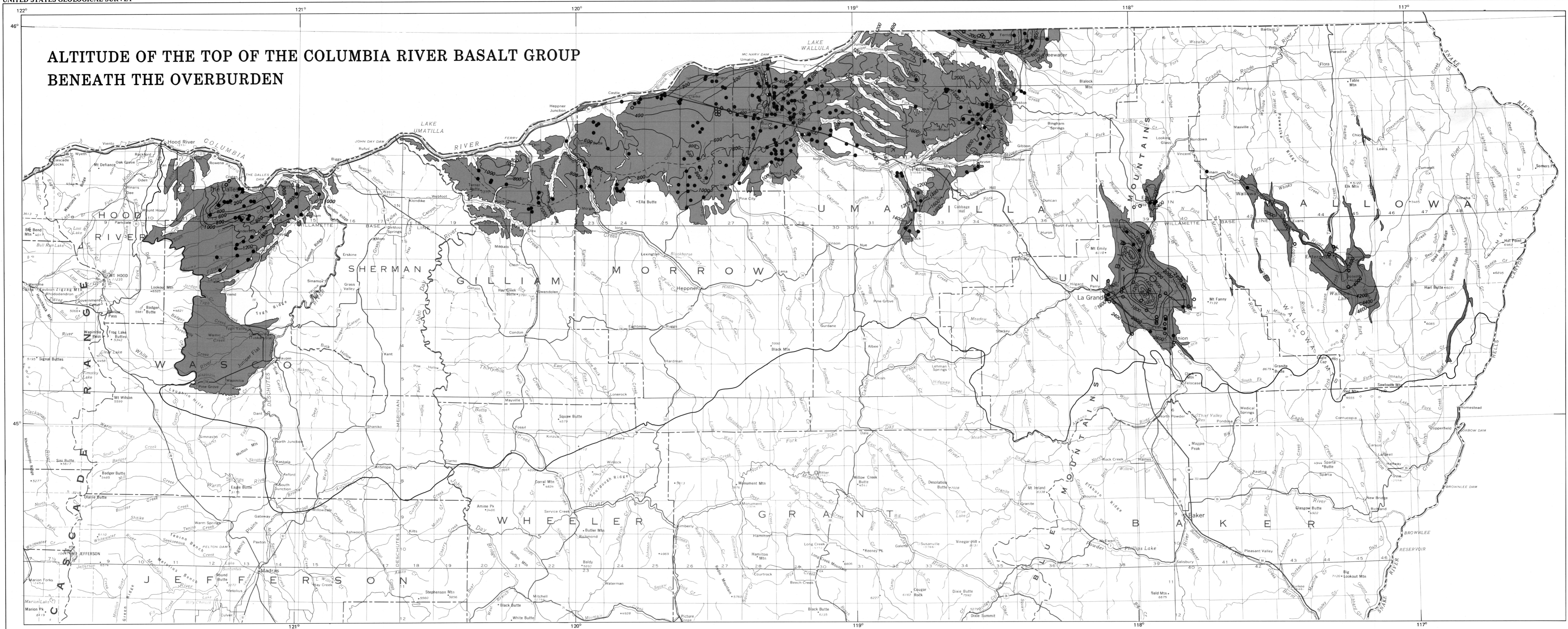


ALTITUDE OF THE TOP OF THE COLUMBIA RIVER BASALT GROUP BENEATH THE OVERBURDEN



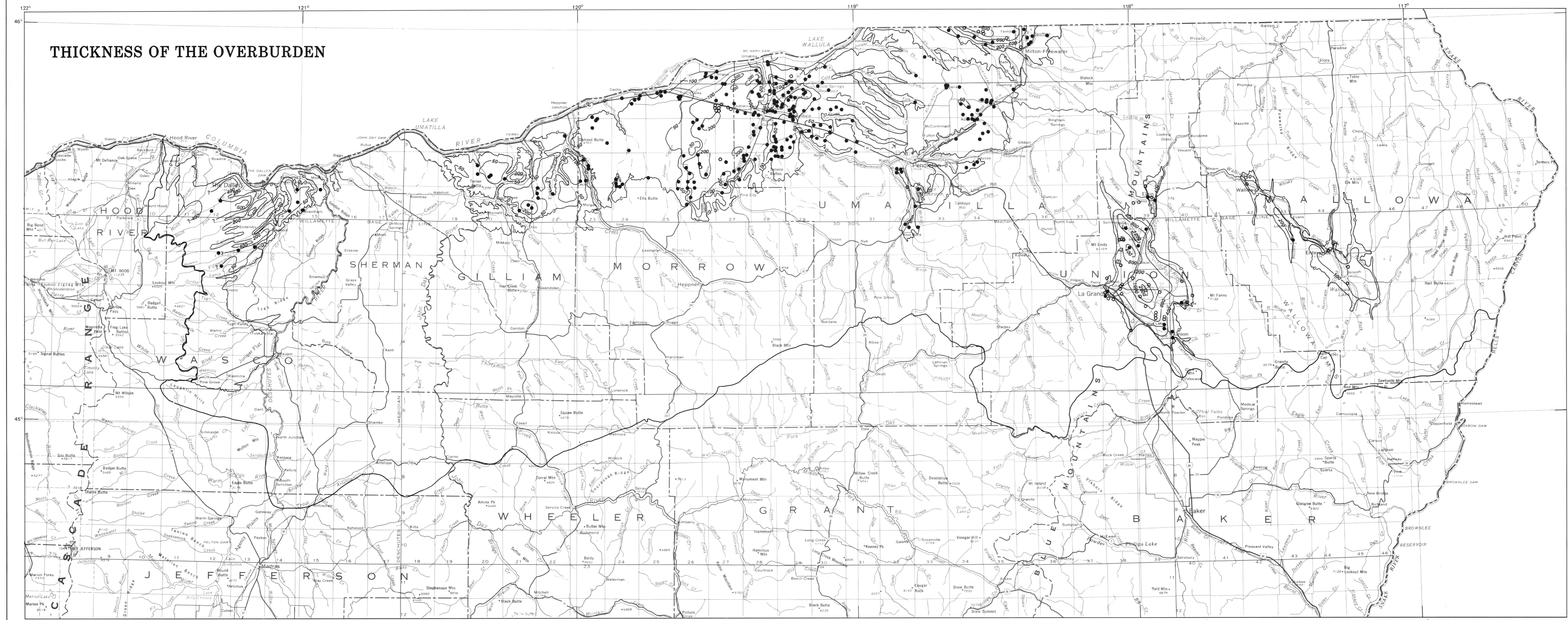
ALTITUDE OF THE TOP OF THE COLUMBIA RIVER BASALT GROUP BENEATH THE OVERBURDEN

Contours on this map show the approximate altitude of the top of the basalt beneath the sedimentary overburden. The map is compiled from data points at the indicated data points. In the Boardman-Hermiston area, the Milton-Freewater area, and the Grande Ronde Valley, the uppermost basalt formation is generally part of the Saddle Mountain Basalt or the Wanapum Basalt, whereas in Wasco County it generally is the Wanapum Basalt. The top of the basalt probably was extensively eroded prior to deposition of the overlying sedimentary beds, therefore, this surface may not reflect the underlying geologic structure.

EXPLANATION

- AREA WHERE OVERBURDEN IS PRESENT
- STUDY AREA BOUNDARY
- BASALT BEDROCK CONTOUR—Shows altitude of top of the Columbia River Basalt Group beneath sedimentary overburden. Interval 200 feet. Datum is sea level.
- CONTACT—Shows approximate location of the Wanapum Basalt-Saddle Mountain Basalt contact beneath sedimentary overburden.
- WELL PARTIALLY PENETRATING SEDIMENTARY OVERBURDEN
- WELL PENETRATING SEDIMENTARY OVERBURDEN

THICKNESS OF THE OVERBURDEN



THICKNESS OF THE OVERBURDEN

The term overburden, in this report, is used for all the sedimentary materials overlying the basalt formations in the Columbia River Basalt Group. It includes sediments and minor volcanics ranging in age from Miocene through Holocene. The deposits are of several types including fluvial, glaciofluvial, lacustrine, colluvial,olian, volcaniclastic, and minor extrusive lavas belonging to several distinct formations, a few of which have been mapped in detail. The overburden consists of unconsolidated clay, silt, sand, and gravel; to semi-consolidated claystone, shale, sandstone, and conglomerate and minor basalt and andesite. The extent and distribution of the overburden is from geologic contacts shown on maps by Swanson and others (1981) modified locally by the author. In general, Swanson and others (1981) mapped overburden contacts in places where the overburden was sufficiently thick to obscure the basalt bedrock relationships.

Thickness data were compiled from the data points shown, from other supplemental less accurately located wells, from the contour map on the top of the Columbia River Basalt Group (above), and from a topographic base map.

The thickness of the overburden ranges from 0 to over 600 feet in northern Wasco County; 0 to over 200 feet in Gilliam and western Morrow Counties, in the Boardman-Hermiston area, in the McKay Reservoir area, and in the Wallawa Valley; 0 to over 800 feet in the Walla Walla basin near Milton-Freewater; and 0 to over 2,000 feet in the Grande Ronde Valley.

The principal geologic unit in the overburden in northern Wasco County is the Chenoweth Formation; between Arlington and Hermiston it is the Alkali Canyon Formation, and near the McKay Reservoir southeast of Pendleton, it is the McKay Formation. These Miocene and Pliocene age units are each part of the Dulles Group (Farouqi and others, 1981). In the area around Hermiston, the Pliocene deposits are overlain by Pleistocene glaciofluvial sand and gravel, minor dune sand, loess, and near the principal streams, Holocene alluvium.

Valley fill overburden deposits in the Walla Walla Valley near Milton-Freewater and in the Grande Ronde Valley are also variable and include alluvium, alluvial fan, colluvium, and fluvioestuarine deposits ranging from clay to gravel. Generally, the uppermost younger units in these valleys are sand or gravel and they become finer with depth. In the Wallawa Valley, glacial till, glaciofluvial, and alluvial deposits are present at the surface; presumably the glaciofluvial materials predominate at depth in the valley.

EXPLANATION

- STUDY AREA BOUNDARY
- LINE OF EQUAL THICKNESS OF OVERBURDEN—Approximately located, queried where uncertain. Interval, in feet, is variable.
- WELL PARTIALLY PENETRATING OVERBURDEN
- WELL PENETRATING OVERBURDEN

GEOLOGY, STRUCTURE, AND THICKNESS OF HYDROGEOLOGIC UNITS IN PART OF THE COLUMBIA PLATEAU, OREGON

By
Joseph B. Gonthier
1990