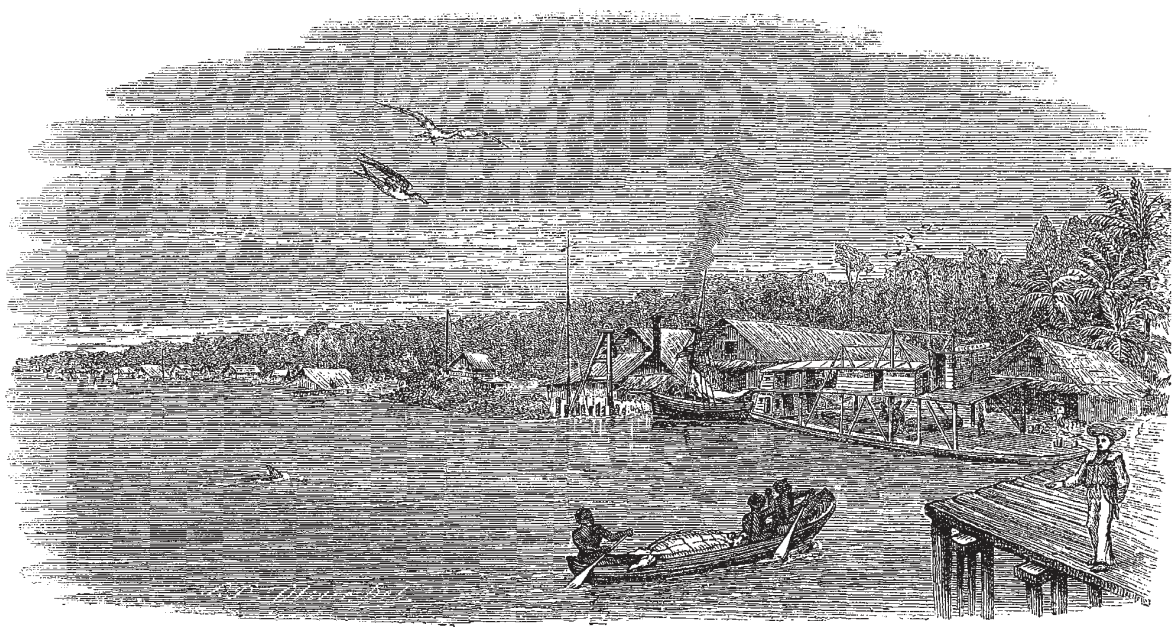
GREYTOWN AND ADJACENT COUNTRY

GREYTOWN is important as the only port possessed by Nicaragua on its Atlantic coast, and is situated in 11° N. lat. and 84° W. long. The place itself is insignificant enough, as a glance at the accompanying view of the interior of the harbour will show; at the same time it is of strategical importance in many ways, and its history is not uninteresting. The climate is humid, and along the low coast-lands a tropical heat prevails. The heat is never oppressive while the trade winds blow, but during calms it is sultry and overpowering. The prevailing type of disease appears to be a low form of intermittent fever, which is not to be wondered at, considering that Greytown is built upon a swamp. June, July, and August are considered the unhealthy months, and January, February, and March the healthiest, the thermometer seldom exceeds 82° Fahr., or falls below 71° Fahr. in the shade.

SEASONS *

RAINY	DRY
June	January
July	February
⅔ August	March
⅓ October	April
November	May
December	⅓ August
	⅔ October
The rain descends in a perfect deluge, accompanied by thunder and lightning.	Sometimes not a drop of rain falls, but generally it is showery, even in the so-called dry season at Greytown.

In the interior, where the forest vegetation has been cleared away in the neighbourhood of the islands and lakes, the seasons are more marked, and the dry season is really dry, not a drop falling. At times Greytown is visited by terrible gales or hurricanes styled "Northers," at such times the trade wind is gradually killed, and a



GREYTOWN HARBOUR

calm precedes the coming storm, the barometer falls rapidly, and the clouds bank up in the horizon. After these warnings the norther commences without further prelude, and in an incredibly short time the sea is churned up into great and violent waves, whilst the surf on the bar is terrific. A norther will sometimes last for three whole days.

The whole civilised population of the Nicaraguan and neighbouring republics is collected on the Pacific side of Central America; the Caribbean coasts being almost entirely uninhabited, with the exception of a few independent tribes of Indians along the banks of the large rivers like the Indian and Rama. The principal tribes are the Valiente, Rama Cookwra, Woolwa Tonga, and Poya tribes, all interesting from an ethnological point of view, especially as they are fast disappearing. There is generally a small camp of some of these tribes on the sandy spit (Punta d'Arenas) at the entrance to Greytown harbour, who catch and sell turtle, &c. Accounts of these Mosquito tribes will be found in the Journal of the Royal Geographical Society, 1862, p. 242, &c., by Mr. Bell, and in the last volume of Memoirs of the Anthropological Society, by Mr. Collinson. This region, *i.e.* the valley and lowlands of the San Juan and the lakes of Nicaragua and Managua, is more particularly interesting to naturalists and geologists, as forming the border land between two of the great primary distributional provinces for the terrestrial vertebrata in the present world recognised by Prof. Huxley, viz., the boundary line betwixt *Austro-Columbia* and *Arctogæa*. For it was in this direction apparently, that, during the Miocene epoch, these two great land divisions were separated by that great equinoctial ocean whose currents rolled from eastward beyond and over the present sites of the Sahara deserts and the plains of Hindostan.

As the line of the American Cordilleras was upheaved, the continents more nearly approached each other, an archipelago of detached volcanic summits probably first indicating the future isthmus; whilst the bounds of the ocean were narrowed, and previous to the actual junction but a narrow channel or strait was left. It is supposed that the last indication of this strait is yet observable in the line of the San Juan and the waters drained by it. This theory has received substantial support from the ob-

* See Capt. Pim's "Gate of the Pacific," p. 71.

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servations of Mr. Osbert Salvin, the well-known ornithologist, who, from long studying the peculiarities of the Central American bird-fauna, has come to the conclusion that an oceanic separation is plainly indicated as having formerly existed between Costa Rica and the country north of the Nicaraguan lakes. This upheaval has by no means ceased, and the lakes of Managua and Nicaragua, up to which the Spanish galleons proceeded, *viâ* the San Juan, are now 156 and 128 feet respectively above the mean level of the two oceans. So that now with difficulty stern-wheel light-draught steamers, drawing but eighteen inches of water, make their way between the rapids, their cargo having to be shifted across these impediments. A rise of six feet in the waters of the lakes enables bongos to pass the rapids in the wet season.

Every year apparently adds to the difficulties of the navigation, which Mr. Collinson attributes to the continual rise of the Pacific coast. Indeed, it is not improbable, if a careful series of observations were established, that after a lapse of years the rate of rise might be ascertained, which, if compared with seismological observations in the same district, would prove of the utmost value and interest.

It has been before noticed that Greytown is the only settlement of any size on the Caribbean coast, owing to its position at the mouth of the San Juan river, which is the only one which offers facilities for transit across the isthmus; and consequently a portion of the Californian traffic has for some years passed in this channel, an enterprising American company having monopolised the "transit-route." Owing, however, to the rapid silting-up of the embouchure of the San Juan at Greytown, this town would infallibly have lost all its importance, had it not been that the rapid development of marine telegraphy has given rise to a great demand for india-rubber, a valuable kind of which is collected from trees which are numerous in the dense forests of the Central American isthmus, especially on the Atlantic coast.

Greytown is the principal port for the export of india-rubber on the coast. It is collected by parties of Indians, Caribs, or half-caste Creoles, seldom by Europeans, to whom the dealers, who are also storekeepers, advance the necessary outfit of food, clothing, and apparatus for collecting rubber, on condition of receiving the whole of the rubber collected at a certain rate. The rubber hunters are termed *Uleros* (*Ule* being the Creole term for rubber). A party of Uleros, after a final debauch at Greytown, having expended all their remaining cash, generally make a start in a canoe for one of the rivers or streams which abound on the coast, and having fixed on a convenient spot for a camp, commence operations. The experienced rubber hunter marks out all the trees in the neighbourhood. The rubber tree is the *Castilloa elastica*, which grows to a great size, being on an average about four feet in diameter, and from twenty to thirty feet to the first spring of the branches. From all the trees in the almost impenetrable jungle hang numerous trailing parasites, lianes, &c., from these, and especially the tough vines, are made rude ladders, which are suspended close to the trunks of the trees selected, which are now slashed by machetes in diagonal cuts from right to left, so as to meet in the middle in central channels, which lead into iron gutters driven in below, and these again into the wooden pails. The pails are soon full of the white milk, and are emptied into larger tin pans. The milk is next pressed through a sieve, and subsequently coagulated by a judicious application of the juice of a Bejuca (an *Apocyna* ?) vine. The coagulated mass is then pressed by hand, and finally rolled out on a board with a wooden roller. The rubber has now assumed the form of a large pancake, nearly two feet in diameter and about a quarter of an inch thick, on account of which they are termed *tortillas* by the Uleros; these cakes are hung over the side poles and framework which supports the *rancho*, which is erected in the woods, and allowed to dry for about a fortnight, when they are ready to be packed for delivery to the dealer.

In the meantime others of the party go in pursuit of game, such as tapirs or *dantes*, or mountain cows, as they are termed, of which there are several species; or they harpoon the manatee,* which they dexterously follow in their canoes, as it cannot remain under water long. The point of the harpoon used by the Indians is moveable, and, attached to a line and floating reel, it becomes detached from the shaft when the siren is struck. The wild boar or javali (domestic pig run wild?) and the *waree*, or peccary, which are shot in June and July, and the deer, which are shot in December, afford good pork and venison. The waters of all the numerous rivers and lakes are characterised by an astounding number of distinct ichthyological faunæ. The Indians are good fishermen, and will shoot fish in the water by bow and arrow, or cut them down with a machete; the best fish are perhaps the *guapote*, *mojarra*, and *savallo*. By way of feathered game the curassows and guans (*Crax alector*, *C. fasciolata* and several Penelopes) of different species are of good size and flavour, whilst iguanas and land turtle eggs serve to vary the bill of fare of the Ulero gourmet.

The picnic life of the Ulero is not all *couleur de rose*. At night the jaguars and pumas (*Felis onca*, *F. melas* and *F. concolor*) will prowl in the neighbourhood of the *rancho*. These beasts are sometimes brought to bay with dogs by the Carib mahogany cutters in the fork of a low tree, and then speared; the spear in this instance is always provided with a stout cross bar, to prevent the transfixed animal from reaching his assailant.

Besides this the alligators abound in the water, which renders bathing slightly precarious; but as a general rule these brutes are cowardly enough when not hungry. On one occasion one of the party (with whom the author was in these woods) having shot a dante, which sank to the bottom of the River Rama, an Indian dived after it to attach a rope to the carcass; while the alligators, attracted by the smell of blood, surrounded the canoe in a circle of some score yards in diameter, but none of them ventured an attack on the bold diver. Both Caribs and Indians have a profound contempt for the alligator in these rivers. On shore, again, the snakes are numerous, such as the *taboba*, *vipora de sangre*, a long black snake, *Coryphodon constrictor*, the lovely coral, and barber pole snakes, and, worst of all, the small tamagusa or "tommy goff." The Caribs assert the valuable propereies of a vine—a species of Aristolochia—which they declare will allay the effects of a snake bite.

The greatest drawbacks, however, to the enjoyment of Ulero life in Mosquitia and Costa Rica are the swarms of garrapatas or ticks (*Ixodes*), which persecute remorselessly the hunter or woodsman. The *chigoe* or jigger is also another annoyance. By-the-bye, it is said, I do not know on what grounds, that this last-mentioned pest is only to be found where domestic swine are kept. I only know that I have suffered from one in the woods many miles from any domesticated swine. Do they appear therefore where there are wild hog or peccary? There is also a digusting bot fly and swarms of mosquitoes near the water.

The Formicidæ are likewise numerous and formidable; a gigantic black ant which especially pervaded the ebœ (*Dipterix oleifera*) trees is justly dreaded, and we always avoided slinging our hammocks from these trees if pos-

* The genus Manatus appears to be the most ubiquitous of the sub order Sirenia, and various species are to be found not only on the rivers, inland lakes, and coasts of Tropical America, but along the entire opposite coast of Africa, where the habitat of the *Manatus senegalensis* extends round the Cape, and as far north on the Mozambique coast as the river Zambesi; besides which its presence is recorded in the Lake Shirwa by Dr. Kirk. A species, *M. Vogelii*, also occurs in the upper Niger, and, according to Barth, in Lake Tsad, whilst Heuglin notices one species in the Tana Sea in Abyssinia. So it is not improbable that the Manatus may occasionally meet its East Indian congener the *Halicore Dugong*.

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sible. Stout Indians will howl and writhe with agony from the effect of their bites. A minute red fire ant also infests the acacia trees, and is barely more endurable. The howling of the black monkeys also is not conducive to sleep when they choose some neighbouring branches for their "serenade." The above slight sketch may serve to give some insight into the pleasures of a country life in the vicinity of Greytown, pleasures, however, of which the Nicaraguan citizens seldom avail themselves.

There have already appeared in NATURE some accounts of peculiar nocturnal vibrations observable in iron vessels off Greytown, which I will not allude to further.

The drawing which accompanies this notice was taken from the pier of the Transit Company's wharf; the town itself is barely visible from this point, and lies beyond the few buildings shown. The remains of one of the flat-bottomed streamers which ascend the river is shown lying by the shore. Canon Kingsley appears to have been disappointed at only twice catching a glimpse of the black fin of a shark during his recent visit to the West Indies; let me recommend the bar of Greytown Harbour and its vicinity as an exceptionally favourable locality for studying these monsters in their native element.

S. P. OLIVER

THE DATE OF THE INTERMENT IN THE AURIGNAC CAVE

IT is a remarkable fact in the history of Archæology that the palæolithic age of the human interments in the cave of Aurignac has been universally accepted without any criticism of the evidence. It has passed into the condition of an article of scientific faith, partly through the eminence of M. Lartet, the describer of the cave, and partly through the high authority of Sir Charles Lyell, who followed his views in the "Antiquity of Man." The ready faith with which it has been received stands in marked contrast to the scepticism which refused to allow the value of the discovery of flint implements in the caves of England and Belgium for more than a quarter of a century, and up to within some three years of M. Lartet's investigations in Aurignac. The importance of examining the data on which M. Lartet's theory is based can hardly be over-estimated in the present state of the science of man. If the human interments really be of the same relative date as the extinct Mammalia found in the cave, and M. Lartet's interpretation of the circumstances be true, then, to quote Sir Charles Lyell, "we have at last succeeded in tracing back the sacred rites of burial, and, more interesting still, a belief in the future state," to the palæolithic age, and we have a powerful argument against the progressive development of religious ideas. This point did not escape Mr. Wallace in his speech at the Exeter meeting of the British Association. If, on the other hand, the interments be not proved to be palæolithic, the sooner an element of error is eliminated from a most difficult problem, the nearer shall we be to its solution. I shall first of all take the facts as they are now universally interpreted; and then I shall check them by the independent evidence of the late Rev. S. W. King, who finally explored the cave.

M. Lartet's account falls naturally into two parts: first that which the original discoverer of the case told him, and secondly that in which he describes the results of his own discoveries. I shall begin with the first. In the year 1852 a labourer named Bonnemaison, employed in mending the roads, put his hand into a rabbit-hole and drew out a human bone, and, having his curiosity excited, he dug down, until, as his story goes, he came to a great slab of rock. Having removed this, he discovered on the other side of it a cavity 7 or 8 feet in height, 10 in width, and 7 in depth, almost full of human bones, which Dr. Amiel, the Mayor of Aurignac, believed to represent at least 17 individuals of all ages. All these human remains were collected, and finally committed to the parish cemetery, where they rest at the present time undisturbed by the sacrilegious hands of archæologists, the discoverer and the sexton being alike ignorant of their last resting-place. Fortunately, however, Bonnemaison, in digging his way into the grotto, had met with the remains of extinct animals and works of art, and these were preserved until, in 1860, M. Lartet heard of the discovery, and resolved to examine the cave for himself. It must be remarked that before his advent the interior had been ransacked, and the original stratification to a great extent disturbed, a circumstance which obviously does away with any argument based on the association of remains in the cave.

M. Lartet's exploration resulted in the discovery that a stratum containing the bones of cave-bear, lion, rhinoceros, and hyæna, along with undisputable works of art of the palæolithic type—like those of the Dordogne—passed from a plateau on the outside into the cave. On the outside he met with ashes and burnt and split bones, which implied that it had been used by the palæolithic hunters as a feasting place; within he detected no traces of charcoal, and no traces of hyænas, which were abundant outside. Inside he met with a few human bones, which were in the same mineral state as those of the extinct Mammalia. That, however, identity of mineral state is any clue to age is disproved by the varying condition of bones of the same geological age in every bone cave with which I am acquainted. As an example I might quote the re-remains of cave-lion in the Taunton Museum. Such is the summary of the facts which M. Lartet discovered. He has, of his personal knowledge, only proved that Aurignac was occupied by a hunter tribe during the palæolithic age.

Is he further justified in assuming that it was used as a sepulchre at that remote period? Bonnemaison's recollections may be estimated at the proper value by the significant fact that, in the short space of eight years intervening between the discovery and the exploration, he had forgotten where the skeletons had been buried. And even if his account be true in the minutest detail, it does not afford a shred of evidence in favour of the cave having been a place of sepulture in palæolothic times, but merely that it had been so used at some time or other. If we turn to the diagram constructed by M. Lartet to illustrate his views (An. des Sc. Nat. Zool. iv. ser. t. xv., pl. 10), and made for the most part from Bonnemaison's recollection, or to the amended diagram given by Sir C. Lyell (Antiquity, fig. 25), we shall see that the skeletons are depicted above the strata containing the palæolithic implements and the quaternary mammals, and therefore, according to the laws of geological evidence, they must have been buried after the subjacent deposit was accumulated. The previous disturbance of the cave earth altogether does away with the value of the conclusion that the few human bones found by M. Lartet are of the same age as the extinct mammalia in the same deposit. The absence of charcoal inside was quite as likely to be due to the obvious fact that a fire kindled inside would fill the grotto with smoke, while outside the palæolithic savages could feast in comparative comfort, as to the view that the ashes are those of funereal feasts in honour of the dead within, held after the slab had been placed at the entrance. The absence of the remains of hyænas from the interior is also negative evidence disproved by subsequent examination.

The researches of the Rev. S. W. King in 1865, hitherto unpublished, complete the case against the current view of the palæolithic character of the interments, insomuch as they show that M. Lartet did not complete the examination which he began; and that he consequently wrote without being in posesssion of all the facts. The entrance was blocked up, according to Bonnemaison, by a slab of stone

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