

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

MINOR ELEMENT CONTENT OF STREAM-SEDIMENT AND BEDROCK SAMPLES
FROM SOUTHEASTERN DOUGLAS ISLAND, SOUTHEASTERN ALASKA

By

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and has not been edited or
reviewed for conformity with
Geological Survey standards.

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Analytical data for stream-sediment and bedrock samples from southeastern Douglas Island are presented in this report. The samples were collected in summer, 1968, during geological field mapping of the Juneau area which was in part supported by the Heavy Metals program of the U.S. Geological Survey.

The low-grade metamorphic bedrock of southeastern Douglas Island is mainly greenstone and greenschist, with minor graywacke and slate as interlayers and as thicker units. Locally large volumes of these rocks have been altered and mineralized to varying extents. This situation was first described by Spencer (1904, p. 40) and was also described by later workers (Wright and Wright, 1906, p. 39; Spencer, 1906, p. 88-93; Wright, 1907, p. 53-54; Knopf, 1910, p. 135; Knopf, 1911, p. 96; Brooks, 1912, p. 25; Eakin, 1915, p. 97; Chapin, 1916, p. 75; Smith, 1937, p. 17). The data given in this report supplement these early descriptions.

The data, presented in tabular form, consist of atomic absorption analyses for gold and semiquantitative spectrographic analyses for 29 other elements. Locations of the 36 stream-sediment samples and 35 bedrock and soil samples in the tables are shown on figures 1 and 2, respectively. Standard procedures were followed in the collection and preparation of the stream-sediment samples. Only samples of active stream-sediment were collected. The samples were dried, sieved, and the minus-80 mesh fractions analyzed. All analyses were made in the Alaskan field laboratory of the Geological Survey's Exploration Research Branch. Limits of detectability for the elements are given at the ends of tables 1 and 2.

It is difficult to determine anomalous values for elements of possible economic interest from the stream-sediment data because of the small number of the samples analyzed. Subjective interpretation of the data and plots of the frequency distributions for some metals (fig. 3) suggest that the following values may be anomalous:

<u>Element</u>	<u>Anomalous values for stream-sediment samples (ppm)</u>
Cu	≥ 200
Pb	≥ 100
Zn	≥ 500

The element contents of altered and mineralized bedrock samples can be compared with those of unaltered and apparently unmineralized rocks in the area. Most of the unaltered bedrock samples analyzed are of greenstone

which may be equivalent to the original rock of the bleached greenstones, but which may not be equivalent to the rocks described as bleached greenschists (See sample descriptions on table 2).

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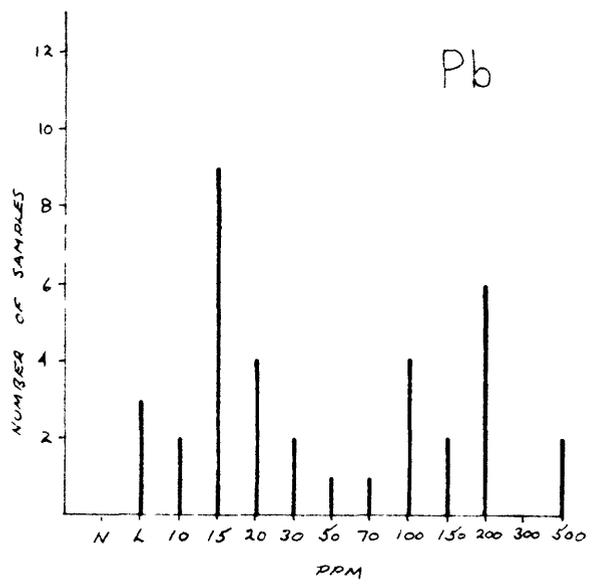
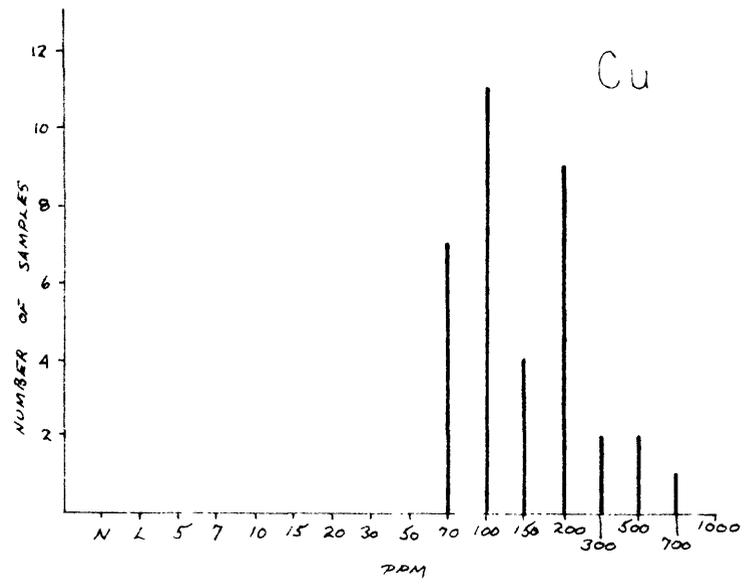
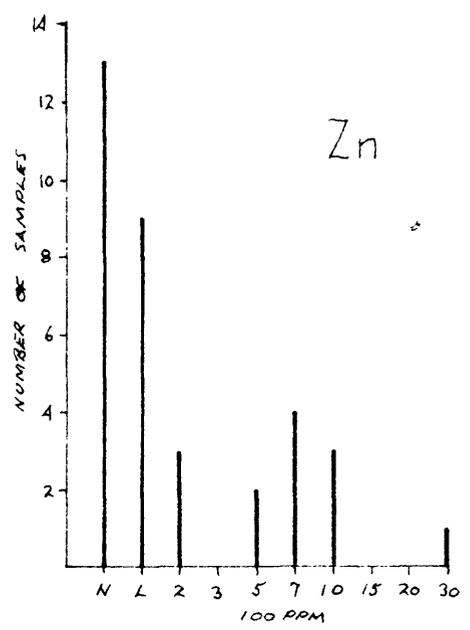
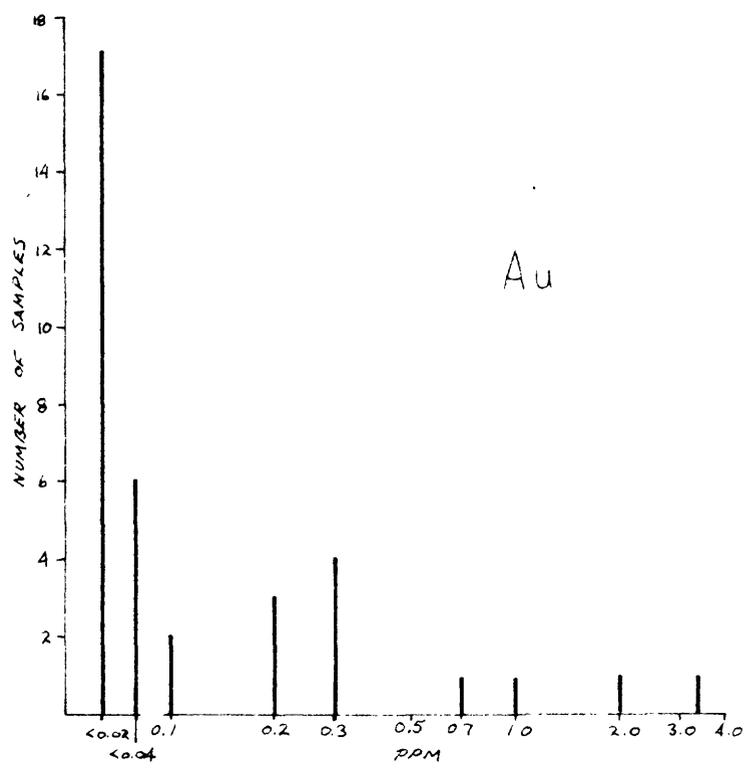


Figure 3. Histograms showing frequency distribution of gold, zinc, copper, and lead in 36 stream sediment samples from southeastern Douglas Island, southeastern Alaska. Values reported as given on Table 1 above the limit of detectability for each element.