

# Selected Caves and Lava-Tube Systems In and Near Lava Beds National Monument, California

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BRUCE W. ROGERS

## MAPS

The map pages in this PDF file vary greatly in size. They were originally grouped onto large, folded map plates about 40 by 50 inches (over one square meter) in size. For convenience in viewing and scanning, the maps have been cut into separate pages. The map legend, common to all the maps, appeared on each plate and is presented here on the next page.

The map pages in this file vary greatly in size. The maps contain slight imperfections due to the creases from the folding and also from small errors in aligning the individual smaller scans from which they have been assembled. Distances may differ from the indicated scale by a percent or so because of non-linear behavior of my scanner.

Bill Mixon, February 2010

## 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



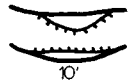
**PAHOEHOE FLOOR**—Arrow shows direction of flow. Dashed arrows indicate backflow



**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**



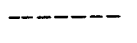
**CEILING HEIGHT IN FEET**



**FRONT OF FLOW LOBE**



**WASHED-IN SEDIMENT FLOOR**



**TRAIL**—Short or long dash



**STAIRS OR LADDER**



**PIT OR COLLAPSE TRENCH**



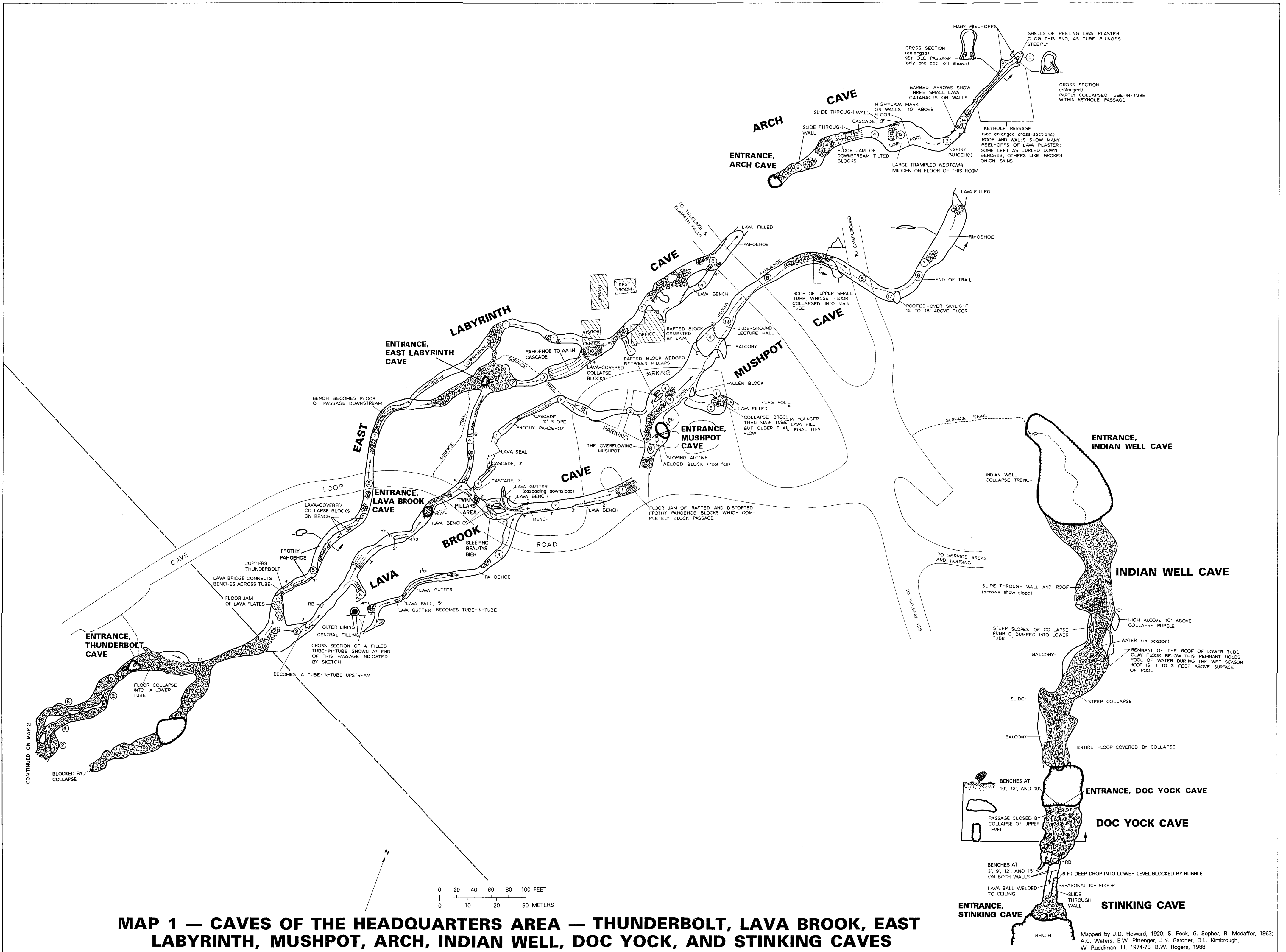
**DOMES**



**CROSS SECTION OF PASSAGE**—Arrow indicates direction of view

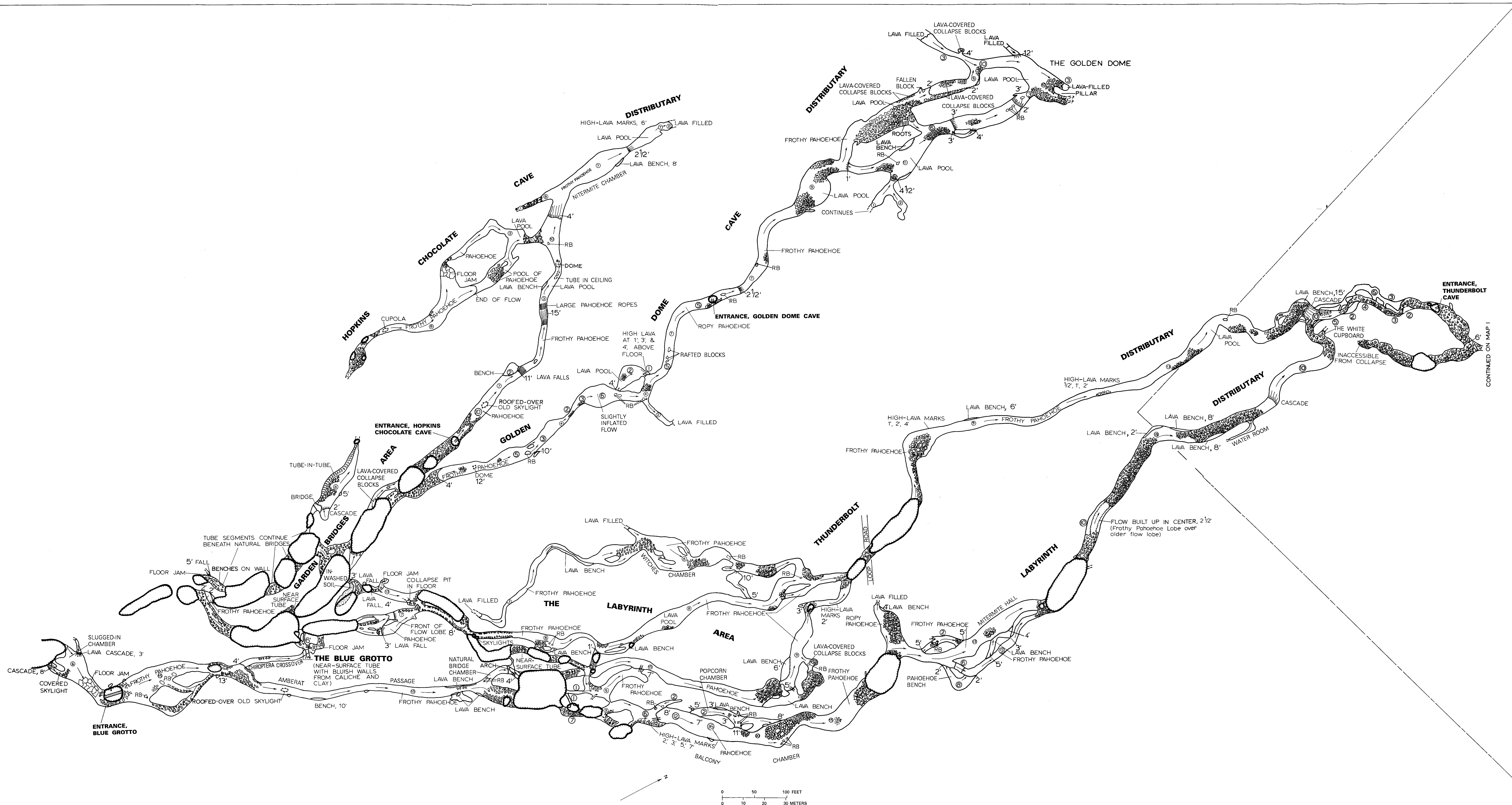
Many of the feature names used on these maps were assigned by Bruce W. Rogers of the U.S. Geological Survey and the Cave Research Foundation. These names are not officially recognized or approved by the U.S. Board on Geographic Names and are thus considered informal

**DEPARTMENT OF THE INTERIOR  
U.S. GEOLOGICAL SURVEY**



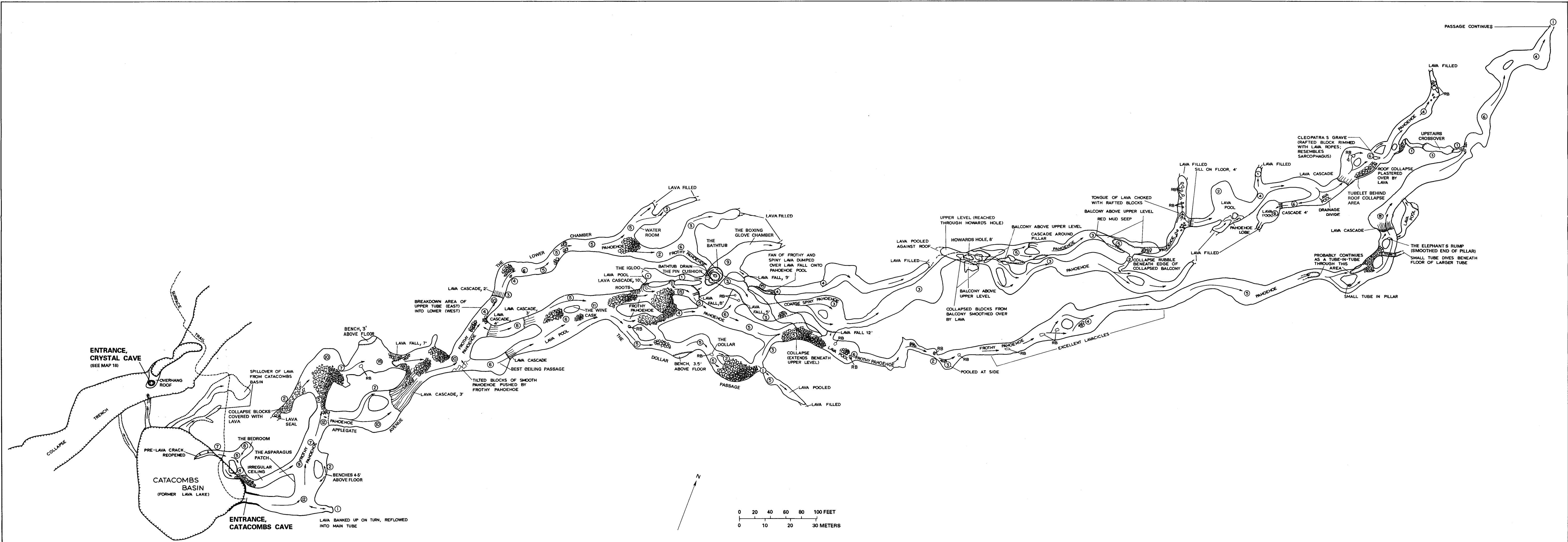
**MAP 1 — CAVES OF THE HEADQUARTERS AREA — THUNDERBOLT, LAVA BROOK, EAST LABYRINTH, MUSHPOT, ARCH, INDIAN WELL, DOC YOCK, AND STINKING CAVES**

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



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

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

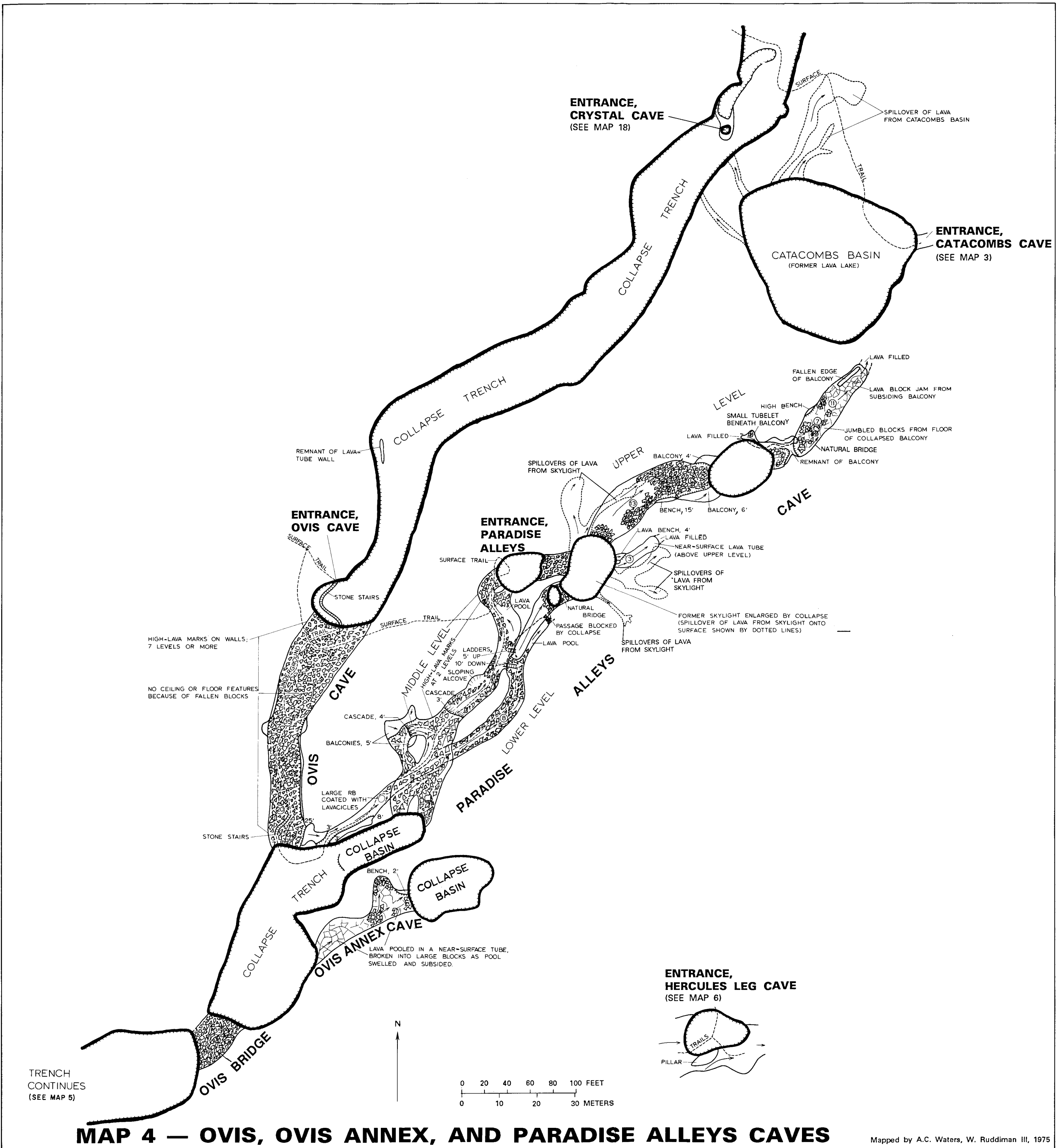


**ENTRANCE, CRYSTAL CAVE**  
(SEE MAP 18)

**ENTRANCE, CATACOMBS CAVE**

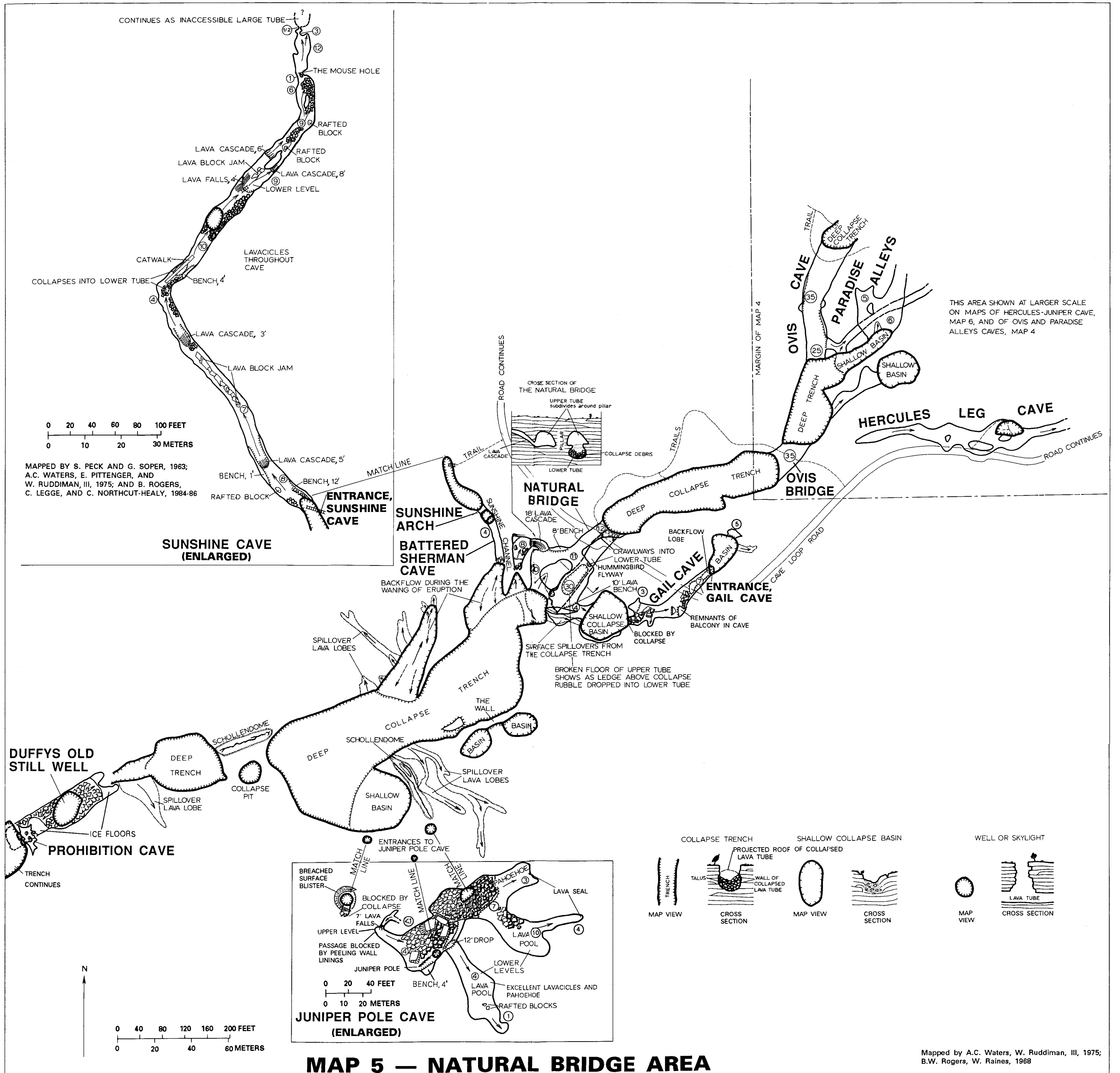
**MAP 3 — CATACOMBS CAVE**

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



**MAP 4 — OVIS, OVIS ANNEX, AND PARADISE ALLEYS CAVES**

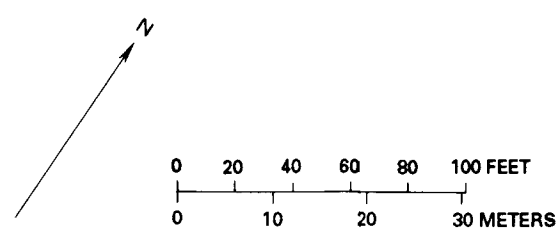
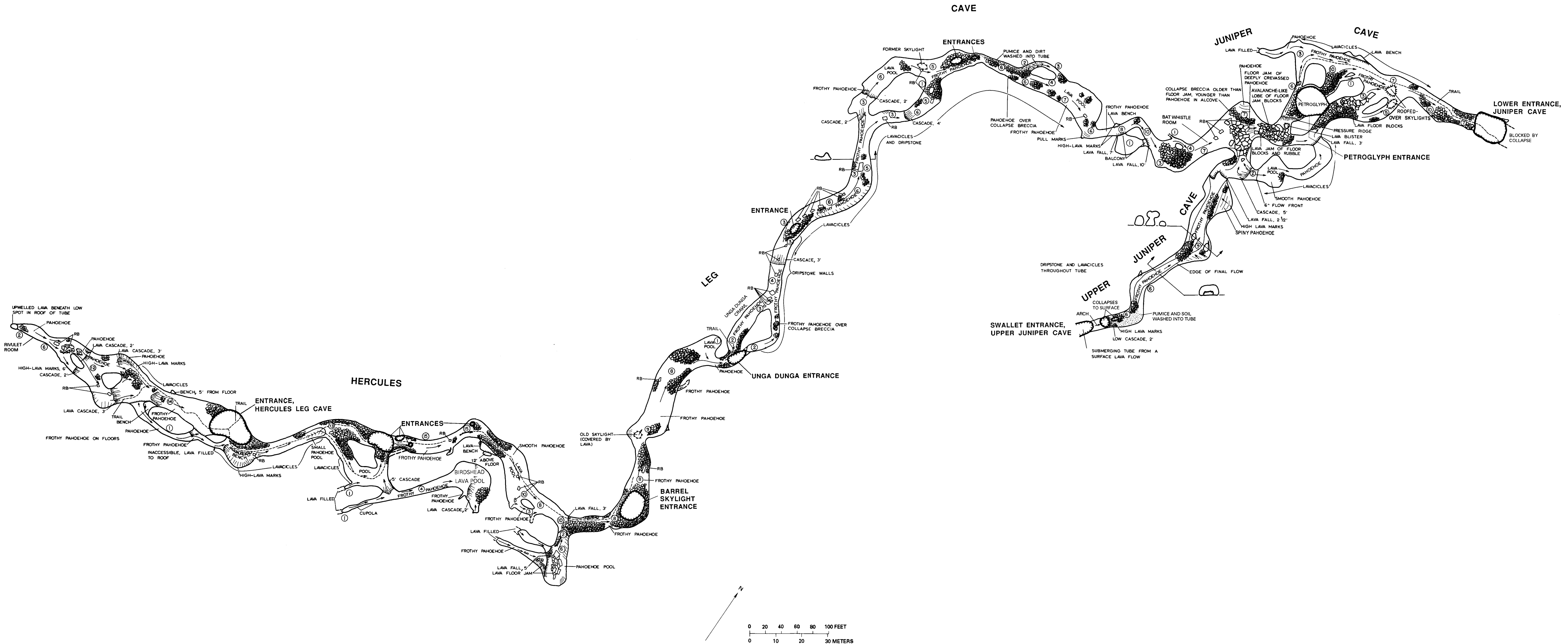
Mapped by A.C. Waters, W. Ruddiman III, 1975



THIS AREA SHOWN AT LARGER SCALE ON MAPS OF HERCULES-JUNIPER CAVE, MAP 6, AND OF OVIS AND PARADISE ALLEYS CAVES, MAP 4

MAP 5 — NATURAL BRIDGE AREA

Mapped by A.C. Waters, W. Ruddiman, III, 1975; B.W. Rogers, W. Raines, 1968

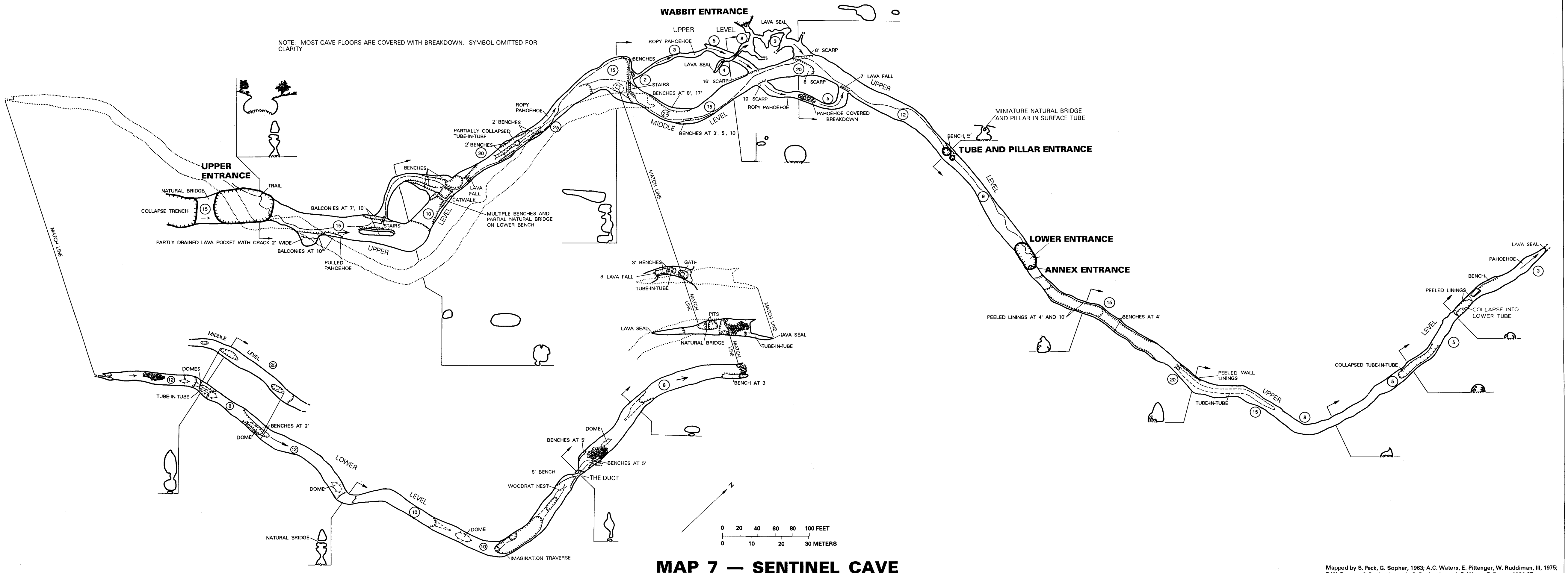


**MAP 6 — HERCULES LEG AND JUNIPER CAVES**

Mapped by S. Peck, G. Sopher, 1963; A.C. Waters, E. Pittenger, W. Ruddiman, III, 1976; B.W. Rogers, 1982

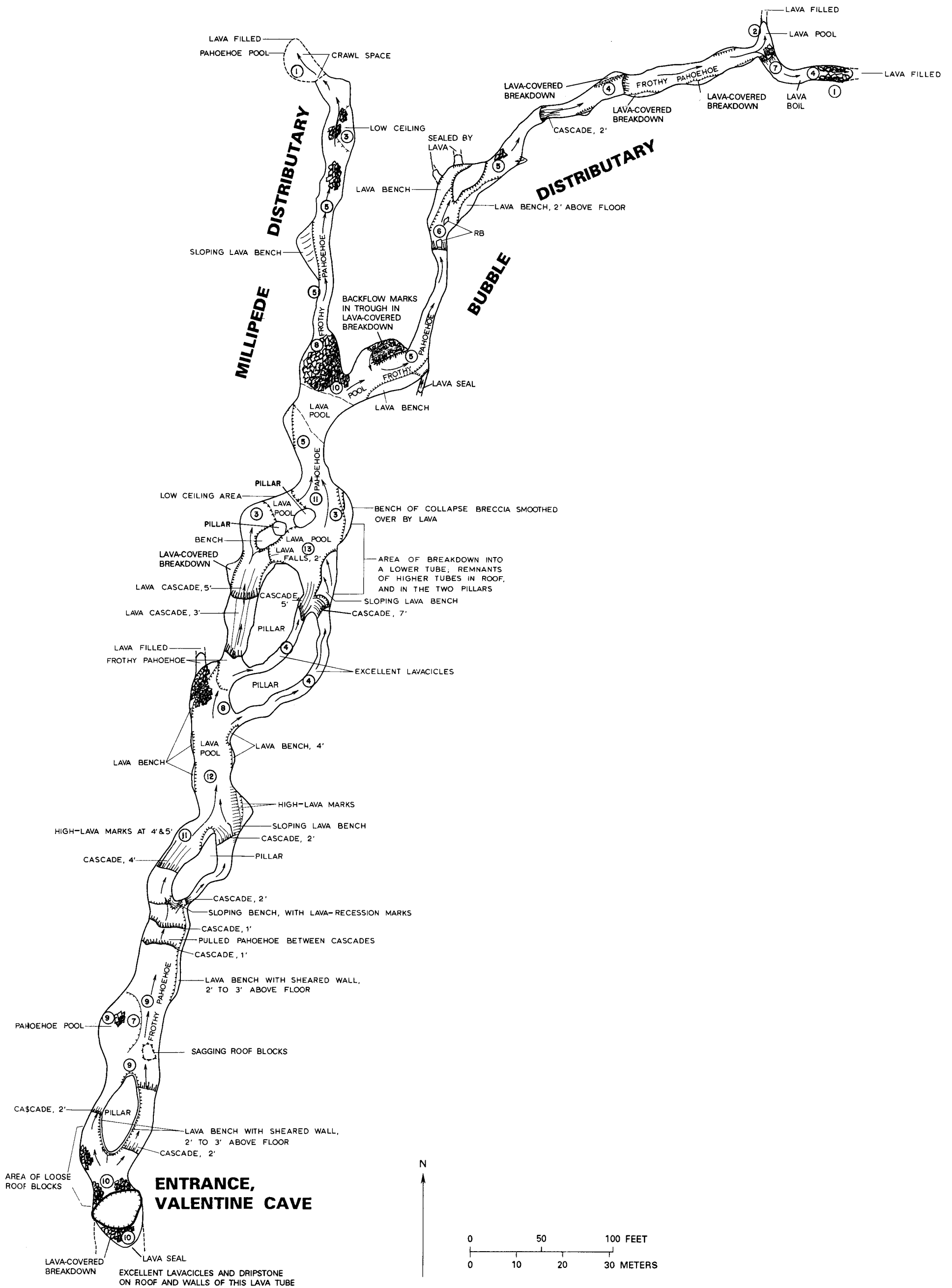


NOTE: MOST CAVE FLOORS ARE COVERED WITH BREAKDOWN. SYMBOL OMITTED FOR CLARITY



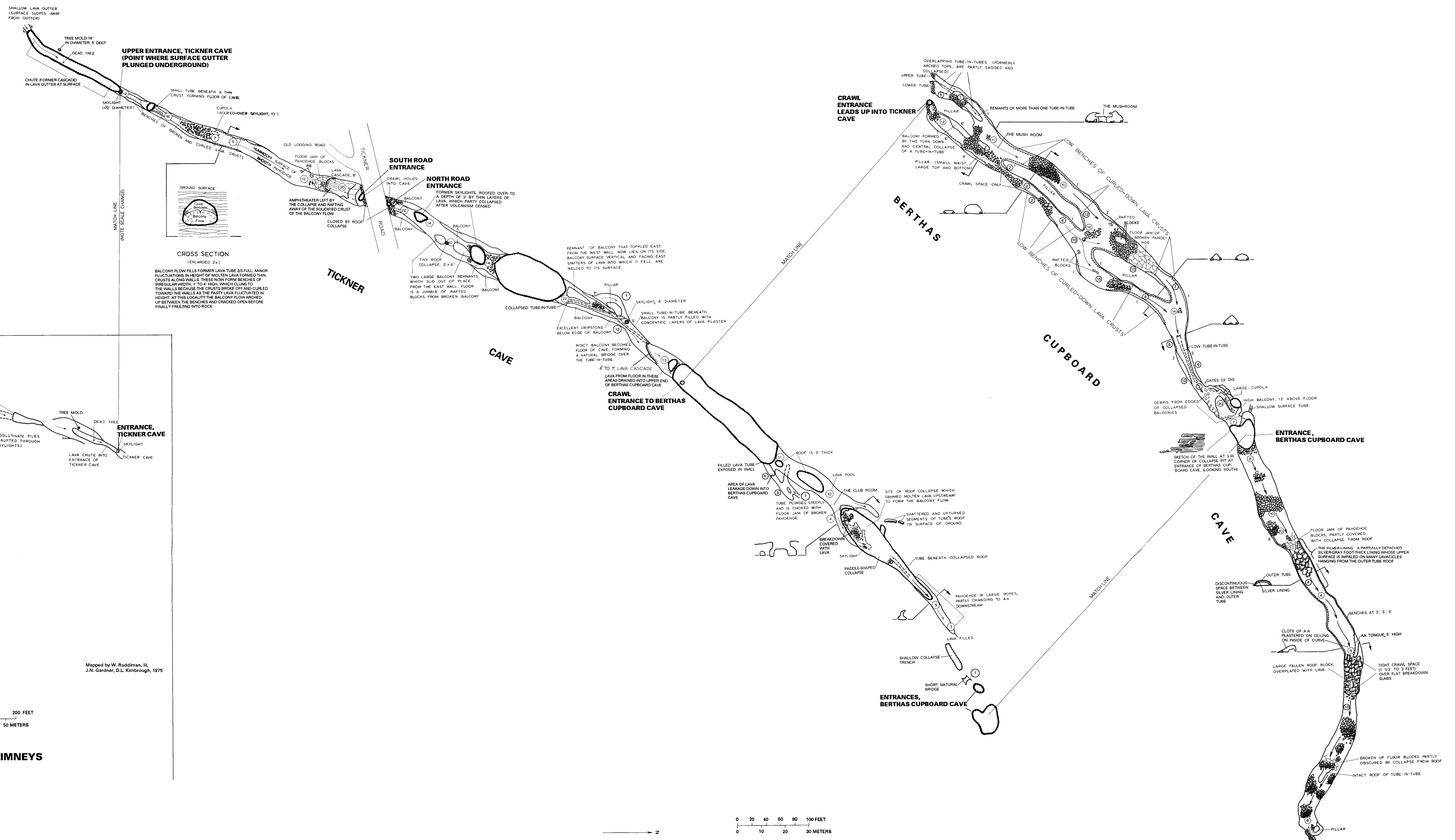
**MAP 7 — SENTINEL CAVE**

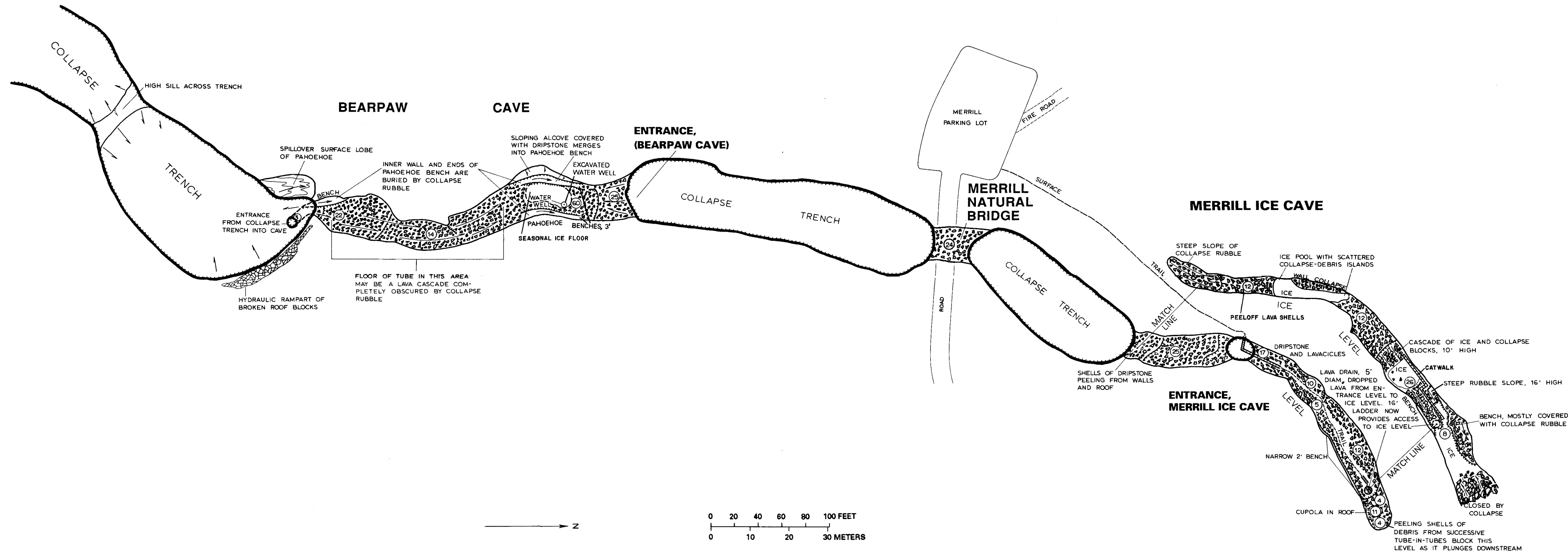
Mapped by S. Peck, G. Sopher, 1963; A.C. Waters, E. Pittenger, W. Ruddiman, III, 1975; B.W. Rogers, C. Decker-Legge, P. Decker-Legge, P. Wong, F. Reyes, 1986-87



**MAP 8 — VALENTINE CAVE**

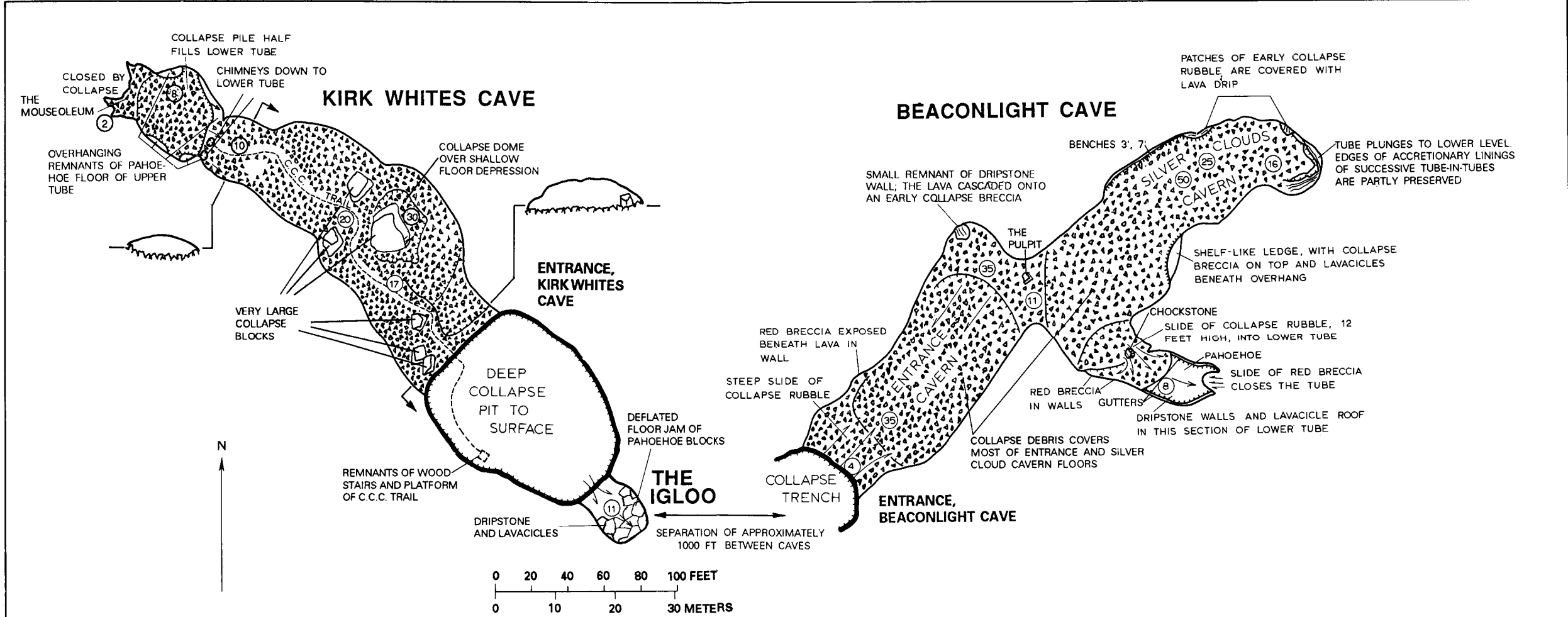
Mapped by A.C. Waters, E. Pittenger, W. Ruddiman, III, 1975





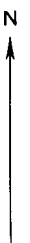
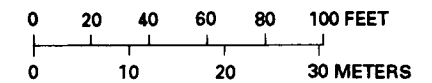
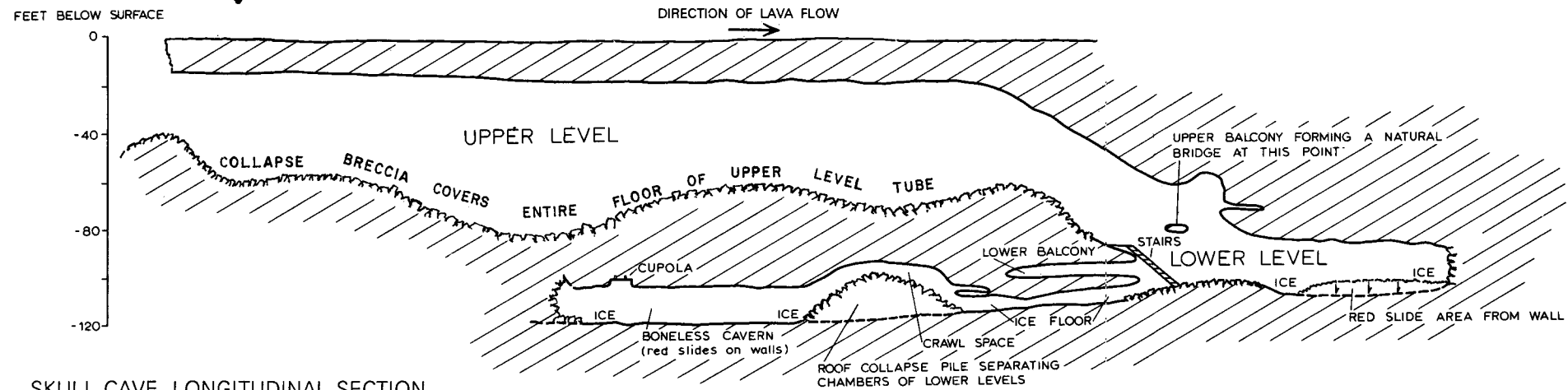
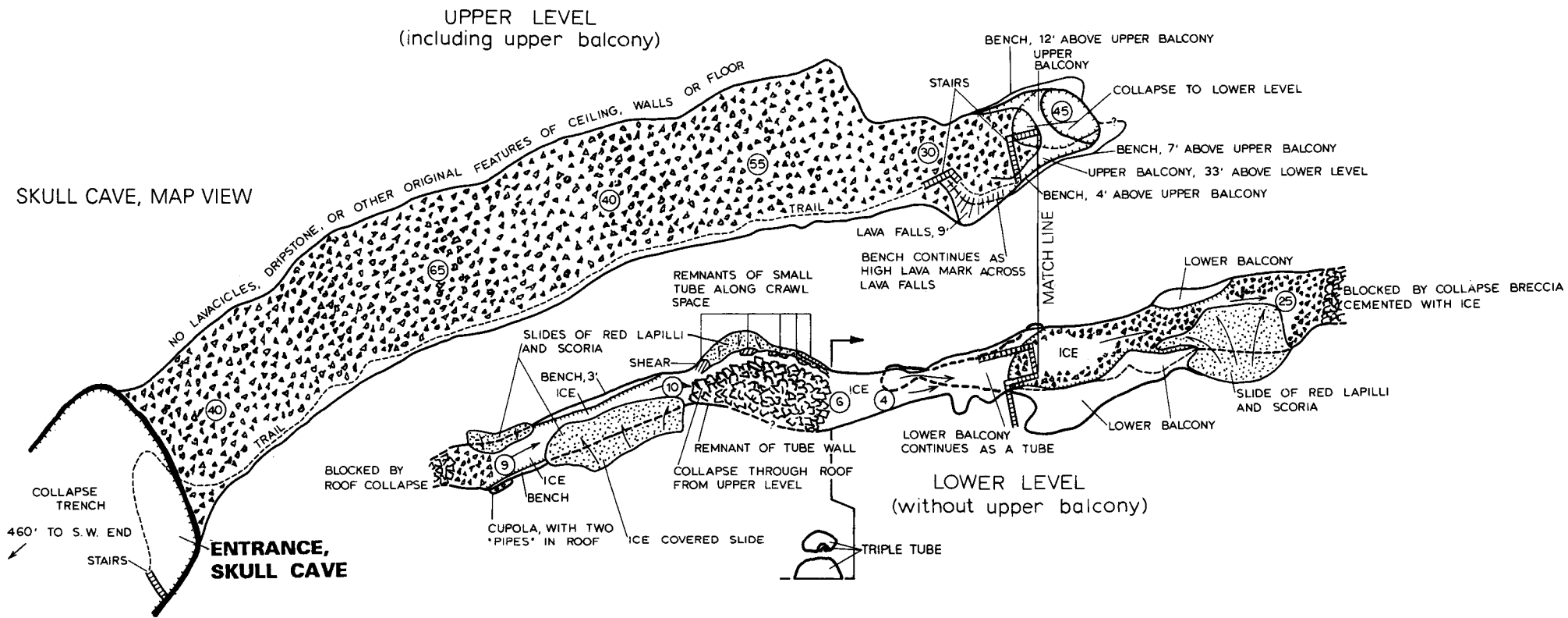
**MAP 10 — MERRILL ICE CAVE, MERRILL NATURAL BRIDGE, AND BEARPAW CAVE**

Mapped by A.C. Waters, J.N. Gardner, D.L. Kimbrough, W. Ruddiman, III, 1975



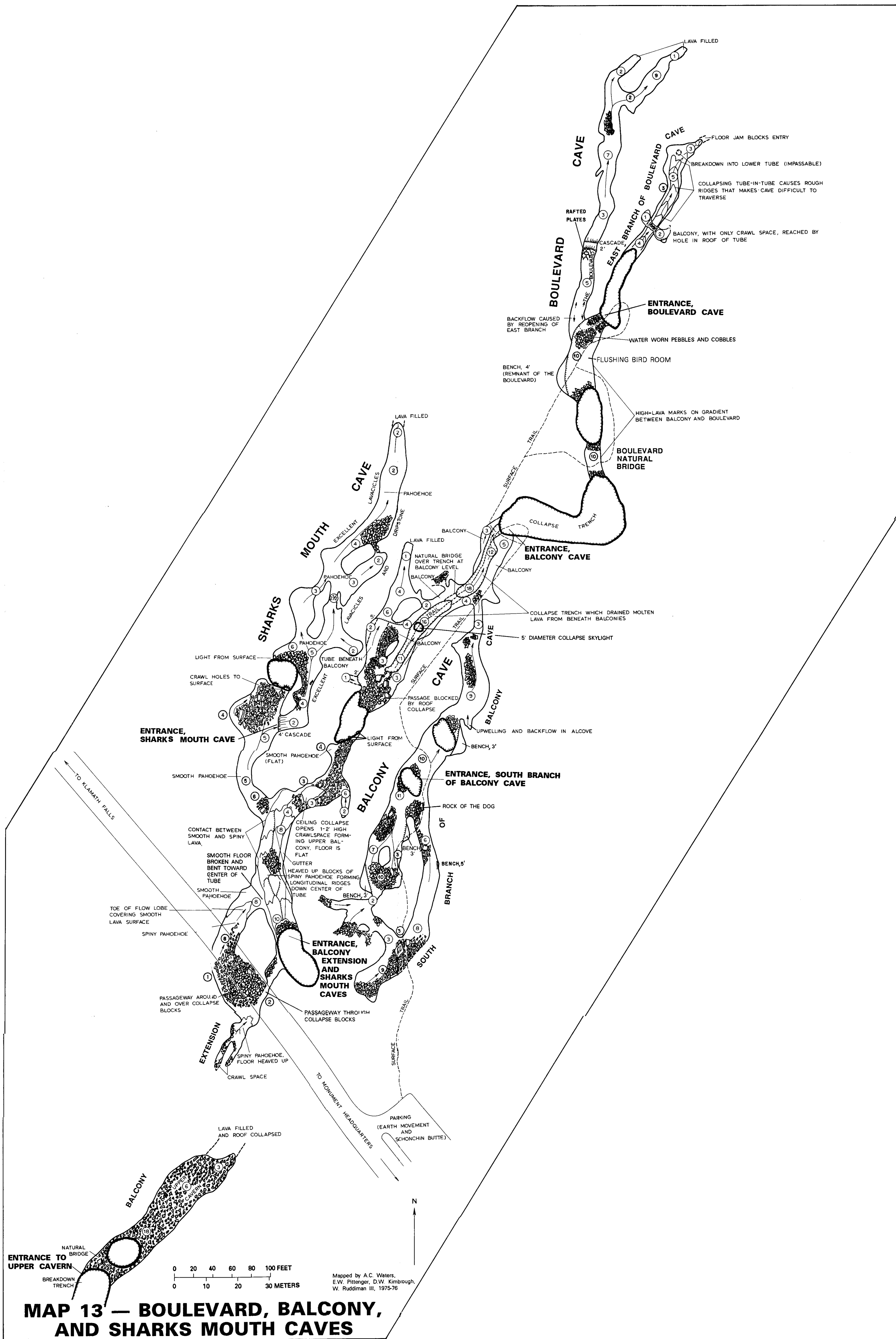
**MAP 11 — KIRK WHITES, BEACONLIGHT, AND THE IGLOO CAVES**

Mapped by A.C. Waters, J.N. Gardner, D.L. Kimbrough, W. Ruddiman, III, 1975; B.W. Rogers, 1988

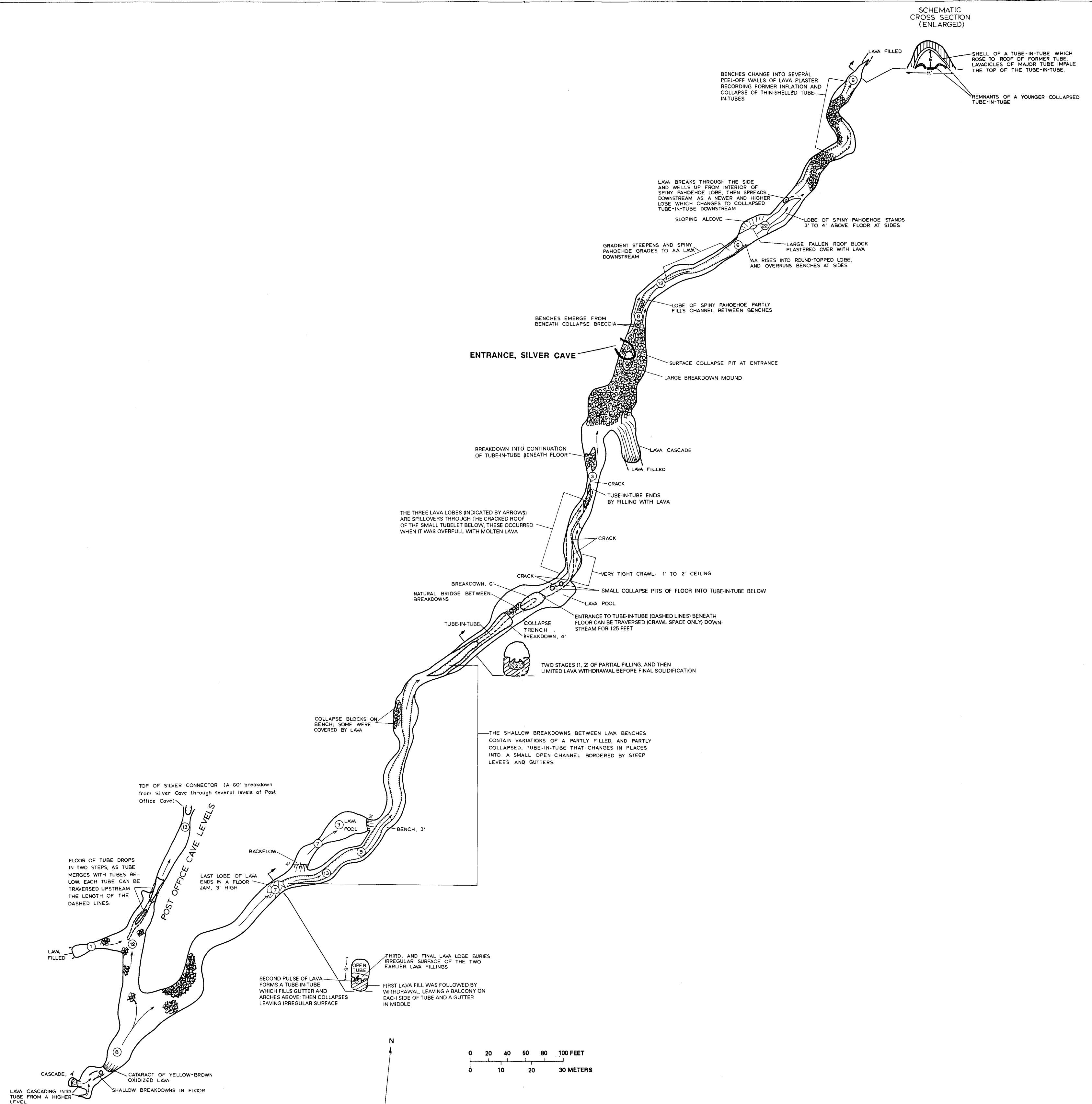


**MAP 12 — SKULL CAVE**

Mapped by A.C. Waters, J.N. Gardner, D.L. Kimbrough, W. Ruddiman III, 1975



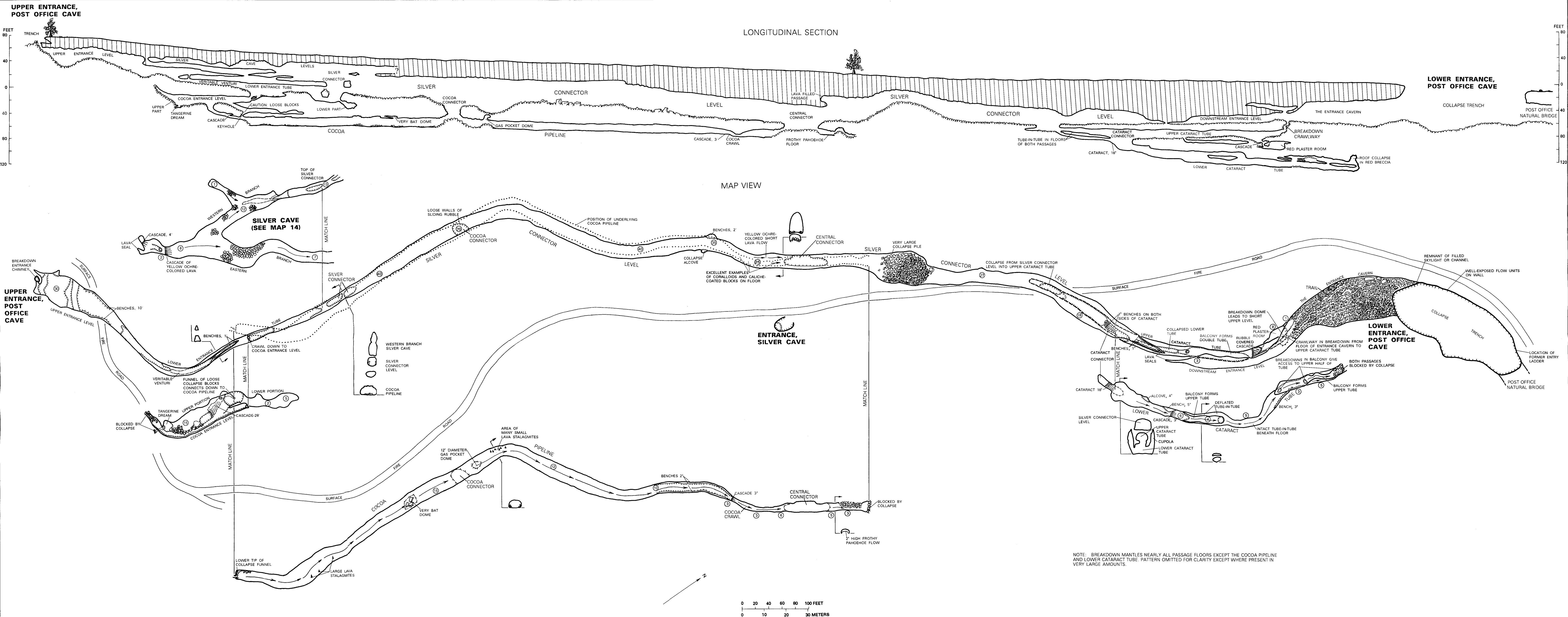
**MAP 13 — BOULEVARD, BALCONY, AND SHARKS MOUTH CAVES**



**MAP 14 — SILVER CAVE**

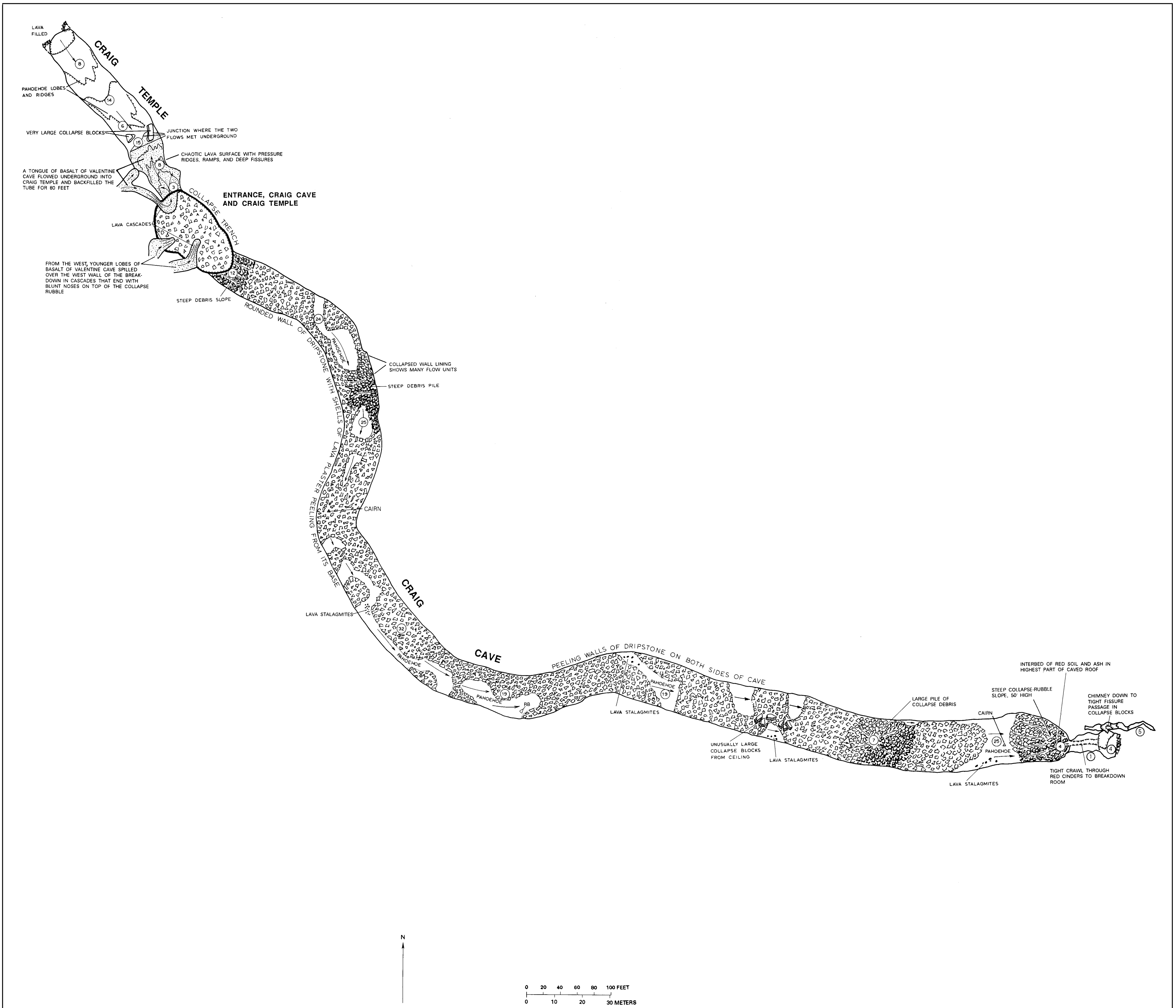
Mapped by A.C. Waters, D.L. Kimbrough, J.N. Gardner, and W. Ruddiman II, 1975





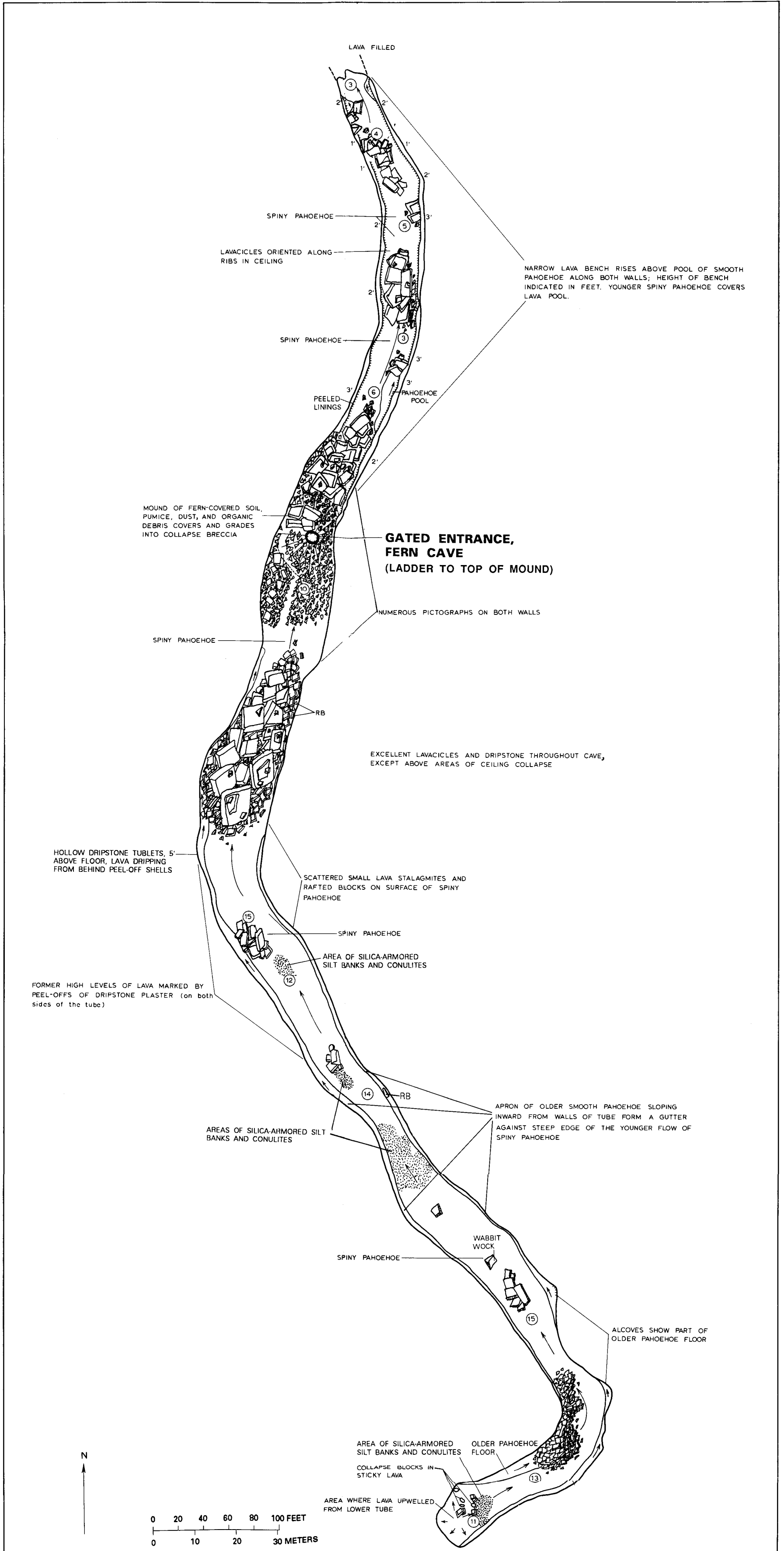
**MAP 15 — POST OFFICE CAVE**

Mapped by D.L. Kimbrough, J.N. Gardner, A.C. Waters, and W. Ruddiman, III, 1975; B.W. Rogers, 1989



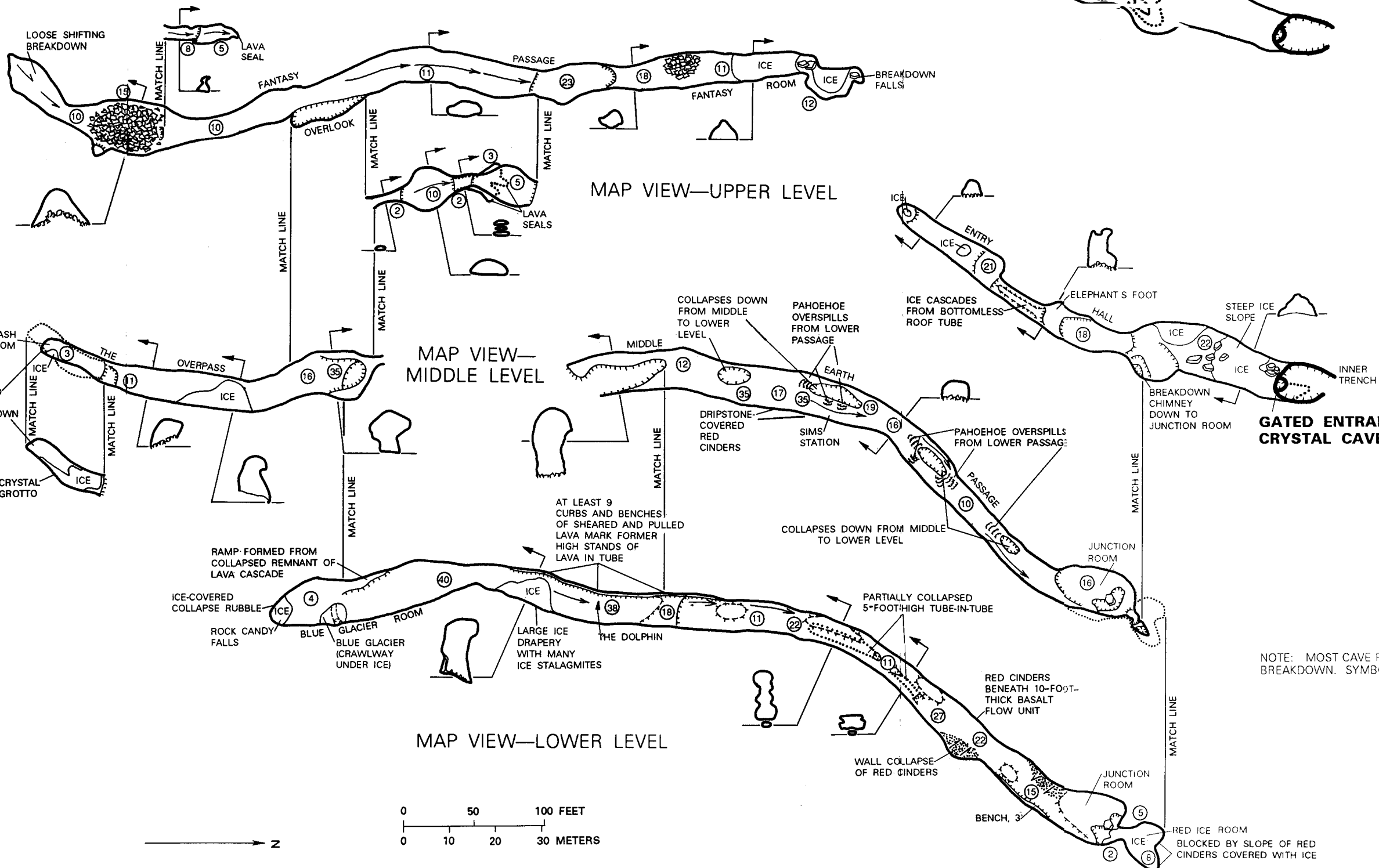
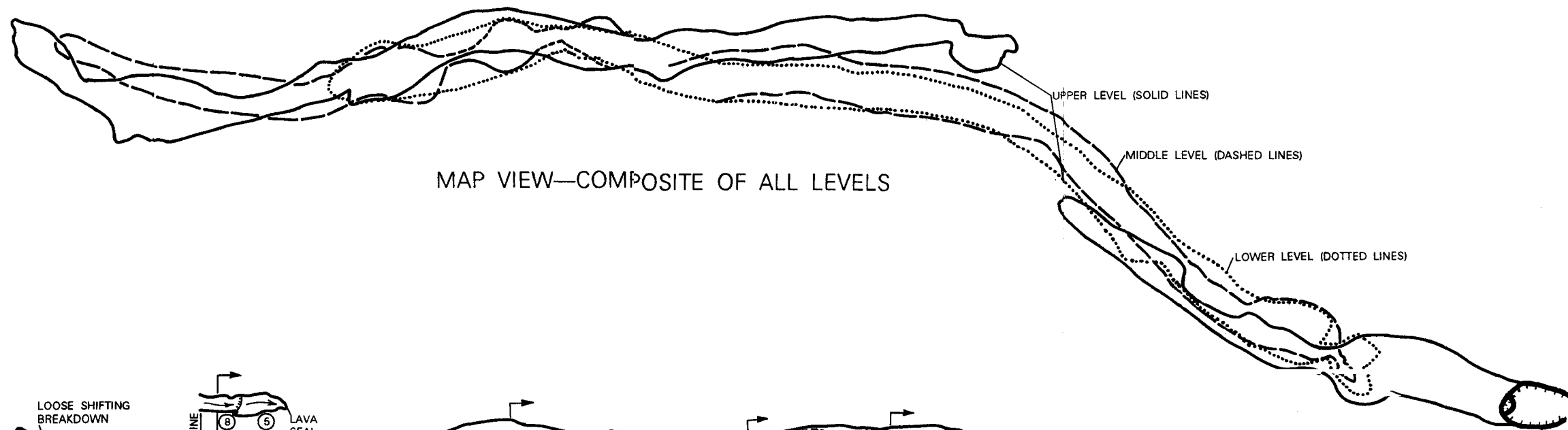
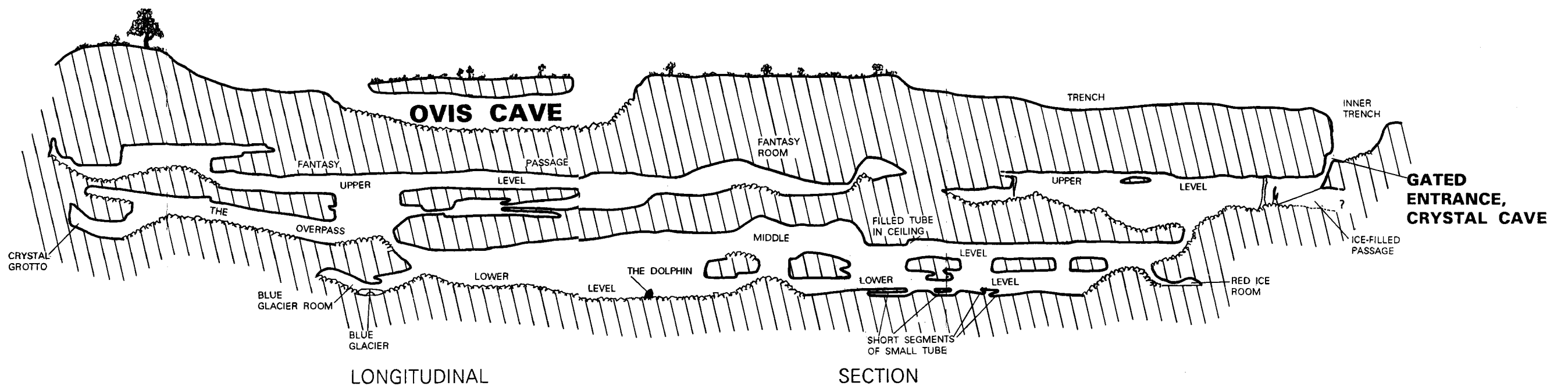
**MAP 16 — CRAIG TEMPLE AND CRAIG CAVE**

Mapped by A.C. Waters, E.W. Pittenger,  
 W. Ruddiman III, S. Coleman, 1975;  
 B.W. Rogers, 1988

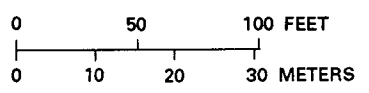


**MAP 17 — FERN CAVE**

Mapped by A.C. Waters,  
J.N. Gardner, D.L. Kimbrough,  
W. Ruddiman, III, 1975

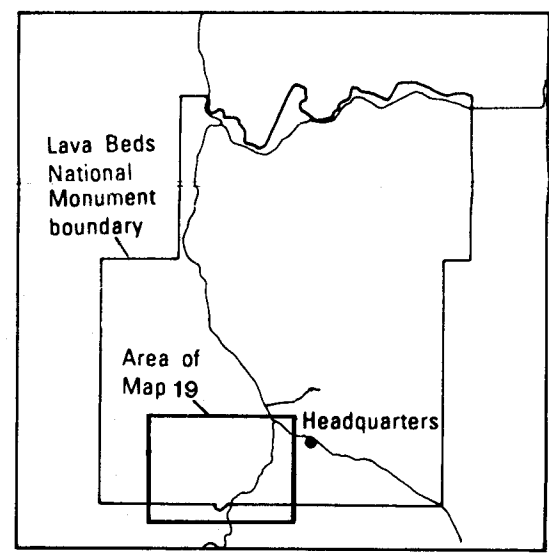


NOTE: MOST CAVE FLOORS ARE COVERED WITH BREAKDOWN. SYMBOL OMITTED FOR CLARITY.

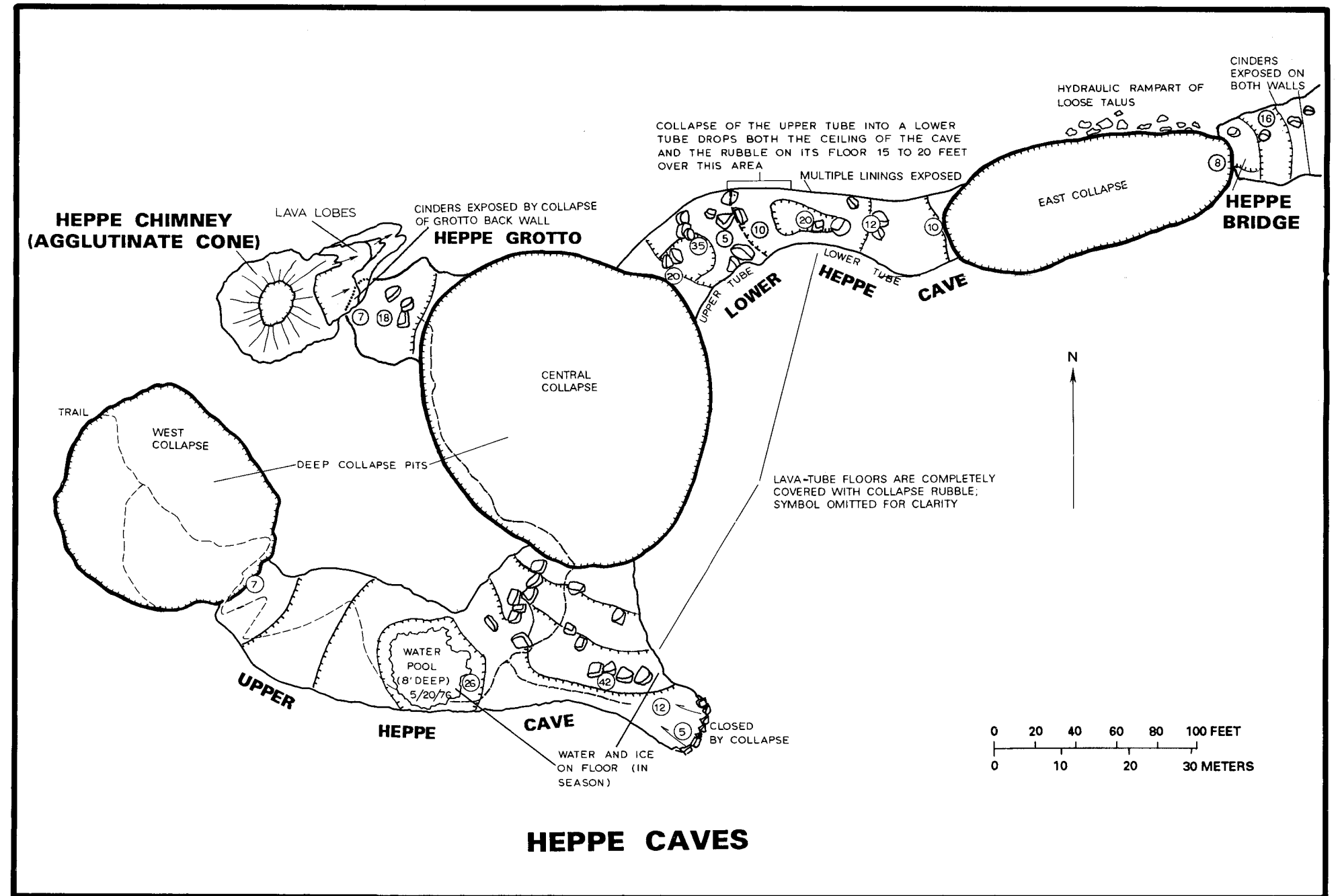


**MAP 18 — CRYSTAL CAVE**

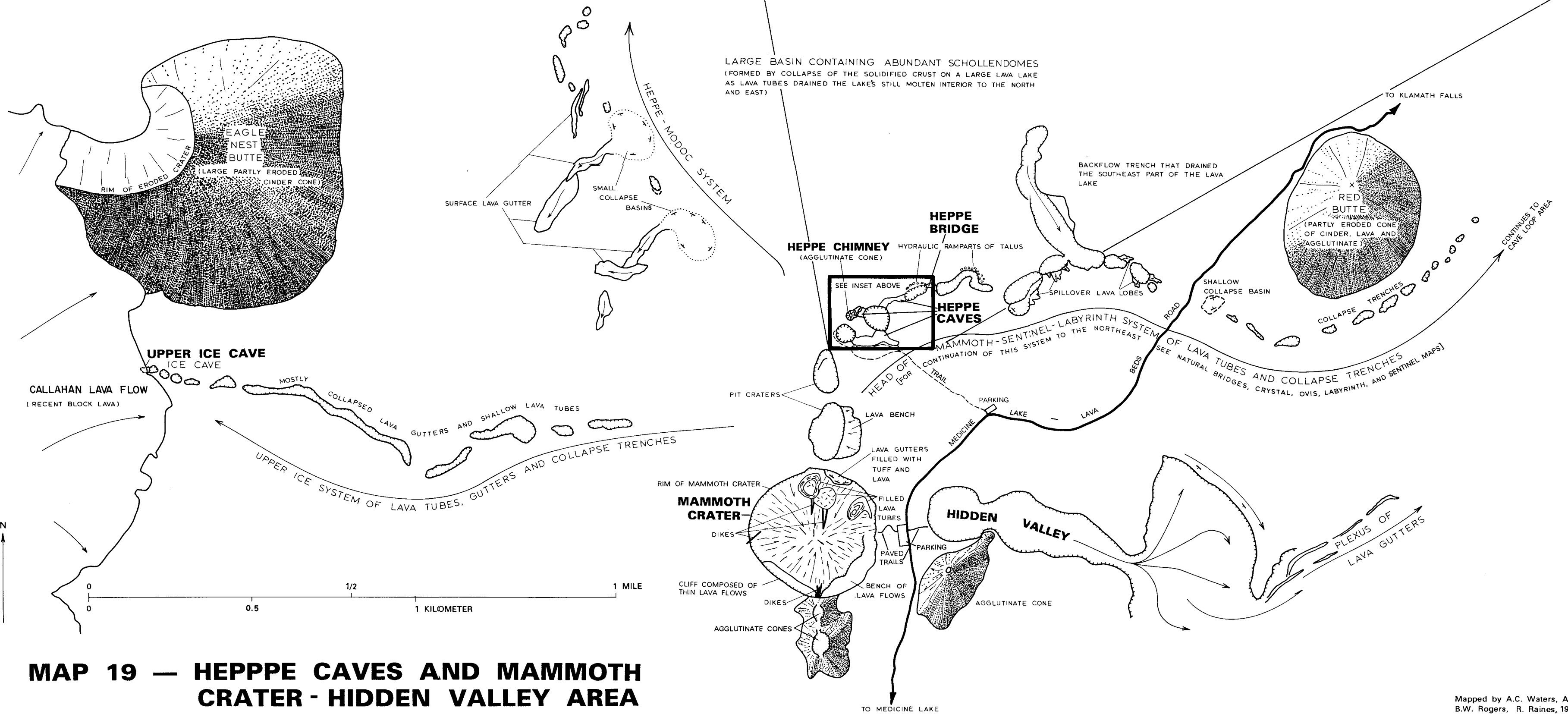
Mapped by A.C. Waters, D. Kimbrough, J.N. Gardner, W. Ruddiman, III, 1975; R. Boyd, L. Sims, D. Denbo, R. Rope, M. Sims, B. Taylor, M. Ford, R. Ford, D. Denham, J. Blum, 1986; B.W. Rogers, 1989



INDEX MAP



HEPPE CAVES



MAP 19 — HEPPE CAVES AND MAMMOTH CRATER - HIDDEN VALLEY AREA

Mapped by A.C. Waters, Alison Till, 1976; B.W. Rogers, R. Raines, 1988

