HOLIDAY GEOLOGY

Réserve Géologique de Haute Provence

The Provence region of southeast France receives many British visitors who enjoy the weather, the perched villages, the lavender fields and the delightful ambience. Haute Provence is less visited and lies northeast of Provence, bounded to the north by the Dauphine Alps. It is an area of rugged high country dissected by many gorges.

The Réserve Géologique de Haute Provence occupies 190 000 ha. Its aims are to conserve the geological assets of the area while making a selection of them available to visitors. Entry points are marked by large coloured road-side signs that show an ammonite. The two main towns of the reserve are Digne les Bains and Castellane, each of which has a large geological museum devoted to different aspects of the reserve. There is also a more modest museum in the small town of Barrême (of the Lower Cretaceous Barrêmium).

The rocks of the reserve are mainly limestones and shales from the Upper Jurassic, Cretaceous and Tertiary. All have been folded on a grand scale by the Alpine orogeny.

The museum at Digne les Bains is built on a cliff faced with tufa, above the river just to the north of the town. From the car park, three trails lead up through woodland to the museum, and these pass by sculptures on the theme of rocks and water by past artists in residence. At the museum, the stream that pours down the hillside is actively depositing tufa, and also provides the water element in the theme of the reserve. Each gallery in the museum attempts to relate modern living plants and creatures with those in the fossil record. There is a room with walk-through aquaria and fossil fish displays, and another for plants old and new. The gallery devoted to ammonites themes on modern paintings that are inspired by the fossils on display.

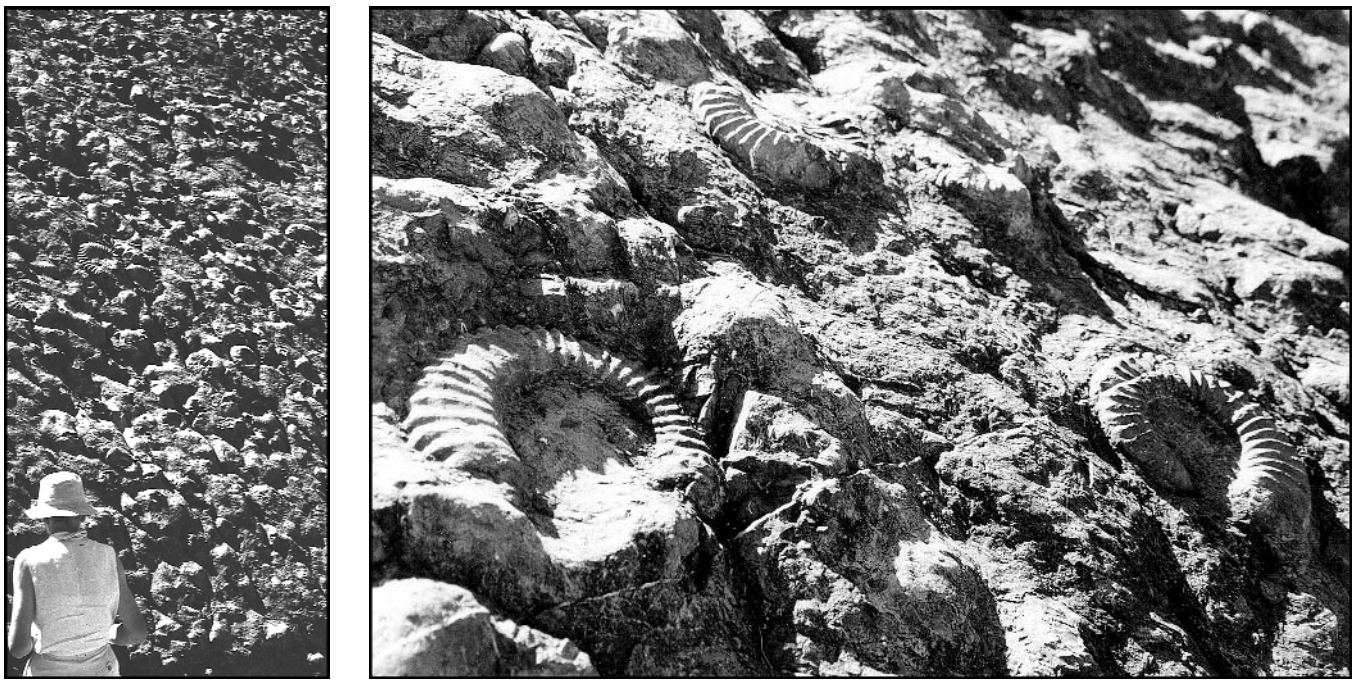
The minor road heading due north out of Digne, close to the museum, reaches 23 km to the village of Barles. It passes several geological localities, each a few kilometres apart, and each with the familiar ammonite sign, a small car park and interpretative notices (that are mostly bi-lingual).

The first geology-stop, maybe 5 km out of Digne, is a spectacular roadside exposure of a large bedding plane, dipping at about 40°, that contains countless large ammonites.

The next signed stop, a few km further on, has a trail 2 km long through an attractive gorge and up a hillside to an in situ fossil ichthyosaur exposed on a bedding plane. The fossil is protected by a glass box, and has a diorama worthy of Alan Dawn behind it.

The third site is at the roadside and has bird footprints in Tertiary sediments (though close inspection reveals that this is a glass-reinforced plastic replica of the real material that is now safely in a museum). The road lies in the Clues de Barles gorge, which cuts through vertical beds so that tops and bottoms are exposed for inspection.

The next locality offers a short walk on the dry bed of the Bes River, to reach some infilled paleo-channels that are now tilted to the vertical; the site reveals small-scale depositional features.



Overall and close-up views of the roadside ammonite-rich bedding plane north of Digne les Bains.

The last site on the road to Barles has a short circular path through woodland, where a number of replica plant fossils have been mounted adjacent to living trees that are considered to have some connection.

The road south from Digne les Bains is the N85 to Castellane, 54 km away. It passes through the village of Barrême, where signs point to the geological museum, housed in the waiting room of the station on the narrow gauge line from Digne to Nice. There are various interpretative boards and lots of fossils (mainly ammonites, needless to say). So abundant are large specimens of the partly uncoiled type that some villages along the route have mounted them on plinths on road roundabouts.

At the Col de Leques, 10 km short of Castellane, there is a sign to the Sirènes. A walk of 2 km leads to a valley where the fossilised remains of numerous ancestral manatees (sirènes in French) have been found. These animals, which today are best known in Florida, probably gave rise to the mermaid legend that has its counterparts in many other cultures. About 40 million years ago, a large number of manatees died and sank to the sea bed - which was a surface of Jurassic rocks. The bodies were buried in mid-Eocene sediments, which therefore lie unconformably on the Jurassic rocks, and the whole sequence was uplifted and tilted to about 40° during the Alpine orogeny. After the last ice age a small stream has cut a valley by exploiting this unconformity, and has gradually removed a section of the Tertiary sediments - to leave the fossil manatees lying on the old Jurassic sea bed just a few metres up the valley side. An elevated boardwalk gives access to the exposure, and the fossils are protected behind glass screens. Two notice boards describe the life and death of the sirènes, and also the legends around them and the wider geological framework.

The road from the col continues south to Castellane, where the museum (which we did not visit) concentrates on the manatee fossils, with reconstructions of the creatures, and a feature on their associated legends.

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