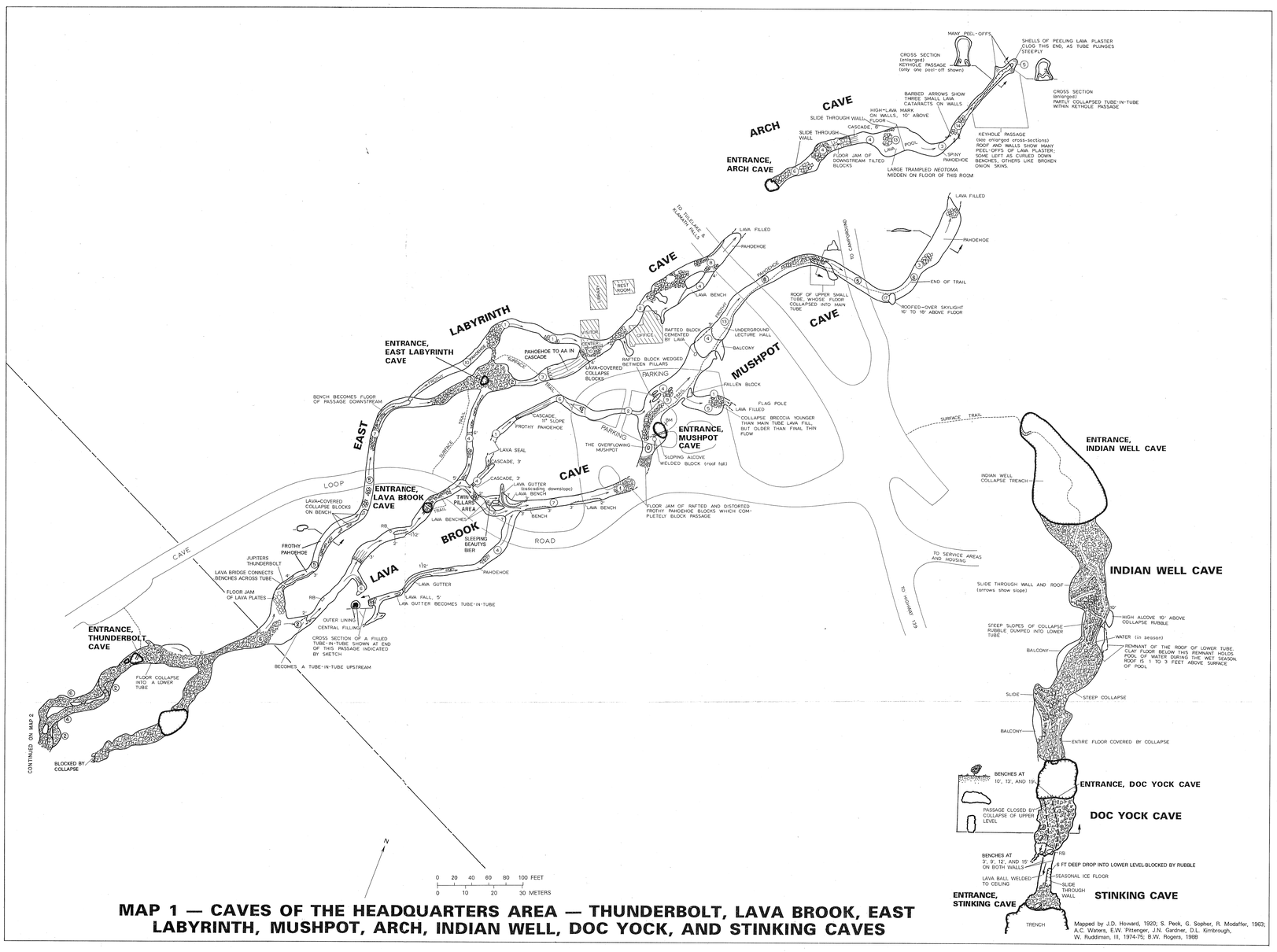


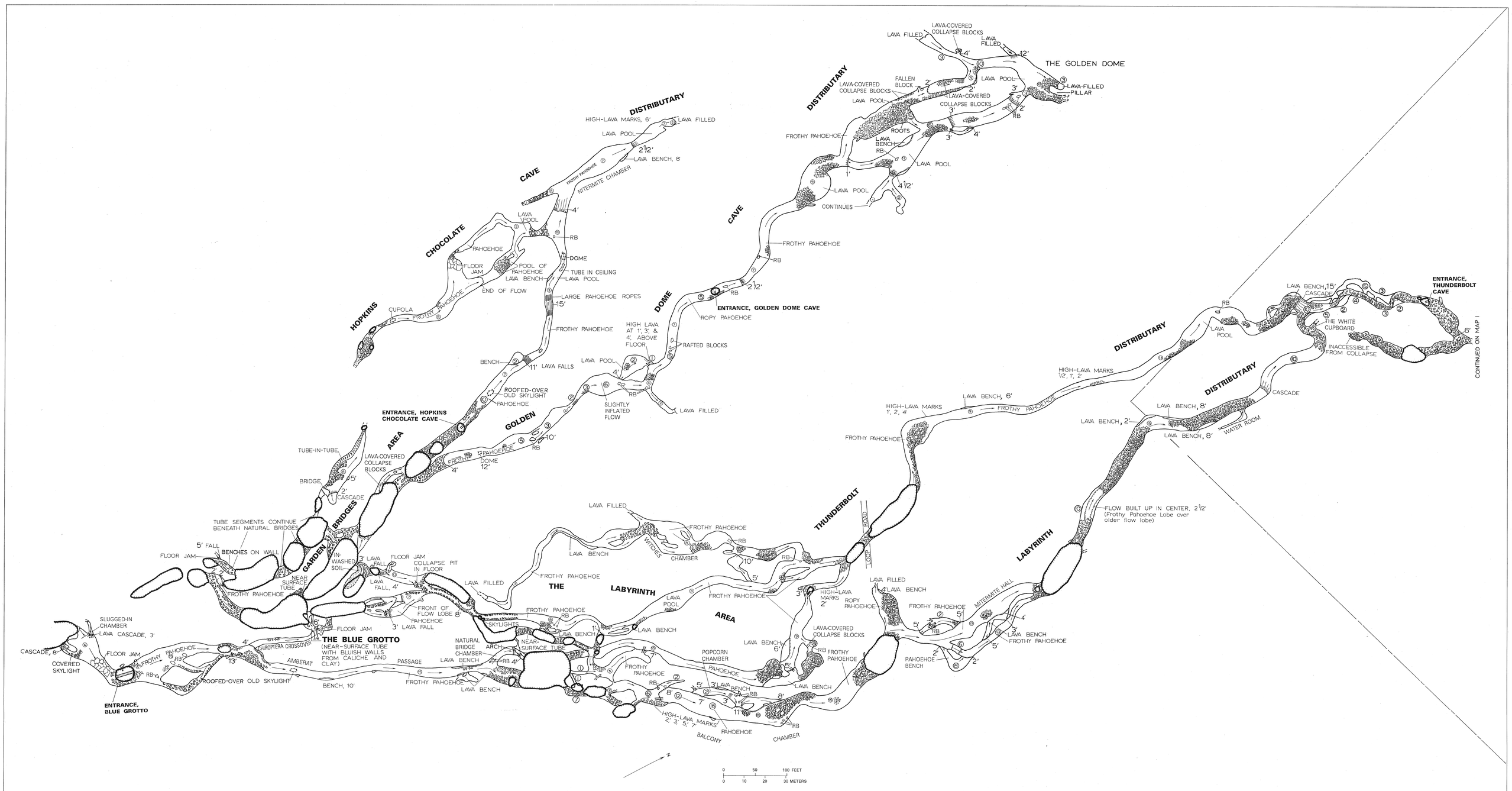
MAP 1 — CAVES OF THE HEADQUARTERS AREA — THUNDERBOLT, LAVA BROOK, EAST LABYRINTH, MUSHPOT, ARCH, INDIAN WELL, DOC YOCK, AND STINKING CAVES

Mapped by J.D. Howard, 1920; S. Peck, G. Sopher, R. Modaffer, 1963; A.C. Waters, E.W. Pittenger, J.N. Gardner, D.L. Kimbrough, W. Ruddiman, III, 1974-75; B.W. Rogers, 1988

EXPLANATION

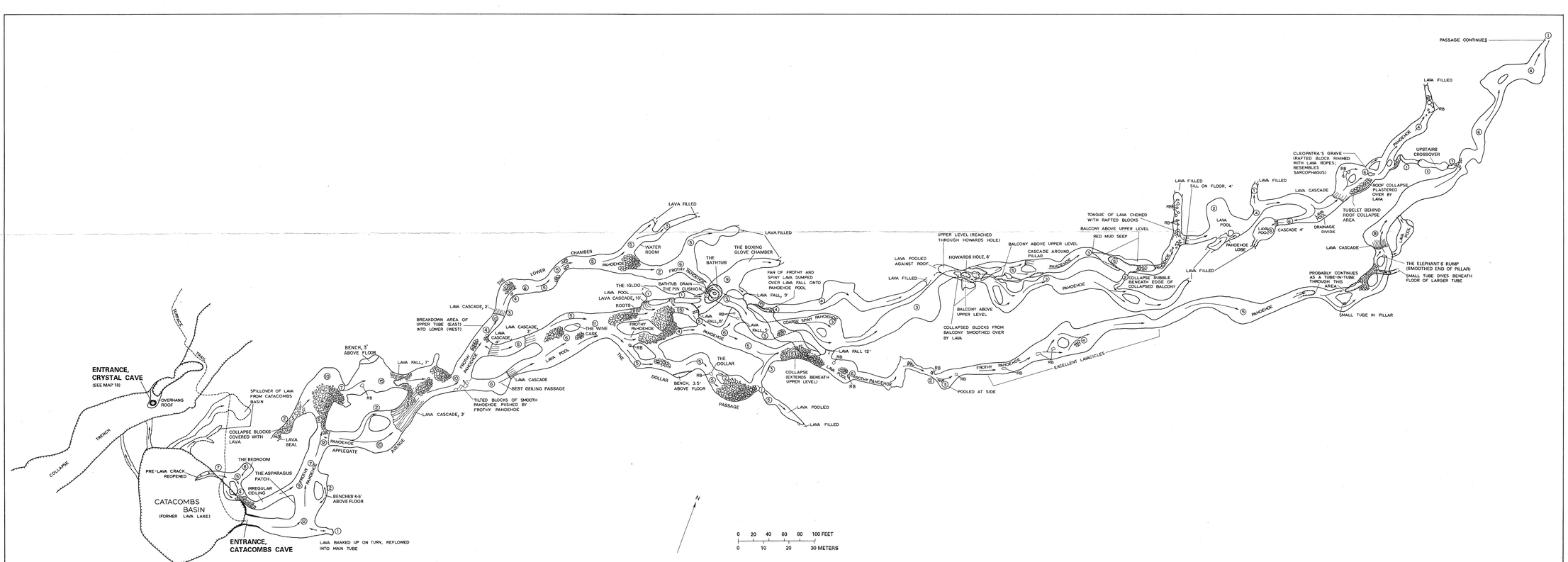
[Not all symbols appear on all maps]

- **ENTRANCE OR COLLAPSE TRENCH TO SURFACE**—Floor covered with breakdown
- **UPPER AND LOWER PASSAGES**—Lower passage shown by dashed or dotted lines
- **PAHOEHOE FLOOR**—Arrow shows direction of flow. Dashed arrows indicate backflow
- **DROP**—Hachures point downslope
- **BREAKDOWN OR COLLAPSE RUBBLE**—Half arrows point downslope; not shown everywhere it is present
- **BENCH OR BALCONY**—Height above floor in feet
- **PASSAGE BLOCKED BY LAVA**
- **PASSAGE BLOCKED BY BREAKDOWN**
- **RAFTED BLOCK**
- **LAVA CASCADE OR FALL**—Height in feet; barbs point downslope
- **FLOOR JAM OF PLATES**
- **CEILING HEIGHT IN FEET**
- **FRONT OF FLOW LOBE**
- **WASHED-IN SEDIMENT FLOOR**
- **TRAIL**—Short or long dash
- **STAIRS OR LADDER**
- **PIT OR COLLAPSE TRENCH**
- **DOME**
- **CROSS SECTION OF PASSAGE**—Arrow indicates direction of view



MAP 2 — LABYRINTH CAVE SYSTEM — BLUE GROTTO, GARDEN BRIDGES, GOLDEN DOME, HOPKINS CHOCOLATE, LABYRINTH, AND THUNDERBOLT CAVES

Mapped by J.D. Howard, 1920; S. Peck, G. Sopher, R. Modaffer, 1963; A.C. Waters, E.W. Pittenger, W. Ruddiman, III, 1974; B.W. Rogers, 1982-88



MAP 3 — CATACOMBS CAVE

Mapped by J.D. Howard, 1920, S. Peck, G. Sopher, 1963; A.C. Waters, E.W. Pittenger, W. Ruddiman, III, 1974; B.W. Rogers, 1982

Many of the feature names used on these maps were assigned by Bruce W. Rogers of the U.S. Geological Survey and the Cave Research Foundation. These names are not officially recognized or approved by the U.S. Board on Geographic Names and are thus considered informal

CAVES OF THE HEADQUARTERS AREA, LABYRINTH CAVE SYSTEM, AND CATACOMBS CAVE, LAVA BEDS NATIONAL MONUMENT, CALIFORNIA