OPEN-FILE REPORT
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Table 1. Analyses and derived data of lignite samples from the Fort Union Formation, Culbertson lignite field, Montana

[The following analyses were completed on lignite samples collected by A. L. Beekly. Analyses made by the U.S. Bureau of Mines, at Pittsburgh, Pa. (Beekly, 1912, p. 337). Analysis A represents the composition of the sample "as received" from the mine. Analysis B represents the sample after it has been dried at a little above room temperature until its weight becomes nearly constant. Analysis C represents the theoretical condition of the lignite after all the moisture has been eliminated. Analysis D represents the lignite after all moisture and ash have been theoretically removed. Data of C and D are obtained from B by recalculation. Leaders indicate no data

Laboratory No.	Samply Locality	Mine	Bed	Thickness of part sampled (feet)	Air-drying loss (pct.)	Form of Analysis	Proximate Analysis				Ultimate Analysis					Heat Value	
							Moisture	Volatile matter	Fixed carbon	Ash	Sulphur	Hydrogen	Carbon	Nitrogen	Oxygen	Kilocalories per kilogram (Kcal/kg)	British thermal units per pound (Btu/lb)
11002	NW1/4 sec. 8, T. 34 N., R. 58 E.	Coalridge	Coalridge bed (P of Beekly (1912)?)	6.5	35.2	A	40.4	24.5	27.6	7.51	0.39	6.94	35.15	0.57	49.44	3,240	5,830
						B	8.0	37.8	42.6	11.59	0.60	4.68	54.25	0.88	28.00	5,000	9,000
						C	---	41.1	46.3	12.60	0.65	4.11	58.99	0.96	22.69	5,435	9,780
						D	---	47.0	53.0	---	0.74	4.70	67.50	1.10	25.96	6,220	11,190
11003	NE1/4 sec. 6, T. 31 N., R. 56 E.	Ted Young	Ted Young bed (DD of Beekly (1912)?)	3.5	33.2	A	39.3	24.2	30.8	5.74	0.53	6.92	37.80	0.65	48.36	3,490	6,280
						B	9.1	36.2	46.1	8.60	0.79	4.83	56.59	0.98	28.21	5,220	9,400
						C	---	39.8	50.7	9.46	0.87	4.20	62.28	1.07	22.12	5,745	10,350
						D	---	43.9	56.1	---	0.96	4.64	68.79	1.18	24.43	6,350	11,430
11004	NW1/4 sec. 11, T. 29 N., R. 55 E.	Prospect	(P of Beekly (1912)?)	7.8	31.3	A	37.8	25.8	30.9	5.51	0.75	7.01	39.66	0.71	46.36	3,720	6,700
						B	9.1	37.7	45.2	8.05	1.10	5.13	57.90	1.03	26.79	5,435	9,780
						C	---	41.5	49.7	8.85	1.20	4.53	63.69	1.14	20.59	5,975	10,760
						D	---	45.5	54.5	---	1.32	4.97	69.87	1.25	22.59	6,560	10,800
11005	SW1/4 sec. 15, T. 29 N., R. 55 E.	Astrope	(P of Beekly (1912)?)	5.0	35.0	A	40.8	25.2	27.8	6.23	0.72	7.11	36.57	0.68	48.69	3,415	6,150
						B	8.8	38.8	42.8	9.58	1.10	4.96	56.26	1.04	27.06	5,255	9,460
						C	---	42.5	47.0	10.51	1.22	4.35	61.71	1.15	21.06	5,765	10,370
						D	---	47.5	52.5	---	1.36	4.86	68.95	1.29	23.54	6,440	11,590
11006	SW1/4 sec. 30, T. 33 N., R. 56 E.	Jones	Jones bed (DD of Beekly (1912)?)	5.5	35.6	A	41.6	26.7	26.1	5.57	0.40	6.81	33.48	0.66	53.08	2,930	5,280
						B	9.4	41.4	40.6	8.65	0.62	4.42	51.98	1.03	33.30	4,555	8,200
						C	---	45.7	44.8	9.54	0.69	3.73	57.36	1.13	27.55	5,025	9,040
						D	---	50.5	49.5	---	0.76	4.12	63.41	1.25	30.46	5,555	10,000

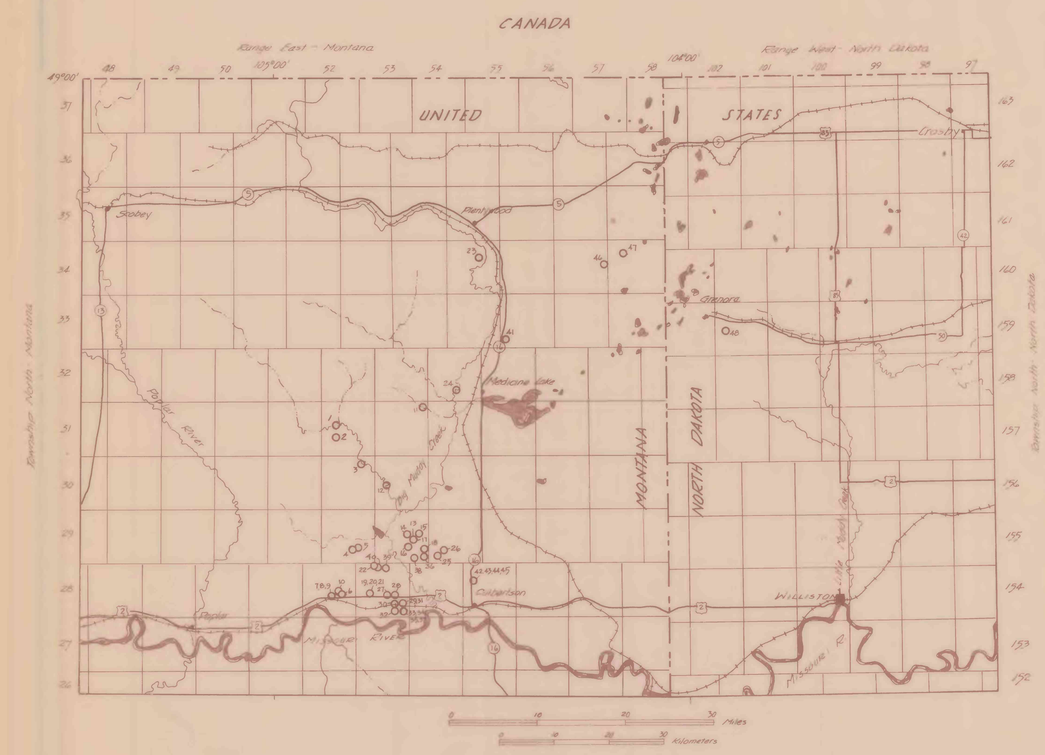

Figure 1.- Location of measured lignite sections northeastern Montana and northwestern North Dakota

DISCUSSION

During the period 1946 through 1948 field parties of the U.S. Geological Survey studied the geology of parts of northeastern Montana and northwestern North Dakota (Witkind, 1959). The work was done for the Bureau of Reclamation which planned to construct several dams in the area.

As this sector of Montana and North Dakota is thickly covered with glacial deposits much of the geologic work was directed toward studying these deposits in order to gain a better understanding of the glacial history of the area.

These glacial deposits veneer the underlying Paleocene Fort Union Formation, which contains lenticular lignite beds, and during the course of the work, some lignite sections were measured. These data were never published, chiefly because virtually all of the area had been studied previously by coal geologists. Lignite beds west of Big Muddy Creek have been described by Smith (1910), and those east of Big Muddy Creek by Beekly (1912). South of Plentywood, the lignite beds have been studied by Bauer (1912), and those in North Dakota by Leonard and others (1925).

Recently as interest in the coal deposits of Montana and North Dakota has increased, the Geological Survey has received requests for our data. This report has been prepared in response to those requests.

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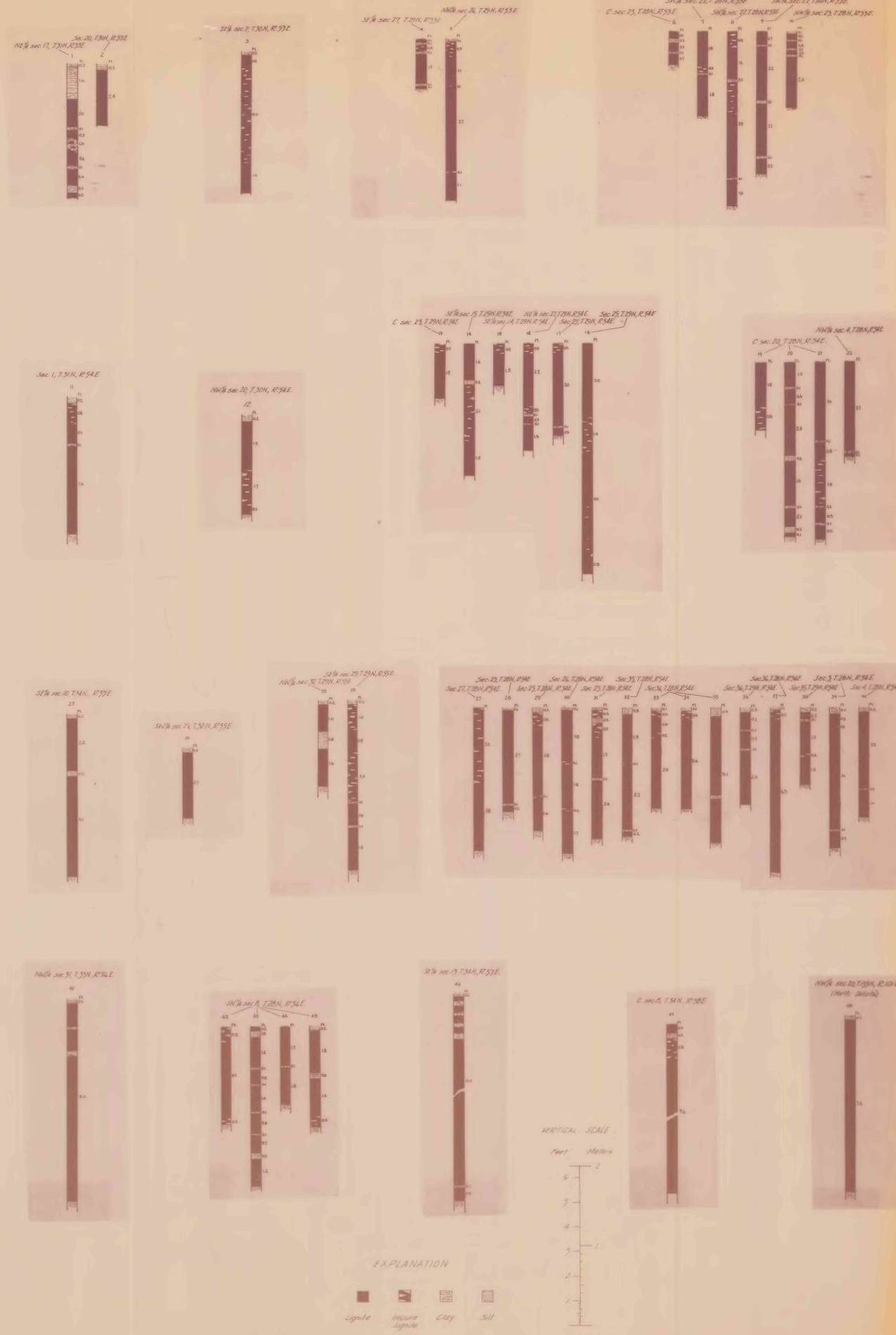
Witkind, I.J., 1959, Quaternary geology of the Smoke Creek-Medicine Lake-Cromore area, Montana and North Dakota: U.S. Geological Survey Bulletin 1073., 80 p.

MEASURED LIGNITE SECTIONS



MEASURED LIGNITE SECTIONS IN NORTHEASTERN MONTANA AND NORTHWESTERN NORTH DAKOTA

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1979