

Brazil, some forty degrees of latitude north of Tierra del Fuego. By the River Xingo, which pours its waters into the Amazon, the Bakafri hunters live, the south-most outpost of the Carabian race. Plague and disease, doubtless spread by the numerous poisonous insects inhabiting the forest regions, have thinned out their race, and the days of the Bakafri are numbered. Like the Fuegians, their life is that of the Stone Age, but as a race they are somewhat superior, although they are also cannibalistic. But it is not the necessity of disposing of a surplus of old women which has whetted the appetite for human flesh. Although the real cause of their cannibalism is not definitely settled, it is extremely probable that through their habit of eating roasted monkeys, which resemble the burned corpses of the native children, they have acquired a taste for human flesh.

Unlike the Fuegians, they have a kind of "religion." They are great story tellers and dancers, and their sociability and good-nature generally win the confidence of the traveler. Their chief weapons are the bow and arrow, a kind of boomerang, and, above all, the blowgun, from which they shoot the poisonous arrows which are the dread of their enemies. The bow often measures six feet in length, and the feathers which guide the arrow on its flight are set spirally, so as to impart a revolving motion to increase the velocity; the principle is somewhat the same as that of the rifled musket barrel.

Their boomerang somewhat resembles the Australian weapon; it has an aperture where a "demon" in the shape of a pierced nut-shell is inserted. This arrangement causes a strange, ominous whistling as the weapon is hurled against the enemy, who is supposed to be very much frightened at the noise. The blowgun is one of the most dangerous and ingenious weapons ever invented by a savage, and in the hands of an expert Bakafrian is almost a match for a modern firearm in the dense jungle.

The "projectiles" consist of the slim, tough, feather-weight arrows made from the ribs of a certain palm leaf; they are sharpened to a needle's point, but instead of being mounted with feathers they are merely wound round with a bit of raw cotton. The arrow is placed in the gun so that the cotton just fills the bore; it is blown out with sufficient force to bring down game at a distance of 250 feet, if the wind does not interfere. It is not the force of the dart that kills, but the poison with which it is saturated. A mere scratch by such a dart is invariably fatal.

The Bakafri tribe is famous for some very queer customs, such as the eating of earth, and the rules attending childbirth and the burial of warriors.

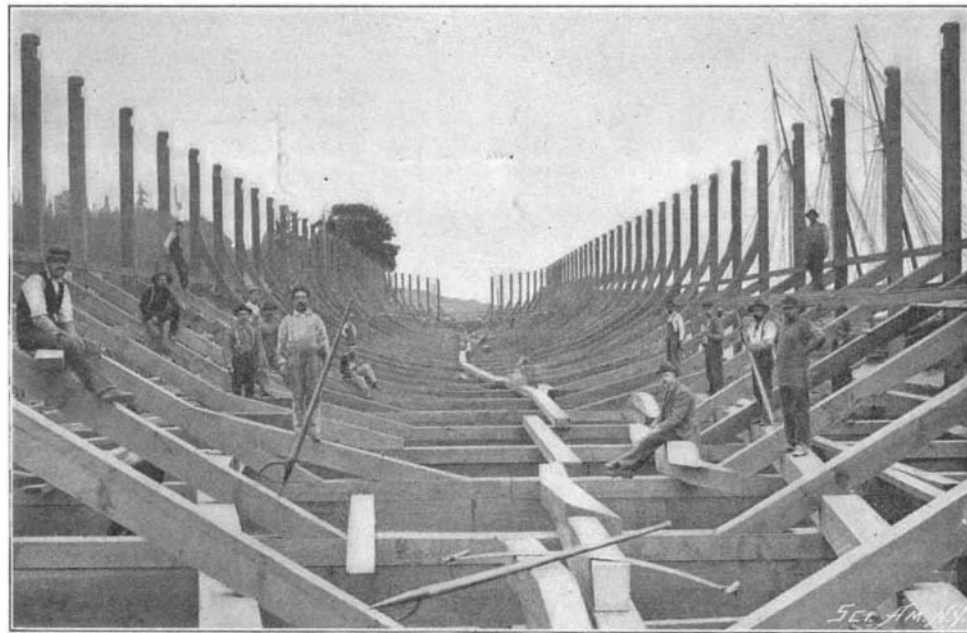
The rising of the River Xingo during three months of the year scatters the fish, making it impossible for the tribe to obtain any other food than the baked mud of the river, which is by no means unhealthful. This river mud is very rich in mineral substances, and while it cannot be said to contain nourishing properties to any extent, it fills the stomach and appeases hunger. It is baked in a sweltering sun, eaten in the shape of small balls about 3 inches in diameter, the average daily consumption being about three-quarters of a pound for each Bakafri.

Like most American Indians, the Bakafri attach a great deal of importance to tattooing, but in their case the custom owes its origin more to the necessity of averting the insects than to the device for personal adornment. The mosquitoes on the Rio Xingo are so ferocious and pugnacious that extraordinary measures must be taken against them, and when, centuries ago, it was found that a mixture of clay and vegetable oil applied to the skin would keep off the insects, the idea of mixing colors suggested itself, and then and there was the beginning made to the art of tattooing.

The language of the people is poor in words. To illustrate the poverty of the Bakafri dialect, there is

no name for "parrot," although a variety of parrot species are known by separate names. The various kinds of palm trees are designated, though no given name exists for the word "palm." "We" also means "good;" "others" (which they express by saying "not we") also means "evil." The Bakafri can only count two; if you ask him to count on, he will continue; two-one, for three; two-two, for four; two-two one for five, etc., reminding us of the manner in which bells are struck on shipboard.

Unlike other Brazilian aborigines, the Bakafri know nothing of intoxicating vegetable drinks. They maintain their ancient custom of shaving the top of the head with a keen-edged native grass. Early explorers supposed that they borrowed this custom from the Jesuit

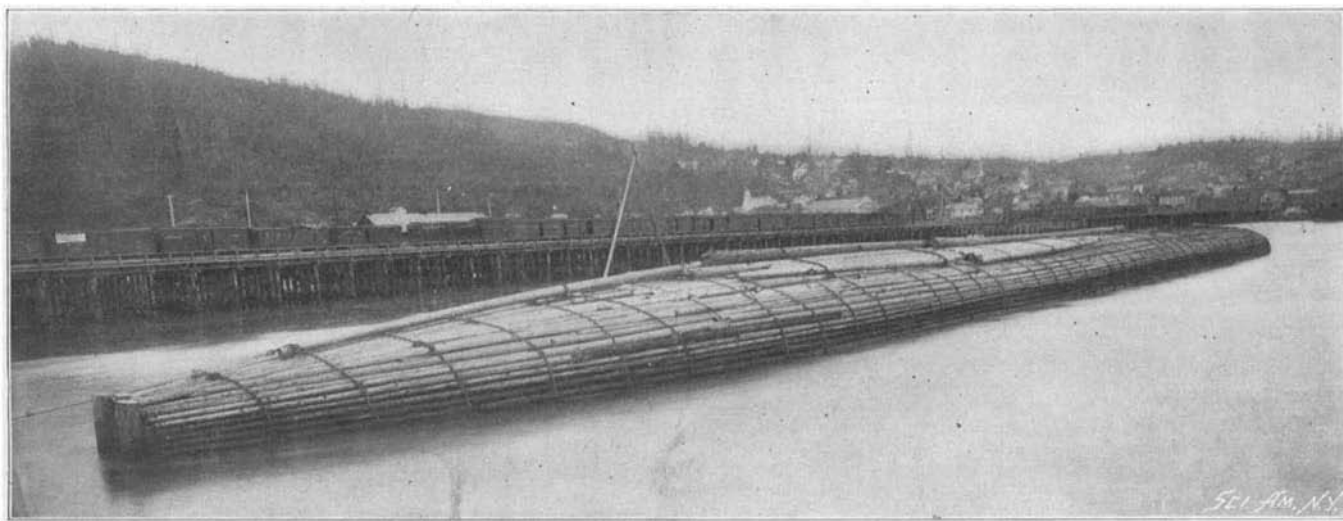


CRADLE IN WHICH RAFT IS BUILT UP.

monks, who were the first white men to visit them, but it has been proven lately that the bald spot on the head was characteristic of the Bakafri centuries before any white man penetrated the tropic wilds of their home.

LUMBER RAFTS ON THE COLUMBIA RIVER.

The States of Oregon and Washington have seen a remarkable development of the method of transporting lumber to California by sea in the form of large built-up rafts, and although the increase in the price of timber of the kind which has been shipped by this method makes it likely that no more rafts of the kind will be built, this unique and daring means of transportation will always remain as one of the curiosities of the lumber trade of the Pacific coast. We present illustrations of the last of these large rafts to be constructed. Like several of its predecessors, it was built at the little town Stella, which is located on the Washington shore of the great Columbia River, and



RAFT OF PILES ON THE COLUMBIA RIVER READY FOR TOWING TO SAN FRANCISCO.

Length, 400 feet; circumference, 100 feet; contents, 6,000,000 feet board measure.

about twenty miles from its mouth. The accompanying illustrations are of particular interest, as showing the means by which the huge rafts are built up to the desired cigar shape, prior to their launching.

This particular raft was some 400 feet in length and over 100 feet in circumference. It was built up of fir piles, which varied from 80 to 111 feet in length. It is readily perceived that to form a strong and flexible structure of this length out of such relatively short pieces, and mould it to a true cigar shape, would be an impossible task, unless a permanent form of cradle were first built in which to contain it during the process of building it to form. The cradle, as will be seen from our illustrations, is not unlike the skeleton of a large ship in the days of wooden shipbuilding. It is

constructed with a double keel and a series of heavy frames of 12 by 12 timbers with heavy knee-bracing between the floor timbers and the verticals at a point which would be known as the bilge in a ship. The keel is constructed in two sections, which are held together by massive locks or clamps, to maintain the cradle in position while the raft is being formed. The piles of the raft are laid to break joint as far as possible, the abutting ends of one line of the piles coming opposite the center of the piles adjoining.

When the raft is completed it is wrapped around several times with massive cable chains, which hold the mass firmly, but flexibly, together. After the raft is launched, the locks are sprung open by hauling upon ropes which are securely connected to them, and the two halves of the cradle, thus unlocked, float apart, leaving the raft free to be towed away. The tug's hawser for towing is made fast to a very heavy chain, which runs through the entire length of the raft. This towing chain is made fast by transverse chains to each of the binding chains, which run around the circumference of the raft. The effect of this arrangement is that when the strain of towing comes upon the central chain, the binding chains are also tightened, and, consequently, when the raft is in a sea-way, the greater the strain upon the hawser, the tighter is the clamping effect of the binding chains. Although the earlier rafts frequently came to grief, those which have been constructed of late years on the system, as outlined above, have proved themselves well able to stand the stress of an ocean trip.

The distance from the mouth of the Columbia River to San Francisco is about 700 miles, and under ordinary conditions of weather one of the powerful tugs which are detailed for the work of towing will take a raft of this kind from the Columbia bar to the Golden Gate, San Francisco, in about twelve days. The raft, which is herewith illustrated, contains about 500,000 linear feet of timber, or say about 6,000,000 board feet, a sufficient quantity of timber to load a half dozen vessels each of 1,000 tons burden.

The Current Supplement.

The current SUPPLEMENT, No. 1287, has many papers of unusual interest. "Problems in China," is by James M. Hubbard. "China and Her People; Some Reflections Upon Their Manners, Customs, Habits, and Lives," by Commander Harrie Webster, U. S. N., is another timely article. Both are illustrated. "Peary Supply Ship Sails" describes in detail the construction and stocking of this vessel. "Old St. Peter's, Rome," is an important restoration. "The Panoramas of the Paris Exposition" describes the Balloon Cineorama at the Fair. The eighth installment of "American Engineering Competition" is given in this number. "The Opening of the Metropolitan Railway at Paris" is fully illustrated. "The Biological Laboratory at Cold Spring Harbor, L. I.," is by W. G. Bowdoin. "Tetanus and Its Treatment," and "The Coloring of Soap and Candles," by George H. Hurst, are valuable articles. The usual Trade Notes and Consular matter will also be found in this number. "My Experience with a Siphon Pipe Line," by John K. Prather, B.S., describes a simple and convenient device.

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