

Open File Report 1965-11

The Occurrence of Gold in
Alberta Rivers

THE OCCURRENCE OF GOLD IN ALBERTA RIVERS

The following is a summary of the program conducted by Dr. L. B. Halferdahl on the occurrence of gold in Alberta rivers.

The survey was conducted by sieving and panning several cubic feet of gravel from the top foot or so of bars and similar places in the beds of most of the major rivers in Alberta. The places sampled were systematically, but fairly widely distributed (20 miles or more) along the rivers. The results showed that all the gold passed a 35 mesh screen and may be described as 'flour gold.' The highest concentrations were found along the North Saskatchewan River in the stretch from Devon (about 25 miles upstream from Edmonton) to near a point due north of Myrnam (about 150 miles downstream from Edmonton). Few, if any, concentrations found during the survey would be considered high enough for economic recovery. The survey was designed to locate areas worthy of detailed sampling. However, the fine nature of the gold and the fact that such gold does not concentrate in paystreaks on bedrock, as shown by drilling conducted here and there by various people during the past half or three-quarters of a century, indicated that more detailed sampling was not worthwhile at present. Prospecting and testing in the stretch of river mentioned above are required to learn whether high enough concentrations of sufficient yardage are present for economic recovery. The chances are not particularly promising, because the gold is so fine grained that the concentrations are not expected to be high enough to make a small operation worthwhile, and the yardage is not expected to be great enough for a large operation."

(Halferdahl, L.B., 1965, Alberta Research, Econ. Minerals Files).

Samples in which Platinum was noted

McLeod	135A	60-120, -120
	147B	-120
Milk	117E	-120
North Sask.	18	60-120, -120
	33	60-120, -120
	37	-120
	49	60-120
	62	-120
	62A	60-120, -120
	84	60-120, -120
	99	60-120, -120
	118	-60, -120
	118A	60-120, -120
	141	60-120, -120
	182	-60
	212	60-120, -120
	236	-60
	276	-60
South Sask.	28	-60 ?
Red Deer	54	-60
	189	-120

Gold Determinations - Athabasca River

No.	Size Fraction (mesh)	Panned Concentrates		Sieved Concentrates		-14 Mesh Concentrates	
		Volume Sampled cu ft	Gold Recovered mg/cu yd	Volume Sampled cu ft	Gold Recovered mg/cu yd	Volume Sampled cu ft	Gold Recovered mg/cu yd
9	35-60	4.2	nil	not collected		not collected	
	-60	4.2	0.060	not collected		not collected	
	Total		0.060				
425	18-35	not collected		not collected			
	35-60			not collected			
	60-120						
	120-230						
	-230						
479	18-35	3.0	nil	not collected		not collected	
	35-60	3.0	nil	not collected		not collected	
	60-120	3.0	0.630	not collected		not collected	
	-120	3.0	0.630	not collected		not collected	
	Total		1.260				
491	18-35			not collected			nil
	35-60			not collected			
	60-120						
	120-230						
576	-60	19.3	0.896			not collected	
	Total						
634	-60	17.3	0.078			not collected	
	Total						
748	18-35	not collected		not collected			
	35-60			not collected			
	60-120						
	120-230						
	-230						
808	18-35	not collected		not collected			
	35-60	nil		not collected			nil
	60-120						nil
	120-230				nil		nil
	-230						
854	-60	14.9	0.018		nil	not collected	
	Total						

Gold Determinations - Bow River

No.	Size Fraction (mesh)	<u>Panned Concentrates</u>		<u>Sieved Concentrates</u>		<u>-14 Mesh Concentrates</u>	
		Volume Sampled cu ft	Gold Recovered mg/cu yd	Volume Sampled cu ft	Gold Recovered mg/cu yd	Volume Sampled cu ft	Gold Recovered mg/cu yd
11	18-35	4.5	nil				
	35-60	13.5	nil				
	60-120	13.5	0.240				
	-120	13.5	0.500				
	Total		0.740				
49	18-35	3.0	nil				
	35-60	12.0	0.045				
	60-120	12.0	1.125				
	-120	12.0	0.631				
	Total		1.801				

Gold Determinations - McLeod River

No.	Size Fraction (mesh)	Panned Concentrates		Sieved Concentrates		-14 Mesh Concentrate:	
		Volume Sampled cu ft	Gold Recovered mg/cu yd	Volume Sampled cu ft	Gold Recovered mg/cu yd	Volume Sampled cu ft	Gold Recovered mg/cu yd
1	18-35	1.2	nil	not collected	not collected		
	35-60	1.2	nil				
	-60	18.2	0.089				
	Total		0.089				
47	18-35	1.2	nil	not collected	not collected		
	35-60	1.2	0.022				
	-60	16.1	1.493				
	Total		1.515				
65	18-35	8.0	nil	not collected	nil		
	35-60	20.0	nil				
	-60	20.0	1.255				
	Total		1.255				
73	18-35	8.0	nil	not collected	nil		
	35-60	20.0	nil				
	-60	20.0	1.013				
	Total		1.013				
91	18-35	1.2	nil	not collected	not collected		
	35-60	1.2	nil				
	-60	18.2	1.068				
	Total		1.068				
135	18-35	1.2	nil	not collected	not collected		
	35-60	1.2	3.150				
	60-120	22.5	6.910				
	-120						
Total		10.060					
135A	35-60	9.0	0.240	not collected	not collected		
	60-120	9.0	7.650				
	-120	9.0	7.650				
	Total		15.540				
147B	35-60	5.0	0.811	not collected	not collected		
	60-120	5.0	2.863				
	-120	5.0	2.053				
	Total		5.727				
175	-60	17.0	0.111				
220	-60	17.0	0.015				

Gold Determinations - Milk River

No.	Size Fraction (mesh)	Panned Concentrates		Sieved Concentrates		-14 Mesh Concentrates	
		Volume Sampled cu ft	Gold Recovered mg/cu yd	Volume Sampled cu ft	Gold Recovered mg/cu yd	Volume Sampled cu ft	Gold Recovered mg/cu yd
5.	35-60		nil	not collected		not collected	
	-60			not collected		not collected	
	Total						
57	18-35		nil	not collected		not collected	
	35-60		nil	not collected		not collected	
	-60			not collected		not collected	
	Total						
117	18-35		nil	not collected			
	35-60		nil	not collected			nil
	60-120						
	-120						
	Total						
117E	35-60	9.0	0.210	not collected		not collected	
	60-120	9.0	3.300	not collected		not collected	
	-120	9.0	12.390	not collected		not collected	
	Total		<u>15.900</u>				
127	35-60	9.0	nil	not collected		not collected	
	60-120	9.0	0.150	not collected		not collected	
	-120	9.0	0.810	not collected		not collected	
	Total		<u>0.960</u>				
152	18-35	8.0	nil	not collected		not collected	
	35-60	20.0	0.027		nil	not collected	
	-60		0.243			not collected	
	Total		<u>0.270</u>				
170	18-35		nil				
	35-60		nil				
	60-120						
	120-230						
	-230						

Gold Determinations - North Milk River

No.	Size Fraction (mesh)	<u>Panned Concentrates</u>		<u>Sieved Concentrates</u>		<u>-14 Mesh Concentrates</u>	
		Volume Sampled cu ft	Gold Recovered mg/cu yd	Volume Sampled cu ft	Gold Recovered mg/cu yd	Volume Sampled cu ft	Gold Recovered mg/cu yd
151	18-35	4.0	nil	not collected			
	35-60	16.0	nil		nil		
	-60	16.0	1.248				
	Total		<u>1.248</u>				
180	18-35	8.0	nil	not collected			
	35-60	20.0	nil		nil		
	-60	20.0	0.852				
	Total		<u>0.852</u>				
201	18-35	8.0	nil	not collected			
	35-60	20.0	0.230		nil		
	-60	20.0	0.365				
	Total		<u>0.595</u>				

Gold Determinations - North Saskatchewan River

No.	Size Fraction (mesh)	Panned Concentrates		Sieved Concentrates		-14 Mesh Concentrates	
		Volume Sampled cu ft	Gold Recovered mg/cu yd	Volume Sampled cu ft	Gold Recovered mg/cu yd	Volume Sampled cu ft	Gold Recovered mg/cu yd
5	18-35	5.1					
	35-60	5.1	nil				
	-60	5.1	0.689				
	Total		<u>0.689</u>				
18	18-35	4.5	nil				
	35-60	13.5	0.340				
	60-120	13.5	13.320				
	-120	13.5	57.240				
Total		<u>70.900</u>					
33	18-35	4.5	nil				
	35-60	13.5	0.100				
	60-120	13.5	21.360				
	-120	13.5	71.600				
Total		<u>93.060</u>					
37	18-35	3.0	nil				
	35-60	20.0	0.014				
	60-120		7.040				
	-120		2.050				
Total		<u>9.104</u>					
49	18-35	4.5	nil				
	35-60	13.5	0.100				
	60-120	13.5	14.740				
	-120	13.5	30.400				
Total		<u>45.240</u>					
62	35-60	1.7	nil				
	-60	16.6	61.000				
	Total		<u>61.000</u>				
62 Sieved	60-120						
	-120						
62A	18-35	4.0	nil				
	35-60	16.0	3.180				
	60-120	16.0	31.100				
	-120	16.0	134.500				
	Total		<u>168.780</u>				

Gold Determinations - North Saskatchewan River

No.	Size Fraction (mesh)	Panned Concentrates		Sieved Concentrates		-14 Mesh Concentrates	
		Volume Sampled cu ft	Gold Recovered mg/cu yd	Volume Sampled cu ft	Gold Recovered mg/cu yd	Volume Sampled cu ft	Gold Recovered mg/cu yd
84	18-35	4.0	nil				
	35-60	16.0	4.035				
	60-120	16.0	63.900				
	-120	16.0	140.200				
	Total		<u>208.135</u>				
89	18-35	4.0	nil				
	35-60	16.0	1.132				
	60-120	16.0	11.390				
	-120	16.0	38.340				
	Total		<u>50.862</u>				
118	35-60	2.0	nil				
	-60	16.9	247.200				
	Total		<u>247.200</u>				
118 sieved	60-120						
	-120						
118A	18-35	4.0	nil				
	35-60	14.0	0.502				
	60-120	14.0	25.250				
	-120	14.0	114.800				
	Total		<u>140.552</u>				
141	18-35	8.0	nil				
	35-60	20.0	1.823				
	60-120	20.0	19.100				
	-120	20.0	21.520				
	Total		<u>42.443</u>				
158	18-35	8.0	nil				
	35-60	20.0	lost				
	60-120	20.0	16.440				
	-120	20.0	18.770				
	Total		<u>35.210</u>				
182	35-60	1.5	nil				
	-60	16.4	16.250				
	Total		<u>16.250</u>				
182 sieved	60-120						
	-120						
	Total						

Gold Determinations - North Saskatchewan River

No.	Size Fraction (mesh)	Panned Concentrates		Sieved Concentrates		-14 Mesh Concentrates	
		Volume Sampled cu ft	Gold Recovered mg/cu yd	Volume Sampled cu ft	Gold Recovered mg/cu yd	Volume Sampled cu ft	Gold Recovered mg/cu yd
322	18-35	8.0	nil	not collected			
	35-60	20.0	0.230		nil		
	-60	20.0	0.878				
	Total		<u>1.108</u>				
358	18-35	8.0	nil	not collected			
	35-60	20.0	0.068		nil		
	-60	20.0	2.065				
	Total		<u>2.133</u>				
401	18-35	8.0	nil	not collected			
	35-60	20.0	0.135	not collected			
	60-120	20.0	2.052	not collected			
	-120	20.0	1.485	not collected			
Total		<u>3.672</u>					
421	18-35	8.0	nil	not collected			
	35-60	20.0	nil		nil		
	-60	20.0	0.297				
	Total		<u>0.297</u>				
484	18-35	8.0	nil	not collected			
	35-60	20.0	0.014		nil		
	-60	20.0	0.054				
	Total		<u>0.068</u>				
540	18-35		nil	not collected			
	35-60		nil	not collected			
	-60		nil	not collected			
	Total		<u>0.000</u>				

Gold Determinations - Oldman River

No.	Size Fraction (mesh)	Panned Concentrates		Sieved Concentrates		-14 Mesh Concentrates	
		Volume Sampled cu ft	Gold Recovered mg/cu yd	Volume Sampled cu ft	Gold Recovered mg/cu yd	Volume Sampled cu ft	Gold Recovered mg/cu yd
1	18-35	8.0		not collected		not collected	
	35-60	20.0	0.010		nil	not collected	
	60-120	20.0	0.162			not collected	
	120-230					not collected	
	-230					not collected	
Total		0.172					
3	18-35			not collected			nil
	35-60			not collected			
	60-120			not collected			
	120-230			not collected			
	-230			not collected			
Total		very little					
43	18-35			not collected			
	35-60		nil	not collected			
	60-120						
	120-230						
	-230						
Total							
43D	18-35	not collected		not collected		not collected	
	35-60	10.0	0.108	not collected		not collected	
	60-120	10.0	0.189	not collected		not collected	
	120-230	10.0	0.432	not collected		not collected	
	-230			not collected		not collected	
Total		0.729					
100	18-35		nil	not collected			
	35-60			not collected			
	60-120						
	120-230						
	-230						
Total							

Gold Determinations - Oldman River

No.	Size Fraction (mesh)	Panned Concentrates		Sieved Concentrates		-14 Mesh Concentrates	
		Volume Sampled cu ft	Gold Recovered mg/cu yd	Volume Sampled cu ft	Gold Recovered mg/cu yd	Volume Sampled cu ft	Gold Recovered mg/cu yd
158	18-35			not collected			
	35-60		nil	not collected			
	60-120						
	120-230						
	-230						
	Total						
159	18-35	not collected		not collected		not collected	
	35-60	10.0	nil	not collected		not collected	
	60-120	10.0	0.810	not collected		not collected	
	120-230	10.0	0.405	not collected		not collected	
	-230			not collected		not collected	
	Total		<u>1.215</u>				
205	18-35			not collected			
	35-60		nil	not collected			
	60-120	}	nil	}	nil		
	120-230						
	-230						
	Total						
256	18-35		nil				
	35-60		nil				
	60-120	}	nil	}	nil		
	120-230						
	-230						
	Total						

Gold Determinations - Peace River

No.	Size Fraction (mesh)	Panned Concentrates		Sieved Concentrates		-14 Mesh Concentrates	
		Volume Sampled cu ft	Gold Recovered mg/cu yd	Volume Sampled cu ft	Gold Recovered mg/cu yd	Volume Sampled cu ft	Gold Recovered mg/cu yd
7	35-60	4.2	nil				
	-60	4.2	0.514				
	Total		0.514				
60	35-60	4.2	nil				
	-60	4.2	0.060				
	Total		0.060				
113	35-60	4.2	nil				
	-60	4.2	0.386				
	Total		0.386				
165	35-60	4.2	nil				
	-60	4.2	nil				
	Total		0.000				
228	35-60	4.2	nil				
	-60	4.2	0.060				
	Total		0.060				
288	35-60	4.2	nil				
	-60	4.2	0.060				
	Total		0.060				
349	35-60	1.7	nil		not collected		
	60-120	16.6	7.075				
	-120						
	Total		7.075				
412	60-120	14.9	0.236				
	-120						
	Total		0.236				
476	60-120	16.8	1.125				
	-120						
	Total		1.125				
538	18-35	8.0			not collected		
	35-60	20.0	0.014				
	60-120	20.0	0.891				
	-120						
Total		0.905					
539	60-120	14.9	1.323				
	-120						
	Total		1.323				

Gold Determinations - Peace River

No.	Size Fraction (mesh)	<u>Panned Concentrates</u>		<u>Sieved Concentrates</u>		<u>-14 Mesh Concentrates</u>	
		Volume Sampled cu ft	Gold Recovered mg/cu yd	Volume Sampled cu ft	Gold Recovered mg/cu yd	Volume Sampled cu ft	Gold Recovered mg/cu yd
588	35-60			not collected			
	60-120			not collected			
	-120			not collected			
	Total						
604	60-120	16.8	2.475	not collected			
	-120			not collected			
	Total		<u>2.475</u>				
604A	18-35	8.0		not collected			
	35-60	20.0	0.338	not collected			
	60-120	20.0	1.242	not collected			
	-120			not collected			
Total		<u>1.680</u>					
667	60-120	16.8	0.193	not collected			
	-120			not collected			
	Total		<u>0.193</u>				

Gold Determinations - Red Deer River

No.	Size Fraction (mesh)	Panned Concentrates		Sieved Concentrates		-14 Mesh Concentrates	
		Volume Sampled cu ft	Gold Recovered mg/cu yd	Volume Sampled cu ft	Gold Recovered mg/cu yd	Volume Sampled cu ft	Gold Recovered mg/cu yd
3	18-35	5.0					
	35-60	5.0	nil				
	-60	5.0	0.054				
	Total		<u>0.054</u>				
54	18-35	5.0					
	35-60	5.0	nil				
	-60	5.0	2.754				
	Total		<u>2.754</u>				
103	18-35						
	35-60						
	-60						
	Total						
145	18-35	5.0					
	35-60	5.0	nil				
	-60	5.0	0.108				
	Total		<u>0.108</u>				
161	18-35						
	35-60		nil				
	-60						
	Total						
161D	18-35	4.0					
	35-60	16.0	0.169				
	-60	16.0	6.598				
	Total		<u>6.767</u>				
161D Sieved	35-60						
	-60						
	Total						
168	18-35	8.0	nil				
	35-60	20.0	nil				
	60-120	20.0	0.648				
	-120	20.0	2.052				
	Total		<u>2.700</u>				
189	18-35	8.0					
	35-60	20.0	0.378				
	60-120	20.0	5.630				
	-120	20.0	9.950				
	Total		<u>15.958</u>				

Gold Determinations - Red Deer River

No.	Size Fraction (mesh)	Panned Concentrates		Sieved Concentrates		-14 Mesh Concentrates	
		Volume Sampled cu ft	Gold Recovered mg/cu yd	Volume Sampled cu ft	Gold Recovered mg/cu yd	Volume Sampled cu ft	Gold Recovered mg/cu yd
198	18-35						
	35-60		nil				
	-60						
	Total						
201	18-35	5.0					
	35-60	5.0	nil				
	60-120	5.0	0.432				
	-120	5.0	1.080				
	Total		1.512				
214	18-35	8.0					
	35-60	20.0	0.162				
	60-120	20.0	0.675				
	-120	20.0	1.647				
	Total		2.484				
220	18-35	8.0					
	35-60	20.0	nil				
	-60	20.0	3.132				
	Total		3.132				
220 sieved	35-60		nil				
	-60						
233	18-35	8.0					
	35-60	20.0	nil				
	60-120	20.0	0.607				
	-120	20.0	1.323				
	Total		1.930				
260A	35-60						
	-60						
260B	Total						
	35-60		nil				
	-60						
260C	Total						
	35-60						
	-60						

Gold Determinations - Red Deer River

No.	Size Fraction (mesh)	Panned Concentrates		Sieved Concentrates		-14 Mesh Concentrates	
		Volume Sampled cu ft	Gold Recovered mg/cu yd	Volume Sampled cu ft	Gold Recovered mg/cu yd	Volume Sampled cu ft	Gold Recovered mg/cu yd
260D	18-35	8.0					
	35-60	20.0	0.135				
	60-120	20.0	1.067				
	-120	20.0	1.418				
	Total		<u>2.620</u>				
290	18-35	8.0					
	35-60	20.0	nil				
	-60	20.0	1.242				
	Total		<u>1.242</u>				
309	18-35	8.0					
	35-60	20.0	nil				
	-60		0.230				
	Total		<u>0.230</u>				
328A	18-35						
	35-60						
	-60						
	Total						
335	18-35	8.0					
	35-60	20.0	nil				
	-60	20.0	2.390				
	Total		<u>2.390</u>				
386	-60	21.3	0.013				
386 sieved	-60		nil				
429	-60	17.0	0.025				
429 sieved	-60						
446A	18-35		nil				
	35-60		nil				
	-60		nil				
	Total						
446A sieved	60-120		nil				
	120-230		nil				
	-230		nil				

Gold Determinations - Smoky River

No.	Size Fraction (mesh)	Panned Concentrates		Sieved Concentrates		14 Mesh Concentrate:	
		Volume Sampled cu ft	Gold Recovered mg/cu yd	Volume Sampled cu ft	Gold Recovered mg/cu yd	Volume Sampled cu ft	Gold Recovered mg/cu yd
3	-60	14.9	1.359				
12	18-35	8.0	nil	not collected			
	35-60	20.0	0.014				
	-60	20.0	0.756		nil		
	Total		<u>0.770</u>				
54	18-35	8.0	nil	not collected			
	35-60	20.0	0.027				
	-60	20.0	1.107				
	Total		<u>1.134</u>				
93	18-35	8.0	nil	not collected			
	35-60	20.0	0.149				
	-60	20.0	1.931				
	Total		<u>2.080</u>				
130	18-35	8.0	nil	not collected			
	35-60	20.0	nil				
	-60	20.0	0.878		nil		
	Total		<u>0.878</u>				
168	18-35	8.0	nil	not collected			
	35-60	20.0	0.014	not collected			
	-60	20.0	0.095	not collected			
	Total		<u>0.109</u>				
273	18-35	8.0	nil	not collected			
	35-60	20.0	nil	not collected			
	-60	20.0	nil	not collected			
	Total		<u>nil</u>				

Gold Determinations - South Saskatchewan River

No.	Size Fraction (mesh)	<u>Panned Concentrates</u>		<u>Sieved Concentrates</u>		<u>-14 Mesh Concentrates</u>	
		Volume Sampled cu ft	Gold Recovered mg/cu yd	Volume Sampled cu ft	Gold Recovered mg/cu yd	Volume Sampled cu ft	Gold Recovered mg/cu yd
2	18-35	8.0	nil	not collected			
	35-60	20.0	0.176		nil		
	-60	20.0	0.756				
	Total		0.932				
28	18-35	8.0	nil	not collected			
	35-60	20.0	nil		nil		
	-60	20.0	5.981				
	Total		5.981				
87	18-35	8.0	nil	not collected			
	35-60	20.0	0.014		nil		
	-60	20.0	0.716				
	Total		0.730				
122	18-35	8.0	nil	not collected			
	35-60	20.0	nil		nil		
	-60	20.0	0.446				
	Total		0.446				
162	18-35	8.0	nil	not collected			
	35-60	20.0	nil		nil		
	-60	20.0	1.148		nil		
	Total		1.148				

Gold Determinations - Wapiti River

No.	Size Fraction (mesh)	Panned Concentrates		Sieved Concentrates		-14 Mesh Concentrates		
		Volume Sampled cu ft	Gold Recovered mg/cu yd	Volume Sampled cu ft	Gold Recovered mg/cu yd	Volume Sampled cu ft	Gold Recovered mg/cu yd	
1.	18-35	8.0	nil	not collected		not collected		
	35-60	20.0	0.378					
	-60	20.0	0.905					
	Total		<u>1.283</u>					
20	18-35	not collected	}	not collected			nil	
	35-60			not collected				
	60-120							
	120-230							
	-230							
Total								
42	18-35	not collected	}	not collected				
	35-60			nil				not collected
	60-120							
	120-230							not determined
	-230							
Total								
73	18-35	6.0	nil	not collected		not collected		
	35-60	18.0	0.495					
	-60	18.0	0.030					
	Total		<u>0.525</u>					

