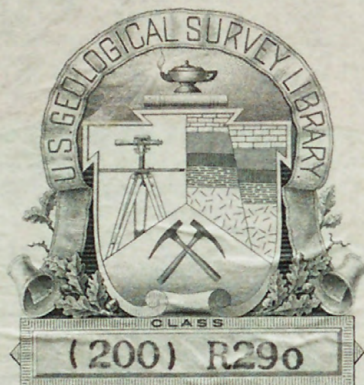


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UNITED STATES DEPARTMENT OF THE INTERIOR

U.S. GEOLOGICAL SURVEY

General statement

Reports - Open file series,

GEOLOGIC MAP AND RECENT DRILLING DATA OF THE DURANGO AREA,

DUBUQUE COUNTY, IOWA

M. Schake 2

M. Schake 3

By

Arthur
A. E. Flint and *Clarence*
C. E. Brown

Krag 1

B. Wallis 1

B. Wallis 2

B. Wallis 3

G. Parker 1

G. Parker 2

G. Parker 3

G. Parker 4

Prepared in cooperation with the Iowa Geological Survey

L. Schrock 1

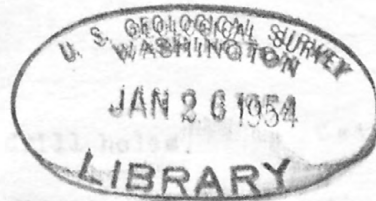


Figure 1.

Figure 2.

U. S. Geological Survey

OPEN-FILE REPORT

This report is preliminary and has not been edited or reviewed for conformity with Geological Survey standards or nomenclature.

RELEASED: Jan. 11, 1954

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ILLUSTRATIONS

- Figure 1. Index map showing location of drill holes. *Between p. [1] and 2*
- Figure 2. Geologic structure map of the Durango zinc-lead area,
 Dubuque County, Iowa. *Pocket*
- A limited number of thin sections of the various strata, and the
 inscriptions of lithology and thickness of these strata
 are based on the study of sections from 22 drill holes totaling
 2870.5 feet. Figure 1 shows drill-hole locations.

Geologic map and recent drilling data of the Durango area,
Dubuque County, Iowa

By

A. E. Flint and C. E. Brown

General statement

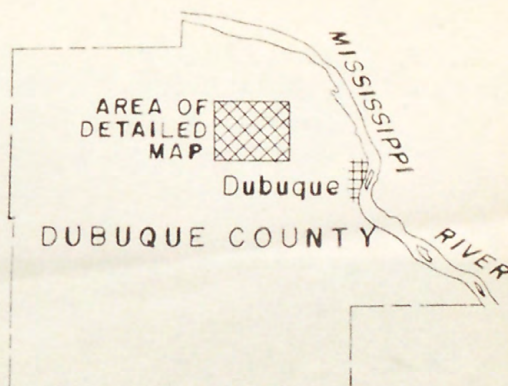
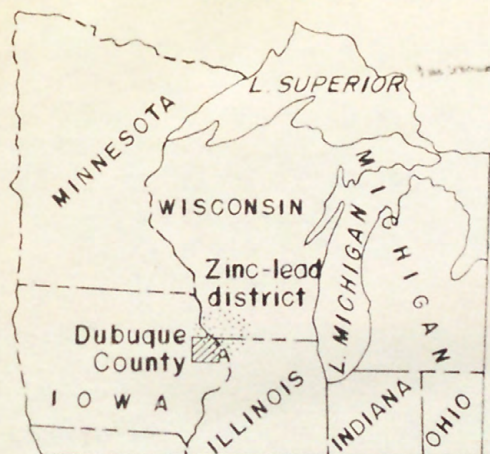
Geologic mapping and exploratory drilling in the Durango area, Dubuque County, Iowa, are part of the cooperative investigation of a zinc- and lead-bearing area by the U. S. Geological Survey and the Iowa Geological Survey. Interpretations of the data indicate that possible ore-bearing synclinal structures extend westward and northeastward across the Durango area.

The geology of the Durango area was mapped during 1951-52 in order to appraise more adequately the potentialities for zinc and lead exploration. The map shows information concerning areal geology, geologic structure interpreted from outcrop and drill-hole data, lead diggings, and zinc-lead mine workings.

Four of the synclines that from surface mapping appear favorable to the localization of zinc and lead mineralization were checked by drilling a limited number of holes through Galena and Decorah strata, and the descriptions of lithology and evidences of mineralization in these strata are based on the study of samples from 13 churn-drill holes totaling 2870.5 feet. Figure 1 shows drill-hole locations.

UNITED STATES DEPARTMENT OF THE INTERIOR
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PREPARED IN COOPERATION
WITH THE
IOWA GEOLOGICAL SURVEY



This map or illustration
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with Geological Survey standards
and nomenclature.

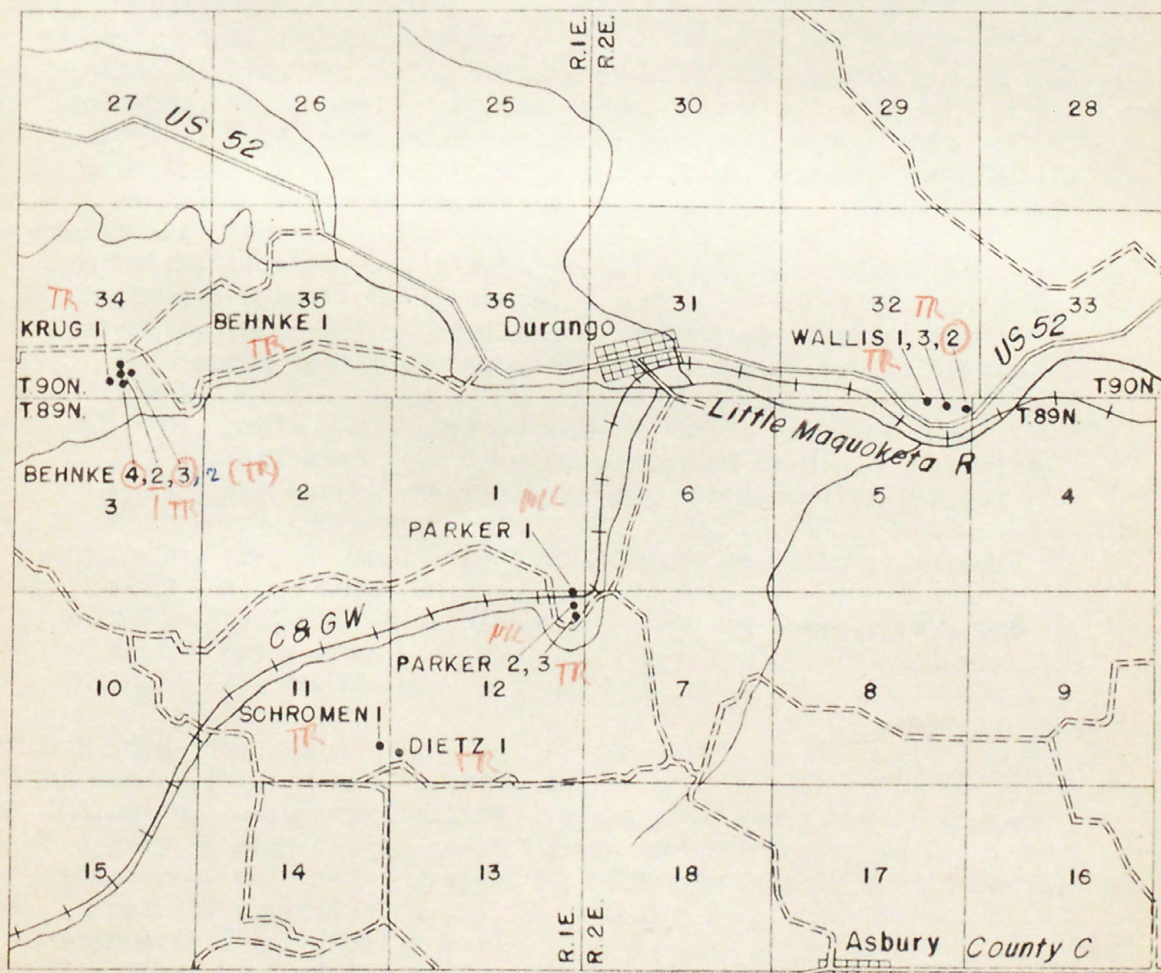


Figure 1. Index maps showing location of drill holes in the Durango zinc-lead area, Dubuque County, Iowa.

M. Behnke 1

Location: 730 feet north and 10 feet
east of SW corner of SE $\frac{1}{4}$ of
sec. 34, T. 90 N., R. 1 E.,
Iowa

Driller: H. Landgraf (0-190 ft.)
10/29/52-11/6/52
E. Pietz (190-300 ft.)
1/5/53-1/7/53

Collar elevation: 847.7 ft.
Total depth: 300 ft.
Depth to water: 95 ft.
Sample study and logging:
C. E. Brown

	Depth (feet)
Surficial:	
Soil, loess, brown shale residuum	0-24
MAQUOKETA FORMATION ("slate"):	
Shale, dolomitic, dark-brown; abundant cepauperate fossils lower 2 feet	24-32
CALENA FORMATION:	
Noncherty unit ("yellow-sandy"):	
Polomite, gray and buff, medium-granular, argillaceous	32-35
Polomite, yellow-buff, argillaceous	35-70
Polomite, buff, medium-crystalline, partly limonite stained .	70-125
Polomite, drab and tan, medium-crystalline, vuggy; speckled with minute pyrite crystals	125-147
Cherty unit ("drab"):	
Polomite, light-brown, slightly disintegrated; leached-white, gray, and drab chert common	147-155
Polomite, tan, medium-crystalline, moderately hard; drab to gray chert partly decomposed; disseminated pyrite in the chert	155-160
Polomite, medium-crystalline, tan; mottled drab, gray and white chert with very fine disseminated crystals of pyrite.	160-185
Polomite, light-gray, recrystallized, speckled with pyrite; white-gray chert sparse	185-200
Polomite, gray to tan; trace of green-blue shale partings; gray chert common	200-215
Polomite, tan, medium-crystalline; leached-white, gray, and drab chert common	215-260
Polomite as above; chert sparse	260-263
DECORAH FORMATION:	
Iron member ("gray" and "blue" beds):	
Polomite, medium-crystalline, vuggy, argillaceous with dark- gray specks; green shale common lower 5 feet	263-274
Limestone, dolomitic, gray-blue, medium-granular, argillaceous; calcite common	274-284
Guttenberg member ("oil rock"):	
Limestone, dolomitic, gray to flesh-colored, medium-granular, silicified in part; much drab to tan argillaceous residuum	284-288

Depth
(feet)

Spechts Ferry member ("clay bed");

Shale, blue-green, fossiliferous; dense gray limestone;

phosphatic nodules

280-295

PLATTEVILLE FORMATION:

McGregor member ("Trenton");

Limestone, mottled gray, sugary, fine-grained, fossiliferous.

295-300

Estimated zinc, lead and iron content in percent:

<u>Depth</u>	<u>Zinc</u>	<u>Lead</u>	<u>Iron</u>
185-190			$\frac{1}{2}$ -1
190-215			$\frac{1}{2}$
275-290			2
280-282 $\frac{1}{2}$	trace		3
285-290	trace	trace	2
295-300			$\frac{1}{2}$

Location: 20 feet east and 580 feet
north of SW corner of SE $\frac{1}{4}$
of sec. 34, T. 90 N., R. 1 E.,
Iowa
Driller: H. Landgraf
11/7/52-11/24/52

Collar elevation: 837.5 ft.
Total depth: 288 ft.
Depth to water: 90 ft.
Sample study and logging:
C. E. Brown

	Depth (feet)
Surficial:	
soil, loess and residuum.	0-20
GALENA FORMATION:	
Noncherty unit ("yellow-sandy"):	
dolomite, buff, fine-granular, argillaceous	20-38
dolomite, yellow-buff, fine-granular, argillaceous; lower 5 feet medium-crystalline.	38-55
dolomite, medium-crystalline, buff with limonite-staining . .	55-65
dolomite, buff, medium-crystalline.	65-80
dolomite, buff, hard, fine-crystalline; slight limonite- staining lower 15 feet	80-115
dolomite, drab, hard, minute crystals of disseminated pyrite common	115-134
Cherty unit ("drab"):	
dolomite, drab, hard; white to tan chert sparse.	134-140
dolomite as above; white to tan chert common	140-170
dolomite, tan to drab, hard; light-gray chert common; disseminated pyrite in chert	170-180
dolomite, light-gray, hard; light-gray chert sparse.	180-190
dolomite, tan, hard; gray to white chert sparse.	190-225
dolomite as above; drab to gray chert common	225-240
dolomite, light-brown; white chert abundant.	240-250
dolomite, buff, medium-crystalline; chert sparse	250-256
DECORAH FORMATION:	
Ion member ("gray" and "blue" beds):	
dolomite, gray-drab, argillaceous, medium-granular; green shale partings	256-268
dolomite, gray-blue, argillaceous, medium-granular; blue-green shale common	268-275
Guttenberg member ("oil rock"):	
dolomite, tan, fine-granular, siliceous; drab clay abundant.	275-282
Spechts Ferry member ("clay bed"):	
shale, blue-green; dense gray limestone.	282-287
PLATTEVILLE FORMATION:	
McGregor member ("Trenton"):	
Limestone, gray, argillaceous	287-288

zinc and iron content:

<u>Depth</u>	<u>Estimated percent:</u>		<u>Assayed percent:</u>	
	<u>zinc</u>	<u>Iron</u>	<u>zinc</u>	<u>Iron</u>
140-180		$\frac{1}{2}$ -1		
180-190		1-2		
195-205		2		
205-210		3		
210-225		1		
225-235		3		
235-265		$\frac{1}{2}$ -1		
265-270		3		
270-275		5		
275-280	1-2	5	2.20	5.50
280-285	$\frac{1}{2}$	3		
285-288	trace- $\frac{1}{2}$ *	2		

* Caved?

Location: 620 feet north and 135 feet
east of SW corner of SE $\frac{1}{4}$ of
sec. 34, T. 90 N., R. 1 E.,
Iowa

Driller: E. Dietz
1/8/53-1/15/53

Collar elevation: 853.1 ft.
Total depth: 302 ft.
Depth to water: 67 ft.
Sample study and logging:
A. E. Flint

	Depth (feet)
Surficial:	
Soil and loess.	0-13
MAQUOKETA FORMATION ("slate"):	
Shale, mainly dark-brown and gray, slightly calcareous siltstone.	13-32
GALANA FORMATION:	
Noncherty unit ("yellow-sandy"):	
Dolomite, buff and gray, mainly fine-grained, partly argillaceous; limonite sparse	32-55
Dolomite, buff, fine-granular and crystalline; crevice clay sparse	55-60
Crevice clay, red-brown; much limonite staining, no indurated rock	60-70
Dolomite sand, buff, limonite stained; no indurated rock . .	70-80
Dolomite, buff, fine- to medium-granular, leached and soft, sparse limonite staining	80-95
Dolomite, buff, fine- to medium-crystalline, hard	95-128
Dolomite, drab, fine- to medium-crystalline, slightly leached	128-149
Cherty unit ("drab"):	
Dolomite as above; gray and brown glassy chert common to abundant; marked leaching 185-190; iron sulfide disseminated in both chert and dolomite 185-215.	149-215
Dolomite as above; chert sparse, very common 225-230	215-245
Dolomite as above; gray chert common to abundant	245-260
Dolomite, drab and buff; fine- to medium-crystalline; chert sparse	260-267
DECORAH FORMATION:	
Iron member ("gray" and "blue" beds):	
Dolomite, gray, mottled, soft	267-276
Dolomite, dark-gray, mottled; gray shale abundant.	276-283
Guttenberg member ("oil rock"):	
Dolomite, brown, fine- to medium-granular, partly silicified.	283-289
Spechts Ferry member ("clay bed"):	
Shale, gray, and gray dolomite and dolomitic limestone. . . .	289-296

M. Behnke 3-Continued

PLATTEVILLE FORMATION:

McGregor member ("Trenton"):

Dolomite, gray, fine-granular

depth
(feet)

296-302

Estimated zinc, lead and iron content in percent:

<u>depth</u>	<u>zinc</u>	<u>Lead</u>	<u>Iron</u>
30-40			1
40-45		trace	trace plus
125-135			trace
165-185			trace plus
185-200			$\frac{1}{2}$
200-235			trace plus
235-240			$\frac{1}{2}$
240-250			trace plus
250-270			$\frac{1}{2}$
270-275			6
275-285	trace		8
285-290	$1\frac{1}{2}$		6
290-295	$\frac{1}{2}$		4
295-300	trace plus		2
300-302			2

M. Behnke L

Location: 35 feet east and 470 feet
north of SW corner of SE $\frac{1}{4}$
of sec. 34, T. 90 N.,
R. 1 E., Iowa
Driller: E. Dietz
1/16/53-1/21/53

Collar elevation: 829.3 ft.
Total depth: 273 ft.
Depth to water: 65 ft.
Sample study and logging:
A. E. Flint

	Depth (feet)
Surficial:	
Soil and loess.	0-10
Residual brown shale and buff dolomite.	10-15
GALENA FORMATION:	
Noncherty unit ("yellow-sandy"):	
Dolomite, buff and gray, fine-granular, argillaceous.	15-45
Dolomite, buff, mainly fine- to medium-crystalline.	45-115
Dolomite, drab, fine- to medium-crystalline	115-120
Cherty unit ("drab"):	
Dolomite as above; gray and brown chert sparse	120-125
As above but chert abundant	125-165
Dolomite as above; chert sparse to common; disseminated iron sulfide in dolomite 165-175.	165-185
Dolomite as above; chert abundant 185-190; sparse to common 190-220.	185-220
Dolomite as above; chert common to abundant.	220-235
Dolomite, drab and gray-buff, fine- to medium-crystalline; chert sparse to absent	235-242
DECORAH FORMATION:	
Iron member ("gray" and "blue" beds):	
Dolomite, gray, mottled, fine- to medium-crystalline.	242-257
Dolomite, dark-gray, very argillaceous, soft; gray clay common	257-261
Guttenberg member ("oil rock"):	
Limestone and dolomitic limestone, tan, mainly fine-granular, soft; brown shale common.	261-268
Spechts Ferry member ("clay bed"):	
Shale, green and gray, and gray fine-grained limestone. . . .	268-273

W. Behnke 4-continued

zinc and iron content:

<u>Depth</u>	<u>Estimated percent:</u>		<u>Assayed percent:</u>
	<u>Zinc</u>	<u>Iron</u>	<u>Zinc</u>
75-90		trace	
100-165		trace	
165-175		$\frac{1}{2}$	
175-220		trace	
220-225		$\frac{1}{2}$	
225-252 $\frac{1}{2}$		trace plus	
252 $\frac{1}{2}$ -257 $\frac{1}{2}$	trace	1	
257 $\frac{1}{2}$ -260	trace plus	5	
260-262 $\frac{1}{2}$	1	12	
262 $\frac{1}{2}$ -265	2-3	5	1.56
265-267 $\frac{1}{2}$	1-2	4	0.78
267 $\frac{1}{2}$ -270	$\frac{1}{2}$	2	
270-273	$\frac{1}{4}$	2	

Krug 1

Location: 80 feet west and 440 feet
north of SW corner of SE $\frac{1}{4}$ of
sec. 34, T. 90 N., R. 1 E.,
Iowa
Driller: E. Dietz
1/22/53-1/26/53

Collar elevation: 818.5 ft.
Total depth: 262.5 ft.
Depth to water: 50 to 65 ft.
Sample study and logging:
C. E. Brown

	Depth (feet)
Surficial:	
Soil, loess and highly decomposed dolomite residuum	0-20
GALENA FORMATION:	
Noncherty unit ("yellow-sandy"):	
Dolomite, buff, argillaceous, fine-granular; partly light-gray	20-25
Dolomite, buff, argillaceous, moderately soft	25-40
Dolomite, buff, medium-crystalline, partly recrystallized . .	40-100
Dolomite, drab, medium- to coarse-crystalline, vuggy; disseminated pyrite specks	100-121
Cherty unit ("drab"):	
Dolomite, drab to gray, recrystallized, vuggy; gray chert sparse	121-125
Dolomite, drab to buff, moderately soft, vuggy; gray, white and drab chert common.	125-150
Dolomite, drab to gray, medium-crystalline, partly vuggy; gray chert abundant.	150-165
Dolomite as above, very vuggy; chert sparse.	165-170
Dolomite, drab to buff, medium-crystalline, moderately hard; leached white chert common	170-185
Dolomite, tan to buff, medium-crystalline, moderately hard; drab to buff and leached-white chert common, chert sparse from 195-205	185-220
Dolomite as above; drab and leached white chert common . . .	220-230
Dolomite as above; chert sparse.	230-237
DECORAH FORMATION:	
Iron member ("gray" and "blue" beds):	
Dolomite, light-gray, calcitic, argillaceous with dark-gray flecks, medium-crystalline	237-250
Dolomite, medium-gray, mottled, very argillaceous; quartz grains sparse.	250-256
Guttenberg member ("oil rock"):	
Dolomite, flesh-colored, medium-crystalline, very vuggy; siliceous fossil fragments abundant; brown shale abundant lower 4 feet	256-262
Spechts Ferry member ("clay bed"):	
Shale, blue-green, fossiliferous; dense gray limestone . . .	262-262 $\frac{1}{2}$

Krug 1-Continued

zinc, lead and iron content:

<u>depth</u>	<u>Estimated percent:</u>			<u>Assayed percent:</u>	
	<u>Zinc</u>	<u>Lead</u>	<u>Iron</u>	<u>Zinc</u>	<u>Iron</u>
125-140			$\frac{1}{2}$ -1		
165-170			1		
170-195	trace- $\frac{1}{2}$		trace- $\frac{1}{2}$		
195-200	$\frac{1}{2}$		trace	1.15	
200-205	trace- $\frac{1}{2}$		trace		
205-210	$\frac{1}{2}$		trace	.77	
210-235	trace		trace		
235-250			$\frac{1}{2}$ -1		
250-255	trace		10		
255-257 $\frac{1}{2}$	$\frac{1}{2}$	trace	6		
257 $\frac{1}{2}$ -260	*	trace	*	.72	6.08
260-262 $\frac{1}{2}$	*	trace	2	.92	

* Samples were studied after these assays were made; therefore, estimates were made by referring to assayed samples.

B. Wallis 1

Location: 1350 feet west and 200 feet
south of NE corner of
sec. 5, T. 89 N., R. 2 E.,
Iowa
Driller: H. Landgraf
12/1/52-12/11/52

Collar elevation: 801.6 ft.
Total depth: 210 ft.
Depth to water: 195 ft.
Sample study and logging:
C. E. Brown

	Depth (feet)
Surficial:	
Soil, loess and residuum.	0-15
GALENA FORMATION:	
Noncherty unit ("yellow-sandy"):	
Dolomite, yellow-buff, crystalline.	15-45
Dolomite, buff, medium-crystalline.	45-61
Cherty unit ("drab"):	
Dolomite as above; tan chert with red iron-oxide specks sparse	61-65
Dolomite as above; drab to tan chert abundant.	65-80
Dolomite as above; slight limonite staining; leached white chert common	80-85
Dolomite, yellow-brown; chert sparse	85-90
Dolomite, buff; white chert common; clear calcite sparse . .	90-105
Dolomite as above; leached white chert sparse.	105-150
Dolomite as above; slight limonite staining; white chert very abundant; clear calcite common	150-170
Dolomite, coarse-crystalline; calcite as above	170-175
DECORAH FORMATION:	
Iron member ("gray" and "blue" beds):	
Dolomite, buff, crystalline, vuggy; green shale partings common; clear calcite common.	175-188
Dolomite, blue-gray, mottled, argillaceous; blue-green shale common; clear calcite abundant.	188-195
Guttenberg member ("oil rock"):	
Dolomite, medium-granular, light-brown; brown shale common; disseminated iron-sulfide.	195-204
Spechts Ferry member ("clay bed"):	
Shale, blue-green, fossiliferous; dense fossiliferous gray limestone abundant; clear calcite common; pyrite sparse. .	204-210

Estimated iron content in percent:

<u>Depth</u>	<u>Iron</u>
190-195	$\frac{1}{2}$
195-200	3
200-205	1
205-210	$\frac{1}{2}$

B. Wallis 2

Location: 570 feet south and 425 feet
west of NE corner of sec. 5,
T. 89 N., R. 2 E., Iowa
Driller: H. Landgraf
12/13/52-12/24/52

Collar elevation: 759.5 ft.
Total depth: 165 ft.
Depth to water: 130 ft.
Sample study and logging:
C. E. Brown

	depth (feet)
GALENA FORMATION:	
Noncherty unit ("yellow-sandy"):	
Dolomite, buff, medium-crystalline, limonite-stained.	0-10
Dolomite, buff, hard, recrystallized, limonite-stained.	10-17
Cherty unit ("drab"):	
Dolomite, yellow-brown, hard, crystalline; light-tan chert sparse	17-23
Dolomite, light-brown, medium-crystalline, partly limonite-stained; white and drab chert, common	23-55
Dolomite as above; white chert sparse.	55-60
Dolomite, buff, fine- to medium-granular; drab chert common.	60-70
Dolomite, buff, crystalline, partly decomposed; chert fragments sparse	70-85
Dolomite, buff, limonite-stained; white chert fragments common; clear calcite common.	85-95
Dolomite, buff, recrystallized, limonite-stained; chert sparse	95-110
Dolomite, calcitic, buff, limonite-stained; white and drab chert abundant	110-125
Dolomite, calcitic, light-brown, medium-crystalline; chert sparse	125-134
DECORAH FORMATION:	
Iron member ("gray" and "blue" beds):	
Limestone, dolomitic, argillaceous, buff with black specks; green shale partings common.	134-147
Limestone, dark- and light-gray, mottled, argillaceous.	147-156
Guttenberg member ("oil rock"):	
Limestone, light-brown, very fine-granular, fossiliferous; brown shale abundant	156-164
Spechts Ferry member ("clay bed"):	
Shale, blue-green, fossiliferous; dense gray limestone common	164-165

Estimated zinc, lead and iron content in percent:

<u>depth</u>	<u>Zinc</u>	<u>Lead</u>	<u>Iron</u>
155-160	$\frac{1}{2}$ -1	$\frac{1}{2}$ -1	$\frac{1}{2}$ -1
160-164	$\frac{1}{2}$ -1	trace- $\frac{1}{2}$	1
164-165			$\frac{1}{2}$ -1

N. Wallis 3

Location: 420 feet south and 880 feet
west of NE corner of sec. 5,
T. 29 N., R. 2 E., Iowa
Driller: E. Landgraf
1/11/53-1/29/53

collar elevation: 794.9 ft.
Total depth: 195 ft.
Depth to water: no water
sample study and logging:
C. E. Brown

	depth (feet)
GALENA FORMATION:	
Noncherty unit ("yellow-sandy"):	
dolomite, buff, medium-crystalline; partly decomposed. . . .	0-10
dolomite, buff, moderately soft, medium-crystalline	10-53
Cherty unit ("drab"):	
dolomite, buff, medium-crystalline, normally hard; white to pink chert sparse.	53-60
dolomite, buff, medium-crystalline; pink chert common. . . .	60-65
dolomite, buff, moderately soft, partly limonite-stained; white to cream-colored chert common.	65-90
dolomite, buff, slight limonite stains, fine- to medium- granular; chert sparse.	90-95
dolomite as above; pink to white chert common.	95-115
dolomite as above; pink chert sparse	115-140
dolomite as above; white chert common to abundant.	140-160
dolomite, buff, recrystallized, vuggy; chert very sparse . .	160-168
DECORAH FORMATION:	
Iron member ("gray" and "blue" beds):	
dolomite, calcitic, buff, gray-speckled; greenish-buff argillaceous partings.	168-181
Limestone, blue-gray, very argillaceous, medium-granular; calcite and pyrite specks.	181-188
Guttenberg member ("oil rock"):	
Limestone, dolomitic, flesh-colored, fine-granular; brown carbonaceous shale; brown chert sparse.	188-193
Spechts Ferry member ("clay bed"):	
shale, blue-green, fossiliferous; dense gray limestone . . .	193-195

Estimated iron content in percent:

<u>Depth</u>	<u>Iron</u>
190-195	1-2

C. Parker 1

Location: 375 feet west and 25 feet
south of NE corner of
sec. 12, T. 89 N., R. 1 E.,
Iowa
Driller: E. Dietz
12/12/52-12/16/52

Collar elevation: 713.0 ft.
Total depth: 148 ft.
Depth to water: 70 ft.
Sample study and logging:
A. E. Flint

	depth (feet)
Surficial:	
Soil	0-5
Loess	5-27
Residual dolomite sand and chert.	27-31
Dolomite, buff, fine- to medium-granular, partly decomposed, probably talus	31-55
GALENA FORMATION:	
Cherty unit ("drab");	
Dolomite, buff, fine- to medium-crystalline, soft; buff clay common	55-60
Dolomite and clay as above, slight ocher staining; gray-white chert common; angular quartz sand grains and other glacial material sparse.	60-70
Dolomite and chert as above	70-85
Dolomite as above but very soft; light-gray and white leached chert common; slight ocher staining; crevice clay 85-105	85-108
DECORAH FORMATION:	
Iron member ("gray" and "blue" beds);	
Dolomite and dolomitic limestone, gray, mottled; very argillaceous	108-125
Limestone, gray, mottled, very argillaceous; blue-green shale common; disseminated iron sulfide in limestone common . .	125-131
Guttenberg member ("oil rock");	
Limestone, light-tan, mainly fine-granular; disseminated iron sulfide sparse; calcite sparse.	131-145
Spechts Ferry member ("clay bed");	
Shale, gray and green, and gray mainly fine-grained limestone; disseminated iron sulfide common in both shale and limestone	145-148

Estimated iron content in percent:

<u>Depth</u>	<u>Iron</u>
125-130	$\frac{1}{2}$
130-148	trace plus

C. Parker 2

Location: 300 feet west and 350 feet
south of NE corner of
sec. 12, T. 89 N., R. 1 E.,
Iowa
Driller: E. Bietz
12/16/52-12/22/52

Collar elevation: 659.2 ft.
Total depth: 110 ft.
Depth to water: 10 ft.
Sample study and logging:
A. E. Flint

	Depth (feet)
Surficial:	
Soil.	0-4
Stream deposit, mainly glacial sand and pebbles	4-50
Residual Galena dolomite, glacial sand, and abundant chert. .	50-60
DECORAH FORMATION:	
Iron member ("gray" and "blue" beds):	
Limestone, gray, mottled, partly dolomitic, very argillaceous	60-78
Guttenberg member ("oil rock"):	
Limestone, light-tan, fine-grained, fossiliferous; brown shale sparse	78-94
Spechts Ferry member ("clay bed"):	
Shale, green and tan-gray; gray fine-grained limestone; phosphatic nodules and disseminated iron sulfide common. .	94-102
PLATTEVILLE FORMATION:	
McGregor member ("Trenton"):	
Limestone, gray, fine-grained, dolomitic.	102-110

C. Parker 3

Location: 205 feet west and 700 feet
south of NE corner of
sec. 12, T. 89 N., R. 1 E.,
Iowa
Driller: E. Dietz
12/22/52-1/3/53

Collar elevation: 660.5 ft.
Total depth: 95 ft.
Depth to water: 10 ft.
Sample study and logging:
A. E. Flint

	depth (feet)
Surficial:	
Soil.	0-6
stream deposit chert, glacial sand and pebbles.	6-55
stream deposits of glacial sand and decomposed, buff dolomite	55-62
DECORAH FORMATION:	
Iron member ("gray" and "blue" beds):	
Dolomite, mottled gray, fine- to medium-crystalline, argillaceous	62-70
Limestone, dark-gray, mottled, fine- to medium-crystalline; gray and green shale common.	70-78
Guttenberg member ("oil rock"):	
Limestone, tan, fine-grained, fossiliferous; brown shale sparse	78-92
Spechts Ferry member ("clay bed"):	
Limestone, gray, fine-grained, and green shale.	92-95

Estimated zinc and iron content in percent:

<u>Depth</u>	<u>Zinc</u>	<u>Iron</u>
65-70	trace	trace plus
70-75	trace plus	1
75-80	trace plus	$\frac{1}{2}$

C. Dietz 1

Location: 630 feet west and 380 feet
north of SE corner of
sec. 11, T. 89 N., R. 1 E.,
Iowa
Driller: E. Burg
11/3/52-11/14/52

Collar elevation: 804.7 ft.
Total depth: 255 ft.
Depth to water: 55 ft.
Sample study and logging:
C. E. Brown

	Depth (feet)
Surficial:	
Dark-brown soil, loess and residuum	0-10
GALENA FORMATION:	
Noncherty unit ("yellow-sandy"):	
Dolomite, light-gray, fine-granular, argillaceous; calcite common	10-20
Dolomite, gray, fine-granular, argillaceous, partly crystal- line; clear calcite sparse	20-38
Dolomite, buff, crystalline, soft, slight limonite stains . .	38-70
Dolomite, gray-buff, medium-crystalline, partly vuggy, hard .	70-110
Dolomite, tan, medium-crystalline, vuggy; limonite stains lower 5 feet	110-120
Cherty unit ("drab"):	
Dolomite as above; white, leached chert sparse	120-125
Dolomite, tan, crystalline grains of sand, very soft; chert common selectively limonite-stained, also as gray grains with disseminated pyrite	125-130
Dolomite as above; chert as above very abundant	130-140
Dolomite, buff to tan, harder than above; light-gray and white chert partly limonite-stained, very abundant	140-145
Dolomite, buff to light-brown, soft, crystalline; light-gray and dark-gray chert with disseminated pyrite very abundant .	145-170
Dolomite, tan to buff, hard, specked with disseminated pyrite, slight limonite-staining; chert as above very abundant . .	170-200
Dolomite, light-gray to buff, vuggy, medium-crystalline; chert as above abundant	200-208
DECORAH FORMATION:	
Iron member ("gray" and "blue" beds):	
Limestone, light-gray to buff, argillaceous, hard; green shale sparse; calcite common	208-220
Limestone, gray with dark-gray patches, medium-granular, argillaceous, moderately soft; green shales common . . .	220-227
Guttenberg member ("oil rock"):	
Limestone, whitish-tan, partly fine-granular, earthy, argillaceous; brown shale common in lower 7 feet	227-243
Spechts Ferry member ("clay bed"):	
Shale, blue-green, fossiliferous; dense gray limestone . . .	243-251

depth
(feet)

PLATTEVILLE FORMATION:

McGregor member ("Trenton"):

Limestone, gray, granular, argillaceous 251-255

Estimated zinc and iron content in percent:

<u>Depth</u>	<u>zinc</u>	<u>Iron</u>
10-25		trace
25-40	trace	trace
40-115		trace
115-150		2
150-170		4
170-175		3
175-185		1-2
185-190		$\frac{1}{2}$ -1
190-205		1-2
205-215		$\frac{1}{2}$ -1
215-220		trace

L. Schromen 1

Location: 740 feet west and 430 feet
north of SE corner of
sec. 11, T. 89 N., R. 1 E.,
Iowa

Driller: E. Burg
11/15/52-12/5/52

Collar elevation: 818.7 ft.
Total depth: 267 ft.
Depth to water: 70 ft.
Sample study and logging:
C. E. Brown

	depth (feet)
Surficial:	
Soil, loess and residuum.	0-20
MAQUOKETA FORMATION ("slate"):	
shale, dark-brown, carbonaceous; depauperate fossils common in lower 3 feet; calcite common	20-26
GALENA FORMATION:	
Noncherty unit ("yellow-sandy"):	
Dolomite, gray-buff, fine-granular, argillaceous; calcite common	26-50
Dolomite, gray and buff, partly crystalline, argillaceous; slight limonite staining lower 5 feet.	50-65
Dolomite, buff, fine- to medium-crystalline	65-90
Dolomite, buff and drab, crystalline.	90-100
Dolomite, tan and drab, fine- to medium-crystalline	100-140
Cherty unit ("drab"):	
Dolomite, buff to tan, slight limonite staining; gray chert with disseminated pyrite sparse.	140-145
Dolomite, buff to tan; white chert common.	145-155
Dolomite, drab, slight limonite staining; dark-gray and leached white chert abundant; disseminated pyrite common.	155-175
Dolomite, drab, hard; chert as above, abundant	175-185
Dolomite, tan to drab, hard; chert as above.	185-205
Dolomite, gray-drab, hard; chert sparse.	205-220
Dolomite, tan; white chert abundant.	220-228
DECORAH FORMATION:	
Iron member ("gray" and "blue" beds):	
Limestone, light-gray, medium-crystalline, dark-brown argillaceous partings.	228-242
Limestone, gray, mottled with dark specks, argillaceous; green shale partings	242-250
Guttenberg member ("oil rock"):	
Limestone, light-tan, fossiliferous, fine-granular, hard; brown shale common	250-265
Spechts Ferry member ("clay bed"):	
Shale, blue-green; gray, dense limestone	265-267

L. Schromen 1-Continued

Estimated zinc and iron content in percent;

<u>Depth</u>	<u>Zinc</u>	<u>Iron</u>
25-30	$\frac{1}{2}$	3
30-35	trace	1
110-120		1
120-125		1-2
125-130		2-3
130-135		3
135-140		1-2
140-145		$\frac{1}{2}$
145-150		3
150-155		2
155-175		3
175-185		1
185-220		trace-1
230-235		1
235-240		2
250-260		1

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