
ANALYSES OF IOWA COALS,

LIMESTONES AND CHALKS

AND

CLAYS, SHALES AND MARLS

ANALYSES OF IOWA COALS.

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ANALYSES OF IOWA COALS.

County	Moisture	Volatile hydro-carbons	Fixed carbon	Ash	Sulphur	Calorimetry B. T. U.
Adams—						
Average 6.....	8.76	34.22	45.12	11.89	3.60	.....
Appanoose—						
Average 12.....	7.26	35.87	47.67	9.20	3.75	.....
Centerville.....	11.49	33.47	48.56	6.52	2.92	12681
Mystic.....	16.21	32.74	46.00	5.05	2.64	12780
Boone—						
Average 6.....	6.82	40.99	44.45	7.74	4.01	.....
Crowe Coal Co.....	4.03	39.79	48.30	7.88	3.99	12725
Street Railway Power Plant.....	11.49	26.33	37.83	24.36	9.53	.....
Dallas—						
Average 8.....	8.25	35.11	42.17	14.47	4.24	.....
Davis—						
Average 5.....	2.95	41.82	44.47	10.66	6.07	.....
Bloomfield.....	5.24	37.00	50.66	7.10	2.25	13204
Greene—						
Average 4.....	9.01	42.11	42.03	6.86	3.37	.....
Guthrie—						
Average 7.....	7.41	35.82	42.18	14.59	6.08	.....
Jasper—						
Average 4.....	7.40	37.64	43.17	11.08	3.46	.....
Colfax.....	5.45	40.49	46.97	7.09	2.91	12434
Keokuk—						
Average 6.....	6.11	39.43	44.39	10.07	6.36	.....
Lucas—						
Average 5.....	9.40	37.65	44.08	8.87	3.34	.....
Mahaska—						
Average 7.....	4.29	43.04	44.56	8.11	4.38	.....
Marion—						
Average 4.....	6.17	37.79	49.27	6.78	.....	.....
Monroe—						
Average 8.....	5.55	40.38	44.42	9.65	5.21	.....
Hocking (Mine No. 3).....	6.63	38.37	40.88	14.12	6.92	.....
Hocking (Mine No. 2).....	5.80	42.56	42.71	9.03	3.75	12560
Hilton.....	6.51	37.97	45.07	10.45	3.02	12396
Buxton No. 10.....	9.48	35.58	46.07	10.87	2.06	12030
Buxton No. 9.....	6.19	43.60	42.30	5.91	3.45	.....
Polk—						
Average 5.....	6.43	38.84	44.77	11.96	4.87	.....
Marquisville.....	5.09	43.30	47.73	3.88	2.60	10574

ANALYSES OF IOWA COALS—CONTINUED.

County	Moisture	Volatile hydro-carbons	Fixed carbon	Ash	Sulphur	Calorimetry B. T. U.
Scott— Average 6.....	3.61	39.95	47.13	9.29	4.71	.....
Taylor— Average 5.....	5.93	36.17	44.54	11.34	4.85	.....
Van Buren— Average 3.....	8.10	40.01	47.43	4.45	.....	.....
Wapello— Average 11.....	5.42	38.73	45.25	10.60	5.85	.....
Pekay.....	9.98	41.46	42.21	6.35	2.53	13050
Laddsdale.....	4.23	40.92	45.76	9.09	4.75	13141
Warren— Average 4.....	10.60	38.26	43.75	7.36	4.44	.....
Wayne— Average 4.....	9.01	34.48	43.43	13.07	3.84	.....
Webster— Average 10.....	7.83	37.23	43.42	11.52	5.08	.....
Lehigh.....	17.47	31.35	39.59	11.59	4.87	.....

ANALYSES OF LIMESTONES AND CHALKS.

ARRANGED ALPHABETICALLY BY COUNTIES.

Location and Description	Horizon	Composition						Authority
		Insoluble	Iron and alumina	Calcium carbonate	Magnesium carbonate	Sulphur trioxide	Moisture and organic matter	
APPANOOSE COUNTY— Rathbun.....	Des Moines.....	9.90	6.40	83.37	Trace	.....	.....	Lundteigen
BLACK HAWK COUNTY— Waterloo.....	Cedar Valley.....	1.92	4.20	63.59	30.92	.....	.....	C. E. Ellis
BREMER COUNTY— Waverly.....	Devonian.....	46.34	19.90	18.33	4.20	0.01	3.82	Lundteigen
Waverly.....	Devonian.....	2.25	1.32	88.65	6.70	.....	0.35	Lundteigen
Waverly.....	Devonian.....	7.74	1.67	86.80	2.35	0.86	1.08	C. E. Ellis
Section 36—Douglas township..	Niagara.....	1.53	0.48	54.32	43.41	.....	0.26	N. Knight
Quarter section run.....	Wapsipinicon.....	0.71	.....	96.57	1.80	.....	0.51	N. Knight
Section 8—Polk township.....	Cedar Valley.....	3.28	2.12	55.23	39.03	.....	0.39	N. Knight
CEDAR COUNTY— Cedar county.....	Otis.....	1.52	0.58	93.61	4.20	.....	.....	N. Knight
Rochester.....	Lower Davenport.....	0.86	0.30	96.91	1.93	.....	.....	N. Knight
Rochester.....	Lower Davenport.....	0.10	0.10	78.75	20.16	.....	.....	N. Knight
Rock Creek.....	Gower.....	0.12	0.26	55.76	43.85	.....	.....	N. Knight
Cedar Valley.....	Gower.....	0.40	0.70	56.40	42.60	.....	.....	N. Knight
Lime burning { Lime City.....	Gower.....	0.60	1.40	55.30	43.00	.....	.....	N. Knight
rock..... { Cedar Valley.....	Gower.....	0.23	0.35	51.27	48.09	.....	.....	N. Knight
Cedar Valley.....	Coggan.....	1.20	0.90	58.20	39.50	.....	.....	N. Knight
Cedar county.....	Otis.....	0.24	0.34	96.73	2.94	.....	.....	N. Knight
Cedar county.....	Wapsipinicon.....	18.66	2.00	58.21	21.00	.....	.....	N. Knight

LIMESTONES AND CHALKS.

ANALYSES OF LIMESTONES AND CHALKS.
ARRANGED ALPHABETICALLY BY COUNTIES.

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GEOLOGY OF IOWA QUARRY PRODUCTS.

Location and Description	Horizon	Composition						Authority
		Insoluble	Iron and alumina	Calcium carbonate	Magnesium carbonate	Sulphur trioxide	Moisture and organic matter	
CERRO GORDO COUNTY—								
Mason City.....	Cedar Valley.....	0.72	0.91	94.22	1.32	0.98	2.51	L. G. Michael
Mason City.....	Cedar Valley.....	0.63	0.71	97.48	0.99	.....	0.51	A. O. Anderson
CLARKE COUNTY—								
Carpenter quarry, Osceola.....	Missouri.....	8.64	1.54	88.92	0.62	.....	.....	A. O. Anderson
Carpenter quarry, Osceola.....	Missouri.....	8.90	1.20	89.30	0.06	.....	0.28	A. O. Anderson
Carpenter quarry, Osceola.....	Missouri.....	13.72	1.26	82.50	2.05	.....	0.59	A. O. Anderson
DELAWARE COUNTY—								
Independence.....	Wapsipinicon.....	8.14	1.20	87.36	3.56	.....	0.02	A. O. Anderson
DES MOINES COUNTY—								
Burlington.....	Osage.....	5.18	0.87	93.11	0.84	.....	.....	Geo. Steiger
DUBUQUE COUNTY—								
Cascade.....	Niagara.....	11.34	0.81	48.53	37.34	.....	0.26	.....
Eagle Point—Lime burning rock	Galena.....	2.15	0.82	54.84	41.79	.....	0.02	L. G. Michael
Eagle Point—Non-lime burning rock	Galena.....	8.63	0.85	51.52	39.52	.....	0.04	L. G. Michael
Spechts Ferry—General sample	Platteville.....	5.00	2.07	89.64	1.72	0.85	.....	Lundteigen
Spechts Ferry.....	Platteville.....	8.98	2.58	73.65	12.18	.....	.....	Lundteigen
Spechts Ferry.....	Platteville.....	7.28	1.27	83.77	5.42	0.39	.....	Lundteigen
Spechts Ferry.....	Platteville.....	2.25	1.32	88.64	6.80	.....	.....	Lundteigen
Spechts Ferry.....	Platteville.....	7.50	6.17	79.50	3.97	1.48	0.15	L. G. Michael
Spechts Ferry.....	Platteville.....	7.94	12.05	73.38	3.52	1.69	0.10	L. G. Michael

Spechts Ferry.....	Platteville.....	10.71	6.69	78.67	0.28	1.51	0.15	L. G. Michael
Spechts Ferry.....	Platteville.....	11.24	6.31	78.51	0.24	1.58	0.10	L. G. Michael
Spechts Ferry.....	Platteville.....	5.74	6.69	83.56	0.25	1.77	0.10	L. G. Michael
Near Zollicoffer Lake, north of Dubuque.....	Platteville.....	8.28	4.67	80.14	2.37	2.60	0.13	L. G. Michael
Near Zollicoffer Lake, north of Dubuque.....	Platteville.....	8.02	5.78	77.93	4.43	0.22	0.16	L. G. Michael
Near Zollicoffer Lake, north of Dubuque.....	Platteville.....	6.79	4.61	78.24	5.12	1.74	0.04	L. G. Michael
Near Zollicoffer Lake, north of Dubuque.....	Platteville.....	3.85	6.03	84.16	1.93	0.64	1.71	L. G. Michael
Near Zollicoffer Lake, north of Dubuque.....	Platteville.....	4.54	2.54	86.33	3.54	0.22	0.08	L. G. Michael
Near Zollicoffer Lake, north of Dubuque.....	Platteville.....	3.26	0.83	90.20	2.65	1.64	0.06	L. G. Michael
FAYETTE COUNTY—								
Clermont.....	Maquoketa.....	11.95	2.80	84.80	0.45			L. G. Michael
Wilkes Williams' quarry, six miles south of Postville.....	Hopkinton.....	8.65	0.66	58.13	32.18			A. O. Anderson
Wilkes Williams' quarry, six miles south of Postville.....	Hopkinton.....	8.50	5.37	41.16	45.18			A. O. Anderson
Wilkes Williams' quarry, six miles south of Postville.....	Hopkinton.....	9.00	3.00	52.12	36.05			A. O. Anderson
Wilkes Williams' quarry, six miles south of Postville.....	Hopkinton.....	10.64	1.06	50.03	38.50			A. O. Anderson
Wilkes Williams' quarry, six miles south of Postville.....	Hopkinton.....	9.52	3.10	52.14	35.72			A. O. Anderson
Auburn.....	Hopkinton.....	0.68	0.50	98.52				L. G. Michael
HAMILTON COUNTY—								
Webster City.....	Saint Louis.....	1.60	0.80	92.85	5.31			A. O. Anderson
HUMBOLDT COUNTY—								
Humboldt.....	Kinderhook.....	0.50	1.12	97.20	2.00			A. O. Anderson
Near Gilmore.....	Kinderhook.....			99.62				J. B. Weems
Humboldt.....	Saint Louis.....	0.91	1.21	97.98				Murray
JACKSON COUNTY—								
Maquoketa.....	Hopkinton.....	0.58	0.36	30.88	21.56			C. E. Ellis
Maquoketa.....	Hopkinton.....	0.51	0.47	30.56	21.54			C. E. Ellis

ANALYSES OF LIMESTONES AND CHALKS.
ARRANGED ALPHABETICALLY BY COUNTIES.

Location and Description	Horizon	Composition						Authority
		Insoluble	Iron and alumina	Calcium carbonate	Magnesium carbonate	Sulphur tri-oxide	Moisture and organic matter	
JOHNSON COUNTY— Iowa City.....	Cedar Valley.....	3.08	1.97	89.79	4.66	0.06	.....	Geo. Steiger
JONES COUNTY—								
J. A. Green, Stone City.....	Gower, Anamosa.....	0.97	0.42	57.19	41.44	.....	.....	A. O. Anderson
J. A. Green, Stone City.....	Gower, Anamosa.....	2.00	1.20	56.00	40.98	.....	.....	A. O. Anderson
J. A. Green, Stone City.....	Gower, Anamosa.....	4.46	1.70	56.08	37.80	.....	.....	A. O. Anderson
J. A. Green, Stone City.....	Gower, Anamosa.....	0.20	0.72	56.57	42.59	.....	.....	A. O. Anderson
J. A. Green, Stone City.....	Gower, Anamosa.....	1.20	0.50	58.86	39.58	.....	.....	A. O. Anderson
J. A. Green, Stone City.....	Gower, Anamosa.....	1.88	1.02	51.64	44.76	.....	.....	A. O. Anderson
J. A. Green, Stone City.....	Gower, Anamosa.....	0.96	0.72	63.56	34.76	.....	.....	A. O. Anderson
J. A. Green, Stone City.....	Gower, Anamosa.....	0.78	0.54	52.12	46.98	.....	.....	A. O. Anderson
J. A. Green, Stone City.....	Gower, Anamosa.....	1.13	1.50	58.21	38.60	.....	.....	A. O. Anderson
Dearborn & Sons, Stone City ..	Gower, Anamosa.....	1.97	0.89	55.68	41.53	.....	.....	A. O. Anderson
Dearborn & Sons, Stone City ..	Gower, Anamosa.....	2.05	0.37	54.64	43.35	.....	.....	A. O. Anderson
Dearborn & Sons, Stone City ..	Gower, Anamosa.....	1.70	0.60	55.70	41.74	.....	.....	A. O. Anderson
Dearborn & Sons, Stone City ..	Gower, Anamosa.....	1.90	1.43	56.60	39.97	.....	.....	A. O. Anderson
Dearborn & Sons, Stone City ..	Gower, Anamosa.....	2.00	0.40	55.18	41.70	.....	.....	A. O. Anderson
LOUISA COUNTY—								
Morning Sun.....	.....	1.60	1.20	97.02	0.32	.....	.....	A. O. Anderson

MADISON COUNTY—								
Earlham.....	Bethany.....	7.85	1.00	91.15	0.61			J. G. Michael
Peru.....	Bethany.....	17.16	2.64	72.76	2.86	0.95	0.30	L. G. Michael
Earlham.....	Missouri.....	10.92	2.37	84.87	1.58			Geo. Steiger
Winterset.....	Missouri.....	12.63	1.18	84.34	2.19		0.02	A. O. Anderson
MAHASKA COUNTY—								
Oskaloosa.....	Saint Louis.....	4.01	0.59	95.30				Murray
MARION COUNTY—								
Tracy.....	Saint Louis.....	1.57	0.66	94.60	6.66			Murray
Pella.....	Saint Louis.....	4.92	3.39	81.39				Lundteigen
MARSHALL COUNTY—								
Oölite. Quarry.....	Kinderhook.....	0.77	0.18	98.30	0.59		0.16	G. E. Patrick
Blue limestone. Quarry.....	Kinderhook.....	0.96	0.41	97.95	0.38		0.30	G. E. Patrick
Iowa caen stone. Quarry.....	Kinderhook.....	1.24	0.50	90.28	7.77		0.21	G. E. Patrick
Stratified limestone. Quarry.....	Kinderhook.....	1.22	0.50	90.04	8.08		0.16	G. E. Patrick
MITCHELL COUNTY—								
Osage.....	Cedar Valley.....	0.78	0.12	98.01	0.15			A. O. Anderson
Osage.....	Cedar Valley.....	0.12	0.12	98.01	0.15		0.35	A. B. Hoen
Osage.....	Cedar Valley.....	2.21	3.82	90.17	1.03		2.63	A. O. Anderson
MONTGOMERY COUNTY—								
Stennett.....	Missouri.....	7.97	1.26	89.44	1.92			A. O. Anderson
PLYMOUTH COUNTY—								
Chalk rock, Westfield.....	Cretaceous.....			83.70	2.48		0.08	J. B. Weems
Chalk rock, Le Mars.....	Cretaceous.....			94.39	0.70		0.06	J. B. Weems
SCOTT COUNTY—								
Bettendorf.....	Wapsipinicon.....	4.46	0.70	79.60	15.40			C. E. Ellis
Le Claire Stone Co., Bettendorf.....	Wapsipinicon.....	2.36	2.20	94.57	0.81			C. E. Ellis
Le Claire Stone Co., Bettendorf.....	Wapsipinicon.....	0.54	0.14	98.49	0.72			C. E. Ellis
Bettendorf.....	Wapsipinicon.....	1.04	0.28	90.00	8.36			C. E. Ellis
Bettendorf.....	Wapsipinicon.....	8.48	0.72	89.25	1.42			C. E. Ellis
Bettendorf.....	Wapsipinicon.....	26.40	9.25	44.82	10.84		8.82	C. E. Ellis
Bettendorf.....	Wapsipinicon.....	16.08	3.26	49.72	29.06		1.86	C. E. Ellis

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ARRANGED ALPHABETICALLY BY COUNTIES.

Location and Description	Horizon	Composition						Authority
		Insoluble	Iron and alumina	Calcium carbonate	Magnesium carbonate	Sulphur trioxide	Moisture and organic matter	
SCOTT COUNTY--CON.								
Bettendorf.....	Wapsipinicon.....	5.98	0.30	90.91	2.77	.....	.....	C. E. Ellis
Bettendorf.....	Wapsipinicon.....	1.32	0.38	76.23	22.21	.....	.....	C. E. Ellis
Bettendorf.....	Wapsipinicon.....	1.10	0.34	80.95	17.68	.....	.....	C. E. Ellis
Bettendorf.....	Wapsipinicon.....	1.20	1.08	97.32	0.76	.....	.....	C. E. Ellis
Le Claire Stone Co., Le Claire.	Gower, Anamosa.....	4.76	1.22	58.72	35.38	.....	.....	A. O. Anderson
Le Claire Stone Co., Le Claire.	Gower, Anamosa.....	7.44	1.37	51.55	40.36	.....	.....	A. O. Anderson
Le Claire Stone Co., Le Claire.	Gower, Anamosa.....	5.60	1.40	53.96	39.00	.....	.....	A. O. Anderson
Le Claire Stone Co., Le Claire.	Gower, Anamosa.....	7.08	1.24	53.17	35.03	.....	.....	A. O. Anderson
SIOUX COUNTY--								
Hawarden.....	Cretaceous.....	21.92	6.68	64.30	5.38	.....	.....	Newberry
TAYLOR COUNTY--								
Fred Andrews, Bedford.....	Missouri.....	1.80	3.20	93.56	1.54	.....	.....	A. O. Anderson
Fred Andrews, Bedford.....	Missouri.....	1.48	0.48	97.42	1.14	.....	.....	A. O. Anderson
Fred Andrews, Bedford.....	Missouri.....	1.20	0.70	96.96	1.28	.....	.....	A. O. Anderson
VAN BUREN COUNTY--								
West of Farmington.....	Saint Louis.....	10.14	0.90	88.73	0.38	.....	0.15	C. E. Ellis
Chequest creek, Keosauqua...	Saint Louis.....	3.12	1.38	94.81	0.52	.....	0.26	A. O. Anderson
Upper twenty feet of limestone. East of Bentonsport.....	Saint Louis.....	5.28	0.52	93.34	1.00	.....	0.20	C. E. Ellis

WAPELLO COUNTY—								
Ottumwa.....	Saint Louis.....	6.83	2.66	88.43	0.15	0.13	.....	Geo. Steiger
WINNESHIEK COUNTY—								
Decorah.....	Galena.....	14.53	6.49	72.89	1.03	0.48	0.15	L. G. Michael
Decorah.....	Galena.....	3.86	2.54	91.19	0.84	.....	0.05	L. G. Michael
Decorah.....	Galena.....	6.87	1.00	88.97	2.86	.....	0.30	C. E. Ellis

ANALYSES OF CLAYS, SHALES AND MARLS.

ARRANGED ALPHABETICALLY BY COUNTIES.

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GEOLOGY OF IOWA QUARRY PRODUCTS.

Locality and Description	Horizon	Composition										Authority
		Silica SiO ₂	Alumina Al ₂ O ₃	Ferric Oxide Fe ₂ O ₃	Lime CaO	Magnesia MgO	Sulphur tri- oxide SO ₃	Potash K ₂ O	Soda Na ₂ O	Loss on ig- nition	Moisture	
CERRO GORDO COUNTY—												
Mason City.....	Lime Creek...	54.64	14.62	5.69	5.16	2.90	.....	4.77	1.12	8.54	0.85	G. E. Patrick
Clay Banks near Portland.	Lime Creek...	49.93	20.23	4.32	6.70	2.79	1.14	2.25	2.17	3.29	1.21	J. B. Weems
Clay Banks near Portland.	Lime Creek...	50.15	19.68	4.08	9.78	2.26	1.18	1.62	1.03	0.76	1.00	J. B. Weems
Clay Banks near Portland.	Lime Creek...	20.26	11.28	2.76	31.42	3.44	2.09	1.09	0.50	2.72	0.73	J. B. Weems
Clay Banks near Portland.	Lime Creek...	5.36	3.79	1.20	48.18	2.70	1.02	0.46	0.27	0.17	0.35	J. B. Weems
Clay Banks near Portland.	Lime Creek...	20.82	11.55	2.76	30.01	4.01	1.19	1.41	0.72	3.67	0.75	J. B. Weems
Clay Banks near Portland.	Lime Creek...	7.59	5.62	1.56	44.34	3.22	0.51	0.48	0.29	2.44	0.68	J. B. Weems
Clay Banks near Portland.	Lime Creek...	27.26	19.15	4.32	16.47	2.23	1.11	2.20	1.55	2.04	0.93	J. B. Weems
Mason City.....	Lime Creek...	51.95	18.34	7.56	4.14	3.26	2.76	4.12	.....	7.49	0.42	J. B. Weems
Mason City.....	Lime Creek...	54.64	14.62	6.45	9.21	6.09	.....	5.89	.....	3.74	0.85	G. E. Patrick
CLARKE COUNTY—												
Oscota.....	Missouri.....	55.52	14.51	9.09	5.00	2.60	0.28	1.50	1.32	8.28	1.39	C. E. Ellis
CLAYTON COUNTY—												
St. Sebald.....	Maquoketa ...	52.29	20.64	5.16	1.89	1.12	.....	2.77	8.27	2.76	.....	J. B. Weems
Edgewood.....	Maquoketa ...	44.39	13.72	7.80	7.88	6.05	.....	1.56	5.29	.....	0.89	J. B. Weems
Edgewood, Sperry Twp...	Maquoketa ...	52.29	20.64	5.16	1.89	1.12	.....	2.77	8.27	5.17	.....	J. B. Weems
Edgewood, Newberry Park	Maquoketa ...	44.39	13.72	7.80	7.88	6.05	.....	1.56	5.29	12.18	0.89	J. B. Weems
DALLAS COUNTY—												
Van Meter.....	Des Moines...	86.63	10.92	0.10	.....	.....	.....	.....	.....	2.32	.....	W. S. Robinson

DES MOINES COUNTY—												
Danville.....	Des Moines...	74.82	15.54	2.72	0.73	0.45	.....	0.32	0.38	4.97	0.22	J. B. Weems
DUBUQUE COUNTY—												
Spechts Ferry.....	Platteville....	54.90	25.50	.....	0.41	0.30	.....	9.55	9.10	.....	.....	Lundteigen
Spechts Ferry.....	Platteville....	49.32	20.16	8.30	5.33	1.53	.....	4.68	.....	4.82	0.72	L. G. Michael
North of Dubuque.....	Platteville....	50.22	12.45	9.08	7.75	1.40	1.16	5.23	.....	3.81	1.71	L. G. Michael
Graf.....	Maquoketa....	42.53	16.83	5.66	5.66	4.82	.....	3.70	4.10	15.76	.....	J. B. Weems
FAYETTE COUNTY—												
Auburn.....	Maquoketa....	49.60	6.36	6.25	22.45	0.20	.....	0.90	0.35	13.56	.....	L. G. Michael
Clermont Brick & Tile Co.	Maquoketa....	28.82	10.37	3.76	19.14	5.40	.....	5.38	7.41	16.24	0.43	J. B. Weems
FLOYD COUNTY—												
Rockford.....	Lime Creek....	50.40	.....	31.22	4.80	2.74	1.54	4.96	.....	4.51	0.41	L. G. Michael
GUTHRIE COUNTY—												
Panora.....	Des Moines....	53.82	17.53	5.65	4.40	2.19	3.34	1.74	1.12	8.29	2.62	C. E. Ellis
Glendon.....	Missouri.....	48.91	17.66	6.62	8.42	1.90	0.28	2.61	1.44	10.23	1.60	C. E. Ellis
Guthrie Center.....	Des Moines....	68.62	14.98	4.16	1.48	1.09	.....	1.50	1.86	3.55	2.78	G. E. Patrick
HARDIN COUNTY—												
Eldora Pipe & Tile Co....	Des Moines....	72.09	16.24	1.08	0.48	0.48	0.14	1.08	0.77	5.18	2.46	C. E. Ellis
LEE COUNTY—												
Belfast.....	Osage.....	45.00	16.68	3.86	10.04	3.69	2.26	1.96	1.16	15.02	0.48	C. E. Ellis
MADISON COUNTY—												
Winterset.....	Missouri.....	26.72	3.83	3.11	36.08	0.48	0.22	1.12	0.18	28.40	0.55	C. E. Ellis
POLK COUNTY—												
Des Moines.....	Des Moines....	63.75	19.78	5.75	1.55	1.22	.....	0.54	1.20	2.92	.....	J. B. Weems
Des Moines.....	Des Moines....	61.36	22.12	6.07	1.90	0.80	.....	1.22	.....	4.52	.....	L. G. Michael
Des Moines.....	Des Moines....	55.56	21.33	10.56	1.59	2.94	.....	.....	.....	4.65	0.97	C. O. Bates
Des Moines.....	Des Moines....	64.41	20.43	5.88	0.34	1.71	.....	.....	1.90	3.93	1.27	C. O. Bates
SCOTT COUNTY—												
Pleasant Valley.....	Des Moines....	64.74	17.98	5.36	0.00	0.60	0.58	1.73	0.45	7.48	1.70	C. E. Ellis
Pleasant Valley.....	Des Moines....	72.20	15.44	2.10	1.32	0.00	0.55	0.31	2.83	5.23	0.40	C. E. Ellis
Le Claire Stone Co., Davenport.....	Des Moines....	71.90	12.64	2.20	1.70	1.34	2.68	2.64	Trace	4.23	1.10	C. E. Ellis

ANALYSES OF CLAYS, SHALES AND MARLS.
ARRANGED ALPHABETICALLY BY COUNTIES. *

Locality and Description	Horizon	Composition										Authority
		Silica SiO ₂	Alumina Al ₂ O ₃	Ferric Oxide Fe ₂ O ₃	Lime CaO	Magnesia MgO	Sulphur tri- oxide SO ₃	Potash K ₂ O	Soda Na ₂ O	Loss on ig- nition	Moisture	
VAN BUREN COUNTY— Farmington.....	Osage.....	35.48	15.85	5.43	12.56	6.24	3.36	1.59	0.26	17.14	1.88	A. O. Anderson
WAPELLO COUNTY— Ottumwa.....	Des Moines...	53.86	26.28	4.32	0.12	0.43	.....	2.52	0.43	11.08	.....	J. B. Weems
WEBSTER COUNTY— Fort Dodge.....	Des Moines...	67.96	21.64	1.12	0.51	0.67	0.44	.....	.....	.....	7.27	C. E. Ellis
Kalo.....	Des Moines...	70.20	16.70	4.00	0.28	0.63	0.82	1.75	1.39	3.70	0.53	J. B. Weems
Lehigh Clay Works, Lehigh	Des Moines...	53.08	17.71	8.64	4.05	0.94	.....	1.25	3.70	9.30	.....	J. B. Weems
Fort Dodge Pottery Co...	Des Moines...	66.00	19.32	0.80	2.85	0.54	.....	1.15	2.49	6.84	.....	J. B. Weems