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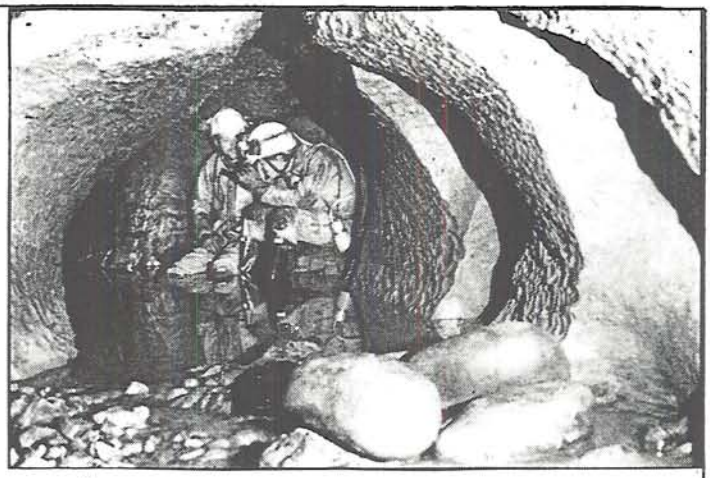
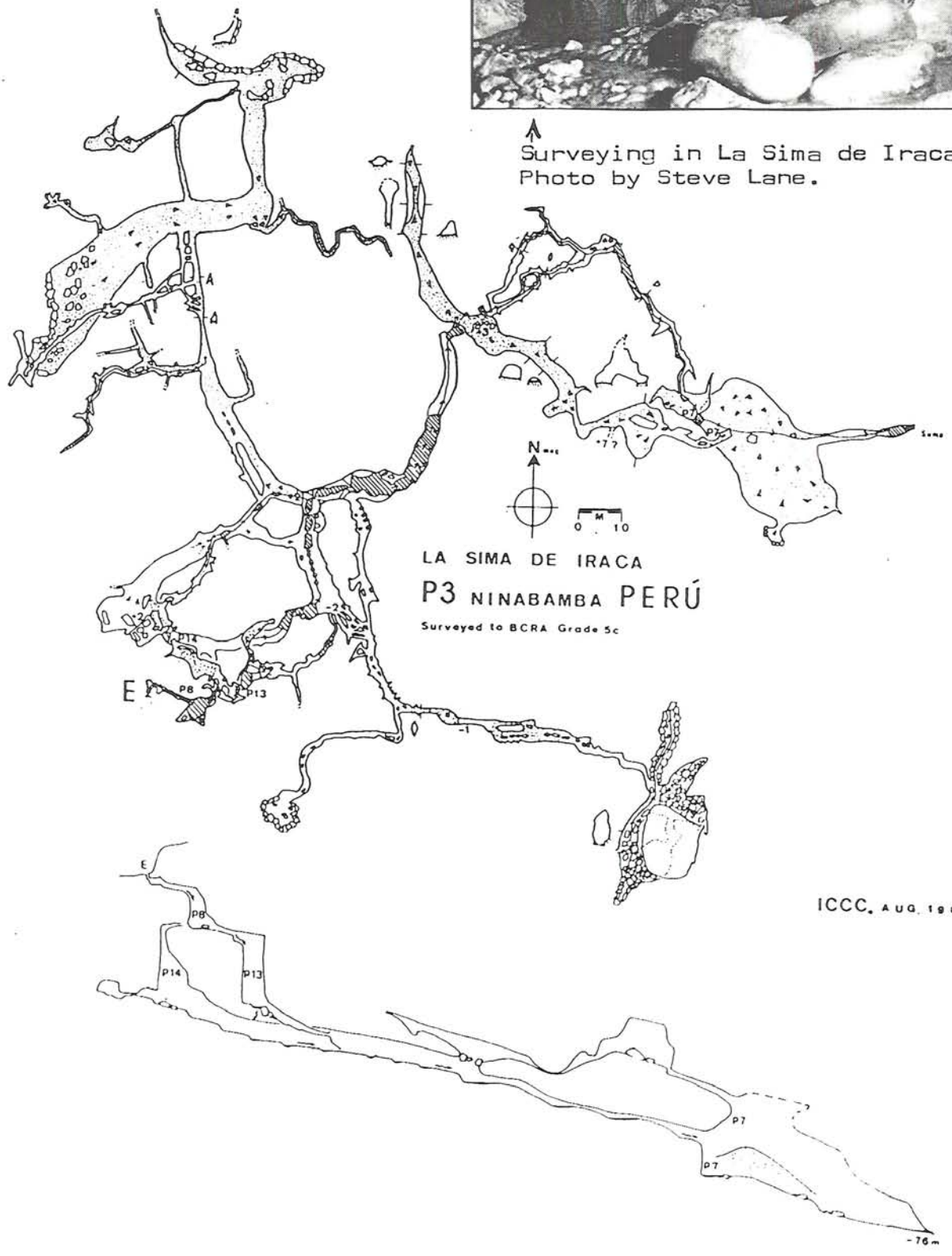
IMPERIAL COLLEGE CAVING CLUB

Newsletter - Spring 1988 Issue.



Surveying in La Sima de Iraca
Photo by Steve Lane.



LA SIMA DE IRACA

P3 NINABAMBA PERÚ

Surveyed to BCRA Grade 5c

ICCC. AUG. 1984

The Hydrology of the Uchkupisjo River Cave, Ninabamba, Peru.

(The prospects for further discoveries).

Introduction

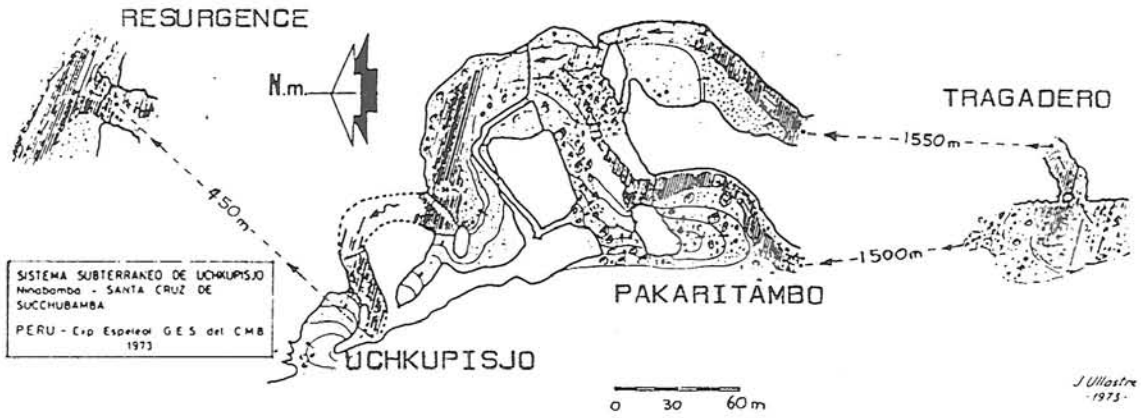
The caves at Ninabamba in N. Peru are at present the longest continuous cave system in the country (2.4 km.), and are associated with several other as yet unconnected caves totalling a further 2 km of passage. Despite a long history of exploration over nearly two centuries, there are still big blanks on the map, with potential for the various parts to be linked up and much more passage to be found.

History of Exploration

1802 The naturalist Alexander von Humboldt explored the entrance chambers down to an underground river.

1868 The Italio-Peruvian explorer Antonio Raimondi got little further but speculated that the underground stream could be more than 5 km long.

1973 The first true caving expedition, by Spanish cavers found the system in flood, which curtailed much exploration. However they established the location of the constituent parts of the system:



1977 Another group of Spanish cavers found conditions very dry and did a lot of exploration/surveying. BUT they Published only in an obscure language (Catalan) in a local club journal, and failed to respond to repeated enquires. Hence their work was partially duplicated by IC.

1984 Imperial College Caving Club in ignorance of the 1977 expedition completed a full resurvey of the system including several major extensions. Ic also discovered and surveyed 4 tributary cave systems between the sink (Tragadero) and the main Pakaritambo-Uchkupisjo system.

Comparison of Hydrological Observations

The two surveys (Spanish 1977 and IC 1984) show good overall agreement except at one point. In the canal section at the bottom of Uchkupisjo the direction of the river as it flows on to the resurgence differs by 180° between the two surveys - clearly a compass error by someone. The error is most likely to be by the Spanish (honest!) since the known continuation of this passage if continued on the Spanish bearing would come very close to intersecting with other known passage.

As regards water flow, several points came to light from IC observations made at a time of moderate river flow:

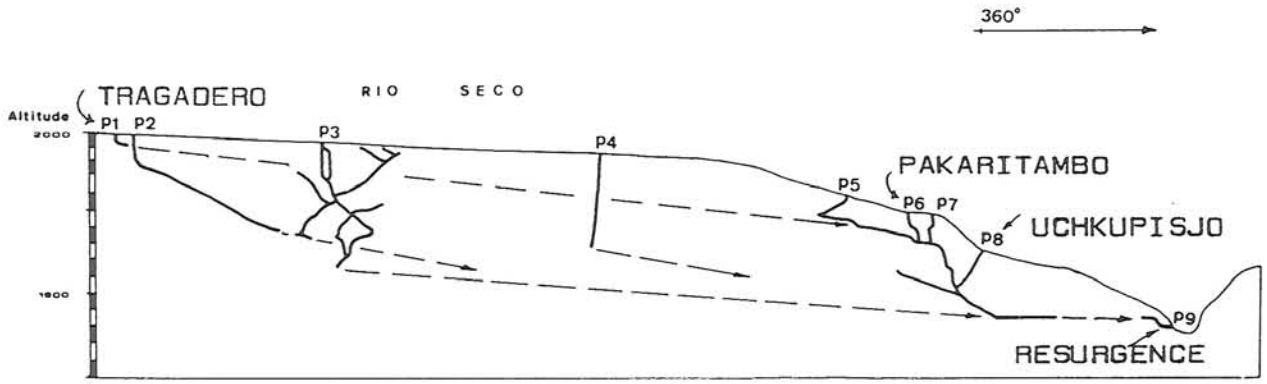
(1) The main river flow within Pakaritambo-Uchkupisjo was only about half that entering the sink (Tragadero) or leaving the resurgence.

(2) Tributary cave systems between Tragadero and the main system all sump much deeper than the level of the big rising sump in upstream Pakaritambo which presumably carries water direct from the sink. (P2 only 20m from the main river sink immediately drops down a 22m. pitch and actually passes under the main river).

(3) The level of the canal section in the bottom of Uchkupisjo is about the same as the resurgence, while the tributary caves are slightly higher, but not much considering that they are 1½ - 2 km away.

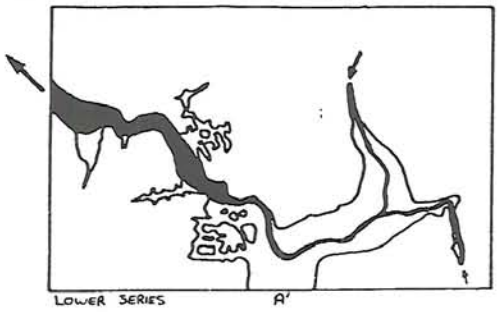
In consequence it was thought that the drainage was:

South-North Projected Elevation of the Rio Seco Valley from Sink (P1) to Resurgence (P9), showing the relative positions and depths of caves. NB. Vertical scale is 3x horizontal.

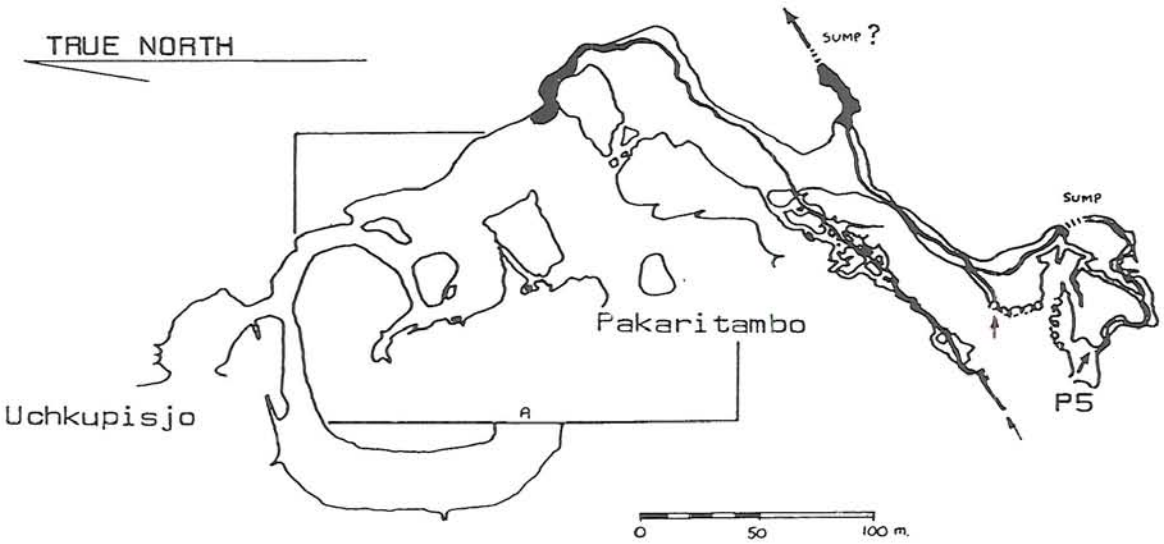


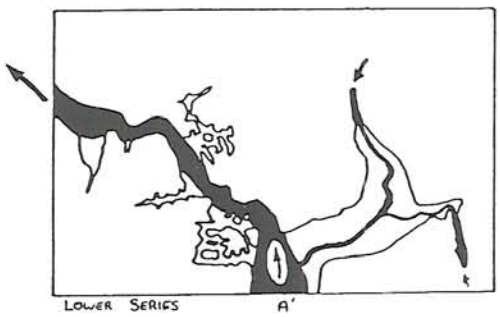
This situation is supported by information recently obtained from the 1977 Spanish expedition report:

FIGURE 3:
COMPARISON OF OBSERVATIONS [SPANISH 1977 & ICCC 1984]

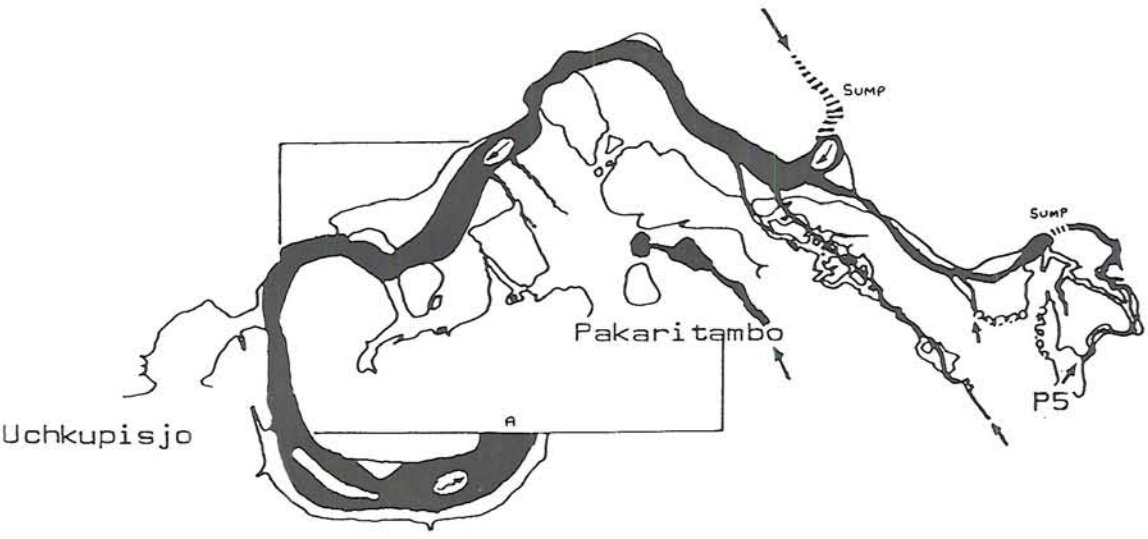


July 1977
Low water conditions.





August 1984
Moderately high
water conditions.



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Visiting the system in low water conditions the Spanish 1977 expedition recorded the following observations:

(1) No water issued from the main "rising" in Pakaritambo on the contrary the flow was reversed since it was draining the flow from P5.

(2) The lower canal sections in Uchkupisjo remained full despite negligible flow into them from known cave, (The only flow was from the two small sumps in a side passage which is probably just leakage through blocks from the cave above - one day the loop to Uchkupisjo will probably be short-cut by a big waterfall here just inside the big Pakaritambo entrance.

The situations in moderately high, and low water conditions are compared in figure 3, which is based on the ICCC survey with some additional information provided by the Spanish survey.

Conclusions

(1) The "rising" sump in Pakaritambo is a major flood overflow and as such should connect to the elusive underground river between Pakaritambo and Tragadero. The Spanish thought that this passage sumped a short way in but they don't appear to have pushed it to the end to confirm this. If it was sumped, it may well be quite short and limited to where the passage turns up dip. The connection with the main river should be a long way off since the depths of the tributary caves tend to indicate that the main flow is a lot deeper. In dry conditions this passage could continue open for a long way. In moderately wet conditions it definitely sumps.

(2) The canal section was also thought by the Spanish to be sumped but again they didn't pursue it far and it is known (IC '84) to continue open for at least another 200 - 250 m with no sign of sumping, indeed it probably continues wide open through to the top of the waterfall just visible at the back of the resurgence cave. To the limit of downstream exploration, no connection has been made with the main river flow from Tragadero unless it leaks in unnoticed underwater.

(3) Virtually all passage surveyed so far is not part of the main river passage but only a high water overflow. What happens to all that water thundering into Tragadero? Does it sump just 60m in and about 30m above open passage in P2? The Spanish thought so but they've been wrong before.

In short the system would provide a superb dye-test project with the potential for big discoveries - pity its so far away!

CMO Sept 1987