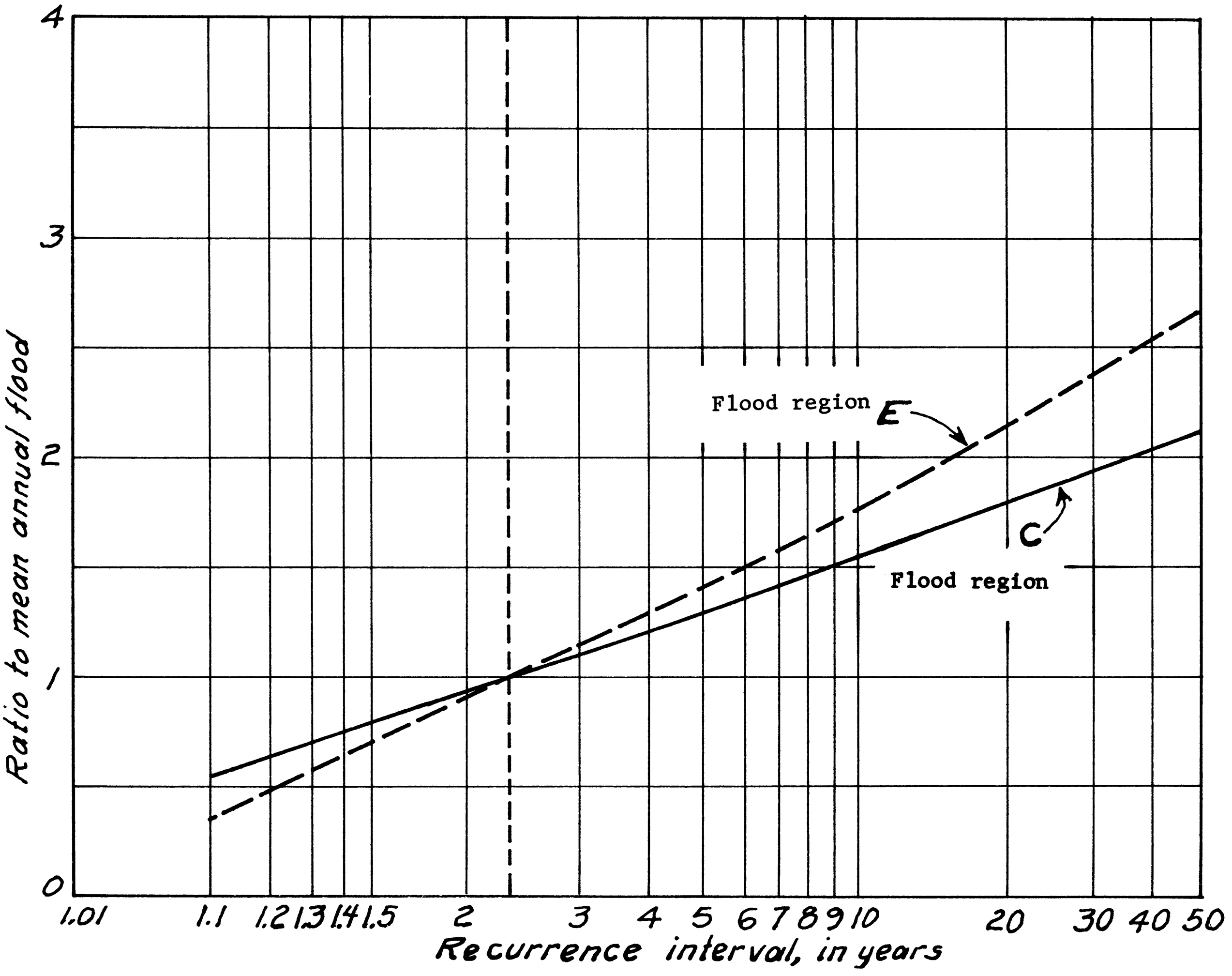
More than 0.6

Cfsm is cubic feet per second per square mile.


Mean daily flow, in cubic feet per second
0
200
400
600
800
1000
1200
1400
Daily flow, in millions of gallons
100
300
400
500
600
700
800
900
1000
JAN.
FEB.
MAR.
APR.
MAY
JUNE
JULY
AUG.
SEPT.
OCT.
NOV.
DEC

ALLEGAN
R. 16 W.
R. 15 W.
R. 14 W.
R 13 W
KIBBIE
LACOTA
BASE
LINE
BASELINE
PHOENIX
GRAND JUNCTION
BERLA-MONT
SOUTH HAVEN
(POP 6149)
BLOOMINGDALE
(POP 471)
BREEDSVILLE
(POP 245)
GOBLES
(POP 816)
WESLER
AIRPORT
PINE GROVE
KENDALL
MENTHA
SOUTH HAVEN MUNICIPAL AIRPORT
BANGOR
(POP 2109)
GLENDALE
COVERT
TOQUIN
MC DONALD
ALMENA
LAWRENCE
(POP 773)
BOOTHBY AIRPORT
HARTFORD
(POP 2305)
PAW PAW
(POP 2970)
MATTAWAN
(POP 760)
MARKS FIELD
LAWTON
(POP 1402)
DECATUR
(POP 1627)
KEELER
SISTER LAKES
T. 1 S.
T 2 S.
T. 3 S.
T. 4 S.
LAKE MICHIGAN
G E N E V A
C O L U M B I A
B L O O M I N G D A L E
P I N E
G R O V E
S O U T H
H A V E N
B A N G O R
A R L I N G T O N
W A V E R L Y
A L M E N A
C O V E R T
H A R T F O R D
L A W R E N C E
P A W P A W
A N T W E R P
K E E L E R
H A M I L T O N
D E C A T U R
P O R T E R
BERRIEN
CO.
R. 17 W.
SCALE
MILES
N
TO BENTON HARBOR
Black River
Paw Paw River
EAGLE L
MUSKRAT L
SWEET L
HILLMAN L
THREE LEGGED L
MILL L
LITTLE BRANDYWINE L
BRANDYWINE L
POND LILY L
BASELINE L
COFFEE L
SILVER L
NORTH L
SADDLE L
BLAIR L
DEER L
LAKE 11
LAKE 14
GREAT BEAR L
STILLWELL L
SCOTT L
THAYER L
SMITH L
NORTH EAST L
WEST L
FISH L
SCHOOL SECTION L
SHAW L
LAKE L
BROWNWOOD L
ACKLEY L
MUD L
SAND L
VAN AUKEN L
RUSH L
SASSAFRASS L
DUCK L
DONAVAN L
DYER L
LANE L
CARROLL L
NICHOLAS L
NELSON L
HALL L
CORNWALL L
BAKER L
LAKE CORA
REYNOLDS L
SHAFER L
CHRISTIE L
POPENDICK L
EAGLE L
THREE MILE L
KNICKERBOCKER L
LAKE OF THE WOODS
JOHNSON L
KEELER L
BROWN L
CROOKED L
ROUND L
INDIAN L
GEER L
SWIFTS L
GRAVEL L
CEDAR L
GRASS L
HUZZYS L
SAWSONS L
34
31
30
33
32
35
21
29
28
27
23
22
26
24
25
20
11
12
9
13
10
17
16
18
8
6
7
4
5
15
14
19
1
2
3


20,000
10,000
1,000
100
Mean annual flood, in cubic feet per second
Hydrologic area 11
Hydrologic area 7
10
100
1,000
Drainage area in square miles


Ratio to mean annual flood
4
3
2
1
0
Flood region
E
C
Flood region
1.01
1.1
1.2
1.3
1.4
1.5
2
3
4
5
6
7
8
9
10
20
30
40
50
Recurrence interval, in years

R.16 W. R.15 W. R.14 W. R.13 W.

T.1 S.

T.2 S.

T.3 S.

R.17 W

SCALE 0 1 2 3 MILES

N

EXPLANATION

C, E, Flood regions
7, 11, Hydrologic areas

N

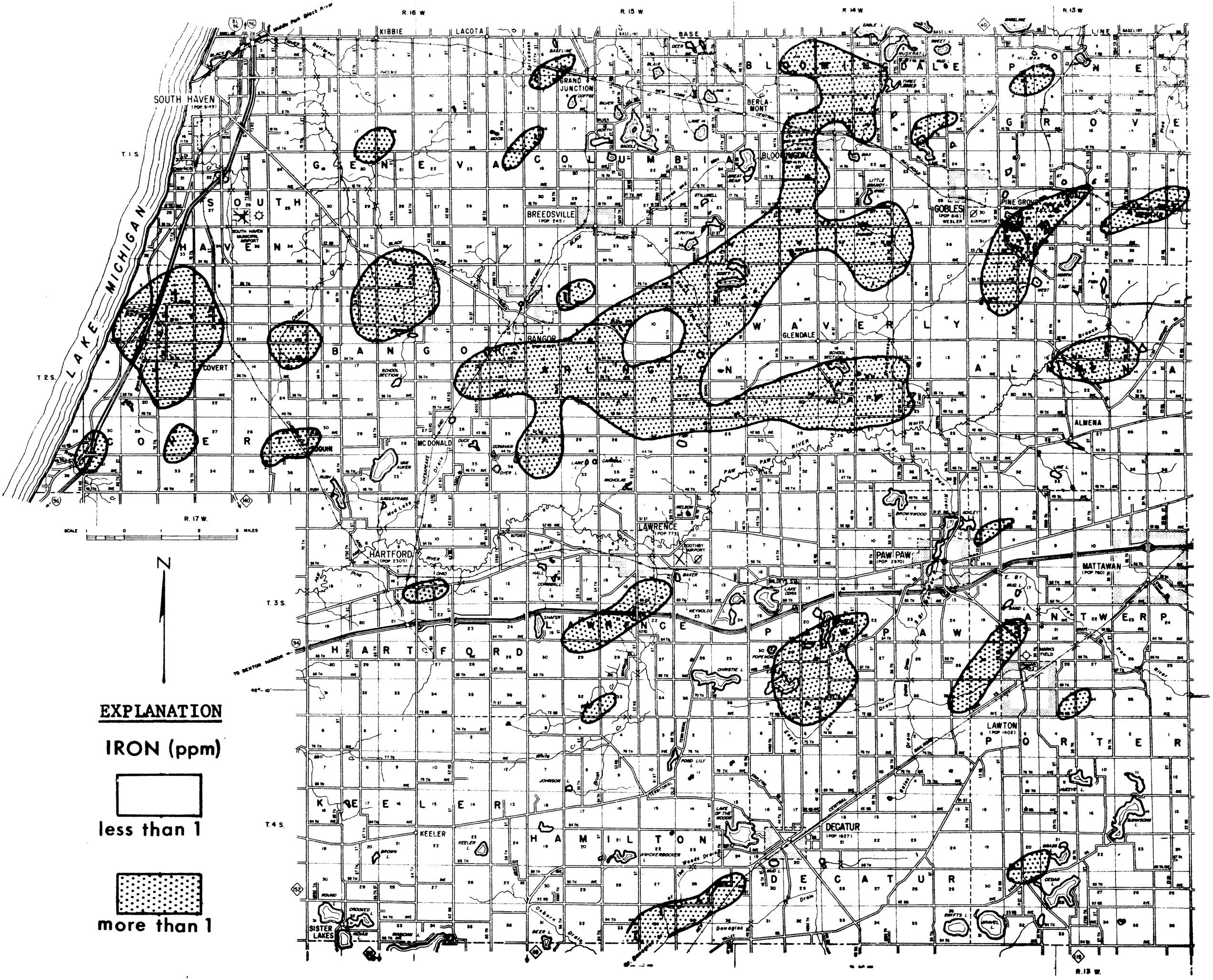
Hardness (ppm)

0-100

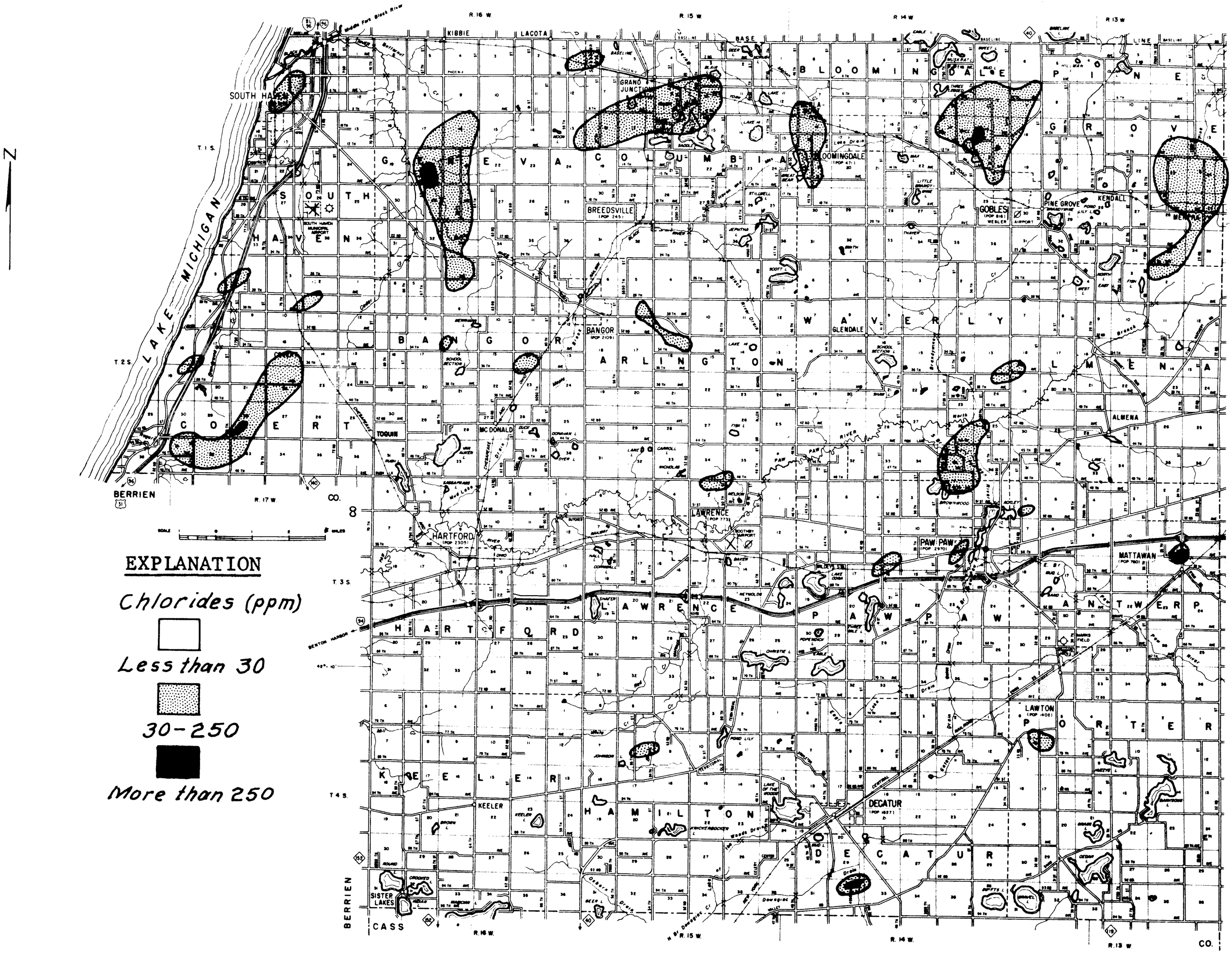
100-200

200-300

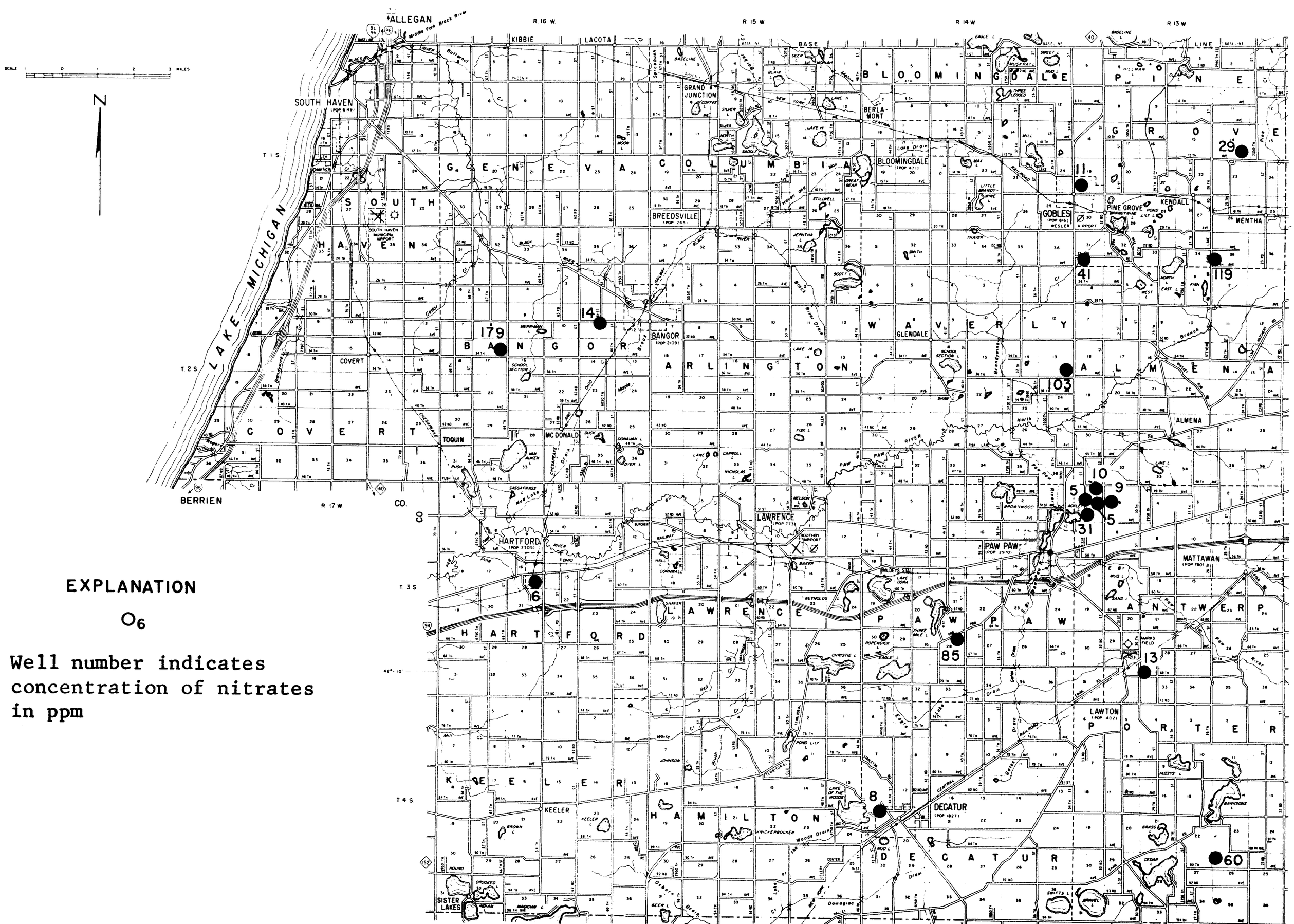
More than 300



R. 16 W.
R. 15 W.
R. 14 W.
R. 13 W.
R. 17 W.
T. 1 S.
T. 2 S.
T. 3 S.
T. 4 S.
LAKE MICHIGAN
SOUTH HAVEN
KIBBIE
LACOTA
BASE
LINE
GRAND JUNCTION
BERLAMONT
BLOOMINGDALE
PINE GROVE
GENEVA
COLUMBIA
SOUTH HAVEN
BREEDSVILLE
GOBLES
PINE GROVE
BANGOR
WAVERLY
GLENDALE
ARLINGTON
ALMENA
COVERT
MC DONALD
LAWRENCE
HARTFORD
PAW PAW
MATTAWAN
ANTWERP
LAWRENCE
PAW PAW
HARTFORD
LAWTON
PORTER
KEELER
HAMILTON
DECATUR
SISTER LAKES
TO BENTON HARBOR
42°-10'
SCALE 1 0 1 2 3 MILES
N
EXPLANATION
IRON (ppm)
less than 1
more than 1



N
LAKE MICHIGAN
SOUTH HAVEN
GENEVA
COLUMBIA
BLOOMINGDALE
PINE GROVE
SOUTH HAVEN
BREEDSVILLE
BANGOR
ARLINGTON
WAVERLY
GLENDALE
ALMENA
COVERT
TOQUIN
MC DONALD
LAWRENCE
HARTFORD
PAW PAW
MATTAWAN
ANTWERP
LAWTON
PORTER
KEELER
HAMILTON
DECATUR
SISTER LAKES
BERRIEN
CASS
CO.
R. 16 W.
R. 15 W.
R. 14 W.
R. 13 W.
R. 17 W.
T. 1 S.
T. 2 S.
T. 3 S.
T. 4 S.
EXPLANATION
Chlorides (ppm)
Less than 30
30-250
More than 250


SCALE 0 1 2 3 MILES
N
EXPLANATION
O6
Well number indicates concentration of nitrates in ppm
ALLEGAN
KIBBIE
LACOTA
BASE LINE
R 16 W
R 15 W
R 14 W
R 13 W
T 1 S
T 2 S
T 3 S
T 4 S
R 17 W
BERRIEN CO.
LAKE MICHIGAN
SOUTH HAVEN (POP 6149)
SOUTH HAVEN MUNICIPAL AIRPORT
COVERT
TOQUIN
GRAND JUNCTION
BERLAMONT
BLOOMINGDALE (POP 471)
BREEDSVILLE (POP 245)
BANGOR (POP 2109)
GLENDALE
GOBLES (POP 816)
WESLER
PINE GROVE
KENDALL
MENTHA
ALMENA
MATTAWAN (POP 760)
LAWRENCE (POP 773)
HARTFORD (POP 2305)
PAW PAW (POP 2970)
LAWTON (POP 402)
DECATUR (POP 1827)
KEELER
SISTER LAKES
MC DONALD
GENEVA
COLUMBIA
SOUTH HAVEN
BANGOR
ARLINGTON
WAVERLY
COVERT
HARTFORD
LAWRENCE
PAW PAW
HAMILTON
KEELER
DECATUR
PORTER
Middle Fork Black River
Buttermilk Creek
Black River
Paw Paw River
Kalamazoo River
Ox Bow
Lake Michigan
179
14
103
119
29
11
41
10
9
5
5
31
85
13
60
8
6

EXPLANATION

—200—
Contour on the bedrock surface
Contour interval 50 feet
Datum is mean sea level

Extra contour, 475 feet

Gravity station

Location of well control

0 1 Mile

SOUTH HAVEN

MICHIGAN

LAKE

BANGOR

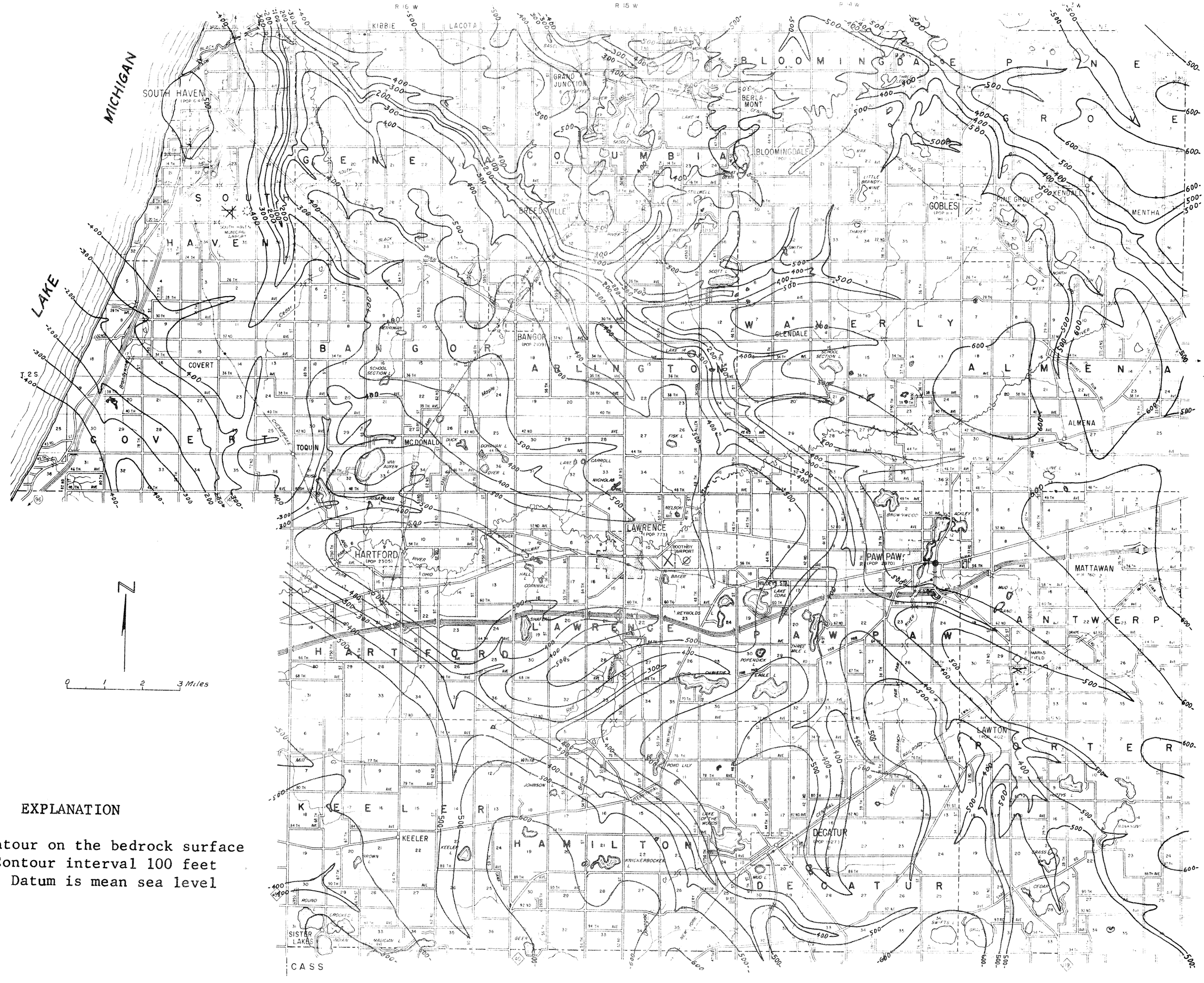
T. 1 S.

T. 2 S.

R. 17 W.

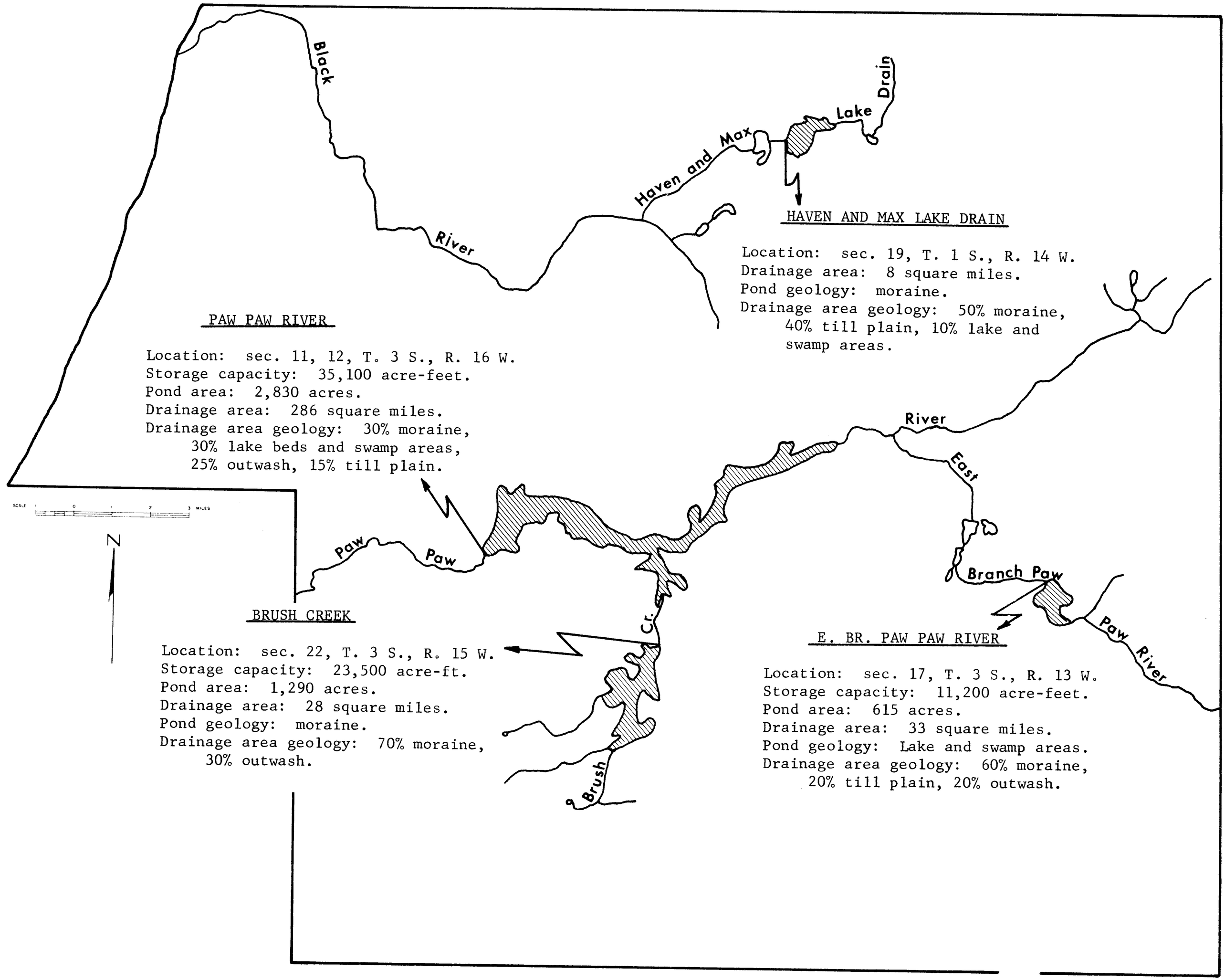
R. 16 W.

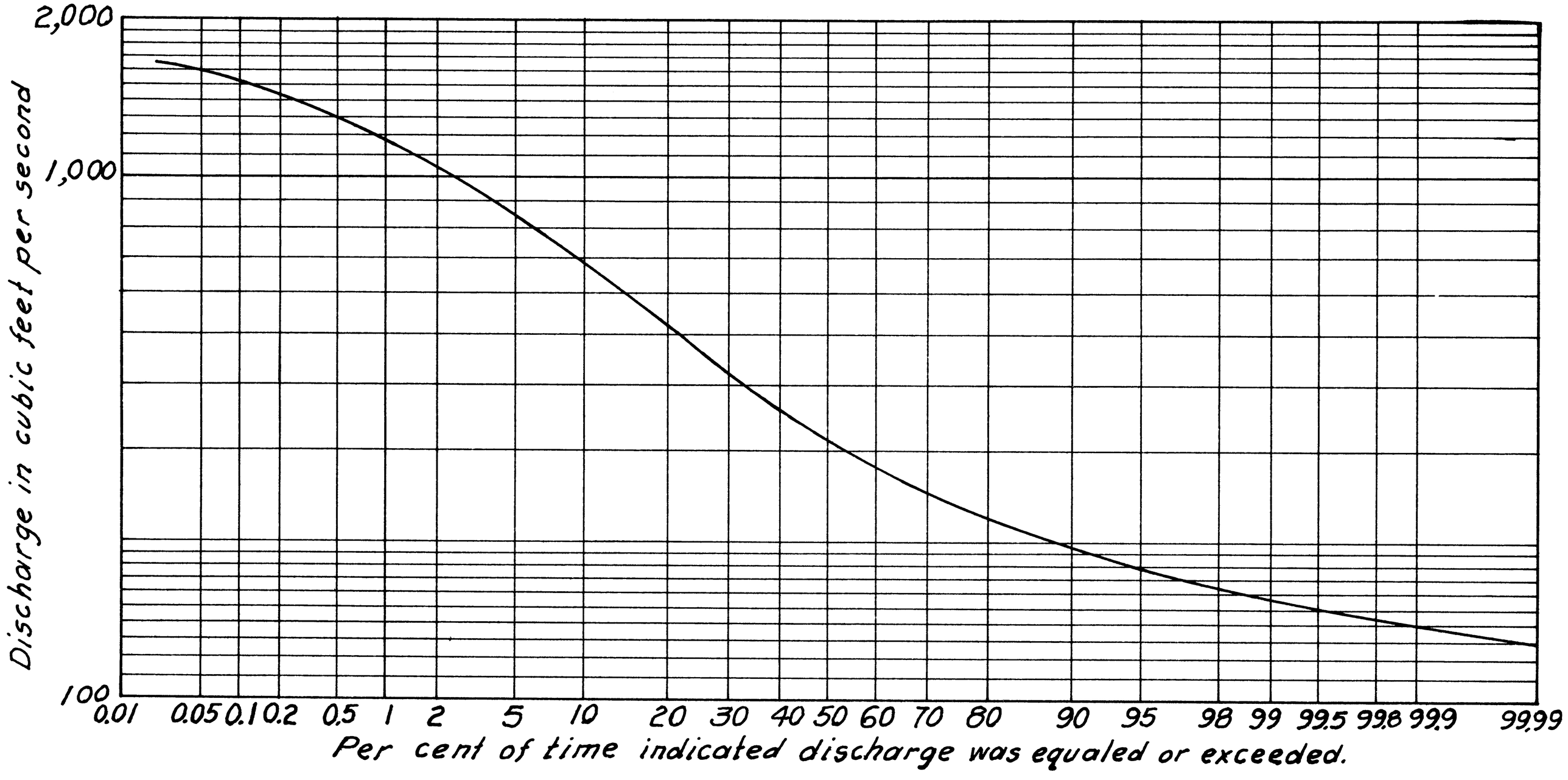
R. 15 W.



EXPLANATION

Contour on the bedrock surface
Contour interval 100 feet
Datum is mean sea level

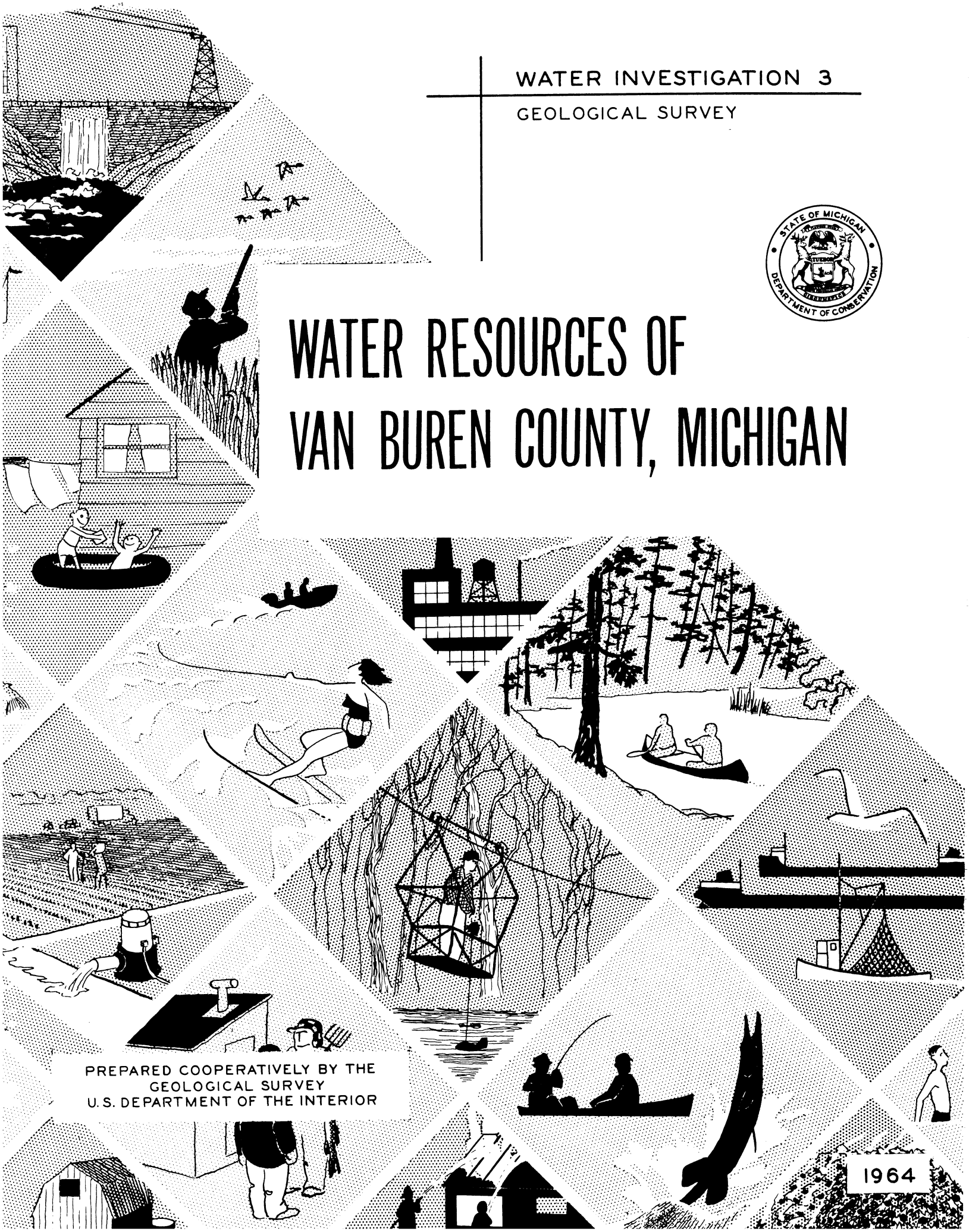

Black River
Haven and Max Lake Drain
HAVEN AND MAX LAKE DRAIN
Location: sec. 19, T. 1 S., R. 14 W.
Drainage area: 8 square miles.
Pond geology: moraine.
Drainage area geology: 50% moraine, 40% till plain, 10% lake and swamp areas.
PAW PAW RIVER
Location: sec. 11, 12, T. 3 S., R. 16 W.
Storage capacity: 35,100 acre-feet.
Pond area: 2,830 acres.
Drainage area: 286 square miles.
Drainage area geology: 30% moraine, 30% lake beds and swamp areas, 25% outwash, 15% till plain.
East Branch Paw Paw River
Paw Paw
Brush Cr.
Brush
BRUSH CREEK
Location: sec. 22, T. 3 S., R. 15 W.
Storage capacity: 23,500 acre-ft.
Pond area: 1,290 acres.
Drainage area: 28 square miles.
Pond geology: moraine.
Drainage area geology: 70% moraine, 30% outwash.
E. BR. PAW PAW RIVER
Location: sec. 17, T. 3 S., R. 13 W.
Storage capacity: 11,200 acre-feet.
Pond area: 615 acres.
Drainage area: 33 square miles.
Pond geology: Lake and swamp areas.
Drainage area geology: 60% moraine, 20% till plain, 20% outwash.
SCALE 0 1 2 3 MILES
N


2,000
1,000
100
Discharge in cubic feet per second
0.01 0.05 0.1 0.2 0.5 1 2 5 10 20 30 40 50 60 70 80 90 95 98 99 99.5 99.8 99.9 99.99
Per cent of time indicated discharge was equaled or exceeded.

WATER INVESTIGATION 3

GEOLOGICAL SURVEY

WATER RESOURCES OF VAN BUREN COUNTY, MICHIGAN



PREPARED COOPERATIVELY BY THE
GEOLOGICAL SURVEY
U.S. DEPARTMENT OF THE INTERIOR

1964

Table 1.--Logs and specific capacity of selected wells.

Logs are from drillers' reports and describe glacial drift materials penetrated. Where shale is indicated, it is interpreted to be the Coldwater Shale.

Altitude: Land surface at well in feet above mean sea level (estimated from topographic maps).

Specific capacity: (spec. cap.) gallons per minute per foot of drawdown of water level in well as reported by driller.

	Thickness (ft)	Depth (ft)
ALMENA TOWNSHIP		
County Road Commission NW¼ NW¼ Section 2 Altitude: 730		
Gravel, with large stones	1	1
Sand, brown, fine, moist	8	9
Clay, brown, sandy, wet	1	10
Sand, brown, medium	67	77
(Cased and screened to 23' for use as observation well)		

Wolf Lake State Hatchery NW¼ SW¼ Section 13 Altitude: 770		
Sand, some gravel	17	17
Sand, gravel silt	15	32
Sand	28	60
Sand, white, very fine	at	60
(spec. cap. 1.8)		

ANTWERP TOWNSHIP		
International Research Company NW¼ SW¼ Section 12 Altitude: 840		
Sand, fine	66	66
Clay, blue	2	68
Gravel, gray, fine	18	86
(spec. cap. 13.3)		

Glaser-Crandall Company # 1 SW¼ NW¼ Section 13 Altitude: 880		
Fill	5	5
Sand, clay, gravelly	12	17
Sand, fine, gravelly, clayey	18	35
Sand, fine, clay	15	50
Sand, fine, clay, gravelly	20	70
Sand, fine, clay	10	80
Clay, sand, fine gravel	8	88
Sand, clayey, gravelly	12	100
Sand, gravel, boulder	10	110
Sand, gravel, clayey	10	120
(spec. cap. 18.4)		

Village of Lawton # 3 SW¼ SE¼ Section 29 Altitude: 780		
Sand, yellow and clay	15	15
Sand, fine, gray	24	39
Sand and gravel	4	43
Sand, gray	62	105
(spec. cap. 16.6)		

Village of Lawton # 5 SE¼ SW¼ Section 29 Altitude: 780		
Sand	125	125
(spec. cap. 22.5)		

Village of Lawton # 2 NW¼ NE¼ Section 32 Altitude: 785		
Sand, fine	22	22
Sand, fine and clay balls	13	35
Sand, medium	5	40
Clay, blue	3	43
Quicksand	15	58
(spec. cap. 12.5)		

Village of Lawton # 1 NW¼ NE¼ Section 32 Altitude: 785		
Sand, fine	20	20
Sand, medium	23	43
(spec. cap. 25)		

	Thickness (ft)	Depth (ft)
Village of Lawton # 4 NW¼ SE¼ Section 32 Altitude: 785		
Sand, yellow and gravel	4	4
Sand, yellow, fine	26	30
Sand and gravel	2	32
Sand, yellow, fine	23	55
Clay, blue	27	82
Sand, dirty and gravel	4	86
Sand, fine	24	110
(spec. cap. 15.5)		

ARLINGTON TOWNSHIP		
County Road Commission NW¼ SW¼ Section 3 Altitude: 680		
Gravel with small stones	6	6
Gravel with stones to 2"	1	7
Gravel, brown, fine	10	17
Sand, brown, fine, wet	20	37
(used as observation well)		

Village of Bangor (Test) SW¼ SW¼ Section 6 Altitude: 660		
Sand	58	58
Clay	7	65
Gravel	14	79
Gravel, muddy	5	84
Clay	13	97
Quicksand	33	130
Gravel, muddy	3	133
Quicksand	4	137
Sand	12	149
Quicksand, blue	4	153
Sand	4	157
Sand, muddy	25	182
Gravel	4	186
Sand	14	200
Shale, gray	6	206

Village of Bangor # 4 NE¼ SW¼ Section 7 Altitude: 660		
Topsoil	1	1
Sand, silty	13	14
Clay, blue	19	33
Sand, coarse	19	52
Sand, fine	8	60
(spec. cap. 8.9)		

Village of Bangor # 5 NE¼ SW¼ Section 7 Altitude: 660		
Topsoil	2	2
Sand, silty	8	10
Clay, blue	33	43
Sand, coarse and some gravel	8	51
Sand, gray, coarse	13	64
(spec. cap. 5.6)		

Village of Bangor (Test) NE¼ NW¼ Section 7 Altitude: 680		
Sand, yellow, dirty	25	25
Clay, blue	33	58
Sand, yellow, fine	31	89
Clay, blue	41	130
Sand, gray, fine	11	141
Clay, sandy	3	144
Sand, gray, fine	6	150
Hardpan	5	155
Sand, gray	1	156
Hardpan	34	190

E. Root SE¼ NW¼ Section 8 Altitude: 720		
Sand and clay	50	50
Clay	28	78
Sand, water	8	86
(spec. cap. 4)		

	Thickness (ft)	Depth (ft)
J. Zirbel NW¼ SW¼ Section 13 Altitude: 690		
Muck	4	4
Clay	21	25
Gravel, coarse	5	30
(spec. cap. 6.7)		

B. Hills SE¼ NE¼ Section 17 Altitude: 660		
Sand	20	20
Quicksand and sand	10	30
Clay, gravelly	36	66
Sand, medium	10	76
Gravel, fine, clean	12	88
(spec. cap. 20)		

H. Wakeman NW¼ SW¼ Section 28 Altitude: 780		
Clay, yellow	4	4
Sand, clay, stones	53	57
Gravel and stones	3	60
Clay, yellow	3	63
Clay, blue	3	66
Clay, yellow, sandy	30	96
Clay, hard, sandy	75	171
Sand, fine	8	179
Sand and gravel	36	215
(spec. cap. 9.8)		

BANGOR TOWNSHIP		
Village of Bangor # 3 NE¼ SE¼ Section 1 Altitude: 660		
Sand and clay	10	10
Clay	25	35
Sand, fine	5	40
Gravel, coarse	5	45
Sand	10	55
Gravel	3	58
Sand	17	75
(spec. cap. 15.5)		

Piper Brothers NW¼ NE¼ Section 11 Altitude: 670		
Sand, dirty, little clay	46	46
Sand, water	5	51
Clay	24	75
Clay, sandy	20	95
Sand	37	132
Gravel and sand	16	148
Sand	3	151
Sand and clay	2	153
(spec. cap. 15.5)		

Village of Bangor (Test) NE¼ SE¼ Section 12 Altitude: 660		
Sand	18	18
Clay	27	45
Sand	10	55
Sand and some gravel	3	58
Sand, fine	18	76
Sand, medium	14	90
Sand and gravel	14	104
Gravel	5	109
Shale and gravel	21	130
Quicksand	8	138
Gravel	4	142
Sand and mud	3	145
Sand and gravel	11	156
Shale, gray	2	158

Village of Bangor 1 & 2 NE¼ NE¼ Section 12 Altitude: 660		
Sand	10	10
Clay, blue	40	50
Gravel	10	60

Table 1.--Logs and specific capacity of selected wells.--Continued.

	Thickness (ft)	Depth (ft)
COLUMBIA TOWNSHIP		
A. Thomas S½ NW¼ Section 7 Altitude: 670		
Sand	15	15
Sand, fine and clay	10	25
Clay and stones	10	35
Sand, water bearing	24	59
Sand, fine and clay	3	62
Sand	28	90
(spec. cap. 5.7)		

COVERT TOWNSHIP		
A. Lloyds SW¼ NE¼ Section 2 Altitude: 683		
Sand	20	20
Clay, gravelly	74	94
Sand, very fine	7	101
Gravel, muddy	68	169
Sand, coarse	4	173

Palisades Country Club SE¼ NE¼ Section 7 Altitude: 660		
Sand, fine, dry	29	29
Sand, fine, some water	3	32
Sand, medium, water bearing	33	65
(spec. cap. 12.2)		

P. Rood NW¼ SE¼ Section 11 Altitude: 736		
Clay	10	10
Silt, brown, pebbley	20	30
Sand, fine, silty	10	40
Clay, gravelly	10	50
Clay, white	8	58
Sand, silty, clayey	2	60
Sand, black, pebbley, clayey	10	70
Clay, pebbley	10	80
Sand, white, fine	10	90

C. Weidlick Ctr E line Section 24 Altitude: 690		
Sand, yellow	8	8
Clay and muck	6	14
Sand, gray and clay	27	41
Hardpan and stones	44	85
Sand, fine, dirty	5	90
Sand, fine, clean	9	99
Sand, blue, clayey	3	102
Sand, fine, clean	13	115
(spec. cap. 1.4)		

C. Weidlick NE¼ SE¼ Section 24 Altitude: 690		
Sand	49	49
(spec. cap. 6.0)		

Pocahontas Farm NW¼ SW¼ Section 25 Altitude: 660		
Sand, brown	15	15
Sand, gray, clay	30	45
Sand, fine, dirty	27	72
Sand and clay	158	230
Sand, clay and stones	12	242
Sand and clay	23	265
Sand, water-bearing	17	282
Clay, sand, stones	32	314
Shale	8	322
(spec. cap. 2.1)		

Pocahontas Farm NW¼ SW¼ Section 25 Altitude: 660		
Sand	22	22
Clay	162	184
Sand	10	194
Clay	3	197
Sand	3	200
Clay	28	228
Shale	at	228
(spec. cap. 1)		

	Thickness (ft)	Depth (ft)
M. Gelesko NE¼ NW¼ Section 36 Altitude: 660		
Sand	15	15
Clay, sandy	8	23
Sand, clean water	10	33
Clay, sandy	92	125
Sand, clean, fine	20	145
(spec. cap. 1.4)		

F. Aspengren NE¼ NW¼ Section 36 Altitude: 664		
Sand	5	5
Sand, water bearing	10	15
Sand and clay	20	35
Sand, yellow, water bearing	10	45
Sand and clay	25	70
Clay	34	104
Sand and clay	37	141
Sand	10	151
Hardpan	19	170
Clay	20	190
Sand	10	200
Sand, dirty, and clay	5	205
Hardpan	20	225
Shale	5	230
(spec. cap. 0.5)		

F. Aspengren NE¼ NW¼ Section 36 Altitude: 664		
Sand	12	12
Sand and clay	23	35
Clay	37	72
Clay, sandy	3	75
Clay	25	100
Sand	2	102
Sand, very fine, and clay	33	135
Clay	15	150
Hardpan	10	160
Clay	28	188
Sand and clay	5	193
Clay	10	203
Hardpan	34	237
Shale	23	260

DECATUR TOWNSHIP		
Village of Decatur # 2 NW¼ NW¼ Section 20 Altitude: 790		
Pit	35	35
Sand and clay	25	60
Hardpan	35	95
Sand, gravel and water	21	116
(spec. cap. 5.7)		

Village of Decatur # 3 NW¼ NE¼ Section 19 Altitude: 790		
Sand, yellow, dry	25	25
Gravel, coarse, and water sand	5	30
Clay, soft, blue	25	55
Sand, yellow, fine	25	80
Sand, yellow, coarse	13	93
Sand, yellow and gray	18	111
Stopped on clay balls and gravel		
(spec. cap. 13.2)		

C. Henderson SW¼ NW¼ Section 25 Altitude: 900		
Sand, dry and gravel	47	47
Clay	34	81
Sand, fine	93	174
(spec. cap. 15.8)		

E. Kraus NW¼ NW¼ Section 30 Altitude: 770		
Topsoil	5	5
Sand, yellow	13	18
Sand, water bearing	50	68
Clay	43	111
Gravel	14	125
(spec. cap. 19.2)		

	Thickness (ft)	Depth (ft)
GENEVA TOWNSHIP		
A. Fellows NW¼ NE¼ Section 22 Altitude: 660		
Clay	30	30
Sand and clay	25	55
Sand and gravel, coarse	24	79

Z. White NE¼ NW¼ Section 26 Altitude: 665		
Clay	35	35
Sand, dirty	24	59
Sand, coarse	5	64
Sand and clay	6	70
Sand, dirty	10	80
Sand, fine, clean	9	89
Clay, soft, sandy	21	110
Clay, soft	25	135
Sand, coarse	14	149
Clay, sandy	11	160
Hardpan	25	185
Shale at		185
(spec. cap. 1.3)		

HAMILTON TOWNSHIP		
S. Lewandowski NW¼ NE¼ Section 11 Altitude: 780		
No log		
(spec. cap. 33.3)		

Hilltop Orchards NE¼ NE¼ Section 13 Altitude: 760		
Sand, coarse	16	16
Sand, medium and some clay	19	35
Sand, fine	15	50
Sand, coarse	7	57
Clay, blue and sand	5	62
Sand, coarse	4	66
Sand, fine and clay	2	68
Sand, coarse and clay	7	75
Clay	15	90
Sand	13	103

J. Hassle NW¼ SE¼ Section 14 Altitude: 790		
Topsoil	1	1
Sand	19	20
Sand and gravel	2	22
Sand, dirty	13	35
Sand, clean	58	93
Sand and gravel	2	95
Gravel	9	104
Clay and gravel	6	110
Clay, sandy	50	160
Clay	30	190
Clay, sandy	10	200
(spec. cap. 23.4)		

Druskovich Brothers SW¼ NW¼ Section 14 Altitude: 805		
Sand	39	39
Sand and clay	28	67
Sand, yellow, clean	30	97
Sand and clay	5	102
Clay	3	105
Sand and clay	10	115
Sand, gravel and clay	2	117
Sand, little clay	13	130
Sand	12	142
Sand and gravel	2	144
Gravel	1	145
Sand	40	185
(spec. cap. 36.3)		

H. Nagle Nursery SE¼ SE¼ Section 15 Altitude: 800		
Topsoil	5	5
Sand, yellow	60	65
Clay	6	71
Clay and gravel	3	74
Gravel	3	77
Gravel, dirty	42	119
Hardpan	7	126

Table 1.--Logs and specific capacity of selected wells.--Continued.

	Thickness (ft)	Depth (ft)
HAMILTON TOWNSHIP - Continued		
H. Nagle Nursery-Continued		
Gravel, dirty	14	140
Sand, dirty	55	195
Sand, fine, clean	5	200
Sand, coarse	5	205
Gravel	10	215
(spec. cap. 7.8)		

H. Baushke, Jr. E½ SW¼ Section 15 Altitude: 790		
Topsoil	1	1
Sand	29	30
Clay, sandy	62	92
Hardpan	5	97
Clay, sandy	23	120
Sand and gravel	21	141
Gravel, coarse	14	155
(spec. cap. 94.3)		

D. Zechiel S½ SW¼ Section 17 Altitude: 790		
Topsoil	5	5
Sand and clay	50	55
Clay	13	68
Hardpan	18	86
Sand	7	93
Gravel	2	95
Gravel, dirty	9	104
Sand, dirty	14	118
Gravel	13	131
Sand and gravel	3	134
Sand	4	138
(spec. cap. 39.0)		

D. Zechiel S½ SW¼ Section 17 Altitude: 790		
No log (spec. cap. 62.5)		

E. Frochlich (8") SE¼ SE¼ Section 18 Altitude: 790		
Topsoil	5	5
Clay and sand	74	79
Gravel, coarse	23	102
(spec. cap. 30)		

E. Frochlich (12") SE¼ SE¼ Section 18 Altitude: 790		
Topsoil	1	1
Clay and sand	78	79
Sand, clean	10	89
Sand and gravel	2	91
Gravel	11	102
(spec. cap. 18)		

HARTFORD TOWNSHIP		
C. Drake NE¼ NW¼ Section 11 Altitude: 770		
Sand, with stones	30	30
Stones, some sand	24	54
Clay, blue	61	115
Sand, medium, and gravel, fine	20	135

Hartford Farm Supply, Inc. NE¼ NW¼ Section 13 Altitude: 680		
No log (spec. cap. 143)		

Milo Schilber SE¼ NE¼ Section 14 Altitude: 665		
Sand and topsoil	15	15
Clay, blue and brown	3	18
Sand	2	20
Gravel, clay and sand	8	28
Gravel, fine and sand	1	29
Gravel, fine and sand with some clay	1	30
Sand, medium to coarse	18	48
Sand, coarse, and gravel, fine	7	55
Village of Hartford NW¼ SW¼ Section 15 Altitude: 660		
Sand and muck	8	8
Sand and gravel	10	18
Sand, gray	22	40
Sand and gravel	20	60
Hardpan	15	75
(spec. cap. 7)		

John Faulkner SE¼ NE¼ Section 15 Altitude: 660		
No log (spec. cap. 15.7)		

Village of Hartford (Ely Park) NE¼ SE¼ Section 16 Altitude: 660		
Topsoil, gravel and clay	22	22
Sand, very fine, gray	23	45
Sand, gray, coarse	2	47
Hardpan and clay	19	66
Sand, gray, fine	11	77
Sand, gray, coarse	5	82
Sand, gray, coarse and gravel	11	93
Sand, very fine, dirty	4	97
(spec. cap. 11.9)		

Village of Hartford (Test) SE¼ SE¼ Section 16 Altitude: 660		
Topsoil	2	2
Sand, gray, fine, dirty	42	44
Sand and gravel	6	50
Gravel, coarse	2	52
Sand and gravel, clay balls	33	85
Gravel	5	90
Sand and gravel, clay balls	11	101
Gravel	6	107
Clay	1	108
(spec. cap. 39.2)		

Village of Hartford (Test) SW¼ NE¼ Section 16 Altitude: 660		
Sand, yellow	18	18
Sand, coarse and gravel	13	31
Sand, gray, fine	19	50
Sand and gravel	6	56
Sand, gray, fine	27	83
Sand, fine, and clay with some gravel	19	102
Sand, water and gravel	6	108
Gravel	6	114
Sand, dry and clay	8	122
Sand, water and gravel	3	125
Clay, dirty and gravel	5	130
Shale	10	140

Village of Hartford N. Parking Lot # 1 NE¼ SE¼ Section 16 Altitude: 660		
Sand	8	8
Gravel	30	38
Sand, water	9	47
Clay	9	56
Sand, coarse, clean	33	89
Hardpan	6	95

C & O Railroad NW¼ SE¼ Section 19 Altitude: 660		
Clay, red, sandy	20	20
Clay, gray, gummy	18	38
Boulders, blue	1	39
Sand, red, medium	6	45
Sand, gray, coarse	14	59
Gravel, red, coarse, water bearing	10	69
Clay balls, and boulders, coarse	1	70
Sand, gray, medium	35	105
Sand, gray, fine, muddy	5	110
Clay, gray	25	135

Auto Specialties Mfg. Co. (E. Well) NW¼ NW¼ Section 20 Altitude: 670		
Topsoil	3	3
Sand, yellow	5	8
Clay	13	21
Clay and sand	14	35
Auto Specialties Mfg. Co. -Continued		
Sand	15	50
Sand, fine	8	58
Clay	30	88
Sand (water)	7	95
Hardpan and gravel	8	103
Sand, coarse (water)	37	140

Auto Specialties Mfg. Co. (West well) NW¼ NW¼ Section 20 Altitude: 670		
Topsoil	8	8
Sand, clay	19	27
Sand, dirty	23	50
Sand, gray, dry	11	61
Sand, with some clay	32	93
Sand, gray, rather fine	7	100
Sand, gray, coarse (water)	19	119
Gravel (water)	25	144

F. Hillah NE¼ NE¼ Section 25 Altitude: 745		
Sand	21	21
Clay, blue	42	63
Sand, fine	26	89

Dowd Orchards SE¼ SE¼ Section 26 Altitude: 805		
Clay with large boulders	58	58
Sand, fine	4	62
Clay, blue	73	135
Stones	15	150
Sand, coarse	13	163

L. Kling SW¼ SE¼ Section 29 Altitude: 770		
Topsoil	5	5
Clay	25	30
Clay, sandy	65	95
Hardpan	14	109
Sand and gravel	6	115
Sand, dirty	10	125
Sand	16	141
Sand, coarse	5	146
(spec. cap. 4)		

G & S Geisler SE¼ SW¼ Section 31 Altitude: 720		
Topsoil	1	1
Sand	4	5
Clay	8	13
Sand, muddy	47	60
Sand, very fine	5	65
Sand, fine	18	83
(spec. cap. 9.9)		

G & S Geisler (Test well) SW¼ SW¼ Section 31 Altitude: 720		
Topsoil	1	1
Sand	54	55
Sand, fine	3	58
Gravel and clay	12	70
Clay	10	80
Sand, fine, muddy	10	90
Sand, clay	7	97
(site abandoned)		

KEELER TOWNSHIP		
J. Thar SE¼ SE¼ Section 1 Altitude: 800		
No log (spec. cap. 2.8)		

G & S Geisler SW¼ NE¼ Section 6 Altitude: 700		
No log (spec. cap. 10.2)		

Table 1.--Logs and specific capacity of selected wells.--Continued.

	Thick-ness (ft)	Depth (ft)
KEELER TOWNSHIP.--Continued		
J. Falkner SW¼ SE¼ Section 10 Altitude: 800		
Sand, yellow	78	78
Sand, gray, fine	35	113
Clay, sandy	41	154
Sand and gravel, fine	1	155
Gravel	12	167
(spec. cap. 15.7)		

William Foster Farm SE¼ SW¼ Section 13 Altitude: 800		
Sand, yellow	55	55
Sand, gray, fine	15	70
Sand, dirty, fine	40	110
Clay	24	134
Gravel, coarse and sand	13	147
(spec. cap. 49)		

M. Seel SE¼ NE¼ Section 14 Altitude: 790		
Sand, yellow and stone	10	10
Sand, yellow	17	27
Clay, blue, sandy	56	83
Clay, blue	27	110
Hardpan	4	114
Sand, dirty, fine	8	122
Gravel, dirty, coarse	6	128
Hardpan, sandy	22	150
Sand and gravel	1	151
Sand, fine, clean	10	161
Sand, clean	20	181
(spec. cap. 17.8)		

O. Klett (Observation well) SE¼ SW¼ Section 14 Altitude: 800		
Topsoil	2	2
Sand and clay	28	30
Sand	10	40
Clay and sand	30	70
Clay, soft	42	112
Sand	17	129
Sand and gravel	6	135
Sand, medium	25	160
Gravel, dirty and sand	3	163
Sand, medium	27	190
Sand and clay at		190

O. Klett SE¼ SW¼ Section 14 Altitude: 800		
Topsoil	12	12
Sand, fine to medium	29	41
Sand to silt	23	64
Clay, silty	44	108
Sand, silty	7	115
Clay	1.5	116.5
Gravel and sand	5.5	122
Stone, no gravel or sand	4	126
Sand, gravel, stone	7.5	133.5
Sand, some gravel	.5	134
Sand, fine	1	135

M. Poland NW¼ SE¼ Section 14 Altitude: 800		
Topsoil	2	2
Sand	23	25
Sand and clay	15	40
Sand	13	53
Clay, sandy	27	80
Clay	40	120
Sand and clay, dirty	36	156
Sand, fine	8	164
Gravel	3	167
Sand, coarse	30	197
(spec. cap. 39.1)		

H. Anthony SE¼ SE¼ Section 14 Altitude: 800		
Sand	31	31
Clay, blue	74	105
Clay, blue, sandy	25	130
Sand, dirty	5	135
Sand, fine, clean	38	173
Sand, clean, coarser	18	191
(spec. cap. 15)		

	Thick-ness (ft)	Depth (ft)
A. Wendzel NE¼ NE¼ Section 15 Altitude: 800		
Sand, fine, dirty	78	78
Clay, blue, sandy	22	100
Sand, fine, gray, water	9	109
Sand, dirty and gravel	17	126
Clay	33	159
Clay, sandy	3	162
Sand, fine, silt	3	165
Sand, water	28	193
Still in sand		193
(spec. cap. 16.4)		

M. Seel SE¼ NE¼ Section 21 Altitude: 805		
Topsoil	5	5
Sand and clay	15	20
Clay, sandy	120	140
Sand	6	146
Gravel, coarse	8	154
(spec. cap. 21.8)		

Frigid Foods # 1 NW¼ NW¼ Section 22 Altitude: 805		
Sand	18	18
Sand and gravel	12	30
Clay, sandy	50	80
Clay	10	90
Sand, fine, dirty	25	115
Sand and gravel	10	125
Gravel, coarse	10	135
(spec. cap. 122.5)		

Burnette Farms Packing Inc. SW¼ SW¼ Section 22 Altitude: 800		
Sand, yellow	19	19
Sand, gravel	19	38
Sand, coarse	14	52
Sand, dirty, fine	8	60
Sand, fine and clay	32	92
Clay, soft	21	113
Gravel	5	118
Sand	9	127
Clay, blue	2	129
(spec. cap. 25.6)		

Burnette Farms Packing Inc. SW¼ SW¼ Section 22 Altitude: 800		
Sand, yellow	18	18
Sand, gray	2	20
Sand and gravel	29	49
Sand, gray, fine	20	69
Clay, sandy	25	94
Clay	6	100
Sand, dirty, fine	8	108
Gravel, coarse	7	115
Sand, coarse	8	123
Clay, blue	3	126
(spec. cap. 25)		

Burnette Farms Packing Inc. SW¼ SW¼ Section 22 Altitude: 800		
Sand	20	20
Sand and gravel	17	37
Clay, sandy	63	100
Sand, soupy	45	145
Sand and gravel	15	160
Clay, sandy	27	187

G. Kays NW¼ SW¼ Section 27 Altitude: 800		
Sand and gravel	23	23
Sand	64	87
Clay	11	98
Sand, fine, water	12	112
Sand, clean, coarse	5	117
Hardpan	12	129
Gravel, coarse	10	139

LAWRENCE TOWNSHIP		
Village of Lawrence (West well) SE¼ SE¼ Section 9 Altitude: 680		

	Thick-ness (ft)	Depth (ft)
Village of Lawrence (West)-Continued		
Sand	12	12
Clay, blue	38	50
Clay and gravel	15	65
Sand and gravel	2	67
Sand, coarse	13	80
Clay at		80'

Village of Lawrence (East well) SE¼ SE¼ Section 9 Altitude: 680		
Sand	18	18
Clay, blue	27	45
Gravel, clean	29	74
Sand, fine	3	77
(spec. cap. 20.2)		

Lawrence Packing Co. NW SW¼ SW¼ Section 10 Altitude: 680		
Fill	1	1
Sand and gravel	16	17
Clay, blue	29	46
Sand and gravel	36	82
(spec. cap. 18.3)		

Lawrence Packing Co. SE SW¼ SW¼ Section 10 Altitude: 690		
Till	4	4
Clay, sandy	16	20
Clay, blue, soft	70	90
Sand, gray and some gravel	14	104
Clay, blue	14	118
(spec. cap. 20)		

C. Sill SE¼ NE¼ Section 15 Altitude: 690		
Topsoil	8	8
Sand and clay	7	15
Clay, blue	10	25
Sand	5	30
Gravel, coarse	14	44

H. Dillenbeck SW¼ SW¼ Section 15 Altitude: 720		
Soil	8	8
Sand, fine	6	14
Sand, clayey	7	21
Hardpan	2	23

Hilltop Orchards SW¼ SW¼ Section 17 Altitude: 780		
Clay, sandy	15	15
Sand, dirty	15	30
Sand	55	85
Sand, dirty	30	115
Sand and clay	15	130
Clay	10	140
Clay, sandy	40	180
Sand, fine	45	225
Sand, fine	70	295
(spec. cap. 11.2)		

G. Gould SE¼ NW¼ Section 19 Altitude: 740		
Sand	38	38
Clay, brown with sand	2	40
Sand	20	60
Clay, blue and gravel	7	67
Sand, coarse and gravel, fine	8	75

Hilltop Orchards NW¼ NW¼ Section 19 Altitude: 770		
Sand, and clay, red	45	45
Clay, red	10	55
Sand, coarse	3	58
Clay, blue and gravel	14	72
Sand, coarse	18	90
Clay, blue and gravel	5	95
Sand, coarse and gravel, fine	17	112

Table 1.--Logs and specific capacity of selected wells.--Continued.

	Thickness (ft)	Depth (ft)
LAWRENCE TOWNSHIP.-Continued		
C. Denton SW¼ SE¼ Section 22 Altitude: 770		
Clay	84	84
Sand, fine	16	100
Sand, medium	13	113

Hilltop Orchards SW¼ SW¼ Section 30 Altitude: 792		
Sand	5	5
Clay and stones	15	20
Hardpan	30	50
Clay, sandy	69	119
Gravel, coarse, dirty	1	120
Sand, silty	30	150
Sand, clean	38	188
(spec. cap. 15.4)		

G. Anderson SE¼ NE¼ Section 31 Altitude: 770		
Sand, brown, mixed with clay	42	42
Clay, blue	42	84
Gravel, fine	8	92

R. Howard SE¼ SE¼ Section 32 Altitude: 770		
Sand	28	28
Clay, blue and sand, fine	7	35
Sand, fine	2	37
Clay, blue	58	95
Gravel and clay	2	97
Gravel and sand	15	112

G. Tinker SW¼ NE¼ Section 34 Altitude: 736		
Sand	8	8
Clay	11	19
Sand	8	27
Clay	3	30
Sand	6	36
Clay, blue	8	44
Sand	61	105
Clay	17	122
Sand	12	134

PAW PAW TOWNSHIP		
R. Martin NE¼ NW¼ Section 6 Altitude: 740		
Gravel, stony	17	17
Clay, brown	28	45
Sand	17	62
(cased and screened to 59 feet for use as observation well)		

P. Pervanger NW¼ SE¼ Section 9 Altitude: 800		
Topsoil	3	3
Sand, clay and gravel	19	22
Sand, fine, dirty	33	55
Sand and little gravel	17	72
Sand	8	80
Sand, gravel, silt	20	100
Clay and sand and stones	38	138
Sand and gravel	10	148
Sand, fine	2	150
(spec. cap. 5.7)		

Maple Dairy Co. # 2 and 3 SW¼ SE¼ Section 11 Altitude: 740		
Surface, soil, clay	6	6
Sand and clay	6	12
Sand	6	18
Clay and sand, red	18	36
Sand, medium to coarse	15	51

	Thickness (ft)	Depth (ft)
Village of Paw Paw (Test) NE¼ SE¼ Section 11 Altitude: 730		
Topsoil	1	1
Clay, brown, sandy	5	6
Clay, light brown	6	12
Sand, dirty	8	20
Sand, fine with gravel	16	36
Clay, gray, hard, sandy with stones	25	61
Clay, gray, soft, sandy	9	70
Sand, medium	41	111
Sand, strippy - medium to coarse	39	150

Village of Paw Paw # 4 NE¼ SE¼ Section 11 Altitude: 730		
Topsoil	1	1
Clay, yellow, sandy	22	23
Sand	2	25
Clay, yellow, sandy	11	36
Clay, blue, hard	32	68
Sand, gray, medium	10	78
Sand, gray and gravel	12	90
Sand, gray, medium	5	95
Sand, brown, medium	15	110
Clay, yellow, with sand	3	113
Clay (spec. cap. 10.5)		

Village of Paw Paw (Test) # 1 SW¼ SW¼ Section 12 Altitude: 720		
Surface soil	6	6
Sand, fine, water bearing	9	15
Clay, yellowish blue, sandy	3	18
Clay, yellow	8	26
Clay, gray	2	28
Sand and gravel, gray cemented	7	35
Sand, yellow and clay	2	37
Clay, gray and gravel	7	44
Clay, yellow, gravelly	3	47
Sand, brownish gray	14	61
Sand and clay layers	22	83
Sand and clay, pink	12	95

Village of Paw Paw PW # 2 SW¼ SW¼ Section 12 Altitude: 720		
Sand and fill	18	18
Clay	28	46
Sand, medium	15	61
Sand, fine	20	81
Sand, medium	20	101
Sand, coarse, a little gravel	7	108
Clay at		108
(spec. cap. 13.2)		

Village of Paw Paw PW # 3 SW¼ SW¼ Section 12 Altitude: 720		
Sand	3	3
Clay, hard, sandy	10	13
Gravel, boulders	1	14
Clay, hard, sandy	18	32
Sand, medium and coarse, some gravel	8	40
Sand, medium, some gravel, fine	16	56
Sand, medium, clay balls	6	62
Clay, red	7	69
Sand, reddish gray	14	83
Clay, red	4	87
Sand, very fine, muddy	17	104

Village of Paw Paw (Test) SW¼ SW¼ Section 12 Altitude: 720		
Fill	8	8
Sand and gravel	6	14
Gravel and clay	32	46
Sand, medium	28	74
Sand, medium and clay balls	7	81
Clay, sandy	9	90
Sand, fine	62	152
Sand and gravel	3	155
Limestone at		155

	Thickness (ft)	Depth (ft)
Village of Paw Paw (Test) SW¼ SW¼ Section 12 Altitude: 720		
Sand, fill	18	18
Clay	28	46
Sand, medium	15	61
Sand, fine	25	86
Sand, medium	15	101
Sand, coarse and some gravel	11	112
Clay at		112

Michigan Wineries # 2 NE¼ NW¼ Section 13 Altitude: 730		
Sand, brown and gravel	15	15
Sand, gray and gravel	9	24
Sand, and clay	11	35
Clay	11	46
Sand, fine	12	58
Sand	22	80
Clay	10	90
Sand, clay and stones	11	101
(spec. cap. 14.1)		

A. Murch (East) NE¼ NE¼ Section 15 Altitude: 765		
Sand, yellow	43	43
Clay and sand	22	65
Sand, clean	5	70
Clay and sand	5	75
Gravel, coarse	1	76
Clay and sand	29	105
Gravel and sand	25	130
(spec. cap. 4.3)		

A. Murch (West) NE¼ NE¼ Section 15 Altitude: 765		
Sand	42	42
Sand, fine and clay	21	63
Sand, yellow	10	73
Sand, fine and clay	26	99
Sand and gravel	10	109
Sand	11	120
Silt and sand	10	130
(spec. cap. 7)		

A. Murch (Inside) NE¼ NE¼ Section 15 Altitude: 765		
Topsoil	3	3
Clay, sandy	17	20
Hardpan	23	43
Gravel, coarse	12	55
Sand, fine	19	74
Sand, coarse	10	84
Sand, fine	21	105
Clay and sand	5	110
Clay	52	162
(spec. cap. 7.1)		

A. Murch (South) NE¼ NE¼ Section 15 Altitude: 765		
No log (spec. cap. 11.1)		

W. Bleasing SE¼ SW¼ Section 21 Altitude: 760		
Topsoil	6	6
Clay and muck	6	12
Sand, fine and clay	8	20
Clay, blue, heavy	24	44
Sand and gravel	13	57

J. Mandigo NW¼ NE¼ Section 21 Altitude: 760		
Sand	30	30
Sand and clay	5	35
Gravel	35	70
Sand	6	76
(spec. cap. 42.5)		

Table 1.--Logs and specific capacity of selected wells.--Continued.

	Thick-ness (ft)	Depth (ft)
PINE GROVE TOWNSHIP		
City of Gobles # 1 NW¼ NW¼ Section 30 Altitude: 815		
Gravel	30	30
Clay	70	100
Gravel	10	110

City of Gobles # 2 NW¼ NW¼ Section 30 Altitude: 812		
No log (spec. cap. 2.4)		

City of Gobles # 3 NW¼ NW¼ Section 30 Altitude: 815		
Sand and gravel	60	60
Sand and hardpan	35	95
Sand and gravel, water-bearing	15	110
Hardpan, sandy	25	135
(spec. cap. 12.7)		

PORTER TOWNSHIP		
Honeybear Packing Co. NE¼ NW¼ Section 5 Altitude: 790		
Sand and gravel	14	14
Clay, sand	4	18
Sand, hardpack	4	22
Sand and gravel	5	27
Clay, sandy	9	36
Sand, fine, muddy	14	50
Sand, fine, clean	21	71
Clay	4	75
Sand, gray, fine, muddy	27	102
Boulders, some clay	2	104
Sand and gravel	5	109
(spec. cap. 2.7)		

Porter Township SE¼ SE¼ Section 16 Altitude: 940		
Sand and gravel	5	5
Gravel	31	36
Stones	6	42
Sand, light brown with clay, fine	38	80
Sand, medium with pebbles	15	95
Clay	5	100
(cased and screened to 83 for observation well)		

SOUTH HAVEN TOWNSHIP		
Michigan Fruit Canners # 1 NW¼ SE¼ Section 3 Altitude: 580		
No log (spec. cap. 5)		
Michigan Fruit Canners # 2 NW¼ SE¼ Section 3 Altitude: 580		
Muck	15	15
Sand, fine	12	27
Sand, clean	16	43
Clay at		43
(spec. cap. 7.6)		

Michigan Fruit Canners # 3 NW¼ SE¼ Section 3 Altitude: 580		
Muck	6	6
Sand, lake	1	7
Clay	2	9
Sand, fine	2	11
Sand, with strips of clay	29	40
Gravel	2	42
(spec. cap. 7.6)		

Everett Piano Company SW¼ SW¼ Section 10 Altitude: 630		
Clay	18	18
Sand	2	20
Clay	153	173
Gravel	20	193

City of South Haven (Test) SW¼ SW¼ Section 10 Altitude: 635		
Clay	86	86
Sand, coarse	6	92
Sand, fine	4	96
Sand, coarse	2	98
Sand, fine, muddy	4	102
Sand, coarse and gravel	4	106
Sand, fine, muddy	20	126
Sand, coarse	3	129
Clay, hard	5	134
Sand, coarse and gravel, fine	10	144
Clay and gravel	9	153
Sand, medium	7	160
Sand, coarse	19	179
Clay and gravel	7	186
Rock at		186

M. Steive SW¼ SW¼ Section 15 Altitude: 620		
Clay, pebbly	50	50
Clay, bouldery	40	90
Sand, hard and clay	60	150
Shale	30	180

Lambert Subdivision NE¼ SE¼ Section 15 Altitude: 630		
Sand and topsoil	5	5
Clay	55	60
Clay, stone, and sand	14	74
Sand	10	84
Sand and clay	3	87
Stevie Brothers SW¼ NE¼ Section 22 Altitude: 640		
Clay	100	100
Sand, dirty, clay and gravel	33	133
Gravel, medium	7	140

R. Nelson SE¼ SW¼ Section 23 Altitude: 645		
Sand	15	15
Clay	50	65
Clay and sand streaks	20	85
Clay and rocks	27	112
Sand, coarse, dry	170	282
Sand, medium, wet	at	282

WAVERLY TOWNSHIP		
Sernatinger SE¼ NW¼ Section 31		
Sand	20	20
Clay	30	50
Sand	8	58
Gravel, coarse, heavy	7	65

County Road Commission NE¼ NW¼ Section 35 Altitude: 690		
Sand, yellow, dry	4	4
Sand, yellow, moist	6	10
Sand, yellow, wet	3	13
Clay, gray to light brown, wet	52	65
Clay, light brown and sand, medium	10	75
Clay, with stones	5	80
Clay	2	82

Table 2.--These are drainage areas in the county.

Dowagiac Creek	Sq. Mi.
Dowagiac Drain at 50th Street (misc. meas. site), SW¼ sec. 35, T.4 S., R.15 W.	21.9
Dowagiac Drain above Lake of the Woods Drain, SE¼ sec. 34, T.4 S., R.15 W.	22.0
Lake of the Woods at outlet, center sec. 24, T.4 S., R.15 W.	8.39
Lake of the Woods Drain near mouth, (misc. meas. site) SE¼ sec. 27, T.4 S., R.15 W.	13.1
Lake of the Woods Drain at mouth, SE¼ sec. 34, T.4 S., R.15 W.	14.1
North Branch Dowagiac Creek at Lake of the Woods Drain, SE¼ sec. 34, T.4 S., R.15 W.	36.1
North Branch Dowagiac Creek above Osborn Drain, NW¼ sec. 9, T.5 S., R.15 W.	44.1
Osborn Drain near Pitcher Lake, (misc. meas. site) SE¼ sec. 31, T.4 S., R.15 W.	15.5
Osborn Drain at mouth, NW¼ sec. 9, T.5 S., R.15 W.	18.6
North Branch Dowagiac Creek at Osborn Drain, NW¼ sec. 9, T.5 S., R.15 W.	62.7
North Branch Dowagiac Creek above Silver Creek, SE¼ sec. 23, T.5 S., R.16 W.	86.5
Silver Creek at mouth, SE¼ sec. 23, T.5 S., R.16 W.	12.7
N. Branch Dowagiac Creek at Silver Creek, SE¼ sec. 23, T.5 S., R.16 W.	99.2
Paw Paw River	
Gates Drain above Eagle Drain (headwaters of Paw Paw River, misc. meas. site) NW¼ sec. 35, T.3 S., R.14 W.	26.0
Eagle Lake Drain at 39th Street, (misc. meas. site), SE¼ sec. 34, T.3 S., R.14 W.	13.8
Eagle Lake Drain at mouth, SW¼ sec. 26, T.3 S., R.14 W.	14.4
Gates Drain at Eagle Lake Drain, SW¼ sec. 26, T.3 S., R.14 W.	40.4
South Branch Paw Paw River above Maple Lake, (misc. meas. site), SE¼ sec. 14, T.3 S., R.14 W.	52.1
South Branch Paw Paw River above East Branch Paw Paw River, SW¼ sec. 12, T.3 S., R.14 W.	52.6
East Branch Paw Paw River near Lawton, Mich. (misc. meas. site), SE¼ sec. 22, T.3 S., R.13 W.	11.4
East Branch Paw Paw River near Paw Paw, Mich. (misc. meas. site), NW¼ sec. 13, T.3 S., R.14 W.	31.5
East Branch Paw Paw River at mouth, SW¼ sec. 12, T.3 S., R.14 W.	35.1
South Branch Paw Paw River at East Branch Paw Paw River, SW¼ sec. 12, T.3 S., R.14 W.	87.7
South Branch Paw Paw River near Paw Paw, Mich., N½ sec. 35, T.2 S., R.14 W.	96.1
South Branch Paw Paw River above North Branch, SE¼ sec. 27, T.2 S., R.14 W.	96.7
North Branch at Highway M-34, (misc. meas. site), NE¼ sec. 16, T.2 S., R.13 W.	30.6
North Branch near Paw Paw, Mich. (misc. meas. site), W½ sec. 25, T.2 S., R.14 W.	63.5
North Branch above Brandywine Creek, NE¼ sec. 26, T. 2 S., R.14 W.	63.8
Brandywine Creek at 37th Street, (misc. meas. site), NW¼ sec. 11, T.2 S., R.14 W.	9.05
Brandywine Creek at Highway M-43, (misc. meas. site), NE¼ sec. 15, T.2 S., R.14 W.	26.4
Brandywine Creek near Austin School, (misc. meas. site), NE¼ sec. 23, T.2 S., R.14 W.	32.2
Brandywine Creek at mouth, NE¼ sec. 26, T.2 S., R.14 W.	32.8
North Branch at Brandywine Creek, NE¼ sec. 26, T.2 S., R.14 W.	96.6
North Branch at mouth, SE¼ sec. 27, T.2 S., R.14 W.	98.2
Paw Paw River at confluence of South Branch Paw Paw River and North Branch, SE¼ sec. 27, T.2 S., R.14 W.	195.
Paw Paw River near Cross School, NW¼ sec. 31, T.2 S., R.14 W.	215.
Paw Paw River above Brush Creek, NW¼ sec. 10, T.3 S., R.15 W.	225.
Brush Creek at 72th Avenue, (misc. meas. site), NE¼ sec. 4, T.4 S., R.15 W.	16.0
Brush Creek above Red Creek, NE¼ sec. 33, T. 3 S., R.15 W.	16.9
Red Creek at 54th Street, (misc. meas. site), NW¼ sec. 33, T.3 S., R.15 W.	6.89
Red Creek at mouth, NE¼ sec. 33, T.3 S., R.15 W.	7.72
Brush Creek at Red Creek, NE¼ sec. 33, T.3 S., R.15 W.	24.6
Brush Creek at Highway 12, (misc. meas. site), SW¼ sec. 10, T.3 S., R.15 W.	39.9
Brush Creek at mouth, NW¼ sec. 10, T.3 S., R.15 W.	40.1
Paw Paw River at Brush Creek, NW¼ sec. 10, T.3 S., R.15 W.	265.
Paw Paw River at Lawrence, Mich., NW¼ sec. 10, T.3 S., R.15 W.	265.
Paw Paw River at 54th Street, SW¼ sec. 16, T.3 S., R.15 W.	269.
Paw Paw River at 58th Street, SW¼ sec. 6, T.3 S., R.15 W.	276.
Paw Paw River near Hartford, Mich., NW¼ sec. 12, T.3 S., R.16 W.	282.
Paw Paw River at Hartford, NE¼ sec. 9, T.3 S., R.16 W.	292.
Paw Paw River above Mud Lake Drain, NW¼ sec. 9, T.3 S., R.16 W.	292.
Mud Lake Drain at 52nd Ave., (misc. meas. site), SW¼ sec. 4, T.3 S., R.16 W.	9.84
Mud Lake Drain at mouth, NW¼ sec. 9, T.3 S., R.16 W.	16.9
Paw Paw River at Mud Lake Drain, NW¼ sec. 9, T.3 S., R.16 W.	309.
Paw Paw River above Pine Creek, SW¼ sec. 8, T.3 S., R.16 W.	311.
Pine Creek at mouth, (misc. meas. site), SW¼ sec. 8, T.3 S., R.16 W.	10.7
Paw Paw River at Pine Creek, SW¼ sec. 8, T.3 S., R.16 W.	321.
Paw Paw River above Paw Paw Lake Outlet, SE¼ sec. 14, T.3 S., R.17 W.	326.
Paw Paw Lake at Outlet, SE¼ sec. 14, T.3 S., R.17 W.	17.0
Paw Paw Lake Outlet at mouth, SE¼ sec. 14, T.3 S., R.17 W.	17.1
Paw Paw River at Paw Paw Lake Outlet, SE¼ sec. 14, T.3 S., R.17 W.	343.
Paw Paw River above Mill Creek, SW¼ sec. 23, T.3 S., R.17 W.	345.
Mill Creek near Keeler, Mich., (misc. meas. site), SE¼ sec. 1, T.4 S., R.17 W.	11.3
Mill Creek at mouth, SW¼ sec. 23, T.3 S., R.17 W.	28.8
Paw Paw River at Mill Creek, SW¼ sec. 23, T.3 S., R.17 W.	374.
Paw Paw River at Coloma, Mich., SE¼ sec. 20, T.3 S., R.17 W.	381.
Paw Paw River near Riverside, (Recording gage), SE¼ sec. 23, T.3 S., R.18 W.	390.
Paw Paw River above Blue Creek, center sec. 4, T.4 S., R.18 W.	401.
Blue Creek at mouth, center sec. 4, T.4 S., R.18 W.	21.0
Paw Paw River at Blue Creek, center sec. 4, T.4 S., R.18 W.	422.
Paw Paw River above Ox Creek, NW¼ sec. 18, T.4 S., R.18 W.	432.
Ox Creek at mouth, NW¼ sec. 18, T.4 S., R.18 W.	11.9
Paw Paw River at Ox Creek, NW¼ sec. 18, T.4 S., R.18 W.	444.
Paw Paw River at mouth, NW¼ sec. 24, T.4 S., R.18 W.	446.
Lake Michigan	
Rogers Creek at mouth, NW¼ sec. 36, T.2 S., R.18 W.	7.02
Brandywine Creek near mouth, (misc. meas. site), NE¼ sec. 8, T.2 S., R.17 W.	16.7
Brandywine Creek at mouth, NW¼ sec. 8, T.2 S., R.17 W.	17.0
Deerlick Creek near mouth, (misc. meas. site), NE¼ sec. 21, T.1 S., R.17 W.	7.76
Deerlick Creek at mouth, NW¼ sec. 21, T.1 S., R.17 W.	8.17

Table 2.--These are drainage areas in the county.--Continued.

Black River	Sq.Mi.
Black River Drain (headwaters of Black River) above Haven and Max Drain (misc. meas. site), NW¼ sec. 34, T.1 S., R.15 W.	23.6
Haven and Max Drain at 20th Ave. (misc. meas. site), SW¼ sec. 27, T.1 S., R.15 W.	16.8
Haven and Max Drain at mouth, NW¼ sec. 34, T.1 S., R.15 W.	16.9
Black River at Haven and Max Drain, NW¼ sec. 34, T.1 S., R.15 W.	40.5
Black River at Mill Pond Outlet, (misc. meas. site), SE¼ sec. 11, T.2 S., R.16 W.	52.3
Black River above Maple Brook, SW¼ sec. 1, T.2 S., R.16 W.	52.5
Maple Brook at Alexander Street, Bangor, Mich., (misc. meas. site), NW¼ sec. 12, T.2 S., R.16 W.	12.1
Maple Brook at mouth, SW¼ sec. 1, T.2 S., R.16 W.	14.8
Black River at Maple Brook, SW¼ sec. 1, T.2 S., R.16 W.	67.4
Black River above Merrimans Lake Outlet, SE¼ sec. 34, T.1 S., R.16 W.	74.7
Merrimans Lake Outlet at Highway M-43, (misc. meas. site), NE¼ sec. 3, T.2 S., R.16 W.	6.19
Merrimans Lake Outlet at mouth, SE¼ sec. 34, T.1 S., R.16 W.	6.27
Black River at Merrimans Lake Outlet, SE¼ sec. 34, T.1 S., R.16 W.	81.0
Black River at 16 Avenue, (misc. meas. site), NE¼ sec. 29, T.1 S., R.16 W.	86.0
Black River above unnamed tributary, SE¼ sec. 20, T.1 S., R.16 W.	86.1
Unnamed tributary near mouth, (misc. meas. site), SE¼ sec. 20, T.1 S., R.16 W.	7.22
Unnamed tributary at mouth, SE¼ sec. 20, T.1 S., R.16 W.	7.27
Black River at unnamed tributary, SE¼ sec. 20, T.1 S., R.16 W.	93.4
Black River above Cedar Creek, SW¼ sec. 20, T.1 S., R.16 W.	93.8
Cedar Creek at 16th Avenue, (misc. meas. site), NW¼ sec. 29, T.1 S., R.16 W.	17.6
Cedar Creek at mouth, SW¼ sec. 20, T.1 S., R.16 W.	20.2
Black River at Cedar Creek, SW¼ sec. 20, T.1 S., R.16 W.	114.
Black River above Butternut Creek, NW¼ sec. 6, T.1 S., R.16 W.	120.
Butternut Creek at 68th Street, (misc. meas. site), SE¼ sec. 6, T.1 S., R.16 W.	9.31
Butternut Creek at mouth, NW¼ sec. 6, T.1 S., R.16 W.	9.71
Black River at Butternut Creek, NW¼ sec. 6, T.1 S., R.16 W.	130.
Black River at 70th Street, (misc. meas. site), NW¼ sec. 1, T.1 S., R.17 W.	130.
Black River above Middle Fork Black River, SW¼ sec. 36, T.1 N., R.17 W.	132.
Middle Fork Black River above Melvin Creek, SW¼ sec. 35, T.1 N., R.15 W.	5.12
Melvin Creek above Lake Moriah, (misc. meas. site), SW¼ sec. 1, T.1 S., R.15 W.	7.10
Melvin Creek at mouth, SW¼ sec. 35, T.1 N., R.15 W.	16.5
Middle Fork Black River at Melvin Creek, SW¼ sec. 35, T.1 N., R.15 W.	21.6
Middle Fork Black River above Barber Creek, SW¼ sec. 21, T.1 N., R.15 W.	30.3
Barber Creek near Grand Junction, Mich., (misc. meas. site), SW¼ sec. 3, T.1 S., R.15 W.	4.76
Barber Creek at mouth, SW¼ sec. 21, T.1 N., R.15 W.	13.8
Middle Fork Black River at Barber Creek, SW¼ sec. 21, T.1 N., R.15 W.	44.1
Middle Fork Black River above Scott Creek, SW¼ sec. 13, T.1 N., R.16 W.	48.0
Scott Creek at mouth, SW¼ sec. 13, T.1 N., R.16 W.	16.1
Middle Fork Black River at Scott Creek, SW¼ sec. 13, T.1 N., R.16 W.	64.0
Middle Fork River above Spicebush Creek, SW¼ sec. 23, T.1 N., R.16 W.	65.9
Spicebush Creek at mouth, SW¼ sec. 23, T.1 N., R.16 W.	10.1
Middle Fork Black River at Spicebush Creek, SW¼ sec. 23, T.1 N., R.16 W.	76.0
Middle Fork Black River above North Fork Black River, NE¼ sec. 31, T.1 N., R.16 W.	82.7
North Fork Black River at mouth, NE¼ sec. 31, T.1 N., R.16 W.	67.6
Middle Fork Black River at North Fork Black River, NE¼ sec. 31, T.1 N., R.16 W.	150.
Middle Fork Black River at Baseline Road, (misc. meas. site), SW¼ sec. 31, T.1 N., R.16 W.	151.
Middle Fork Black River at mouth, SW¼ sec. 36, T.1 N., R.16 W.	152.
Black River at Middle Fork Black River, SW¼ sec. 36, T.1 N., R.16 W.	284.
Black River at mouth, NW¼ sec. 10, T.1 S., R.17 W.	287.
Kalamazoo River Basin	
Pine Creek above Baseline Creek, SE¼ sec. 31, T.1 N., R.12 W.	35.6
Baseline Creek above Clear Lake Outlet, SE¼ sec. 34, T.1 N., R.13 W.	12.6
Clear Lake Outlet at 2nd Avenue, (misc. meas. site), NW¼ sec. 3, T.1 S., R.13 W.	7.43
Clear Lake Outlet at mouth, SE¼ sec. 34, T.1 N., R.13 W.	7.82
Baseline Creek at Clear Lake Outlet, SE¼ sec. 34, T.1 N., R.13 W.	20.4
Baseline Creek at mouth, SE¼ sec. 31, T.1 N., R.12 W.	33.7
Pine Creek at Baseline Creek, SE¼ sec. 31, T.1 N., R.12 W.	69.3

Table 3.--Results of base flow measurements on selected streams; mean annual 7-day minimum flows.

Explanation.--Cfs - cubic feet per second; Cfsm - cubic feet per square mile.
Note.--*See figure 16 for locations.

Stream	* Map No.	Drainage area (sq mi)	Base flow measurements Flow in Cfs Date 9-27-62	4-15-63	7-8-63	10-18-63	Mean annual 7-day minimums cfs	cfsm
Dowagiac Drain	1	21.9	17.4	30.6	14.8	15.6	19	0.87
Lake of the Woods Drain	2	13.1	2.91	9.85	3.30	9.93	3.7	.28
Osborn Drain	3	15.5	2.05	4.90	1.04	1.34	1.8	.12
Gates Drain	4	26.0	16.1	29.1	12.1	15.1	16	.62
Eagle Lake Drain	5	13.8	4.40	5.95	4.37	3.61	4.4	.32
South Branch Paw Paw River	6	52.1	31.8	52.0	25.2	32.2	32	.61
East Branch Paw Paw River	7	11.4	3.44	6.35	2.30	3.32	3.4	.30
East Branch Paw Paw River	8	31.5	17.3	23.4	16.1	16.2	18	.57
North Branch	9	30.6	26.9	-	16.8	25.7	27	.88
North Branch	10	63.5	39.5	58.0	30.8	37.6	39	.61
Brandywine Creek	11	9.05	.22	.73	.08	.09	.16	.018
Brandywine Creek	12	26.4	.79	12.3	.53	.41	1.0	.038
Brandywine Creek	13	32.2	2.99	18.1	2.87	2.28	3.7	.11
Brush Creek	14	16.0	6.66	9.36	5.62	5.29	6.4	.40
Red Creek	15	6.89	.52	2.47	.42	.46	6.2	.90
Brush Creek	16	39.9	16.7	23.6	14.5	14.4	17	.43
Mud Lake Drain	17	9.84	1.47	5.52	1.51	.88	1.6	.16
Pine Creek	18	10.7	1.63	4.53	1.95	1.56	2.0	.19
Mill Creek	19	11.3	7.64	9.70	5.81	6.03	7.0	.62
Brandywine Creek	20	16.7	.90	11.4	1.36	1.04	1.6	.096
Deerlick Creek	21	7.76	0	2.77	0	0	-	-
Black River Drain	22	23.6	6.30	22.2	6.68	7.97	8.6	.36
Haven and Max Lake Drain	23	16.8	.85	20.4	1.83	2.00	2.3	.14
Black River	24	52.3	21.1	56.0	15.9	16.2	22	.42
Maple Brook	25	12.1	1.67	6.80	1.96	1.52	2.1	.17
Black River Tributary	26	6.19	1.08	4.15	1.23	1.02	1.3	.21
Black River	27	86.0	20.4	76.3	24.6	22.9	28	.33
Black River Tributary No. 2	28	7.22	1.11	3.95	1.10	.96	1.3	.18
Cedar Creek	29	17.6	1.54	9.71	1.36	1.09	1.8	.10
Butternut Creek	30	9.31	1.67	6.30	2.32	2.04	2.4	.26
Black River	31	130	34.3	105	29.4	29.4	37	.28
Melvin Creek	32	7.10	1.24	8.73	1.11	1.04	1.5	.21
Barber Creek	33	4.76	2.67	-	2.50	2.01	-	-
Middle Fork Black River	34	151	36.3	145	37.3	33.8	44	.29
Clear Lake Outlet	35	7.43	.37	1.19	.06	.06	.16	.022

Table 4.--Chemical analyses of water from wells.

Analyses in parts per million except for specific conductance and pH values.
Conductance is in micromhos at 25° Centigrade.

Analyst: MDH - Michigan Department of Health; USGS - U. S. Geological Survey

Location ¼ ¼ sec.	Owner	Depth (feet)	Diam (inches)	Use	Month and year sampled	Analyst	Silica	Iron	Calcium	Magnesium	Sodium	Potassium	Bicarbonate	Sulfate	Chloride	Dissolved solids	Hardness (as calcium carbonate)	Specific conductance	pH
	ANTWERP TOWNSHIP																		
SW NW 13	Glaser-Crandall Co.	119	10	Ind	11-62	USGS			42	15	2.8	0.6	174	23	4.0	186	167	323	7.8
SW SE 29	Lawton Village	105	12	Mun	12-58	MDH	10	0.8	62	26	6	1.2	258	53	6	290	260	500	7.3
SE SW 29	Lawton Village	125	36	Mun	3-62	MDH	12	.5	70	26	13	1.4	248	75	18	350	280	600	7.6
SW NE 29	E. Sanders	31	2	Dom	10-63	USGS	6.6		11	2.0	1.3	.8	31	12	2.5	54	36	83	7.0
NW SE 32	Lawton Village	110	12	Mun	6-58	MDH	11	0	60	23	3.0	.5	268	35	0	262	245	450	8.0
NW NE 32	Do.	39	18		6-58	MDH	4	0	62	21	5.8	5.5	254	35	7	298	240	500	7.5
NW NE 32	Do.	39	24	Mun	12-42	MDH	8.8	tr	61	18	(8.3)		220	42	15	270	228		
	ARLINGTON TOWNSHIP																		
SE SE 1	K. Smidt	86	2	Dom	10-63	USGS								12				550	
NW NW 7	Du-Well Metal Prod.Inc.	80	8	Ind	10-63	USGS	12		62	20	6.7	1.3	232	48	11	265	237	482	6.9
NE SW 7	Village of Bangor	64	8	Mun	12-58	MDH	8	.25	55	24	2.3	.6	232	38	2	252	235	450	7.6
NE SW 7	Village of Bangor	60	12	Mun	11-62	MDH			64	24	3.7	1.1	265	38	7	294	260	475	7.6
NW SW 13	J. Zirbel	30		Dom,Stk	11-63	USGS		0.73	64	22	9.5	1.6	318	7.0	16	269	250	513	7.3
SW NW 24	F. Gurnsey	118		Dom,Stk	11-63	USGS	15		79	25	4.2	.8	330	38	1.0	316	300	556	6.9
SW NW 29	G. Mahr	85	2	Dom,Stk	11-63	USGS	15		105	57	9.6	2.0	530	67	9.0	516	497	900	6.8
SW NW 31	Donavan Lake Farms	112	2	Dom	11-63	USGS	13		71	30	5.2	1.0	360	27	1.0	312	301	567	6.8
NE SE 33	F. Nicholas	60		Dom	11-63	USGS	15		86	38	7.1	1.5	424	40	1.0	388	371	683	6.9
	BANGOR TOWNSHIP																		
NE SE 1	Village of Bangor	75	12	Mun	6-58	MDH	13	.5	54	19	17	.9	244	22	18	266	215	460	7.9
NW SE 11	R. Funk (1)	64	2	Dom,Stk	12-63	USGS			61	27	3.5	1.6	250	41	6.2	284	263	506	7.1
NE NE 12	Village of Bangor (2)	60	8	Mun	6-58	MDH	10	0	74	22	8.3	3.0	266	55	12	350	275	560	7.9
SW SW 14	H. Watkins	38	2	Dom,Stk	12-63	USGS			78	49	35	5.4	295	174	52	573	396	877	7.5
SE NE 17	P. Overton (3)	40	2	Dom,Stk	11-63	USGS		.8	187	59	48	51	560	97	141	996	710	1,680	6.9
SW SE 24	P. Hardin	35	2	Dom,Stk	12-63	USGS			88	41	6.4	1.1	425	50	5.0	427	388	716	6.9
	BLOOMINGDALE TOWNSHIP																		
NE NW 12	V. Healy	20	1½	Dom	10-63	USGS			92	31	14	1.3	212	37	136	465	357	808	7.2
NE SE 14	Mrs. J. Vavrina	90	2	Dom	10-63	USGS	12		114	31	100	1.2	294	13	282	708	412	1,320	6.8
SW SE 15	D. Greenhouse	140	8	Irrig	10-63	USGS			65	20	3.5	.7	287	18	8.0	280	244	472	7.2
SE NE 15	R. Esler	30	2	Dom	10-63	USGS	11		60	16	17	.8	226	40	38	281	216	532	6.9
SW NW 16	Bloomingdale High Sch.	127	6	Pub	10-63	USGS	15		106	36	74	2.2	300	13	238	604	413	1,200	6.7
NE NW 19	R. Schendel	187	2	Dom	10-63	USGS	16		26	28	20	1.4	220	14	30	220	180	429	7.6
SE SW 20	J. Kopterski	75	2	Dom	10-63	USGS	17		78	49	6.5	1.6	472	31	1.0	376	396	722	7.0
	COLUMBIA TOWNSHIP																		
SE SW 3	B. Graney	44	2	Pub	10-63	USGS			24	10	2.3	.5	92	21	3.0	104	101	196	7.5
SE SE 9	Covey	30		Dom	10-63	USGS			85	34	16	.7	364	47	38	416	352	720	6.8
NE NE 11	H. Lucas	68		Dom	10-63	USGS			71	25	11	.9	332	26	16	336	280	581	7.0
NE NW 26	H. Ashbrook	110		Dom	10-63	USGS			64	29	8.4	1.1	356	12	1.0	307	279	542	7.1
SW SW 33	D. Palmer	70		Dom	10-63	USGS			68	33	6.4	1.1	360	31	2.0	341	305	582	7.0
	DECATUR TOWNSHIP																		
SE NW 3	P. Hoffman	57	2	Dom	8-63	USGS			35	13	2.4	.6	150	14	2.5	152	141	271	7.6
NW SW 14	Mroczek	25	2	Dom	8-63	USGS			171	62	6.8	1.5	308	413	8.0	904	682	1,130	7.4
NE NW 17	E. Knoska	56	2	Dom	8-63	USGS			75	32	7.6	4.5	292	63	23	369	319	628	7.3
NE NW 19	Decatur Village	111	12	Mun	6-58	MDH	10	.0	52	17	6.4	.9	192	47	4	262	200	420	7.8
NW NW 20	Decatur Village	120	12	Mun	12-58	MDH	7	1.6	48	20	4.6	.9	200	35	4	222	200	400	7.7
SW SW 29	J. Feenstra	135	2	Dom,Stk	8-63	USGS			45	24	25	1.8	280	1.6	22	272	211	494	7.4
SW SW 29	J. Feenstra	35	1½	Dom	8-63	USGS			144	51	18	2.0	288	324	18	770	570	1,030	7.2
	GENEVA TOWNSHIP																		
NW SE 1	I. Lewis	30	2	Dom	11-63	USGS			127	41	12	1.2	375	129	64	558	486	960	7.0
SW SE 17	I. Bennett	43	4	Irrig	11-63	USGS			73	42	18	1.8	478	5.2	3.8	385	355	718	7.0
SE SW 20	S. Sollitt	180	4	Dom,Stk	11-63	USGS			79	28	513	10	220	32	870	1,640	312	3,060	6.8
NW NE 24	E. Empson	22	1½	Dom	11-63	USGS			36	6.8	18	4.0	38	100	29	218	118	386	6.7
SE SW 33	D. Funk	50	2	Dom,Ind	11-63	USGS			110	44	12	1.4	300	203	29	558	456	869	7.3
	HAMILTON TOWNSHIP																		
SW NW 4	H. Fassett	97	2	Dom	8-63	USGS			48	23	5.8	.7	268	9.6	3.0	231	215	423	7.4
NW SW 31	Urick	34	1½	Dom	8-63	USGS			60	22	2.5	.2	294	2.0	.5	273	240	444	7.1
	HARTFORD TOWNSHIP																		
SE SE 2	P. Evans	150	2		7-63	USGS			79	38	3.8	8.3	382	44	6.0	393	353	680	7.4
SW SW 3	D. Childs	60		Ind	7-63	USGS			77	36	5.0	.7	346	65	2.0	390	340	628	7.4
NW NW 5	W. Knebel	10		Dom	10-63	USGS			34	22	4.0	.7	176	38	4.0	204	176	344	7.3
NE NE 6	G. Bessler	65	4	Pub	7-63	USGS			75	36	3.2	.8	340	62	5.0	366	335	615	7.5
NE NW 10	V. Kaucher	18	2	Dom,Spr	7-63	USGS			56	26	2.7	.4	265	32	1.0	260	247	464	7.3
NE SE 16	Hartford	95	12	Mun	7-58	MDH	12	.8	62	23	6.7	2.0	254	45	5	314	250	500	7.6
NE SE 16	Hartford	93	12	Mun	7-58	MDH	14	.8	64	24	11	1.1	293	18	8	312	260	525	7.6
SE SE 16	Hartford	108	12		7-58	MDH	15	1.2	68	24	10	.9	332	12	7	288	270	540	7.8
SE SW 30	N. Smith				7-63	USGS			73	34	5.7	.9	350	43	5.0	358	322	604	7.5
SE SW 34	D. Rittase			Dom	7-63	USGS			67	31	4.3	.6	325	39	4.0	320	295	552	7.4
	KEELER TOWNSHIP																		
SW SW 22	Burnette Farms Pack.Co.	127	10	Ind	7-63	USGS			56	25	3.8	.7	262	30	6.0	263	243	465	7.6
NW NW 27	G. Van Tyne	65	2		7-63	USGS			21	5.8	3.3	1.0	98	1.6	3.0	106	76	162	7.4
	LAWRENCE TOWNSHIP																		
SE SE 9	Lawrence	74	12		11-55	MDH	11	.65	61	24.4	(7.3)		280	31	7	296	252	520	7.7
SE SE 9	Lawrence Village	74	12		7-58	MDH	13	.7	64	22	9.0	.8	283	33	5	286	250	500	7.7
SE SE 13	M. Reynolds	73	2	Dom	7-63	USGS			69	19	2.0	1.1	300	4.4	2.0	259	250	446	7.6
SE NE 15	C. Sill	56	3	Dom,Stk	7-63	USGS			65	25	3.9	1.4	324	7.2	1.5	277	265	481	7.3
SE SE 17	Dolce Brothers	58	2	Dom,Spr	7-63	USGS			74	30	7.0	1.5	296	41	20	341	308	586	7.2

Table 4.--Chemical analyses of water from wells.--Continued.

Location ¼ ¼ sec.	Owner	Depth (feet)	Diam (inches)	Use	Month and year sampled	Analyst	Silica	Iron	Calcium	Magnesium	Sodium	Potassium	Bicarbonate	Sulfate	Chloride	Dissolved solids	Hardness (as calcium carbonate)	Specific conductance	pH
	PAW PAW TOWNSHIP																		
SW SW 12	Village of Paw Paw	95	12	Mun	3-62	MDH	10	.8	62	22	4.6	1.4	254	38	5	278	245	500	7.6
NE SE 11	Village of Paw Paw	110	34	Mun	3-62	MDH	13	1.4	60	22	13	.8	275	24	10	280	240	500	7.6
SW SW 12	Village of Paw Paw	108	16	Mun	6-58	MDH	13	.2	56	17	10	1.0	229	30	11	264	210	450	7.6
SW SW 12	Village of Paw Paw	62	34	Mun	6-58	MDH	13	.3	58	21	13	.9	256	24	15	286	230	490	7.6
NE NE 28	G. Ampey	46	2	Dom	7-63	USGS		0.11	86	32	4.5	1.4	296	28	9.0	393	346	667	7.1
NE SE 30	M. Hood	60	3		7-63	USGS		1.8	91	35	3.6	8.4	380	63	6.0	426	371	680	7.2
NW SE 32	C. Lachtman	100	2	Dom	7-63	USGS		2.9	62	24	3.0	1.1	276	27	2.0	284	253	466	7.2
NE NW 33	N. Hood	70	3	Dom,Stk	7-63	USGS		1.8	53	20	3.0	1.4	220	35	3.0	242	214	404	7.3
NW SE 36	J. Nagy	27	1½	Dom	7-63	USGS		5.2	99	33	5.2	3.4	304	129	8.0	460	383	698	7.3
	PINE GROVE TOWNSHIP																		
SE NE 6	H. Siegrist	90		Dom	10-63	USGS			71	23	6.8	.9	328	13	4.0	295	272	513	6.8
SW SE 14	H. Bricker	52		Dom,Stk	10-63	USGS			103	36	14	3.3	410	55	18	473	405	791	6.9
NW NW 30	City of Gobles # 1	105	8	Mun	8-39	MDH	7.2		63	29			271	36	10	292	272		
NW NW 30	City of Gobles # 2	124½		Mun	12-58	MDH	8	.2	52	26	3.2	.5	228	43	5	244	235	450	7.9
NW NW 30	City of Gobles # 3	110	10	Mun	12-58	MDH	9	.0	66	30	8	.8	273	50	8	350	290	560	7.5
SW SW 31	C. Stratton	36		Dom,Spr	10-63	USGS			45	14	14	4.8	136	49	9.0	261	170	423	6.9
SW SW 35	F. Nash	23		Dom	10-63	USGS			97	42	23	7.3	345	30	39	520	415	895	6.9
SE NW 36	Mentha Plantation Inc.	90		Ind	10-63	USGS	12	.46	64	27	6.5	.9	298	38	8.0	304	271	530	7.0
	PORTER TOWNSHIP																		
NW NE 26	M. Wellburn	73	2	Dom,Stk	7-63	USGS			96	36	12	1.7	364	40	18	449	388	759	7.2
	SOUTH HAVEN TOWNSHIP																		
NW SE 3	Mich. Fruit Canners(4)	36-42	8	Ind	12-63	USGS			81	26	22	2.2	300	70	31	399	309	661	6.9
NE NW 13	A. Servatius	90		Dom,Ind	12-63	USGS			26	6.1	51	1.2	242	1.4	1.2	213	90	376	7.0
	WAVERLY TOWNSHIP																		
SW SW 10	P. Groth	60		Dom,Stk	10-63	USGS			75	31	14	.9	376	34	5.0	353	315	622	6.8
SE SE 12	L. Ringel	184		Dom	10-63	USGS			58	19	8.0	.8	258	25	7.0	264	223	450	6.9
SW SE 13	C. Janosek			Dom	10-63	USGS			73	30	22	79	254	89	50	611	306	929	6.8
NW NW 32	W. Fleeman	48		Dom	10-63	USGS			53	20	10	.7	264	16	10	257	214	446	6.9
NE NW 36	E. Millek	35		Dom	10-63	USGS			35	9.0	2.8	.5	128	23	3.0	156	125	256	6.7

(1) Nitrate - 14 ppm
(2) Nitrate - 2
(3) Nitrate -179
(4) Composite sample of 3 production wells

Table 5.--Chemical analyses of water from streams.

(Chemical analyses, in parts per million)

Field number	Date of collection	Temperature (° F)	Silica (SiO_2)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue at 180° C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25° C)	pH
																	Ca, Mg	Noncarbonate		
Dowagiac drain at Decatur, Mich.																				
1	July 8, 1963..	70				69	28	6.8	0.9	258		84	6.0			343	287	76	552	7.4
Lake of the Woods drain near Decatur, Mich.																				
2	July 8, 1963..	70				65	23	6.3	1.6	210		81	6.0			317	257	84	497	7.2
Osborn drain near Keeler, Mich.																				
3	July 8, 1963..	67				48	18	3.7	1.0	202		27	5.5			216	194	28	377	7.2
Gates drain near Lawton, Mich.																				
4	July 8, 1963..	--				70	30	8.3	1.3	252		81	18			361	298	92	574	7.9
Eagle Lake drain near Lawton, Mich.																				
5	July 8, 1963..	--				59	22	5.3	.6	258		34	6.0			277	238	26	458	7.8
South Branch Paw Paw River near Paw Paw, Mich.																				
6	July 8, 1963..	--				67	26	7.3	.9	260		58	11			333	274	61	528	8.0
East Branch Paw Paw River near Lawton, Mich.																				
7	July 8, 1963..	72				52	24	3.7	.9	258		26	2.0			248	228	16	432	7.2
East Branch Paw Paw River at Paw Paw,Mich.																				
8	July 8, 1963..	--				44	19	5.2	.7	212		22	6.0			207	188	14	371	7.3
South Branch Paw Paw River near Paw Paw, Mich.																				
8-a	July 8, 1963..	--				54	23	7.3	1.1	205	12	43	12			274	229	41	448	8.6
North Branch near Gobles, Mich.																				
9	July 9, 1963..	62				45	18	4.4	.4	215		18	5.0			209	186	10	374	7.2
North Branch near Paw Paw, Mich. (Below bridge)																				
9-a	Feb. 6, 1963..	--				56	19	6.7	.9	226		34	7.0			256	218	32	434	7.2
North Branch near Paw Paw, Mich. (at center)																				
10	July 8, 1963..	--				46	18	5.1	.7	212		22	6.0			215	189	15	375	7.4
Brandywine Creek near Gobles, Mich. (At bridge)																				
11	July 9, 1963	--				51	21	2.7	.4	231		28	2.0			232	214	24	398	7.6
Brandywine Creek near Gobles, Mich. (200 ft. above gage)																				
12	July 9, 1963	--				65	26	4.4	.9	282		41	5.0			296	269	38	491	7.5

Table 5.--Chemical analyses of water from streams.--Continued.

(Chemical analyses, in parts per million)

Field number	Date of collection	Temperature (° F)	Silica (SiO_2)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue at 180° C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25° C)	pH
																	Ca, Mg	Noncarbonate		
Brandywine Creek near Paw Paw, Mich.																				
13	July 9, 1963..	55				55	22	4.8	0.7	248		30	7.0			252	228	24	438	7.4
Paw Paw River near Lawrence, Mich.																				
13-a	July 8, 1963..	--				52	21	6.1	1.1	222		39	9.0			268	216	34	431	7.7
Brush Creek at Lawrence, Mich. (At center 72nd Ave.)																				
14	July 9, 1963..	54				43	18	4.5	.9	200		22	6.0			216	181	17	360	7.9
Red Creek at Lawrence, Mich.																				
15	July 9, 1963..	58				63	25	4.8	1.5	282		32	4.5			296	260	29	488	7.8
Brush Creek at Lawrence, Mich. (At bridge on Hwy. 12)																				
16	July 8, 1963..	64				49	20	6.0	.7	238		19	6.0			242	204	9	404	8.0
Paw Paw River at Lawrence, Mich. (At bridge on 54th St.)																				
16-a	July 8, 1963..	68				52	23	6.7	1.1	230		34	10			258	224	36	441	7.8
Paw Paw River near Hartford, Mich.																				
16-b	July 8, 1963..	71				54	22	6.3	.9	232		38	10			267	225	35	444	7.8
Paw Paw River at Hartford, Mich.																				
16-c	July 8, 1963..	--				52	23	7.0	1.2	232		38	10			288	224	34	446	8.0
Mud Lake drain near Hartford, Mich.																				
17	July 8, 1963..	--				60	26	7.1	1.0	248		58	8.0			324	257	54	494	8.0
Pine Creek near Hartford, Mich.																				
17-a	May 2, 1963...	58				72	21	6.2	.6	232		60	14			315	266	76	508	8.2
Pine Creek at Hartford, Mich.																				
18	July 8, 1963..	68				52	22	4.8	1.2	238		35	6.0			282	220	25	432	7.9
Mill Creek near Hartford, Mich.																				
18-a	May 2, 1963...	59				50	16	6.2	.5	198		20	9.5			217	191	29	368	7.9
Mill Creek at Hartford, Mich.																				
19	July 8, 1963..	66				36	20	3.3	.8	185		23	4.0			219	172	20	335	8.2
Brandywine Creek near Covert, Mich.																				
20	July 8, 1963..	62				25	7.8	3.3	1.2	95		18	5.0			164	94	16	205	7.9

Table 5.--Chemical analyses of water from streams.--Continued.

(Chemical analyses, in parts per million)

Field number	Date of collection	Temperature (° F)	Silica (SiO_2)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue at 180° C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25° C)	pH
																	Ca, Mg	Noncarbonate		
Deerlick Creek near South Haven, Mich.																				
21	July 8, 1963..	62				60	23	19	2.8	272		29	26			311	244	21	542	7.4
Black River drain near Bangor, Mich.																				
22	July 8, 1963..	59				57	30	16	1.2	312		19	20			311	266	10	552	7.7
Haven and Max Lake drain at Bloomingdale, Mich.																				
22-a	Oct. 24, 1963.	--				68	26	28	1.4	310		15	58			369	277	22	669	7.1
Haven and Max Lake drain near Bangor, Mich.																				
23	July 8, 1963..	73				58	32	106	2.4	200		29	215			552	276	111	1,070	7.5
Black River at Bangor, Mich.																				
24	July 8, 1963..	72				50	26	25	1.8	250		20	40			306	232	27	555	7.4
Maple Brook at Bangor, Mich.																				
25	July 8, 1963..	66				62	28	9.4	1.4	282		37	12			315	270	38	531	7.7
Black River tributary No. 1, near Bangor, Mich.																				
26	July 9, 1963..	53				64	30	18	1.3	295		38	26			354	283	41	598	7.6
Black River near South Haven, Mich. (At bridge on 16th Ave.)																				
27	July 9, 1963..	64				52	26	20	1.5	230	15	24	34			309	237	23	523	8.4
Black River tributary No. 2, near South Haven, Mich.																				
28	July 9, 1963..	62				47	21	10	.9	238		15	11			249	204	8	420	7.7
Cedar Creek near South Haven, Mich.																				
29	July 9, 1963..	--				40	16	7.2	1.1	182		23	11			204	166	17	353	7.8
Butternut Creek near South Haven, Mich.																				
30	July 9, 1963..	53				39	13	6.1	1.3	132		45	11			209	151	43	330	8.0
Black River near South Haven, Mich. (At 70th Street)																				
31	July 9, 1963..	62				50	23	17	1.5	218	10	26	28			282	220	24	476	8.3
Melvin Creek at Bloomingdale, Mich. (At county road 665)																				
31-a	Oct. 25, 1963.	--										38	480						2,020	
Melvin Creek at Bloomingdale, Mich. (At 44th Street)																				
31-b	Oct. 24, 1963.	--										637	27,000						60,700	

Table 5.--Chemical analyses of water from streams.--Continued.

(Chemical analyses, in parts per million)

Field number	Date of collection	Temperature (° F)	Silica (SiO_2)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (residue at 180° C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25° C)	pH
																	Ca, Mg	Noncarbonate		
Melvin Creek near Bloomingdale, Mich. (County road 688)																				
31-c	Oct. 24, 1963.	--				219	74	510	8.0	320		80	1,200			2,540	852	590	4,180	6.8
Melvin Creek near Bloomingdale, Mich. (At bridge on 47th Street)																				
32	July 9, 1963..	58				56	32	38	1.5	278		24	72			396	271	43	680	7.9
Barber Creek near Grand Junction, Mich.																				
33	July 9, 1963..	54				32	12	10	.9	142		15	17			179	130	13	310	7.4
Clear Lake outlet near Kendall, Mich.																				
34	July 9, 1963..	--				36	18	7.0	.9	162		26	16			211	164	31	346	7.4

Table 6.--Chemical analyses of water from lakes.

Analyses are in parts per million, except specific conductance and pH.
Specific conductance is in micromhos at 25° C.

Name	Month and year sampled	Calcium	Magnesium	Sodium	Potassium	Bicarbonate	Sulfate	Chloride	Dissolved solids	Hardness (as calcium carbonate)	Specific conductance	pH
ALMENA TOWNSHIP												
Wolf Lake	2-63	47	16	2.6	0.8	190	21	3.5	198	183	348	7.8
Fish Lake	5-63	45	17	5.7	.8	218	10	7.0	212	182	362	8.1
Do.	10-63	49	14	6.3	.7	222	7.2	10	227	180	364	6.8
Do.	7-63	38	18	5.8	.3	200	8.0	7.5	182	169	339	7.6
North Lake	10-63	17	5.4	1.7	.9	75	6.0	1.5	88	64	139	6.5
ARLINGTON TOWNSHIP												
Lower Jeptha Lake	10-63	41	13	3.3	.7	163	29	3.0	188	156	321	6.8
North Scott Lake	10-63	43	14	3.7	1.5	160	36	5.0	194	165	335	6.8
South Scott Lake	10-63	39	15	3.7	1.7	138	48	5.0	200	159	323	6.9
BANGOR TOWNSHIP												
Donavan Lake	10-63	26	14	2.3	1.5	138	10	4.0	136	123	245	6.7
Duck Lake	10-63	37	23	2.9	1.0	142	77	1.0	196	187	378	7.0
Dyer Lake	10-63	24	6.3	2.3	2.7	91	13	2.0	108	86	180	6.7
Merrimans Lake	10-63	53	20	19	1.5	203	44	34	294	214	492	6.9
School Section Lake	10-63	50	17	44	1.7	169	35	86	372	195	593	6.6
Southard Lake	10-63	6.4	1.9	1.1	1.2	20	7.6	1.0	43	24	58	6.1
Van Auken Lake	10-63	41	19	31	2.0	150	42	64	314	180	518	7.0
BLOOMINGDALE TOWNSHIP												
Eagle Lake	10-63	27	16	6.4	1.3	160	10	8.0	154	134	294	7.0
Great Bear Lake	10-63	40	20	18	1.7	180	8.4	36	247	182	438	7.1
Little Brandywine L.	10-63	18	8.0	2.7	1.4	79	18	2.0	114	78	177	6.9
Max Lake	10-63	53	18	30	1.5	166	39	71	38	206	561	6.7
Mill Lake	10-63	8.2	4.7	8.2	1.1	28	9.6	19	87	40	137	6.2
Muskrat Lake	10-63	25	16	9.4	1.2	138	11	18	163	129	303	6.8
Sweet Lake	10-63	34	16	39	1.8	91	9.2	112	284	151	533	6.8
Thayer Lake	10-63	40	11	4.7	1.3	130	42	2.0	223	145	298	6.5
Three Legged Lake	10-63	67	34	79	2.1	200	42	196	542	307	1,010	7.1
Twin Lakes	10-63	8.6	5.4	.9	1.7	36	13	1.0	74	44	103	6.4
COLUMBIA TOWNSHIP												
Base Line Lake	10-63	30	9.9	1.8	.6	128	11	1.0	143	116	229	6.7
Coffee Lake	10-63	22	5.6	2.7	.4	78	12	2.0	106	78	160	6.6
Deer Lake	10-63	102	40	195	3.4	232	42	430	994	419	1,790	7.1
Jeptha Lake	10-63	40	15	4.2	.9	162	28	5.0	200	162	319	6.9
Lake Eleven	10-63	45	18	38	1.9	164	33	79	310	186	574	6.9
Lake Fourteen	10-63	26	18	27	1.0	126	13	60	248	139	441	6.9
Lake Moriah	10-63	65	36	114	2.5	230	37	238	626	310	1,160	7.4
Little Bear Lake	10-63	32	11	26	.7	119	12	49	204	125	372	6.7
Munson Lake	10-63	3.2	2.3	.9	.4	12	8.4	1.0	32	18	49	6.0
North Lake	10-63	23	8.4	2.7	.5	98	12	1.5	113	92	194	6.8
Saddle Lake	10-63	34	14	6.8	1.1	165	12	11	181	143	298	7.3
Silver Lake	10-63	16	8.8	3.6	1.5	57	24	6.2	103	76	178	6.7
Stillwell Lake	10-63	23	10	7.4	2.5	106	9.6	14	139	98	232	6.6
Upper Jeptha Lake	10-63	43	16	3.8	.8	185	27	5.5	208	173	341	7.7
Do.	10-63	43	16	4.2	1.1	188	25	5.0	206	173	347	7.0
DECATUR TOWNSHIP												
Cedar Lake	2-64	31	11	2.3	1.1	143	8.0	3.0	134	123	244	6.9
Lake-of-the-Woods	10-63	48	21	3.9	1.0	183	59	6.0	238	207	409	6.7
Swift Lake	10-63	5.4	1.7	1.2	.3	22	1.8	2.0	18	20	50	6.1
GENEVA TOWNSHIP												
Moon Lake	10-63	22	5.2	2.3	1.6	78	13	2.5	108	76	168	6.5
Pitcher Lake	10-63	38	10	4.2	1.4	152	15	4.5	177	136	281	6.8
HAMILTON TOWNSHIP												
Knickerbocker Lake	10-63	4.6	1.4	1.2	0.2	2	16	2.0	24	18	56	6.6

Table 6.--Chemical analyses of water from lakes.--Continued.

Name	Month and year sampled	Calcium	Magnesium	Sodium	Potassium	Bicarbonate	Sulfate	Chloride	Dissolved solids	Hardness (as calcium carbonate)	Specific conductance	pH
HARTFORD TOWNSHIP												
Rush Lake	10-63	34	21	3.5	1.5	148	56	4.0	206	172	343	7.2
KEELER TOWNSHIP												
Crooked Lake	10-63	25	7.8	2.3	.5	105	6.8	6.5	116	94	192	6.9
Indian Lake	10-63	15	3.9	1.7	.2	56	6.4	3.5	62	54	110	6.7
Keeler Lake	2-64	4.3	1.1	1.8	1.2	5	10	3.8	30	15	54	5.8
Do.	5-63	5.4	.8	3.3	.5	0	11	6.0	30	17	64	4.45
Round Lake	10-63	7.6	2.1	2.3	1.0	24	10	3.0	41	28	78	6.2
LAWRENCE TOWNSHIP												
Christie Lake (1)	8-63	19	14	2.2	.5	116	12	1.5	109	105	214	7.1
Do.	10-63	22	13	2.4	.5	122	12	3.0	118	109	221	6.7
Hall Lake	10-63	32	15	2.5	1.2	163	17	2.0	164	142	283	7.3
Lake No. 2	10-63	17	6.7	6.5	1.5	80	3.8	13	108	70	171	7.1
Lower Reynolds Lake	10-63	20	8.0	2.0	.8	87	12	4.0	100	83	175	7.0
Shafer Lake	10-63	29	14	2.9	1.7	149	16	3.0	143	130	267	7.1
Do (2)	10-63	26	14	2.8	1.5	136	16	4.0	140	123	256	7.5
Do	2-64	32	12	3.6	1.8	139	16	5.5	144	130	262	7.0
Upper Reynolds Lake	10-63	17	7.0	1.7	.6	74	11	2.5	84	72	151	6.6
PAW PAW TOWNSHIP												
Ackley Lake	10-63	48	20	7.0	1.1	198	43	10	236	202	418	7.2
Brownwood Lake	10-63	25	11	3.4	.5	120	14	5.0	123	108	227	6.8
Eagle Lake	10-63	22	9.0	2.1	.7	108	6.4	2.0	100	92	185	6.7
Lake Cora	10-63	24	11	2.3	.3	124	6.8	2.0	107	105	211	6.9
Thre Mile Lake (3)	8-63	7.3	3.6	1.6	.7	32	6.8	2.0	46	33	79	6.6
Do.	10-63	9.2	2.7	1.4	.5	32	7.6	2.0	48	34	81	6.4
PINE GROVE TOWNSHIP												
Brandywine Lake	10-63	8.2	1.8	1.7	1.1	21	9.6	2.5	68	28	69	6.1
Clear Lake	10-63	35	16	7.4	1.1	162	23	18	211	154	335	7.3
Story Lake	10-63	6.7	3.3	5.7	.9	9	17	14	84	30	109	5.6
PORTER TOWNSHIP												
Banksons Lake	10-63	16	8.6	1.8	0.1	82	11	1.0	88	76	158	6.6
Cedar Lake	5-63	31	14	1.9	.6	150	12	1.0	137	135	254	7.6
Do.	7-63	19	12	2.1	.6	110	10	2.0	106	97	201	7.2
Gravel Lake	10-63	25	13	3.8	.7	139	7.8	3.0	122	116	236	6.6
Huzzy Lake	10-63	17	7.8	1.5	.4	89	5.4	1.0	88	74	155	6.5
Little Cedar Lake	10-63	15	9.7	1.8	.3	84	9.8	2.0	96	78	159	6.5
SOUTH HAVEN TOWNSHIP												
Lake Michigan intake at South Haven (4)	3-64	40	10	5.1	.9	130	27	10	170	140	300	7.4
WAVERLY TOWNSHIP												
School Section Lake	10-63	35	12	4.0	1.8	148	17	6.0	161	137	281	6.7
Shaw Lake	10-63	43	15	5.0	2.9	178	25	6.0	213	169	349	6.6

(1) Nitrate 0.8
(2) Nitrate 0.9
(3) Nitrate 1.0
(4) Nitrate 1.0; Fluoride 1.0; Analysis by Mich. Dept. of Health