

EARTH RESOURCES

A LIVING FROM THE LAND

GEODIVERSITY: All Rocks Are Not The Same

The Vancouver area is underlain by a variety of rocks and sediments. The Coast and Cascade Mountains are largely composed of granitic and metamorphic rocks. Granitic rock forms from great bodies of molten rock that crystallize deep in the Earth and are now exposed at the Earth's surface by erosion. Deeply buried rocks that have been deformed at high temperatures and pressures are called metamorphic rock. Thick sedimentary rocks (e.g. sandstone) occur throughout the Fraser Valley, but they are covered by thick layers of younger sediments, except in the Vancouver and Bellingham areas. These younger sediments were deposited by Ice Age glaciers and rivers and by modern streams. The youngest rocks in the region are volcanic: lavas and ash from volcanoes such as Mt. Baker and Mt. Garibaldi.

Different Rocks, Different Resources

Many different materials used by humans come from the earth. Copper for wires and pipes, stone for buildings, and gravel for road construction are just a few examples. These earth materials are essential to our society. Our local geology determines where our resources come from.

There's copper and gold in them thar hills

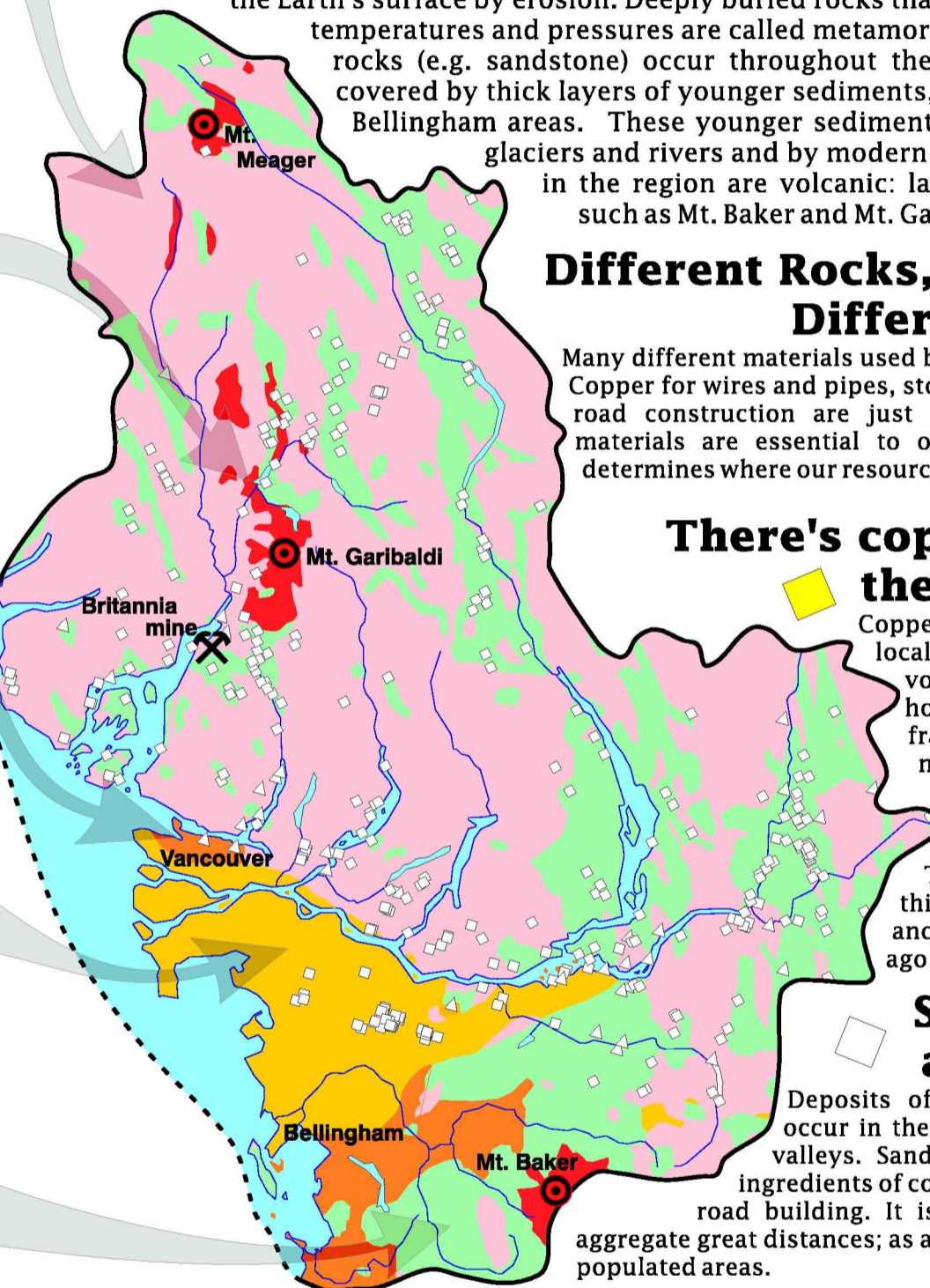
Copper and gold are most abundant locally in metamorphic rocks of volcanic origin. They form from hot waters circulating through fractures at great depth. The metals deposit when the waters cool and mix with sulphur to form metal sulphide minerals such as pyrite (fool's gold). The Britannia mine formed in this way from hot springs on an ancient sea floor 100 million years ago.

Sand and gravel: a big business

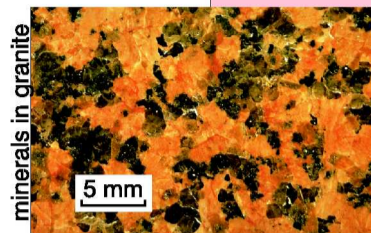
Deposits of sand and gravel (aggregate) occur in the Fraser Valley and in mountain valleys. Sand and gravel are the principal ingredients of concrete used in construction and road building. It is not economical to transport aggregate great distances; as a result most gravel pits are near populated areas.

Granite, pumice and clay: the industrials

Earth resources that are not a metal, fuel, aggregate, or gemstone are referred to as industrial minerals. Industrial minerals mined locally include granite for building stone, volcanic pumice for abrasives, and clay for pipes and tile.



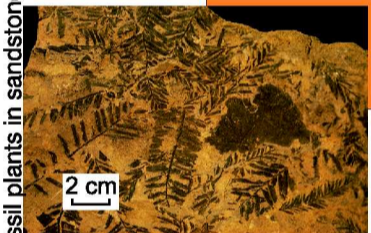
Simplified geological map of the Vancouver area showing different rock types and earth resources.



minerals in granite
5 mm
Granitic rocks



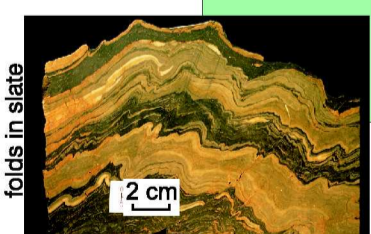
columns in lava
2 m
Young volcanic rocks



fossil plants in sandstone
2 cm
Sedimentary rocks



rippled beach sand
Sediments



folds in slate
2 cm
Metamorphic rocks



Geoscape Vancouver
Thematic Poster Series
Geological Survey of Canada
Open File 9353J, 1996

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