

A REAL UNDERGROUND COUNTRY.



“O more discoveries remain in store for Alpine climbers,” sighs a daring French traveller, pioneer of subterranean exploration in France. “Every ascent has been accomplished, every summit explored. We were born thirty years too late for mountaineering.”

If, however, original research is limited in cloudland, and the scientist and explorer are now tolerably familiar with the outer crust of our globe, the inner offers comparatively virgin soil to both.

In the words of another French writer, “Travellers in search of knowledge and emotion” (our word “sensation” by no means conveys the meaning of the French “émotion”) “must now seek them in the nether world, in the bowels of the earth.”

How little is still known of the marvels underground recent investigations in France show. In Hungary the study of grottoes, caves, and subterranean rivers has for many years been carried on with the utmost ardour, under the name of “Höhlenkunde.” The first Frenchman to devote himself to the subject first claimed for it the name of Grottology, now exchanged for “Spilæologie,” from the Greek for “cave” and “discourse.”

M. Martel—quoted in my introductory sentence, and the discoverer of the marvels I am about to describe—is a distinguished young lawyer of Paris, acting counsel of the Tribunal de Commerce of the Seine. As so often and so fortunately happens, the indefatigable explorer is seconded by a wife equally high-spirited and venturesome. Madame Martel, it is true, has not yet accompanied her husband—

“Through caverns measureless to man,
Down to a sunless sea.”

She has floated with him in mid-air—their voyage in a balloon from Paris to Laon two years ago reading more like a page from a fairy-tale than a sober report of the French Alpine Club. To this lady’s enterprise and pen are also due charming accounts of little-known mountain-scenery in Greece.

A bare mention of her husband’s achievements takes the breath away; descents, lasting an hour and a half into caverns vast as French cathedrals, and remote from the

surface as the base of the Eiffel Tower from the Tricolour floating on its uppermost pinnacle—canoe voyages on subterranean rivers several miles long, and across lovely little lakes hitherto unvisited by man—the shooting of underground rapids—the exploration of grottoes on hands and knees, occasionally by a swim in ice-cold, pitchy-black water—sojourn after sojourn of sixteen and even twenty hours hundreds, nay, thousands of feet below the earth’s surface; such recitals testify to powers of endurance elasticity of temperament and high-spirited enterprise worthy to rank with the most notable records of travel.

It must not be supposed that these trying and dangerous feats were undertaken from mere curiosity and love of excitement. M. Martel’s discoveries have already borne fruit to the geographer and meteorologist; results yet more valuable are sure to come. The fauna, flora, and fossils of these cavernous depths must be of great interest.

Before following the explorer into the awful abysses and Acherontian streams—his



AN EXPLORER'S ADVANCE.

happy hunting-ground—let us look at the equipments of a Grottologist and his companions—no trifling matter, as will be seen.

Foremost comes the folding canoe (Osgood's patent), a tiny craft with waterproof sides, that holds two, weighs only a few pounds, and takes to pieces—as may be conceived, a source of amazement to the country-folk ; a portable telephone (Aubry's system) — this also is indispensable, the voice being inaudible in these vertical abysses at a depth of a hundred feet—rope ladders, miners' lamps, large stearine candles, a pot of white paint for marking the way, whistles and hunting horns, hammer, spade, tinder-boxes, compass and other mathematical instruments, meat lozenges—these are the more important items. Bengal fire, fireworks, dynamite for the purpose of illumination and forcing a passage M. Martel disapproves of, the former being unwholesome, and the latter excessively dangerous. Even the use of magnesian light should be restricted to the minimum.

The next weighty point is the finding of trusty guides—rather, aids : two needed for each explorer. Good guides are more necessary underground, writes our Grotologist, than on mountain-tops, and we can easily believe him. In his own case they had to be trained for the work, no one before having ventured into the dark, unpeopled mysterious regions now investigated and mapped out.

Until the last few years neither French nor English tourists had heard of the Causses, those vast promontories and stony plateaux of Central France, to which no other country offers an exact parallel. Lofty as Skiddaw and Helvellyn, their tablelands equal in extent to Dartmoor or Exmoor, the Causses have only lately attracted the attention of the scientific. The discovery, such it may be called, of the cañons of the Tarn, made a decade ago, and due to MM. Martel, Malafosse, Lequeutre, and others, has opened a new and magical region to the tourist.

One paramount charm here is that of contrast—aridity of soil, an arctic climate, solitude, and desolation characterise the plateaux ; at their base lie fertile fields, delicious valleys, meandering rivers, fountains gushing from silvery cascades. Above, not a rill, not a beck refreshes the spongy, stony soil ; the showers of spring, the snows of winter filter to a depth of thousands of feet below. Another striking feature of the arid, waterless upper region is the *aven*, or yawning chasm, subject of superstitious awe and terror among the country-people. Wherever you go you find the *aven*, in the midst of a field—for parts of this sterile soil have been laid under cultivation—on the side of a vertical cliff, of divers shapes and sizes ; these mysterious openings are locally known as "Trous d'enfer" (mouths of hell).

Alike, fact and legend have increased the popular dread. It was known that many an unfortunate sheep or goat had fallen into some



M. E. A. MARTEL.

(From a photograph by A. Liebert, Paris.)

abyss, never, of course, to be heard of after ; it was said that a jealous seigneur of these regions had been seen thus to get rid of his young wife—one tradition out of many. According to the country-folk of Padirac, the devil, hurrying away with a captured soul, was overtaken by St. Martin on horseback. A struggle, amid savage scenery, ensued for possession of the soul. "Accursed saint," cried Satan, "thou wilt hardly leap my ditch" —with a tap of his heel opening the rock before them, splitting it in two, the enormous chasm as he thought making pursuit impossible. But St. Martin's steed leaped it at a bound, the soul was rescued, and the prince of darkness, instead of the saint, sent below.

Another legend refers to the expulsion of the English from this part of France in the time of Charles VII. The enemy, after many sharp defeats, threw their treasures into the chasm, whence they have never been withdrawn. On the arrival of M. Martel with his friends and guides at Padirac, in the department of the Lot, the peasants thought they had come in search of English treasure ! It may easily be imagined that the first descent of these

avens was regarded as a foolhardy expedition—a tempting of Providence.

At Millau, six aged women came to the exploring party, entreating them with tears and paternosters to desist.

"You can get down, gentlemen, easily enough," they said, "but you will never come up again."

The country curés who offered the travellers hospitality, no inns being accessible, were hardly more reassuring. Nor, indeed, can the general stupefaction be wondered at. The odds against such pioneers were enormous. We can hardly blame the peasants for not enlisting in their service with greater alacrity. To descend unaccompanied a chasm as yet unfathomed, your mode of transport a plank attached to two cords like a child's swing, in one hand a torch, with the other grasping a rope, only your priceless pocket telephone permitting communication with the living world above—after, perhaps, an hour of such locomotion to be left alone over a thousand feet below the earth's surface—the anticipation might well appal the most stout-hearted.

During the descent some such conversation as this is carried on by means of the pocket telephone:

"All going well," says the pioneer. "I see a side gallery; wait a bit, I want to have a look at it."

After ten minutes' silence the watcher above grows uneasy.

"Well, what is it like—your gallery?"

"The gallery is about forty feet long, and just below is a well. Let someone come down; also let down a rope ladder. I am out of my seat. You can draw it up. Have you understood?"

"Perfectly."

Then the "swing" is slowly drawn up,

and the explorer left alone, often having to wait hours for his companions and their paraphernalia—a single false step, a slight miscalculation on his part as he explores the pitchy-black regions, his candle only illuminating the darkness, and all is over with him. He is engulfed, drowned, or crushed before help can arrive. Hitherto no serious accident has occurred, but hours are constantly lost owing to imperfectly understood messages, entanglement of ropes, and mischances of the same kind.

When everything goes well, patience and endurance are tried to the utmost. Thus the exploration of one aven or subterranean river alone will demand sixteen hours of uninterrupted trial and exposure, the travellers reaching the surface speechless, numb, and inanimate from fatigue.

M. Martel's exploits are now legion. We will begin by enumerating the more modest, the aven of Guisotte (Aveyron), a mere well, two hundred feet deep and a little over a yard wide; then follows another on the same Causse, about double the depth and size; in a third, the explorer was compelled to spend three-quarters of an hour midway between the surface and the base, balancing himself as best he could on a rope ladder, and trying to persuade one match after another to take fire!

Without a light he could neither go up nor down, and the lantern despatched to his succour had been blown out on the way. The ordinary match is now replaced, as I have said, by the *briquet à amadou*, a kind of tinder-box absolutely to be relied on.

The avens just named are mere wells, the exploration a trifle by comparison with what followed, namely, the discovery of three enormous abysses or caverns, two of which led to subterranean rivers. Rabanel (Hérault), the first of these, has an opening as wide as the crypt of St. Paul's, a grotto of twice its proportions and of twice the depth of Golden Cross from Ludgate Hill.

Six days and six hundred francs were devoted to this cavern—passages, grottoes and caverns now being mapped out by its discoverer.

The spectacle that awaited him and his doughty companions below is described as fairy-like, unimaginably strange and lovely. No cavern seemed here; rather the nave of some lofty and magnificent cathedral. From the opening above, now



A CANOE VOYAGE ON THE UNDERGROUND RIVER.



"NO CAVERN SEEMED HERE: RATHER THE NAVE OF SOME LOFTY AND MAGNIFICENT CATHEDRAL." (p. 210).

dwarfed to a needle's eye of intensest blue, a ray of light filtered through the gloom, dimly irradiating the crystal stalactites fringing the walls.

But the capital achievement of our explorer is his discovery of two underground rivers. Compared with this, all former feats sink into insignificance. Unfortunately the marvels he describes in language so simple yet so telling are beyond the reach of most. We may be sure twenty would scale Mont Blanc to one who would descend Rabanel. Nor are the rivers less appalling.

In the heart of the Cévennes, on the way from Mende to Le Vigan (Lozere and Gard), is a mountain torrent, thundering amid dark precipitous rocks.

Long ago the country folks named the cascade Bramabiau, in local dialect meaning the bellowing of a bull. A French writer in 1838 thus speaks of the strange and awful spectacle—

"Words fail me to describe it," he wrote; "here, indeed, Nature reveals herself under an aspect strange, terrible, fraught with mystery."

But almost a hundred years before, travelers had written of the mass of waters forcing a passage through gigantic walls of rock;

and in our own day the falls have been a sight of the few tourists penetrating these solitudes.

Whence came this enormous volume of foaming, roaring water? M. Martel was determined to find out. For a detailed account of his explorations I must refer the reader to his own work.* I will only relate that the expedition of June, 1888, and successive enterprises resulted in the discovery of a subterranean river, over three miles in length, of cascades, grottoes, and galleries, the whole forming, in the explorer's own words, one of those natural marvels that take aback human intelligence.

Here is the kind of experience gone through—one of the daily incidents of underground research.

"From that moment our advance was a series of gymnastics, all movements regulated by the width of our path (the ledge of rock bordering river and cascades), the hold to be got of projecting rocks, and the depth of the water. Sometimes we were up to our necks in water, sometimes clinging like flies to the wall, the perpetual extinction of lights, the difficulty of making each other heard in the roar of the cataract, the

* "Les Cévennes," Paris, 4th edition, 1893.

heaviness of our dripping garments, greatly impeding progress.

"Fortunately a wide platform permitted a halt; we at once named the spot '*salle de repos*,' or chamber of rest. A little below, from a crevice, came thundering a single jet of water, beyond lay a tiny lake or basin. We must either stop short or swim to the other side. Before having recourse to that expedient we tried another."

How the pair—M. Martel was here with one of his guides—contrived to bestride a chasm above the seething, warring mass of water remains a mystery to the travellers themselves, and no wonder! The one literally shot the other across, much as a golfer sends his ball into a hole; the second, being of unusually tall stature, leaning forward, contrived to get hold of his companion and in turn pull him over! The more prudent of the party had swam to the side lower down.

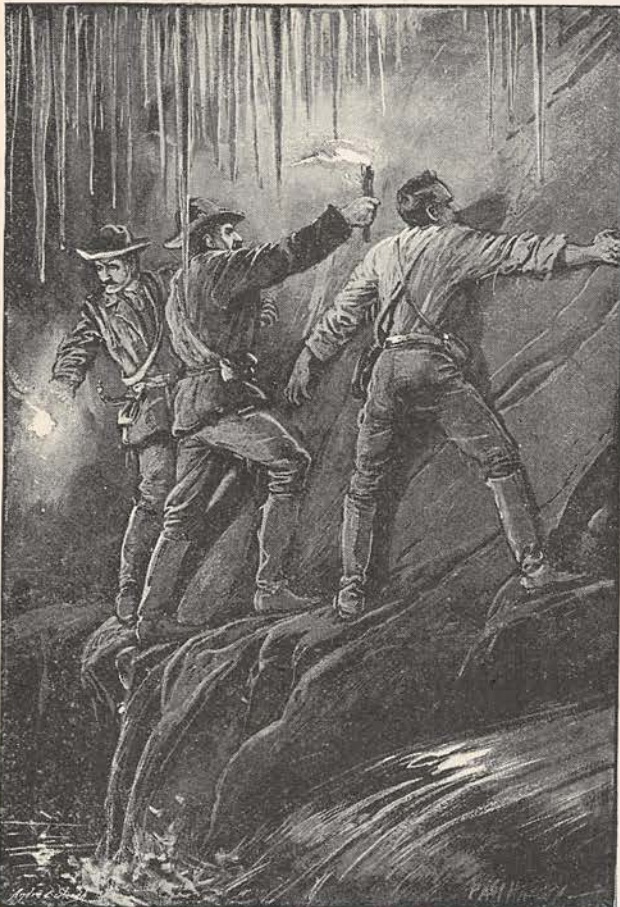
Bramabiau is now mapped out, each

separate feature being named, measurements and other statistics added with the utmost accuracy.* This map of an underground region, the very existence of which was unknown till within a few years ago, offers a curious study. As we read we can but faintly realise the perils and arduous labours represented by each name or figure. If "*La Montée du Diable*" suggests hazards and terrors, the "*Salle de repos*" has an ingratiating sound. Grottology is nevertheless little likely to become a popular form of scientific research. The risks are too great, the conditions too uncanny. Padirac is no less marvellous a phenomenon than Bramabiau, in certain respects, and the underground river of the Lot is more wonderful than that of the Gard. Whilst Bramabiau has its cascades Padirac has its lakes. What a cruise in the underworld is like M. Martel shall tell us:—

"Surprise seals our lips. One after the other four little lakes follow in close succession, the rocky walls on either side draped with stalactites, all sparkling like diamonds under our magnesian light, all reflected in the smooth, limpid water. Not a sound breaks the stillness of this unknown world, only from time to time we hear the trickling of water from the roof; the hollow cavernous roof echoing the fall, the whole making up a tender, penetrating, rhythmic music. Not a living soul has preceded us in this strange voyage. We are wholly remote from the living, familiar sphere. In a breath we ask ourselves: 'Do we not dream? Can this indeed be reality?'"

Padirac, no more than Bramabiau, was explored in a day. Again and again M. Martel and his friends returned to their task, ever finding new marvels. On the 2nd September, 1890, fourteen months to a day after the first descent, a second was made, more than a thousand spectators having gathered about the opening to see. This time the preparations were on a far larger scale, the explorers provided themselves with thirty-five yards of rope-ladder, three portable boats, two sets of photographic apparatus, a newly-patented electric lamp—in short, every

* See "*La rivière souterraine de Bramabiau.*" Société de Géographie, Paris, 1893.



"CLINGING LIKE FLIES TO THE WALL."

object that could possibly be needed for such an expedition. Part of the programme consisted of a bivouac under the stars, their light glimmering from an aperture several hundred feet overhead. By eight o'clock the exploring party, five in all, were safe below. A gay and hearty supper was followed by an hour's rest; not till after midnight did the little illuminated flotilla set forth, the magnesian flames and electric lamp lighting up the colossal walls of stalactite as they went.

Winding in and out, now obliged to land and carry their boats and baggage, now gently gliding from fairy-like lake to lake, the exhilaration of one moment obliterating the fatigues of the other, our explorers reached the limit of the cavern, further progress being arrested by a solid mass of rock, not a cleft, not an outlet to be discovered anywhere.

It was now nearly seven o'clock in the morning, but three hours elapsed before they reached the place of embarkation—three and a half more before the indefatigable travellers could tear themselves away from their photographic apparatus and sketching materials to breakfast. By four in the afternoon all had reached the surface, half dead of fatigue and exposure, but well satisfied with the results of their expedition.

They had navigated a subterranean river a mile and six furlongs in length, its meanderings forming twelve lakes, separated by little weirs, in local phraseology called *gours*, forming a veritable stair, all set in a framework of crystalline stalactite wholly indescribable when lighted up.

There is a prosaic side to all things, and we learn that Padirac has been purchased by an enterprising capitalist, to be turned into a tourists' show-place. Just as the Gorge of the Tarn, unknown even to French tourists a dozen years ago, has become a popular excursion, return tickets on Mr. Cook's principle being given in Paris, so, doubtless, we shall

soon see illustrated advertisements of Padirac in French railway stations. Whether Grottology will recruit novices as quickly as golf or football remains to be seen. M. Martel's enthusiasm is certainly stimulating. Unfortunately, powers of endurance, nerve, and the especial kind of coolness here of the first necessity, are not so easily communicated.

The popularisation of these remote spots of Central France suggests other reflections. Nothing can convey a higher notion of the French peasant, his simplicity, independence, fine physique, and manliness of character than such experiences as M. Martel's, or my own when exploring the *Causse* of the Lozere. What will be the result of a tourist season for two or three months in the year—an influx of travellers, large earnings, a completely new order of things? From one point of view advantageous enough, no doubt. Well-being will increase, progressive ideas take root; we shall no longer complain of remote French villages being in certain respects fifty or a hundred years behind the rest of the world. It is doubtful whether cosmopolitan intercourse will improve my unsophisticated guides, drivers, innkeepers, and acquaintances on the "Roof of France."

M. B.-E.

Since the above was written, M. Martel has brought out his *opus magnum*, "Les Abîmes." In this splendid work, the subterranean explorer summarises his discoveries, each section being abundantly illustrated by illustrations, maps, and diagrams. "Les Abîmes" (The Abysses) deals with "hairbreadth scapes i' the imminent deadly breach," and from first to last is a marvellous record of enterprise, resolution, and endurance. But it is far more. We here turn over a new and fascinating page of the earth's history, a page which is the mere beginning of a chapter to be gradually continued, and, as we hope, some day completed.

