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Around the Dead Sea by Motor Boat

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economic and cultural history of the dark continent will be the release of agricultural regions from nomads.

In the fifteenth chapter on "Mountain Barriers," we have several illustrations of the nature of the influences tending to fix the situation of towns and villages (pp. 527-529, and 549), and the persistent influences in history of mountain passes or valleys in highland regions (pp. 538-546).

The sixteenth chapter is on the "Influences of a Mountain Environment," and among the ideas prominently developed in it may be mentioned the relativity of geographical conditions as exhibited in mountainous regions, as shown, for example, by the fact that in Italy settlements first took place in the mountains, gradually extending down to the plains (pp. 561-563); further, the influence of mountains in the development of communal forms of property (p. 575); the difficulty of effecting political consolidation among mountain peoples and the general absence of national feeling among such peoples (pp. 590-592). The author also notes that the fact that plains possess what mountains lack is to be regarded as a fundamental fact of economic geography (p. 588).

The last chapter is one upon "Climate," a subject inevitably considered, as the author points out, incidentally in nearly all the preceding chapters, but now treated separately with the view of drawing attention to some of the less obvious influences of climate upon man. By way of illustration, one may note the striking observation with regard to what Miss Semple calls "the historical effect of compressed isotherms." "Nowhere else in the world," it is pointed out, "do the tropical and frigid climatic areas, as defined on the north and south by the annual isothermal lines of 20° C. and 0° C. respectively, lie so near together as in Labrador and Northern Florida. . . . This approximation of contrasted climatic districts in North America was an immense force in stimulating the early economic development of the Thirteen Colonies, and in maturing them to the point of political autonomy. It gave New England commerce command of a nearly tropical trade in the West Indies, of sub-tropical products in the southern colonies, in close proximity to all the contrasted products of a cold climate-dense northern forests for naval stores and timber, and an inexhaustible supply of fish from polar currents, which met the strong demand in Europe and the Antilles."

Finally, it should be mentioned that the volume is illustrated by twenty maps, and is provided with an excellent index.

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### AROUND THE DEAD SEA BY MOTOR BOAT.\*

By JACOB E. SPAFFORD, of Jerusalem.

THE placing of a motor boat upon the Dead sea, in Palestine, should do not a little to assist in a more thorough and scientific exploration of the whole of this interesting region. Indeed, although this historic sheet of

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\* The plates are from photographs by the American Colony, Jerusalem.

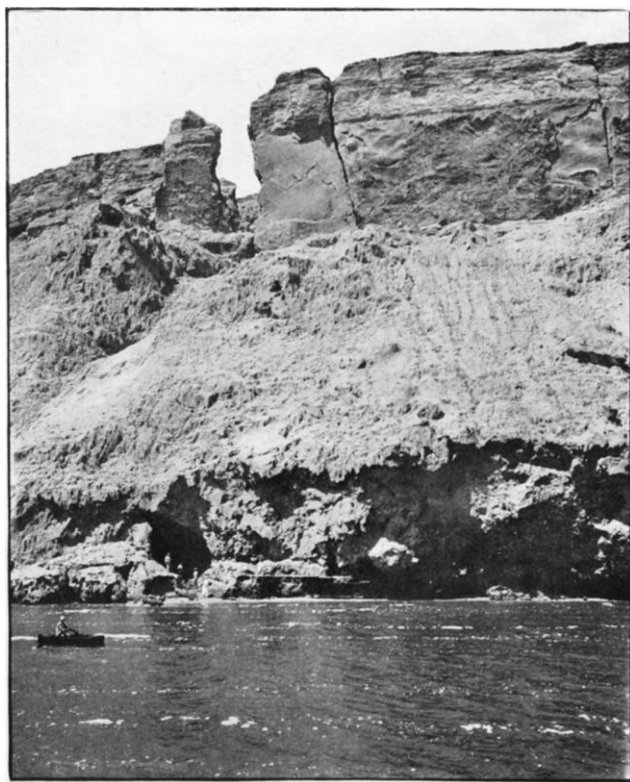
water, whose surface lies 1300 feet below that of the Mediterranean, is known by name to every one, its geographical interest is certainly far from having been exhausted. This being so, the writer, in collaboration with other members of the American colony in Jerusalem, who acted as photographers to the expedition, chartered the self-propelled vessel—a strange-looking craft and originally a sailing boat—and made a complete circuit of the sea.

In circumnavigating the lake, four or five very fertile little plains were met with. They were abundantly watered and capable of untold development, for as soon as one crop is harvested the water is turned on and another put in. These small plains are called Ghors—Ghor-el-Safieh at the south end; Ghor-Mera at the south-east angle of the lake; Ghor-el-Mizra at the end of the bay formed by the peninsula of the Lisan; and Ghor-el-Sawsineh, at the north-east angle of the sea. These plains naturally bring to mind the connection of the Dead sea with Sodom and Gomorrah, the “cities of the plain” that were overthrown. They have been variously placed on every side of the sea. The east side furnishes, at Calirrhoe, palpable evidence of volcanic upheaval, not to mention the combustible substances in sulphur, bitumen, or possibly oil that might have played a part in the overthrow of these ancient cities. Then, on the west side, we saw evidences of volcanic eruption in the black pumice stones, discovered near the tragic fortress of Masada.

These plains and the small oasis at Engedi are the only points where life of any kind and water is to be found. Engedi, our first stopping-place, is the only spot on the west side where fresh water is to be had. This evidently was a little paradise in the time of Solomon, and is frequently mentioned in the Old Testament. Here the “coney” is to be found, as well as the ibex or wild goat, Engedi meaning “the spring of the wild goat.” We also detected many specimens of the Shittim wood tree. Engedi lies about halfway down the west shore of the sea, and may, perhaps, have half a square mile of land sloping from the upper spring, whose temperature is 80° Fahr., and the small plain off the sea; it is watered by two other springs, and here the first cucumbers are raised for the Jerusalem market, which is reached in about eleven hours by land. At the time of our visit, the middle of June, there were only three men here waiting for the ripening of the millet that they might get away from the great heat to the higher levels.

It is a very striking fact that the cliffs on the west side of the sea, which form an almost unbroken wall (excepting for the rugged torrent beds), and which vary from 300 to 1900 feet in height, are all of limestone, whereas on the east side of the lake the formation is entirely sandstone of exquisite hues. The abundance of water on this side, as compared with the other, is very striking, too.

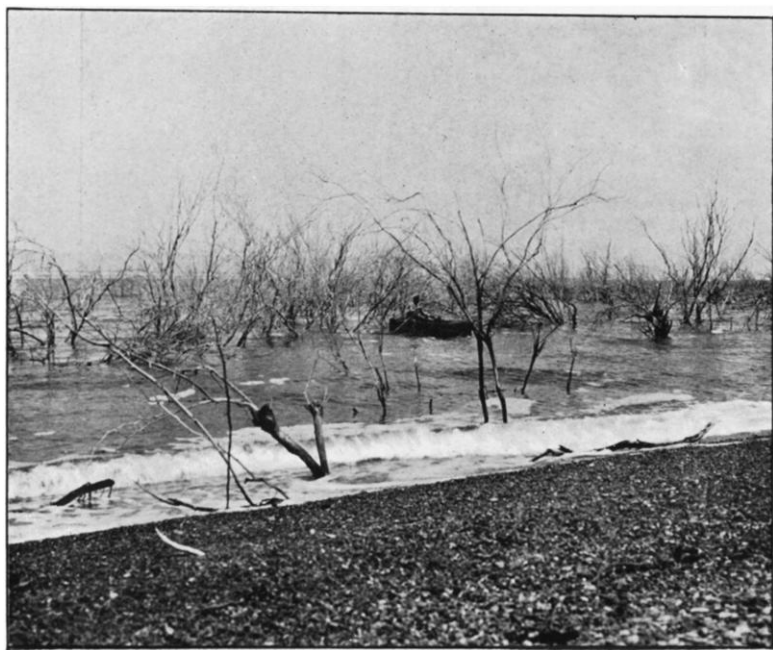
About 10 miles from Engedi lies the peerless natural fortress of Masada (Sebbeh), first fortified by the Maccabees, then used as a place of refuge



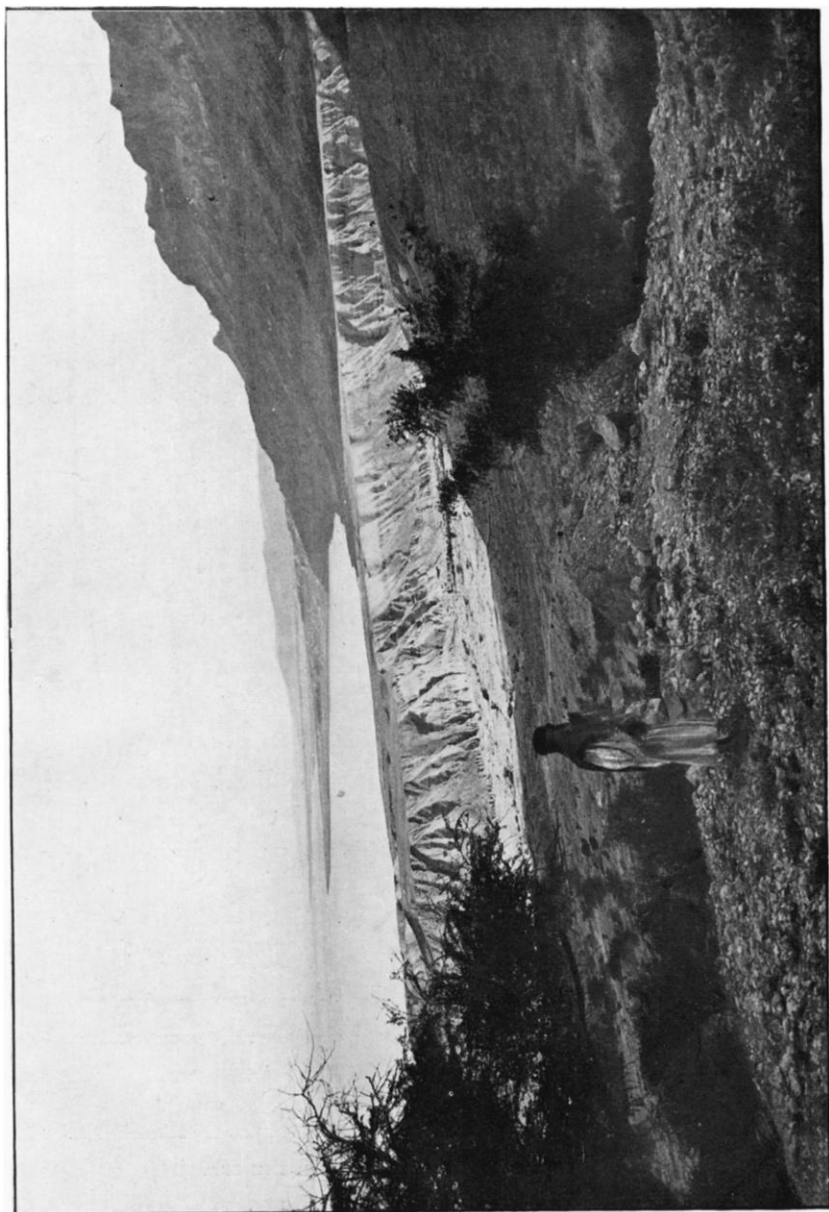
JEBAL USDUM, A MOUNTAIN OF SALT AT SOUTH END OF DEAD SEA,  
SHOWING MOUTH OF CAVE.



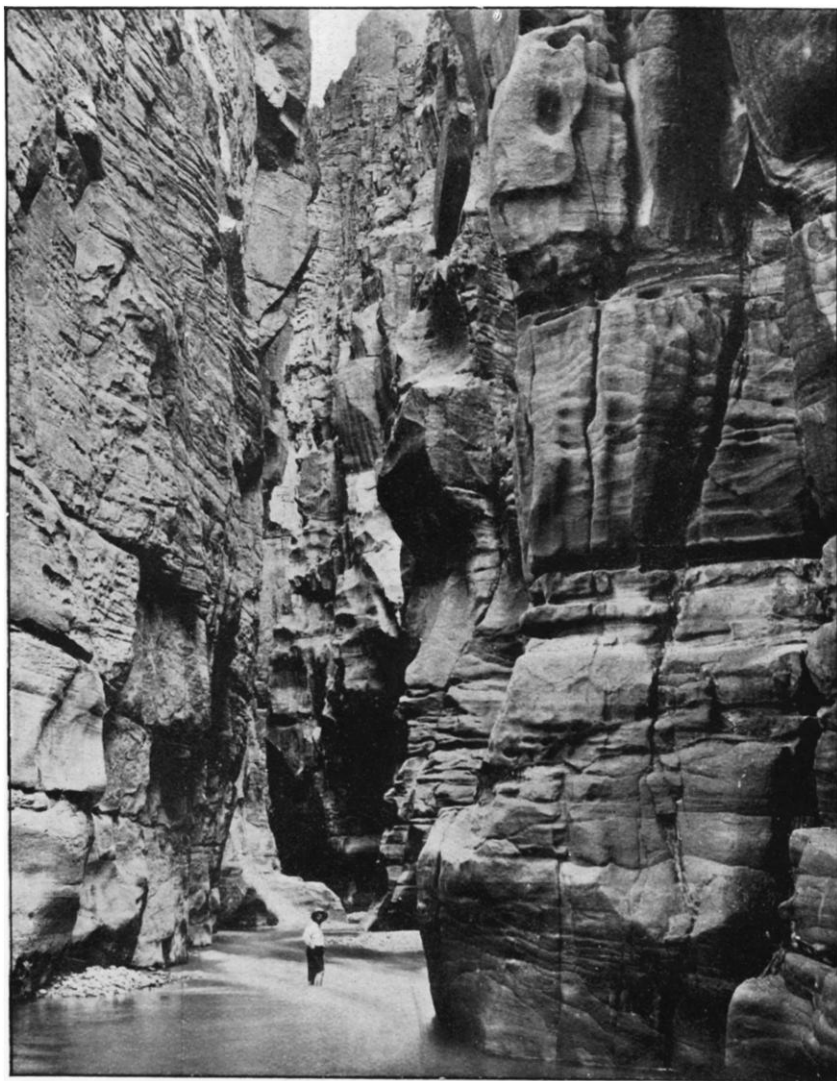
ANCIENT FORTRESS OF MASADA, ON THE WEST SHORE OF THE DEAD SEA.



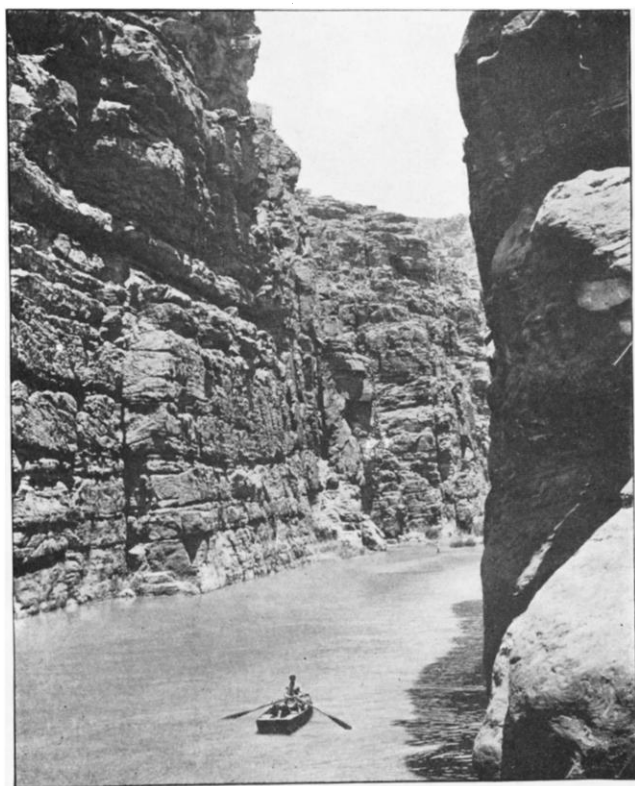
SUBMERGED FOREST ON WEST SHORE OF THE DEAD SEA, SHOWING HOW  
THE WATER IS ENCROACHING ON THE LAND.



LOOKING SOUTH, ON WEST SIDE OF DEAD SEA, FROM AM JIDDY (ENGEDI), WITH JEBUL USDUM IN THE FAR DISTANCE.



IN THE GORGE OF THE ARNON, NEAR THE SEA.



THE MOUTH OF THE ARNON, DEAD SEA.



by Herod, and finally immortalized by the flight thither and stand made by the Sicarii, or Zealots, in the vain hope of escaping subjection to the Romans when the country was subjugated by Titus. At the foot of the tableland, 2 miles from the sea, can be seen the Roman wall of circumvallation and the two Roman camps on either side of the small ravine. The fortress, which is 1700 feet above the sea, has steep sides at about an angle of  $75^\circ$ , and cannot be approached except from a connecting neck, called the Serpentine, at the south-west angle. A more inhospitable place or one more disadvantageous to besiegers could not be imagined.

Eight miles from here is Jebel Usdum, a mountain of rock salt rising to a height of 500 feet. In this mountain is a large cave, which we explored to the extent of about 200 yards, at which point a tapering cylindrical shaft of about 20 feet in diameter was discovered, piercing the solid rock salt 80 feet high, as though through polished marble, evidently the effects of the rain. This accounted for the fresh breeze that is constantly coursing through the cave, and for the unaccountable "river" of the native imagination, that flows through it intermittently. Great snow-white stalactites hung from the ceiling. The approach to this mountain presents most fantastic appearances of walls, buttresses, parapets, projecting towers, etc., caused by the stratification and lay of the salt boulders.

A little south of Masada, but at the lower end of the bay, on the eastern shore, lies the rich Ghor-el-Mizra. Here and elsewhere abounds the apple of Sodom, described by Josephus. It has the appearance of a beautiful fruit, but collapses and contains nothing but a little smoke-like dust and some smoke-like fibre. Here hot sulphur baths and abundant cold streams are met with within 5 feet of one another. The same is true of all the fertile oasis.

About 11 miles, going northward, the magnificent gorge of the river Arnon (Mojib), which separated the territory of Moab from Ammon, is reached. This certainly contains the finest natural scenery in Palestine. The sides of the canyon—which we penetrated for about half a mile, probably farther than any one else has yet explored it—rise perpendicularly about 300 feet and are only about 20 feet apart, here overhanging, there overlapping or dovetailing into one another, as though this mighty mass had been violently rent asunder to allow the seething stream of the Arnon with its cascades and whirlpools access to the sea. Words cannot describe, nor can the camera portray, much less the painter depict, the exhaustless variety and beauty of the veining and tracery in the richly shaded sandstone forming the side cliffs of this gorge. Just beyond this canyon there is a striking formation in the rock, looking very much like a stately queen's figure, silhouetted against the sky, which the natives call "Bint Sheikh Lut" (the daughter of Sheikh Lot), recalling Lot's wife.

About 8 miles further north lie the hot baths of Calirrhoe, famed for their connection with Herod, and where remains of his buildings may still be seen. Only a few feet apart lie the streams of hot and cold water.

These waters seem to be most salubrious, and are credited with medicinal virtues. This is a very volcanic region evidently. From the great clefts in the mountain-sides, where one can distinctly hear the bubbling of the flowing hot waters, rise clouds of steam. Here grows the argal, the so-called grape of Sodom. The Zerka, a stream almost as great as the Arnon and amid surroundings of much the same character, but having a small plain on the seashore that might very well be cultivated, flows into the sea 15 miles farther north. Here, as elsewhere, the wild oleander, with its beautiful pink flower, is abundant; also the reed, with its feathery tuft or bloom "shaken by the wind." Then here, on the east side, as well as on the west shore and south shore, evidences of the encroachment of the sea upon the land is very noticeable in the submerged forests of large trees still standing in the death-dealing waters. Here it may be noted that in connection with the increase of the rainfall noticed in Jerusalem since the Palestine Exploration Fund has kept the records since the year 1861—where, for the first ten years, the average was 21 inches and a fraction, for the next ten, over 24; for the next ten, over 28; and for the last ten, over 29—the peninsula recorded at the northern end of the sea on the maps and pictures of this region of twenty-five years ago, has turned into an island, to be in turn submerged and finally swallowed up.

Our trip lasted a week. We left Jerusalem at 3 p.m. on June 14 last, by carriage, arriving at the north end of the Dead sea at about 8 o'clock, where we spent the night. On Thursday, the 15th, we were on board with our luggage and effects by 5.30, and reached Engedi at 10.15 a.m. We remained here until the next day at 3 p.m., when we took up anchor and steamed southwards to Masada, which we reached at about 5 p.m. On Saturday, the 17th, at about 9.30 a.m., we arrived at Jebel Usdum. On Sunday morning we left Ghor-el-Safieh and reached Ghor-el-Mizra on the 18th, about noon. We started from here on the 19th, Monday, and arrived at the Arnon at sundown. The Zerka and Calirrhoe were visited on Wednesday morning, the 21st, and in the evening of that day we arrived at our starting-point. Every night was spent upon the boat, where no mosquitoes or sandflies troubled the party. The temperature, although over 100° Fahr., was tempered by soft breezes from the north and south, these being the prevailing winds.

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### LE VAILLANT'S GROTTA AT HEERENLOGEMENT.\*

By Prof. H. H. W. PEARSON.

THE early South African travellers have left few permanent memorials of their journeys save in the form of their published writings or their collections of natural history specimens and other objects of interest. Their writings frequently are insufficient to determine with precision the

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\* Percy Sladen Memorial Expeditions in South-West Africa, Report No. 17.