OXFORD UNIVERSITY EXPEDITION TO NORTHERN SPAIN 1961

INTERIM REPORT ON THE GEOPHYSICAL PROGRAMME

The aim of the geophysical surveys was to support the main caving programme, and to provide corroboratory evidence of the course of a cave where needed. The resistivity method using the Wenner configuration of electrodes was used in all cases.

The survey in a suitable dry valley over the pothole designated P1 (Pozo Palomeru) located the XXXXXX passage in a position in good agreement with a surface plot of the underground cave survey, and measurement of the depth by the expanding electrode method enabled the various theoretical formulae in use to be tested. A further survey across the dry valley beyond the further point reached underground indicated the presence of a cave, which may be an extension of the passages explored.

A survey across the floor of the enclosed valley at Las Reblagas was handicapped by marshy conditions, and a further attempt to locate the connection underground between Lago de la Ercina and Las Reblagas, proved by Rhodamine B testing, failed because of the inadequate depth reached by the depth survey.

The method may be regarded as a useful way of confirming the presence of a cave in a given point, and even of finding a new cave. The accuracy, however, is limited, and the restriction of the method to suitable flat stretches of turf of adequate length is a severe handicap among clint surfaces, which are likely to occur over many possible sites of caves.

Hydrological testing was carried out using fluorescein and the new method evolved by members of the Bradford Pothole Club using Rhodamine B. The main success was the tracing of the connection mentioned above, and a conspicuous failure to trace the course of the water from the sink in Las Reblagas was experienced, despite many tests using both dyes. The water tracing was handicapped by the prevalent drought. The flow, temperature and pH of two springs were recorded daily, and meteorological observations taken.

Notes on Caving:

Although the thickness of the limestone is sufficient for formation of very deep potholes, none of those explored, with the exception of Cueva de Orandi, reached a depth of greater than 250 ft from the surface.

The largest system discovered was that of Pozo Palomeru. This is entered by a shaft of 140 ft, and about half a mile of passages have been explored. The drainage is complex, consisting of at least two separate vadose passages, linked by flood passages or possible phreatic solution. The two main vadose passages comprise the Candy Cavern series and the main sump below the entrance shaft, with possibly the first hundred feet of the main passage, and the Far Series beyond Gargoyle Chamber. Survey indicates that the cave comes quite close to the surface at the point of furthest exploration, and in this section it was located by geophysical survey.

The largest cave, and the only one of any size containing an active stream, was discovered in the mountains about one mile NNW of the refuge of Vega Redonda, and named Cueva del Viento. This consists of a long rift passage connected to a number of stream passages. The best formations and rimstone pools discovered on the expedition are in this cave.

Cueva de Orandi was explored to about 75 metres depth, in extremely wet conditions, and further exploration will require a rubber dinghy and a large amount of tackle. The resurgence at the shrine of Our Lady of Covadonga is some 125 metres below the furthest point of exploration.

All other discoveries were small caves and potholes, many with interesting formations. All discoveries were surveyed to at least CRG grade two standard, and P1 to grade four standard along the main passage. Scallop marks were noted in order to determine the direction of drainage.