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## The National Geographic Magazine

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# NATIONAL GEOGRAPHIC MAGAZINE

#### AN ILLUSTRATED MONTHLY

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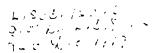
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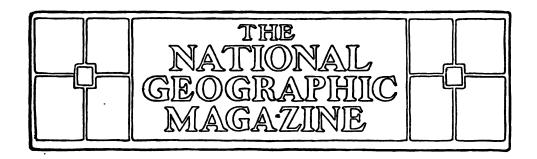
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#### IN THE SAVAGE SOUTH SEAS

#### By BEATRICE GRIMSHAW

Miss Grimshaw is an enterprising young English woman who recently passed several years in Fiji and the New Hebrides on a search for good opportunities for investment. She explored many unknown sections of these islands and has written a delightful narrative of her travels and experiences, "Fiji and Its Possibilities." The following article is abstracted from this book, and is printed here through the courtesy of the publishers, Messrs Doubleday, Page & Company of New York, by whom all the extracts and illustrations are copyrighted.

IJI is a British colony, situated in the southwest Pacific, lying between the 15th and 22d parallels of south latitude and between 157 east and 177 west longitude. It consists of 155 islands, with a total area of 7,400 square miles. Most of the land is contained in the two great islands of Viti Levu (Great Fiji) and Vanua Levu (Great Land), which account for 4,112 and 2,432 square miles respectively. These two islands are exceptionally well wooded and watered, and could, it is said, support three times the population of the whole group. Viti Levu is in every way the most important island in the archipelago. It contains the seat of government, the principal harbors, all the roads, and much the greater part of the colony's trade. There is one town in the group besides Suva-Levuka, the capital of former days, on the small island of Ovalau.

The climate is certainly hot, though the thermometer does not rise to any ex-

traordinary heights. During the three hottest months—January, February, and March—the highest shade temperature ranges between 90° and 94° Fahr., and the lowest between 67° and 72°, roughly speaking. In the cooler months of June, July, and August, 59° and 89° are the usual extremes. The air is moist, as a rule, and in Suva, at all events, one may safely say that a day without any rain is almost unknown. On the northern side of Viti Levu the climate is a good deal drier and in consequence less relaxing. Dysentery is fairly common, but there is no fever to speak of, and the climate, on the whole, is considered healthful. Mosquitoes are so troublesome that most of the better class of private houses have at least one mosquito-proof room, with doors and windows protected by wire gauze.

As we pass down the main street of the capital, the curious mixture of the population is very noticeable—whites, half-castes, Samoans, Indians, Chinese,

and, more conspicuous than any, the Fijians themselves—tall, magnificently built people of a color between coffee and bronze, with stiff, brush-like hair, trained into a high "pompadour," clean shirts and smart short cotton kilts, and a general aspect of well-groomed neatness. They do not look at all like "savages" and, again, they have not the keen, intellectual expression of the Indians or the easy amiability of the Samoan type of countenance. They are partly Melanesian, partly Polynesian in type, and they form, it is quite evident, the connecting link between Eastern and Western Pacific.

2

East of Fiji, life is one long, lotuseating dream, stirred only by occasional parties of pleasure, feasting, love-making, dancing, and a very little gardening work. Music is the soul of the people, beauty of face and movement is more the rule than the exception, and friendliness to strangers is carried almost to excess. Westward of the Fijis lie the dark, wicked, cannibal groups of the Solomons, Banks, and New Hebrides, where life is more like a nightmare than a dream; murder stalks openly in broad daylight, people are nearer to monkeys than human beings in aspect, and music and dancing are little practiced and in the rudest possible state.

In Fiji itself the nameless, dreamy charm of the eastern islands is not; but the gloom, the fevers, the repulsive people of the west are absent also. Life is rather a serious matter for the Fijian, on the whole; he is kept in order by his chiefs and by the British government, and has to get through enough work in a year to pay his taxes; also, if the supply of volunteers runs short, he is liable to be forcibly recruited for the armed native constabulary, and this is a fate that oppresses him a good deal—until he has accustomed himself to the discipline of the force, when he generally makes an excellent soldier. But, all in all, he has a pleasant time, in a pleasant, productive climate, and is a very pleasant person himself, hospitable in the highest degree, honest, good-natured, and clever with his hands, though of a less highly intellectual type than the Tongan or the Samoan.

#### A MARVELLOUS TRANSFORMATION

The whole penal apparatus is one gigantic jest, and is regarded as such by most of the whites and not a few of the natives.

To begin with, there is hardly any real crime, what there is being furnished chiefly by the Indian laborers employed on the estates of the Colonial Sugar Refining Company. The Fijians themselves, though less than two generations removed from the wild and wicked days of the Thakombau reign, are an extremely peaceable and good-natured In the fifties and sixties, and even later, murder, torture, and cannibalism were the chief diversions of a Fijian's life, and the power of working one's self into a more violent and unrestrained fit of rage than any one else of one's acquaintance was an elegant much-sought-after accomplishment. This change, effected largely by the work of the missionaries, but also by the civilizing influences of the British government and of planters and traders innumerable. is most notable. Nothing can be more amiable and good-natured than the Fijian of today; no colored citizen in all the circle of the British colonies is less inclined to crime.

Yanggona (the "kava" of the eastern Pacific) is the universal drink of Fiji. It is the hard, woody root of a handsome bush (the Piper methysticum) which grows freely in the mountains. The Fijians prepare the root by grating or pounding, pour water over the pounded mass, and strain it through a wisp of bark fiber. The resulting drink looks like muddy water and tastes much the same, with a flavor of pepper and salt added. One soon gets to like it, however, and drunk in moderation it is extremely refreshing and thirst-quenching. Fijians do not drink moderately, I regret to say; they often sit up all night over their yanggona, drinking until they

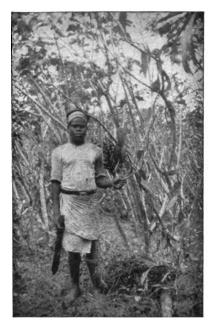


THE VILLAGE PLATE, FIJI



A ROOT OF YANGGONA FROM WHICH THE INTOXICATING DRINK OF THE FIJIAN ISLANDERS IS MADE

These and following illustrations are from photographs by Beatrice Grimshaw, and are copyrighted by Doubleday, Page & Co., 1907



VANILLA PLANT AND BEAN

are stupefied and sleepy and quite unable to walk, for yanggona taken in excess paralyses the leg, for an hour or two, even though the head may be quite clear. The British government has forbidden the ancient method of preparing the root, in which it was chewed and spat out into the bowl, instead of being pounded. For all that, yanggona is very frequently chewed at the present day, when no white people are about.

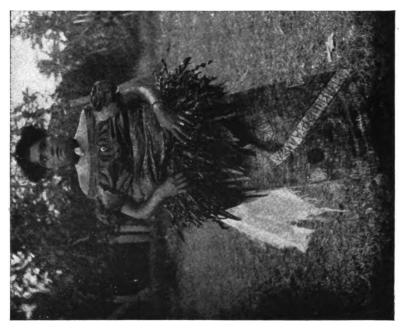
There are no woods in the world more beautiful and valuable than the woods of Fiji, although want of capital and, to some extent, want of enterprise has prevented their becoming widely known. "Bua-bua," the boxwood of the Pacific, is very common and grows to an immense size. It weighs 80 pounds to the cubic foot, is very hard, and most durable. The "cevua," or bastard sandalwood, a strong-scented, very durable wood, grows freely in logs one foot and two feet in diameter; and the real sandalwood is also found, though not plentifully. Another useful wood is "vesi," which grows two and three feet in diameter. It is much like teak-hard, heavy, and extremely lasting in the ground or out of doors; it is also rich-colored and very easily polished. The "dakua" is one of the most valuable woods; it much resembles the New Zealand kauri pine and grows to a large size, sometimes six and seven feet in diameter. It contains a great deal of gum, and quantities of this can be taken out of the ground wherever a tree



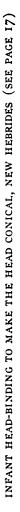
DRYING VANILLA, FIJI







A FIJIAN IN FASTIVAL DRESS





The timber is useful for has been. almost any purpose. The "yaka" might be called the rosewood of the Pacific, if it did not also, in some degree, resemble mahogany. It is a wood of the greatest beauty, being exquisitely marked and veined and taking a high polish. This is a wood that certainly should be known to cabinet-makers, and no doubt will be later The "savairabunidamu," a curious dark-red wood, is extraordinarily tough, and can be steamed and bent to almost any shape-a valuable quality. The "bau vundi" is a kind of cedar, very workable and most lasting. A singularly beautiful timber is the "bau ndina," which is deep rose-red in color, tough and firm, and suitable for engravers' use. Besides these, there are more than sixty varieties of other woods, all useful or beautiful and most to be found in great profusion. The quantities available are very large.

#### UNCANNY INSECTS

The wonderful stick insects of Fiji, familiar in all home museums, are found on nearly every cocoanut tree. They are very ill-smelling, and squirt a fetid fluid at one's eyes, if handled. Leaf insects I never saw, except when the natives caught and brought them to me, but all the guava bushes have them, although a white man's eve can seldom distinguish them from their shelter. They are most miraculous and uncanny creatures, absolutely leaves endowed with the power of motion, so far as the most scrutinizing eye can see, for even their legs and heads are a precise copy of stalks and small leaflets.

A certain enterprising man and his wife, who were getting rich very slowly indeed keeping a country store, resolved to try whether the magic bean might not do for them what it had done for others in South America and the West Indies. So, in the face of some actual opposition and continual ridicule, they expended their little capital of 250 pounds on the leasing of eight acres of warm, sheltered valley land and the planting of 9,000 cuttings of good Mexican vanilla.

For three years, with the assistance of one Fijian and occasionally a couple of Indians, the industrious couple kept their plants weeded and tended, and latterly looked to the fertilizing of the flowers—a rather tedious business, done every day by hand, in the earliest hours of the morning; and at the end of the three years the reward came, for the plants were yielding splendidly and were expected to give about 9,000 pounds of dried beans, bringing an average price of 10 shillings a pound. The fruits of the first season were just coming in when I visited the plantation, and the lucky young couple were counting up their gains, present and future, with joyful hearts.

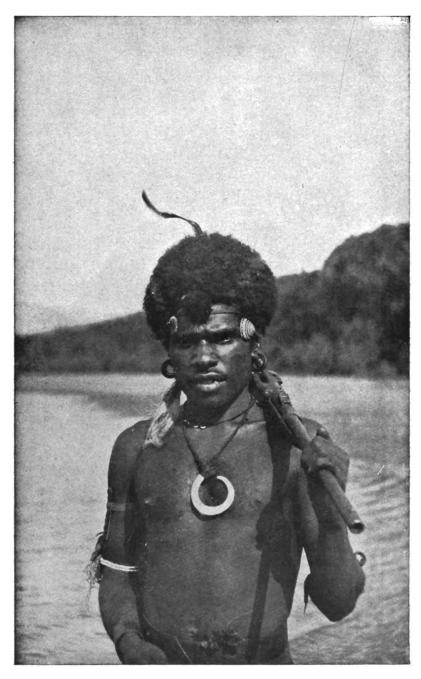
#### SULLEN NEW HEBRIDES

The New Hebrides are not very far from Australia—only about 1,500 miles northeast of Sydney—and they are by no means an insignificant group, since they extend over seven hundred miles of sea, and some of the islands are sixty and seventy miles long.

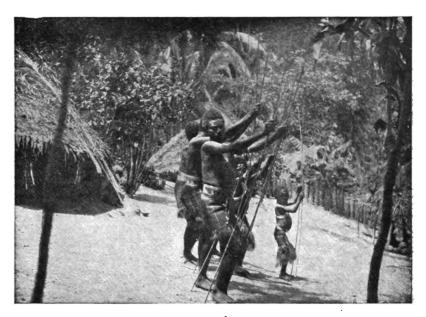
The native population is variously estimated at 60,000 to 100,000, and there are about three hundred French settlers and less than two hundred British and colonials, most of whom are missionaries.

The islands are extremely beautiful and remarkably fertile. Three crops of maize a year can be raised with little trouble. Coffee is largely grown, and there is none better in the Pacific. Millet, for broom-making, grows readily and pays well. Copra can be produced in the New Hebrides to better advantage than in any of the British Pacific colonies, the Solomons only excepted. Eighty nuts a tree is considered a very good average over the greater part of the South Seas. In the New Hebrides the figures I received seemed almost beyond belief, but, even allowing for much exaggeration, it seems certain that the average yearly crop of nuts must be quite twice as large as in Fiji, the Cook Islands, or Tonga. I saw more than one tree that had three hundred nuts at once upon it (as I was in-

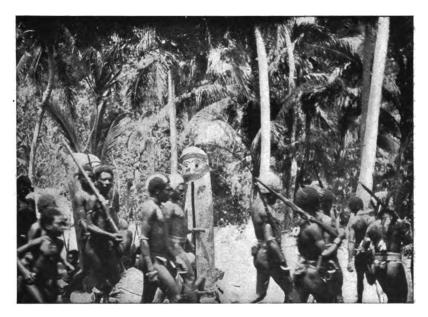
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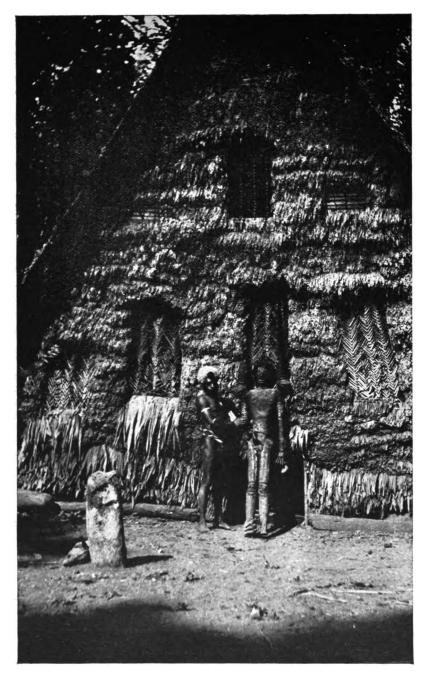
MALEKULA WARRIOR, NEW HEBRIDES



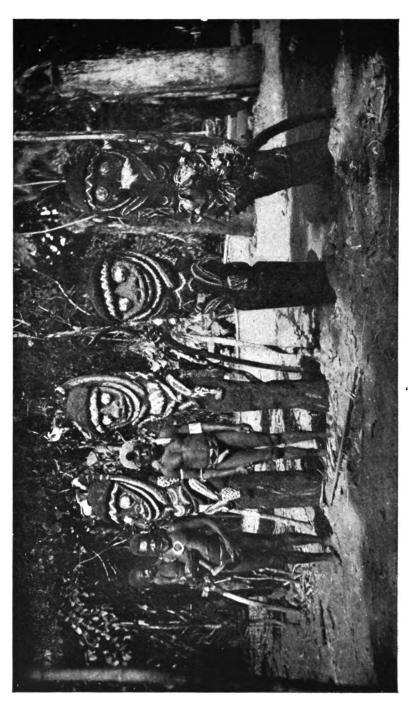
THE WOMEN'S DANCE



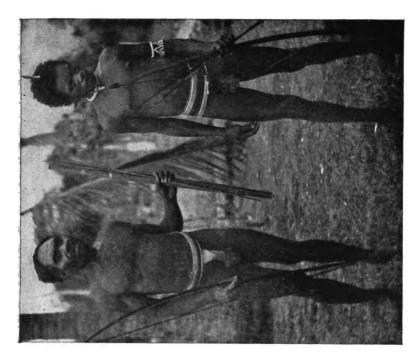
DANCING AND SINGING
SCENES IN NEW HEBRIDES



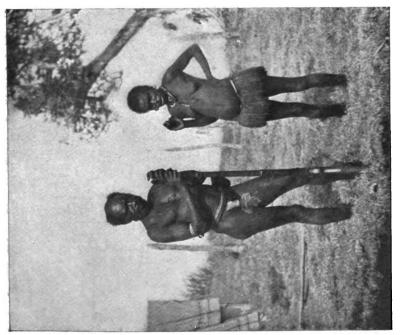
BRINGING OUT THE MUMMY FROM THE "HAMAL" (SEE PAGE 17)



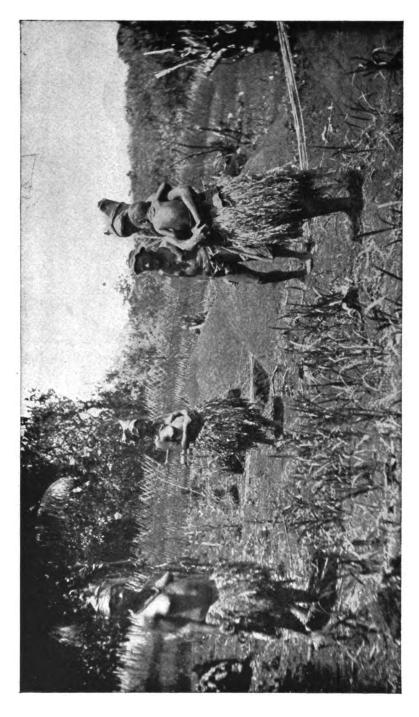
TYPICAL IDOLS IN A NEW HEBRIDES VILLAGE (SEE PAGE 18)



POISONED ARROWS



A NOTORIOUS CANNIBAL, NEW HEBRIDES





SHOOTING FISH, NEW HEBRIDES

formed; I did not count them, since that would have involved going up the tree with a paint-pot and a brush to mark them off), and I heard of one or two that had four and even five hundred.

This is a more important matter than might appear at first, for the copra trade is the true gold-mine of the Pacific. The oil that is expressed from the dried nut kernels is used in many different departments of commerce, especially in soap-making, and the demand constantly exceeds the available supply—so much so that the well-known firm of Lever Brothers have been buying up large tracts of land in the British Solomons to keep their factories supplied.

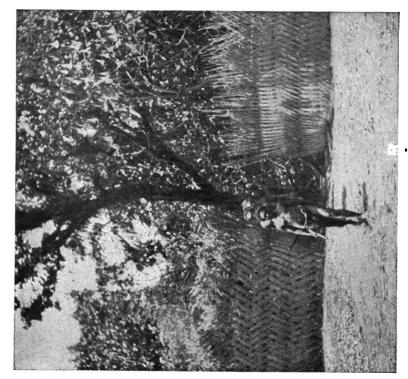
The popular idea of the New Hebridean, for a wonder, comes very near the truth. He is supposed to be, and is, treacherous, murderous, and vindictive. He is to the full as sensual and indolent as the Eastern Islander and lacks almost every virtue possessed by the latter. He is almost inconceivably clumsy and stupid in a house or on a plantation; almost devoid of gratitude, almost bare of natural affection; ready to avenge the smallest

slight by a bloody murder, but too cowardly to meet an enemy face to face. Yet there are a few things to say in his favor. He is wonderfully honest—so much so that in the bush districts a coin or a lump of tobacco found by the way-side will never be appropriated by the finder, but will be placed in a cleft stick at the edge of the track, for the real owner to take the next time he may chance to pass that way; and if the possessor never returns, the "find" will remain where it has been placed until some white man or some "civilized" native from a plantation passes by and appropriates it.

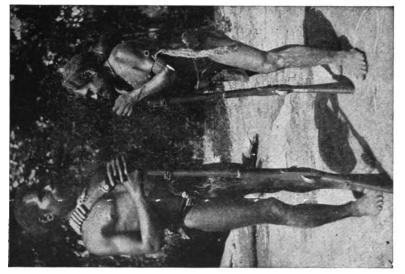
One of the strange things seen in one village was the collections of boars' tusks belonging to the chiefs. These were displayed on a long stand that exactly resembled eight or ten bazaar stalls joined together. There were some hundreds of them placed in long rows—how many exactly I had not time to count, as I heard that the canoes were just coming home from the mainland and I wanted to be on the shore to meet them. Many of the tusks were curved into a complete



TANNESE SCAR-TATTOOING, NEW HEBRIDES



THE ALLIES COMING IN Villages are surrounded by stockades made of interwoven reeds



LOOKING OUT FOR TROUBLE

double circle. These are greatly prized, but are only obtained at the cost of much suffering to the unlucky pig that furnishes them. He is tied up in a house and never allowed to wander forth, for fear of destroying his tusks. From each side of the jaw the teeth that oppose the tusk and prevent its going too far are removed, so that in time it grows right round through the unlucky animal's flesh and provides a splendid double armlet for the native who owns the pig.

In Malekula, one of the larger islands of the New Hebrides, many a married woman was distinguished by a dark gap in the ivory-white teeth of her upper jaw, where the two middle incisors had been knocked out with a stone. This extremely unpleasant substitute for the wedding ring is found in various parts of Malekula. The operation is performed by the old women of the tribe, who greatly enjoy the revenge they are thus enabled to take on the younger generation for the injury once inflicted by their elders upon them.

By a good deal of worrying and a little tobacco, I persuaded the villagers to show me a mummy from one of their "hamals," or sacred houses.

It appeared to be the stuffed skin of a man fastened on poles that ran through the legs and out at the shoulders. fingers of the hands dangled loose like empty gloves. The hair was still on the head, and the face was represented by a rather cleverly modeled mask made of vegetable fiber, glued together with bread-fruit juice. In the eye-sockets the artist had placed neat little circular coils of cocoanut leaf, and imitation bracelets were painted on the arms. The face and a good part of the body were colored bright red. The ends of the stretcherpoles were carved into a curious likeness of turtle heads. Standing up there in the dancing light and shade of the trees, against the high brown wall of the hamal, the creature looked extraordinarily weird and goblin-like. It had a phantom grin on its face, and its loose skinny fingers moved in the current of the strong trade

wind—it certainly looked more than half alive.

#### MAKING A CONICAL HEAD

It was while I was staying with the kindly and hospitable B——s that I had the chance of photographing what I believe has never been photographed before—the making of a conical head.

A good many years ago certain men of science who had procured skulls from all parts of the world were struck with the extraordinary egg-like shape of some that came from Malekula. No one knew much about the people who owned these remarkable heads, and science forthwith erected rather a pretty theory on the basis furnished by the skulls, placing the owners on the lowest rung of the human ladder and inferring that they were nearer to the ape than any other type at that time known.

Later on some one happened to discover how it was that the skulls came to show this peculiar shape, and the marvel vanished when it was known that compression in infancy was the cause. It is still, however, a thing curious enough. Several other nations compress their infants' heads, but none seems to attain quite such a striking result as the Malekulan, in those districts where the custom is systematically practiced. A conical head, when really well done, rises up to a most extraordinary point, and at the same time retreats from the forehead in such a manner that one is amazed to know the owner of this remarkable profile preserves his or her proper senses, such as they are. I could not hear, however, that the custom was supposed to affect the intellect in any way.

"It would be hard to affect what they haven't got," a trader observed on this subject.

The conical shape is produced by winding strong sinnet cord spirally about the heads of young babies, and tightening the coils from time to time. A piece of plaited mat is first put on the head, and the cord is coiled over this, so as to give it a good purchase. The crown of the

head is left to develop in the upward and backward fashion that is so much admired. One fears the poor babies suffer very much from the process. The child I saw was fretful and crying and looked as if it were constantly in pain; but the mother, forgetting for the moment her fear of the strange white woman, showed it to me quite proudly, pointing out the cords with a smile.

She had a normally shaped head herself, and it seemed that she had suffered by her parents' neglect of this important matter, for she was married to a man who was of no particular account. A young girl who was standing beside her when I took the photograph had evidently had a more careful mother, for her head was almost sugar-loaf-shaped. It is interesting to know that this well-brought-up young woman had married a chief.

#### STRANGE WOODEN IMAGES OF ANCESTORS

A visitor to the island of Malekula, New Hebrides, is greatly impressed by the huge images in the amils, or village squares; they are rudely carved, barbarously painted, and are called "temes," or images of the dead.

These images differ greatly from each other. Some are made of wood, others of the butt of a fern tree; some are painted in scrolls or stripes, others in rings; some display only a head, others are rude effigies of the whole human body; in some the eyes are round, in others oval-shaped.

The colors employed in olden times were coral lime, yellow ocher, a mineral green, and charcial. Civilization, through the trader, has supplanted the green and yellow with the laundry blue and red lead. They are more brilliant, no doubt, but less in keeping with their surroundings.

A remarkable fact is, that although the images are rude in design and out of all proportion, they are real attempts at portraying the human figure. Every part is carefully put in; yet, with the exception of the boar's tusks on one, there is an entire absence of the combination of the

human and animal, as, e. g., in the Hindu pantheon. This is possibly due to imperfect and rudimentary notions of divinity, if these are at all gods. There are no figures, like the Ephesian Diana, denoting the nourishment of man and beast from many-breasted Nature. There are no many-headed or many-eyed emblems of the omnipotence or omniscience of the gods. We are still among the lowest and rudest forms of religion.

The people of Tanna, another island of New Hebrides, are a remarkable race and, in spite of their murderous tendencies, have a great deal more character than the Malekulans. Queenlanders know them well, for thousands of Tannese have been employed in the Queensland sugar country from time to time. Whatever they may have gathered of civilization in Australia stays with them but a little while after they leave. On landing they generally take off all their clothes, go back to their villages, paint their faces, and take a hand in the latest tribal row, only too glad to be back to savagery again.

Like the Fijians, who were at one time the fiercest and most brutal cannibals of the Pacific, and who are now a peaceful and respecting nation, worthy of the crown that owns them, the Tannese will in all probability "train on" into a really fine race, as soon as they can be restrained from continuously murdering each other on the slightest provocation, and induced to clean their houses and themselves and live decently and quietly.

The yam gardens were weariful pictures. In one that we passed nearly all the women had blackened faces, the Tannese sign of mourning. The yam garden was a waste of parched and powdery earth; the bush around was burned yellow and brown; the pale-blue sky above quivered with the fierce midday heat. Stolid, ugly, and streaming with sweat, the women worked dully on, breaking off for a few minutes to stare and wonder at the visitor, and then continued their heavy task.



BUSHMEN COMING TO SEE A WHITE CHILD



FASHIONS IN ERROMANGA, NEW HEBRIDES

## STUDIES ON THE RATE OF EVAPORATION AT RENO, NEVADA, AND IN THE SALTON SINK

#### By Professor Frank H. Bigelow

U. S. WEATHER BUREAU

▼HE southwestern United States, from southern Utah and Colorado, including Arizona and New Mexico, to southern California, is the wonderland of North America. Here are found several hundred square miles of petrified forests, the surface of the ground being covered with agate tree trunks and chips; the largest natural bridge in the world, 500 feet span, 200 feet high, and 600 feet wide; the greatest examples of volcanic action, with 50 miles of lava in sheets 1,500 feet thick; the most impressive villages of cavedwellings in the world; the many-storied cliff-houses of aboriginal architecture; the communes or town republics and the pueblos of the Acoma and Moki Indians; the most notable tribes of nomad Indians, the Navajos and Apaches, who are the best fighters of the savage world; and the remarkable ruins of the great stone and adobe churches of the Franciscan missionaries.

The greatest wonder of all is the work of erosion performed by the Colorado River in its course from Utah to the Gulf of California, a distance of 2,000 miles. At present it flows through the Grand Canyon in a narrow gorge about 1,300 feet deep below the first level of the valley; but this valley itself is surrounded by cliffs and pinnacles rising 5,000 to 6,000 feet above the water of the river; also, passing from the rim of the canyon along the open prairie to the mesas, or tables, still marking the ancient levels of the plateau, yet another thousand feet must be added. The geological evidence shows that more than 30,000 feet of rock have been carried away in some places, and that over a region covering 200,000 square miles at least 6,000 feet have been transferred to the ocean.

The cutting of the gorge through 800 feet of black gneiss, 800 feet of quartz, 500 feet of sandstone, 3,600 feet of limestones of various kinds, and 1,000 feet of gypsum mixed with limestone is a manifestation of water power hard to

appreciate.

The Colorado River drains the snow water of the Rocky Mountains and the plateau southwestward, and has gradually transported this immense mass of material into the Gulf of California. In ancient days this gulf extended about 150 miles farther north, between the San Jacinto and the San Bernardino Mountain ranges, and the beach lines of this old sea can be readily traced upon the sides of the mountains 15 feet above sea-level. The river entered the old Gulf of California at Yuma, Arizona, and it has gradually built a delta of silt and débris directly across the gulf, so that the northern end of the ancient depression has been entirely cut off from the Pacific Ocean and its waters. This sink is now about 285 feet below sea-level in the Salton Sea, while the delta floor is 20 to 40 feet above sea-level.

The waters of the Colorado River pass through a narrow channel at the heads above Yuma and flow along the top of the delta in channels which are readily shifted to the north or the south, this being the natural way to spread more soil over an ever-widening delta back. The gradient of flow is steeper northward to the Salton Sink than it is southward to the Gulf of California, and hence any flowing of the river to the deep sink is