Tom Dillon
N. S. S. 6720 R

TEXAS SPELEOLOGICAL SURVEY

SPECIAL REPORT

A PRELIMINARY REPORT ON THE CAVES OF THE MT. VERNON AND LIVINGSTON QUADRANGLES KENTUCKY

By William H. Russell and Thomas R. Costello

A Publication of the
Texas Speleological Association

December 30, 1962

TEXAS SPELEOLOGICAL SURVEY

James R. Reddell, Editor

A PRELIMINARY REPORT ON THE CAVES OF THE MT. VERNON AND LIVINGSTON QUADRANGLES, KENTUCKY

The Mt. Vernon and Livingston 7½' quadrangles are located in Rockcastle County in southeastern Kentucky about forty-five miles south-southeast of Lexington and forty miles north of the Kentucky-Tennessee state line. Each of the two quadrangles covers an area approximately seven by eight and one half miles, or about sixty square miles. However most of the caves occur in a small area in northwestern Livingston and northeastern Mt. Vernon Quadrangles.

This cave area is formed by an outcrop of Mississippian limestones. These limestones, which dip underground to the southeast, are overlain by Pennsylvanian sands, shales, and coals of the Eastern Coal Field. To the west these limestones form low hills and plains before they are entirely removed by solution and erosion. Thus the most favorable zone for caves is the eastern margin of the limestone outcrop where the thick Pennsylvanian sandstones cap the hills and protect the caves from erosion. These sandstone-topped hills form a rugged topography with over four hundred feet of local relief.

The cave area is drained by Roundstone Creek and its tributary, Crooked Creek. Below its junction with Crooked Creek, Roundstone Creek has cut a deep narrow valley south to the Rockcastle River. Much of this valley is usually dry, since the normal flow of Roundstone Creek sinks into the caverniforous limestone. West of Roundstone Creek, drainage is into long valley sinks or uvalas, the most prominent of which is followed by US Highway 25 between Mt. Vernon and Livingston. These valley sinks, which are usually straight east-west depressions, appear to have been formed along zones of structural weakness.

The numbers before the cave descriptions give the location of the cave on the quadrangle map. The first three digits are the distance east from the left edge of the map in tenths of inches. The second group of three digits is the distance north from the lower edge of the map. Thus Sand Hill Lookout Tower, found 1.9 inches east of the left edge and 5.1 inches north of the lower edge of the Livingston Quadrangle would be Livingston 019 051.

This preliminary report represents only a reconnaissance of the area. Before a complete report can be written those caves which are now only partially explored must be fully examined and detailed maps and hydrological studies made. Also the caves in the area have a rich fauna which needs further study. Fish, crayfish, and salamanders were seen in the cave streams, and numerous carabid beetles and other small invertibrates were noted on the cave floors.

The authors would like to express their appreciation to the people of this area for their assistance in the fieldwork. Special thanks go to John Lair, owner of Great Saltpetre Cave, and Richard Mullins, whose information on cave locations proved invaluable.

065 226 Mullins Spring Cave. A low, wide entrance above a large spring connects as a stoopway almost filled with water to another entrance about two hundred feet to the north. This north entrance is split into two passages, a low, wide crawlway and a crawlway-stoopway. The crawlway-stoopway, which provides the best entrance, goes for about fifteen feet to a six foot high room with numerous seven foot drops to a lower series of interconnecting passages. This lower level of passages has about three feet of headroom above deep water. From the room the largest passage leads over a seven foot climable drop to a seventy-five foot long passage which is best traversed by chimneying to avoid the water. Beyond the water is a gravel floored passage five feet wide and eight to five feet high, which changes after four hundred feet into a high fissure ending in a waterfall. The water flowing from the spring does not flow from this passage, and it is probable that much more cave can be reached by following the lower water passage, since the whole of Singelton Valley extending to the northwest for about two miles drains into this cave system. El. 921

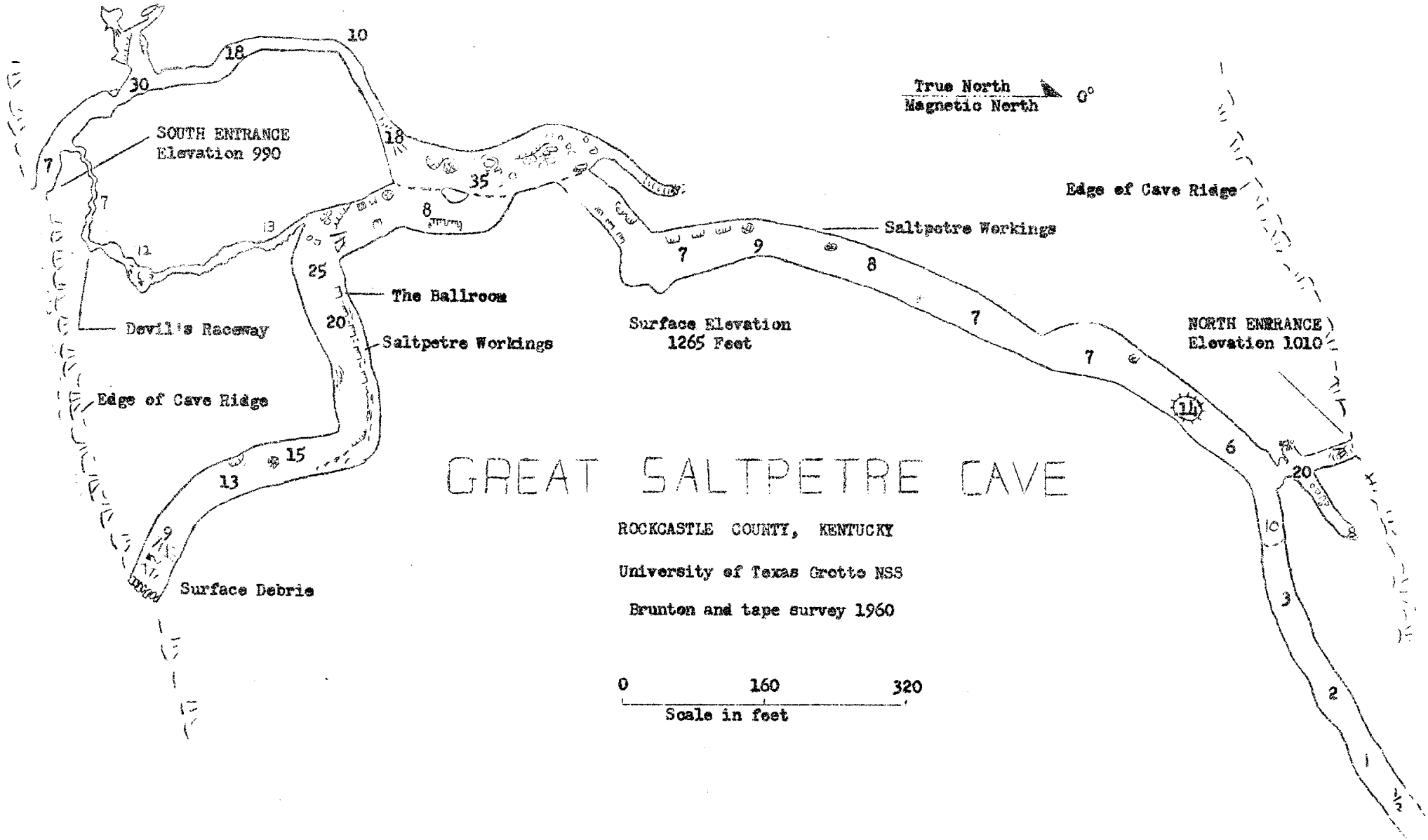
067 226 Vertical sinkhole just north of cemetary. A twenty foot slope leads to a drop of about thirty feet into a room. Last drop not descended. El. 1000

072 225 Seventy-five foot crawlway in cliff above road. Other entrances nearby. El. 950

063 221 Caves in dliff above road. Only the southmost was checked. It was a crawl and a low stoopway which extended for about two hundred feet to a low room. Two crawlways lead from this room, both becoming too small to follow after one hundred feet. El. 950

069 221 North Entrance and 068 213 South Entrance Great Saltpetre Cave. This cave which was discovered by the early settlers is the best known and most visited in the area. It was used as a source of saltpetre during the War of 1812, the Mexican War, and the Civil War, and was for a long time commercialized. The period since the end of commercialization has seen the distruction of much of interest in the cave. All the wooden remnants of the extensive saltpetre mining have been removed, and all the formations destroyed except for a few deposits of dripstone on the walls too massive to move. Though most of the cave lies under a water tight cap of Pennsylvanian sandstone, and so has never had formations, the area near the south entrance had at one time extensive formations now removed by thoughtless vandals who have also in many places covered the walls with their names.

The cave is most easily reached by the road to the south entrance. This entrance, six and one-half feet high and ten feet wide, leads to a flat-floored passage which extends southeast to the Bougher Branch Area, the most decorated area in the cave. However all that is now left are several rimstone pools and dripstone deposits on the walls. From this area the passage leads north and northwest for about two hundred and fifty feet to where it joins the main passage of the cave, forming a large room two hundred and fifty feet long, seventy-five feet wide, and up to forty feet high. From this room the main passage may be followed to the


True North
Magnetic North
0°
SOUTH ENTRANCE
Elevation 990
Edge of Cave Ridge
Saltpetre Workings
The Ballroom
Devil's Raceway
Saltpetre Workings
Surface Elevation
1265 Feet
NORTH ENRRANCE
Elevation 1010
Edge of Cave Ridge
Surface Debris
GREAT SALTPETRE CAVE
ROCKCASTLE COUNTY, KENTUCKY
University of Texas Grotto NSS
Brunton and tape survey 1960
0
160
320
Scale in feet

southeast as a ten to thirty foot wide passage ending after about five hundred feet in breakdown where the passage intersects the hillside. Throughout this passage many impressions of the saltpetre vats are visible, all that are left of the extensive saltpetre workings. From the Ball Room, the largest part of this southeast passage, a norrow sinuous corridor, in some places only three feet wide and ten feet high, leads back to near the entrance.

To the north from the large junction room the main passage continues thirty feet wide and six to ten feet high for eight hundred feet to where a left hand branch extends for about one hundred feet to the south entrance, intersecting a short cross passage on the way. Beyond this branch to the north entrance the main passage continues with lowering ceiling, being only one foot high after four hundred feet.

Great Saltpetre Cave lies in a large bend of Crooked Creek about eighty feet above the present creek level and completely pierces Cave Ridge, around which the creek bends. This is an impressive if not beautiful cave, and is well worth the trip.
North Entrance El. 1010 South Entrance El. 980

029 201, 025 211, 029 214. Sinks not visited. Probable dome-pit action at edge of sandstone cap.

078 203 Crooked Creek Ice Cave, locally called Ice Cave, has a five foot high, twenty foot wide entrance in a shallow sink at the edge of the woods about fifty feet east of a cornfield and two hundred feet north of a road. A twenty foot wide entrance passage from five to ten feet high leads down a slope over small breakdown for seventy-five feet to where the passage divides into two smaller passages. The right branch is a fissure which leads to a probably climable drop of about twenty feet. The left hand branch, six feet wide and eight feet high leads to a room. A passage to the right from this room extends for about thirty feet to a fissure five feet wide and thirty feet high. The floor of this fissure is about fifteen feet below the floor of the passage from the room. A very rotton ladder once gave access to the bottom of the fissure. Just before the ladder another fissure leads to a drop of about twenty feet that can probably be climbed. Lack of time prevented further exploration. When visited in October the cave was not noticeably colder than the other caves in the area, although local people report gathering ice from this cave well into the summer.

064 184 Teemers Cave is located three hundred yards into the woods, forty feet to the west of the road, and twenty feet past a large sycamore tree. The entrance, ten feet high and fifteen feet wide, leads down into a fifteen by fifteen foot passage which trends S60°W. Farther into the cave the passage changes into a low corridor with a wide trench dug in the floor to permit easy walking. At the end of this trench, about four hundred feet into the cave, is a low room from five to ten feet high and, sixty feet long, and forty feet wide. From the north end of this room the main passage trends S65°W as a four foot high twenty-five foot wide passage with a shallow trench dug in the floor. After two hundred feet a narrow canyon enters the passage and provides easy walking for one hundred more feet to where the main passage enlarges to twenty feet wide and ten feet high and continues S65°W.

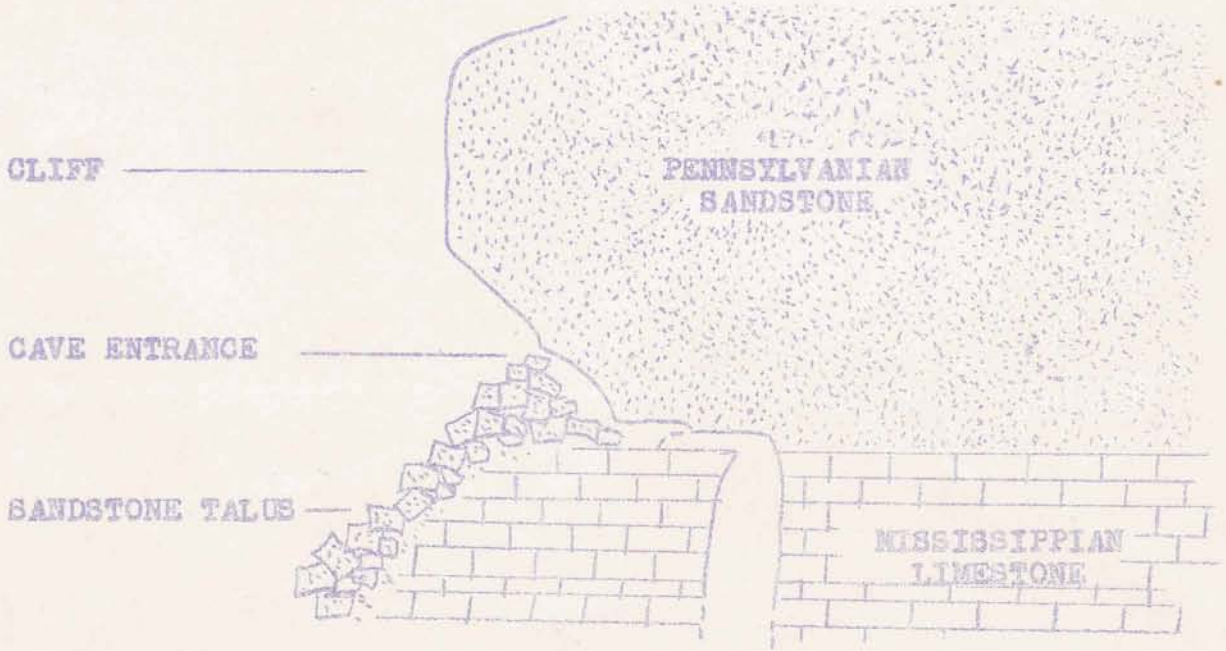
Teemers Cave contains much evidence of saltpetre mining. The wood channels used for carrying water into the cave are scattered throughout the described section. Near the entrance are several curiously shaped wooden assemblys held together with slats and pegs. Local people report that by descending to a lower level one can reach a stream that they think feeds a spring about one thousand feet west of the cave entrance. It is hoped that all visitors to the cave will leave remains of saltpetre mining in the cave and undisturbed as they are a valuable record of a now vanished industry. El. 960

035 169 Cave in northeast end of sink leads through sandstone breakdown to a small crawlway which extends for ten feet to a six foot high crooked slot. This slot leads to a probably climable ten foot drop. An inward air flow was noted. El. 980

035 168 Cave in southeast end of sink drops through breakdown to a fissure which could continue. El. 980

035 161 Two caves in same breakdown filled sink. One is a ten foot pit under a large breakdown block and the other is a series of interconnecting north-south fissures. The fissure cave reaches a total depth of about fifty feet.

030 160 The cave entrance is under the concave part of the cliff to the southwest of the largest overhang. The cave itself extends down through sandstone breakdown for about thirty feet to a small hole leading into a room. From the left side of this room a low crawlway leads over slabs of sandstone to a seventy foot pit. This pit is a classic example of dome pit formation. El. 1050



CAVE 03[illegible] 160

018 164 Walk-in entrance below natural bridge leads to sinuous crawl and stoopway. Drains small hollow. El. 960

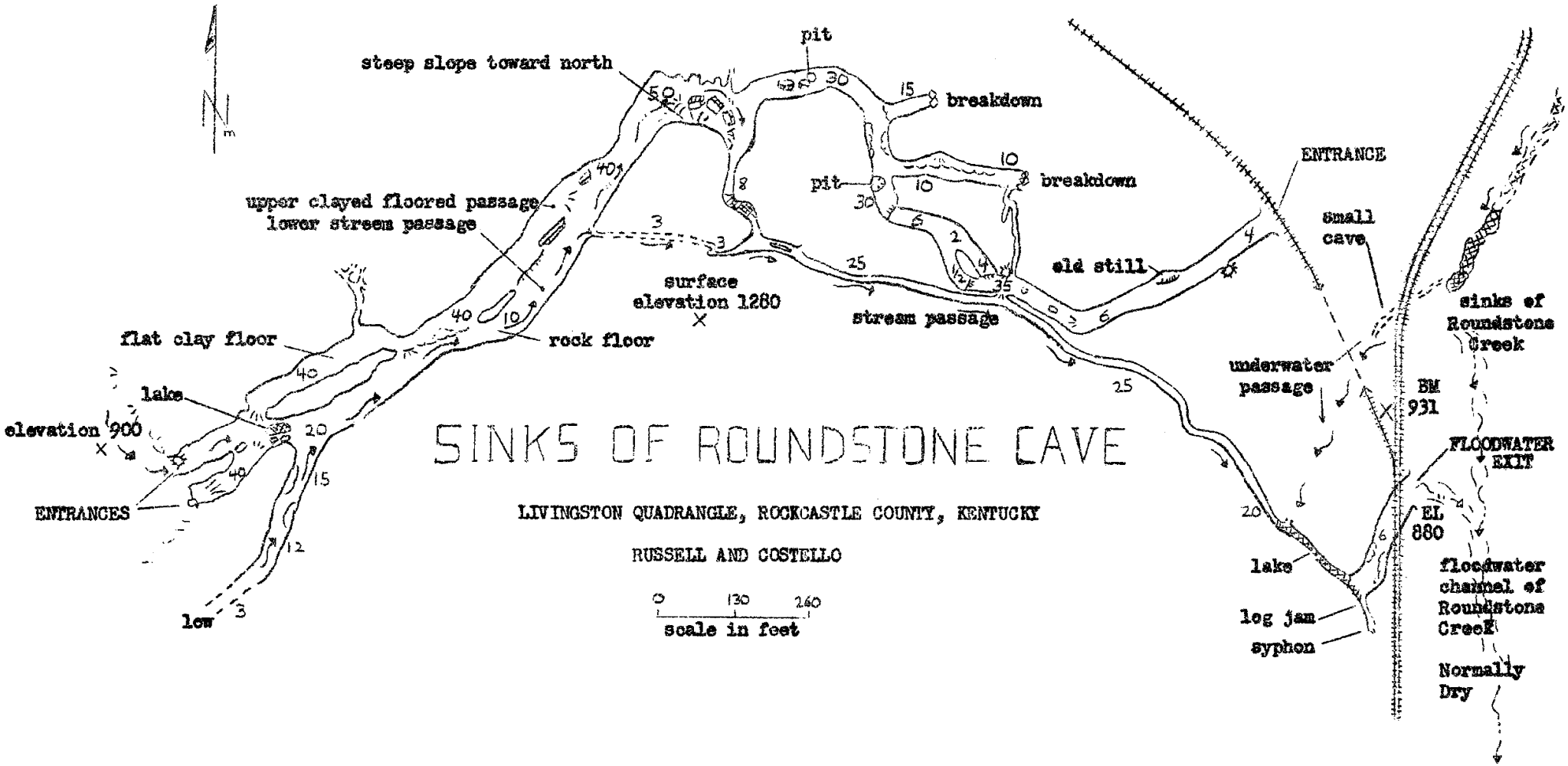
029 156 Sink drops ten feet through sandstone breakdown below sandstone shelter with spring. El. 1020

025 153 Cave is located on the west bank of Roundstone Creek slightly above the main sink. The entrance leads to a short passage that is blocked by debris after about twenty feet. Just before the end a hole leads to a narrow lower level, three to six feet high and up to two feet wide. This passage leads southwest for about three hundred feet to a low passage that carries the Roundstone Creek water to the Sinks of Roundstone Cave. This water passage can be followed for only a few feet. El. 880

026 154 Cave is on the east side of Roundstone Creek about three hundred feet upstream from where the creek sinks. The triangular shaped entrance is fifteen feet wide and twelve feet high. From the entrance the cave leads downward for fifteen feet over mud covered breakdown to a small stream. The passage continues past the stream as an irrigular corridor ten feet hogh and four feet wide. After two hundred feet of this the passage enters a room from which a ten by ten foot passage leads sharply back to the right for two hundred feet over large mud-covered breakdown. This passage also extends to the east of the junction room for about two hundred feet. El. 890

013 053, 023 154, 024 152. Entrances to Sinks of Roundstone Cave. As can be seen from the map of this cave it is mainly composed of two large interconnected east-west trending passages. In the western part of the cave these are: a lower rock-floored stream passage ten to twenty feet high, and thirty feet wide; and a larger clay-floored passage averaging forty feet wide and high that is ten to twenty feet above the stream level. The stream passage carries flood water from a large area and also a small permanent stream. About one thousand feet from the west entrance both passages become superimposed, forming a high room. From this room the character of the passages changes. The stream passage now averages ten feet wide and twenty-five feet high, and continues this size to the log jam near the lower entrance. From this log jam a one hundred and fifty foot long, six foot high and twenty-five foot wide passage leads to the lower entrance. This entrance is where the flood water leaves the cave.

From the main room where the passages are superimposed the upper level continues thirty feet wide and high past several north trending branches to where the floor rises almost to the ceiling. From that point a wide crawl and stoopway leads to a sheer twenty-five foot drop into a larger section of the passage. This larger section, about one hundred and fifty feet long, can easily be reached by a low crawl to the right. At the end of this large section the floor again rises almost to the ceiling. The passage from here is a low wide stoopway leading to the track entrance.



SINKS OF ROUNDSTONE CAVE

LIVINGSTON QUADRANGLE, ROCKCASTLE COUNTY, KENTUCKY

RUSSELL AND COSTELLO

0 130 260

scale in feet

The most interesting aspect of the cave is its hydrology, there being two streams and two lakes in the cave. The first stream is the permanent stream that flows from a southwest trending passage near the west entrance. This stream follows the large stream passage for a few hundred feet, and then runs into a slightly lower crawlway that bypasses the large room where the main passages join, and re-enters the stream passage just below the first lake. This lake, about one hundred feet long and up to eight feet deep, is noticably colder than the water in the crawlway as the airflow through the cave evaporates water from the lake, thus lowering its temperature. After rejoining the main stream passage, the stream flows through it for about eight hundred feet to the second lake. This lake, two hundred feet long and up to seven feet deep, is fed by both of the cave streams, the one following the stream passage and the underground Roundstone Creek which enters the lake through an underwater passage at the west end of the lake. The combined flow of both streams runs from the lake and disappears beneath a log jam into small passages that can be followed for only about fifty feet. Roundstone Creek sinks only about five hundred feet upstream from the lower entrance to the cave, and when the creek water reaches the cave it is almost the same temperature as when it left the surface. This large amount of water does not have time to reach equilibrium with the rock in the short distance it flows before entering the cave. The water flowing through the cave emerges from deep springs at Livingston (055 083) and is the source of the town's water.

Due to its accessibility and the ease of travel through its large passages Sinks of Roundstone Cave has been frequented by the local people. Parties have been held in the cave, and the remains of an old still were found near the track entrance. This cave is probably the largest in the area in volume and justifies a trip.

Upper entrance elevation 910, Track entrance elevation 932, Lower entrance elevation 878. Elevation of the main sink of Roundstone Creek 878. Elevation of lowest point in the cave (water passage below the log jam) 871. Highest point of surface above cave is 1280.

Mt. Vernon Quadrangle

182 193 Sink drops twenty feet through breakdown into poorly developed domepit. El. 1010

173 188 Creek draining west end of Boone Hollow runs into brush packed entrance four feet high and ten feet wide. El. 1000

164 158 Dry stream drains into seven foot high, twelve foot wide entrance that quickly narrows to low crawlway. El. 1010

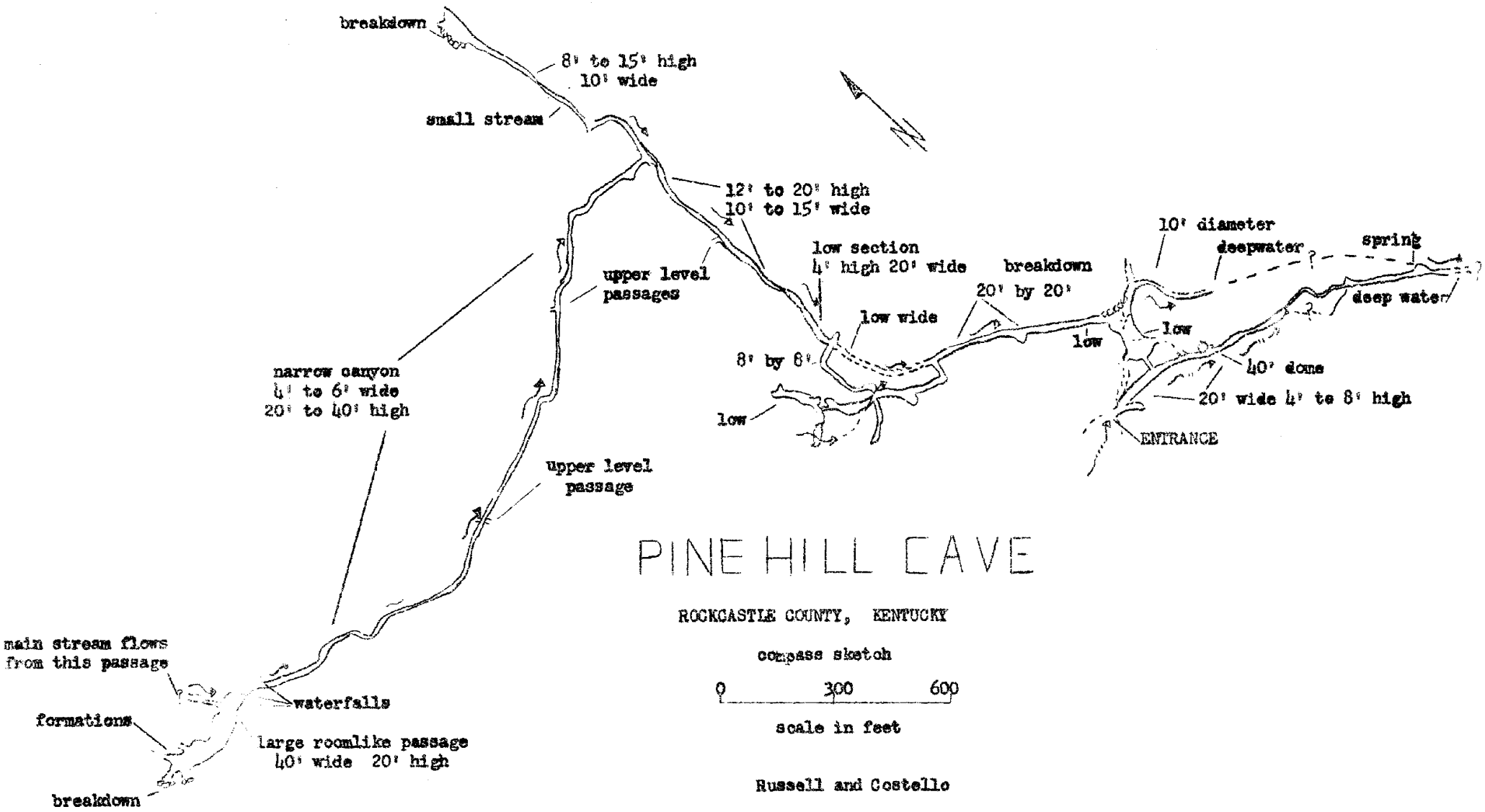
152 154 Pine Hill Cave. This large cave located below the Pine Hill Schoolhouse is entered through an impressive entrance thirty feet high and twenty feet wide. A dry stream channel that carries floodwater from the valley to the west at one time drained into the cave, but a dam built about four hundred feet upstream from the cave now impounds the floodwaters and lets them sink slowly into the limestone.

The large passage forming the entrance to the cave is blocked by clay fill about one hundred feet inside the cave, the main cave being reached through two low passages. One of these trends east for four hundred feet as a low, wide, gravel-floored passage. At four hundred feet the passage changes to a narrow ten foot high zig-zag passage two hundred feet long. At the end of the Zig-Zags the passage changes again to a low, wide crawlway. Several springs on the left side of this passage form a stream which flows to a lake that almost fills the passage.

The other low passage leaving the entrance connects with a low room. This room is mostly filled with clay except for the nothern part through which the cave stream flows. This stream can be followed downstream through an eight foot in diameter "sewer pipe" passage to a deep lake. Upstream the passage is five to six feet high and twenty feet wide. After two hundred feet the upstream passage changes to a large fifteen to twenty foot high corridor interspaced with piles of breakdown. This larger passage extends for two hundred and fifty feet to a junction. A low wide passage containing the stream continues straight ahead, and the larger passage circles around to the left, meeting the stream again after about three hundred feet. Several left-hand branches leave the main passage before it rejoins the stream. One branch leads to a small pit dropping to a lower room. Upstream from where the passages rejoin, the stream passage continues, at first only four feet high, but then enlarging to twenty feet high, and continuing walking size for about five hundred feet to another junction. Here the main passage makes a left turn to the west, and a smaller passage about ten feet high and wide continues straight ahead to a room where the passage is apparently blocked by breakdown. The stream passage to the west is a high canyon thirty to forth feet high and four to six feet wide for the next fifteen hundred feet. This west canyon ends at a series of small waterfalls. A twenty foot high, forty foot wide passage continues west, and a smaller passage containing the stream drops into this large passage from the north.

Throughout this canyon section there are numerous winding higher level passages which cross the canyon. Many of these end in clay fill after a few feet. They appear to be passages that were not favorably positioned for fill removal.

028 112 Baker Cave. Low entrance at the head of Dry Fork leads to a north trending crawlway that probably connects with sink about twenty-five hundred feet to the north. El. 1010



PINE HILL CAVE

ROCKCASTLE COUNTY, KENTUCKY

compass sketch

0 300 600

scale in feet

Russell and Costello

Adjoining Areas

Both to the north and south of the Livingston-Mt. Vernon Area a band of caves follows the Mississippian outcrop. Just to the north in the Johnetta Quadrangle is Climax Cave by Climax Church, Goochland Cave, and the Cooksburg Caves. This area of numerous caves extends at least as far north as the locally well-known Wind Cave (Leighton 109 106) in northern Jackson county.

To the south the first extensive cave area is the Sinking Valley Area in the Shopville Quadrangle. Here a karst valley has developed that is seven miles long and up to three miles wide. Although most of the sinks in this valley are large and shallow some of them contain caves. One of the largest is Baker Cave west of Plato (131 190). Other caves (123 140, 172 177, 171 177) are known. The caves in Sinking Valley fill with water during the largest floods, and then surface channels carry the excess south to Burdine Valley.

Burdine Valley is also normally dry but floodwaters leave the valley through six hundred foot long Short Creek Cave (097 043 - 100 043) which connects the valley with Buck Creek. Just east of Short Creek Cave a large stream of water flows from a low passage and runs for two hundred yards into the upper entrance of Short Creek Cave. At one time a mill was located on this stream and the remains of the old dam may still be seen. A short distance up Burdine Valley from Pleasant Run Church are the Boiling Pots, the probable resurgance of the Sinking Valley floodwater. Here during rains water carring logs and other debris erupts into the creek.

Also in the Shopville Quadrangle are Taylor's Cave (091 049) just north of Stab, Blowing Cave (064 040) and Ceder Creek Cave (072 017). Taylor's Cave is composed of two medium sized rooms, Blowing Cave is a large cave entered through a small entrance above Buck Creek, and Ceder Creek Cave is a long stream channel from which three eyeless crayfish were collected.

Further south in the Dykes Quadrangle is Alexander Cave (068 173). Alexander Cave is in Long Hollow and extends for about nine hundred feet to where breakdown blocks the lower part of a high canyon passage. This cave reportedly has a lower opening upstream from the bridge at the end of Long Hollow (108 112). There are also two caves - one small, the other over one thousnad feet long - in Peter Cave Hollow (068 188) north of Piney Grove. The Dykes Quadrangle also contains many dry valleys and sinking creeks. And not far south is Cave Creek Cave (Hail 008 152) one of the largest in the area.