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The

ALASKAN CAVER

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Membership is open to all interested in Alaskan cave discovery, exploration, description, survey, mapping, photography, hydrology, morphology, biology, geology, history, speleogenesis and other spelaeon processes, conservation, management, adventures, and the fellowship of Alaskan cavers. Dues are \$5.00 per year in the United States (\$10.00 in US funds if overseas) for the first member of a mailing address and \$1.00 for additional persons at the same address.

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Cover: El Capitan Pit -- The United States' Deepest drawing by Carlene Allred. The feature article, entitled "Record Pit Found in Alaska", appears on page 3.

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Record Pit Found in Alaska

by Julius Rockwell, Jr.

The deepest known natural pit in the United States has been found on the top of El Capitan Peak, on Prince of Wales Island in Southeast Alaska. El Capitan Pit was first entered on July 27, 1989, by Kevin Allred of Haines, Alaska, Jim Nicholls of Clear, Alaska, and Miles Hecker of Casper, Wyoming. The surveyed depth, 598 feet, exceeded that of any other natural free fall pit in a known U. S. cave. Allred, the Expedition leader, was the first to reach the bottom. At the bottom, the speleologists found an unexplored fissure passage which continued in two directions.

Last year, Allred and Dr. Robert J. Bastasz of Livermore, California, went down to the 340-foot level, but had to turn back for want of rope. This year, three 1000-foot lengths of rope were brought along.

The support and backup group on the top of the mountain consisted of Richard A. (Rick) Bridges of Denver, Colorado, Evan Gehring of Casper, Wyoming, Lymon G. (Kelly) Kellstedt of Santa Fe, New Mexico, Stephen Meier of Fairbanks, Alaska, Anne K. and Douglas Strait of Caswell Beach, North Carolina, and Winnfield G. Wright of Richmond, Virginia. Base camp support personnel at El Capitan Work Camp of the U. S. Forest Service included Carlene B. Allred of Haines, Alaska, Robert J. Bastasz, Patti S. Hecker of Casper, Wyoming, Dr. Julius and Elizabeth A. Rockwell of Anchorage, Alaska, and Dr. Kathy Tonnessen of Livermore and Sacramento, California.

All of the above were among the participants of the Prince of Wales Island Expedition III (POWIE III) of the Tongass Cave

Project Committee. This Committee is a standing committee of the Glacier Grotto, the Alaska chapter of the National Speological Society (NSS). The Grotto joined with the Thorne Bay Ranger District of the Forest Service, U. S. Department of Agriculture, on July 25, 1989, in an Agreement for Sponsored Voluntary Services to facilitate the ongoing inventory and survey of the cave resources of the District. The purpose of this inventory is to assist the Forest Service in its implementation of the Federal Cave Resources Protection Act of 1988 (PL 100-691). This new Federal cave law encourages such cooperation to improve cave management and protection. As Forest Service Volunteers, Grotto members are gathering data and turning it over to the Forest Service to assist in management decisions. In return, the Forest Service provides needed logistical support when and if it happens to be available to increase the efficiency and output of the Grotto's operation and safety.

The establishment of a new record for the deepest pit in the United States is highly significant to the world caving community, especially as it focuses attention on an area little known from the speleological standpoint. A record of more than sixteen years standing has been broken. In caving, the deepest pit (single drop) is comparable to the highest vertical rock face in mountaineering. Since Alaska now has the highest vertical drop in the U. S., on Mount St. Elias, the highest mountain, Mount McKinley, the deepest pit, in El Capitan

Pit, we have only to find the deepest cave, which we hope to accomplish before too many seasons. The present U. S. record now stands at 1550 feet, Columbine Crawl, Wyoming. The only other caving record is the longest cave, which at 330 miles, Mammoth Cave, Kentucky, may be beyond our grasp, at least in the immediate future.

The previous record pit was Fantastic Pit in Ellison's Cave, Georgia. It was discovered and first descended in October 1968 by Della McGuffin to a depth of 510 feet. However, the entry point was not at the top and by Christmas Eve, 1973, Don Davison, Jr., had bolted 28 anchors upward to the top and rigged the drop. Cheryl Jones was the first to descend 586 feet to establish a record that stood for sixteen and one half years.

POWIE III was preceded by POWIE II and POWIE I. POWIE I, 1987, consisted of the Allred family. Carlene and Kevin Allred explored and mapped Starlight Cave on Prince of Wales Island, more than doubling the record for length and depth for Alaskan caves. Published results in The Alaskan Caver, the Grotto's publication, brought a total of nine cavers for POWIE II in 1988. That year El Capitan Pit was found by Kevin Allred, Harvey Bowers of Wasilla, Alaska, and David Hatfield of Ketchikan, Alaska. Over a mile of El Capitan Cave, Alaska's longest known, and three other caves were surveyed and mapped that year.

This last summer's work established the northern Prince of Wales Island as a highly significant karst area of the United States. The discovery, near El Capitan Pit, of Snow Hole, which at 450 feet is the third deepest pit in the United

States, simply bears this out. Over two thousand feet below these and other cave entrances, El Capitan Cave has now been surveyed to over 9000 feet and many leads remain unexplored.

However, the vandalism that has taken place in El Capitan Cave since last year is saddening. Speleothems are being broken and removed, contrary to the recently passed Federal Cave Resources Protection Act of 1988 (PL 100-691). Much of it must be due to ignorance, which a skillful educational program might correct. Next to inventory and survey, curbing destruction of speleothems should be high priority.

The Grotto has entered into a volunteer agreement with the Thorne Bay Ranger District, U. S. Forest Service, to inventory and survey the cave resources of the District. The data gathered will assist the Forest Service in management decisions regarding this important resource. In return, the Forest Service has provided needed support to increase the efficiency and output of the Grotto's operation and safety.

The Thorne Bay Ranger District has developed a proposal utilizing the experience, special knowledge and skills of the National Speleological Society. With their help, the Forest Service will develop and update cave management plans addressing resource concerns, public needs, and health and safety factors. In this way with the cooperation of the public, the natural wonder of these caves can be preserved and enjoyed for generations to come.

This is another example of how the Forest Service is involving the public in developing recreational resources on Prince of Wales Island.

President's Corner

Lest we be accused of understatement, the Grotto has had a stupendous summer! Not only have we found the deepest and third deepest known pits in the United States, but we have acquired other firsts as well.

The number of paidup members has reached 100 for the first time in the history of the Grotto, with the October 13 addition of Dave Decker.

The efforts of all Grotto members who participated in POWIE III are most appreciated. This was also our first year to receive substantial support for any of our activities from an outside organization.

Mr. Pete L. Johnson, District Ranger, Thorne Bay District of the U. S. Forest Service, writes: "We are extremely pleased with the continued work of the Glacier Grotto for fiscal year 1989. Your group is to be commended for a job well done! We are eager to see the reports and surveys from this years inventorying activities and anticipate your recent discoveries will thrust us into national prominence in the caving community and Federal Cave Management Programs. Thank you for your news release article. We will be using your information for local news releases here on Prince of Wales Island and in Ketchikan. The national records for the deepest and third deepest national pits, which this district now holds, will undoubtedly focus great attention on us and draw many more forest users than experienced in the past. It is for this reason that we must continue with our work and move quickly to develop a District Cave Management Plan. It will be important for your members to include as much information as possible into your cave inventory reports along with management recommendations. With regard to the vandalism you mentioned, we also are concerned with this problem. This

issue will be an important consideration which will be addressed within the plan.

"For fiscal year 1990 (which starts October 1, 1989) we intend to develop the first draft of the District Cave Management Plan and continue with the District Cave Inventory as we have in the past. We will continue to provide the Glacier Grotto with subsistence, limited housing, sanitary facilities, work space, radio, fixedwing, helicopter, and boat support where necessary. With each successive season we have become more proficient in handling logistics and providing support for your organization's work, yet due to the magnitude of this year's operation, heavy work loads in other areas, and a lack of sufficient liaison personnel for your support, we did experience several problems this season in the field camp operation. We hope to remedy this situation in 1990 with more personal liaison contact, improved housing conditions, a trimmed-down expedition number (15 NSS member limit), and an improved agreement between the NSS and the Forest Service..."

"In closing, I would like to thank you and all NSS members involved in this years expedition. We look forward to working with you again in 1990 and hope to continue a successful cave inventory, management and protection program..."

This issue of The Alaskan Caver includes the last of the 1988 POWIE II reports on hand. Each participant needs to complete his or her reports of this past summer (POWIE III) and turn them in to our Editor for the next issue.

We have proven our ability; now, we must show the Forest Service that we can work with them in their camps and deliver the reports and surveys that they need to protect the caves on Federal lands assigned to them.

Notes from Prince of Wales Island (1988)

Bob Bastasz and Kathy Tonnessen

Day 1 – Monday, August 22 Into El Capitan

Our campsite along the banks of El Capitan passage was a pretty spot. Directly across the narrow passage, a snow-capped peak on Kosciusko Island dominated the view. The meandering passage was interrupted by several small islands and banked by a thick spruce and hemlock forest. Low tide exposed a beach of shells, rocks, and sea grass, which provided a rich habitat for bald eagles and sea birds.

Getting to the campsite was a 4 day journey from San Francisco for Kathy and me, involving a plane, two ferries, and a 100 mile ride (compliments of Jay Rockwell) over logging roads through the Tongass National Forest. We had arrived late in the night and were anxious this morning to explore our new surroundings.

Soon after breakfast we saw an hefty black bear wandering down the logging road into camp. Black bears seem to thrive on Prince of Wales Island, for each day of our trip we encountered at least one bear. Fortunately for us there are no brown bears remaining on the island and, in late August, with the salmon spawning and abundant berry patches, the bears took little interest in us.

I took some time to look closely at the excellent map of the island the Forest Service has published. El Capitan passage is located near the northwest corner of the island, far from the towns of Craig and Klawock, where most of the island's 2000 or so population lives. The brief description on the map about the island's geography seemed about right:

"Prince of Wales Island, part of the Alexander Archipelago in the southernmost portion of the Alaskan panhandle, is the third largest island in the United States (after Hawaii and Kodiak). The island is 135 miles long and 45 miles across and covers about 2,231 square miles. There are 11 additional islands between 16,000 and 22,000 acres, and hundreds of smaller islands surrounding Prince of Wales Is-

land. Its 990-mile coastline has numerous bays, coves, inlets, and points.

The landscape is characterized by steep, forested mountains and deep U-shaped valleys, streams, lakes, saltwater straits, and bays that were carved out by glacial ice which once covered much of the area. The blanket of spruce-hemlock forest is broken by a scattering of muskegs, or bogs. Most of the mountains on the island are 2,000 to 3,000 feet high."

A good description, except it makes no mention of caves, the main reason we were attracted to the island.

Our first trip underground was to El Capitan cave, which had become the main focus of the trip following the discovery by Kevin and Carlene Allred of major walking passageway and an extensive network of phreatic spongework. The cave entrance was just a half mile from camp and part of that distance was along a fresh logging road. The hard part was crossing a few hundred yards through a recent clear cut. Since the custom on Prince of Wales Island is to leave the slash in place, picking a way through the devastation demanded one's full attention. In contrast, traveling the remaining distance through virgin rainforest was a delight. The understory and deep moss carpet filled the air with fresh scents and the quiet surrounding the ancient trees was equally intense. The cave entrance is at the base of a limestone shelf and is large enough to enter without stooping. A cursory look for signs of bear habitation revealed none. It would be interesting to leave a marker over the winter to determine if the cave is used for hibernation.

The purpose of the trip was to survey a maze area in an east-trending side passage about 200 feet from the entrance. Carlene was familiar with the area and led us quickly through the cobble-floored main walking passage. We turned right into the side passage and soon arrived at the last survey station. We all agreed to a policy of "survey as you go," so each party had the opportunity

to explore virgin cave. We quickly became enmeshed in a three dimensional network of small pits and passages. Carlene worked the compass, Kathy the notebook, and I the tape. Most shots were short and progress was slow. I rigged a handline and dropped into a small, 15' pit and at the bottom came across some flagging tape left by Kevin on a previous trip. We established a station to connect with the previous survey and moved on. The spongework contained several small loops, a few alcoves decorated with soda straws, and ample opportunity to check our closure error. The trip yielded a few hundred feet of new passage and convinced me the El Capitan cave was a true solution cave with many leads and good potential for further discovery.

Day 2 – Tuesday, August 23 Rumbling Pit

Kevin had earlier found a 35' tubular pit a short distance into a westward-trending side passage near yesterday's survey. Today's objective was to check out a small crawlway at the bottom of the pit. Kevin and I rigged a handline, chimneyed down most of the way, dropped the last 5' and found ourselves in a small room with fine stream gravel on the floor. At the lower end, a small "rabbit hole" was the only way onward. Partially filled with water and gravel, it appeared that this space could easily sump. In a few minutes we had cleared enough silt to allow us to squirm through without having to get too wet. The constriction opened into a stoopway with widening passage ahead. We found a wide, low room with some clastic fill, a small dome, and ahead: downward trending, growing passage. After a short distance, we came to a walking-height canyon and a mud bank that led to a short parallel passage with a dirt-floored balcony overlooking the main passage. We surveyed the short loop and then continued in the canyon as it started to trend upward until it ended in a dirt-banked cul-de-sac. We returned to the lowest point in the canyon passage and found

a nearly-horizontal, scalloped tube going underneath and parallel to the canyon. The tube had been scoured clean and contained numerous small potholes indicating sustained, high-velocity water flow. Surveying into the tube, we could feel air flowing through it and also could hear the sound of water running over rocks. We soon came to the lip of a clean pit about 25' deep. At its base, we could see stream cobbles and running water. We rigged a handline using a questionable tie off some distance up the tube, but it did not reach the floor. Considering our position and the lack of an adequate belay, we decided not to downclimb the pit until we could bring in better equipment. This pit is definitely a going lead and is the lowest point yet found in the cave.

Upon returning to the surface we rather excitedly reported our findings. When Jay heard our description, he began to refer to the "rumbling pit," and the name stuck. This will be one of the first areas to be pushed on a return trip.

Day 3 – Wednesday, August 24 On the Road

Late Tuesday we drove the 100 or so miles to Hollis with Jay so he could catch the ferry back to Ketchikan early this morning. We spent the rest of the day in Craig and Klawock running errands and seeing what the urban areas of Prince of Wales Island had to offer. Perhaps most interesting was the extensive collection of totem poles near the school in Klawock.

The drive back to the north part of the island was long and uneventful except for a short side trip to Staney Creek cabin. This Forest Service wilderness cabin has recently been rebuilt and looked like a pleasant spot to while away a few days. About a mile before reaching the trailhead to the cabin, we noticed a stream that appeared to spring from a low limestone cliff on a hillside a few hundred yards north and to the west of an old quarry. After crashing through the vegetation we found the stream source, which flowed out from

small limestone rocks. It wasn't possible to dig out an entrance, so we departed.

Day 4 – Thursday, August 25 Descent into El Capitan Pit

Kevin, Kathy, and I started early this morning. The Forest Service, expressing interest in our explorations, had offered to airlift our gear up El Capitan peak. Kevin delivered a duffel bag of caving gear to the helicopter pilot and then drove us up a logging road on the southwest slopes of the mountain until it became impassable. We left his car and the three of us began a long hike to an area Kevin had identified through aerial photos and a reconnaissance hike earlier in the month. He had found a deep pit and now we were equipped with over 300' of rope and the necessary vertical gear to check it out. Walking along the remnants of a logging road we passed a large cliffside entrance with a water stain beneath it, which to our knowledge has never been entered. This was not our objective so we continued, arduously crossing a clear cut and slowly making our way up a steep slope of old growth spruce and hemlock. At one point we startled a bear, who loped away amazingly fast. An hour's time brought us to flatter ground and the beginnings of an extensive karst area. Sinkholes appeared. Some small crevices were deceptively covered by thick moss and once my leg disappeared as I stepped into the center of one. We became more cautious and passed larger sinkholes containing snow. Eventually we reached a saddle near a small tarn, which was the planned drop site for our gear. Happy to see yellow flagging, we found the duffel bag right on target. Kevin's aerial map was neatly tucked into the carrying straps indicating that the pilot was able to land. After a rest, we loaded up and headed for the pit near the center of the karst plateau. The terrain made travel circuitous and it took over an hour to go the last half mile. We passed quite a few sinkholes and pits, occasionally dropping a rock to gauge their depths. In at least one in-

stance, the soundings indicated a free fall of over 100'.

There was no question when we arrived at what we named El Capitan pit. Its elongated opening sits in the major east-west fracture crossing the plateau and has a distinctly foreboding appearance. The mouth of the pit has dimensions of about 15' by 30', with a sheer cliff on its south side. We decided to rig the pit's lower north side, tying off to a convenient stout tree. We lowered a 190' piece of Bluewater II rope alongside a 30' cable ladder to provide aid near the lip. Kevin, the discoverer, elected to descend first. Our rock soundings indicated a probable depth in excess of the rope's reach, so he carried an additional 150' of Goldline rope to use if needed. Kevin was soon out of sight and his muffled reports sounded enthusiastic. Reaching the knot at the end of the bluewater, he stopped at a small ledge and saw the pit extending into blackness beyond the power of his lamp. After calling up to the surface, he attached the goldline and continued his rappel. About 130' further down he came to a severe nick in his rope, apparently caused by rock-fall, and stopped just above the damaged spot. At this point, over 300' below the surface, the pit was spacious, with water spraying down part of it, and no end in sight! After Kevin ascended, I clipped in and rappelled to the end of the Bluewater. Here the pit is roughly kidney shaped with the long dimension perhaps 50'. The walls were fluted, very clean, and showed no signs of pinching out. I dropped several stones from the ledge where Kevin had done his changeover, and listened as the rocks dropped free for several seconds and then bounced off the walls for a few more. It wasn't possible to accurately estimate the depth, but one fact is certain: El Capitan, with a depth of 300' +, is the deepest reported pit in Alaska. Once I returned to the surface, we took a few photos and derigged the pit, already talking about a return trip with more rope to complete the exploration of this remarkable pit.

Crossing the karst plateau, we returned to the helicopter landing site, repacked the duffel bag,

stuffing in as much as we could of the equipment we earlier lugged up, and headed down the mountain. One very apparent feature of El Capitan mountain is the subterranean water drainage and consequent lack of surface water. We had brought only a quart of water apiece and had exhausted our supply on this unusually warm and cloudless day. Fortunately, as our thirst increased and the gradient steepened, we came to several patches of salmon berries. Besides tasting especially delicious, they provided handholds. The direct route we took led down an alder-filled gully ending at a beaver pond. As we approached, a distinctive "thwack" alerted the occupants of our presence. We crossed the pond by walking atop the beaver dam, which seemed about a 1/5 mile in length and the longest I've seen. Back on the road at dusk we hiked the last mile to Kevin's car by flashlight. It was the end of an unforgettable day.

Day 5 – Friday, August 26 Discovery of the Alaska Room

The day started with a low tide and the sound of a helicopter landing in the tidal flat next to our camp. The Forest Service had made an early trip up the mountain to retrieve our gear and graciously delivered it to our doorstep. We much appreciated their help in getting our caving equipment up and down the mountain.

Today's trip to El Capitan cave was a push to see what lay above the waterfall in the Cathedral Room discovered on Wednesday by Dave Klinger and the Allreds. Carlene, Kathy, and I entered the cave and went directly to the area, where a downward sloping crawlway through cobbles led to the 25' diameter dome. Kevin had free-climbed a 5.7 pitch next to the waterfall and left a handline in place. We went up the 20' waterfall drop, but Kathy got rather soaked before reaching the top. This was no place to risk getting hypothermia, so Kathy returned to the entrance. Carlene and I began to survey and found that the cave above the waterfall continued as walking passage. After a

couple of bends, we came to several alcoves containing formations. Further on in the main passage we found a stalagmite about 4' high and in another alcove we came across a translucent drape of flowstone. At one point the passage constricted and we had to crawl around a small pool, where we noticed a definite airflow blowing past us towards the entrance. As we continued to survey, the passage trended upward and began to enlarge. The breakdown here was the largest I had seen in the cave, the passage spacious, and we hastened onward making some 50' shots. As the passageway approached dimensions of perhaps 30' in width and 15' in height, I had the distinct impression of seeing (or actually not seeing) a void ahead. Becoming more excited, we continued the survey and soon reached what appeared to be a balcony overlooking an immense chamber. Some of the breakdown in the area looked unstable, so we cautiously peered into the room before us. We were 10–20' above the floor of the room. I estimated the longer dimension of the room, which was oriented roughly perpendicular to the balcony passage, to be about 110' and the distance from our vantage to the far wall about 80'. I could not see to the highest point in the ceiling and guessed that it must be more than 100' in height. We were much impressed by this room and I suggested, because of its great size, we name it the Alaska Room. There wasn't time to adequately survey the room, so we established a final station in the center of the balcony, probed the room with our strongest lights, and left the Alaska Room as the prime lead in the cave.

As we made our way out, I speculated that perhaps we had found the bottom of a large dome pit. This was certainly not the bottom of El Capitan pit, for that lay much farther north of our position, but perhaps another pit leading on to upper level passage. We exited the cave and while walking back to camp I had time to think about what an incredible two last days these had been: first we visit a pit that we can't find the bottom to, and now we find a room where we can't see the ceiling. Alaska caving certainly has come of age!

El Capitan Cave
Prince of Wales Island
Technical Preliminary Report #6
by Kevin Allred
October 9, 1988

Located on northern Prince of Wales Island, it is unknown who first discovered El Capitan Cave, or when. In September of 1985, David Hatfield, a Tongass National Forest geologist, and another person penetrated into several difficult and remote regions and apparently were the first to drop down into what is now known as Hatfield's Pit. In August, 1987, the first NSS (Glacier Grotto) members to investigate and officially name this rumored "500-foot-long cave" were Carlene and Kevin Allred. In two days, they surveyed 1887 feet of passage in the entrance portions and explored little else. In August, 1988, on the Glacier Grotto's Prince of Wales Island Caving Expedition, nine members continued exploration and surveying and discovered some significant passages, including the yet unentered Alaska Room. At the end of the 1988 expedition, the length of the cave had grown to 5563 feet.

Locale

El Capitan Cave sports three entrances, all of which are horizontal, in the very steep slope above a well-defined gully. The area is typical northwestern coastal rain forest, consisting of cedar, Sitka spruce, and western hemlock. The entire area, beginning some 150 feet below the entrance, has been logged off for some distance in either direction. The entrances are located above this large clearcut. The gully below the cave was apparently formed from the system's resurgence, which is no longer in the

area. However, to the east, perhaps 800 feet away, is a major emergence at the altitude of 80 feet (Klinger, 1988).

The previously-mentioned dry gully contains Middle Cave, 30 feet long, and Kid Cave, which contains 153 feet of passage. Other than a breeze issuing out of Kid Cave and one down the gully, no other evidence of lower cave entrances were noted on the 1988 expedition. There are some karst areas several hundred feet above and north containing sink-holes, sinks, and uvalas, which were studied by David Klinger in 1988. His most significant find was Belittled Pit, some 50 feet deep and still unexplored.

Geology and Hydrology

In Silurian Heceta limestone largely altered into marblized breccia, El Capitan Cave had phreatic beginnings with extensive vadose modifications. There are signs of past violent flooding, from evidence such as deeply dished-out areas of large football-sized cobbles in constricted passages, and scallops. The scallops often lack consistency in size and pattern, suggesting greatly fluctuating flow rates and patterns. There are many spongework side passages in the explored areas ranging from approximately 100 feet above to 85 feet below the entrance. This gives evidence, along with various fill deposits scattered throughout, of changing flow patterns, as certain main water conduits have become clogged, to force corrosion and erosion of new smaller ones.

Many of the cobbles are non-carbonate. Whether they originated from Heceta impurities or were washed in from above is not known. There is much evidence of mixing erosion (Bögli, 1980).

Deposits

Fill, some of which has been previously cemented with calcite and later partially washed away, ranges from boulders to silt and rarely clay. Of special interest is a light-colored banded clay deposit at least one foot thick located in a tube at the bottom of Hatfield's Pit. This clay may possibly correspond with former glacial activity in the region of the cave.

Speleothems consist of soda straws, stalactites, drapery, flowstone, small helictites, small crystals, stalagmites, mud stalagmites, conulites, and moonmilk. In much of the cave, sinter is now being dissolved, even above the piezometric surface (fluctuating water table). Notable speleogens are splash cups, boxwork, and scallops.

Biology

Throughout the entrance portions is scattered bat guano, and one dead bat was found about 500 feet into the cave. It is not known when the bats use the cave or, for that matter, what kind they are. Kevin Allred collected some five-millimeter-long wormlike creatures which are associated with hanging silken threads up to one centimeter long in silt deposits on the ceiling areas near the bottom of Hatfield's Pit. Rod Crawford at the University of Washington identified them as an undetermined species of fungus gnat (order Diptera, family Mycetophilidae, genus *Speolepta*). [See page 14.]

General Descriptions

The cave is generally horizontal and contains a main passage with areas of adjoining spongework maze. Pits are up to 25 feet deep. The main passage is often of walking height or larger, while the spongework is generally smaller, usually only two or three feet in diameter. Many passageways are filled with sediment nearly or completely to the ceiling. The Alaska Room, newly-discovered and unexplored as of this writing, is the largest known room. Many other small tubes are known to open up into extensive and unexplored regions.

In a newly-explored area, cairn #160 on the floor of the Cathedral Room, is 41.58 feet below the main entrance floor. The Balcony, next to the Alaska Room, is 26.68 feet above the entrance floor. This room is approximately 300 feet below the surface using aerial photos and a topographical map for interpretation, or only 255 feet below using David Klinger's barometric measurements of the surface. The Alaska Room appears to be directly below at least the easternmost of two large sinkholes above the cave. David Klinger investigated these and found them both plugged. The Balcony is 940 feet from the main entrance floor.

Management Recommendations

El Capitan Cave is known to many local people on Prince of Wales Island, some of whom have wantonly vandalized the cave by removing or touching speleothems. The first spray paint was noted in 1988. In both 1987 and 1988 large amounts of flagging were found and removed from inside the cave by the Glacier Grotto.

It is recommended that a small sign be placed inside the

entrance with a register to attempt to educate the public as to the cave's unique nature and to minimize impact. El Capitan Cave is not only the longest cave in Alaska, but by far the most beautiful. It is also very accessible, making it very easy for individuals to carry off large amounts of destroyed speleothems. The cave is a good tool to help understand the hydrology and geology in other similar karst areas on the island which have not been explored yet. It is hoped that many diversified

people enjoy visits to this amazing cave with small impact to save it for many years to come.

References

- Bögli, A. 1980. Karst Hydrology and Physical Speleology. New York, Springer-Verlag, 284pp.
Klinger, D. 1988. Altimeter readings from POWIE II.

[The map on following page shows only part of the cave; for a map of the remainder of the cave see The Alaskan Caver 9(1):7-8.]

News for Sling Load Accident Victims by J. Rockwell

For those who had equipment lost or damaged by the POWIE III sling load accident, the following paragraph from Pete L. Johnston's letter will be one of interest:

"In regards to the claims by NSS members for financial reimbursement for personal items damaged or destroyed as a result of a sling load accidentally dropped from the helicopter, we are continuing to process these claims through the Forest Supervisors Office. We anticipate no problems in this process and fully expect your members to be reimbursed for their losses. On the less positive side, this is a lengthy process and on the average normally takes approximately six months to complete. Also, we are required to reimburse the depreciated value only of the items claimed as this is considered fair market value."

It is to be hoped that they are talking about replacement value here.

Lost and Found

Some caving gear was found on Prince of Wales Island at the end of POWIE III:

- o light blue rain pants
- o a metal pot gripper
- o a white towel
- o a trash bag containing climbing boots, shorts, heavy rubber knee pads

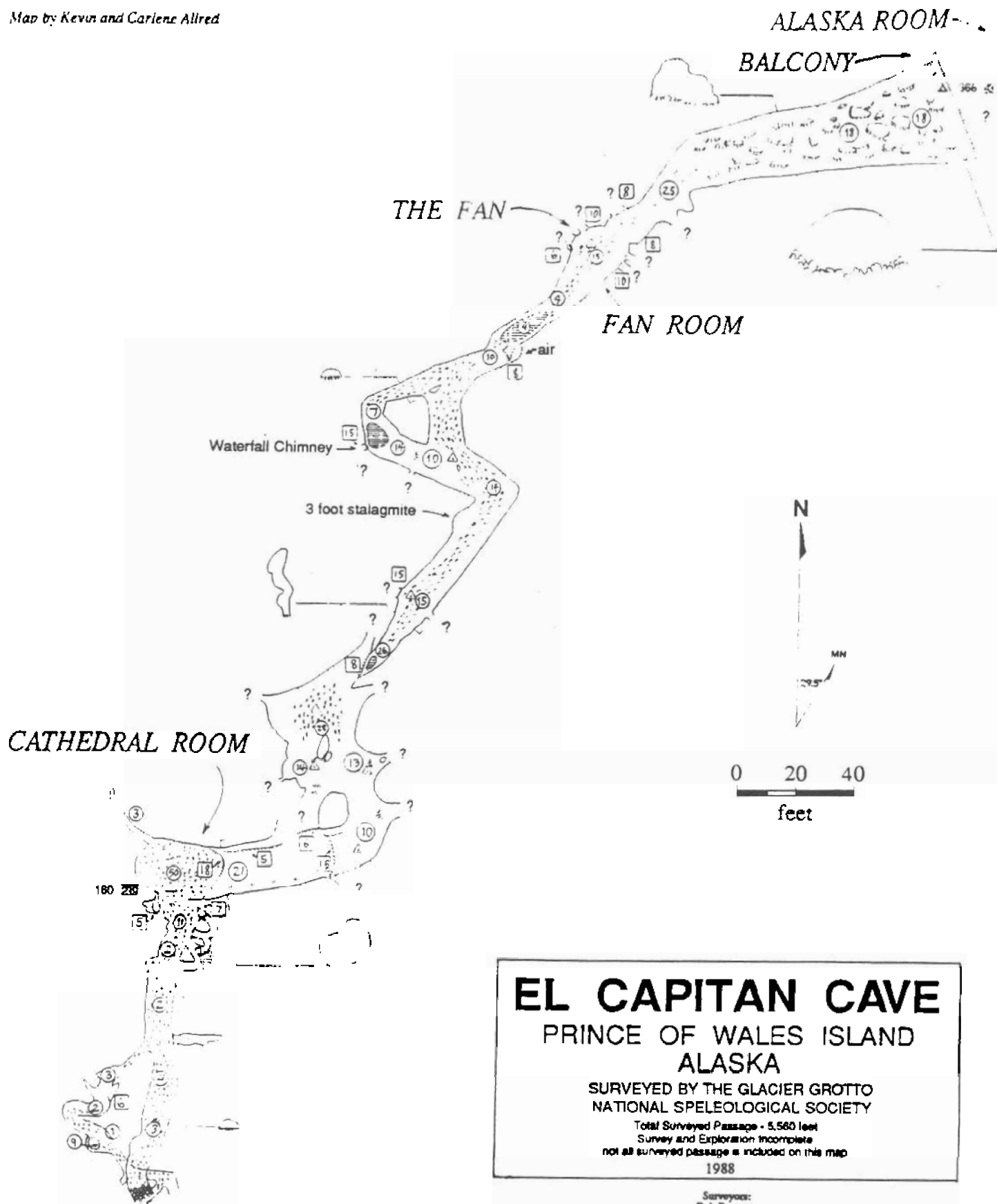
The gear was recovered by the Allreds, and their message is:

"If any of this belongs to you then send us enough money for its postage and we'll mail it to you."

Contact: Kevin & Carlene Allred
Box 376
Haines, Alaska 99827

Exchange News

Portions of the Glacier Grotto's Annual Report, published in The Alaskan Caver 9(1):3 (1989), appeared in The Cave Cricket Gazette 14(5):57.



Identifications of Insects from
Prince of Wales Island Caves
 by Rod Crawford

Thanks for the specimens and data. The identifications are:

.
El Capitan Cave

webs on ceiling of
 lower maze area

5 very young fungus gnat larvae

Though their food as an adult is unknown, these larvae feed on cave slime, which is usually present in a thin layer even if not thick as in lava tubes. The species is probably the same one as found in many Washington caves, although the larvae are a little too small for me to be quite sure. (They get at least three times this size before they mature.) Adults would be of interest, small black gnats 1/8th to 1/4th inch long on walls or flying in same part of cave. Flies of this genus, Speolepta, are found in caves through much of North America and Europe, but very rarely found outside of caves. This would be the first record from Alaska. The species is not named yet, but that is not because it is rare; it is because not many people work with flies in these parts. For your official report, the scientific names are:

Diptera Mycetophilidae Speolepta
 true flies fungus gnats
 order family genus

.
Salmon Fry Cave

larvae on rock in stream
 about 40 feet in

6 nearly adult black-fly larvae

I am sure you are familiar with black-flies; the adult flies are bigger than no-see-ums but smaller than deer flies and a bit smaller than mosquitoes; they are very common in Alaska, and THEY BITE! I quote from "Flies of Western North America": "The larvae are interesting little creatures, living in running water, often in rapids, where they feed on tiny organisms and algae drawn to them by peculiar fans on the head that create a current toward the mouth. A sucking disc near the tail anchors them to rocks in the stream bed and they are also attached by a silken line. These larvae live in silken labyrinths, and when ready to pupate they spin a cocoon...." The larvae have rarely (if ever) been found in caves before, but the adults probably took shelter from weather in the cave, then found the stream and laid their eggs. The species is a common one.

Diptera	Simuliidae
true flies	black-flies
order	family

<u>Simulium</u>	<u>arcticum</u>	Malloch
genus	species	

.
 The specimens have been deposited in the cave fauna collection of the Burke Museum, at the University of Washington, Seattle. I am enclosing several proper vials for you. These are nice and strong (they rarely break even when crawling) and do not leak, unlike yours. I assume you can buy alcohol (isopropyl is best for killing in), so I am sending them dry. Fill them about half full for field use.

Highlights of Grotto Meeting

August 1, 1989
by Jim Nicholls

1. POWIE Committee members

Members of the POWIE (Prince of Wales Island Expedition) Committee were chosen as:

Julius Rockwell, Jr.
Kevin Allred
Rick Bridges
Robert Bastasz

Later, an additional member:

Miles Hecker

was added to the Committee. It is possible that still another additional member will be chosen.

2. Volunteer Agreement

The details of the Volunteer Agreement were discussed. It is currently in draft form, and Jay Rockwell plans to complete the details of the agreement during January of 1990. Comments are needed and should be sent to Jay Rockwell before January 1, 1990.

3. NSS articles on POWIE III

Articles about POWIE III are being assembled by Rick Bridges; he is responsible for editing the umbrella. All articles must be received by him by the deadline of December 1, 1989. Lechuguilla Cave Project format is fine. A few topics and authors are:

Kevin Allred - first descent
Jim Nicholls - ridgework
Winn Wright - basemaps
Jay Rockwell - USFS contacts
Ann Strait - Doug's rescue
? (unknown) - Heceta boat trip
? (unknown) - El Capitan
? (unknown) - Perue Peak
? (unknown) - Calder Peak

Election of Officers

by J. Rockwell

Election time is coming. The Nominating Committee is listed below. Please call or write your nominations to one of them by December 1, being sure your nominee is willing. The Nominating Committee's selection and publication of a slate of officers needs to appear in The Alaskan Caver at least a month in advance of elections. Elected officers are President, Vice President, Secretary, Treasurer, and two Members at Large.

The elections may be an appropriate time for bylaw changes. These require a two-thirds vote of full members. This is possible at the time that dues are paid. At the moment, the only proposed change in the bylaws is to raise the dues to \$7.50 from \$5.00. Other bylaws, including the duties of the officers, appear in The Alaskan Caver, Vol. 3, No. 2. It may be desired to change more of them. The procedures for doing so are spelled out in the bylaws.

The members of the Nominating Committee are listed below; Chair is David Moll. Kevin Allred has no phone, so must be contacted by mail or via radio station KHNS.

David M. Moll (907) 455-6578
P.O.Box 82044 Fairbanks AK 99708

Samuel M. Dunaway (907) 344-4037
7301 Chad St Anchorage AK 99518

Richard A. Bridges (303) 759-2149
4840 E Atlantic Pl Denver CO 80222

Kevin Allred (via KHNS) 766-2020
P.O.Box 376 Haines AK 99827

David M. Klinger (509) 548-5480
P.O.Box 537 Leavenworth WA 98826

Hole Checking, Anyone?

by Kevin Allred

A large amount of cave-finding research, still just begun by the Glacier Grotto, has been mostly on the northern end of Prince of Wales Island, extending south to Neck Lake. The potential for caves there is great, as it is on many islands mostly to the west, judging from my estimates for amounts of Heceta limestone (see chart). Karst topography has also been located in rock that is not classified as Heceta, but which contains portions of Heceta or other limestones. Speaking of Heceta, it has been stated as "THE cave-containing formation of the area along with the younger Wadleigh limestone" (Rogers, 1979). Our latest information on the thickness of Heceta limestone is a "thickness probably greater than 4000 meters in some exposures" (from page 16 of 1984 USGS Open File Report OF 84-0405). This is equal to over 13000 feet of mostly limestone, which is a whopping amount, folks!

Carlene has previously mentioned some of the greatly varied karst features in an earlier report (Allred, 1989), but not some density figures for dolines. According to Bögli, in other parts of the world densities of dolines (sinks and sinkholes) in doline fields can vary from .57 dolines/km² to a maximum of 7500 dolines/km², or .91 dolines/mile² to 12075 dolines/mile². He also gave an average density which comes out to about 150 dolines/mile² (Bögli, 1980). Using aerial photographs, I estimated an average of 3200 dolines/mile² in three subalpine to alpine areas of northern Prince of Wales Island. These areas total about 4.5 square miles, or 14400 dolines. My own feelings are that there are possibly more than I had estimated. They are

there to count if anyone is interested. This terrain is very difficult to travel on and can be quite dangerous with partially hidden holes of varying depths, some containing serrated, sharp knife-edged fins of rock jutting up in readiness to crudely slice unsuspecting cavers to pieces. In lower elevations the noticeable number per area is much less.

The total number of leads in northern Prince of Wales Island is still growing, and along with

Estimated Heceta Limestone
in Square Miles (Gehrels, 1970)

Island	Sq Mi	C/P
Dove	½	
Eagle	1	
Hoot	1	
Whale	1	
Owl	1	
Camp	1	
White Cliff	1	•
Bushy	1	
Noyes	4	•
Baker	4	•
Orr	4	•
Marble	6	
Long	9	
Scrubby	9	
Coronation	20	•
Tuxekan	23	
Dall	33	•
Heceta	58	•
Kosciusku	62	•
Prince of Wales	111	•

Information was gleaned from a Preliminary Geologic Map of Southeastern Alaska by G. E. Gehrels and H. C. Berg in 1970. It does not include other limestones containing karst. Limestone here noted as Heceta may be known by other names on Dall Island or elsewhere. The • in the last column indicates that a cave and/or pit was reported.

what we have obtained of the nearby islands is 952 as of April 1981. Some of these leads are simply circled concentrations of many dolines.

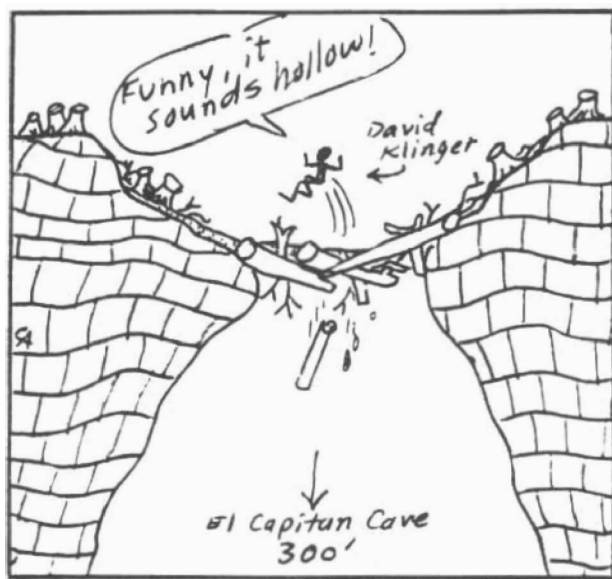
Of course, as in other parts of Alaska, much of the problem in exploring this karst is the difficulty in getting to it. In the clearcuts, we find ourselves rapidly burned out after several days of checking one after another slash- or muskeg-plugged sink or sinkhole ... and these are the close ones! But yet, I am convinced that on the northern part of Prince of Wales Island alone are perhaps 500 miles of cave passage. Finding our way into it is the hard part and would add up to countless devil's club thorns in wearied, tattered ridge walkers! Maybe someone can come up with a suit like the tin man uses in *The Wizard of Oz*! Because of these difficulties, presently the Grotto is checking the best leads and leaving most less-desirable ones for posterity. Those who may claim there are no such miles will be right until those who do not know any better prove them wrong. It would probably not happen in our lifetime. A statement by Edward Judson seems appropriate: "Success and suffering are vitally and organically linked. If you succeed without suffering, it is because

someone suffered for you; if you suffer without succeeding, it is in order that someone else may succeed after you."

References

- Allred, C. 1989. Caving Through a Stereoscope. The Alaskan Caver 9(1).
Bögli, A. 1980. Karst Hydrology and Physical Speleology. New York, Springer-Verlag, p. 62.
Rogers, B. 1979. This is it! The Alaskan Caver 4(2).

Cartoon by Carlene Allred



Coronation Island Expedition II

For the second year running Steve Lewis led the Coronation Island Expedition in exploring caves on this wilderness island. With him were Don Hampton, Anne Ruggles, and Curt Black. Several caves were discovered; locations and descriptions of them will be forth-coming in The Alaskan Caver.

Steve comments: "...there appears to be lots of cave potential on Coronation Island. ... Last Straw Cave has soda straws nearly three feet long, apparently the longest yet in Alaska. Although none of the pits we dropped were deeper than 90 feet, there are still many unexplored flagged pits..."

**★ ★ Grotto Meeting ★ ★
and Slide Show**

Saturday
November 11, 1989

at the home of
Julius Rockwell, Jr
2944 Emory Street
Anchorage

short business meeting
cave-related activities
refreshments provided
bring slides for showing

followed by an expedition
to the Byron Valley Caves
on Sunday (the 12th)
conditions permitting

Grotto Patches Are Ready

Designed by Carlene Allred
and produced by Sharon Dunaway,
assisted by Liz Rockwell, 100
attractive Glacier Grotto patches
have finally been delivered. A
copy of one appears below the
return address on the outside of
this issue. They were designed
to go below the NSS patch but may
be worn separately. They are \$5
each postpaid, and may be ordered
from Ms. Sharon Dunaway, 7310
Chad Street, Anchorage, AK 99518.
Checks or money orders should be
made out to "Glacier Grotto".
Grotto membership now stands at
100, so do not wait too long
before ordering.

Glacier Grotto
2944 Emory Street
Anchorage, Alaska 99508-4466

Address Correction Requested