Indians of North America

Folder 1

C. Hart Merriam
Papers
BANC MSS
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SCIENCE NEWS--DEC.1928

86. THE BLOW GUN IN AMERICA, INDONESIA, AND OCEANIA

N. G. Sprinzin

The Museum of the Academy of Sciences in Leningrad has several specimens of blowguns, arrows and quivers from South America, Indonesia, and Oceania. In comparing them the author indicates the great similarity in their use and employment. The blowgun of South America seems the most primitive. The specimens in the Museum are represented on the plates as well as the photographs from various authors, indicating the way of blowing the gun. A special map shows the extension of this weapon in the three areas.

Utica dog - stone - kill
Syracuse I dog - champaign - kill
Judge Kittell - dog - tree
[illegible]

Appa-oots-skee-na
Em-mo-ne-sake-ke

Poor etymologies for Stock Names

1. **Mariposan** (Bureau Ethnology 1885 based on Latham's Mariposa Language 1860)

2. **Salinan** (Bureau Ethnology 1885, after Salines Valley)

3. **Wappo** (Spanish for brave)

The Am. Baptist Home Mission Soc. received over half a million dollars ($550,000) from the Indian Bureau, taken & misappropriated without leave from Jackson Barnett, Creek Indian aged 78, living in Oklahoma. —*Am. Indian Life*, Bull. No. 9. Sept. 1927. (p 5, unpaged)

The admirable collections of Blackfoot Lodge Tales and Pawnee Hero Stories published by Dr. Geo. Bird Grinnell not only proved intansely interesting to me, but impressed me with the importance of obtaining this kind of material from such tribes as I should be fortunate enough to become intimate with in the course of my field work in the far West.

CALIFORNIA LAND AREAS AND VALUES

California contains 155,652 square land miles (U.S.G.S.)

This is equal to 99,617,280 acres
Less Indian Reservations and Allotments - - - 450,000
99,167,280

Indian population of California (Report Indian Commission for 1925) - - - 18,812

Hence per capita acreage less than 24 acres.

Value of 99,167,280 acres at 50 cents - - - - - - - - $49,583,640

Feb. 10, 1926

By phone from Indian Office:

Total of California land in reservations and allotments about 441,646 acres (as of 1920).

Allowing for additional purchases to date, the total acreage in Feb. 1926 is less than 450,000 acres.

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INDIAN GROWERS OF MAIZE

A REVIEW OF A BOOK OF MUCH INTEREST AND VALUE

By "G"

PERHAPS no fallacy among those which prevail about the North American Indian is more firmly fixed in the popular mind than the belief that he subsisted wholly by the chase. We picture the Indian as setting his snares for game, stealing through the forest in pursuit of the deer, driving the buffalo over the precipice, or, in later times, speeding along on the skirts of the flying buffalo herd and driving the arrow feather deep into the great beast, whose flesh and skin he needed for food and clothing; and all these things he did.

Yet, those who know something about Indians are well aware that the natural fruits of the earth furnished a considerable portion of their subsistence; that they dug roots, collected berries and harvested nuts. Besides that, agriculture often supplied a considerable part of their food, and in many parts of the United States certain tribes devoted much time to the cultivation of the soil and the harvesting of their crops.

America gave to the world tobacco, the potato, and Indian corn or maize. This most important cereal, says Brinton, was found in cultivation from the southern extremity of Chili to the fiftieth parallel of N. Latitude. The nations of the Atlantic Coast cultivated corn as did those of the Gulf of Mexico and the Mississippi Valley—though not those of the Pacific Coast—and in many cases this corn constituted their chief subsistence and was their staple product. In the famed Indian mounds and in the ruins of prehistoric pueblos of the southwest, corn, corn cobs and imprints of corn in burnt clay have been found. It is said that in 1687 a French officer destroyed for the Iroquois a quantity of corn estimated at 1,000,000 bushels, while much later, among the same people, Gen. Sullivan destroyed a vast quantity of corn and cut down orchards, one of which alone contained fifteen hundred apple trees. Besides corn and tobacco, beans, squashes, pumpkins, sweet potatoes, and sunflowers were cultivated. In parts of the dry southwest the crops were irrigated, as shown by the still existing remains of ditches in New Mexico and Arizona.

A large volume might be written on the agriculture of our Indians, and on a small section of it—"Corn Among the Indians of the Upper Missouri"—a book of much interest and value, has recently been prepared by George F. Will and George E. Hyde and published by the W. Harvey Miner Co., Inc., of St. Louis, Mo. This volume seems to have been suggested by the experiments of the late Oscar H. Will, of Bismarck, N. D., who, in 1881, first recognized the value of the Indian varieties of corn grown in the Upper Missouri Valley and then began the work of experimenting with them for the benefit of the farmers of the new and at that time sparsely settled country.

When the American settler came into the untilled northwest, he had with him seed corn grown in his former home, and, failing to recognize that the new region presented new conditions of soil and climate, he planted this corn that he had brought with him, and often without much success. On the other hand, the Indian tribes had been growing corn in that region for centuries, and during those centuries had learned by experience the best seed and the best methods by which to grow their crops. It was to adapt the local seed and local methods to the uses of the incoming settlers that the late Mr. Will began his experiments.

The volume before us gives excellent descriptions of the different sorts of corn grown by the various agricultural tribes, and incidentally furnishes much information relative to the other vegetable foods that they grew. After the introduction follows a general discussion of the Upper Missouri Indians, their life and agriculture, their planting and cultivation, the harvesting of their crops, corn as a food, as an article of trade, as an object that was sacred, the ceremonies connected with the corn, and its different varieties, of which are listed the sorts cultivated by no less than twelve different tribes, and, besides these, certain other varieties from the southwest, such as Navajo, Hopi, Zuni, Cherokee, and a number of others.

The work is illustrated by engravings of many different corns—growing plants and seed—as well as squashes, corn prepared for drying and portraits of some famous corn planters of the Mandan village.

The Indians' crops were grown in little patches varying in size from half an acre to two or three acres, scattered about near the villages. The planting and cultivation of the crop was for the most part done by the women, yet, in certain parts of the country, the men had a share in the work. Often the patches were roughly fenced, to keep the wandering horses and other animals from injuring the crop. This was regularly hoed and weeded, the hoes used being often made of the shoulder blade of a buffalo or an elk—though sometimes hoes were made of stones—lashed to a stick and forming an efficient implement. The frontispiece shows some of the tools used in cultivation.

Most of the early travelers on the Upper Missouri mention the agriculture of Indian settlements. One of them says that in going from one village to another "we found extensive fields of corn, beans, squashes and sunflowers. Many women and children were already employed in clearing and hoeing their plantations."

Although green corn was freely eaten, yet much grain was dried and preserved in caches, which were large holes, wider at the bottom than at the top, just large enough at the mouth for a person to pass through, and holding twenty or thirty, or even more, bushels. The caches were lined with dried grass, and the shelled corn, put in parfleche sacks, was stored in them.

Long strings of corn on the cob, braided together by the outer husks, were also so stored.

When Lewis and Clark, on their way to the western coast, wintered with the Mandans, near the mouth of Knife River, corn was a constant article of trade between the Indians and the explorers. The Indians needed iron knives, hatchets and other implements, and were glad to pay for these things with the corn which the explorers were so anxious to obtain.

As the corn and the buffalo furnished their subsistence to these Indians, both were naturally regarded as sacred, and a vast number of sacred ceremonies grew up in connection with them. Messrs. Will and Hyde give interesting accounts of these, which, in a general way, are like certain food ceremonies that are common to many Indian tribes of the temperate zone.

The volume is an excellent example of good and useful work, and possesses a very unusual interest, not only for people who wish to know about Indians but for all interested in agriculture. We cannot doubt that it will be carefully read by many people and can recommend it to all.

The volume is singularly free from mistakes, but the typographical error in the title of the frontispiece is regrettable.

Nature Magazine
Sept. 1929.

IN HONOR OF GREATNESS
This statue to Sacagawea, who guided Lewis and Clark, stands in Portland, Oregon

THE HASKIN STUDIO

SHE INTRODUCED THE CARUMS
and was the first to disclose the tastiness of these plants to white men

A FRONTIER FOOD

Ipo, or Yampa, Sustained the Pioneers

by Leslie L. Haskin

THE ROAD lay like a dusky ash-gray thread lying crooked on a drab carpet. It wound and twisted restlessly to avoid clumps of silvery sage, stunted juniper and points of rocky scab-land. From the plodding hoofs of a pair of mules that slowly moved down the thread toward the west great clouds of dust swirled upward above the cindery volcanic soil, and hung in stifling clouds over the creaking buckboard and its two occupants. Finally the way pitched abruptly downward into a level flat bounding a small stream, and here the sagebrush grew to the height of a tall man's shoulders, denoting soil of exceptional fertility. Beyond the stream a rough board and tar-paper shack gleamed newly, and still farther away a man with a team of horses and a chain was "yanking out" and "snaking" into piles for burning the tough clumps of sage.

"Ah, a new settler," the driver of the buckboard said. "Here's where we find food."

His companion, whose every move and whose saucer-like eyes, filled with wonder, proclaimed him a tenderfoot, brightened and nodded. He began to wipe the layer of dust from his face.

As the mule team drew up to the door of the shack, an active sun-burned woman appeared.

"Dinner?" she answered the driver's inquiry. "Yes, I guess so. Picket your team out, and open a bale of alfalfa for them; then make yourselves at home. It'll be about an hour before I'm ready."

While the men were washing the woman went to the door and looked long and earnestly down the valley. The new-comers then observed for the first time a group of distant figures moving to and fro, now wandering aimlessly about, now bending as though digging in a low "dobe" flat, the outlines of which were plainly marked by the absence of sage.

Cupping her hands to her mouth their hostess sent a clear, far-carrying "Yo-hoo—" down the valley, and in response a single figure detached itself from the rest and came plodding up the creek. When it approached near enough to be plainly seen it proved to be a woman of the Klamath tribe, old, bent, and infinitely wrinkled, who carried on her arm a shallow pan. Extending the pan and its contents to the homesteader's wife she gutturally demanded: *"I shanahuli kash?"*

Then with an effort of enunciation, and in broken English she interpreted herself: "You wan' ipo?"

"Yes," nodded the woman.

She took the pan into the house and emptied it. Then going to the back of the room she filled it to exactly the same depth with white flour and returned it to its owner. This exchange was evidently quite satisfactory and understood, for with a bob of her head and a toothless grin the squaw accepted it and departed.

Since the contents of the old Indian's pan was evidently intended for their dinner, for the woman was washing it and putting it into a kettle, one of the two visitors—the tenderfoot—seemed greatly interested. From a distance the mass appeared to be composed of

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big brownish beans, only uneven in shape and size. Curious, but not wishing to appear inquisitive, he edged towards the table, hoping to solve this question without being observed, but a laugh from the hostess told him that his precautions were fruitless, and brought the embarrassed red to his ears. At the same time the pan was thrust into his hands by the jovial woman.

"I don't blame you for wanting to learn what you're in for before eating any Indian messes," chuckled the housewife. "I'd want to myself. It might be crickets, or snakes, or caterpillars—more likely than not, in fact—but you needn't be afraid this time; it's only ipo."

Thus encouraged he examined the dish closely, and later he ate of it with great relish, heaped on fried venison and seasoned with butter, and declared it very good.

That was the tenderfoot's first taste of ipo. Later he was to eat it many, many times, and never did it lose its relish. After dinner he visited the Indians' camp and saw these small, plump, clustered roots dug from the ground. When still fresh they were covered with a black skin, and were fat and meaty within like the kernels of big misshapen peanuts. He saw, also, how these roots were placed in baskets and set in the creek while the squaws worked and trod them with bare feet to remove the coarse outer skin and to make them as smooth and clean (?) as those of which he had eaten. Even this, however, could not dampen his enthusiasm for the new food.

THE HASKIN STUDIO

A NEGLECTED FOOD

The delectable roots of ipo have been almost forgotten

That was many years ago. Today the rough homesteads are replaced by thriving, fertile farms, and the farmers with their irrigated gardens now have no reason for calling upon the Indians for wild roots. Even the Indians themselves are forgetting this fine food. Seldom now do they come to the door to trade their heaped-up pans or baskets of ipo for an equal measure of wheat flour, but still the plants, neglected, grow just as abundantly as ever in the fields and valleys of the West, harvested only by the ground-squirrels and gophers, yet only waiting the coming of some one to gather and value them.

These plants, for there are three species, are known botanically as carum—*Carum kelloggii*, *Carum gairdneri*, and *Carum oreganum*—and are closely allied to the caraway of commerce, *Carum carui*. Among the original Klamath Indians they were called *kash*, but by present members of the tribe and by most white men, they are universally known as ipo, variously spelled epa, apo, or apau. The Klamath Indians, those few who still remember old times, will tell you that the word ipo comes from the south, and was the neighborly Shasta's tribal name for the plant. There is little doubt, however, that the word is not truly of Shastan origin, but is a corruption of the Spanish-Californian *apio*, meaning celery, which the Carums somewhat resemble.

The carum is not valued by the Klamath Indians alone. Among the Snake, Giosute, and Ute tribes it is also used, but bears the name of yampa. Sacagawea, guide, councilor and interpreter for Lewis and Clark, has the honor of being the first person to introduce this plant to the whites under that name. This wonderful Indian woman is worthy of all fame. Carrying her tiny infant on her back she traveled afoot over hundreds of miles of the roughest mountains, plains, and deserts, and by her knowledge of wild foods contributed greatly to the success of this daring expedition.

After Lewis and Clark, Captain John C. Fremont is the next to fully celebrate the fine qualities of the yampa. He it was who when he tasted of it declared it to be the finest of all Indian roots. Fremont ate it as a vegetable with wild duck. Perhaps it may yet be introduced into our gardens and then "Creamed ipo, *a la Fremont*" will find a prominent place on fashionable bills of fare to add another tasty vegetable.

Courtesy U. S. National Museum

WHEN SAVAGES CARRIED FIRE FROM ONE CAMP TO ANOTHER

Am. Forests - Feb. 1927.

How Fires Were Made in Ye Olden Days

By Harry Van Demark

LOOKING around upon the present evidences of civilization, the imagination is sorely taxed to picture a time when ready means of striking a light was not available. Yet it is certain that such a time must have been—far back in the dim ages when man roamed the wilds and dwelt in holes and caves of the earth, scarcely more advanced in his domestic arrangements than the beasts of the field. In what manner the value of fire as a servant first dawned upon the mind of man must ever remain mysterious, but at all times there must have been fires and great conflagrations kindled by natural means and entirely without the aid of man. Thus the effect of the lightning stroke; of friction caused by falling rocks or the chafing of limbs and tree trunks in the dense forests; of the volcanic overflow of smouldering furnaces within the earth,—all these would from time to time display the properties of fire before the wondering eyes of primitive mankind.

Probably man first feared fire, then began to worship it as a god, terrible in its manifestations and omnipotent in its power to destroy. Then, his fear departing he used it for cooking and for warmth. Notice that at first he did not make fire; he took it from Nature's hand, just as he gathered fruit from the forest boughs. There is direct evidence of this in the traditional history of many races. For example, the T'lisngit family of Indians in Southwestern Alaska say that the raven gave them fire, and have an elaborate folklore descriptive of the bird and its flight through inky darkness, bearing the divine spark in a box. The fire was religiously preserved and fed, and members of the tribe took it for their domestic hearths. These and similar fables of the preservation of fire in a box, and its being borne from tribe to tribe, or family to family, are reminiscent of the unquestionable fact that man knew and employed fire long before he had discovered the means of making it for himself.

Courtesy U. S. National Museum

CALIFORNIA INDIAN MAKING FIRE BY FRICTION

He is using the fire drill—the heat generated by friction causes ignition of dust ground off. This is probably the earliest method of making fire.

Probably the first attempts of man as a fire-maker were confined to the friction of sticks. There are just three ways in which one piece of wood may be rubbed upon another; namely, by moving with the grain, or "plowing;" by moving across the

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Probably the first attempts of man as a fire-maker were confined to the friction of sticks. There are just three ways in which one piece of wood may be rubbed upon another; namely, by moving with the grain, or "plowing;" by moving across the

grain or "sawing;" and by twirling a pointed stick within a wooden socket, or "drilling." All these methods were used by early man.

Neither the first nor the second method, however, were brought to a high state of perfection—or, to be more precise, they both reached perfection in a rudimentary form.

The fire-plow, which was widely used among the Indo-Pacific races, consists of two parts: First, a stout piece of thoroughly dried wood, perhaps three feet long and two inches in diameter, which forms the hearth or stationary part; second, a smaller stick of the same kind of wood about a foot long, cut wedge-shape at its lower end, the edge forming a very obtuse angle. This constitutes the working part, or plow. It was rubbed violently backward and forward on the stationary piece, cutting a groove running with the grain for a distance of four inches. Minute shavings were thus detached, and in the hands of a skilful manipulator these were soon heated above the point of ignition.

AN ORNATE TIBETAN UTILITY BELT

Made of red leather and finely ornamented with silver and coral, the belt carries a knife; tinder and flint pouch and a needle case. The scabbord of the knife is of iron and gold and the handle is set with coral and torquois. The pouch is studded with silver, with a large turquoise at the end of the thong, while the needle case is also of iron and gold, decorated with coral and turquoise. This is from the W. W. Rockhill collection, used through the courtesy of the U. S. National Museum.

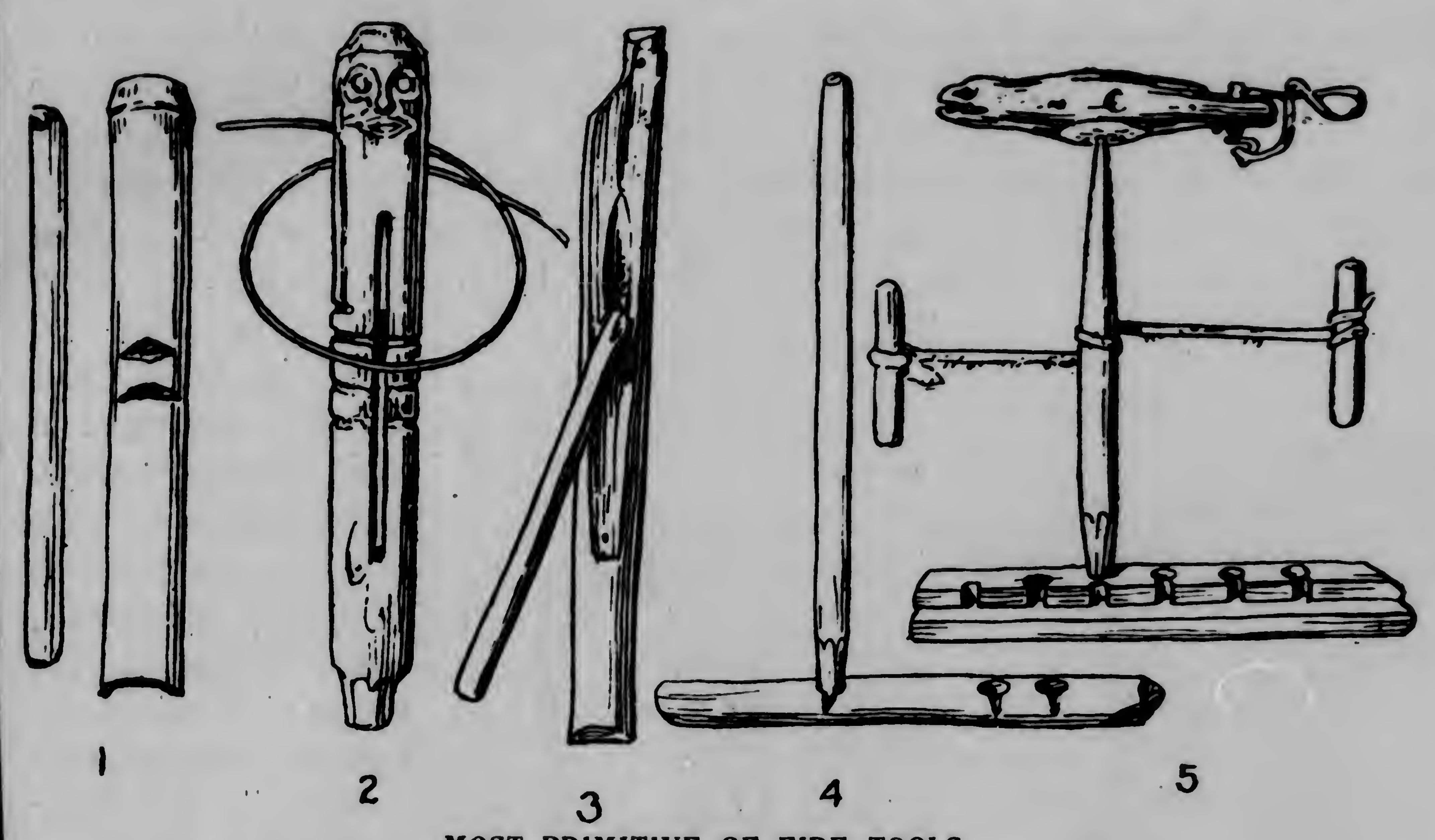
Fire-making by sawing was a Malay device, and has never, perhaps, been successfully employed except in countries where bamboo flourishes since bamboo is the only really suitable wood. Two pieces are taken, one with a sharp edge, the other with a notch cut in it, nearly but not quite severing the substance. After sawing for a time the floor of the notch is completely pierced, and the heated particles fall below and ignite.

But the most important method of primitive fire-making is drilling. In its most simple form a stick of dry wood is twirled vertically between the hands upon a very dry and partially decayed lower platform. It is extremely difficult to obtain fire in this way, as modern experimenters may prove for themselves. Yet, there is a certain knack about the operation, and when this has been mastered, smouldering wood-dust may be created with comparatively little labor. It is clear, however, that the fire-drill could be made more effective and rapid in action in several ways. One such way calls for the co-operation of two individuals, one to support the the vertical spindle by means of a socketed rod, while the other wraps a cord about the spindle and pulls it backward and forward as rapidly as possible.

A further complication of the fire-drill was the application of the bow-string, similar to the drilling appliance used by jewelers. The socketed rest for the vertical shaft was then held by one hand, and the thong alternately pulled and slackened with the other. Thus a saving of labor was attained.

As a means of striking a light the forerunners of the comparatively modern flint and steel were flint and pyrites, or two pieces of pyrites, the mineral from which sulphuric acid is made. These were struck together and the sparks generated were caught among a little dry moss. The Eskimo from Smith Sound to Bering Strait used this method. A very complete strike-a-light set, including flint, pyrites, tinder in dainty little bags, and a leather pad to guard the fingers, has been found quite recently in the vicinity of Cape Bathurst.

Modern forms of flint and steel are well known to most people from examples preserved in museums.



MOST PRIMITIVE OF FIRE TOOLS

1—A fire saw. A strip of bamboo is drawn across a section of bamboo,—used by the Dyaks of Borneo and other Malays; 2—Fire thong. A rattan thong is drawn over a grooved piece of wood,—also used by the Dyaks; 3—Polynesian fire plow. A blunt stick is worked along a groove in a lower stick; 4—Fire drill. A slender rod is twirled between the hands upon a lower stick having a cavity with slot,—used by the Indians of the United States; 5—Another type of fire drill, used by the Eskimos of Alaska. The rod is held in a socket and gyrated by means of a cord.

There is a very old type of wooden box, perhaps the earliest strike-a-light set made by civilized mankind. With this are certain small angular pieces of stout paper, the tips of which are dipped in sulphur. These are the most primitive kind of match known. They are used for generating a flame by application to the smouldering tinder. Genuine specimens of these matches are now extremely rare, though "faked" ones have frequently been offered for sale by dishonest dealers in curios.

Another and more compact type of tinder-box is made of metal. In the bottom is an old burned rag, used as tinder, and upon this the flint and steel reposed when the box was not in use. Still more interesting is the ingenious strike-a-light made in the form of a pistol. The flint is worked by the trigger, and strikes upon an upright plate of steel. The contact throws sparks through an opening upon the tinder, contained in a narrow box which takes the place of what would be the barrel of a pistol.

This contrivance is a relic of the old stage coach days. By means of it a light could be struck in a high wind. The matches which were then used were strips of thin pine wood dipped in sulphur.

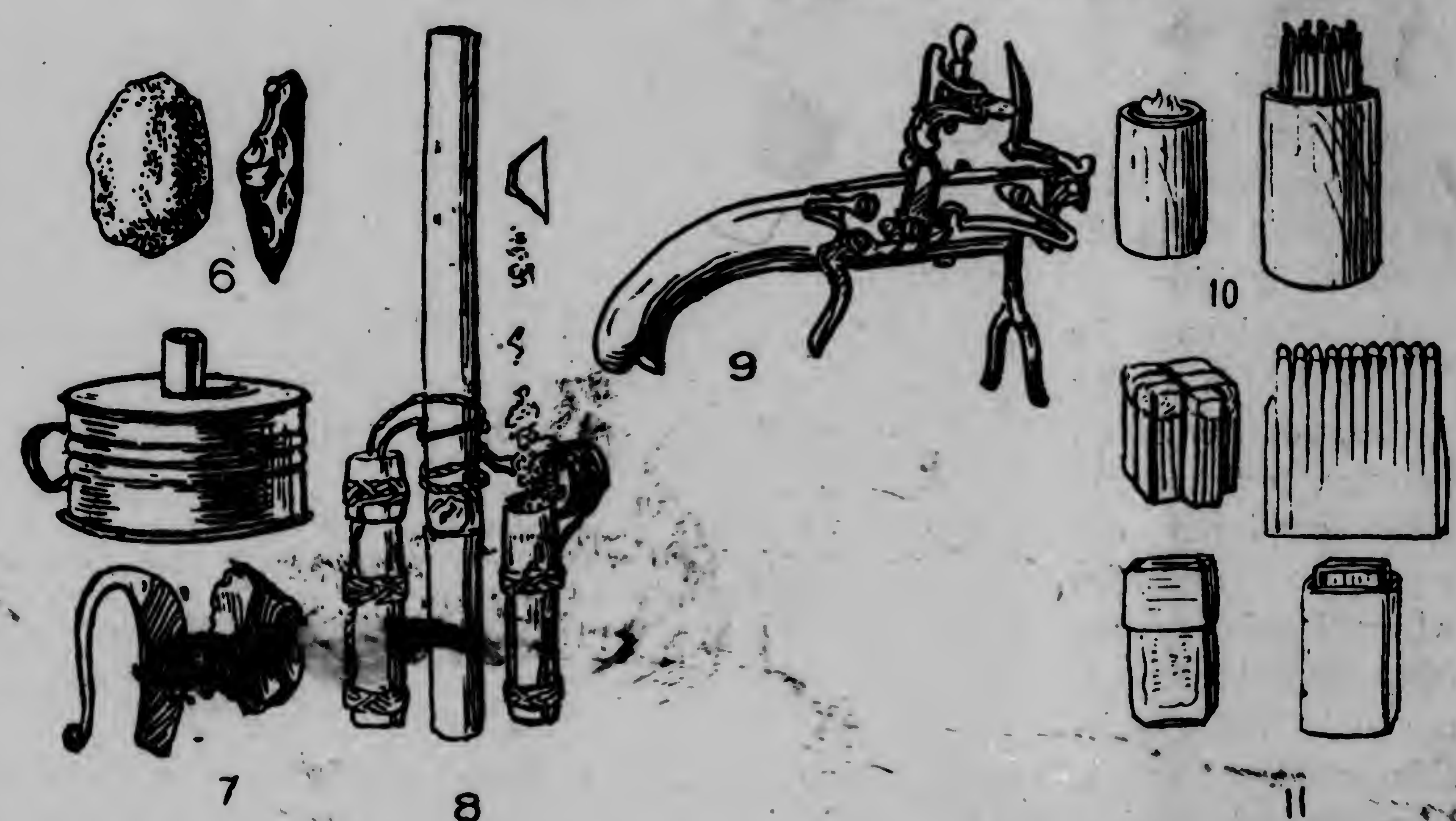
One other tinder-box may be mentioned, namely the *chamak,*—still in use among some of the Himalayan tribes. It is a little leathern pouch containing flint and tinder, and the steel is a strip of metal riveted along one side of the pouch. It is of small size, suitable to be carried about the person.

Next in order we have the match as it has been developed by civilized man. Phosphorus was discovered by Brandt in the seventeenth century, and was used as a means of obtaining fire shortly afterward. Its costliness, together with the danger attending its use, militated against its popularity.

But in the year 1805 the Parisian Chancel introduced the so-called oxymuriate match. It was a slip of wood tipped with a mixture of chlorate of potash, sugar and gum. To ignite the match was thrust into a bottle containing a piece of asbestos saturated with sulphuric acid—an awkward arrangement especially in the dark.

Then came the "Promethean" matches whose career was short-lived. They were a kind of paper, rolled in the form of a pencil and dipped in a mixture of sugar and chlorate of potash. Rolled within the paper was a tiny glass bulb filled with sulphuric acid. To strike these matches the tip was compressed between the teeth, or pliers. First lucifer match invented in 1827.

~~(Continued on page 110)~~



INSTRUMENTS USED IN THE DEVELOPMENT OF FIRE MAKING

6—Strike-a-light. Flint and iron pyrites struck together as the ordinary flint and steel,—used by the Eskimos of Alaska; 7—Flint and steel and box for holding flint, steel and tinder, from England; 8—Strike-a-light. Bamboo tube and striker of pottery used as flint and steel, with two boxes for tinder; 9—English tinder pistol. The gunlock is adapted for throwing sparks into tinder; 10—Match light box, used in Vienna in 1809. A bottle of sulphuric acid, into which splints tipped with chlorate of potash were dipped; 11—First form of modern match box, holding phosphorous matches.

Original Defective

A SOBER STORY OF THE WEST.

George Bird Grinnell, whose sober and substantial work on Indian and Western themes is well and honorably known, now prints a boy's book of the same category—*Jack Among the Indians*, a sequel to his *Jack, the Young Ranchman*. Mr. Grinnell is not dramatic, and does not seem to care to thrill. But this book (very much after the fashion of his other books) is as sober as if the whole story really happened. It is worth while for a boy to read the sort of Western adventure that might actually be; and anyone may safely trust Mr. Grinnell. He knows his country and his people, and tells of them not inspirationally but very much like a quiet record of a real experience. The book is good reading and safe "color." It is lamentably illustrated by E. W. Deming, who can neither draw at all nor at all annotate the West. F. A. Stokes Co., New York. $1.25.

INDIANS AND THEIR HERBS.

A learned and admirable paper is David P. Barrows's *Ethno-Botany of the Coahuilla Indians of Southern California*, printed by the University of Chicago. Dr. Barrows,

Land of Sunshine
April 1901.

Early-Day Indians in Iowa

By Field & Stream—Dec. 1920.

Anna Grey Bemis

IN the early days when we lived in Iowa on father's homestead, the Indians were often camped in the woods near us for weeks at a time. Early in the spring they went to the hunting grounds and late in the fall returned, moving in a leisurely manner. They would come to the house, and without knocking, and in the soundless skin moccasins they wore, walk in unexpectedly, always giving us children a severe fright, and also, I suspect, our young mother.

Father was friendly to them and told us they were harmless, and we were instructed to be courteous and obliging to them at all times. One old chief, named Wakemo, would honor us by a personal visit occasionally, a concession never made to the other families in the neighborhood.

One late, cold spring the band remained for a long time waiting for better weather in which to march, and while I cannot say that we became familiar with the tribe, since no one could do that, the dignified old chief was a well-known figure and on one memorable occasion came with his squaw to eat with us.

They first ate all the bread on the plate without tasting anything else, then proceeded to the potatoes, and in regular order cleaned each dish before them, until at last a bowl of apple sauce in its turn claimed their attention.

The squaw first tasted it, evidently curious as it was palpably a new dish to them, and after filling her mouth very full made a grimace and with a grunt, "Sour," spit it out on the floor by her side. Her husband, with true Indian spirit, swallowed his, but also evinced a dislike for the dainty and left the remainder.

After the meal was finished they rose and the chief, holding open his blanket, said, "Potatoes," and my father took a gunnysack and went to the cellar, closely followed by a rather long procession consisting of Wakemo, his squaw and us seven children.

As he began to fill the sack, old Wakemo grunted "No," and opened his blanket and without more ado his willing helpmate began to throw the potatoes onto its capacious folds. Small wonder that he preferred his own means of transportation. That blanket held out amazingly! He caught up a fold here and there and when, for lack of room, his avaricious wife ceased packing them, at least two bushels of our best tubers were contained in his wardrobe. Not a word of thanks did they vouchsafe and it was not until the next fall, when they passed through on the way back to a warmer clime, that we knew they were grateful, and then by finding on our doorstep, one morning, half of a fine young deer, with the symbol of Chief Wakemo on it, and the words, in English, "Me no forget." On the day they left the country, a large chunk of buffalo meat made its mysterious appearance in the same place, with the same inscription.

We children had never been allowed to visit the encampment before, but father took us all to the grove to see the camp this time. In broken English the small papooses talked to us, saying very little but evincing a lively delight at the peppermint sticks which father had provided in order to gain their favor. He had a large paper sack full and it disappeared like magic among the numerous children of the village until at last he had but few sticks remaining.

Suddenly there was a commotion among the small fry attending us and a young girl darted out of a wigwam carrying a papoose only a day or two old. Its beady eyes blinked in the sunlight, and she with a grin held up its tiny red hand to father. Needless to say, the rest of the store of sweets was distributed right there.

An early snow had fallen and on a hill near the creek the boys and girls were sliding in a manner we had never seen before. Each small youngster had a shingle, and in their bare feet, standing erect, they proceeded to manipulate the difficult descent and at the bottom of the declivity, turned deftly to avoid a wetting in the icy waters of the Beaver.

Nearby the larger boys were paddling about on a log, using paddles shaped from natural wood and handling the craft as gracefully as a seasoned racer does his yacht.

The smell of delicious cookery drew us toward the tents in the distance, and childlike, we should probably have wished to partake of the provisions being cooked but a cautious word from father made us observe and after inspecting the methods of cookery used, we decided our appetites were not so whetted as we had thought.

A large iron kettle was suspended over a fire and as wood was scarce and the Indians were only allowed to camp there on condition that they did not harm the trees, they were burning dried manure, collected from a nearby pasture.

The kettle steamed most appetizingly and the balls of dough which the squaw was rolling and mixing and then dropping into the stew of what looked like young lamb, were white and light as any our black "Mammy" ever had attained.

It was some time before we noticed that the woman would alternately feed the fire with the very dubious fuel and then with the same hand drop another dough ball into the kettles. At times a cursory pass of her hand across the filthy blanket, which was her only garment, passed for a toilet.

At last Brighton mustered up courage to inquire, in the limited "Injun" he could master, what the kettle held, and to our horror, the answer was to point to a number of puppies which gamboled near, and mutter the Indian word for dog.

This was the climax and we passed on hurriedly fearing an invitation to lunch and knowing it would be an impoliteness not to accept.

When we reached Wakemo's wigwam to thank him and say good-bye, he with almost a knowing look on his usually stolid and imperturbable countenance presented us each with a large egg of a kind unknown to us, father thought probably a species of wild goose, which we all solemnly accepted with thanks. The eggs were unaccountably heavy, and on opening one we discovered that the shells had been opened, the contents removed and warm maple sugar substituted, after which the shells were carefully restored, making a sweet the like of which I have never seen since. We were at first a little doubtful of the "Heap mush clean," but as Brighton pointed out, they must have had the germs boiled, and at least we were emboldened to taste, after which an army of germs could not have stayed us in the work of destruction.

More than fifty years afterward, in another State, I went to see an Indian reservation, and as my friends and myself were being piloted about the scenes, an Indian boy came up to us and shyly requested me to follow him. I was taken to a tent and there found a perfectly strange Indian brave of about my own age, who silently held out a gun to me and by motions urged me to take it for my own. Explanations were haltingly entered into at my request, and it developed that he was the son of the old Chief Wakemo and remembered me coming to the camp when he was a small papoose. He at last said "potatoes," and then "My brave father bade me never forget."

I made it clear to him that I had no use for his gun, which was his finest possession, and was sure I could detect a relieved expression as he inquired if there was anything he could do for the "White chief's sons"? With a smile I said, "Eggs," and to my great surprise, enough maple sugar eggs were produced to supply our whole party. It was certainly proof that old Wakemo had taught his sons "Me no forget," and this phrase was my good-bye to the donor of the eggs. With a lighting of his unexpressive face, he repeated after me, "Me no forget," but I have never seen him since that day.

THE SPORTSMAN TOURIST

A Peculiar People

The Red River Halfbreeds—A Vanished Camp—The Cheerful Buffalo Hunters of Fifty Years Ago

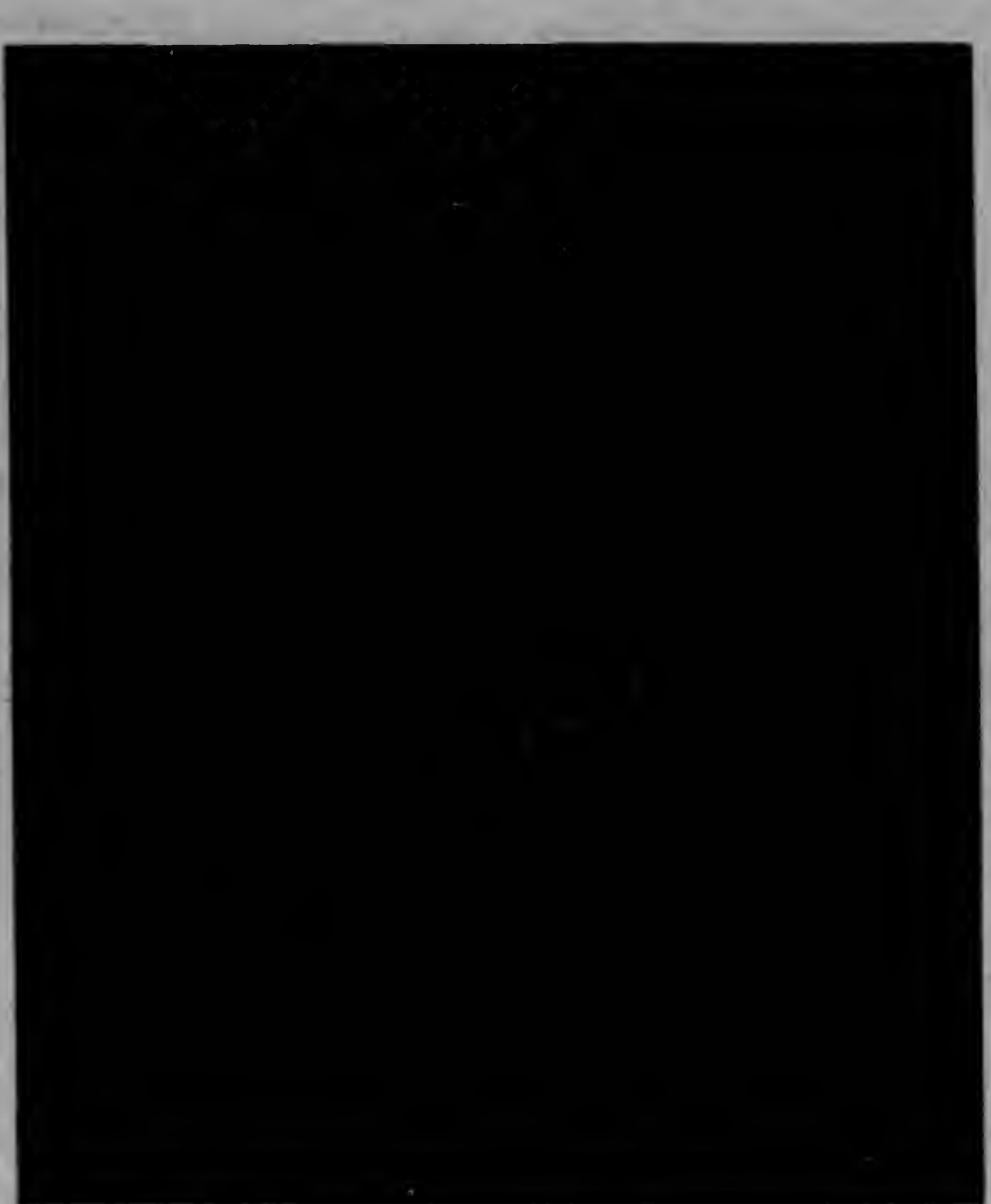
By G. B. G.

DURING the middle of the last century there lived on the plains of the Northwest, between the Red River of the North and the Rocky Mountains, an exceedingly interesting group of people—the Red River halfbreeds. Although they existed there as a community for only about two generations, yet during this time they were so distinct a people as to impress themselves on the minds of all who met with them, and to have made a name that will never be forgotten when the history of the Northwest is referred to.

Scattered about as individuals or families, the Red River halfbreeds were inconspicuous and of no importance. By the more staid and methodical people of Anglo-Saxon blood they were thought of with more or less contempt by reason of their volatile nature and their disinclination for settled habits. But gathered together in a great camp moving toward the buffalo, or in the buffalo country, they were impressive because as a community they were unlike any of the great camps of the people whose blood flowed in their veins. In some degree they possessed the caution and foresightedness of their Caucasian ancestors, but with this was united the keenness of observation, the knowledge of the habits of animals and generally of the processes of nature which they inherited from their savage mothers.

Little more than half a century witnessed the beginnings and the ending of the great halfbreed camp, but during the short time that they were, or seemed to be, a people or tribe by themselves, they were well worth studying. They were friendly and kindly in their nature, usually on good terms with white travelers and Indians alike, though to be sure occasionally attempts at horse stealing by the Indians resulted in a collision with those people, but this was unusual. Yet it is stated that once they were attacked in the summer of 1851 by 1,000 Yankton Sioux, when, after a long fight behind their breastworks, the halfbreeds beat off the Indians.

The Red River halfbreeds were more or less nomadic, dwelling at least for a part of the year in tents, and in many respects living much like the Indians whose blood they shared. The children of employes of the Hudson's Bay Company by Indian mothers, two classes were recognized: the French halfbreeds and the English halfbreeds. Their Celtic blood often hurried the French section into acts hostile to the Government, or to the fur company, and in some cases led to actual rebellion. The last of these outbreaks took place in 1885 and was participated in by a number of simple Indians over whom the halfbreeds had much influence. Following the putting down of this, which from its leader was called the second Riel rebellion, Riel was hanged, as were also some of the Indians.



RED RIVER CART
Of Wood and Rawhide, without Iron.

Each spring the French halfbreeds gathered at the fort—Fort Garry—for their long journey to the plains, where they killed great numbers of buffalo, drying the meat and making pemmican for sale and for winter subsistence, and the women dressing the hides, which were sold to the Hudson's Bay Company. The company gave these people long credit, and Ross in his description of the Red River settlement draws a gloomy picture of the economic situation there, as the time for the summer buffalo hunt approached. He says:

"With the earliest dawn of spring the hunters are in motion like bees, and the colony in a state of confusion from their going to and fro, in order to raise the wind and prepare themselves for the fascinating enjoyments of hunting. It is now that the company, the farmers, the petty traders, are all beset by their incessant and irresistible importunities. The plain mania brings everything to a stand. One wants a horse, another an axe, a third a cart; they want ammunition, they want clothing, they want provisions; and though people may refuse one or two, they cannot deny a whole population, for indeed overmuch obstinacy would not be unattended with risk. * * *

"The plain-hunters, finding they can get whatever they want without ready money, are led into ruinous extravagances, but the evil of the long credit system does not end here. It is now deeply rooted and infused into all the affairs and transactions of the place. Nor, indeed, is this the worst. The baneful influence of these wild and licentious expeditions over the minds and morals of the people is so uncontrollable that it unhinges all their ideas and draws into its illusive train not only the hunters, but almost every class of our population. So many temptations, so many attractions are held out to the thoughtless and giddy, so fascinating is the sweet air of freedom, that even the offspring of Europeans, as well as natives, are often induced to cast off their habits of industry and leave their comfortable homes to try their fortunes in the plains. There, however, disappointment and ruin never fail to convince them of their error and dearly at last do they repent their folly.

"The practical result of all this may be stated in few words. After the expedition starts there is not a man servant or maid servant to be found in the colony. At any season but seed time and harvest time, the settlement is literally swarming with idlers, but at these urgent periods money cannot procure them."

The cost of one of these hunting trips in which fifteen or sixteen hundred people took part was great—not less than £24,000 or $120,000. The growth in popularity of the annual hunt was rapid. In 1820—the first trip—it numbered 540 carts, while in 1840 it numbered 1210. The hunters were for the most part Roman Catholics and were governed by strict rules, being controlled by chiefs or captains who were duly elected.

The hunting grounds of the Red River halfbreeds extended from the Saskatchewan on the north, southward sometimes as far as the Yellowstone River. They followed the buffalo wherever they were, and with them took their whole families and all their worldly possessions, transported in the famous Red River carts.

Retake of Preceding Frame

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Grinnell - Red River Halfbreeds - 1910 -

Forest and Stream

Terms, $3 a Year. 10 Cts. a Copy. Six Months, $1.50.

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VOL. LXXIV.—No. 25. No. 127 Franklin St., New York.

A WEEKLY JOURNAL.

Copyright, 1909, by Forest and Stream Publishing Co.

George Bird Grinnell, President,
Charles B. Reynolds, Secretary,
Louis Dean Speir, Treasurer,
127 Franklin Street, New York.

THE OBJECT OF THIS JOURNAL will be to studiously promote a healthful interest in outdoor recreation, and to cultivate a refined taste for natural objects.

—Forest and Stream, Aug. 14, 1873.

HETCH-HETCHY NEXT YEAR.

Late last month a hearing was held before the Secretary of the Interior on the question of revoking a permit granted by Secretary Garfield in May, 1908, to the city of San Francisco. This permit authorized the use by San Francisco, under certain circumstances, of the Hetch-Hetchy region in the Yosemite National Park as a source of water supply. By the terms of the permit, San Francisco might draw water from the Hetch-Hetchy valley whenever the demands of that city were greater than Lake Eleanor could supply.

It has been reported by the Director of the Geological Survey and engineers of the Reclamation Service that Lake Eleanor contains, or can be made to contain, a supply of water sufficient for the future needs of the city, but the authorities of San Francisco deny that this is true. Secretary Ballinger invited a board of Army engineers to be present at the hearing, and three officers were appointed for that purpose. After an adjournment the engineer acting for the Society for the Preservation of National Parks showed that the Lake Eleanor and tributary sites were sufficient to furnish water for San Francisco up to 1948, and after a consideration of the various arguments the Secretary announced that he would suspend decision for one year, during which another investigation should be made by a board of army engineers to whom the San Francisco authorities are to report the results of their examination into the water question for the city.

It has been pointed out by Forest and Stream that however important the needs of San Francisco may be, a much more important question is here at issue. Shall our national parks, established by Congress for the benefit of the whole people, be diverted from the purposes for which originally set aside—the pleasure of the people—for the benefit of any private or even municipal use? If a portion of the Yosemite Park can be used for such a purpose, a portion of any other national park may be used for any similar purpose, and the whole system of these national reservations may shortly be destroyed. It appears to us inconceivable that the officials of the nation should consent to anything of this sort, or that Congress should permit it to be done.

NATURE'S BALANCE.

Truly the lot of the farmer is a hard one, and those who have gone back to the soil—or who have never left it—can sympathize heartily with the plaint of one farmer who, on another page, discusses the ravages of the pine mouse, and the troubles which followed the effort to check these ravages. It is not long since the damage caused by deer was complained of. A few days since a farmer told us of having set out a few cabbage plants of which, a day or two later, more than ninety per cent. had been destroyed by cut worms. Not long ago correspondents described the destruction of poultry caused by hawks, and two or three years earlier a hot discussion took place as to whether the weasel did or did not kill poultry.

Of persons living in the country a very large number kill hawks on sight and a less number —for weasels are scarce—crush the weasel's head when they can reach it.

No doubt it is true that hawks and weasels and foxes and skunks from time to time kill poultry. No doubt also the greater part of the food of these predaceous creatures consists of mice, moles, squirrels and rats—many of them unquestionably injurious. It is altogether possible that the correspondent who lost the young white pine trees in Connecticut is quite ready to kill hawks or weasels if he can get at them, but there is no doubt that two or three weasels in his white pine orchard would have saved him many trees.

We have not now—nor for a long time are we likely to have—any means of measuring even in the most general way the value of the services performed by predaceous birds and mammals for the farmer, but it is obvious that it must be great. In some cases perhaps the harm they do is serious. More should be known about these matters. Each farmer should do his best to inform himself as to what is now known, and further should make all the observations possible on such points, and should communicate these observations to others.

Dr. H. G. Piffard, a physician of eminence, an ardent sportsman and a long-time correspondent of Forest and Stream, died in this city last week. He was born in New York city in 1842, educated here, and had been a practicing physician for forty-six years. He was a man of acute intellect and abundant energy, and was full of ideas on many subjects. Whatever he took up he went into with the utmost enthusiasm. He had been an expert rifle shot, canoeist, photographer, and was an authority on radium and the x-rays. Besides being a keen sportsman, devoted especially to the use of the shotgun, he was a great authority on edible fungi, and was for some years the president of the Mycological Club. Possessed of a keen sense of humor, he was a delightful companion; yet sternly devoted to what was right, he would fight earnestly and obstinately in behalf of his beliefs. He was the author of a number of medical works, and for many years was a professor in New York University and consulting surgeon in the City Hospital.

Careful investigation was made by the Biological Survey during 1908 of the present distribution of big game, especially deer and antelope, and the number killed during the hunting season. East of the Mississippi (omitting New Hampshire, Georgia and North Carolina) 60,000 deer were killed in 1908. Antelope are still found in fourteen Western States, though the total number is approximately only 17,000. Notwithstanding the fact that the antelope is protected throughout the year in practically all the States in which it now occurs, special efforts are necessary to save this fine game animal from extinction. In the decade from 1898 to 1908 the antelope of Colorado, according to estimates of the State game warden, decreased from 25,000 to 2,000. Statistics have been gathered by the bureau concerning private and public game preserves, game propagation, hunting license receipts and many other special features of game and bird preservation.

Robert W. de Forest, trustee for the Sage Foundation, has announced that Mrs. Sage has stated that she will contribute $5,000 a year for the next three years to the work of the National Association of Audubon Societies for the protection of wild birds and animals. Mrs. Sage has made no stipulations as to how the money shall be used, further than to say that she would prefer that it be expended in the Southern States. It is reported that some portion of this money will be used especially for the protection of robins, but probably no plans have as yet been made in regard to it.

Leonard Crossle, honorary secretary of the British Amateur Fly- and Bait-Casting Club, has asked Forest and Stream to inform him as to the number of American anglers who intend to take part in the international casting tournament to be held at Hendon on July 7 and 8. If intending contestants will write us, Mr. Crossle's request will be complied with at once, and arrangements will no doubt be made to extend the time for receiving entries from this country.

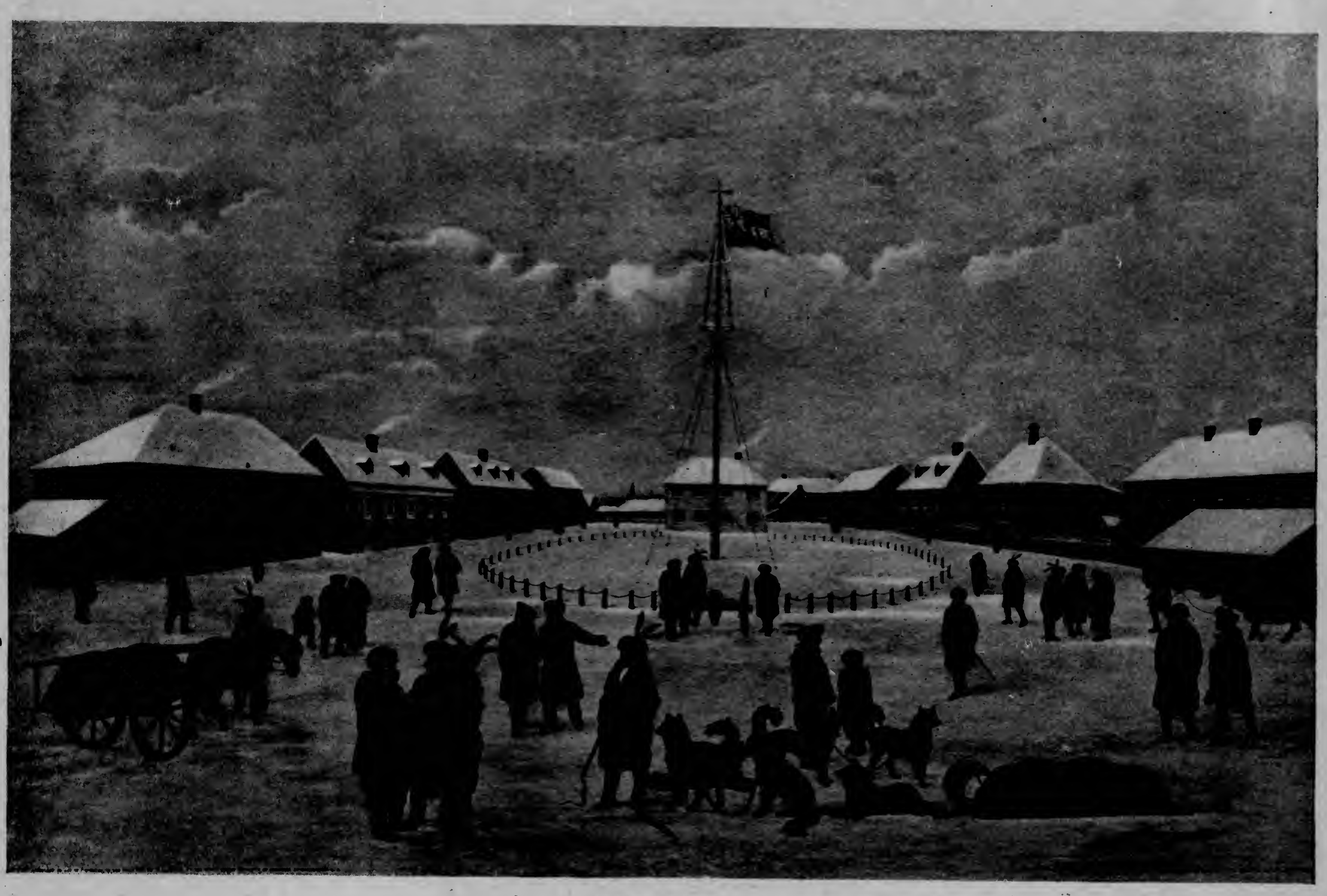
Two remarkable pictures of wildfowl in flight are reproduced elsewhere in this issue. They were made in the Imperial Valley, in California, and show the character of the irrigated lands on which the ducks feed during several months every year.

Usually they made their start about the 15th of June, a part going from the Red River settlement and another part from the White Horse Plain on the Assiniboine. Once these bands traveled together, but differences sprang up among them, and between 1850 and 1857 they hunted apart.

Sometimes the halfbreeds were absolutely improvident and thoughtless of the future. Often they made surrounds and killed buffalo purely for the love of killing, taking nothing but the skins and tongues, and not recognizing that this circle of their lodges and the turning up of carts on their sides to make breastworks behind which to fight. The Indians of those days had few guns or none and scarcely ever attacked them except on the occasion already referred to.

When the buffalo were found, if the situation was favorable, a surround was made, but on the other hand sometimes the buffalo were on the flat prairie, in which case it was necessary to approach them openly and the horsemen could not get nearer than four or five hundred yards before the buffalo started. Then, if it was spring in front of them. By this method of riding, the buffalo could often be drawn some miles in one direction or the other, and toward the waiting and concealed hunters.

On favorable ground, when a successful approach was made the buffalo, with tails on end, rushed off in headlong flight. Presently the swiftest horses began to overtake them and to disappear in the dust kicked up by the flying herd. The noise and confusion caused by the running animals was astonishing. A thick cloud of dust hung over the scene, the air was full of



OLD FT. GARRY.

great destruction of buffalo must sooner or later be felt by themselves.

While often they rioted in plenty, having more food than it was possible to consume, at other times they suffered from hunger. If buffalo could not be found, provisions became scarce; children cried with hunger and all complained of the lack of food. It was a feast or a famine.

Sometimes, too, they lost their animals. The horses strayed away or the oxen that belonged in the camp took the back trail and had to be searched for at great loss of time.

On the other hand, when hunting, their industry was very great. They had a splendid organization; they were at peace with all the Indians of the plains who in early days neither wished nor dared to attack them. The approach of a hostile party to the halfbreed camp meant merely the withdrawal of the halfbreeds within the and the horses were thin and weak, a long chase was required to overtake the buffalo, and sometimes they might not be overtaken at all. If the horses were weak and the buffalo were in such a position that there was danger that they might escape without being overtaken, the chiefs would sometimes send out two men to approach the buffalo gradually from one side, and starting them slowly to bring them close to the camp. The young men rode at a walk or a trot parallel to the direction in which the buffalo were headed, and before long the buffalo began to trot and then perhaps to gallop. If, riding on the left hand side of the herd, the men wished to turn them to the right, they drew away from them to a greater distance. If they wished to turn them to the left, they directed their course more toward the herd, which then in turn bent its course toward the riders, as if trying to cross pebbles and sand kicked up by the hurrying feet, shots began to be heard, and presently the prairie was strewn with brown bodies.

In such a race the men rode their best horses, trained buffalo runners, as experienced as their masters in picking out the best cows, in avoiding the holes and obstacles which lay everywhere on the prairie, in avoiding also the charge of angry animals that they overtook and passed. Really, the experienced rider paid no attention to his horse and merely loaded, fired and reloaded until the chase was over. Practically all these men used muzzle-loading flintlock guns. Their balls they carried in their mouths, the powder was in a cowhorn hung under the right arm. They loaded on the run, spat a ball into the muzzle, jarred the gun stock on the saddle or with the hand, threw some priming into the pan, and fired. Accidents were frequent. Horses

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While often they rioted in plenty, having more food than it was possible to consume, at other times they suffered from hunger. If buffalo could not be found, provisions became scarce; children cried with hunger and all complained of the lack of food. It was a feast or a famine.

Sometimes, too, they lost their animals. The horses strayed away or the oxen that belonged in the camp took the back trail and had to be searched for at great loss of time.

On the other hand, when hunting, their industry was very great. They had a splendid organization; they were at peace with all the Indians of the plains who in early days neither wished nor dared to attack them. The approach of a hostile party to the halfbreed camp meant merely the withdrawal of the halfbreeds within the circle of their lodges and the turning up of carts on their sides to make breastworks behind which to fight. The Indians of those days had few guns or none and scarcely ever attacked them except on the occasion already referred to.

When the buffalo were found, if the situation was favorable, a surround was made, but on the other hand sometimes the buffalo were on the flat prairie, in which case it was necessary to approach them openly and the horsemen could not get nearer than four or five hundred yards before the buffalo started. Then, if it was spring and the horses were thin and weak, a long chase was required to overtake the buffalo, and sometimes they might not be overtaken at all. If the horses were weak and the buffalo were in such a position that there was danger that they might escape without being overtaken, the chiefs would sometimes send out two men to approach the buffalo gradually from one side, and starting them slowly to bring them close to the camp. The young men rode at a walk or a trot parallel to the direction in which the buffalo were headed, and before long the buffalo began to trot and then perhaps to gallop. If, riding on the left hand side of the herd, the men wished to turn them to the right, they drew away from them to a greater distance. If they wished to turn them to the left, they directed their course more toward the herd, which then in turn bent its course toward the riders, as if trying to cross in front of them. By this method of riding, the buffalo could often be drawn some miles in one direction or the other, and toward the waiting and concealed hunters.

On favorable ground, when a successful approach was made the buffalo, with tails on end, rushed off in headlong flight. Presently the swiftest horses began to overtake them and to disappear in the dust kicked up by the flying herd. The noise and confusion caused by the running animals was astonishing. A thick cloud of dust hung over the scene, the air was full of pebbles and sand kicked up by the hurrying feet, shots began to be heard, and presently the prairie was strewn with brown bodies.

In such a race the men rode their best horses, trained buffalo runners, as experienced as their masters in picking out the best cows, in avoiding the holes and obstacles which lay everywhere on the prairie, in avoiding also the charge of angry animals that they overtook and passed. Really, the experienced rider paid no attention to his horse and merely loaded, fired and reloaded until the chase was over. Practically all these men used muzzle-loading flintlock guns. Their balls they carried in their mouths, the powder was in a cowhorn hung under the right arm. They loaded on the run, spat a ball into the muzzle, jarred the gun stock on the saddle or with the hand, threw some priming into the pan, and fired. Accidents were frequent. Horses

OLD FT. GARRY.

Retake of Preceding Frame

fell or were caught by cows and killed, guns burst, sometimes men were shot. By bursting guns men lost hands, arms and sometimes even lives, and Indian hunters have told me of men falling from their horses in such a way that whip stocks, arrows, bows and even guns were driven through their bodies. The hunter's horse drew up close to the buffalo, not more than two or three yards from it, and the shot was fired as the gun dropped to the level. The well trained horse swerved away from the buffalo at the shot and the man, prepared for the change of direction, at once began to reload. When the chase was over, the hunters returned over the buffalo-strewn prairie to identify the animals that each had killed. This was a matter of long practice, and an outdoor man can well understand how it was done.

"Of all the operations which mark the hunter's life, and are essential to his ultimate success, the most perplexing perhaps is that of finding out and identifying the animals he kills during a race. Imagine four hundred horsemen entering at full speed a herd of some thousands of buffalo all in rapid motion. Riders in clouds of dust and volumes of smoke, which darken the air, crossing and recrossing each other in every direction; shots on the right, on the left, behind, before, here, there, two, three, a dozen at a time, everywhere in close succession, at the same moment. Horses stumbling, riders falling, dead and wounded animals tumbling here and there, one over the other; and this zigzag and bewildering mêlée continued for an hour or more together in wild confusion, and yet, from practice, so keen is the eye, so correct the judgment of the hunter and so discriminating his memory, that after getting to the end of the race he can not only tell the number of animals he had shot down, but the position in which each lies—on the right or on the left side—the spot where the shot hit and the direction of the ball, and also retrace his way step by step through the whole race and recognize every animal he had the fortune to kill without the least hesitation or difficulty. To divine how this is accomplished bewilders the imagination. To unriddle the Chinese puzzles, to square the circle, or even to find out the perpetual motion seems scarcely more puzzling to the stranger than that of a hunter finding out his own animals after a buffalo race."

Ross asked one of the hunters how it was possible that each could know his own animals in such a mélange? He answered, by putting a question remarkable for its appropriate ingenuity, "Suppose," said he, "that four hundred learned persons all wrote words here and there on the same sheet of paper, would not the fact be that each scholar would point out his own hand writing?" It is true that practice makes perfect, but with all the perfection experience can give, much praise is due to the discriminating knowledge of these people, quarrels being rare, indeed, among them on such occasions.

Soon after the hunters had left the camp the women started out with the carts to bring in the meat. Probably by the time they reached the killing ground, the men had returned and were hard at work skinning and cutting up the meat. The hunters worked back, skinning first the animals that they had last killed and coming the last of all to those first shot down.

Besides the dangers of the actual chase there was always a chance that a hunter separated from his own people, working off to one side or in some concealed place, might be attacked by Indians who, of course, at that time were eager for the guns which all the halfbreeds possessed.

The appearance of these hunters now finishing up their day's work by skinning and butchering their animals was extraordinary. Covered with dust and sweat, black from the flying gun powder, bloody up to the elbows, their faces streaked and smeared with blood and grease as they brushed the long hair out of their faces, they presented an extraordinary spectacle of ferocity which their unfailing good nature and merry laughter and jest wholly belied.

After the meat and hides had been brought into camp they were attended to by the women after the ordinary Indian fashion. The meat was cut into thin flakes and dried in the heat of the sun, or if the weather forbade this, hung up on scaffolds inside the lodges. The fat was saved and dried, the bones pounded up and boiled and the fat skimmed off and placed in bladders.

When at last, the camp loaded with meat, the people turned about to return to the settlement, they took with them, if the hunt had been successful, from nine hundred to a thousand pounds of dried meat per cart, or in a case cited by Ross more than two hundred pounds of dried meat for every individual, young and old, in the settlement. Of this dried meat a portion was sold to the Hudson's Bay Company at a rate of 2 pence per pound, and in the year mentioned the hunters received £1,200 or $6,000, "being rather more money than all the agricultural classes obtained for their produce in the same year." At this time the dressed robes had little value, save as clothing or a protection from the cold. They sold for about $2 each.

The halfbreed of the middle of the last century was an excellent hunter, a splendid plainsman and able to support himself and his family on the prairie under the most adverse conditions, but he was a slow and reluctant husbandman. Coming of two races, one of which, though capable of long continued and most arduous effort and endurance of hardship, had never been accustomed to steady and continuous labor, he was willing to work until he dropped at occupations which he enjoyed, but not at all disposed to tasks he regarded as irksome.

It was between 1850 and 1870 that the Red River halfbreeds attained their greatest fame as buffalo hunters, but when in 1883 the buffalo disappeared, these hunters found their occupation gone and knew not to what to turn to gain a livelihood. No doubt the disappearance of the buffalo had much to do with the working up of the last Riel rebellion, and after that failed, the Red River halfbreeds as a camp ceased to exist. Many of them fled over the border into the United States and remained there, some taking up ranches and becoming useful citizens, others traveling about from place to place with wagons which contained all their possessions, and from the ends of each of which protruded the family lodge poles. They camped wherever night found them, and lived as best they could. Others no doubt took up land in Canada, and being obliged to settle down and to remain in one place, became useful citizens of the Western Provinces of the Dominion.

The Red River halfbreed has passed away forever. With his picturesque lodge, his complaining cart, his troop of dogs, his wife and daughters clad in silks stained with buffalo grease and soiled with the dust of the prairie, he remains but a memory and will never be seen again.

THE TOP RAIL.

THE sad tale of the "Man, Dog and Bone" that appeared in FOREST AND STREAM some weeks ago reminds Edward Breck of the one told by Sarcey in his recollections of the siege of Paris. "This, if I remember rightly," says Dr. Breck, "runs something like this:

"Sarcey and his friends were accustomed to meet at each other's houses for periodical 'banquets.' When Sarcey's turn came he was at his wits' end, for not only had the larder been empty for days, but the very last cat had been shot on the roof and not a mouse nor rat was left in the neighborhood in spite of the high rewards offered. The day of the feast drew nigh and Sarcey became desperate. As the hour approached, his condition was akin to insanity, and he was about to send word to his friends that for the first time in his life he was obliged to refuse them food in his own house, when he chanced to stumble against poor little Fido, his well-beloved terrier. A terrible thought entered his brain, but he put it away in horror. The next moment the haggard and reproachful faces of his dearest friends seemed to glare upon him from the grave. Hardening his heart and breathing a prayer for forgiveness, he drew his snickersnee and—well, to make a long story short, the banquet took place and the exultant guests vowed that so dainty a morsel had never been placed before them. Sarcey, however, ate in gloomy silence, and when the meal was over still sat gazing sadly at his plate.

"'Why so melancholy?' asked a friend.

"'I was only thinking,' answered Sarcey, 'how much poor Fido would have enjoyed those bones!'"

* * *

Believing in the efficacy of variety, a California angler attracted attention on opening day for rainbow trout fishing in California, one of whose papers commented as follows:

"Standing at the edge of one of the biggest pools in the West Fork, one angler was whipping the stream with a line from which dangled seven flies that were green, brown, red, yellow; enough color to paint a landscape, but still the trout wouldn't strike.

"'Look at 'em,' pleaded the eager angler to his wife. 'Here, you take the rod.' And wifey beat the face of that pool as if dusting the parlor carpet." GRIZZLY KING.

dermatoglyphics can now tell, for instance, the difference between the hand or foot prints of the Japanese race, the white, the Negro, the Eskimo or the Indian.

Certain criteria for distinguishing races already exist, among them finger prints. Other physical traits used in the comparative study of human groups are stature, facial features, and most important of all, measurements and proportions of the skull. Now, in scientific palmistry, anthropologists hope to gain a new criterion for comparing the races of man.

Palm Prints Show Race

Men all over the world are helping Dr. Cummins to collect palm and sole prints, so that he can extend his studies to include various races. Thus far besides the white race, both European-Americans and Jews, he has studied Negroes, Mayas, Eskimos, North American Indians, Jews, Siamese and Syrians. Archaeologists and other explorers, and former medical students send him the prints which form the material for his study in his New Orleans laboratory.

When Henry B. Collins of the Smithsonian Institution was at St. Lawrence Island, Alaska, on an archaeological expedition one summer, he lined up a number of Eskimos, children, adolescents and some adults, too, to be "printed." With much giggling and amusement the Eskimos submitted to having an inked roller run over the sole of the foot, a tickling process, as well as a novel one, and to having an inked glass pressed against the hand. The impression was stamped on paper. The Eskimo prints were then studied by Dr. Cummins and his associate at Tulane University, Dr. Charles Midlo. They found a distinct racial trend in the combinations of patterns and configurations of the Eskimo palm and sole prints.

Another archaeologist took prints of Maya palms and soles when on an expedition into the Maya country of Yucatan, and sent them back to Dr. Cummins. A medical man now in Bangkok has taken prints of the Siamese and another is doing the same thing in Syria. Frederick Starr took them of Negroes in Liberia, which Dr. Cummins was then able to compare with those of Negroes in New Orleans.

One important advantage of dermatoglyphics over other bodily features which may be compared in various races is that these patterns and markings are established in their final form long before birth and never change during an individual's lifetime.

The measurements and shape of the skull have been considered the best method scientists had for distinguishing racial differences. However Dr. Franz Boas of Columbia University has found from a study of the descendants of immigrants in America that after several generations of life in this country the characteristic head forms of different races began to change. Whether these changes are due to changes in diet or environment is not known, but apparently it is not possible to tell so infallibly to what race a person belongs by measuring his skull. But there is no question of environment or experience altering the palm markings.

Dr. Cummins recently reported the first scientific study of the palm and sole patterns of North American Indians. The first tribe to have palm and sole prints taken for scientific purposes is the Shoshoni-Arapaho of the Shoshoni Indian agency in Wyoming. Studying the finely sculptured patterns, Dr. Cummins found a "definite racial trend." And when he compared the Indian tribe's prints with those of white subjects, he found the distinctiveness of the Indian prints emphasized by the contrast.

"For example, in the European-Americans a true patterned arrangement, usually a looped figure, is found frequently on the muscular eminence of the little-finger side of the palm," he explained; "in the Indians its occurrence is very rare. In European-Americans there is a far more pronounced tendency of the skin ridges to run transversely across the palm, contrasting with the Indian character of more nearly longitudinal course. Such contrasts might be multiplied."

Eskimo Palms Like Chinese

When the Indian prints were compared with prints of Eskimos and Chinese, the three groups showed many points of similarity. This is another point suggesting the Asiatic origin of the old native inhabitants of America.

From Dr. Cummins' explanation of the differences in prints of Indian and white palms, you can see that the markings which he and his associates study are quite different from the ones the gypsy fortune teller traces on your palm. No "marriage lines" or "life lines" appear in the language of scientific palmistry.

"Main lines," however, are traced on the palm print with the aid of a hand magnifying glass. On a typical hand there are four "main lines," also four "digital triradii." The latter are triangular spots, one at the base of each finger, marking the common meeting point of tiny ridges which run in three chief directions. "Main lines" are traced from their start at these "digital triradii."

If you look at your palm through a hand lens, you will see how difficult it is to find either the triangular spots at the base of the fingers or the main lines, and these two features are merely the starting points for determining individual palm patterns. After the patterns have been formulated for a number of individuals belonging to a racial group, the same general trend will be noticed in them. When a number of palms are found with different general trend in their configurations, the owners of these palms may be identified as belonging to another racial group.

That, roughly, is the way in which Dr. Cummins and his associates go about distinguishing races and individuals by means of palm prints. And it explains why only those skilled in dermatoglyphics can make such identification, and why Dr. Cummins said that it is impossible to determine the race of a single individual by dermatoglyphics.

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Science News Letter, August 20, 1932

CHEMISTRY

Iodine Test May Show Vitamin C in Orange Juice

A SIMPLE test with iodine may some day be used to determine the amount of vitamin C in preserve[illegible] orange juice, its appears from exp[illegible] ments by M. A. Joslyn and G[illegible] Marsh of the Fruit Products Lab[illegible] of the University of California[illegible]

These investigators found t[illegible] ing orange juice against [illegible] iodine solution gave a goo[illegible] of the degree of deterior[illegible]

In reporting their ex[illegible] scientific journal, *Scie*[illegible] out that work of [illegible] Szent-Gyorgi, G. C[illegible] Waugh, has shown[illegible] same as hexuroni[illegible] of the reducin[illegible] juice which [illegible] their test fo[illegible]

Scienc[illegible]

So li[illegible] Golde[illegible] taugh[illegible] are[illegible]

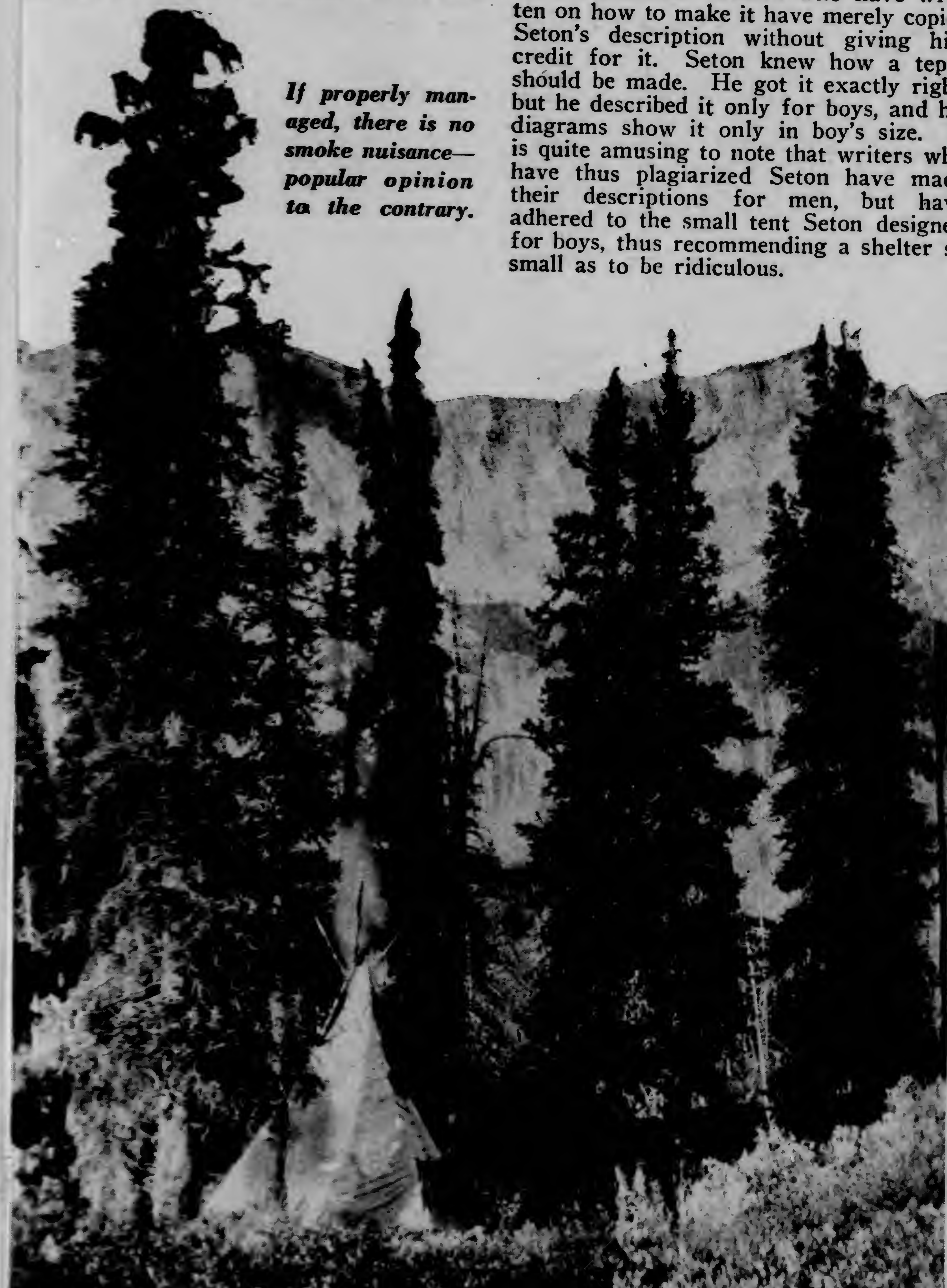
By
MAJOR
TOWNSEND
WHELEN

The TEPEE

Field & Stream - July 1924 -

THE most satisfactory cold weather tent, a purely American product handed down to us by the American Indian. This article will teach you how to roll your own.

THE tepee or Indian lodge is one of the two great inventions or developments of the American Indian which that race has handed down to posterity, and which will endure for all time; the other being the light, portable canoe. The tepee in its perfected form is the product of the Indians of the Northwestern plains and the Rockies from the Colorado to the Liard. In this form it has never been improved on, and is far superior to any other type of cold weather tent. The tepee is not a light tent, and in certain localities it is difficult to get the proper poles for its erection. But in any country where fairly straight poles can be found or cut, and where the transportation is adequate—pack horse, canoe, or team—it is by far the most satisfactory winter tent. It seems to be the fashion among certain writers to condemn many things on hearsay evidence, and it is true that the tepee has been much maligned by those who do not know it. To be satisfactory it is necessary that it be constructed right, pitched right, and managed right.



If properly managed, there is no smoke nuisance—popular opinion to the contrary.

Strange to say, very little has appeared in print on this essentially American type of tent. Several writers have described its construction, and several have written much rubbish on how to run it. Ernest Thompson Seton first described its construction. Others who have written on how to make it have merely copied Seton's description without giving him credit for it. Seton knew how a tepee should be made. He got it exactly right, but he described it only for boys, and his diagrams show it only in boy's size. It is quite amusing to note that writers who have thus plagiarized Seton have made their descriptions for men, but have adhered to the small tent Seton designed for boys, thus recommending a shelter so small as to be ridiculous.

I wish here to acknowledge the assistance I have received from Seton's writings. But on the subject of the proper pitching of the tepee, or on its management all writers are either entirely silent, or else their descriptions have been so altogether wrong as to indicate that they had no practical knowledge of their subject. The novice who followed their instructions would very shortly declare the tepee and its fire to be absolutely impossible.

Pitched and operated right, the tepee is under all conditions of cool or cold weather the most satisfactory temporary or portable home imaginable. You come back after a day afield in shine or rain, snow or bitter cold, and in five minutes you are sitting dry, warm, and comfortable, with a cheerful open fire in front of you, the wood crackling, the sparks and smoke going straight up, the cheerful warmth radiating everywhere, and the light from the fire, reflecting on the canvas sides, illuminating the whole interior. Cooking is a real pleasure over such a fire because the smoke goes straight up, never in your eyes or nose, and it makes no difference if it is raining cats and dogs outside. After the day's work it is a real luxury to lie back on a comfortable bed or couch and watch the glow of the wood fire. It is a thousand times more cheerful than the unromantic sheet-iron stove, and easier to run. It is never too cold or too hot, as the temperature can be regulated exactly by the size of your fire.

WITH proper pitching of the tepee and proper management of the fire, there is no smoke nuisance, notwithstanding popular opinion to the contrary. In the morning you do not get up and dress in the cold or crawl out in the rain or snow to build the fire; you reach one arm out of your sleeping bag or robe, lay a bundle of previously prepared shavings and kindling wood on the fireplace, touch a match, and ten minutes later you arise in a warm, light, and comfortable home. On a recent trip of two months Stanley Clark and I pitched our tepee twenty-three times and we never took over fifteen minutes to do it. In the two or three instances where we did not find poles already cut at our camp sites, it did not take us over three-quarters of an hour from the time we stopped the pack train until we had the tepee up and a fire going in it.

The best size for the tepee is 16 ft. in diameter. This size permits two men to sleep, cook, and live in it in perfect comfort and to store in it all their packs and duffle. It will accommodate three men with scarcely any crowding. The 16-ft. size permits of the best management of the fire. In a country where lodge poles are usually found at all camp sites they will be just right for a 16-ft. tepee. The following instructions have therefore been written for this size. A 10-ft. tepee will

Retake of Preceding Frame

By
Major
Townsend
Whelen

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spotless, being scrupulously washed and scrubbed after the oit half-rotten cargo had been unloaded.

Night on the water. The cabin glowing cheerily with its little electric lights, high up on the mast the pale yellow of the riding light a warning and safeguard; forward rising from the galley hatch, the savory smells of dinner shaping itself under the guiding hands of Art; the lap, lap, of water against the sides; in the distance, faintly heard, the ceaseless roar of the surf.

A SOUL-satisfying meal, a good cigar or pipe and to bed to dream of what the morrow might bring.

But the morrow brought disappointment. During the night the wind had shifted to the northeast and a storm was well under way by daylight. Rain beat upon the hatches and the pilot house. Great, gray, sullen seas swept mountainously in the inlet; the surf was an endless white smother of foam. The bunker boats were all at their piers, and the scene was one of loneliness and desolation. We fished a little off the stern and caught two flounders, that was all. No use going ashore. Once could never "hold" in such a surf and the ceaseless beat of the rain did not make for pleasure. Nothing to do but clean up aboard, smoke, read, and sleep.

Art seized the opportunity to try some fancy dishes and all afternoon worked and cussed in the galley, testing the heat of the oven and mixing furiously on the breadboard. When we asked him what he was making we were greeted with mysterious signs and winks and told to get the h— out of the cook's way and aft where we belonged.

Supper disclosed a meat pie, hot biscuits and rice pudding, whereupon we forgave him and willingly washed the dishes.

The storm raged on all the next day. Toward afternoon the rain let up somewhat and we observed a large tug with two barges in tow heading slowly in toward the inlet. He was making tough going of it. As he swung in toward the point, we suddenly saw one of the barges break loose. As he turned in an effort to pick it up he went aground and the other barge tore free.

Now he was surely in trouble. At every heave of the great seas the tug would rise high in the air and fall with a dull boom on the sands. At times she rolled over until we thought she was done for. We could see the men frantically struggling with the life boat, and all the time the whistle was giving forth frantic shrieks for help. One of the barges had drifted on into the inlet and sunk; the other was stranded on the bar near the tug.

At last we could see one of the bunker boats getting up steam and shortly after she headed out to the rescue. Meanwhile the Coast Guards had arrived and through heavy seas passed a line from the tug to the bunker boat. For five solid hours, the menhaden fishermen hauled against the tug and at the conclusion of that time got her off. One barge was a total loss, the other badly damaged and the tug was helpless, her entire engine bed having broken loose. It was thrilling while it lasted.

The next day dawned perfect. No trace of the storm was apparent except in the sunken barge and long lines of wreckage along the shore. The wind had shifted to the west and the surf was subsiding rapidly. We rowed ashore with high hopes. Establishing a base we ranged out from it, each seeking the spot which seemed to him the most likely looking or the most lucky.

IT wasn't long before I had a pick-up. I played safe and waited. There was something mumbling my bait. Soon whatever it was started out with it, slowly at first, then faster. I tightened the line and struck, and hooked our first channel bass. Out he sped over the bar, the rod nodding and swaying, the line hissing from the reel. But something was wrong and he got off.

The gloom was not for long, however, for looking down the beach I saw Art walk quickly down to the surf's edge, reeling swiftly as he did so. Then he stopped in a tense attitude. Something had run in with him. I could see Billy watching him too. Suddenly his rod swept forward, Art threw his weight against it, and another bass was on.

Down toward the inlet with the incoming tide went the fish, Art following. He would gain twenty feet, only to lose thirty. But at last he had him under control and I who had been following with the camera could see the coppery glint of his scales flash in the sun as he came to the surface in the slough. It was but a few moments more until he was in the undertow, and Art, rushing into the surf, seized him by the tail and dragged him triumphantly up the beach, a fine thirty-five pounder.

WHILE Art and I were weighing and discussing him, we turned to see Billy in the distance running along the beach grasping a jerking rod and waving his hat with one hand. The bass were in for certain! We released Art's fish and rushed back to Billy who appeared to be having his hands full. The fish was 'way beyond the outer bar and Bill opined it might possibly be a shark, from the way he was acting. But no, it turned out to be a channel bass and how we laughed and shouted when he beat Art's fish by a half pound.

So it went. We hooked a great number of bass at Chincoteague. Some days they would show up best on the rising tide; at other times on the dead low water. When the bass were temporarily absent the weakfish and other small brethren took up our attention. One day we were fishing on the point. Billy had hooked one bass and lost him and things looked most propitious. But the wind veered around and blew the smoke from the fish factories directly upon us and we had to pick up and leave. Gas attacks aren't in it when compared to the effluvium from a bunker factory.

The whole Virginia coast from Chincoteague or Assateague Point southward, where we did our fishing, is great channel bass grounds. There are endless sloughs and bars, bars and sloughs, with a background of lonely beaches and great, shaggy, crested dunes, nesting sea birds and marshes. It is the kind of country to stir the surfman's soul.

I am inclined to believe that the fishing is better there in the spring, from the latter part of May to early July, than in the fall. I sent one friend of mine down there last spring and he caught 17 bass in less than a week's time. He camped on the dunes, however, and fished all tides.

The village of Chincoteague can now be reached by motor, since the bridge has

(Continued on page 53)

Rushing into the surf, he seized him by the tail and dragged him triumphantly up the beach—a fine thirty-five pounder.

If the tepee is pitched, arranged and run as described, it will be found to be the most comfortable home imaginable.

just barely accommodate one man, and the fire will be a little difficult to manage well, being so close to the bed that often its heat will be uncomfortable. A 14-ft. tent is the smallest that can be recommended for two men and there will be little room in it for duffle. Larger than 16 ft. makes a rather unwieldy and heavy tent, difficult to pitch and hard to transport.

THE best material for the tepee is 8-oz. duck. Thinner and lighter materials can be used, but the light material is liable to be punctured or worn by the little knots on the poles. Made of 8-oz. canvas or Egyptian cotton, tepees will weigh about as follows:

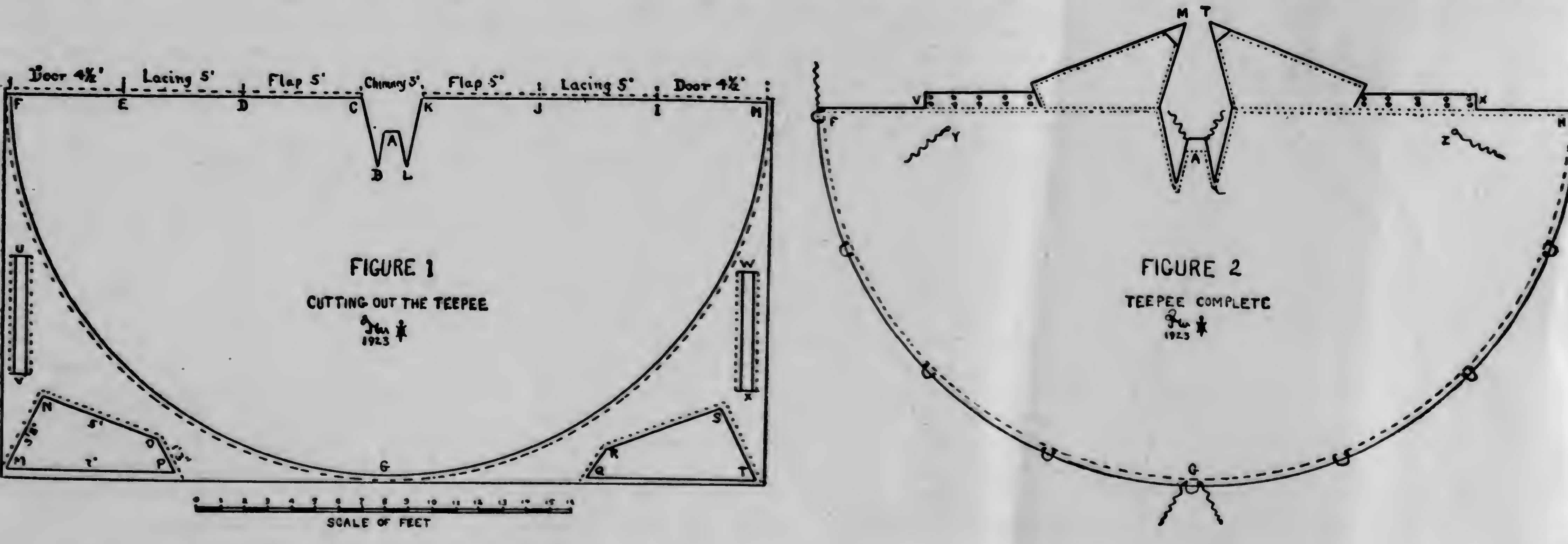
Diameter	8-oz. canvas	Egypt. cotton
10 ft.	13 lbs.	7 lbs.
12 ft.	19 lbs.	10 lbs.
14 ft.	30 lbs.	16 lbs.
16 ft.	50 lbs.	28 lbs.

It is not at all necessary that the cloth be waterproofed. The steep pitch precludes any leaking in of the rain and almost all waterproofing depends more or less on paraffin, and paraffin will not stay in the canvas on account of the heat of the fire. It is also advisable that the canvas be white, not khaki or tan color, for if white the light of the fire will afford perfect illumination at night and make the use of a lantern or candles entirely unnecessary.

The professional tent-maker will probably cut his canvas so as to utilize the full width of the strip at the bottom or ground edge of the tent, and taper the strip up to the peak. This method is hardly practicable with the amateur, and he had better first sew his canvas in a rectangle, and then cut out the pattern as shown in Fig. 1. In this way the construction is simplified and very little canvas is wasted because the few spare pieces are used for reinforcements. For a 16-ft. tepee you first sew your canvas into a rectangle 32 ft. 4 in. x 16 ft. 2 in., approximately; a couple of inches more or less makes little difference. Using a point in the center of the longest side, describe a semi-circle with a radius of 16 ft. 2 in. The tent is to be 16 ft. on the slope from the peak to the ground, the 2 ins. being the allowance for a hem around the bottom. Mark out also the cuts at the peak, the two smoke flaps, and the pieces for the front lacing as shown in Fig. 1, leaving margins for hemming as shown by the dotted lines. The scale accompanying Fig. 1 indicates the measurements of the various parts where not given.

Sew the two smoke flaps and the front lacing pieces to the semi-circular main piece exactly as shown in Fig. 2, which shows the complete tent. Note the reinforced hemming and the seams as shown by the dotted lines. The reinforcing at the peak "A" which is tied to the back pole and keeps the tent up tight should be particularly strong. At "M" and "T" triangular pockets are sewn in the peaks of the smoke flaps into which the smoke poles are inserted. These pockets should be double canvas on both sides, and very strongly sewed so that the poles will not poke through. The lacing holes in the front pieces should be in series of two. The two holes are about 3 inches apart, and each series of two is a foot apart. These holes should be made with buttonhole stitch, and should be of such size that a lacing pin ½-inch in diameter can be inserted through them. They serve to pin the front of the tent together after it has been erected and wrapped around the cone of poles. Gromets and peg ropes should be provided around the bottom of the tent, nine of them, spaced as shown.

TO certain points of the tepee should be strongly sewed heavy oil tanned raw hide belt laces or thongs, as follows: To the bottom of each smoke flap thongs about 4 ft. long, to the bottom of the door at "F" and "H" thongs about 18 in. long, to the gromets at "G" two thongs 12 in. long, to the peak "A" two thongs 18 in. long, or rather one thong passed through the reinforcement and projecting 18 in. on either side, and to the points



"Y" and "Z" through small gromets, two thongs a foot long. This completes the tepee and as will be seen it is very simple, the only thing involved being a lot of sewing and a little button-hole work. Your best girl will show you the button-hole stitch. Any sail or harness maker will insert the gromets for you with a little machine he has. In a pinch you can do away with the gromets and simply sew in raw hide laces as the Indians did. Raw hide belt laces can be had at any large hardware store. Get those about twice the thickness you use for laces in your sporting boots. They hold very much better and last longer than ropes, and are easier tied and untied.

TO pitch the tepee you need eleven poles. They should be as straight as possible, about 20 to 22 ft. long, 3½ to 4½ in. in diameter at the butt, and 1 to 2 in. in diameter at the tip. In the Northwest the lodge pole pine or jack pine makes perfect poles and is the tree that the Indians used for this purpose. In localities where this tree does not grow it may take some time to find eleven straight trees of the requisite size. For this reason in the East the tepee is usually confined to more or less permanent camps, as it takes too long to find and cut the poles every move.

All through the Rocky Mountains from Montana northward tepees have been used for hundreds of years, and usually at every good camp site you will find sets of these poles stacked up all ready for use. Sportsmen should never cut these poles up for smaller tents, or use them for firewood—remember the other fellow coming to that camp site tired and hungry, perhaps in vile weather, expecting to find poles all ready. When you are through with a set of poles, stack them up so they will not rot. I have often come to very old Indian camp sites that I know had not been occupied for forty or fifty years, and found the poles nicely stacked up and most of them usable.

Place three of these poles on the ground, close together and parallel, the butt of the center one six in. below the butts of the outside ones, as shown in Fig. 5. Over these poles lay the tepee, inside down, the back tent peg loop ("G" in Fig. 1) at the butt of the center pole, and the peak "A" pulled out as far as it will go toward the tip of the center pole. Tie the tent at the back tent peg loop "G" to the butt of the center pole, using the two thongs at "G." Tie it tight as close to the very end of the butt as possible. Stretch the center of the tent tight along the center pole, and tie the peak "A" tight to the center pole. With a lash

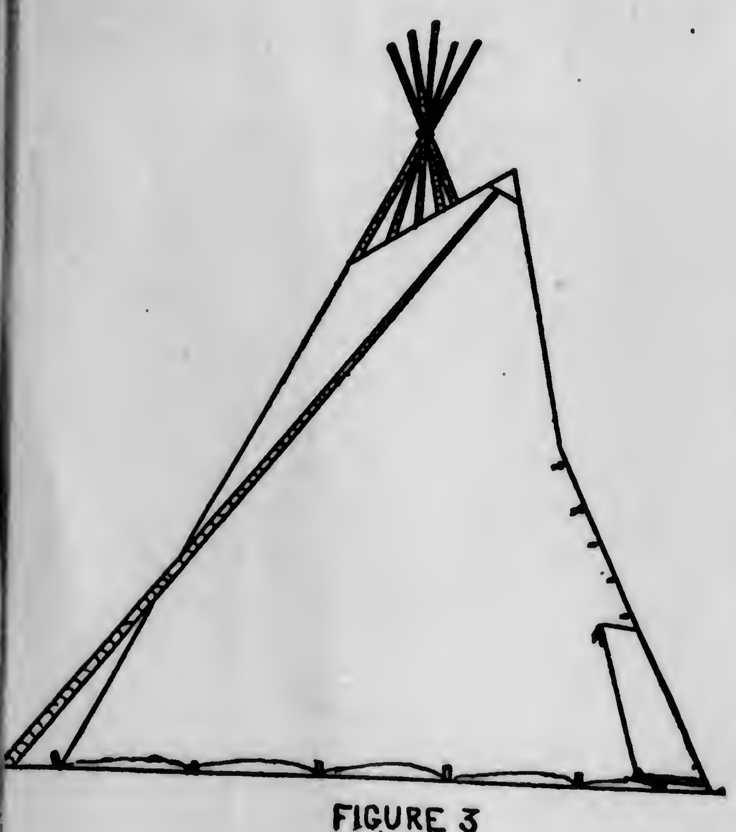


FIGURE 3

rope, halter shank, or other strong piece of rope, tie all three poles tightly together at a point 2½ ft. above the point where the peak "A" is tied to the center pole. These three poles are to form the tripod upon which you lean six other poles to make the cone of nine poles around which the tent is erected and wrapped.

Erect these three poles as a tripod, butts about 14 ft. apart. The butt of the center pole, with the tepee tied to it, should be placed just about where the back of the tent is to come. One of the other poles is to be placed with its butt where the side of the door will come and will form one of the door poles. The third pole is placed on the circumference of the 14-ft. circle, equivalent between the other two poles, making a firm tripod. Against this tripod you now lean the remaining six poles, butts equidistant around the 14-ft. circumference, one of these poles being located for the other door pole, as shown in Fig. 4.

AROUND this cone of poles you now wrap the tepee, the peak of which has already been stretched to its full height by being attached to the back pole. To get it approximately high enough you

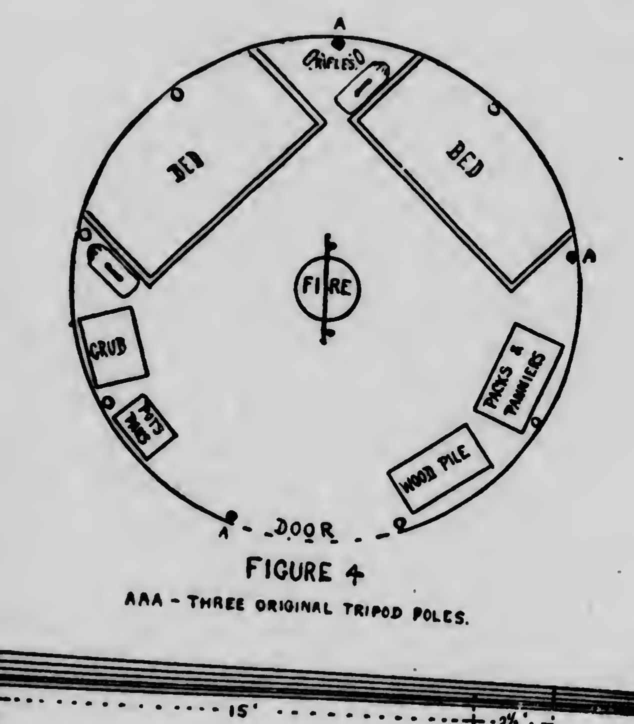


FIGURE 4

AAA – THREE ORIGINAL TRIPOD POLES.

G 6" 15' A 2½' LASH

FIGURE 5

take hold of its upper portion and just fling it up on the poles. The two door ends, "F" and "H," come around to the butts of the door poles. To assist in getting the tent high enough on the cone you may take the tenth and eleventh poles (which should be about a foot longer than the other 9 poles, and need not be as straight or heavy), insert them in the pockets of the smoke flaps, and poke the peak of the tent upward as shown in Fig. 3. Next, you tie the front of the tent at "F" and "H" to the butts of the door poles. Then you cut five little pins from a bush, about ½ to ¼ in. in diameter, about 6 in. long and slightly pointed at the ends, and with these you pin the front of the tent together above the door, poking the pins through the holes in the two sides of the tepee, and out through the other two of the series of holes. This keeps the front of the tent together.

Your tepee is now up, but it is a rather baggy, sad-looking thing because the circle of poles is only 14 ft. in diameter, and you have not adjusted it into shipshape form. Go inside the tent, and a pole at a time, move them all out about a foot until the canvas is all taut and smooth. You may also have to move the poles a little to one side or another, particularly the back pole to which the back of the tepee is tied, to make the canvas smooth all around. Also the door poles may have to be spread a little bit, or brought closer together. Usually these door poles are about 4 ft. apart, and the other poles about equidistant around the circumference of the tent. Raise the smoke flap poles enough to make all smooth about the peak of the tepee. Then go outside, cut nine tent pegs, and pin down the bottom of the tepee all around, but do not pin it down tight to the ground. The sides must be up a little off the ground to allow air to get through, or the fire inside will not draw. If the canvas is an inch above the ground at each peg, and two to three inches above midway between pegs it will suffice. For a one-night stand in calm weather the pegging down of the tent is not necessary. Also it is always possible, if in a hurry, to erect a tepee on a tripod of poles only, like a lean-to, and build the fire in front.

The tepee should be pitched so that the door is at right angles to the prevailing winds. Winds usually blow up or down a valley, so the door should be pitched facing one side of the valley. In the East, in open country, wind usually has either an easterly or westerly direction, seldom if ever coming from due north or due south, therefore the door should face either due north or due south. The only time you will ever have any trouble with smoke is when the wind blows straight into the door, and then only when the door is open. As stated above, the sides of the tent must not meet the ground by from 1 to 3 in. all around. This is absolutely necessary, and must be looked to particularly when it is snowing, as the tent may have to be dug out to preserve this air space.

TAKE a pack cover, or any small tarp or piece of canvas, most convenient size 4½ ft. square, and tie it by its two upper corners to the two tie cords or thongs at "Y" and "Z," Fig. 2, letting the tarp hang down over the door opening, thus closing the opening. Tie a short pole along the lower edge of this tarp or door. This will weight the bottom of the door and keep it down and in place. The door usually must be kept closed while the fire is going to keep it from smoking, although there are certain conditions of wind when the door does not need to be kept closed.

Usually the fire will draw correctly no matter how the smoke flaps are arranged, but if there is any difficulty raising the flap on the side from which the wind is blowing, lowering the flap on the other side will correct it. If the wind blows straight from the back of the tent raise both flaps up high, but prop the poles outward at the top so that there will be an opening between the smoke flaps in the front of the tepee. If the wind comes straight toward the door raise the flaps and bring their peaks around so that they lap in front and completely close the front of the peak, and also keep the door tight shut.

The fire is built in the center of the tepee, and occupies a space not over 2 ft. in diameter. In front and rear of the fireplace are driven forked sticks, fork about 2½ ft. above the ground, and on these is rested the cross-piece from which are hung the usual pot hooks for the kettles. The fire is built cone-shaped by setting up the wood pyramid fashion, highest in the center. Only dry wood should be used and it should be cut in lengths of from 12 to 15 in. and split. Split some of it small enough to use for kindling wood and to encourage a blaze

(Continued on page 56)

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(Continued from page 20)

THE TEPEE

By Major Townsend Whelen

until the fire burns down to a good bed of coals. As a usual thing try to get wood that does not throw big sparks, as the beds are placed very close to the fire and a sparking wood is liable to burn holes in the blankets unless one is constantly on the watch. It is good to have a little pitch pine to put on the fire as soon as supper is cooked, as the flames from this wood make the interior of the tepee as light as day.

The firewood is piled up on one side of the door as shown in Fig. 4. On the other side are the pots and pans and the grub sacks. The beds occupy positions as shown, logs being staked down to confine them and their pine bough mattress. The personal duffle bags are placed at the head of each man's bed and the rifles are stood up in rear of the tepee, their muzzles through a rawhide loop tied to a pole. Rawhide laces may be tied from pole to pole about five feet above the ground and make convenient places to hang extra clothing and wet socks. Each man's hunting belt with the field glasses, hunting knife, and cartridges is buckled to a pole above the head of his bed. Fig. 5 also shows where packs and panniers are placed if desired. When the camp was in shape I usually placed my toilet, repair, and rifle-cleaning kits, each in its little moose hide roll, on the side of my bed, between the bed and the wall, and thus I had everything needed right at hand. The axe and wash basin are placed outside against the tepee near the door. Saddles are hung up on a pole lashed between two trees where they will be out of the way of gnawing porcupines, weasels, and rabbits.

A draft comes in under the walls of the tepee. This is necessary to make the fire draw, and it keeps the air fresh inside. Twenty-nine days in the month this draft is not noticed. About once a month heavy wind will make it unpleasant as one lies or sits on his bed. The remedy is to take a pack cover, or any other piece of canvas, tarp, or piece of clothing, tie it to the poles about two feet above the bunk, and let it droop down as a curtain, tucking the bottom under the bedding. So long as half the circumference of the tepee is up from the ground the fire will draw well.

Some writers have asserted that the Indians placed a curtain all around the tepee in this manner. This is a mistake. It is not necessary, it never was done, and I doubt if the fire would draw well with such an arrangement. The draft could not get at the bottom of the fire where it is needed. I asked Dr. George Bird Grinnell about this feature, knowing that he knew more about the old tepee Indians than any living American. He said that he had never seen such a curtain, although sometimes if the wind was strong the Indians would hang up a blanket back of their bed as described. The Indians usually make one bed at the back of the tepee, placing the fire about a foot or so toward the door from the exact center of the tepee, but the arrangement of beds and fire as shown in Fig. 4 is best for white men.

If the tepee is pitched, arranged, and run as described it will be found the most comfortable home imaginable. Lean-to tents with a fire in front are nice for a time, but they involve too much labor in getting the wood for the large fire that is

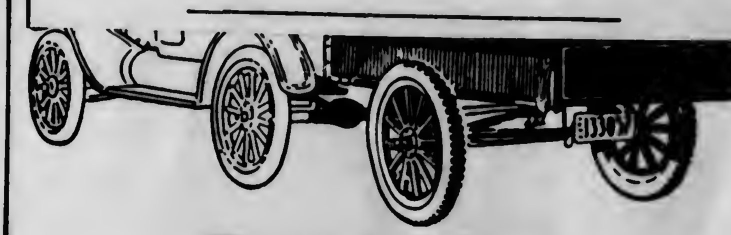
(Continued on page 76)

(Continued from page 56)

THE TEPEE

required to make them even passably warm in cold weather, and they cannot be kept comfortable in a wind. Moreover, the smoke nuisance, particularly when one is cooking, is dreadful. Also there are often times when it is impossible to keep the lean-to free from smoke. In a rain cooking is very difficult and disagreeable. As for a closed tent with tent stove, while it is comfortable, the stove is very unromantic, and an abomination to pack. It usually does not give out enough heat, or it roasts one out and it gives no light. It is not to be compared with the cheerful tepee open fire with its flame, glowing embers, and genial warmth. Of course, the fire gives out smoke, but when managed as described this smoke is entirely confined to a column immediately above the fire, and it does not spread out until it reaches a point about 5½ ft. above the floor. When a tall man stands up straight in a tepee he may notice a little smoke.

Once two of us weathered a blizzard in the far Northern mountains in a 14-ft. tepee. We were in a valley of dead jack pines. The thermometer dropped way down, and for three days it snowed and blew a gale. We had plenty of good firewood, and a pack cover apiece hung up back of our bunks kept all draft out. Did we suffer? Not much. If the truth must be told, four or five days before we found a number of old magazines at an old camp site, and the whole three days we lay on our bunks in perfect comfort reading and getting up only to cook some most delicious meals, including steaks and liver of a young grizzly I had shot several days before.



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A Day in a... Hidden Town

By GREY OWL

(Illustrations by co-operation Geological Survey and National Development Bureau)

"Heavy with the heat and silence
"Grew the afternoon of Summer;
"With a drowsy sound the forest
"Whispered round the sultry wigwam,
"With a sound of sleep the water
"Rippled on the beach below it."

—Longfellow

Modern influences have taken away much of the romance, picturesque appearance and exotic atmosphere from Indian camps, as seen on the reserves and more easily accessible areas of the wilderness. The exploitation and subsequent degeneration of some bands has sapped their racial pride, so that destitute and hopeless they no longer have the ambition to keep up the old traditions and methods, so that the home life is slipshod and wretched, and national integrity is falling into decay. Attempts at living in a poor imitation of the white man's way without the means and training have not resulted in gaining for the Indian a reputation for cleanliness. Only those of them having a long experience and good opportunities have succeeded in conforming themselves to the limitations of a wooden house, as the ill-kept, not always clean establishments of the more or less mendicant Indians near the railroad plainly indicate. Yet in the cramped quarters of a tent or a teepee they are able to conduct their household affairs with cleanliness and system, where a whole family used to living in a house would speedily become involved in hopeless confusion. Many of the shack-living type of Indians have lost the art of camping as an all-year-round method of living, and the traveller has to journey far beyond the regular line of bush travel to find a band of Indians living in a primitive but highly efficient manner that has been evolved by centuries of adaption and elimination. This type of community breaks up into small movable, semi-permanent villages for the winter, the situation decided by the fluctuations of the hunt. These hunting bands are not large, and consist generally of from one to four or five families, according to the possibilities of the district. Being movable, all equipment and materials are very light, and apparently quite inadequate to withstand the rigors of a winter north of 52 degrees. A well-sheltered spot is chosen where wood, fish and moose are plenty, and tents and teepees are reared on walls three or four logs high, rectangular in shape for the tents, and octagon for the teepees. The logs are well chinked with moss and later banked with snow. Small tin stoves, generally with an oven, supply the heat in the tents. The wigwams rely on open fires inside, placed not as those used by the plains tribes in the centre, but nearer one side which is nearly perpendicular.

Indian women dressing a moose skin

During the day all blankets and other materials not in use are placed out of the way in the back of the tents, or rolled back nearly into the empty space in the angle of the lodge wall. Each member of the family keeps his accustomed place, and has his or her belongings at their back, while the indoor work, including eating, is done on a deep and generous carpet of balsam brush which covers the whole floor of the habitation, and is frequently changed. Household affairs under these conditions are of the simplest and carried on with a minimum of disturbance and with few implements, to avoid confusion. The accumulation of carcasses and other waste matters from tanning, skinning and other activities incidental to a hunter's life over a period of seven or eight months are thrown out to freeze on brush piles or recognized dumps, and lie harmless until spring, by which time the inhabitants have gone. It is the presence of this

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Retake of Preceding Frame

Smoking a moose hide over the fire

rotting waste matter on disused winter camp grounds that is responsible for a widespread impression that Indian camps are necessarily unclean. Outside the habitations shelves are secured between suitable triangles of trees, and high racks are erected to keep meat, fish and other eatable goods, as well as many things not supposed to be eatable, out of the reach of the ever-hungry huskies. Narrow snowshoe trails, dug out after every storm, connect the dwellings, each with its row of snow-banked dog houses of brush. Within the camps all is surprisingly snug and comfortable while the stoves are going. In the lodges open fire is maintained all night without difficulty, but in the tents, when the stoves die, it is another matter.

The heat soon passes out, and the cold descends like a scimitar of chilled steel; down through the flimsy protection of the canvas, down into the ground beneath the sleepers, petrifying everything, whilst over the camp there hangs a mist of hoar-frost, the wolves beyond the ridges bay the moon, and trees crack like gunshots in the iron grip of ninety degrees of frost (58 degrees below zero), a common temperature in some parts.

In summer, after the spring trade, a few of these communities repair to some chosen spot, generally situated in some little known region far off a main route. Visitors or intruders of any kind are not welcomed at these villages, some of the sites of which have been used from time immemorial. The approaches are often carefully masked, and often no indication of their presence is encountered until the chance wayfarer comes upon them unexpectedly. These camps are known to the Indians as "Odèn-na-ka-inne-hèkaj," literally "hidden towns." Such towns are no longer common, but some still exist, and in them many of the old traditions are observed, and ancient customs, long supposed to have been forgotten, are still perpetuated.

It has been my good fortune to be a not unwelcome guest at several of these self-contained, self-supporting concealed hamlets, and on one occasion I had the remarkable good fortune to obtain entry to a typical hidden town with a party whose genuine and friendly interest in their red brethren led me to make the attempt.

It so happened that we camped one night within a few miles of this village, the proximity of which was known to several of the other guides by hearsay. Although so far no white people had ever succeeded in gaining admittance beyond the canoe landing, the head of the party urged me to attempt it. I knew the chances to be poor. No select gathering of aristocracy into whose presence you have blundered unknown and unannounced can so completely, definitely and absolutely "give you the air" as the semi-civilized inhabitants of a primitive Indian village in which you are not welcome. The chief of the band in question, Big Otter, had a well-sustained reputation for exclusiveness, and although acquainted with him, I had never so far had any pressing invitation to exchange calls. I had, however, found on a portage that summer a well-made paddle of Big Otter's make, tagged with a sign on birch bark representing my name. This was a present of some account in a country of rough rivers, and seemed a good omen, but I did not build on it.

The next day, after a short lecture on the procedure common to such occasions, all hands but the cook embarked and headed for Big Otter's village. Three hours' paddle, including some pretty stiff poling on several rapids, brought us to a beautiful sheet of water several miles in extent, a lake almost round, with sandy beaches and hemmed in by precipitous hills covered with virgin pine; a forest untouched by the hands of man. Across the lake we paddled for an hour into the eye of the sun, and down a narrow bay. Behind a high protecting point we came suddenly on a row of canoes pulled up or turned over on the shore and from them wound a narrow trail leading up a low grade through a grove of red pines, to where on the level ground between the giant boles were scattered a number of habitations. A blue haze of smoke hung in the air of the glade, and indistinct figures appeared momentarily between the lodges, to vanish suddenly again.

No one came down to meet us; the silence was deadly and oppressive. Not landing, I gave the customary call, the cry of the owl, and on the instant an indescribable tumult, a fiendish uproar, tore the silence to ribbons as a round dozen of dogs of strongly wolfish appearance and great lung capacity raced down to the water's edge, there to carry on a most alarming demonstration suggestive of an unappeased lust for blood. One of the party permitted himself to wonder if they could swim.

A tall slim figure with flying hair ran down the slope and plunged into the seething maelstrom, belaboring impartially on all sides with a burning brand, upon which the savage-looking bodyguard retired reluctantly and ranged in skirmishing order on the slope.

The figure, who could now be recognized as the chief himself, advanced to the sandy margin and stood there.

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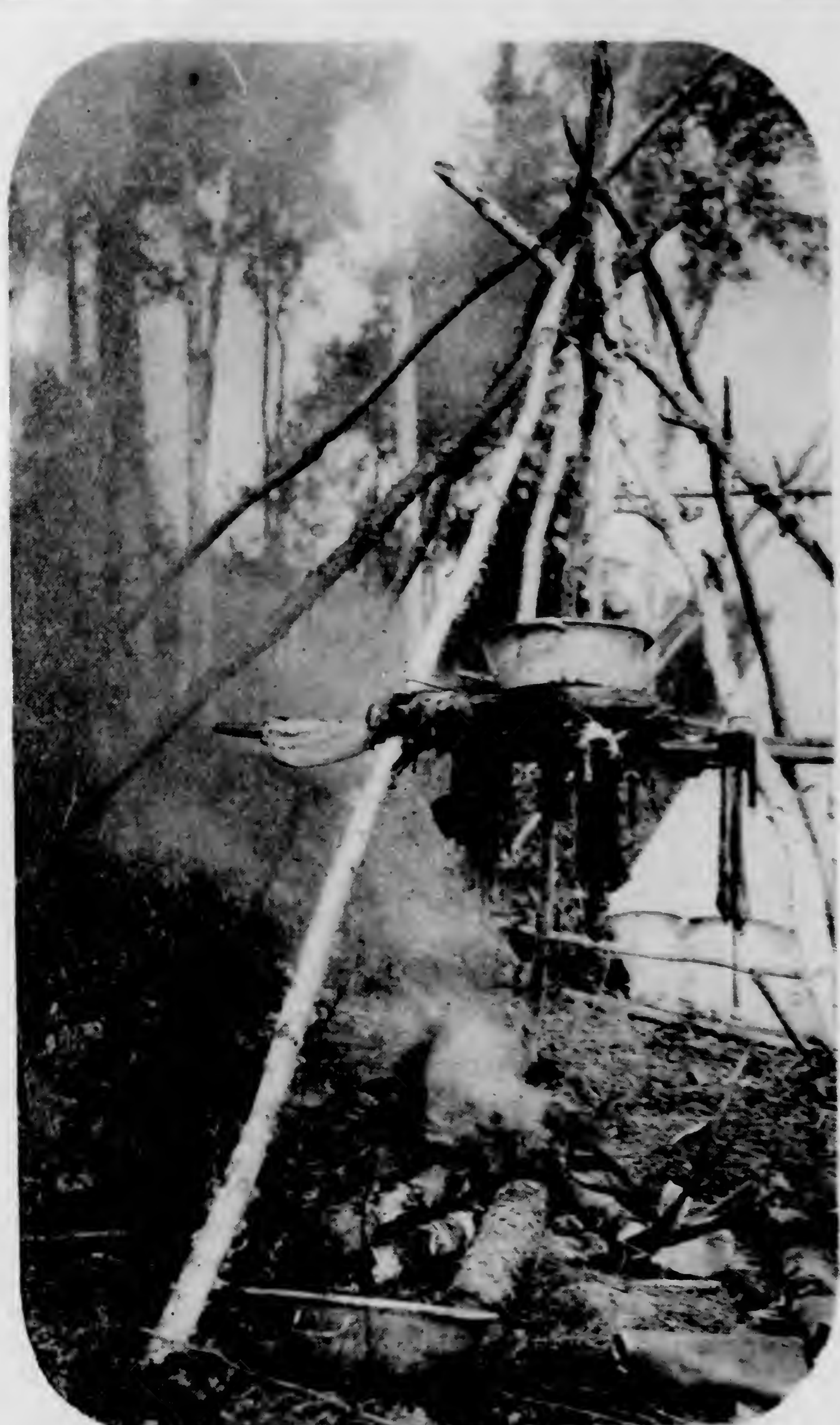
Smoking a moose hide over the fire

rotting waste matter on disused winter camp grounds that is responsible for a widespread impression that Indian camps are necessarily unclean. Outside the habitations shelves are secured between suitable triangles of trees, and high racks are erected to keep meat, fish and other eatable goods, as well as many things not supposed to be eatable, out of the reach of the ever-hungry huskies. Narrow snowshoe trails, dug out after every storm, connect the dwellings, each with its row of snow-banked dog houses of brush. Within the camps all is surprisingly snug and comfortable while the stoves are going. In the lodges open fire is maintained all night without difficulty, but in the tents, when the stoves die, it is another matter.

The heat soon passes out, and the cold descends like a scimitar of chilled steel; down through the flimsy protection of the canvas, down into the ground beneath the sleepers, petrifying everything, whilst over the camp there hangs a mist of hoar-frost, the wolves beyond the ridges bay the moon, and trees crack like gunshots in the iron grip of ninety degrees of frost (58 degrees below zero), a common temperature in some parts.

In summer, after the spring trade, a few of these communities repair to some chosen spot, generally situated in some little known region far off a main route. Visitors or intruders of any kind are not welcomed at these villages, some of the sites of which have been used from time immemorial. The approaches are often carefully masked, and often no indication of their presence is encountered until the chance wayfarer comes upon them unexpectedly. These camps are known to the Indians as "Odèn-na-ka-inne-hèkaj," literally "hidden towns." Such towns are no longer common, but some still exist, and in them many of the old traditions are observed, and ancient customs, long supposed to have been forgotten, are still perpetuated.

It has been my good fortune to be a not unwelcome guest at several of these self-contained, self-supporting concealed hamlets, and on one occasion I had the remarkable good fortune to obtain entry to a typical hidden town with a party whose genuine and friendly interest in their red brethren led me to make the attempt.

It so happened that we camped one night within a few miles of this village, the proximity of which was known to several of the other guides by hearsay. Although so far no white people had ever succeeded in gaining admittance beyond the canoe landing, the head of the party urged me to attempt it. I knew the chances to be poor. No select gathering of aristocracy into whose presence you have blundered unknown and unannounced can so completely, definitely and absolutely "give you the air" as the semi-civilized inhabitants of a primitive Indian village in which you are not welcome. The chief of the band in question, Big Otter, had a well-sustained reputation for exclusiveness, and although acquainted with him, I had never so far had any pressing invitation to exchange calls. I had, however, found on a portage that summer a well-made paddle of Big Otter's make, tagged with a sign on birch bark representing my name. This was a present of some account in a country of rough rivers, and seemed a good omen, but I did not build on it.

The next day, after a short lecture on the procedure common to such occasions, all hands but the cook embarked and headed for Big Otter's village. Three hours' paddle, including some pretty stiff poling on several rapids, brought us to a beautiful sheet of water several miles in extent, a lake almost round, with sandy beaches and hemmed in by precipitous hills covered with virgin pine; a forest untouched by the hands of man. Across the lake we paddled for an hour into the eye of the sun, and down a narrow bay. Behind a high protecting point we came suddenly on a row of canoes pulled up or turned over on the shore and from them wound a narrow trail leading up a low grade through a grove of red pines, to where on the level ground between the giant boles were scattered a number of habitations. A blue haze of smoke hung in the air of the glade, and indistinct figures appeared momentarily between the lodges, to vanish suddenly again.

No one came down to meet us; the silence was deadly and oppressive. Not landing, I gave the customary call, the cry of the owl, and on the instant an indescribable tumult, a fiendish uproar, tore the silence to ribbons as a round dozen of dogs of strongly wolfish appearance and great lung capacity raced down to the water's edge, there to carry on a most alarming demonstration suggestive of an unappeased lust for blood. One of the party permitted himself to wonder if they could swim.

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Retake of Preceding Frame

rounded by a litter of shavings, two men and a woman worked on a half-finished bark canoe. Rich-looking Hudson Bay blankets, red, green, blue, brown or white, according to the owner's taste, hang out to air on poles before the lodges, adding a barbaric note of color. The acrid smell of smoke, and the low hum of intermittent converse in an old, old tongue. An Indian village of the old régime; in just such another town Pontiac dreamed his dreams of conquest. We had slipped back down the pages of history a hundred years in as many steps. The sportsmen in their outing clothes had suddenly become incongruous, their speech an anomaly. They had actually become an anachronism in this aboriginal setting. In spite of the official reception we had been accorded, one felt instinctively that there was a limit beyond which we dare not venture, inhibiting familiarity, and one became conscious of an air of secrecy and taciturnity that held more than a hint of savagery. Out in civilization these people might be awkward, ill at ease, negligible and nondescript. Here, far in the wilderness, in their own domain, they were supreme. Self-reliant and efficient, they proudly maintained their rights as citizens of the Kingdom of the Wild. And I tried to remember that I knew these men this many years. Big Otter himself had often made me gifts of meat. Who could fear the wise and humorous Pad-way-way-donc? "Here-He-Comes-Shouting" is the Indian's name translated—the teller of tales, who because he has lumbago will paint red and blue triangles at the corners of his eyes, play the turtle-shell rattle all night, and jump into the river through new ice every fall. Then there was old Zowa-zaabik—Yellow Rock—who travelled alone, spoke rarely and then in parables; Jimmy Twenty, who always moved at a dog-trot and was seldom seen walking. Also Mato-gense—Little Child—he is a conjuror of no mean ability, and is reputed to be able to tell the weather two weeks ahead. Although he habitually chants to the tune of his wolf-skin drum, he is a pleasant old gentleman in conversation. Pad-way-way-donc has a daughter, a wonderfully built young woman, with a wealth of long hair, which she wears loose. She has not been near us, but stands apart, staring at us with the eyes of a wild thing.

Big Otter presently pointed to a large teepee and said, "Go in and rest, the women have prepared food." This was a welcome diversion, and on entering we found ready a savory if substantial repast of bannock, fried moose-meat, fried fish and piping hot tea. The interior of the wigwam was scrupulously clean, and from the poles hung bunches of herbs and roots that gave out an aromatic and not unpleasant odor. Two young women were in attendance, and all the party squatted on the soft carpet of freshly gathered boughs, and ate from shining tin dishes, with modern implements, and drank tea out of porcelain cups.

To some of us the affair was novel to a degree, and the experience of eating Indian cooked wild meat on the floor of a smoke-stained birch bark teepee, within the precincts of a jealously guarded secret village, was to the scientist with us the fulfilment of a life-long ambition.

It was suggested that one of the women should tell something about herself, and it transpired that she had never seen a town, or a train, nor had she ever been to church, and moreover did not care if she ever did. And forthwith arose a conversation in which I became the go-between. The questions on either side being mostly on subjects beyond the knowledge of the object of them, I found myself saddled with the somewhat thankless and difficult task of steering the talk clear of shoals. I was obliged to extemporize considerably, thereby endangering my chances in the hereafter, in order that both parties should get the answers that pleased them, and so have everybody satisfied.

In the drowsy heat and silence of the wigwam, several of the visitors, fatigued with the journey, had fallen asleep. Others sat on the red-brown pine needles or on logs near the central fire, and smoked contentedly.

The day drew on and the heat waned. Two squirrels raced madly through the camp and up a tree, circling round and round the trunk in mimic chase, with shrill profanities. A whiskeyjack floated soundlessly here and there, alighting where he would, and no hand was raised to molest him.

Peace, calm and an ineffable repose settled over the camp. A coolness and the damp of evening commenced to fall, and the shadows crept from behind the trees and from out the dark aisles of the forest. The day was drawing swiftly to a close, and we must now travel by moonlight. Sleepers were aroused and we embarked. No goodbyes were said, but the chief followed us down to the landing. I raised my hand in a farewell gesture, when he spoke. "Ki sakitone na ki do mokoman?" (Do you value your knife very much?) he asked. I was wearing an ordinary hunting knife of good quality at the time. I replied that I valued it very much, so much so that I did not care to part with it, "but," I added, "as you are my brother I will give it to you," which I did, belt and all.

Once away from shore we paused with one accord, held by the wild beauty of the scene. The red sun was already half hidden behind the black rampart of the western forests. Rank on rank, file on file, stood the dark legions of the pine trees, reaching in mass formation into the shadows of the already darkening hills.

A pair of loons, their white breasts flashing, swam lazily on water so calm as to have the appearance of a void in which they floated as on air. Slowly the thin columns of smoke descended from the clustered teepees, to lie in a white pall above the town. Soon the moon rose, pale and very close, and against its broad and luminous expanse a single pine, sweeping of top and massive of outflung limb, stood out blackly in silhouette. Somewhere an owl hooted once.

We moved off silently from the hidden town, with its mystery, its customs of a bygone day, and its aloof, silent inhabitants, inscrutable and unfathomable as the sombre forest that bred them. And as we entered the narrow defile at the outlet, came the long-drawn-out sobbing wail of the wolf-dogs as they saluted the full of the moon, even as their wilder kindred have done for untold ages.

And late that night there was faintly borne on the still air a sound persistent, insistent and monotonous, the steady rhythmic throbbing of an Indian drum.

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Though this vessel had no auxiliary power whatsoever, but had to depend entirely upon her sails for motive power, and in spite of the fact that she encountered at times most terrific storms, only one accident befell the party. While at Yokohama the *Galilee* was blown by a typhoon during the night of August 24, 1906, against the breakwater, such damage being sustained that the vessel sank in about fourteen feet of water, the party and crew being obliged to take refuge in the lighthouse on the breakwater and remain there until the storm had subsided. The vessel was, however, at once drydocked and the repairs pushed, so that ten days after the accident she left Yokohama for a 6,000-mile cruise to San Diego, California. Not a single life was lost throughout the entire time.

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THE NORTH AMERICAN INDIAN

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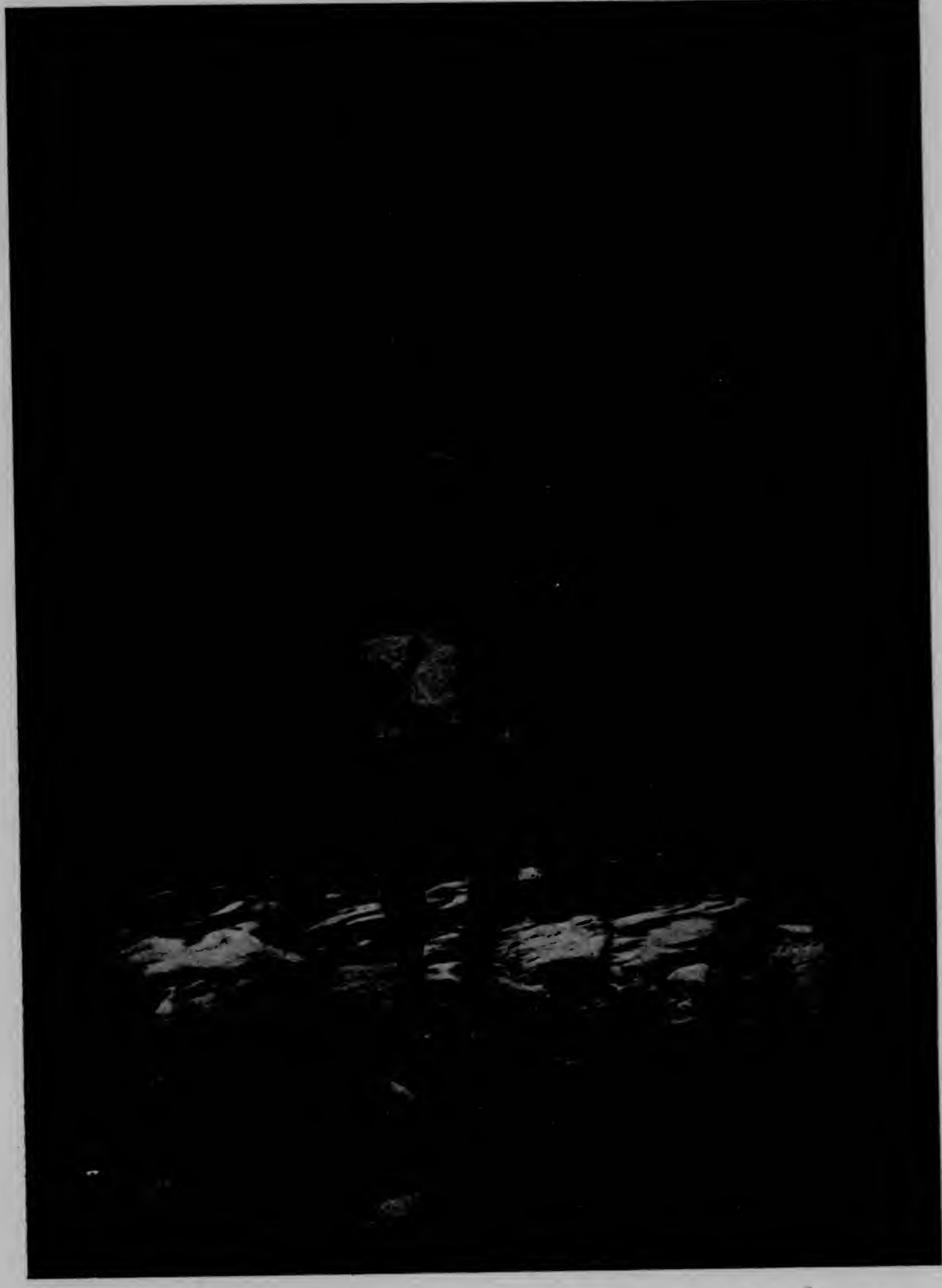

Photo and copyright by Edward S. Curtis

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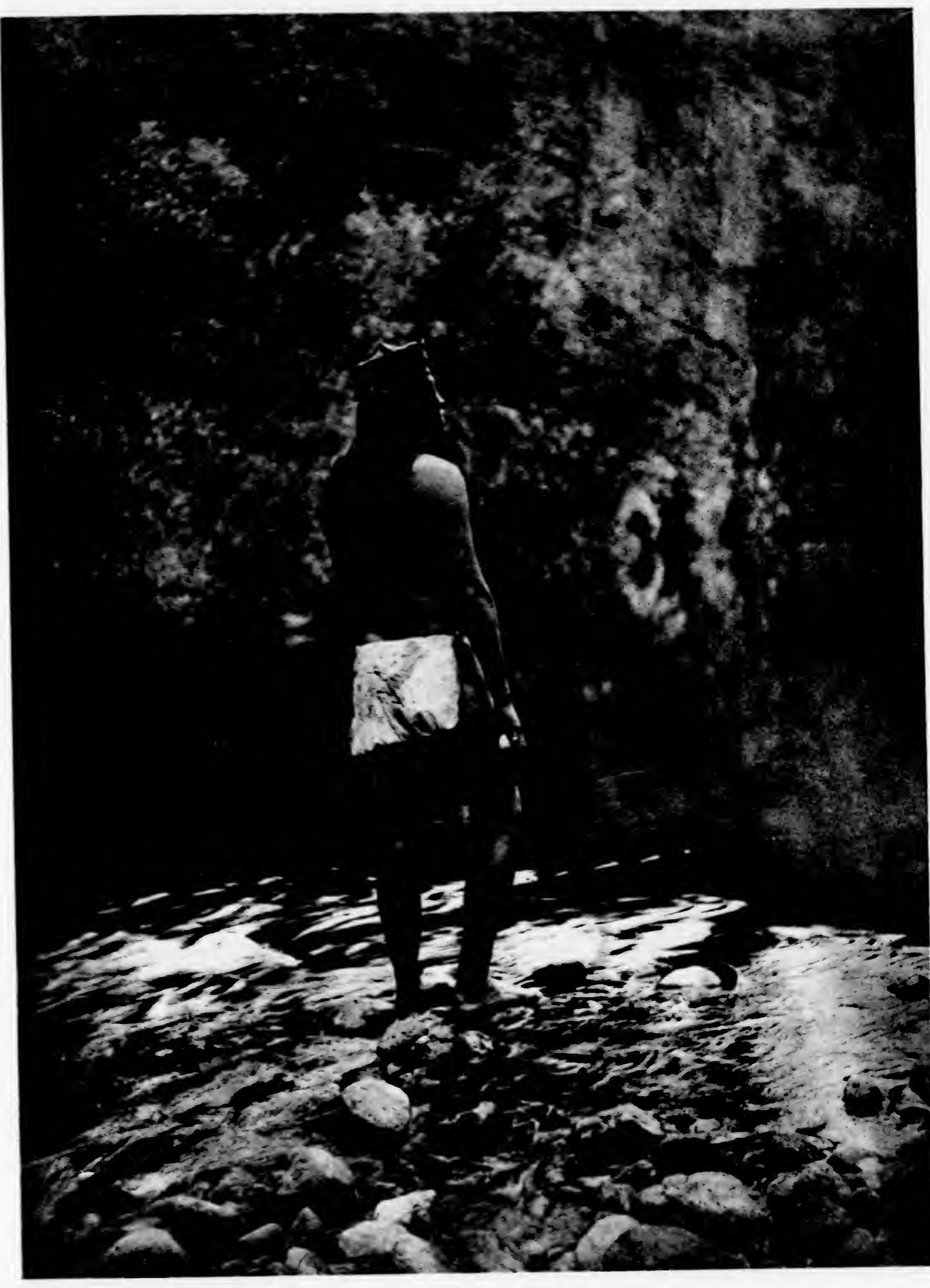

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CHIEF GARFIELD: JICARILLA—APACHE

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JICARILLA—APACHE MAIDEN

Retake of Preceding Frame

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physically, being large boned, strongly built, and clear skinned. Within a short distance of them, in the high altitudes, live the Walapai, of the same family. They are the direct opposite of the river Indians—hardy mountain types, physically and mentally quick of action, for their rugged mountain home has ever demanded of them a hard fight for existence. Adjoining them, in Cataract canyon of the Colorado, are the Havasupai, also of the Yuman family, whose surroundings are truly unique. Though they cultivate small patches in their canyon home, for subsistence they depend much upon the chase, and, like the Walapai, are a wiry mountain people. The Maricopa, another Yuman tribe, who have long lived in the valley of the Gila, exhibit the effect of their Colorado river origin, both in physique and in their slowness of thought.

The Pima from earliest tradition have dwelt within the Gila drainage in southern Arizona. From one point of view they are ideal Indians—industrious, keen of mind, friendly to civilization, and tractable.

These various tribes have been broadly termed with the Pueblos, the sedentary Indians of the Southwest. Most of them came early in direct contact with Spanish missionaries, whose ministrations they received in friendly spirit, yet after more than two centuries of zealous effort little has been accomplished toward substituting the religion of the white man for that of their fathers. True, many are professed adherents of the Christian faith, but only in rare instances has an Indian really abandoned his own gods. As a rule the extent of their Christianization has been their willingness to add another god to their pantheon.

The Pimas and Yumas and their allies were the builders of those wonderful monuments of the Southwest which indicate that a great population formerly lived there, and has since been dispersed.

It is very fortunate that a man like Mr Curtis is able to make a historical record of the Indians before they have been obliterated.

BOOKS RECEIVED

Outdoor Pastimes of an American Hunter. By Theodore Roosevelt. New and enlarged edition. Pp. 420. 6¼ x 9½ inches. Illustrated. New York: Charles Scribner's Sons. 1908. $3.00.

The California Earthquake of 1906. Edited by David Starr Jordan. Pp. 360. 9 x 6 inches. Illustrated. San Francisco: A. H. Robertson. 1907. $3.50.

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In Indian Mexico. A narrative of travel and labor. By David Starr. Pp. 425. 9½ x 6½ inches. Illustrated. Chicago: Forbes & Co. 1908. $5.00.

Mexico, with comparisons and conclusions. By A. A. Graham. Pp. 283. 5¼ x 7¾ inches. Topeka, Kans.: Crane & Co. 1907.

To the Top of the Continent. Discovery, exploration, and adventure in sub-arctic Alaska. The first ascent of Mount McKinley, 1903–1906. By Fred. A. Cook. Pp. 321. 6¼ x 9½ inches. Illustrated. New York: Doubleday, Page & Co. 1908. $2.50.

Retrieval at Panama. By Lindon W. Bates. Pp. 554. 6¼ x 9½ inches. New York: The Technical Literature Co. 1907.

weed-cutting boat made a tour around that lake, cutting a ten-foot swath thru the midst of the weeds and pads some fifteen or twenty feet from shore. Forgive me if I say that all the fish in the lake used this lane for a "boulevard." The only trouble was that you would lose some of the biggest fish by reason of the narrowness of the lane, by their diving into the adjacent weeds and pads before you could bring them around to net. However, by arranging a round area near the shore, wide enough so that you can freely play your fish without fear of him diving into the "thickets," no trouble will be had.

Never fail to clear the way in waters that have been choked out with weeds. The fish want to come inshore. They detest the weeds that prevent the act of free swimming as much as you do. A few hours or a few days of cutting will do wonders in improving the fishing situation in your end of the bay.

While there are lakes that have a surfeit of weeds and pads, there are some lakes that have far too little, and some have no weeds at all around the shores. Weeds can easily be planted in such lakes by pulling up weeds and pads by the roots, tying these to stones and sinking them in likely places. Generally these will catch root, especially if the bottom is soft and fitted for taking them. Of course, where the bottom is sandy, or pebbly, vegetation has a hard time to start. Some lakes have sandy and even rocky inshore waters, but weeds are, however, to be found out in the lakes. Here is where the bass keep themselves; but if the inshore waters had vegetation or sheltering places of some sort they would readily come in and could be found around such spots at any time in the day.

I am mentioning here how to remedy a condition of this sort, where sandy or rocky inshore waters are to be found, for the reason that I have received a couple letters from Eastern anglers asking me how the bass fishing around such shores can be improved. One of two ways that I know of (and which I have experimented with satisfactorily) I give here. The first method is to acquire brush of trees that have been cut down. Pile these on a boat and at regular intervals here and there in the bay deposit these accumulations, tying them together with wires and attaching heavy stones to each pile to keep them anchored. The reason of the anchor is to keep them well lodged—for otherwise when storms come up the action of the waves will carry them from their position—even wash them to shore. These brush-heaps, or trees with branches on, can be placed here and there in a likely bay (say in a sheltered cove-like bay, for when storms come up the bass all make for these bays). Naturally the more brush piles, the more bass will come in to swim around them; in fact, make their daily rounds of these places. They will move in and out of them. They form a shelter from the hot sun.

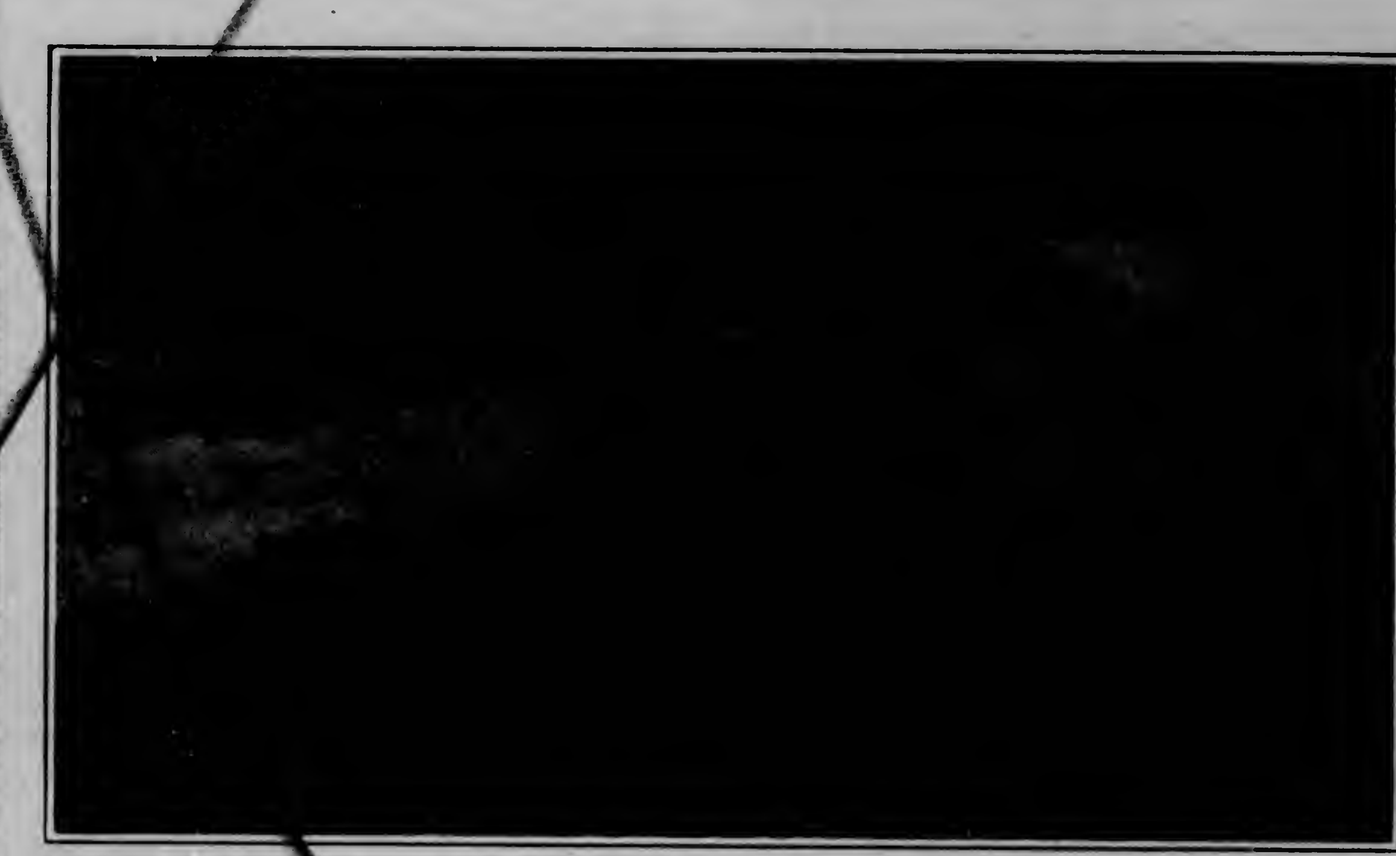
I had such good success with this method in one lake with sandy inshores that I scattered the idea amongst fishermen, and in all cases it was found that the bass catches there were increased, where previously few, if any, bass were taken inshore—for where there is no vegetation there the bass do not care to linger.

Another good idea that I have tried out is to make round plank floats 3½ to 4 feet across. Tie a wire to the center of the underside of this float and lodge a weight sufficient to hold it (even in a storm) firm to the lake bottom. Young trees or large branches are now attached around the sides of this float, butt end up, foliage reaching down toward the bottom. This forms an excellent shelter with the shadow of the float and the foliage. Arranged here and there in a bay it will not take long before the bass and other fishes are aware of their presence and will keep themselves around them with beneficial results to the fisherman. Either of the methods I have stated can be used in lakes whose inshores are nearly barren of vegetation.

ESSAY ON GEESE

The following composition on geese was written, according to Capper's Weekly, by a schoolboy in St. Louis: "Geese is a heavy-set bird with a head on one side and a tail on the other. His feet is set so far back on his running gear that they nearly miss his body. Some geese is ganders and has a curl in his tail. Ganders don't lay or set. They just eat, loaf and go swimming. If I had to be a geese, I would rather be a gander. Geese do not give milk, but give eggs, but for me, give me liberty or give me death."

Propagating Trout in Colorado



Pens on Castle Creek, Colo. (Hinsdale Co.) where brook trout are impounded during the spawning season, where 35,000,000 eggs were taken during the past five seasons for the purpose of placing in the state hatcheries of Colorado for the winter hatch. Three million five hundred thousand eggs were taken in October and November, 1920, while there was four feet of snow surrounding the creek and ponds. The fish collected during the spawning season in such large numbers that it was possible to take 1,100,000 eggs in four hours by Mr. Land, superintendent and one assistant.

Spawning cabin on Castle Creek, Colo., adjacent to the spawning ponds. Showing S. E. Land, superintendent state fish hatcheries, in charge of the crews collecting the eggs. The eggs were transported from this place by pack horses, the men leading the horses on snowshoes, for a distance of six miles.

As late as 1911 this old road could be plainly traced all along the foothills east of Glacier Park, and I myself rode over it from the Saskatchewan down to the Two-Medicine thru what is now Glacier Park; and it is fitting that the eastern gate of the park has been placed so that it stands exactly on the spot where that old road enters the park from the south, and it is also perhaps a coincidence that the present automobile road from the park entrance north to St. Marys Lake country follows, for most of its length, exactly where that old-time savage road led.

I have been over that stretch of it, and I know where the new road grade destroyed the two worn ruts in the soil that were made by the butt ends of travoise poles dragged by generations of Indian horses, which in turn obliterated the fainter, narrower marks of smaller travoise poles dragged by dogs before the horses came—for horses were brought by the Spanish, and the dog, "shunga," was the beast of burden before the horse came. Indeed, the Sioux name for horse is "big-dog" or "shunga-tonka" in their tongue—a coined word to fit a new animal that came into their lives from strange outland sources, and which they immediately adopted as a burden carrier, and which enlarged the scope of their lives, as the automobile has enlarged our own.

Transportation has always fixed the limits of travel, and always will; the sea coast of a new country was always settled first because it was easiest to reach, and the river valleys came next because a canoe could travel easier than a man afoot or on horseback; the overland country came later, the lower, more level, country first and the steeper, more difficult, later—the mountains last and therefrom we read the reason why the old Travoise Trail followed along the east base of the Rocky Mountains to connect all the tribes living along the east side of the range.

By the way, this "backbone of the world" really separated the old time continent into two distinct parts, for the people, the animals, plants and all natural features were mostly entirely different on the two sides of the range; there were probably cross-over trails here and there along the length of the range so people could get from one side to the other along the old Travoise Trail, but I know of only one.

This cross-over was the Salt Trail that led southwest from the Blackfoot country to Salt Lake via a pass, or series of passes, somewhere in the neighborhood of Helena. Just where this crossing actually crossed the range I do not know, but it finally meandered south on the west side of the range about along the present line of the Utah Northern Railway thru Beaverhead Canyon, past Pocatello and on south toward Salt Lake by way of Bear River Valley or thereabouts—a definite, tho faintly marked, and little used road which was traveled once a year or so by small parties who took months in going and coming to carry a few pack horse loads of that great luxury, salt, to the northern tribes—for salt, mind you, was not eaten as we eat it, but as one of the greatest of luxuries, by a meat-eating people.

The idea that people cannot live without salt is exploded by the lives of the old-time Blackfeet who practically lived on Buffalo meat eaten habitually without salt, if what the old men of the tribe told me is true, and there is no reason to believe it is not.

Salt, horse-pack load at a time, was brought in once a year or so from Salt Lake over the Salt Ford of the old Travoise Trail, but the quantity divided among a tribe of a thousand or more lodges would no more than make a bare taste for each one, probably less than half a teaspoonfull per person once a year, which one could hardly call "eating salt."

There were other crossings thru separate passes of the range, but these had nothing to do with the Travoise Trail, but were hunting party trails or war trails which were used by the Blackfeet, Flatheads and Kootenais, to make war raids on each other; all such trails were watched from "war lookouts" maintained at all times by all the tribes on both sides of the range.

One of these war trails crosses from St. Mary's Lake on the east side of Lake McDonald, on the west side by way of Gunsight Pass at the head of St. Mary's Lake—a trail now used by tourists in Glacier Park who cross by way of Lincoln Peak from the east to see the Glaciers that hang above Avalance Basin.

Another of these old trails crosses over on the head of Cutbank River, and another comes down to Two Medicine Lake, this last being, I think, a fork of the Cutbank trail by splitting off southeast on the summit to reach the Two Medicine country south of the Cutbank.

The old Travoise Trail cross-cuts all of these trails, and it afforded a means of rushing fighting men to the point where any war party was advancing over any of these war trails that came across the range—and such parties were common enough to make it imperative that the Blackfeet maintain lookout stations all along the east base of the mountains to watch for these raiding war parties of Kootenais, Flatheads or Nez Perce tribesmen who swept down like sudden death, struck quickly and fled back over the passes, usually with a Blackfoot war party at their heels; and shortly thereafter the Blackfeet would retaliate with a war party of their own sent silently and swiftly over the range for Kootenai or Flathead scalps and horses in payment for the raids upon their own villages.

And so it went, year by year—war, hunting, war, moving, hunting—war again; a wild, restless life, shot with excitement, hair-breadth adventures and lurid superstitions that personified inanimate things, gave God-like powers to unseen things and allowed only the strongest to survive.

The resultant tribesmen were certainly a fine physical race before the white man came with his whisky, his diseases and his ability to barter three-dollar gas pipe flint-lock guns for beaver skins—the rate of exchange being fixed by standing the six-foot gun on its butt end on the ground and then piling flat, dry beaver skins, one upon the other, like a stack of wheat cakes, until the piled up skins reached level with the gun-muzzle! Some price! At $5.00 a pound for beaver skins, raw, that made the price of one gun (cost $3.00 in England) about $20,000 or $30,000 to the Indian who traded beaver skins for it!

And many a horse pack-load of these guns has gone up and down the Travoise Trail, and many a pack load of fine Northern beaver has come down the Travoise Trail in payment for the guns.

The old Travoise Trail! Such a road as that was, brother! For miles I followed it south from the Saskatchewan where it was still clearly traceable as it wound on ahead thru lush, foot-hill grasses, over Hudson's Bay divide, along the upper headwaters of Milk River, the Cutbank, Two Medicine and on into the dim distance that led toward Elk River (the Yellowstone) and the Big Muddy-Water River down in the Crow country—and on south to the country of the Cheyennes and that of the Utes and Yaquis—on and on—always farther south to the place where the land is small and the big salt lake on each side of it—and still on—on—always south.

And what a strategic road it is! Never for a single quarter mile does it wind into any place where the traveling party could be ambushed, for there is always—always—both ahead and behind, knolls or rises, or such high-looking points as may be, from which outriding scouts could see the land ahead and the land behind, and all the land on both sides of any traveling party passing along the trail.

Such careful scheming—such judgment in laying it out; not a surprise could be hoped for by any war party haunting the trail, for it was so laid out that surprise attack was impossible, at least all the way from the Saskatchewan to the Two Medicine and indeed, I think even this was rarely attempted, for war parties did not travel the old Travoise Trail—it was a trail of peace—of migrating people who moved in whole tribal companies at once "with women, children and dogs," to say nothing of the loose horses that formed the tail end of a long procession across the hills—winding in and out, roundabout among buttes and along grass valleys while scouts stood like statues on every hill top, and fighting men (superb bronze figures lolling across the horse's back, tired of the slow pace of peace and safety) rode at the head of the column, ready to dash out like a band of hornets if a scout should signal that the enemy was in sight!

Never have I seen such a road, for it answered every purpose of its savage users. I rode along for miles, and I watched the trail as I rode, dreaming backward into the old days when this road was the road most used by men. I kept in mind the Indian of those days, his surroundings and his every-day life—and I dreamed dreams, brother, surely. I dreamed me some dreams of a barbaric people gone down the trail until the horizon was bare again and they were below the edge of the world from whence they will never return, along the old Travoise Trail, for it is vanished today mostly—only here and there can it be found, and then only if one knows where to look.

But if you go to Glacier Park and motor north to St. Mary's Lake from the east gateway, be content to know that you are traveling a good bit of this old trail, for it is under your auto wheels there for miles—a dog trail, a travoise trail, an auto road, and after the automobile—what? What next? Peace be with the ghosts of those days when this trail was the "big road" best known of all the highways of a savage people.

Commercialism

On a mountain steep
By a clefted peak,
A strange god forced his brazen way,
And wooed and won a lonely pine,
A simple creature, pure in mind,
In his worldly, selfish way.

I'll crown you with gold,
Discard your leaves old,
And strip from your trunk branches green;
Your forms straight and well rounded
Your firm roots so deep grounded,
My harem awaits you, fair queen.

Of course she said "yes,"
What maid would do less
When she's flattered?—don't blame a tree.
She paid dear for her madness—
Crowns of gold don't bring gladness;
A slave to the strange god is she.

With bark scorched and curled,
Spurned by her own world,
She longs for her leaves with a sigh;
As she pants, scarred and bereft,
On the bleak mountain cleft,
A jest to the trees standing by.

—Clyde Robertson.

Fig. 1. The stick-and-groove method, used in the South Sea Islands.

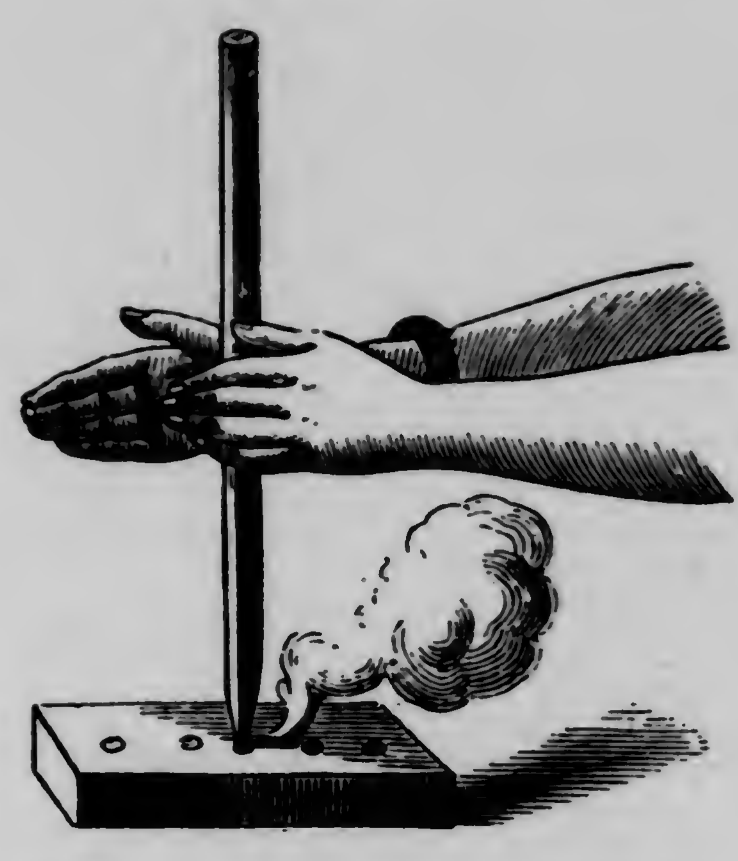


Fig. 2. The fire drill of America, Australia, Tasmania, India, Africa and elsewhere.

Fig. 4. Another kind of fire drill, used by the Gauchos.

Fire Making.

Editor Forest and Stream:

Starting a fire by friction with sticks—

How many persons are there that have ever seen a fire started by rubbing two sticks together, or how many are there that ever heard of its being done? And yet it was the way the Indians started fires long before flint, steel and tinder came into use for that purpose; for the red man knew nothing of steel until after the advent of the pale-face.

Well do I recollect the first time I ever saw

Fig. 3. Reproduction of an ancient Mexican painting, showing man using the fire drill.

it done, and that was by an Indian when I was a boy. Afterward I was taught to do it, and many a time after that I did it during my youthful days. Perhaps the following story about it might be of interest to the readers of FOREST AND STREAM.

When I was a lad about ten years of age, I went to call on a playmate who was very sick with the dysentery, and while there his mother handed me a 50-cent piece and a large black bottle and asked me would I go about two miles away to an Indian who had a hut near Mascraft Brook, and get him to fix up some medicine for her boy, as that Indian had the reputation of being a very skillful doctor in the aboriginal way with roots, barks and leaves.

When I arrived at the hut I found him seated on a log weaving a basket. Stating the case to him, he said, "Me make heap good medicine. Me cure him soon."

Taking a basket, a hatchet and a hunting knife, he started for the woods and I followed after. He dug up a root in one place, peeled some bark in another, cut some twigs in another, and gathered some leaves in another. What the rest of these ingredients were I am now unable to say, but one I well recollect was the soft pithy ends of the twigs near the terminal buds of vigorous young sassafras sprouts. Coming back to the hut, he washed the roots in the brook that ran by his door, cut them, as well as the barks and twigs, into very small pieces, and putting the whole business into a large kettle nearby filled with water, he hung it upon a horizontal stick laid in two crutches over a bed of ashes; then taking a stick he poked among the ashes to see if there was any fire, and finding none, he said: "Fire all gone. Mus' make some."

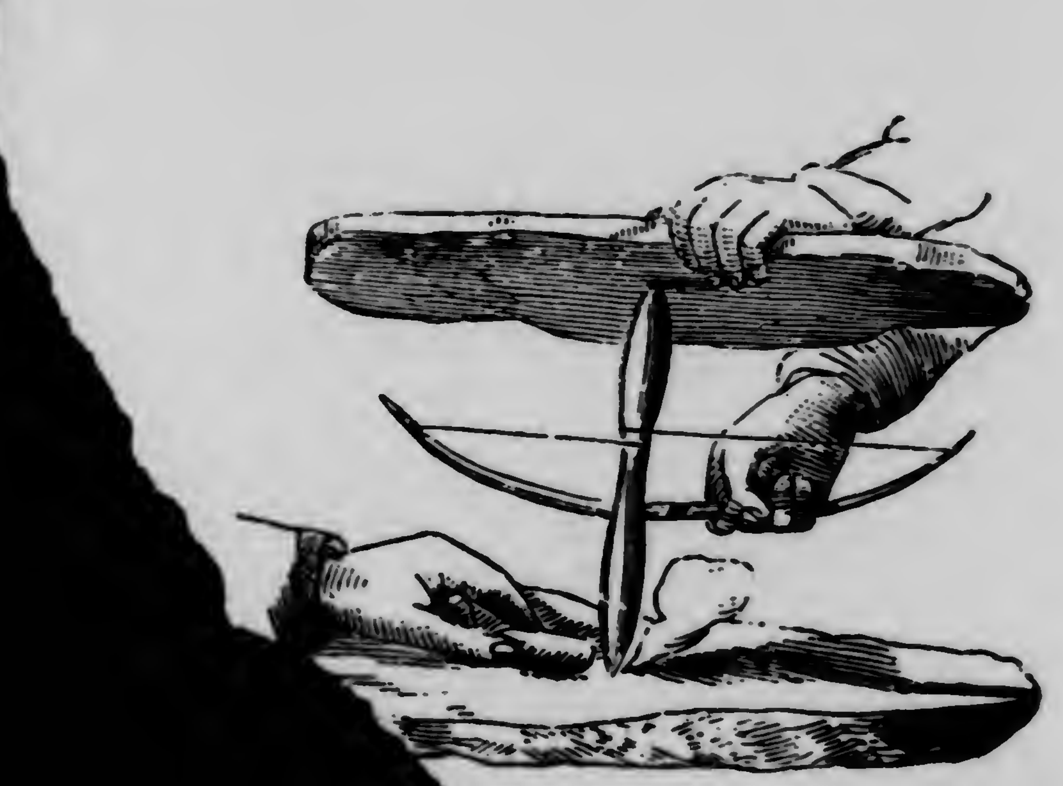
"Got any matches?" said I.

"No," he grunted.

"How are you going to start a fire without matches?" I asked.

"Boy don't know; Injun does," was his laconic reply.

He then went into the hut and brought out three sticks; one some two feet in length and about as wide and thick as one's hand, with notches cut along both sides; another stick also some two feet in length, and about as large or perhaps a trifle larger round than a broom handle, six-cornered and pointed at both ends; the third stick was a trifle crooked and between two and three feet in length. Taking a leather thong that resembled a whiplash, he made a bow of the crooked stick, and placing the flat one upon the ground with a piece of birch bark under one of the notches, he wound the whiplash once around the six-cornered one, and set it vertically upon the flat stick with the point near the angle of one of the notches, and, taking a knotty chip in his left hand with which to hold the vertical stick, he commenced see-sawing the bow back and forth, and in a short time the



drill, used by Atlantic Coast Indians ...choolcraft by the Sioux and the In-

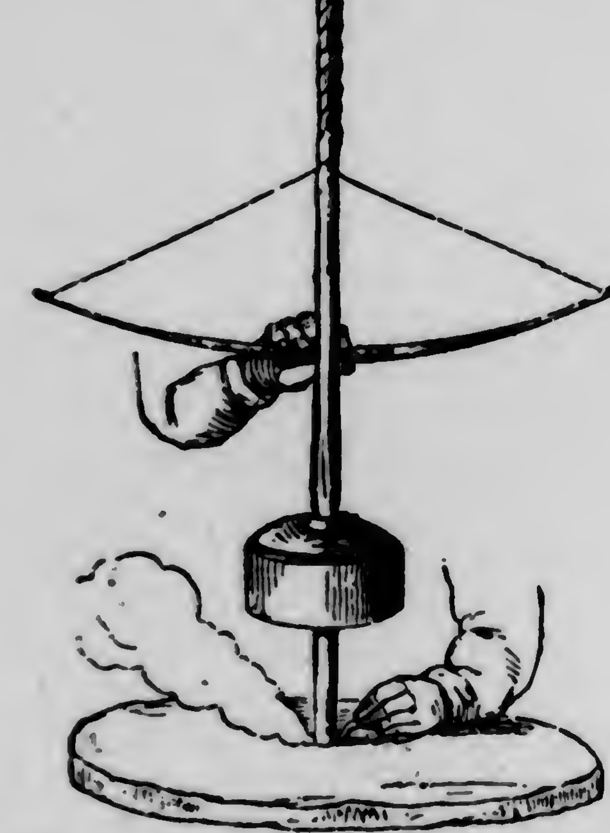


Fig. 7. The pump drill employed by the Iroquois, and in southwestern America.

point where the two sticks came in contact began to smoke like fury. Quickly putting some scrapings of wood near the notch upon the birch bark, where a sort of brown dust caused by the friction had gathered, he gently blew it with his breath, and soon had a fire blazing under the kettle. He then prepared the medicine, and I took it to the little boy's mother; and here let me say that the old redskin's "heap good medicine" cured my little playmate in a very short time.

That night when I arrived home I told an old Indian who made his home at our house—"Old Jim Injun," as he was always called—how the other one had made a fire with sticks, and he said: "He know how. Me know how; but pale-face don't." Then I asked him if he would show me how to do it, and also tell me what kind of wood to use, and he said: "Me show you some time." And he did on one Sunday during the latter part of the following June.

I well remember that day on account of two events that took place. One was that Henry Ward Beecher, who with his family was spending his vacation in the village near my home, occupied the pulpit in the church, and the other, that I got the worst lambasting I ever got in my life; but I learned to start a fire Indian fashion—for Old Jim taught me thoroughly—which I then thought more than compensated for the licking.

Early that morning, which was a cloudy one, I found him digging bait out behind the barn and I said to him: Goin' fishin'?"

"Mm," he grunted.

"Where?"

"Mascraf. Want go 'long?"

Now Mascraft Brook was then, and is now, the best trout stream in that part of Connecticut, and nothing pleased me better than to go there fishing, and especially with Old Jim Injun. So off we both went, and he had good luck, having caught that morning as handsome a string of trout as one ever saw. Later on the weather became clear and hot, so the fish stopped biting, and we both lay under a tree near the stream.

About noon Jim said: "'Bout dinner time. Me hungry. You be? We roast fish." He then cleaned some of the trout, and by his orders, I gathered several small, thin, flat stones from the bed of the stream. After cleaning the fish, he said: "Mus' make some fire. Now show you how with sticks." Then going into the woods, and I following, he took his small belt ax—which he always carried when either fishing or hunting—and selecting a small dead standing bass-wood tree, he cut it down. Cutting off a suitable piece he fashioned two sticks of about the proportions of those the other Indian used. He also cut a crooked green stick for a bow, and having adjusted the three sticks and thong each as the other did, and with a knot in his left hand, he see-sawed away and soon started a fire which he at first fed with fine slivers of dry wood. He told me that his people sometimes used swamp cedar, when it could be had, instead of bass-wood, and sometimes, though rarely, used savin or upland or red cedar in place of the others.

After the fire had burned awhile, thus making a good thick bed of live coals, he took the flat stones one by one and, placing a fish upon each with a sprinkling of salt, he carefully laid them upon the bed of coals. When the trout were browned nicely he pulled them off the hot embers with a forked stick. Then what a feast we had! I don't think I ever tasted anything since that day as good as those fishes were.

Late in the afternoon he caught several more, and then we left for home.

They say that every pleasure has a sting, and I am sure that that day's pleasure had; for that night I got stung badly when my old uncle applied the gad.

"The idea of your going off fishing on the Sabbath day with Jim Injun," said he (whack! whack! whack! "Boo-hoo-hoo"), "and being gone all day, and we expecting you to go to church with us, and Mr. Beecher there (whack! whack! whack! "Boo-hoo-hoo"), you good-for-nothing wicked boy you. I'll learn you better than to do that again." (Whack! whack! whack! "Boo-hoo-hoo. Oh, don't, I won't never do it again, boo-hoo-hoo!")—but enough of this. It gives me, even now, creepy feelings all over when I think of that whipping.

It was a long time before I went fishing again on Sunday with old Jim Injun—not once again until I had grown too big to get a licking. After that Jim and I put in many a Sunday on that as well as other brooks and lakes around home; but as I have already said, I learned that day how to start a fire Injun fashion by the friction of two sticks, and I then thought that that knowledge much more than compensated for the unmerciful whaling that came afterward.

By the way, let me here say before closing, that he could tell the time of day by the sun, or the shadows, or even by other signs; and the points of the compass by methods peculiar to his own people, and during our companionship he taught me much about the fauna and the flora; and also taught me lessons in woodcraft that I have never forgotten. A. L. L.

MILHURST, N. J.

The source from which fire was originally drawn is absolutely hidden from us—as much so, almost, as is the origin of life. Guesses as to how it came to be known to man have been many. Myths tell how some demigod snatched fire from the sky, or of how it was stolen from a being who possessed it but hid it from all others, by some animal who distributed it abroad for the benefit of humanity. Legends tell us that a forest was fired by a bolt of lightning and that men finding the burning wood and appreciating the grateful warmth, kept the fires alight. It has been conjectured that it was produced by the friction of the dry branches of trees rubbing together; but whatever the means by which it was discovered by man, we know that this discovery took place long, long ago. Almost the earliest evidences of human occupancy in this and other lands show that the people who dwelt in caves, who made the shell heaps, who split the bones of wild animals for their marrow, or gathered the oysters, clams and scallops along the shore for their food were familiar with fire.

The oldest method of making fire of which we have any knowledge is by various methods of friction, some of which have been practiced in America, in Africa and in the south seas within the memory of men still living. One of the simplest of these is by rubbing rapidly back and forth a sharp stick in a groove cut in a piece of soft, dry wood placed on the ground. This method which Tylor calls the "stick and groove" method was practiced in the south seas at Tahiti, Tonga, Samoa, the Sandwich Islands and New Zealand.

The fire drill—or, as we call them in this country, fire sticks—is more familiar and has been practiced up to within forty or fifty years by the dwellers on the plains, as earlier it was over most of North America. An upright stick is twirled between the two palms, its lower point resting in a hole in a piece of soft wood on the ground. This primitive method is also practiced in Australia, Sumatra, Caroline Islands, Kamtchatka, China and Africa, and to-day is in use in central India. The ancient figure copied from Tylor is a reproduction of an ancient Mexican painting.

The work of kindling a fire in this way was long, slow and tiresome, and under unfavorable circumstances we have seen two men relieving each other, until the sweat rolled down their countenances before they kindled the spark.

The Gauchos, a pastoral and half savage people who inhabit the high plains of South America used a modification of this drill where the u right stick was held against the breast shoulder, and being bent a little was revolve a rotary motion of the single hand. As went on, however, the work of fire maki made more easy and the twirling cam done by a thong or string applied t right revolving stick, sometimes the hands, sometimes by a bo spondent A. L. L. has describ methods, and we figure here a thong drill as practiced by th the piece of wood which bra revolving stick in place is held in the mouth o the fire maker.

The simplest form of bow drill is that where the upright stick is revolved a single turn of the bow string about it, being held in place by a piece of wood in the left hand while the right hand saws the bow back and forth. Higher yet is the pump drill in which the loose bow string makes many turns about the upright, which latter is supplied with a weight near its lower extremity furnishing a momentum to keep the drill moving. As the bow is moved up and down the string untwists and winds up again and the movement of the drill is continuous and the work easy.

Martin's Bear Story.

DETROIT, Mich.—*Editor Forest and Stream:* Some years ago I entered a number of photographs in a competition held by the FOREST AND

Handbook Am. Indians, Pt. 2, 1910.

Tajique (probably the Hispanized form of the Tewa name (*Tashi'ke?*) of the pueblo, the Tigua name being Tûsh-yit-yay, or Tuh-yityay.—Bandelier). A former Tigua pueblo about 30 m. N. E. of Belen, the ruins of which are situated on the N. and W. border of the present settlement of the same name, on the S. bank of the Arroyo de Tajique, in central New Mexico. It was the seat of the mission of San Miguel, established probably in 1629. In 1674 its population, which then numbered about 300, was augmented by the addition of 600 Tigua from Quarai, who were compelled by the Apache to abandon their pueblo. Little peace, however, was found at Tajique, for in the following year this village also was permanently abandoned for the same cause, the inhabitants gradually drifting to El Paso. A remnant of the Tigua now living near the latter place claim to have come originally from Tajique and other pueblos in the N. Consult Bandelier in Arch. Inst. Papers, IV, 257 et seq., 1892; Lummis, Land of Poco Tiempo, 1893. See *Tigua*. (F. W. H.)

Junétre.—Oñate (1598) in Doc. Inéd., XVI, 118, 1871 (believed by Bandelier, Arch. Inst. Papers, IV, 113, 1892, to be probably the same; not to be confounded with the Junetre of the Tewa). **San Miguel Taxique.**—Vetancurt (1696) in Teatro Mex., III, 324, 1871. **Tafique.**—Escalante (1778) quoted by Bandelier in Arch. Inst. Papers, III, 132, 1890. **Tageque.**—Latham, Var. of Man, 395, 1850. **Tagique.**—Gregg. Comm. Prairies, I, 165, 1844. **Ta-ji-que.**—Bandelier in Arch. Inst. Papers, III, 128, 1890. **Taxique.**—De l'Isle, Carte Mex. et Floride, 1703. **Tegique.**—Squier in Am. Rev., II, 508, 1848. **Tuh-yit-yay.**—Lummis quoted by Bandelier in Arch. Inst. Papers, IV, 258, 1892. **Tûsh-yit-yay.**—Ibid. (this and the last form are given as the Isleta name of the pueblo.)

Takaiak. A Kaiyuhkhotana division and village E. of Yukon r., Alaska, near Nulato. Pop. 81 in 1844.

Letniki-Takaïak.—Zagoskin in Nouv. Ann. Voy., 5th s., XXI, map, 1850. **Takaiaksa.**—Tikhmenief quoted by Baker, Geog. Dict. Alaska, 396, 1902. **Tākājāksen.**—Holmberg quoted by Dall in Cont. N. A. Ethnol., I, 25, 1877.

Takamitka. A former Aleut village on Unalaska id., eastern Aleutians, Alaska.

Tatamitka.—Coxe, Russ. Discov., 164, 1787.

Takapsintonwanna ('village at the shinny ground'). A former band or village of the Wahpeton Sioux.

Takapsiŋtona.—Riggs, letter to Dorsey, 1882. **Takapsin-toⁿwaⁿna.**—Dorsey (after Ashley) in 15th Rep. B. A. E., 216, 1897. **Takapsin-toŋwaŋna.**—Ibid.

Takashwangaroras. See *Shikellamy*.

Takasichekhwut (*Tă-ɣas'-i-tce'-qwŭt*). A former village of the Chastacosta on the N. side of Rogue r., Oreg.—Dorsey in Jour. Am. Folk-lore, III, 234, 1890.

Takatoka (corrupted from *De'gătă'gă*, a word which conveys the idea of two persons standing together, and so closely united as to form but one human body). A prominent early chief of the Western Cherokee. The name was also applied to Gen. Stand Watie (q. v.).—Mooney in 19th Rep. B. A. E., 515, 1900.

Takchuk. A Kaviagmiut Eskimo village E. of Port Clarence, Alaska.

Klaxermette.—Jackson, Rep. on Reindeer in Alaska, map, 145, 1894. **Taksomut.**—Nelson in 18th Rep. B. A. E., map, 1899. **Taksomute.**—Petroff in 10th Census, Alaska, map, 1884. **Taksumut.**—Dall in Cont. N. A. Ethnol., I, map, 1877.

Takdentan. A Tlingit division at Gaudekan, Alaska, belonging to the Raven phratry.

taktēn-tān.—Krause, Tlinkit Ind., 118, 1885. **T!ạ'qdentān.**—Swanton, field notes, B. A. E., 1904.

Takdheskautsiupshe ('path where ticks abound'). An Osage village.

Taɣɖe'ska utsi' upcĕ'.—Dorsey, Osage MS. vocab., B. A. E., 1883.

Takelma (from the native name *Dāᵃgelmáᵋn*, 'those dwelling along the river'). A tribe which, together with the Upper Takelma (q. v.), or Latʿgāᵃwáᵋ, forms the Takilman linguistic family of Powell. They occupy the middle portion of the course of Rogue r. in S. W. Oregon from and perhaps including Illinois r. to about Table Rock, the northern tributaries of Rogue r. between these limits, and the upper course of Cow cr. Linguistically they are very sharply distinguished from their neighbors, their language showing little or no resemblance in even general morphologic and phonetic traits to either the Athapascan or the Klamath; it was spoken in at least two dialects. They seem to have been greatly reduced in numbers at the time of the Rogue River war; at the present day the few survivors, a half dozen or so, reside on the Siletz res., Oreg. J. O. Dorsey (Takelma MS. vocab., B. A. E., 1884) gives the following list of village names: Hashkushtun, Hudedut, Kashtata, Kthotaime, Nakila, Salwahka, Seethltun, Sestikustun, Sewaathlchutun, Shkashtun, Skanowethltunne, Talmamiche, Talotunne, Tthowache, Tulsulsun, Yaasitun, and Yushlali. These are nearly all Athapascan in form. The following native Takelma village names were procured by Dr Edward Sapir in 1906: Gelyalk (Gelyālkʿ), Dilomi (Dīᵋlōmi), Gwenpunk (Gwenpʿuñkʿ), Hayaalbalsda (Hayāᵃlbālsda), Daktgamik (Dakʿtʿgamīkʿ), Didalam (Dīdalàm), Daktsasin (Dakʿts!asiñ) or Daldanik, Hagwal (Hagwāl), Somouluk (S·ōmōᵘlùkʿ), and Hatonk (Hat!ōnkʿ). 673-4

Culturally the Takelma were closely allied to the Shasta of N. California, with whom they frequently intermarried. Their main dependence for food was the acorn, which, after shelling, pounding, sifting, and seething, was boiled into a mush. Other vegetable foods, such as the camas root, various seeds, and berries (especially manzanita), were also largely used. Tobacco was the only plant cultivated. Of animal foods the chief was salmon and other river fish caught by line, spear, and net; deer were hunted by running them into an inclo-

sure provided with traps. For winter use roasted salmon and cakes of camas and deer fat were stored away. The main utensils were a great variety of baskets (used for grinding acorns, sifting, cooking, carrying burdens, storage, as food receptacles, and for many other purposes), constructed generally by twining on a hazel warp. Horn, bone, and wood served as material for various implements, as spoons, needles, and root-diggers. Stone was hardly used except in the making of arrowheads and pestles. The house, quadrangular in shape and partly underground, was constructed of hewn timber and was provided with a central fireplace, a smoke-hole in the roof, and a raised door from which entrance was had by means of a notched ladder. The sweat-house, holding about six, was also a plank structure, though smaller in size; it was reserved for the men.

In clothing and personal adornment the Takelma differed but little from the tribes of N. California, red-headed-woodpecker scalps and the basket caps of the women being perhaps the most characteristic articles. Facial painting in red, black, and white was common, the last-named color denoting war. Women tattooed the skin in three stripes; men tattooed the left arm with marks serving to measure various lengths of strings of dentalia.

In their social organization the Takelma were exceedingly simple, the village, small in size, being the only important sociological unit; no sign of totemism or clan groupings has been found. The chieftaincy was only slightly developed, wealth forming the chief claim to social recognition. Feuds were settled through the intervention of a "go-between" hired by the aggrieved party. Marriage was entirely a matter of purchase of the bride and was often contracted for children or even infants by their parents. The bride was escorted with return presents by her relatives to the bridegroom's house; on the birth of a child an additional price was paid to her father. Though no law of exogamy prevailed beyond the prohibition of marriage of near kin, marriage was probably nearly always outside the village. Polygamy, as a matter of wealth, was of course found; the levirate prevailed. Corpses were disposed of by burial in the ground, objects of value being strewn over the grave.

No great ceremonial or ritual development was attained by the Takelma. The first appearance of salmon and acorns, the coming to maturity of a girl, shamanistic performances, and the war dance were probably the chief occasions for ceremonial activity. Great influence was exercised by the shamans, to whose malign power death was generally ascribed. Differing from the shamans were the dreamers, who gained their power from an entirely different group of supernatural beings and who were never thought to do harm. Characteristic of the Takelma was the use of a considerable number of charms or medicine formulas addressed to various animal and other spirits and designed to gain their favor toward the fulfilment of some desired event or the warding off of a threatened evil. The most characteristic myths are the deeds of the culture-hero (Daldàl) and the pranks of Coyote. For further information, consult Sapir (1) in Am. Anthr., IX, no. 2, 1907; (2) in Jour. Am. Folk-lore, XX, 33, 1907; (3) Takelma Texts, Anthr. Pub. Univ. Pa. Mus., II, no. 1, 1909. (E. S.)

Dāagelmaᵋn.—Sapir in Am. Anthr., IX, 252, 1907 ('those living alongside the river,' i. e. Rogue r.: own name). **Kyu'-kŭtchítclûm.**—Dorsey, Alsea MS. vocab., B. A. E., 1884 ('people far down the stream [or country]': Alsea name). **Na-tcté ʇûnnĕ.**—Dorsey, Naltunnetunne MS. vocab., B. A. E., 1884 (Naltunne name). **Rogue River.**—Dorsey, Takelma MS. vocab., B. A. E., 1884 (name given by people in Oregon). **Ta-ʞĕl'-ma.**—Dorsey in Jour. Am. Folk-lore, III, 234, 1890. **Takilma.**—Gatschet in Mag. Am. Hist., VIII, 257, 1882. **Upper Rogue River Indians.**—Dorsey in Jour. Am. Folk-lore, III, 234, 1890.

~~**Takestina.**~~ A Tlingit division at Chilkat, Alaska, belonging to the Wolf phratry. They are said to have lost their way, while migrating northward, in the channel behind Wrangell id. (Taqsī't), whence they came to be called the Taqsī't nation (Taqêstina'). (J. R. S.)

takastina.—Krause, Tlinkit Ind., 116, 1885.

Takfwelottine ('people of the living waters'). A tribe or band of the Thlingchadinne dwelling S. E. of Great Bear lake and at the source of Coppermine r., Mackenzie Ter., Canada. Petitot describes them as kindly, jovial, and religious. When he went among them, in 1865, there were 60 shamans for 600 people.

T'akfwel-ottiné.—Petitot, Dict. Dènè-Dindjié, XX, 1876. **T'akkwel-ottinè.**—Petitot in Bull. Soc. de Géog. Paris, chart, 1875. **Tρa-kfwèlè-ρottinè.**—Petitot, Autour du lac des Esclaves, 363, 1891. **Tρathel-ottiné.**—Petitot, MS. vocab., B. A. E., 1865.

Takhaiya. A former Kuitsh village on lower Umpqua r., Oreg.

Ta-qai'-yă.—Dorsey in Jour. Am. Folk-lore, III, 231, 1890.

Takhchapa ('deer head'). A band of the Miniconjou Sioux.

Tahća-pa.—Riggs in The Word Carrier, June-July 1889. **Tar-co-eh-parch.**—Lewis and Clark (1806) in Am. State Pap., Ind. Aff., I, 715, 1832. **Tar-co-eh-parh.**—Lewis and Clark, Discov., 34, 1806.

Takhuhayuta ('eat the scrapings of hides'). A band of the Yanktonai Sioux.

Tahuha-yuta.—Dorsey in 15th Rep. B. A. E., 218, 1897. **Taquha-yuta.**—Ibid.

Takiketak. A Kuskwogmiut Eskimo village on the E. shore of Kuskokwim bay, Alaska. Pop. 21 in 1880.

Takikatagamute.—Nelson quoted by Baker, Geog. Dict. Alaska, 1902. **Takiketagamute.**—Petroff in 10th Census, Alaska, 17, 1884.

A CONTINUOUS CALORIMETER

To the Editor of Science: In your issue of July 24 Professor Lyndley Pyle refers to the use of the continuous calorimeter by students of Washington University for the past fifteen years. It is gratifying to learn that the method has been so thoroughly tested elsewhere for this purpose. In taking up your valuable space in my article of May 15 I described a particular type of simple calorimeter that we have found most suitable for the elementary work. That this method is not generally used in place of the older and more troublesome method of measuring Joule's heat appears to be because sufficient attention has not been drawn to it. The directness, accuracy and ease of manipulation will appeal I think to all those who have charge of laboratory classes.

The method itself, is, of course, not new. Callendar used it more than twenty-two years ago at Cambridge for comparing the thermal and electrical units, but it was not until he came to McGill University in 1893 that steps were taken to thoroughly investigate the merits of the method. A continuous method was used by Graetz as early as 1882 for measuring thermal conductivities.

H. T. Barnes

McGill University,
July 29, 1908

SCIENTIFIC BOOKS

Publications of the Jesup North Pacific Expedition. Edited by Franz Boas. Leiden, E. J. Brill Limited; New York, G. E. Stechert & Co. 4to.

During the past year the following numbers of this publication have been issued:

The Lillooet Indians. By James Teit. (Vol. II., Part V.)

In this book Mr. Teit describes the customs of the Lillooet, a branch of the Salish Indians, who inhabit the valleys of the Coast Range of British Columbia, from Harrison Lake to the upper reaches of Fraser River. Mr. Teit visited the tribe twice, and describes in some detail the customs of both its lower and upper divisions. The plan of description is similar to that of Mr. Teit's well-known book on the Thompson Indians of British Columbia; the habitat and divisions of the tribe, material culture, warfare, games and pastimes, social organization and festivals, birth, childhood, marriage and death, and religion being taken up in detail. On the whole, the Lillooet resemble in their culture the tribes of the interior, but they form an interesting link between them and the coast tribes, having adopted many of the industries and a considerable part of the social traits of the coast tribes. Mr. Teit describes in detail how the influence of the coast culture gradually diminishes towards those divisions of the Lillooet that reside farthest away from the coast. Of special interest in the descriptions is the discussion of the imbricated basketry and of the basketry designs of the tribe, a subject which has received considerable attention in recent literature. The houses of the division of the tribe living near the coast were similar in structure to the large wooden houses of the Coast Salish, while the tribes of the interior lived in underground dwellings and in tents. Weaving like that produced by the Salish Indians of the Gulf of Georgia was confined to the Lower Lillooet. The tribe has been so much influenced by the whites that very few of the old specimens remain, and consequently not many of the objects in use among them formerly could be illustrated. The transitional stage in the social organization of the tribe is interesting from a theoretical point of view, in so far as it shows clearly how a semi-totemic organization may influence a people that in previous times was organized only in very loose village communities. At the present time the influence of the totemic organization may be observed particularly in grave-monuments which are still preserved, many of which represent figures of ancestors and of totemic beings. The religious concepts of the people differ only slightly from those of the Thompson Indians. The numerous rock-paintings in the Lillooet country have reference particularly to the puberty ceremonials, and are explained in a manner similar to those of the Thompson Indians. The principal difference between the Salish tribes of the interior and the Lillooet in regard to their religious beliefs is based on the introduction of some of the secret societies of the coast. Mr. Teit's paper is the first fairly exhaustive description of the Lillooet, and supplants the earlier brief description given by Mr. Hill-Tout.

Archeology of the Gulf of Georgia and Puget Sound. By Harlan I. Smith. (Vol. II., Part VI.)

Mr. Smith's description of the archeology of the southern coast of British Columbia and the northern coast of the state of Washington is a continuation of his paper on the shell-heaps of the Lower Fraser River, published in Vol. II., Part IV., of this series. In the first part of the paper, which is fully illustrated with text figures reproduced from pen and ink drawings of specimens found in the region under discussion, the archeological finds between Comox in British Columbia, and Olympia, state of Washington, are described in some detail. The locations of shell-heaps, fortifications and village sites, are given; and wherever excavations were undertaken, the character of the site and the remains are described by the author. On the whole, it would seem that the culture of the area was quite similar in type to the culture of the modern coast tribes. However, some striking differences were found in various localities. Perhaps the most important of these is the proof which seems to have been definitely given by Mr. Smith of the close relationship of the prehistoric culture of southern Vancouver Island with that of the mainland and presumably the interior; so that it would seem that at an early time a wave of migration passed over the Coast Range westward to the coast, and across the Gulf of Georgia to Vancouver Island. This culture is characterized particularly by the occurrence of numerous chipped implements, of tubular pipes, and of other objects characteristic of the culture of the interior. In other places along the coast of British Columbia chipped implements are very rare, while on Puget Sound and on the outer coast of the state of Washington chipped implements begin to appear in greater number, and are apparently related to the types of Columbia River. Mr. Smith has also made full use of local collections, and has thus brought together an extended amount of material bearing upon the archeology of this region. Here are also found curious clubs of bone of whale and of stone which have often been claimed to be related to the clubs of New Zealand. Mr. Smith has succeeded in collecting illustrations of almost all the clubs of this kind that are known; and a discussion of this material shows very clearly that almost all of them may be referred to one single type, showing a bird's head surrounded by a head mask, which at the present time is characteristic of the western coast of Vancouver Island. Thus the theory of a foreign origin of this type would seem to be finally disposed of. Mr. Smith treats in a similar way the simpler forms of slave-killers from this coast and the peculiar single and double-bitted axes which are characteristic of Oregon. Another very peculiar type of specimens which is fully discussed in this book are the dishes from southern British Columbia and the Delta of the Fraser River, which have attracted the attention of archeologists. Mr. Smith has illustrated not less than nine of these, all of which show characteristic uniformity of type, and the provenience of which is restricted to a very small area. While the shell-heaps of the Fraser Delta have yielded a great many skeletons, skeletons are, on the whole, rare in the shell-heaps on the coast. Apparently this is related to the fact that in early times burials were not made in the shell-heaps, but in the cairns, while later on burials in canoes, and tree burials, seem to have been customary. Attention may also be called to the illustration and discussion of the interesting petroglyphs of the region between Comox and Nanaimo.

Kwakiutl Texts—Second Series. By Franz Boas and George Hunt.

The second series of Kwakiutl texts, so far as published, contains traditions of the more southern Kwakiutl tribes, and particularly the

important "Mink Legend" and the "Transformer Legend." The former occupies about eighty-five pages, and the latter about seventy pages, of the series. The texts, so far as published, were recorded by Mr. George Hunt, and were revised from dictation by F. Boas. Thus it happens that the whole series of texts published in the Jesup Expedition are recorded by Mr. Hunt. That the bulk of this work was intrusted to Mr. Hunt is due to the fact that the Kwakiutl mythology is enormously extensive, and must be obtained from representatives of all the different families to whom the family traditions belong. The writer of these lines, who is responsible for the collection, could not undertake this work himself, and for this reason he taught Mr. Hunt to write Kwakiutl, and, by carefully controlling his work, trustworthy material has been gathered.

From a broader ethnological point of view a series of this kind collected by a single native recorder is of course unsatisfactory, because the critical insight into style and contents require more varied material. For this reason I have collected a considerable amount of material from various sources, largely intended to control the results obtained by Mr. Hunt, and also to present different styles of story-telling and differences of dialect. It is a matter of regret that this material has not been included in the present volume which thus would have gained very much in scientific value.

Franz Boas

The Psychology and Pedagogy of Reading, with a review of the history of reading and writing, and of methods, texts, and hygiene in reading. By Edmund Burke Huey, Ph.D., Professor of Psychology and Education in the Western University of Pennsylvania. Pp. xvi + 469. New York, The Macmillan Co. 1908.

The experimental studies of the last dozen years in the physiology and psychology of reading constitute an interesting and an important line of advance in experimental psychology. Motived partly by logical, partly by linguistic, partly by pathological, and partly by pedagogical, as well as by purely psychological interests, the investigations of the reading process have materially increased our knowledge of the visual processes, both central and peripheral. They have enriched our experimental technique, and have furnished unusually satisfactory data for an investigation of the higher mental processes. Historically, physiological psychology received one of its most important early impulses from an investigation of speech defects. The lamented Wernicke found a discussion of the linguistic processes a convenient introduction to the more general discussion of mental life, and many another teacher of related disciplines has found it convenient to follow his example. It is not uninteresting that language seems destined to supplement its former services to psychology by furnishing us with the best available technique for an experimental analysis of the more complex elaborative processes.

Reciprocally it would be surprising if any real advance in our knowledge of the linguistic processes should be without influence on language itself and the teaching of language. I regard it as fortunate that, as far as reading is concerned, these practical deductions have been drawn thus far mainly by those whose experimental work guaranteed real information and a scientific attitude.

The present work is made up of four parts: Part I. is a résumé of experimental and analytic researches in the physiology and psychology of the reading process. It occupies about one third of the book. Part II. is a compact account of the history of reading and of reading methods, pp. 76. Part III. contains an illustrated discussion of the more important theories and practises in teaching reading, pp. 119. Part IV. discusses the hygiene of reading, fatigue in reading, suitable type, length of line, etc. The conclusion contains some interesting speculations as to the future of reading. The book closes with an excellent bibliography and an index.

One of the most striking characteristics of Huey's style is his unusually careful recog-

MUSEUM OF THE AMERICAN INDIAN, HEYE FOUNDATION

Although the Indian is a member of a vanishing race, he lives and will live forever in the narratives of the Jesuit fathers, in the pictures and pages of Catlin, in Schoolcraft and Parkman, and a host of others. Place names throughout the length and breadth of the land perpetuate his memory in musical polysyllables, and his traditions have become part of the heritage of the later-day descendants of the alien conquerors of his lands. Yet, in spite of the widespread interest in the aboriginal inhabitants of the Americas, there was no institution devoted exclusively to the anthropology of the indigenous peoples until Mr. George Gustave Heye brought to fulfillment a splendid vision to which he had been steadfast for many years.

The Museum of the American Indian—Heye Foundation, which was opened on November 15, 1922, marks the culmination of twenty years of planning and collecting, in which Mr. Heye had the coöperation of many noted workers in the field of anthropology and the financial support, supplementing his own generous provisions, of the trustees of the museum and interested friends. Although almost two decades elapsed between the inception of the plan and its fulfillment—decades during which the two continents and the islands of the Western Hemisphere were scoured for exhibition and study material—the published results of studies made by members of the staff of the museum, numbering no less than ninety titles and including monumental contributions like *The Antiquities of Manabi, Ecuador*, by Professor M. H. Saville, have enabled the public to gauge the magnitude and diversity of the research work undertaken by the institution. No fewer than twenty-one names of anthropologists engaged in collecting and in study among different Indian tribes or in archæological work on the sites of former Indian occupation, are recorded in the pamphlet setting forth the aims and objects of the museum, and the work of several of these anthropologists in particular areas has stretched over many years, witness the exhaustive researches of Professor Saville on the west coast of South America and in Central America, the collecting of Mr. M. R. Harrington in the United States, and the excavation, by Mr. F. W. Hodge during the last five field seasons, of Hawikuh, one of the famed "Seven Cities of Cibola," the reputed riches of which lured Coronado and his gold-hungry followers into the sun-scorched desert of the Southwest.

The excavation of the last-mentioned site was made possible through the generosity of Mr. Harmon W. Hendricks, a trustee of the museum, and one to whose benefactions it owes much. To list all of those who through gift and encouragement supported Mr. Heye in his undertaking, is not possible within the limits of this note, yet mention must be made of Mr. James B. Ford, one of the trustees, who has been the generous patron of much of the research in the countries to the south, in addition to enriching the collections of the museum; of Mr. Miner C. Keith, a trustee, who presented to the museum the largest collection extant of Costa Rican earthenware; of General T. Coleman du Pont, who financed the expedition to Kane County, Utah, for the exploration of an ancient site of the so-called Basket-makers; of Mrs. Marie Antoinette Heye, who for many years gave Mr. Heye's undertaking most generous support; of Mrs. Thea Heye, who has been the donor of hundreds of valuable objects; and of Mr. Archer M. Huntington, who presented the ground upon which the museum edifice has been erected and who in 1919 inaugurated the series of *Indian Notes and Monographs* in which have been published no less than sixty-five listed contributions.

Between a million and two million specimens representative of the culture of the Indians have been assembled through the activities of the museum, including many thousands that are unique. The three floors devoted to exhibitions naturally do not permit the presentation to the public of more than a fraction of this vast total, but even though it is only a fraction, it will go far toward satisfying the most exacting requirements of the lay visitor. Students will be afforded every facility for utilizing the study collection in their researches.

THE CLEVELAND MUSEUM OF NATURAL HISTORY

The Cleveland Museum of Natural History, which began its existence only about two years ago, has already abundantly demonstrated its ability through exhibits, lectures, and library facilities to respond to the needs of the community which it serves. Late in October of 1922 it even opened its own printing plant, from which was issued under date of No-

vember 1 the initial number of the Cleveland Museum *Bulletin.* From that publication we learn of the work which the museum is doing and of the loyal support which it is receiving from the people of Cleveland. It is stated that through a recent gift from Mrs. Dudley S. Blossom of the Herbarium of the late Samuel Hart Wright of Penn Yan, New York, the museum has come into possession of approximately 10,000 specimens of plants, representing a number of the American and European genera. Mrs. Blossom's gift includes also a part of the Wright library of scientific books, many of which are out of print. Another acquisition deserving special emphasis is a collection of thirty-seven water color studies of the fur seals of the Pribilof Islands, painted by Henry Wood Elliott during his visits to the islands in the early seventies. For this donation the museum is indebted to Mr. John M. Henderson.

During the months of October and November nearly forty lectures were given by members of the museum staff, and certain additional lectures were delivered by invited speakers. The museum staff has been carrying the message of the institution beyond its walls by lecturing before clubs, schools, churches, and conventions, in addition to addressing audiences within the museum itself. Another evidence of the service the museum is rendering to education is the completion by its librarian, Miss Lindberg, of an annotated list of books on natural history suitable for children in their early 'teens or younger.

The museum is housed in Euclid Avenue in one of the Hanna mansions, which has been acquired for a period of years. Two rooms in the present edifice have been completely renovated and in them have been installed natural history exhibits of rare attractiveness. The collections of birds, mounted by Mr. Arthur B. Fuller, are particularly noteworthy for their excellent taxidermy. The Old-World birds, collected and presented by Mr. K. V. Painter, are one of the features of the museum.

THE FIELD MUSEUM

EXPEDITION TO SOUTH AMERICA.—Dr. Wilfred H. Osgood, curator of the department of zoölogy, Field Museum, and Messrs. C. C. Sanborn and H. B. Conover, of the division of birds in that institution, recently left Chicago for Chile, to penetrate some of the comparatively little-known regions of that country, including the area held by the Araucanian Indians.

After landing at Valparaiso, the members of the expedition plan to go to central Chile and thence to proceed southward as far as Chiloe Island. Doctor Osgood and Mr. Conover will then work across northern Argentina and into southern Brazil and Uruguay, returning probably about the middle of 1923. Mr. Sanborn, on the other hand, will remain in the field throughout the present year. He will move northward as the season advances, collecting in northern Chile and Argentina and in Bolivia.

The expedition will visit many of the localities of historic interest to zoölogists, including the type localities of animals collected by Charles Darwin during the voyage of the "Beagle." The expedition will devote itself to the general collecting of vertebrates. Among the animals of popular interest regarding which the party of scientists hopes to learn much is the chinchilla, now so rare because of its inordinate use as a fur. Another expectation which they will strive to realize is to bring back to this country the first specimens of the pudu, a very small deer, and one of the rarest in the Americas.

EXPEDITION TO HONDURAS.—Mr. Karl P. Schmidt, until recently assistant curator of herpetology in the American Museum and now assistant curator of reptiles and batrachians in the Field Museum, left New Orleans about the middle of January for Belize, British Honduras. Mr. Schmidt's primary purpose in undertaking this expedition, in which he is accompanied by a taxidermist, is to secure for the Field Museum material to be used for habitat groups of amphibians and reptiles as well as specimens for the systematic series of these animals. Mammals and fishes will also be collected. After a short stay in British Honduras, Mr. Schmidt and his companion will proceed to Puerto Cortes, Honduras, and thence to Lake Yojoa in the interior of the state. Honduras is perhaps the least-known, zoölogically, of the Central American countries and important results may, therefore, be anticipated from this expedition.

ASIA

WHAT THE GOBI DESERT HAS YIELDED.—In a cable sent by Mr. Roy Chapman Andrews to *Asia* and published in the December issue of that magazine, the leader of the Third Asiatic Expedition summarizes the remarkable results obtained from five months' work in the Gobi Desert. These include the discov-

BORROWED CEREMONIALS.—Having overcome the popular impression that all Indians are alike, investigators are sometimes prone to fall into the opposite error of supposing that Indians are all original, and that whatever a tribe may have in the way of custom, art, or myth necessarily belongs to it. So far is this from being true that it safely may be said that almost the only thing which can be considered as peculiar to a particular tribe is that which relates to its grand medicine or palladium. Indian myths are as hard to trace to their primitive source as anything in Grimm's collection. Neighboring tribes are constantly imitating each other in arts and ornamental design. Songs and dances are imported or introduced just as we get a new opera or waltz from across the water. The most popular gambling songs among the Paiute were obtained from the Mohave, and are meaningless to the Paiute. The southern tribes sing many of the Arapaho songs in the ghost dance, without understanding the words, having originally learned the dance from the Arapaho. The most popular dance at present among the Sioux is known as the Omaha dance, having been introduced from that tribe about twenty-five years ago; and the Calumet dance, which gave so much trouble to the Jesuits in Canada two centuries ago, originated with the Gulf tribes.

JAMES MOONEY.

A Laguna Ceremonial Language.--While conducting studies in physical anthropology among the Queres or Keresan Indians of the pueblo of Laguna, New Mexico, in the interest of the Hyde Expedition, for the

Am. Anthropologist, Vol. V (ns), No. 4. Dec. 1903.

American Museum of Natural History, in 1900, an especially well educated and trustworthy member of the tribe, Charles Kie, informed me that some of the old men of Laguna know and still use in certain ceremonies an archaic language which the younger generation can neither speak nor fully understand. Kie is familiar with some of the words of this language, which are here recorded for the interest which they may have to philologists. For comparison their equivalents in the ordinary Laguna dialect are included. The old men of the tribe guard this archaic speech with great jealousy, and as none of them can speak English, or indeed Spanish with any degree of fluency, and as my informant was afraid to let any one know that he confided the secret in me, I was unable to pursue my inquiry further. This ceremonial language is known as *Hamašija*, which, according to Kai, means, approximately "old," "ancient." With an abundance of time at his disposal, and with the confidence of the old men of the tribe, a linguist could probably learn all that is to be known of the Hamašija. The orthography employed in the terms which follow is the same as that used in my article on "The Ancient Chichimec Region" in the last number of the *American Anthropologist*.

English	*Present Laguna*	*Hamašija*
Father	ška-nej-šti-je, pā-pā (ška = mine)	ška-nał
Man	hač-ce	fa-je-ła-ma (any male)
Woman	ku	ku-čin-nā-ko (any female)
Braves	ko-va-ški-ic	ko-vā-vaj-ča-mos
Wife	ška-u-kve	ška-kō-jau-ce
Husband	škā-č	ška-haš-če
House	kha-trī	i-či-ñ
Village	ca-ā-šti-če	ha-ā-štij-ča-ñi
Sun	u-šā-ča	u-ša-ra
Moon	tā-wā-ča	tā-va-ra
Rain	kha-ač	šī-va-na (both rain and snow)
Food	u-pe-vi	ka-vā-i-ti
Sleeping	cī-pa	pa-jī
Arrow	iš-to-wa	ty-eš-ka-ce
Bow	huš-ťá-ka	kaš-ťjá-ce
Stone	ja-u-ñi	ja-u-ñi
Blanket	("selape," from Spanish)	júš-ka

Body	s̄či-ňi	s̄či-ňi-tū-mi-s̄i
Hair	hā-ča-ňi	ka-wi-na
Bird	ga-jā-ta-ňi-ši	špīš-pi-na
Animal	a-ťāš	cťā-ja-mi-ši
Beautiful	kaj-kā-pi-ni	kau-ki-na
White	ščа-muč-je	k'šē-na, k'šēš
Black	miš-či-c	mō-na-ka-niš
Yellow	kō-či-ňi	kon-mā-ko
Green	kša-ti-mah-ce	kša-ti-mal-ce
Bouquet of all kinds of flowers	(none)	ko-a-ťī-ka-ma
All kinds of clothing	u-na-ťīš-če	čī-mi
Long time ago	mīš-hama	i-nóť
Game, generic	(none)	kojē-ť
Heart	ka-vāš-ka	vi-nuš-ka

Aleš Hrdlička.

Ethnological Survey for the Philippine Islands. — In October, 1902, the Philippine government organized the Bureau of Non-Christian Tribes, with the purpose of studying the ethnology and anthropology of the so-called Pagan and Mohammedan tribes of the archipelago, and also with the purpose of gathering such information concerning the wild tribes as would be of value in administering the government to their advantage. Dr David P. Barrows was appointed the first chief of the bureau shortly after its inception, which position he held until October first of the present year, when he became Commissioner of Education for the islands. On August 24th last the name of the institution was changed to "The Ethnological Survey for the Philippine Islands," and the scope of its work was enlarged to include investigations of all peoples in the islands, for instance, the so-called Christianos and the Chinese. The chiefs of other departments of the government may call on the chief of the Survey to assist them in gathering what information they may desire, if it is directly in the line of the Survey work.

On October first Dr Albert Ernest Jenks, formerly of the Bureau of American Ethnology at Washington, was chosen chief of the Survey, and has entered upon the duties of the office. The Survey will shortly publish a preliminary study of the Negritos, a preliminary study of treaty relations with the Moros of the southern islands, two or three illustrated type bulletins of Filipino peoples, and a monograph on the Bontoc Igorotes. Dr Jenks expects to bring to the St Louis Exposition the ethnological collection of the Philippines and it is expected that sev-

Am. Museum Journal - Feb. 1918.

A New Type of Mural Painting[1]

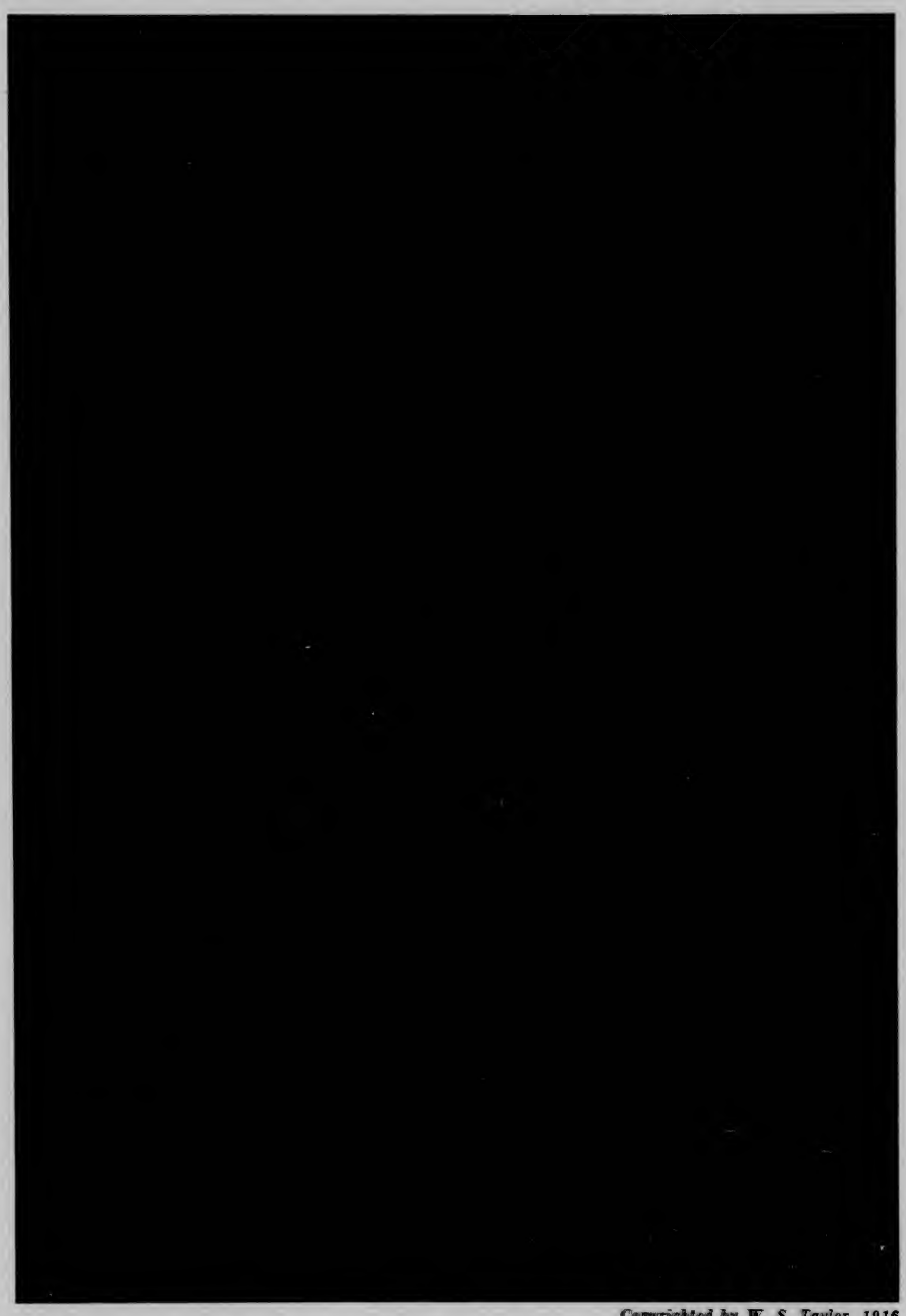
Critical note relative to the decorations in the North Pacific hall of the American Museum

"THE mural decorations by Will S. Taylor at the American Museum of Natural History have attracted attention by their freedom from convention and their mural quality. The artist has just completed a mural painting for the City Park Chapel in Brooklyn in which he has followed the same general course as in the Museum paintings and produced a decoration that is quite personal and unhackneyed, although based upon a theme, Christ blessing little children, that has been a subject for artists through many centuries.

"The chief interest of the painting for students of art is the management of the light and shade. The easiest way to get a mural decoration to seem a part of the wall upon which it is placed and not a hole through the wall or a relief detached from it, is to treat the composition like a map, tying the parts together with a strong bounding line surrounding the larger patches of color, after the fashion of designs for stained glass windows. It may be taken for granted that to be satisfying to the observer the decoration should seem a part of the architecture of the building, but there are other ways of solving the problem. Mr. Taylor treats his composition in the spirit of the sculptor carving his wall in low relief. He permits little reflected lights to bring out the salient forms of his design and his figures have a look of solidity, and nevertheless keep well within one plane. He also pays attention to character. There is no halo and no religious mystery in his picture. The Christ, friendly and benignant, has come to a public square surrounding a well, where the children play and the mothers congregate for gossip, according to the custom in Eastern countries, where the drawing of water is the important feature of the day's occupations. He is seated among the children and is talking affectionately to those nearest, while others stand about in attitudes of interest and curiosity, as they might today in any of the east side streets where something out of the common was attracting their attention. The gestures and poses are entirely natural. The little girl at the left holding a baby in her arms might be duplicated any day in the poorer quarters of New York.

"The artist has, in fact, picked up his models here and there from among the young visitors to the Museum or the children he has observed in the neighborhood. The costumes have been made for him with as close an approach to archæological accuracy as could be managed, but they clothe the figures naturally and have none of the artificiality of reconstructed history. The picture is flooded with sunlight, which streams over the buildings in the background and makes bright patches on the pavement in front of the well. This letting the spirit of out-of-doors into a church also is a modern note. The greens and blues and yellows of the color scheme are skillfully managed and make a strong harmony. Without making any pretense of greatness, the whole decoration speaks of sincerity and the delight of the painter in his work. It would not be surprising if a distinct type of mural decoration grew out of the work done in the American Museum of Natural History. The painters working there are surrounded by objects of the past, not as they are represented in art, but as they are discovered and preserved for precise study, and their special concern is to place these objects in a natural environment. They have as much of nature as can persist through the disintegrating processes of time to suggest color and form, and many contrasts and resemblances. In the mineral section alone are palettes ready set with colors in beautiful and extraordinary relation. And they have for their benefit, as well as for their hampering restriction, an atmosphere of respect for actual fact which discourages much indulgence in poetic license. Even if no masterpieces are created in such an environment, there probably will be enough interesting and well-considered compositions to form a distinct school of historical painting wholly different from the empty and dull imaginings of the earlier historical painters. Holman Hunt and the young Millais would have a good word for Mr. Taylor's methods."

[1] Quoted from the Magazine Section of the *New York Times*, October 28, 1917.



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WELCOMING CEREMONY OF THE BELLA COOLA INDIANS

The murals in the North Pacific hall of the American Museum, executed by Will S. Taylor, already have won distinction and praise, especially for their color and composition values. There are two series of these murals completed. Six panels on the west side of the hall tell stories of Indian industries; a second six, ceremonial in character, run the length of the east wall. A preliminary study for the sixty-foot canvas to occupy the full width of the south wall is at present on exhibition at the New York Architectural League

WELCOMING CEREMONY OF THE BELLA COOLA INDIANS

Retake of Preceding Frame

A CONTINENT LOST—A CIVILIZATION WON

Indian Land Tenure in America

By J. P Kinney

In the year 1724, the Reverend John Bulkley wrote a brief article in which he sought to elucidate the fundamental principles of land ownership in New England and to justify on legal and moral grounds the conduct of the English in taking possession of and developing the physical resources that the Indians could not, or would not, efficiently use. Doubtless, his argument failed to convince many of his contemporaries and, during the two centuries that have followed, innumerable references have been made in English publications to the dispossession of the natives by the whites. Many of these fragmentary comments and observations have been extremely critical of the part played by the white race in a political and economic drama that has deprived the Indians of whatever legal and moral interest they may have had in nearly two thousand million acres of land and water within the boundaries of the present United States.

Several pamphlets and books, published during the eighteenth and nineteenth centuries, have discussed critically and exhaustively the circumstances connected with the loss of their lands by individual tribes. Part II of the Eighteenth Annual Report of the Bureau of American Ethnology, entitled "Indian Land Cessions," as compiled by Charles C. Royce and published in 1900, contained invaluable maps and notes on cessions of lands within the United States by the Indians. This report also contained a scholarly essay by Cyrus Thomas on the general policy of European nations, the American Colonies, and the United States with respect to Indian lands. However, no publication that delineated the successive steps in land policy, the reasons for the same and the effect upon the Indians themselves has heretofore been available, either to the general reader or to the special student of Indian history.

For the first time, there is now presented in "A Continent Lost—A Civilization Won," a chronological detail of the processes through which the American Indian has lost the greater part of his patrimony. This presentation begins in 1492 and extends to 1936—a period of 444 years. The first American legislative ordinance quoted in the book was promulgated in 1633 and the last act of the Federal Government described was enacted in 1936. Countless legislative acts, administrative enunciations and legislative decisions are cited and explained.

CONTENTS

Preface. Chapter I. Indian Land Tenure During the Colonial Period; II. The Agitation for the Removal of the Indians; III. Early Indications of an Allotment Policy; IV. Experimentation with an Allotment Policy; V. The Acceptance of a General Allotment Policy; VI. Allotment Purpose Defeated by Lease and Sale; VII. The Development of Reservation Resources; VIII. The Past, the Present, and the Future. Bibliography. Appendix: Map showing Tribes of North America; Tables showing total Area of Indian Lands 1871-1933 and Restricted Lands on Indian Reservations. Index.

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COMMENTS

" From owners of a continent four hundred years ago, the American Indian today is reduced to a bare fifty million acres that he can call his own. Here is the sweeping theme of Mr. Kinney's story told with the sympathetic understanding and charitable treatment of the true historian. It is a book destined to make a new and better understanding of the American Indian and the motivating forces that have shaped his destiny."—*American Forests.*

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Boy in Indian Camps - Grinnell - Garrard.

Forest and Stream

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NEW YORK, SATURDAY, DECEMBER 3, 1910.

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A WEEKLY JOURNAL.

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George Bird Grinnell, President,
Charles B. Reynolds, Secretary,
Louis Dean Speir, Treasurer,
127 Franklin Street, New York.

THE OBJECT OF THIS JOURNAL
will be to studiously promote a healthful interest in outdoor recreation, and to cultivate a refined taste for natural objects.
—Forest and Stream, Aug. 14, 1873.

GAME BIRDS IN CONNECTICUT.

The project to establish near Darien, Conn., a station for the breeding of upland game birds, to which may be joined also the breeding of wildfowl, has a wide public interest. The plan proposed combines the scientific and the practical, and is in fact the carrying on—at another point and under other conditions—of the work so successfully initiated years ago by Dr. C. F. Hodge. It will be in charge of two enthusiasts, one of whom has had much experience in rearing wild birds in domestication, while the other is a devoted bird lover and thoroughly familiar with the literature of the subject. These qualifications give good promise of success.

That these experiments are to be continued is gratifying, for with what has been done by Dr. Hodge and others it would seem that we stand at the threshold of discoveries which will make the propagation of many wild birds absolutely simple, and the rearing of quail and grouse as commonplace as the rearing of hens.

Past experience has demonstrated that there is nothing inherently intricate or mysterious about the hand-rearing of game birds. To make it successful are needed, besides some money, considerable intelligence and an abounding enthusiasm which will fill the experimenter with eternal vigilance and everlasting hope. In Great Britain where the breeding of wild game has become commercialized, and where the keepers who consistently fail to rear the birds entrusted to them are considered incompetent, the work is carried on as a matter of course. The same thing may be done in the United States with our native species by the proper men.

The breeding of wildfowl native to Connecticut should also be undertaken on a considerable scale. These wildfowl should be reared—in part at least—in open pens with liberty to go and come, just as wild ducks are bred in England. Raised under such conditions, the birds will go south in the fall, as wild birds do, and returning again in spring, will tend to breed on or near the land where they were hatched. Only a few years of work of this kind will be required to greatly increase the wildfowl and other birds accessible to Connecticut gunners.

Although these experiments are to be conducted in Connecticut, the whole continent may watch them with absorbing interest. What is learned at this experiment station will be for the benefit of every State and Province, and may have the greatest promise for the men of to-day and their children after them.

WOODS ACCIDENTS.

The accidents by which men are shot by mistake for deer, and which take place during each deer hunting season in various localities, are a disgrace to American hunters. These unhappy events are accidents in the sense that they happen without malicious intent on the part of the person who causes the injury, but they are the result of criminal carelessness, precisely as when a careless man drags his gun from a wagon, out of a boat or through a fence, holding it by the barrels with the muzzle directed toward his person. The man who shoots himself pays the penalty for his carelessness. He who is shot by another is blameless in the matter.

The writing done on this subject is for the most part wasted. People who are thoughtful enough to read and to remember such writings are not of those who shoot at a moving bush thinking that it is a deer. Hunters careless and thoughtless enough to do this do not heed the instruction so freely offered.

There is a way by which these injuries and this loss of life may greatly be reduced in number, and that is by making it illegal under a heavy penalty to kill deer without horns. In many regions where deer are found, such a law may not be needed to preserve the deer, but it is needed to preserve human beings who pursue the deer. A law prohibiting the killing of deer without horns, if enforced, would tend to make every hunter hold his fire until he saw his animal clearly enough to know whether it carried horns or not. This pause to get a view of the game and thus to enable him to identify it would tend to make every man certain that what he saw was a deer and not a fellow-man.

There is evidence to show that in States where the killing of hornless deer is forbidden, the ratio of accidents to hunters is far less than in those where any deer may be killed. Efforts to make men more careful by statute have failed, but such change in the game laws may make men wait long enough to see what they are shooting at.

The attempts made during the warm season to shoot with rifles and revolvers from rapidly moving aeroplanes at targets placed on the ground were not productive of very satisfactory results. In fact, the so-called bomb throwing or dropping was the more accurate of the two methods practiced. Expert marksmen failed in their estimates of distance and in the probable speed of the air craft. Every big-game shooter knows how difficult it is to shoot accurately at an object far below him on a mountainside, but he who is being whirled rapidly through the air finds it increasingly difficult to shoot well.

THE RIGHT TO HUNT.

Compared with the season of 1909, there has been a marked decrease so far this season in the sale of guns by the Pennsylvania Game Commission. The commission is not conducting a gun store; nevertheless it sold about one thousand firearms last year, and at a fair profit. Unlike business men, however, who deplore falling off in trade, the commission rejoices that its stock of guns is decreasing steadily.

Formerly Pennsylvania was overrun by aliens carrying guns. They shot at everything wearing fur or feathers. Last year a new law was passed. It forbade hunting by unnaturalized foreign-born residents of Pennsylvania; it forbade the ownership or possession by them of guns and rifles of any sort; it provided for a fine or imprisonment, and in addition to this, the confiscation and sale by the commission of firearms taken from these men.

The measure is a drastic one, but it is needed, and so far the returns show that it has proved effective. Aside from saving non-game birds, it has no doubt saved wardens from death or injury at the hands of men who were ever ready to dispute the right of the State to interfere with their small bird shooting.

Men who have been looking for small game in the vicinity of New York city this season have commented frequently on the scarcity of aliens carrying guns, whereas a few years ago they flocked to the suburbs in season. Strong repressive measures have brought about this improved state of affairs, and have gone far toward the protection of small birds. In this region the game laws are no longer ignored, and the wardens enjoy the confidence of responsible persons.

Those who shoot do not grumble, as they formerly did, over the payment of a dollar for a resident's license. Instead, they regard the sum paid out as a contribution to the work of protection and propagation, and in addition to this it has become in a way a guarantee of good intentions and an effective means of identifying those who have a legal right to hunt game, while those who have no permit assist in their own punishment if called to account.

The skill of the old hunter is not to be despised when a man hunt is organized. We have already told how one fugitive from justice was trailed and taken by a warden. This was in New England. Again, more recently, an old hunter followed the trail of two fugitives from justice in that section, while in Wisconsin a posse composed in part of deer hunters, assisted by hounds, trailed a hunter who ran away after shooting a man, apparently mistaking him for a deer. The victim's red coat and cap did not save him. The ways of the would-be deer hunter are indeed strange, but to hunt him down with hounds is novel.

A Boy in Indian Camps

L. H. Garrard's Experiences—The Plains in 1846—Life Among the Cheyenne Indians

By GEORGE BIRD GRINNELL

ONE of the most charming books written about the early plains is Lewis H. Garrard's "Wah-To-Yah and the Taos Trail." It is the narrative of a boy, only seventeen years old, who, in 1846, traveled westward from St. Louis with a train led by Mr. St. Vrain, of the firm of Bent, St. Vrain & Co., and after some time spent on the plains and in Cheyenne camps, proceeded westward to New Mexico and there saw and heard of many of the events just antecedent to the Mexican War.

It is an interesting fact that the book, which, in its interest and its fidelity to nature and to early times, equals the far more celebrated "California and Oregon Trail," of Parkman, tells of the events of the same year as Parkman's volume, but deals with a country to the south of that traversed by him who was to become one of the greatest historians of America. The charm of each volume lies in its freshness. Neither could have been written except by one who saw things with the enthusiastic eyes of youth, who entered upon each adventure with youth's enthusiasm, and who told his story with the frankness and simplicity of one who was very young. After all the greatest charm of any literature lies in the simplicity with which the story is told, and in both these delightful volumes is found this attractive quality.

Garrard reached St. Louis on his way to the Rocky Mountains in July, 1846, and there became acquainted with the firm of Pierre Choteau, Jr., & Co., so well known in the fur trade of the West. Here, too, he met Kenneth McKenzie, one of the first traders with the Blackfeet Indians, and Mr. St. Vrain.

To the modern reader it seems odd to see it stated in the first two lines of the book that a part of the necessary preparations for the trip before him was the "laying in a good store of caps, fine glazed powder, etc.," but in those days the percussion cap was still a new thing, and of the guns used west of the Missouri River, the great majority still used the flint to strike fire to the charge.

Besides Garrard, there were others in St. Vrain's company who were new to the plains. Of these one was Drinker, a Cincinnati editor; another, a Mr. Chadwick. Besides these there were General Lee, of St. Louis, a friend or two of St. Vrain's, and various employees of the traders.

Bent's train was encamped not far from Westport, and here Garrard got his first taste of wild life, sleeping on the ground in the open. Here, too, he saw his first Indians, the Wyandottes, who, in 1843, had been moved westward from their homes in Ohio. Here, of course, he met those who for months were to be his traveling companions, and he paints us a fresh picture of them in these pleasing words:

"There were eighteen or twenty Canadian Frenchmen (principally from St. Louis) composing part of our company, as drivers of the teams. As I have ever been a lover of sweet, simple music, their beautiful and piquant songs in the original language fell most harmoniously on the ear as we lay wrapped in our blankets.

"On the first of September, Mr. St. Vrain's arrival infused some life into our proceedings, but nothing more worthy of note occurred, except riding and looking at horses, of which Drinker and I were in need; one of which, Frank De Lisle, *'le maitre de wagon,'* sold me for fifty dollars, whom, from his fanciful color, brown and white spots, and white eyes, was designated by the descriptive though not euphonious name of 'Paint.' He was a noted buffalo chaser, and I anticipated much excitement through his services.

"The way the mules were broken to wagon harness would have astonished the 'full-blooded' animals of Kentucky and other horse-raising States exceedingly. It was a treatment none but hardy Mexican or scrub mules could survive. They first had to be lassoed by our expert Mexican, Blas, their heads drawn up to a wagon wheel, with scarce two inches of spare rope to relax the tight noose on their necks, and starved for twenty-four hours to subdue their fiery tempers; then harnessed to a heavy wagon, lashed unmercifully when they did not pull, whipped still harder when they ran into still faster speed, until, after an hour's bewilderment, and plunging and kicking, they became tractable and broken down—a labor-saving operation, with the unflinching motto of 'kill or cure.'"

The pulling out of the train from near Westport was an interesting and exciting event. Teamsters were shouting to their newly-yoked bulls; the herders were driving along the caballada; mounted men were riding back and forth; the leader of the company and his wagon master were constantly passing to and fro from one end of the train to the other, seeing how things went, and looking for weak spots among the teams and the wagons. A few days later came the first rain storm—a dismal occasion to the young traveler on the plains. There are few old plainsmen but can still recall something of the discomfort of a long day's travel in the storm; of the camping at night with clothing thoroughly wet and bodies thoroughly chilled, and the sitting or lying, or perhaps even sleeping in the wet clothing. "The wagons being full of goods, and we without tents, a cheerless, chilling, soaking, wet night was the consequence. As the water penetrated successively my blanket, coat and shirt, and made its way down my back, a cold shudder came over me. In the gray, foggy morning a more pitiable set of hungry, shaking wretches were never seen. Oh! but it was hard on the poor greenhorns!"

At Council Grove, which they reached the last of September, the train remained for two days, and as this was the last place traveling westward where hardwood could be procured, the men felled hickories and oaks for spare axle trees, and swung the pieces under their wagons. Young Garrard was an eager hunter, and set out from camp in search of wild turkeys, whose cries he could hear, but he got none.

Here is another picture of that early life which may call up in the minds of some readers pleasant memories of early days when they, too, were a part of such things: "So soon as a faint streak of light appears in the east, the cry 'Turn out' is given by De Lisle. All rise, and in half an hour the oxen are yoked, hitched and started. For the purpose of bringing everything within a small compass, the wagons are corraled; that is, arranged in the form of a pen when camp is made, and as no animals in that country are caught without a lasso, they are much easier noosed if driven in the corral. There no dependence must be placed in any but one's self, and the sooner he rises, when the cry is given, the easier can he get his horse.

"Like all persons on the first trip I was green in the use of the lasso, and Paint was given to all sorts of malicious dodging; perhaps I have not worked myself into a profuse perspiration with vexation a hundred and one times in vain attempts to trap him.

"Not being able to catch my horse this morning I hung my saddle on a wagon and walked, talking to the loquacious Canadians, whose songs and stories were most acceptable. They are a queer mixture, anyhow, these Canadians. Rain or shine, hungry or satisfied, they are the same garrulous, careless fellows, generally caroling in honor of some brunette Vide Poche, or St. Louis Creole beauty, or lauding, in the words of their ancestry, the soft skies and grateful wine of La Belle France, occasionally uttering

a *sacré* or *enfant de garce,* but suffering no cloud of ill humor to overshadow them but for a moment. While walking with a languid step, cheering up their slow oxen, a song would burst out from one end of the train to the other, producing a most charming effect."

The train was now approaching the buffalo range, and before long several buffalo were seen. Now, too, they had reached a country where "*bois de vaches*"—buffalo chips—were used for fuel, and the collecting this was a part of the daily work after camp was made. More and more buffalo were seen, and before long we hear of the plain literally covered with them, and now, as buffalo were killed more often, Garrard is introduced to a prairie dish which no one will ever eat again. He says: "The men the face and fired. Reloading, still in hot pursuit (tough work to load on a full run), I followed, though without catching up. One feels a delightfully wild sensation when in pursuit of a band of buffalo on a fleet horse with a good rifle, and without a hat, the winds playing around the flushed brow, when with hair streaming, the rider nears the frightened herd, and with a shout of exultation discharges his rifle. I returned to the party highly gratified with my first, though unsuccessful chase, but Mr. St. Vrain put a slight damper to my ardor by simply remarking:

"'The next time you "run meat" don't let the horse go in a trot and yourself in a gallop' (I had in my eagerness leaned forward in the saddle, and a stumble of the horse would have wagons, where the pursuer changed tack, only to be shot by one of the teamsters with a nor'-west fusil."

It is natural enough that the boy author, while traveling for the first time through the buffalo range, should think and write chiefly about buffalo, yet he finds time to tell of the prairie dog towns through which they passed, and of the odd ways of the dog and the curious apparent companionship, or at least, cohabitation of the snakes and the prairie owls with them. As they passed through this region, north of the Arkansas in the hot, dry weather of the early fall, they suffered sometimes from thirst. The first grave passed by the train aroused melancholy and sympathetic feelings in the boy's heart.

One day Garrard went out hunting with Mr.

RUNNING BUFFALOES IN THE FIFTIES.

ate the liver raw, with a slight dash of gall by way of zest, which, served *à la Indian,* was not very tempting to cloyed appetites, but to hungry men, not at all squeamish, raw, warm liver, with raw marrow, was quite palatable.

"It would not do," he continues, "for small hunting parties to build fires to cook with, for in this hostile Indian country a smoke would bring inquiring friends. Speaking of hostile Indians reminds me of a question related by one of our men. At a party, in a Missouri frontier settlement, a lady asked a mountaineer, fresh from the Platte, 'if the hostile Indians are as savage as those who serve on foot.'

"Returning to camp the prairie was black with the herds, and a good chance presenting itself, I struck spurs into Paint, directing him toward fourteen or fifteen of the nearest, distant eight or nine hundred yards. We (Paint and I) soon neared them, giving me a flying view of their unwieldy proportions, and when within fifteen feet of the nearest I raised my rifle half way to pitched me over his head), by which well-timed and laconic advice I afterward profited."

From this time on there was much chasing of buffalo, but little killing of them, except by the old hands. The young ones, of course, neither knew how to shoot nor where to shoot, and our author naively remarks, after one of his chases: "To look at a buffalo one would think that they could not run with such rapidity, but let him try to follow with an ordinary horse and he is soon undeceived."

Among the efforts of the greenhorns to kill buffalo was the following incident: "Mr. Chadwick (of St. Louis, on his first trip, like several of us, for pleasure), seeing a partially blind bull, concluded to 'make meat' of him. Crawling up close, the buffalo scented him and pitched about every way, too blind to travel straight or fast. Chad fired; the mad animal, directed by the rifle report, charged. How they did 'lick it' over the ground, the pursued yelling, half in excitement, half in fear, till they were close to the St. Vrain and another, and a band of buffalo were discovered on their way to water. Here Garrard first found himself near to a wounded bull, and the picture that he paints of the monster is a true and a striking one. "Mr. St. Vrain dismounting took his rifle and soon was on the 'approach,' leaving us cached behind a rise of the ground to await the gun report. We laid down with our blankets, which we always carried strapped to the saddle, and with backs to the wind talked in a low tone, until hearing Mr. St. Vrain's gun, when we remounted. Again and again the rifle was heard in hasty succession, and hastening to him we found a fat cow stretched and a wounded male limping slowly off. The animals were tied to the horns of our cow, and with butcher knives we divested the body of its fine coat, but finding myself a 'green hand,' at least not an adept in the mysteries of prairie butchering, I mounted Paint for the wounded fellow who had settled himself with his fore legs doubled under him 300 yards from us. Mine

Retake of Preceding Frame

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was a high pommeled, Mexican saddle, with wooden stirrups, and when once seated it was no easy matter to be dislodged. Paint went up within twenty yards of the growling, wounded gore-covered bull, and there stood trembling and imparting some of his fear to myself.

"With long, shaggy, dirt-matted and tangled locks falling over his glaring, diabolical eyes, blood streaming from nose and mouth, he made the most ferocious looking object it is possible to conceive, and if nurses could portray to obstinate children in true colors the description of a mad buffalo bull, the oft-repeated 'bugaboo' would soon be an obsolete idea.

"While looking with considerable trepidation on the vanquished monarch of the Pawnee plains, he started to his feet, and with a jump materially lessened the distance between us, which so scared Paint that he reared backward, nearly sliding myself and gun over his tail, and before the bridle rein could be tightened, ran some rods, but turning his head and setting the rowels of my spurs in his flanks, I dashed up within thirty feet of the bull, and at the crack of the gun the 'poor buffler' dropped his head, his skin convulsively shook, his dark eyes, no longer fired with malignancy, rolled back in the sockets, and his spirit departed for the region of perpetual verdure and running waters, beyond the reach of white man's rifle or the keen lance of the prairie warrior."

And then the picture with which he closes the chapter covering the march through the buffalo range! How boyish, and yet how charming and how true it is!

"Good humor reigned triumphant throughout the camp. Canadian songs of mirth filled the air, and at every mess fire pieces of meat were cooking *en appolas;* that is, on a stick sharpened, with alternate fat and lean meat, making a delicious roast. Among others, *boudins* were roasting without any previous culinary operation, but the tying of both ends, to prevent the fat, as it was liquified, from wasting, and when pronounced 'good' by the hungry impatient judges, it was taken off the hot coals, puffed up with the heat and fat, the steam escaping from little punctures and coiled on the ground, or a not particularly clean saddle blanket, looking for all the world like a dead snake.

"The fortunate owner shouts, 'Hyar's the doin's, and hyar's the 'coon as *savys* "poor bull" from "fat cow"; freeze into it, boys!' And all fall to, with ready knives, cutting off savory pieces of this exquisitely appetizing prairie production.

"At our mess fire there was a whole side of ribs roasted. When browned thoroughly we handled the long bones, and as the generous fat dripped on our clothes, we heeded it not, our minds wrapped up with the one absorbing thought of satisfying our relentless appetites. Progressing in the work of demolition, our eyes closed with ineffable bliss. Talk of an emperor's table! Why, they could imagine nothing half so good. The meal ended, the pipe lent its aid to complete our happiness, and at night we retired to the comfortable blankets, wanting nothing, caring for nothing."

Late in October the train met with the advance guard of a party of Cheyenne warriors, then on the warpath for scalps and horses against the Pawnee nation. These were the first really wild Indians that Garrard had seen, and their picturesqueness and unusual appearance greatly interested him. In those days the Cheyennes had never been at war with the white people, and they were on terms of especial friendliness with Bent and St. Vrain, from whose trading posts they obtained their supplies. A little later, on the way to Bent's Fort, they passed a Cheyenne medicine lodge, with its sweathouse, and later still Indian graves on scaffolds which rested on the horizontal limbs of the cottonwood trees. A day or two after this they reached Fort William, or Bent's Fort, where they met William Bent, in his day one of the best known men of the Southern plains. A few days were spent there, and then came the most interesting adventure that the boy had had.

Early in November he started for the Cheyenne village with John Smith who, with his wife, his little boy Jack and a Canadian, were setting out for the village to trade for robes.

John Smith is believed to have been the first white man ever to learn the Cheyenne language, so as to be able to interpret it into English. When he made his appearance on the plains we do not know, but he was there in the '30's, and for many years was employed by Bent and St. Vrain to follow the Indians about and trade with them for robes. Early in his life on the plains he had married a Cheyenne woman and established intimate relations with the tribe, among whom he remained for many years. He was present in the camp of the Cheyennes during the Chivington massacre at Sand Creek, in 1864, at which time his son, Jack, the child mentioned by Garrard in this volume, was killed by the soldiers, being shot in the back by a soldier who saw his shadow on the lodge skins and fired at it. It is said that John Smith himself came very near being killed, and had a hard time to talk the Colorado soldiers out of killing him. He has a son now living at Pine Ridge.

The small party journeyed on toward the village, and while Pierre, the Canadian, drove the wagon and the woman and her child rode in silence, Smith and Garrard kept up a lively conversation. Smith was anxious to learn all about the "States" and life there, while Garrard replied to him with inquiries about Indians and their ways. And so, day after day, they journeyed over the plain until the cone-shaped lodges of the village came in sight, to be reached a few hours later. Riding into the camp, they halted at the lodge of one of the principal men, and unsaddling and unpacking their animals there, entered it with their goods, and according to custom established themselves in the back part, which was at once given up to them by the host. And now began an entirely new life for Garrard —a life into which he threw himself with the whole-hearted enthusiasm of a healthy lad, and which he thoroughly enjoyed. The days and evenings in the camp; the moving from place to place over the prairie; the misfortunes which happened to the men unaccustomed to such life are all described. Vivid glimpses of the marching Indian column are given in the following paragraphs:

"The young squaws take much care of their dress and horse equipments. They dashed furiously past on wild steeds, astride of the high-pommeled saddles. A fancifully colored cover, worked with beads and porcupine quills, making a flashy, striking appearance, extended from wethers to rump of the horse, while the riders evinced an admirable daring, worthy of Amazons. Their dresses were made of buckskin, high at the neck, short sleeves, or rather none at all, fitting loosely, and reaching obliquely to the knee, giving a relieved Diana look to the costume; the edges scalloped, worked with beads and fringed. From the knee downward the limb was encased in a tightly fitting leggin, terminating in a neat moccasin, both handsomely worked with beads. On the arms were bracelets of brass which glittered and reflected in the radiant morning sun, adding much to their attractions. In their pierced ears shells from the Pacific shore were pendant, and to complete the picture of savage taste and profusion their fine complexions were eclipsed by a coat of flaming vermillion.

"Many of the largest dogs were packed with a small quantity of meat or something not easily injured. They looked queerly, trotting industriously under their burdens, and judging from a small stock of canine physiological information, not a little of the wolf was in their composition. These dogs are extremely muscular and are compactly built.

"We crossed the river on our way to the new camp. The alarm manifested by the *ki-kun* (children) in the lodgepole drays, as they dipped in the water, was amusing. The little fellows holding their breaths, not daring to cry, looked imploringly at their inexorable mothers, and were encouraged by words of approbation from their stern fathers. Regaining the grassy bottom we once more went in a fast walk.

"The different colored horses, the young Indian beaux, the bold bewildering belles, and the newness of the scene were gratifying in the extreme to my unaccustomed senses. After a ride of two hours we stopped, and the chiefs, fastening their horses, collected in circles to smoke the pipe and talk, letting their squaws unpack the animals, pitch the lodges, build fires, arrange the robes; and, when all was ready, these 'lords of creation' dispersed to their several homes to wait until their patient and enduring spouses prepared some food. I was provoked, nay, angry, to see the lazy, overgrown men do nothing to help their wives, and when the young women pulled off their bracelets and finery to chop wood, the cup of my wrath was full to overflowing, and in a fit of honest indignation I pronounced them ungallant and savage in the true sense of the word. A wife here is, indeed, a helpmeet."

Bravery, endurance and hardihood were in those days a part of the education of each Indian boy, and here is a glimpse of the training received by a baby, which shou'd fit him for the hardships that each warrior must endure. This was the grandson of the Vip-po-nah, a boy six or seven months old:

"Every morning his mother washed him in cold water and sent him out to the air to make him hardy. He would come in perfectly nude from his airing, about half frozen. How he would laugh and brighten up as he felt the warmth of the fire! Being a boy, the parents have great hopes of him as a brave and chief (the acme of Indian greatness). His father dotes upon him, holding him in his arms, singing in a low tone, and in various ways showing his extreme affection."

Among the subjects discussed by Garrard and John Smith before they reached the Cheyenne village had been that of food. Smith spoke of

the excellence of dog meat, while Garrard declared that it must be horrible, saying that buffalo meat was unquestionably the most delicate food in this or any other country. Smith agreed that buffalo was the best, but that dog meat was the next, and offered to bet that he would make Garrard eat dog meat in the village, and make him declare that it was good. How John Smith carried out his threat is told in the following paragraphs:

"One evening we were in our places. I was lying on a pile of outspread robes, watching the blaze as it illumined the lodge, which gave the yellow hue of the skins of which it was made a still brighter tinge, and following with my eye the thin blue smoke coursing in fantastic shapes through the opening at the top of the cone, my thoughts carrying me momentarily everywhere, now home, now enjoying some choice edible; or, seated by a pleasant friend, conversing; in short, my mind, like the harp in Alexander's feast, the chords of which, touched by the magic hand of memory, or flight of fancy, alternately depressed or elevated me in feeling. Greenwood and Smith, sitting up, held in 'durance vile' the ever present pipe. Their unusual laughter attracted my attention, but not divining the cause I joined in the conversation. It was now quite late, and feeling hungry I asked what was on the fire.

" 'Terrapins,' promptly replied Smith.

" 'Terrapins!' echoed I in surprise at the name. 'Terrapins! How do you cook them?'

" 'You know them hard-shell land terrapin?'

" 'Yes.'

" 'Well, the squaws go out to the sand buttes and bring the critters in and cook 'em in the shell alive—those stewin' thar ar cleaned first. Howsomever, they're darned good!'

" 'Yes, hos, an' that's a fact, wagh,' chimed in Greenwood.

"I listened of course with much interest to their account of the savage dish and waited with impatience for a taste of that, the recital of whose merits sharpened my already keen appetite. When the squaw transferred the contents of the kettle to a wooden bowl and passed it on to us, our butcher knives were in immediate requisition. Taking a piece with hungry avidity which Smith handed me without thought as to what part of the terrapin it was, I ate it with much gusto, calling for more. It was extremely good, and I spoke of the delicacy of the meat, and answered all their questions as to its excellency in the affirmative, even to the extent of a panegyric on the whole turtle species. After fully committing myself, Smith looked at me a while in silence, the corners of his mouth gradually making preparations for a laugh, and asked:

" 'Well, hos, how do you like dog meat?' and then such hearty guffaws were never heard. The stupefaction into which I was thrown by the revolting announcement only increased their merriment, which soon was resolved into yells of delight at my discomfiture.

"A revulsion of opinion, and dog meat, too, ensued, for I could feel the 'pup' crawling up my throat, but saying to myself 'that it was good under the name of terrapin,' 'that a rose under any other name would smell as sweet,' and that it would be prejudice to stop I broke the shackles of deep-rooted antipathy to the canine breed, and putting a choice morceau on top of that already swallowed, ever after remained a stanch defender and admirer of dog meat. The conversation held with Smith the second day of our acquaintance was brought to mind, and I acknowledged that dog was next in order to buffalo."

Life in the Cheyenne camp went on interestingly. Garrard began to make a vocabulary of the Cheyenne language, and soon to speak it in a broken fashion which caused his auditors to shriek with laughter. He watched them at the sign language, amused them with games and the few books which he possessed, went to feasts, noted the odd implements and ways of his camp mates, and set down all that happened, together with his boyish reflections on the incidents.

The discipline practiced by John Smith on his son Jack will bear repeating. It seems that the child had taken to crying one night, much to the annoyance of four or five chiefs, who had come to the lodge to talk and smoke. "In vain did the mother shake and scold him with the severest Cheyenne words, until Smith, provoked beyond endurance, took the squalling youngster in hands. He shu-ed and shouted and swore, but Jack had gone too far to be easily pacified. He then sent for a bucket of water from the river and poured cupful after cupful on Jack, who stamped and screamed and bit in his puny rage. Notwithstanding, the icy stream slowly descended until the bucket was emptied, another was sent for, and again and again the cup was replenished and emptied on the blubbering youth. At last, exhausted with exertion, and completely cooled down, he received the remaining water in silence, and with a few words of admonition was delivered over to his mother, in whose arms he stifled his sobs, until his heart-breaking grief and cares were drowned in sleep. What a devilish mixture Indian and American blood is!"

Garrard was a healthy, natural boy, and with all a boy's love of fun. He mingled readily and naturally in the sports and amusements of the young people of the Cheyenne camp and heartily enjoyed it. In those days the white trader in the Indian camp was regarded as a great man, and was treated with respect, to retain which he carried himself with much dignity. But Garrard cared nothing for this respect, and made no effort to preserve this dignity. He danced and sang with the boys and girls, and the women were astonished to find a white person so careless of appearances, though they liked him all the better for it.

On one occasion in the winter there was much excitement in the Cheyenne camp. A war party was returning, and all the men, women and children blackened their faces and went out to meet them. The returning warriors advanced in triumph, for they had three scalps, borne on slender willow wands, and hanging from each scalp was a single tuft of hair, which told that they were Pawnees. Now there was great rejoicing in the camp, and many dances to celebrate the victory, and to rejoice over the triumph that the tribe had made over its enemies. "The drum at night sent forth its monotony of hollow sound, and our Mexican, Pedro, and I, directed by the booming, entered a lodge, vacated for the purpose, full of young men and squaws, following one another in a continuous circle, keeping the left knee stiff, and bending the right with a half-forward, half-negative step, as if they wanted to go on and could not, accompanying it every time the right foot was raised with an energetic broken song which, dying away, was again and again sounded—hay-a-hay, hay-a-hay, they went—laying the emphasis on the first syllable. A drum, similar to though larger than a tambourine, covered with parfleche, was beat upon with a stick, producing with the voices a sound not altogether disagreeable. * * *

"During the day the young men, except the dancers, piled up dry logs in a level open space near for a grand demonstration. At night, when it was fired, I folded my blanket over my shoulders, *comme les sauvages,* and went out. The faces of many girls were brilliant with vermillion; others were blacked, their robes, leggins and skin dresses glittering with beads and porcupine quill work. Rings and bracelets of shining brass encircled their taper arms and fingers, and shells dangled from their ears. Indeed, all the finery collectable was piled on in barbarous profusion, though a few, in good taste or through poverty, wore a single band and but few rings, and with jetty hair parted in the middle from the forehead to the neck, terminating in two handsome braids. * * *

"The girls, numbering 200, fell into line together, and the men, of whom there were 250, joining, a circle was formed, which 'traveled' around with the same shuffling step already described. The drummers and other musicians (twenty or twenty-five of them) marched in a contrary direction to and from and around the fire inside the large ring, for at the distance kept by the outsiders the area was 150 feet in diameter. There Appolonian emulators chanted the great deeds performed by the Cheyenne warriors. As they ended, the dying strain was caught up by the hundreds of the outside circle who, in fast-swelling loud tones, poured out the burden of their song. At this juncture the march was quickened, the scalps of the slain were borne aloft and shaken in wild delight, and shrill war notes, rising above the furious din, accelerated the pulsation and strung high the nerves. Time-worn shields, careering in mad holders' hands, clashed, and keen lances, once reeking in Pawnee blood, clanged. Braves seized one another with an iron grip in the heat of excitement, or chimed more tenderly in the chant, enveloped in the same robe with some gentle maiden as they approvingly stepped through one of their own original polkas.

"Thirty of the chiefs and principal men were ranged by the pile of blazing logs. By their invitation I sat down near 'Old Bark' and smoked death and its concomitant train of evils to those audacious tribes, who doubt the courage or supremacy of the brave, the great and powerful Cheyenne nation.

"The pipe was lavishly decorated with beaver strips, beads and porcupine quills; the mixture of tobacco and bark was prepared with unusual care for this, their grand gala night."

It would be interesting to follow Garrard through his life in the Cheyenne camp, but space forbids this. He was called away from this interesting life by the news which came from the West of the death at the hands of the Pueblos of Governor Charles Bent, in New Mexico. Fugitives who had escaped the attack had come to Fort William and told what had happened, and soon after William Bent, with twenty-three men, started for the Mexican settlements. They passed far to the southward of Pike's Peak, met

a few United States soldiers and volunteers, and toward the middle of February were joined by Sublette, with two companions, who announced that war had been declared against Mexico. Toiling through the mountains in true winter weather, the party marched on until they came to one of Bent's ranches and at last reached Taos. From this on the author's route was much among the Mexicans of the various towns until, at last, turning his face eastward, he came back across the mountains, and once more found himself in the Cheyenne village, whence soon afterward he returned to the East.

It was here that Garrard met George F. Ruxton, whose well-known "Life in the Far West" has been more than once referred to at length in Forest and Stream. It is one of a group of books, treating of almost the same country, and of the same time, of which Garrard's and the "Oregon Trail" are two others.

It is exceedingly interesting to read these books and to see mentioned in them constantly, and in most familiar fashion, names that to old-timers in the West are familiar as household words. Men with whom, in old age, we have perhaps ourselves associated; men, with whose sons and daughters we have lived familiarly as contemporaries. The generation which knew these old-timers—Carson, Bridger, Jack Robinson, Jim and John Baker, Bent, St. Vrain, Sublette, Hugh Monroe, Ike Edwards, Bill Gary, Symonds, Beaubien, La Jeunesse, Roland, and a hundred others whose names could be given, is passing away.

These names belong to the history of the early West. Soon they will be historic only, for those who have known them will also have crossed the Great Divide, and there will be none who can recall their personality.

NATURAL HISTORY

To Rear Game Birds in Connecticut

An effort contemplated for the State of Connecticut will, if successfully carried out, do much to restock the covers of that State with game birds. More important than this, experiments will be carried on in this connection which may prove of high interest and value to gunners.

Herbert K. Job was recently appointed State ornithologist of Connecticut. He is a bird lover, well known for the beautiful photographs that he has taken and the interesting articles and books that he has written about birds. He purposes to join forces with another bird man and to set on foot the work of rearing game birds and wildfowl for the State of Connecticut.

At Darien, G. D. Tilley, a man of scientific tastes, an enthusiast over waterfowl and game birds, has a place where for some years he has been rearing wild birds of many sorts and from many lands. He has a very complete plant, ponds for wildfowl and houses and cages in which a multitude of birds are kept. Many of these are foreign birds—flamingoes, storks, geese and ducks from the Old World, and gallinaceous birds from South America—but a large number are North American birds. Here there is room and the equipment for rearing our native birds, and here Mr. Job with the assent of the authorities—if this can be had—purposes to carry on an elaborate line of experimentation.

The plan is as follows: Mr. Tilley, who has made a study of the propagation of game birds and waterfowl in captivity, has agreed with the State ornithologist to allow the free use of his fine equipment for experimentation of all sorts relating to wild birds. This offer has been accepted, and the aviary and hatchery at Darien is to be known as the Connecticut Ornithological Experiment Station, a branch of the Storrs Experiment Station of the Connecticut Agricultural College, of which the State ornithologist is, ex-officio, a member of the faculty. Mr. Tilley is to be assistant to the State ornithologist.

Besides experimentation relative to the value of birds to agriculture and the attracting and increase of useful birds, it is hoped to secure from the Commissioners of Fisheries and Game permission to keep native game birds for purposes of experiment, and also co-operation in an attempt to propagate game birds for the State on a large scale to restock the State.

As fast as the methods are perfected and systematized for propagating a species of game bird or waterfowl, the results would be given to the public through bulletins of the Storrs Experiment Station, with a view to enabling every landowner to propagate his own game. The breeding stock raised in this State hatchery would be distributed over the State under careful supervision, and thus the work would be multiplied from many centers instead of depending upon one establishment.

A breeding stock of quail has already been offered for the start, and efforts will be made to begin the work at once. Experiments are to be conducted with the ruffed grouse and other native species, with studies of the availability of such foreign kinds as the popular Hungarian partridge, which breeds readily in captivity. A bulletin could be published soon on the propagation of the woodduck and other native wild ducks. A special marshy pond is to be prepared for experiments with the canvasback in hope of solving the secret of its propagation. Studies are to be made of diseases of game birds and their prevention.

The combination of these two workers in this most interesting field seems ideal. Mr. Job is an expert on wild birds in their haunts, and Mr. Tilley on those in captivity. The joint researches of these enthusiasts can hardly fail of achieving interesting and valuable results.

On the financial side this work can be done at small expense to the State. Mr. Tilley is a man of some means, who does this work for the love of it, and sells birds to some extent in order to maintain his very expensive establishment. Beyond selling game birds to the State for much less than imported birds would cost, he asks nothing more. The Connecticut Agricultural College hopes to secure an appropriation for a reasonable permanent salary for the office of the State ornithologist to enable him to devote his time to these various important public problems, and in this desires co-operation from the game commission. By this plan at slight expense the State would have at once a working equipment of great practical value to sportsmen; in fact, a State game farm ready to hand, which otherwise it would take great sums of money and years of time to secure.

The problem of quail breeding in confinement may be considered almost solved. Dr. Hodge was signally successful, and it is reported this year that about 400 quail were successfully reared at the Sutton Hatchery. The great problems to be faced have to do with food and disease, and from disease the greatest danger is that of infection, which in the past seems to have been communicated to many broods of young birds from the hens which hatched them, or from infected ground on which poultry has lived.

We know less of the ways of life of the ruffed grouse, though Dr. Hodge reared these birds for three generations. These problems, however, are near solution, perhaps nearer than any of us understand.

Quail and grouse reared in this way could be turned out at the proper time in State refuges or on private grounds, and increasing, would spread rapidly.

When the experimenters in Connecticut have reached a point where they can with certainty rear bobwhite and the ruffed grouse in captivity, there are other American birds that may be reintroduced to Connecticut with profit. Time was less than a hundred year ago, when the heath hen or pinnated grouse was found in that State. This bird still has a precarious foothold on the island of Martha's Vineyard, and its cousin of the West, Illinois, Iowa and Nebraska, if brought here and protected, would readily adapt itself to domestication and would become a beautiful ornament of Connecticut fields.

The mountain and valley quail of the Pacific coast may profitably be reared, and when, if ever, Connecticut shall establish a series of State reservations, wild turkeys may be turned out on them to shift for themselves. It is true that great birds like the turkey, and birds of the open, like the pinnated grouse, would not be likely to hold their own against the constant persecution to which they would be subjected, but a continuous stocking and a more or less rigid posting of much private land would tend to keep these birds long with us.

Boy in Indian Camps

Forest and Stream

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THE OBJECT OF THIS JOURNAL

will be to studiously promote a healthful interest in outdoor recreation, and to cultivate a refined taste for natural objects.
—Forest and Stream, Aug. 14, 1873.

GAME BIRDS IN CONNECTICUT.

The project to establish near Darien, Conn., a station for the breeding of upland game birds, to which may be joined also the breeding of wildfowl, has a wide public interest. The plan proposed combines the scientific and the practical, and is in fact the carrying on—at another point and under other conditions—of the work so successfully initiated years ago by Dr. C. F. Hodge. It will be in charge of two enthusiasts, one of whom has had much experience in rearing wild birds in domestication, while the other is a devoted bird lover and thoroughly familiar with the literature of the subject. These qualifications give good promise of success.

That these experiments are to be continued is gratifying, for with what has been done by Dr. Hodge and others it would seem that we stand at the threshold of discoveries which will make the propagation of many wild birds absolutely simple, and the rearing of quail and grouse as commonplace as the rearing of hens.

Past experience has demonstrated that there is nothing inherently intricate or mysterious about the hand-rearing of game birds. To make it successful are needed, besides some money, considerable intelligence and an abounding enthusiasm which will fill the experimenter with eternal vigilance and everlasting hope. In Great Britain where the breeding of wild game has become commercialized, and where the keepers who consistently fail to rear the birds entrusted to them are considered incompetent, the work is carried on as a matter of course. The same thing may be done in the United States with our native species by the proper men.

The breeding of wildfowl native to Connecticut should also be undertaken on a considerable scale. These wildfowl should be reared—in part at least—in open pens with liberty to go and come, just as wild ducks are bred in England. Raised under such conditions, the birds will go south in the fall, as wild birds do, and returning again in spring, will tend to breed on or near the land where they were hatched. Only a few years of work of this kind will be required to greatly increase the wildfowl and other birds accessible to Connecticut gunners.

Although these experiments are to be conducted in Connecticut, the whole continent may watch them with absorbing interest. What is learned at this experiment station will be for the benefit of every State and Province, and may have the greatest promise for the men of to-day and their children after them.

WOODS ACCIDENTS.

The accidents by which men are shot by mistake for deer, and which take place during each deer hunting season in various localities, are a disgrace to American hunters. These unhappy events are accidents in the sense that they happen without malicious intent on the part of the person who causes the injury, but they are the result of criminal carelessness, precisely as when a careless man drags his gun from a wagon, out of a boat or through a fence, holding it by the barrels with the muzzle directed toward his person. The man who shoots himself pays the penalty for his carelessness. He who is shot by another is blameless in the matter.

The writing done on this subject is for the most part wasted. People who are thoughtful enough to read and to remember such writings are not of those who shoot at a moving bush thinking that it is a deer. Hunters careless and thoughtless enough to do this do not heed the instruction so freely offered.

There is a way by which these injuries and this loss of life may greatly be reduced in number, and that is by making it illegal under a heavy penalty to kill deer without horns. In many regions where deer are found, such a law may not be needed to preserve the deer, but it is needed to preserve human beings who pursue the deer. A law prohibiting the killing of deer without horns, if enforced, would tend to make every hunter hold his fire until he saw his animal clearly enough to know whether it carried horns or not. This pause to get a view of the game and thus to enable him to identify it would tend to make every man certain that what he saw was a deer and not a fellow-man.

There is evidence to show that in States where the killing of hornless deer is forbidden, the ratio of accidents to hunters is far less than in those where any deer may be killed. Efforts to make men more careful by statute have failed, but such change in the game laws may make men wait long enough to see what they are shooting at.

The attempts made during the warm season to shoot with rifles and revolvers from rapidly moving aeroplanes at targets placed on the ground were not productive of very satisfactory results. In fact, the so-called bomb throwing or dropping was the more accurate of the two methods practiced. Expert marksmen failed in their estimates of distance and in the probable speed of the air craft. Every big-game shooter knows how difficult it is to shoot accurately at an object far below him on a mountainside, but he who is being whirled rapidly through the air finds it increasingly difficult to shoot well.

THE RIGHT TO HUNT.

Compared with the season of 1909, there has been a marked decrease so far this season in the sale of guns by the Pennsylvania Game Commission. The commission is not conducting a gun store; nevertheless it sold about one thousand firearms last year, and at a fair profit. Unlike business men, however, who deplore falling off in trade, the commission rejoices that its stock of guns is decreasing steadily.

Formerly Pennsylvania was overrun by aliens carrying guns. They shot at everything wearing fur or feathers. Last year a new law was passed. It forbade hunting by unnaturalized foreign-born residents of Pennsylvania; it forbade the ownership or possession by them of guns and rifles of any sort; it provided for a fine or imprisonment, and in addition to this, the confiscation and sale by the commission of firearms taken from these men.

The measure is a drastic one, but it is needed, and so far the returns show that it has proved effective. Aside from saving non-game birds, it has no doubt saved wardens from death or injury at the hands of men who were ever ready to dispute the right of the State to interfere with their small bird shooting.

Men who have been looking for small game in the vicinity of New York city this season have commented frequently on the scarcity of aliens carrying guns, whereas a few years ago they flocked to the suburbs in season. Strong repressive measures have brought about this improved state of affairs, and have gone far toward the protection of small birds. In this region the game laws are no longer ignored, and the wardens enjoy the confidence of responsible persons.

Those who shoot do not grumble, as they formerly did, over the payment of a dollar for a resident's license. Instead, they regard the sum paid out as a contribution to the work of protection and propagation, and in addition to this it has become in a way a guarantee of good intentions and an effective means of identifying those who have a legal right to hunt game, while those who have no permit assist in their own punishment if called to account.

The skill of the old hunter is not to be despised when a man hunt is organized. We have already told how one fugitive from justice was trailed and taken by a warden. This was in New England. Again, more recently, an old hunter followed the trail of two fugitives from justice in that section, while in Wisconsin a posse composed in part of deer hunters, assisted by hounds, trailed a hunter who ran away after shooting a man, apparently mistaking him for a deer. The victim's red coat and cap did not save him. The ways of the would-be deer hunter are indeed strange, but to hunt him down with hounds is novel.

A Boy in Indian Camps

L. H. Garrard's Experiences—The Plains in 1846—Life Among the Cheyenne Indians

By GEORGE BIRD GRINNELL

ONE of the most charming books written about the early plains is Lewis H. Garrard's "Wah-To-Yah and the Taos Trail." It is the narrative of a boy, only seventeen years old, who, in 1846, traveled westward from St. Louis with a train led by Mr. St. Vrain, of the firm of Bent, St. Vrain & Co., and after some time spent on the plains and in Cheyenne camps, proceeded westward to New Mexico and there saw and heard of many of the events just antecedent to the Mexican War.

It is an interesting fact that the book, which, in its interest and its fidelity to nature and to early times, equals the far more celebrated "California and Oregon Trail," of Parkman, tells of the events of the same year as Parkman's volume, but deals with a country to the south of that traversed by him who was to become one of the greatest historians of America. The charm of each volume lies in its freshness. Neither could have been written except by one who saw things with the enthusiastic eyes of youth, who entered upon each adventure with youth's enthusiasm, and who told his story with the frankness and simplicity of one who was very young. After all the greatest charm of any literature lies in the simplicity with which the story is told, and in both these delightful volumes is found this attractive quality.

Garrard reached St. Louis on his way to the Rocky Mountains in July, 1846, and there became acquainted with the firm of Pierre Choteau, Jr., & Co., so well known in the fur trade of the West. Here, too, he met Kenneth McKenzie, one of the first traders with the Blackfeet Indians, and Mr. St. Vrain.

To the modern reader it seems odd to see it stated in the first two lines of the book that a part of the necessary preparations for the trip before him was the "laying in a good store of caps, fine glazed powder, etc.," but in those days the percussion cap was still a new thing, and of the guns used west of the Missouri River, the great majority still used the flint to strike fire to the charge.

Besides Garrard, there were others in St. Vrain's company who were new to the plains. Of these one was Drinker, a Cincinnati editor; another, a Mr. Chadwick. Besides these there were General Lee, of St. Louis, a friend or two of St. Vrain's, and various employees of the traders.

Bent's train was encamped not far from Westport, and here Garrard got his first taste of wild life, sleeping on the ground in the open. Here, too, he saw his first Indians, the Wyandottes, who, in 1843, had been moved westward from their homes in Ohio. Here, of course, he met those who for months were to be his traveling companions, and he paints us a fresh picture of them in these pleasing words:

"There were eighteen or twenty Canadian Frenchmen (principally from St. Louis) composing part of our company, as drivers of the teams. As I have ever been a lover of sweet, simple music, their beautiful and piquant songs in the original language fell most harmoniously on the ear as we lay wrapped in our blankets.

"On the first of September, Mr. St. Vrain's arrival infused some life into our proceedings, but nothing more worthy of note occurred, except riding and looking at horses, of which Drinker and I were in need; one of which, Frank De Lisle, *'le maitre de wagon,'* sold me for fifty dollars, whom, from his fanciful color, brown and white spots, and white eyes, was designated by the descriptive though not euphonious name of 'Paint.' He was a noted buffalo chaser, and I anticipated much excitement through his services.

"The way the mules were broken to wagon harness would have astonished the 'full-blooded' animals of Kentucky and other horse-raising States exceedingly. It was a treatment none but hardy Mexican or scrub mules could survive. They first had to be lassoed by our expert Mexican, Blas, their heads drawn up to a wagon wheel, with scarce two inches of spare rope to relax the tight noose on their necks, and starved for twenty-four hours to subdue their fiery tempers; then harnessed to a heavy wagon, lashed unmercifully when they did not pull, whipped still harder when they ran into still faster speed, until, after an hour's bewilderment, and plunging and kicking, they became tractable and broken down—a labor-saving operation, with the unflinching motto of 'kill or cure.'"

The pulling out of the train from near Westport was an interesting and exciting event. Teamsters were shouting to their newly-yoked bulls; the herders were driving along the caballada; mounted men were riding back and forth; the leader of the company and his wagon master were constantly passing to and fro from one end of the train to the other, seeing how things went, and looking for weak spots among the teams and the wagons. A few days later came the first rain storm—a dismal occasion to the young traveler on the plains. There are few old plainsmen but can still recall something of the discomfort of a long day's travel in the storm; of the camping at night with clothing thoroughly wet and bodies thoroughly chilled, and the sitting or lying, or perhaps even sleeping in the wet clothing. "The wagons being full of goods, and we without tents, a cheerless, chilling, soaking, wet night was the consequence. As the water penetrated successively my blanket, coat and shirt, and made its way down my back, a cold shudder came over me. In the gray, foggy morning a more pitiable set of hungry, shaking wretches were never seen. Oh! but it was hard on the poor greenhorns!"

At Council Grove, which they reached the last of September, the train remained for two days, and as this was the last place traveling westward where hardwood could be procured, the men felled hickories and oaks for spare axle trees, and swung the pieces under their wagons. Young Garrard was an eager hunter, and set out from camp in search of wild turkeys, whose cries he could hear, but he got none.

Here is another picture of that early life which may call up in the minds of some readers pleasant memories of early days when they, too, were a part of such things: "So soon as a faint streak of light appears in the east, the cry 'Turn out' is given by De Lisle. All rise, and in half an hour the oxen are yoked, hitched and started. For the purpose of bringing everything within a small compass, the wagons are corraled; that is, arranged in the form of a pen when camp is made, and as no animals in that country are caught without a lasso, they are much easier noosed if driven in the corral. There no dependence must be placed in any but one's self, and the sooner he rises, when the cry is given, the easier can he get his horse.

"Like all persons on the first trip I was green in the use of the lasso, and Paint was given to all sorts of malicious dodging; perhaps I have not worked myself into a profuse perspiration with vexation a hundred and one times in vain attempts to trap him.

"Not being able to catch my horse this morning I hung my saddle on a wagon and walked, talking to the loquacious Canadians, whose songs and stories were most acceptable. They are a queer mixture, anyhow, these Canadians. Rain or shine, hungry or satisfied, they are the same garrulous, careless fellows, generally caroling in honor of some brunette Vide Poche, or St. Louis Creole beauty, or lauding, in the words of their ancestry, the soft skies and grateful wine of La Belle France, occasionally uttering

a *sacré* or *enfant de garce,* but suffering no cloud of ill humor to overshadow them but for a moment. While walking with a languid step, cheering up their slow oxen, a song would burst out from one end of the train to the other, producing a most charming effect."

The train was now approaching the buffalo range, and before long several buffalo were seen. Now, too, they had reached a country where *"bois de vaches"*—buffalo chips—were used for fuel, and the collecting this was a part of the daily work after camp was made. More and more buffalo were seen, and before long we hear of the plain literally covered with them, and now, as buffalo were killed more often, Garrard is introduced to a prairie dish which no one will ever eat again. He says: "The men ate the liver raw, with a slight dash of gall by way of zest, which, served *à la Indian,* was not very tempting to cloyed appetites, but to hungry men, not at all squeamish, raw, warm liver, with raw marrow, was quite palatable.

"It would not do," he continues, "for small hunting parties to build fires to cook with, for in this hostile Indian country a smoke would bring inquiring friends. Speaking of hostile Indians reminds me of a question related by one of our men. At a party, in a Missouri frontier settlement, a lady asked a mountaineer, fresh from the Platte, 'if the hostile Indians are as savage as those who serve on foot.'

"Returning to camp the prairie was black with the herds, and a good chance presenting itself, I struck spurs into Paint, directing him toward fourteen or fifteen of the nearest, distant eight or nine hundred yards. We (Paint and I) soon neared them, giving me a flying view of their unwieldy proportions, and when within fifteen feet of the nearest I raised my rifle half way to the face and fired. Reloading, still in hot pursuit (tough work to load on a full run), I followed, though without catching up. One feels a delightfully wild sensation when in pursuit of a band of buffalo on a fleet horse with a good rifle, and without a hat, the winds playing around the flushed brow, when with hair streaming, the rider nears the frightened herd, and with a shout of exultation discharges his rifle. I returned to the party highly gratified with my first, though unsuccessful chase, but Mr. St. Vrain put a slight damper to my ardor by simply remarking:

"'The next time you "run meat" don't let the horse go in a trot and yourself in a gallop' (I had in my eagerness leaned forward in the saddle, and a stumble of the horse would have pitched me over his head), by which well-timed and laconic advice I afterward profited."

From this time on there was much chasing of buffalo, but little killing of them, except by the old hands. The young ones, of course, neither knew how to shoot nor where to shoot, and our author naïvely remarks, after one of his chases: "To look at a buffalo one would think that they could not run with such rapidity, but let him try to follow with an ordinary horse and he is soon undeceived."

Among the efforts of the greenhorns to kill buffalo was the following incident: "Mr. Chadwick (of St. Louis, on his first trip, like several of us, for pleasure), seeing a partially blind bull, concluded to 'make meat' of him. Crawling up close, the buffalo scented him and pitched about every way, too blind to travel straight or fast. Chad fired; the mad animal, directed by the rifle report, charged. How they did 'lick it' over the ground, the pursued yelling, half in excitement, half in fear, till they were close to the wagons, where the pursuer changed tack, only to be shot by one of the teamsters with a nor'-west fusil."

It is natural enough that the boy author, while traveling for the first time through the buffalo range, should think and write chiefly about buffalo, yet he finds time to tell of the prairie dog towns through which they passed, and of the odd ways of the dog and the curious apparent companionship, or at least, cohabitation of the snakes and the prairie owls with them. As they passed through this region, north of the Arkansas in the hot, dry weather of the early fall, they suffered sometimes from thirst. The first grave passed by the train aroused melancholy and sympathetic feelings in the boy's heart.

RUNNING BUFFALOES IN THE FIFTIES.

One day Garrard went out hunting with Mr. St. Vrain and another, and a band of buffalo were discovered on their way to water. Here Garrard first found himself near to a wounded bull, and the picture that he paints of the monster is a true and a striking one. "Mr. St. Vrain dismounting took his rifle and soon was on the 'approach,' leaving us cached behind a rise of the ground to await the gun report. We laid down with our blankets, which we always carried strapped to the saddle, and with backs to the wind talked in a low tone, until hearing Mr. St. Vrain's gun, when we remounted. Again and again the rifle was heard in hasty succession, and hastening to him we found a fat cow stretched and a wounded male limping slowly off. The animals were tied to the horns of our cow, and with butcher knives we divested the body of its fine coat, but finding myself a 'green hand,' at least not an adept in the mysteries of prairie butchering, I mounted Paint for the wounded fellow who had settled himself with his fore legs doubled under him 300 yards from us. Mine

was a high pommeled, Mexican saddle, with wooden stirrups, and when once seated it was no easy matter to be dislodged. Paint went up within twenty yards of the growling, wounded gore-covered bull, and there stood trembling and imparting some of his fear to myself.

"With long, shaggy, dirt-matted and tangled locks falling over his glaring, diabolical eyes, blood streaming from nose and mouth, he made the most ferocious looking object it is possible to conceive, and if nurses could portray to obstinate children in true colors the description of a mad buffalo bull, the oft-repeated 'bugaboo' would soon be an obsolete idea.

"While looking with considerable trepidation on the vanquished monarch of the Pawnee plains, he started to his feet, and with a jump materially lessened the distance between us, which so scared Paint that he reared backward, nearly sliding myself and gun over his tail, and before the bridle rein could be tightened, ran some rods, but turning his head and setting the rowels of my spurs in his flanks, I dashed up within thirty feet of the bull, and at the crack of the gun the 'poor buffler' dropped his head, his skin convulsively shook, his dark eyes, no longer fired with malignancy, rolled back in the sockets, and his spirit departed for the region of perpetual verdure and running waters, beyond the reach of white man's rifle or the keen lance of the prairie warrior."

And then the picture with which he closes the chapter covering the march through the buffalo range! How boyish, and yet how charming and how true it is!

"Good humor reigned triumphant throughout the camp. Canadian songs of mirth filled the air, and at every mess fire pieces of meat were cooking *en appolas;* that is, on a stick sharpened, with alternate fat and lean meat, making a delicious roast. Among others, *boudins* were roasting without any previous culinary operation, but the tying of both ends, to prevent the fat, as it was liquified, from wasting, and when pronounced 'good' by the hungry impatient judges, it was taken off the hot coals, puffed up with the heat and fat, the steam escaping from little punctures and coiled on the ground, or a not particularly clean saddle blanket, looking for all the world like a dead snake.

"The fortunate owner shouts, 'Hyar's the doin's, and hyar's the 'coon as *savys* "poor bull" from "fat cow"; freeze into it, boys!' And all fall to, with ready knives, cutting off savory pieces of this exquisitely appetizing prairie production.

"At our mess fire there was a whole side of ribs roasted. When browned thoroughly we handled the long bones, and as the generous fat dripped on our clothes, we heeded it not, our minds wrapped up with the one absorbing thought of satisfying our relentless appetites. Progressing in the work of demolition, our eyes closed with ineffable bliss. Talk of an emperor's table! Why, they could imagine nothing half so good. The meal ended, the pipe lent its aid to complete our happiness, and at night we retired to the comfortable blankets, wanting nothing, caring for nothing."

Late in October the train met with the advance guard of a party of Cheyenne warriors, then on the warpath for scalps and horses against the Pawnee nation. These were the first really wild Indians that Garrard had seen, and their picturesqueness and unusual appearance greatly interested him. In those days the Cheyennes had never been at war with the white people, and they were on terms of especial friendliness with Bent and St. Vrain, from whose trading posts they obtained their supplies. A little later, on the way to Bent's Fort, they passed a Cheyenne medicine lodge, with its sweathouse, and later still Indian graves on scaffolds which rested on the horizontal limbs of the cottonwood trees. A day or two after this they reached Fort William, or Bent's Fort, where they met William Bent, in his day one of the best known men of the Southern plains. A few days were spent there, and then came the most interesting adventure that the boy had had.

Early in November he started for the Cheyenne village with John Smith who, with his wife, his little boy Jack and a Canadian, were setting out for the village to trade for robes.

John Smith is believed to have been the first white man ever to learn the Cheyenne language, so as to be able to interpret it into English. When he made his appearance on the plains we do not know, but he was there in the '30's, and for many years was employed by Bent and St. Vrain to follow the Indians about and trade with them for robes. Early in his life on the plains he had married a Cheyenne woman and established intimate relations with the tribe, among whom he remained for many years. He was present in the camp of the Cheyennes during the Chivington massacre at Sand Creek, in 1864, at which time his son, Jack, the child mentioned by Garrard in this volume, was killed by the soldiers, being shot in the back by a soldier who saw his shadow on the lodge skins and fired at it. It is said that John Smith himself came very near being killed, and had a hard time to talk the Colorado soldiers out of killing him. He has a son now living at Pine Ridge.

The small party journeyed on toward the village, and while Pierre, the Canadian, drove the wagon and the woman and her child rode in silence, Smith and Garrard kept up a lively conversation. Smith was anxious to learn all about the "States" and life there, while Garrard replied to him with inquiries about Indians and their ways. And so, day after day, they journeyed over the plain until the cone-shaped lodges of the village came in sight, to be reached a few hours later. Riding into the camp, they halted at the lodge of one of the principal men, and unsaddling and unpacking their animals there, entered it with their goods, and according to custom established themselves in the back part, which was at once given up to them by the host. And now began an entirely new life for Garrard—a life into which he threw himself with the whole-hearted enthusiasm of a healthy lad, and which he thoroughly enjoyed. The days and evenings in the camp; the moving from place to place over the prairie; the misfortunes which happened to the men unaccustomed to such life are all described. Vivid glimpses of the marching Indian column are given in the following paragraphs:

"The young squaws take much care of their dress and horse equipments. They dashed furiously past on wild steeds, astride of the high-pommeled saddles. A fancifully colored cover, worked with beads and porcupine quills, making a flashy, striking appearance, extended from wethers to rump of the horse, while the riders evinced an admirable daring, worthy of Amazons. Their dresses were made of buckskin, high at the neck, short sleeves, or rather none at all, fitting loosely, and reaching obliquely to the knee, giving a relieved Diana look to the costume; the edges scalloped, worked with beads and fringed. From the knee downward the limb was encased in a tightly fitting leggin, terminating in a neat moccasin, both handsomely worked with beads. On the arms were bracelets of brass which glittered and reflected in the radiant morning sun, adding much to their attractions. In their pierced ears shells from the Pacific shore were pendant, and to complete the picture of savage taste and profusion their fine complexions were eclipsed by a coat of flaming vermillion.

"Many of the largest dogs were packed with a small quantity of meat or something not easily injured. They looked queerly, trotting industriously under their burdens, and judging from a small stock of canine physiological information, not a little of the wolf was in their composition. These dogs are extremely muscular and are compactly built.

"We crossed the river on our way to the new camp. The alarm manifested by the *ki-kun* (children) in the lodgepole drays, as they dipped in the water, was amusing. The little fellows holding their breaths, not daring to cry, looked imploringly at their inexorable mothers, and were encouraged by words of approbation from their stern fathers. Regaining the grassy bottom we once more went in a fast walk.

"The different colored horses, the young Indian beaux, the bold bewildering belles, and the newness of the scene were gratifying in the extreme to my unaccustomed senses. After a ride of two hours we stopped, and the chiefs, fastening their horses, collected in circles to smoke the pipe and talk, letting their squaws unpack the animals, pitch the lodges, build fires, arrange the robes; and, when all was ready, these 'lords of creation' dispersed to their several homes to wait until their patient and enduring spouses prepared some food. I was provoked, nay, angry, to see the lazy, overgrown men do nothing to help their wives, and when the young women pulled off their bracelets and finery to chop wood, the cup of my wrath was full to overflowing, and in a fit of honest indignation I pronounced them ungallant and savage in the true sense of the word. A wife here is, indeed, a helpmeet."

Bravery, endurance and hardihood were in those days a part of the education of each Indian boy, and here is a glimpse of the training received by a baby, which should fit him for the hardships that each warrior must endure. This was the grandson of the Vip-po-nah, a boy six or seven months old:

"Every morning his mother washed him in cold water and sent him out to the air to make him hardy. He would come in perfectly nude from his airing, about half frozen. How he would laugh and brighten up as he felt the warmth of the fire! Being a boy, the parents have great hopes of him as a brave and chief (the acme of Indian greatness). His father dotes upon him, holding him in his arms, singing in a low tone, and in various ways showing his extreme affection."

Among the subjects discussed by Garrard and John Smith before they reached the Cheyenne village had been that of food. Smith spoke of

the excellence of dog meat, while Garrard declared that it must be horrible, saying that buffalo meat was unquestionably the most delicate food in this or any other country. Smith agreed that buffalo was the best, but that dog meat was the next, and offered to bet that he would make Garrard eat dog meat in the village, and make him declare that it was good. How John Smith carried out his threat is told in the following paragraphs:

"One evening we were in our places. I was lying on a pile of outspread robes, watching the blaze as it illumined the lodge, which gave the yellow hue of the skins of which it was made a still brighter tinge, and following with my eye the thin blue smoke coursing in fantastic shapes through the opening at the top of the cone, my thoughts carrying me momentarily everywhere, now home, now enjoying some choice edible; or, seated by a pleasant friend, conversing; in short, my mind, like the harp in Alexander's feast, the chords of which, touched by the magic hand of memory, or flight of fancy, alternately depressed or elevated me in feeling. Greenwood and Smith, sitting up, held in 'durance vile' the ever present pipe. Their unusual laughter attracted my attention, but not divining the cause I joined in the conversation. It was now quite late, and feeling hungry I asked what was on the fire.

"'Terrapins,' promptly replied Smith.

"'Terrapins!' echoed I in surprise at the name. 'Terrapins! How do you cook them?'

"'You know them hard-shell land terrapin?'

"'Yes.'

"'Well, the squaws go out to the sand buttes and bring the critters in and cook 'em in the shell alive—those stewin' thar ar cleaned first. Howsomever, they're darned good!'

"'Yes, hos, an' that's a fact, wagh,' chimed in Greenwood.

"I listened of course with much interest to their account of the savage dish and waited with impatience for a taste of that, the recital of whose merits sharpened my already keen appetite. When the squaw transferred the contents of the kettle to a wooden bowl and passed it on to us, our butcher knives were in immediate requisition. Taking a piece with hungry avidity which Smith handed me without thought as to what part of the terrapin it was, I ate it with much gusto, calling for more. It was extremely good, and I spoke of the delicacy of the meat, and answered all their questions as to its excellency in the affirmative, even to the extent of a panegyric on the whole turtle species. After fully committing myself, Smith looked at me a while in silence, the corners of his mouth gradually making preparations for a laugh, and asked:

"'Well, hos, how do you like dog meat?' and then such hearty guffaws were never heard. The stupefaction into which I was thrown by the revolting announcement only increased their merriment, which soon was resolved into yells of delight at my discomfiture.

"A revulsion of opinion, and dog meat, too, ensued, for I could feel the 'pup' crawling up my throat, but saying to myself 'that it was good under the name of terrapin,' 'that a rose under any other name would smell as sweet,' and that it would be prejudice to stop I broke the shackles of deep-rooted antipathy to the canine breed, and putting a choice morceau on top of that already swallowed, ever after remained a stanch defender and admirer of dog meat. The conversation held with Smith the second day of our acquaintance was brought to mind, and I acknowledged that dog was next in order to buffalo."

Life in the Cheyenne camp went on interestingly. Garrard began to make a vocabulary of the Cheyenne language, and soon to speak it in a broken fashion which caused his auditors to shriek with laughter. He watched them at the sign language, amused them with games and the few books which he possessed, went to feasts, noted the odd implements and ways of his camp mates, and set down all that happened, together with his boyish reflections on the incidents.

The discipline practiced by John Smith on his son Jack will bear repeating. It seems that the child had taken to crying one night, much to the annoyance of four or five chiefs, who had come to the lodge to talk and smoke. "In vain did the mother shake and scold him with the severest Cheyenne words, until Smith, provoked beyond endurance, took the squalling youngster in hands. He shu-ed and shouted and swore, but Jack had gone too far to be easily pacified. He then sent for a bucket of water from the river and poured cupful after cupful on Jack, who stamped and screamed and bit in his puny rage. Notwithstanding, the icy stream slowly descended until the bucket was emptied, another was sent for, and again and again the cup was replenished and emptied on the blubbering youth. At last, exhausted with exertion, and completely cooled down, he received the remaining water in silence, and with a few words of admonition was delivered over to his mother, in whose arms he stifled his sobs, until his heart-breaking grief and cares were drowned in sleep. What a devilish mixture Indian and American blood is!"

Garrard was a healthy, natural boy, and with all a boy's love of fun. He mingled readily and naturally in the sports and amusements of the young people of the Cheyenne camp and heartily enjoyed it. In those days the white trader in the Indian camp was regarded as a great man, and was treated with respect, to retain which he carried himself with much dignity. But Garrard cared nothing for this respect, and made no effort to preserve this dignity. He danced and sang with the boys and girls, and the women were astonished to find a white person so careless of appearances, though they liked him all the better for it.

On one occasion in the winter there was much excitement in the Cheyenne camp. A war party was returning, and all the men, women and children blackened their faces and went out to meet them. The returning warriors advanced in triumph, for they had three scalps, borne on slender willow wands, and hanging from each scalp was a single tuft of hair, which told that they were Pawnees. Now there was great rejoicing in the camp, and many dances to celebrate the victory, and to rejoice over the triumph that the tribe had made over its enemies. "The drum at night sent forth its monotony of hollow sound, and our Mexican, Pedro, and I, directed by the booming, entered a lodge, vacated for the purpose, full of young men and squaws, following one another in a continuous circle, keeping the left knee stiff, and bending the right with a half-forward, half-negative step, as if they wanted to go on and could not, accompanying it every time the right foot was raised with an energetic broken song which, dying away, was again and again sounded—hay-a-hay, hay-a-hay, they went—laying the emphasis on the first syllable. A drum, similar to though larger than a tambourine, covered with parfleche, was beat upon with a stick, producing with the voices a sound not altogether disagreeable. * * *

"During the day the young men, except the dancers, piled up dry logs in a level open space near for a grand demonstration. At night, when it was fired, I folded my blanket over my shoulders, *comme les sauvages*, and went out. The faces of many girls were brilliant with vermillion; others were blacked, their robes, leggins and skin dresses glittering with beads and porcupine quill work. Rings and bracelets of shining brass encircled their taper arms and fingers, and shells dangled from their ears. Indeed, all the finery collectable was piled on in barbarous profusion, though a few, in good taste or through poverty, wore a single band and but few rings, and with jetty hair parted in the middle from the forehead to the neck, terminating in two handsome braids. * * *

"The girls, numbering 200, fell into line together, and the men, of whom there were 250, joining, a circle was formed, which 'traveled' around with the same shuffling step already described. The drummers and other musicians (twenty or twenty-five of them) marched in a contrary direction to and from and around the fire inside the large ring, for at the distance kept by the outsiders the area was 150 feet in diameter. There Appolonian emulators chanted the great deeds performed by the Cheyenne warriors. As they ended, the dying strain was caught up by the hundreds of the outside circle who, in fast-swelling loud tones, poured out the burden of their song. At this juncture the march was quickened, the scalps of the slain were borne aloft and shaken in wild delight, and shrill war notes, rising above the furious din, accelerated the pulsation and strung high the nerves. Time-worn shields, careering in mad holders' hands, clashed, and keen lances, once reeking in Pawnee blood, clanged. Braves seized one another with an iron grip in the heat of excitement, or chimed more tenderly in the chant, enveloped in the same robe with some gentle maiden as they approvingly stepped through one of their own original polkas.

"Thirty of the chiefs and principal men were ranged by the pile of blazing logs. By their invitation I sat down near 'Old Bark' and smoked death and its concomitant train of evils to those audacious tribes, who doubt the courage or supremacy of the brave, the great and powerful Cheyenne nation.

"The pipe was lavishly decorated with beaver strips, beads and porcupine quills; the mixture of tobacco and bark was prepared with unusual care for this, their grand gala night."

It would be interesting to follow Garrard through his life in the Cheyenne camp, but space forbids this. He was called away from this interesting life by the news which came from the West of the death at the hands of the Pueblos of Governor Charles Bent, in New Mexico. Fugitives who had escaped the attack had come to Fort William and told what had happened, and soon after William Bent, with twenty-three men started for the Mexican settlements. They passed far to the southward of Pike's Peak, me

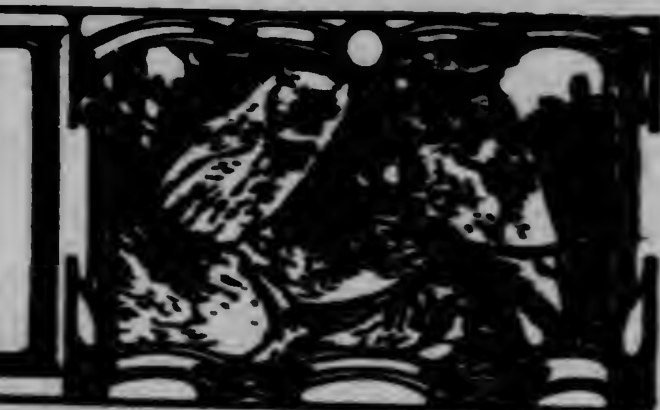
a few United States soldiers and vo'unteers, and toward the middle of February were joined by Sublette, with two companions, who announced that war had been declared against Mexico. Toiling through the mountains in true winter weather, the party marched on until they came to one of Bent's ranches and at last reached Taos. From this on the author's route was much among the Mexicans of the various towns until, at last, turning his face eastward, he came back across the mountains, and once more found himself in the Cheyenne village, whence soon afterward he returned to the East.

It was here that Garrard met George F. Ruxton, whose well-known "Life in the Far West" has been more than once referred to at length in Forest and Stream. It is one of a group of books, treating of almost the same country, and of the same time, of which Garrard's and the "Oregon Trail" are two others.

It is exceedingly interesting to read these books and to see mentioned in them constantly, and in most familiar fashion, names that to old-timers in the West are familiar as household words. Men with whom, in old age, we have perhaps ourselves associated; men, with whose sons and daughters we have lived familiarly as contemporaries. The generation which knew these old-timers—Carson, Bridger, Jack Robinson, Jim and John Baker, Bent, St. Vrain, Sublette, Hugh Monroe, Ike Edwards, Bill Gary, Symonds, Beaubien, La Jeunesse, Roland, and a hundred others whose names could be given, is passing away.

These names belong to the history of the early West. Soon they will be historic only, for those who have known them will also have crossed the Great Divide, and there will be none who can recall their personality.

NATURAL HISTORY



To Rear Game Birds in Connecticut

An effort contemplated for the State of Connecticut will, if successfully carried out, do much to restock the covers of that State with game birds. More important than this, experiments will be carried on in this connection which may prove of high interest and value to gunners.

Herbert K. Job was recently appointed State ornithologist of Connecticut. He is a bird lover, well known for the beautiful photographs that he has taken and the interesting articles and books that he has written about birds. He purposes to join forces with another bird man and to set on foot the work of rearing game birds and wildfowl for the State of Connecticut.

At Darien, G. D. Tilley, a man of scientific tastes, an enthusiast over waterfowl and game birds, has a place where for some years he has been rearing wild birds of many sorts and from many lands. He has a very complete plant, ponds for wildfowl and houses and cages in which a multitude of birds are kept. Many of these are foreign birds—flamingoes, storks, geese and ducks from the Old World, and gallinaceous birds from South America—but a large number are North American birds. Here there is room and the equipment for rearing our native birds, and here Mr. Job with the assent of the authorities—if this can be had—purposes to carry on an elaborate line of experimentation.

The plan is as follows: Mr. Tilley, who has made a study of the propagation of game birds and waterfowl in captivity, has agreed with the State ornithologist to allow the free use of his fine equipment for experimentation of all sorts relating to wild birds. This offer has been accepted, and the aviary and hatchery at Darien is to be known as the Connecticut Ornithological Experiment Station, a branch of the Storrs Experiment Station of the Connecticut Agricultural College, of which the State ornithologist is, ex-officio, a member of the faculty. Mr. Tilley is to be assistant to the State ornithologist.

Besides experimentation relative to the value of birds to agriculture and the attracting and increase of useful birds, it is hoped to secure from the Commissioners of Fisheries and Game permission to keep native game birds for purposes of experiment, and also co-operation in an attempt to propagate game birds for the State on a large scale to restock the State.

As fast as the methods are perfected and systematized for propagating a species of game bird or waterfowl, the results would be given to the public through bulletins of the Storrs Experiment Station, with a view to enabling every landowner to propagate his own game. The breeding stock raised in this State hatchery would be distributed over the State under careful supervision, and thus the work would be multiplied from many centers instead of depending upon one establishment.

A breeding stock of quail has already been offered for the start, and efforts will be made to begin the work at once. Experiments are to be conducted with the ruffed grouse and other native species, with studies of the availability of such foreign kinds as the popular Hungarian partridge, which breeds readily in captivity. A bulletin could be published soon on the propagation of the woodduck and other native wild ducks. A special marshy pond is to be prepared for experiments with the canvasback in hope of solving the secret of its propagation. Studies are to be made of diseases of game birds and their prevention.

The combination of these two workers in this most interesting field seems ideal. Mr. Job is an expert on wild birds in their haunts, and Mr. Tilley on those in captivity. The joint researches of these enthusiasts can hardly fail of achieving interesting and valuable results.

On the financial side this work can be done at small expense to the State. Mr. Tilley is a man of some means, who does this work for the love of it, and sells birds to some extent in order to maintain his very expensive establishment. Beyond selling game birds to the State for much less than imported birds would cost, he asks nothing more. The Connecticut Agricultural College hopes to secure an appropriation for a reasonable permanent salary for the office of the State ornithologist to enable him to devote his time to these various important public problems, and in this desires co-operation from the game commission. By this plan at slight expense the State would have at once a working equipment of great practical value to sportsmen; in fact, a State game farm ready to hand, which otherwise it would take great sums of money and years of time to secure.

The problem of quail breeding in confinement may be considered almost solved. Dr. Hodge was signally successful, and it is reported this year that about 400 quail were successfully reared at the Sutton Hatchery. The great problems to be faced have to do with food and disease, and from disease the greatest danger is that of infection, which in the past seems to have been communicated to many broods of young birds from the hens which hatched them, or from infected ground on which poultry has lived.

We know less of the ways of life of the ruffed grouse, though Dr. Hodge reared these birds for three generations. These problems, however, are near solution, perhaps nearer than any of us understand.

Quail and grouse reared in this way could be turned out at the proper time in State refuges or on private grounds, and increasing, would spread rapidly.

When the experimenters in Connecticut have reached a point where they can with certainty rear bobwhite and the ruffed grouse in captivity, there are other American birds that may be reintroduced to Connecticut with profit. Time was less than a hundred year ago, when the heath hen or pinnated grouse was found in that State. This bird still has a precarious foothold on the island of Martha's Vineyard, and its cousin of the West, Illinois, Iowa and Nebraska, if brought here and protected, would readily adapt itself to domestication and would become a beautiful ornament of Connecticut fields.

The mountain and valley quail of the Pacific coast may profitably be reared, and when, if ever, Connecticut shall establish a series of State reservations, wild turkeys may be turned out on them to shift for themselves. It is true that great birds like the turkey, and birds of the open, like the pinnated grouse, would not be likely to hold their own against the constant persecution to which they would be subjected, but a continuous stocking and a more or less rigid posting of much private land would tend to keep these birds long with us.

The Passing of the Caranchuas

By GILBERT ONDERDONK

IN 1851 I was twenty-two years of age, a New Yorker, in search of health. The cold air of the New York winters was sapping my life. Consumption was claiming me for one of its victims. I had heard of the balmy breezes of the far South and was attracted by reports of the mild climate of Southwest Texas. So I determined to test the capacity of the climate for restoration in my own case. It might interest the reader to detail the journey by way of Cincinnati and the rivers to New Orleans, and thence on the Gulf of Mexico, to our landing on the Southwest Texas coast; but that would be foreign to my subject. So I will only say that after thirty days of old-time travel we completed a journey that now can be made in three days.

Our steamer anchored in Matagorda Bay—about three miles from shore—and we were to land at Indian Point, which was about three miles from where Indianola was afterward built. There was no wharf at which our steamer could land, so we went ashore on a lighter. The tide was against us, and it took us three hours to make the three miles, even with the assistance of passengers in rowing and poling. We landed finally at Indian Point, so called because it had been occupied by the Caranchua Indians as a camping ground.

Here were a few rude structures occupied by a few hundred people, who afterward moved down three miles to Powder Bayou and built Indianola, which came to such a tragic fate in after years. I hired a saddle pony to go out to the Green Lake settlement of six families—to the house of a gentleman to whom I had been given a letter of introduction.

It was an open prairie all of the way. There was not even one tree or a single mark of occupation on the entire route of twenty miles, except the trail that was to lead me to the settlement. There was a heavy growth of grass on every part of the route. As soon as I had got out of the settlement at Indian Point, I began to see small bands of deer. When I got out about two miles a herd of about thirty deer crossed the trail just ahead of me. In a few minutes more another bunch of deer came scampering by. Pretty soon, as I began closely to scan the prairie on every side, I could see many groups of deer quietly grazing here and there. Some of them were very near me, and seemed utterly careless about my presence. Some bands of deer contained only four or five, and some of them contained as many as thirty or thirty-five. At one point there was a lake containing perhaps a couple of acres. All around it was accumulated a great number of deer—many of them were lying down—and all seemed to be quietly enjoying this watering place. I did not count them, but I believe there were six hundred deer at that watering place. I do not think that I saw less than three thousand deer during my ride across that twenty miles of prairie.

Several times I saw herds of wild horses, at various distances, quietly feeding upon the grass that grew in such luxurious abundance. Whenever I came near one of these herds of wild horses, they threw up their heads with a loud snort, and away they ran. Generally a surprised herd would run about a quarter of a mile and stop. Every member of the gang would hold up his head to the utmost. Then they seemed to decide for themselves whether there was anything to run from. If they concluded that I was not after them, they would remain quiet for a few minutes, still watching me, and then resume their grazing. But in most cases, after looking at me for about a minute, they would snort again, and in their wild freedom, resume their retreat till they were out of sight. These horses were without owners, coming, going, grazing, lying down, getting up when they pleased.

Then such immense flocks of wild geese. Sometimes they covered the ground for a mile. Some of them would rise in the air at my approach, go a little to my rear, and alight again; others would only walk aside for me to pass, and then sit quietly down as if they were monarchs of all they surveyed. Once in a while I could see a flock of pelicans flying lazily through the air. And what a world of prairie hens! They were so tame that I could ride to within a few steps of them without their showing any signs of alarm.

After about fifteen miles of the kind of scenes that I have been describing, I could begin to define in the distance before me the narrow belt of timber that lined the shore of Green Lake, along the bank of which would be found the residence of the man to whom I had a letter of introduction from a mutual friend "back in the United States." That was so soon after annexation that the Texans had not yet dropped the habit of speaking of the United States as a foreign country.

I found the house that I was seeking without difficulty and received a hearty welcome. Every newcomer "from the States" was sure of that. The six dwellings that constituted the settlement stood upon the high bank overlooking the lake, a beautiful body of water about fifteen miles in circumference.

I engaged board for an indefinite period, until developments should indicate my proper course. It was not long till the sun went down beyond the beautiful lake and darkness covered our surroundings. The dogs were given their quota of venison from a deer hanging in waiting, and we surrounded the family table. I wondered why each house kept such a pack of dogs, but I soon learned why. They were needed as sentinels and guards against wild animals and wild men. Every family must have several good dogs. They were large, strong-looking animals, and then each pack needed at least one little terrier. Those dogs were inoffensive-looking little things, but they were kept for their wonderful alertness. Any sound that might not awake the large dogs of the pack would, nevertheless, be sure to arouse the little sentinel, and his alarm would soon start the entire pack.

We were eating our supper, when the little sentinel dog began to raise a racket. In much less time than is required for me to write it, the entire pack rushed toward the entrance gate. The master of the house called the servant boy to go out and see what the alarm meant. He soon returned and told his master that Master William had come. He told the boy to go out and take Master William's horse and tell him to come in. He then explained to me that it was his son who had been over the river; that he had been a little uneasy about him, as he was several hours behind time.

By this time Master William was entering the room. Northern readers are reminded that in those days of human slavery every slave spoke of, or addressed all white persons as "Master," "Mistress," or "Miss." Our host then said to his son, "Well, Willie, you have got back from over the river. Is there any news?" Such an inquiry meant whether there were any Indians about, or whether any white persons had fought each other.

Willie replied, "Not much in the way of news. The Indians came in yesterday. They did not kill anybody. They ran McGrew in from the prairie, and got thirty of his horses."

Then one of the young ladies spoke up and said, "Well, I wish that I could have seen old man McGrew while the Indians were after him and have seen how he would do."

Then the other girl spoke up and said, "Well, wouldn't I! I'll bet he scampered!"

The reader may imagine how I received the information that I had blundered into an Indian frontier. I, a greenhorn, just from the States, had not thought of such a thing. I had heard

so much that was alluring concerning "the paradise of the Southwest," and had heard nothing upon the other side of the question. I had been reared under the civilization of the great State of New York, and then to suddenly confront the fact that I had come to a wild frontier, was a real shock to me. I did not say a word, but I thought rapidly.

As I saw the unconcerned manner of this family under the actual surroundings so suddenly presented to my mind, I thought, "Well, if these girls and children and old people can make light of an Indian raid, then a New York Dutchman, like myself, should not be timid." So I braced myself up to meet any contingency and embrace all of the romantic glamor of a rude frontier life. I had brought a revolver and gun, just what seemed to be needed for the kind of life that seemed to have become my portion in the great Southwest.

My host was an old resident who came from Pennsylvania while Texas was a part of Mexico. He was full of such information as any newcomer would be eager to gain; so from day to day I loaded up with information upon a variety of subjects relating to frontier conditions. For outdoor exercise I hunted, sometimes the ducks and geese along the shore of the lake, sometimes among the wild turkeys along the river and again among the wild boars of the canebrake, or among the deer, and frequently I joined a party of mustang hunters and ran wild horses. Then I would remain for whole days at a time at the residence. I had gradually begun to take hold of Southwestern frontier life. It seemed to suit me, and I was building up my physical condition—just what I came to Texas for.

And here I hesitate as to which one of the many interesting phases of early Southwestern life I shall offer to my readers. Should it be of the crude social life of the early frontier; the wonderful loveliness of its scenery; of its vast throngs of wild horses; its other game so abundant that the hunter need not hunt in order to find it; of its beasts of prey, or of the savages that then hovered around the settlements?

As we have already begun to say something about Indians, perhaps we had better talk about them for a while. The Green Lake settlement had a peninsular position that did not favor a hasty retirement of the Indians in case of discomfiture. The Comanches had made no invasion of the peninsula since the summer of 1840.

In the Green Lake settlement there was pointed out to me a blackened log as a remnant of the last Caranchua camp-fire on that side of the lake. They had got themselves into trouble with the settlers near the Nueces River, something more than a hundred miles southwest of Green Lake. It caused them to get a severe handling at the Oso Creek, a few miles from Corpus Christi. The Caranchuas were never a very numerous tribe. At the battle of the Oso nearly half of them were killed. Then they contracted their range very much, and established their headquarters at the confluence of the Guadalupe and San Antonio rivers, where they were at the period of their final history.

These Indians had consented to the settlement of a white family on the south side of Green Lake. After a brief occupation, when a nice field had been put into cultivation, a deputation of Caranchuas came to this settler and ordered him to vacate. As he had no near white neighbors and was really at the mercy of the Indians, who had received from him much kindness, he considered it prudent to forsake his fine farm rather than to risk the consequences of remaining. After that the Caranchuas seemed to have somewhat repented of what they had done to this settler, as it had stirred up some hostile feeling among the few settlers along the Guadalupe River above them, as well as among all settlers of the entire region. They then ceased to frequent the east side of the river, where the Green Lake settlement of six families was soon after formed, and thus the peninsula became comparatively safe. Then their depredations were mostly confined to the west side of the Guadalupe River. Whenever any depredations were committed the Caranchuas were loud in charging it to the Comanches or Lipans. But the Caranchuas were a lawless set, anyhow, and there was constant apprehension among most of the settlers within easy reach.

Along the west bank of the Guadalupe River, only a few miles from the Caranchua camp, lived a family by the name of Kemper. There was no settlement between Kemper and the Indian camp. The Indians frequently visited Kemper's house, and the family treated them kindly. They had no fear of the Caranchuas, believing them to be only simple, harmless savages. Kemper's stock pen was perhaps a hundred yards distant from his house, which stood between the pen and the river bank. Kemper had penned his oxen, intending to haul a load of wood for the use of the family. He saw quite a party of Caranchuas coming toward his pen, but he thought nothing of it, as he regarded them as friendly, although most other settlers did not. Suddenly they surrounded the pen and demanded that Kemper should go at once and kill a beef for them. He told them that his wife needed a load of wood; that he must first bring his family the wood and then he would go and shoot them a beef. They said that they would not wait till he had done his own work—that they wanted the beef at once. Each side insisted upon having its own way in the matter.

The Indians had no guns, but were all armed with bows and arrows, and some of them had spears. Then they all climbed up to the top of the fence enclosing the plot and seated themselves. They told him that if he did not go at once and shoot them a beef they would kill one of his oxen in the pen. He told them that the cattle that they could see nearby in the prairie were his own; that they might go and kill any one of them that they pleased but must not touch his oxen. They replied that the cattle in the prairie were so wild that they could not get near enough to them to kill one, and must have one of his oxen unless he would go at once and shoot them a beef.

Now Kemper was one of the bravest of men, but not always prudent. He told them that if one of them drew a bow on one of his oxen he would shoot him dead at once.

Pretty soon one of the Indians drew his bow and sent an arrow into one of Kemper's oxen. Kemper fired and the Indian fell headlong. Then several bows were bent upon Kemper himself and an arrow dealt him a fatal wound. Kemper's wife and her sister had been watching the proceedings for some time. They picked up the body of the wounded man and carried him to the house. The Indians did no hostile act against the two women. They wanted beef, and they had it, and Kemper was soon a corpse in his own house.

I should call it about eight miles from Kemper's home to the nearest house. As soon as possible word was sent out of what had happened. The scattered settlers agreed that something had to be done to secure safety against the Caranchuas. There had been other occurrences that had been overlooked, but it was agreed that the time had come for positive action. A meeting was appointed for discussing conditions and organizing for results. But before the time arrived for the proposed purpose, an unexpected development caused a sudden hastening of the gathering of the clans. Tom O'Connor was then living on his ranch on the west bank of the San Antonio River, where O'Connorsville now stands. There was no settlement between the O'Connor ranch and the Caranchua camp, which was on the opposite side of the same river, and some ten or twelve miles further down. It was a treeless prairie, except the narrow belt of timber along the river bank.

Tom O'Connor had a faithful Mexican, whose name I have forgotten, but whom we may designate as Juan. One day he told Juan to saddle his horse and ride down the prairie three or four miles and see if there was anything worth reporting. It was only a common precaution often observed in those days of prowling savage life. Juan rode along, keeping himself within about a half mile of the timber belt that skirted the San Antonio River. About two miles from O'Connor's ranch Juan saw a man at a distance, walking slowly in the direction of the ranch. Juan halted and was taking a careful look at the distant human form, when the stranger suddenly dropped down among the tall grass.

Juan knew well that none but savages were living below the O'Connor ranch. He knew that if the stranger belonged to the O'Connor settlement or to any of the neighboring settlements above, he would not be likely to be on foot. He knew that a man on foot in that neighborhood was almost certain to have some relation to the savages whose camp was in the direction from which he saw this lone footman coming. So Juan carefully took his range and rode rapidly toward the spot where he had seen the footman disappear in the grass. The stranger kept himself as well out of sight as possible, but the keen eyes of Juan had him so well located that he rode accurately to the spot. Most Mexicans look like Indians, and, in fact, are Indians. Juan's prisoner was wearing the Indian garb, and appeared to be a Caranchua. When Juan threw his gun into a firing attitude, the prisoner broke out in good Spanish and begged Juan to spare his life, insisting that he was not an Indian, but a Mexican, which would all be explained.

So Juan directed him to head for the ranch and he would not hurt him; that when he reached the ranch he could explain for himself to Señor O'Connor how he came to be found

on foot—a thing so totally unusual for the time and place.

When Jose was brought into the presence of Señor O'Connor, he had decided to tell the whole truth. He told O'Connor that he was a Mexican from Bexar (now called San Antonio); that he started from Bexar in his canoe, loaded with honey, to come down the San Antonio River to the Guadalupe, thence by the different bays to Matagorda, where he had expected to sell his honey and then get a job among the Matagorda colony. But as he came near the Caranchua camp they halted him and made him prisoner. They consumed his honey and made a slave of him. He had not dared to try to run away from them, as he did not know where to go, nor whom to go to. And now they had sent him on an errand for them, all of which he would explain. They had told Jose that at or near the ranch there was a herd of horses that they wanted possession of; that the horses belonged to Señor O'Connor. They directed Jose to be careful that no one should see him, as discovery would be certain death to him.

They had explained to Jose that there were four swells of ground between their camp and the O'Connor ranch; that when he had passed over three of those swells he must be careful and wait there till it was dark enough to safely go further. And as soon as it was well dark, then Jose would pass over the last one and go to the pen where O'Connor enclosed his horses every night. They had explained to Jose the position of the horse pen and that O'Connor had a bell on a very gentle animal of the herd. So he could go up to the bell horse easily, after they were in the pen, and that O'Connor would have them in the pen before dark. Then after it became dark enough to make it safe for him to do so, Jose was to slip carefully up to the pen and take the bell off the bell horse, so that it could not raise an alarm while they were taking the horses away; and thus they thought to be able to slyly steal the entire herd and get away during the night, while O'Connor and his men would all be asleep.

The Indians had also cautioned Jose how to approach the pen in the darkness without awakening the pack of dogs. Jose said that he was trying to obey the orders of the Caranchua chief when Juan made him a prisoner.

"But," said Jose, "now I am clear away from the Caranchuas, and I do not owe them anything but to pay them for their treatment of me. I am ready to guide a hostile party to their camp, and if you will let me do it, I will lead your clan into a position that we can kill every one."

O'Connor was a good judge of men. I was personally acquainted with him for more than thirty years. He believed every thing that Jose had told him, and Jose had evidently told the truth. Then O'Connor hurriedly sent messengers to each settler that he felt sure could be depended upon. He sent also to Refugio, a small town about twenty miles distant. I think that they were nearly all Irishmen, like Tom O'Connor himself. The men promptly hurried to the O'Connor ranch. Jose had been kept secure for possible developments.

When the entire clan had assembled at the O'Connor ranch, they held a consultation. They called in Jose and heard him tell his story. They questioned him closely and unanimously agreed to admit him in full confidence. They then requested Jose to express himself fully and freely, and give them what he considered the best plan to be pursued. Jose replied substantially, as follows:

"I know that those Caranchuas would kill me in a minute if they could unless I could convince them that I have been true to them. Now let me tell you. I know their camp and its surroundings, and I know well the entire ground from the camp to the edge of the forest. I can guide you to the very spot after we get to the timber, but I do not know the prairie on this side of the timber. I propose that we all start together at a time of day that will bring us to the timber border a little after dark. Then from the edge of the timber I had better go alone, while you all remain quiet till I return. I will go on to the place where they have an outside guard when they are looking for trouble. If there should be no one there, then I shall know that they are not looking for any trouble, and will come back to you, and we will all go on together for a short distance, after which I had better go on ahead of you at least a hundred yards. We shall not be likely to meet any of them on the way, but we must be careful. If I should meet any of them while ahead of you I can tell them of my escape and return to them. They will believe me and receive me gladly. Then we will have a noisy talk, and I will shout with pretended gladness. In that case you will know what to do. I think it would be best to keep quiet till I get a chance to come back to you. You will know about that. There would not be more than two or three of them anyhow. Oh! we shall get them. But I believe that we can go right to the camp before we shall meet any of them. If so, then when we get nearly there, I will slip on ahead and see if everything is all right and none of them will know that I am about. If I should be discovered I can manage that by making them believe that I have returned to them, and we will be uproarious with joy at my safe return, and you must rush up at once and take them by surprise.

"But I think that I can get right in to the camp without being discovered. In that case, I can go to the tent where they keep their bows and I will cut every string twice, so there can be no splicing, and then slip back to you. Then I shall know exactly how everything is there and we can run in on them with our double-barrel shotguns and clean out the whole pack."

As soon as Jose had finished his talk, it was unanimously hailed as the right thing, and every arrangement was hastened to carry out the plan that Jose had given. A double-barrel shotgun, a brace of pistols and a dirk constituted the armament of each one. (Revolvers were then unknown in Texas.) More determined men never set out to do anything than that party of desperate men as they followed Jose toward the Caranchua camp. And old Juan was with them.

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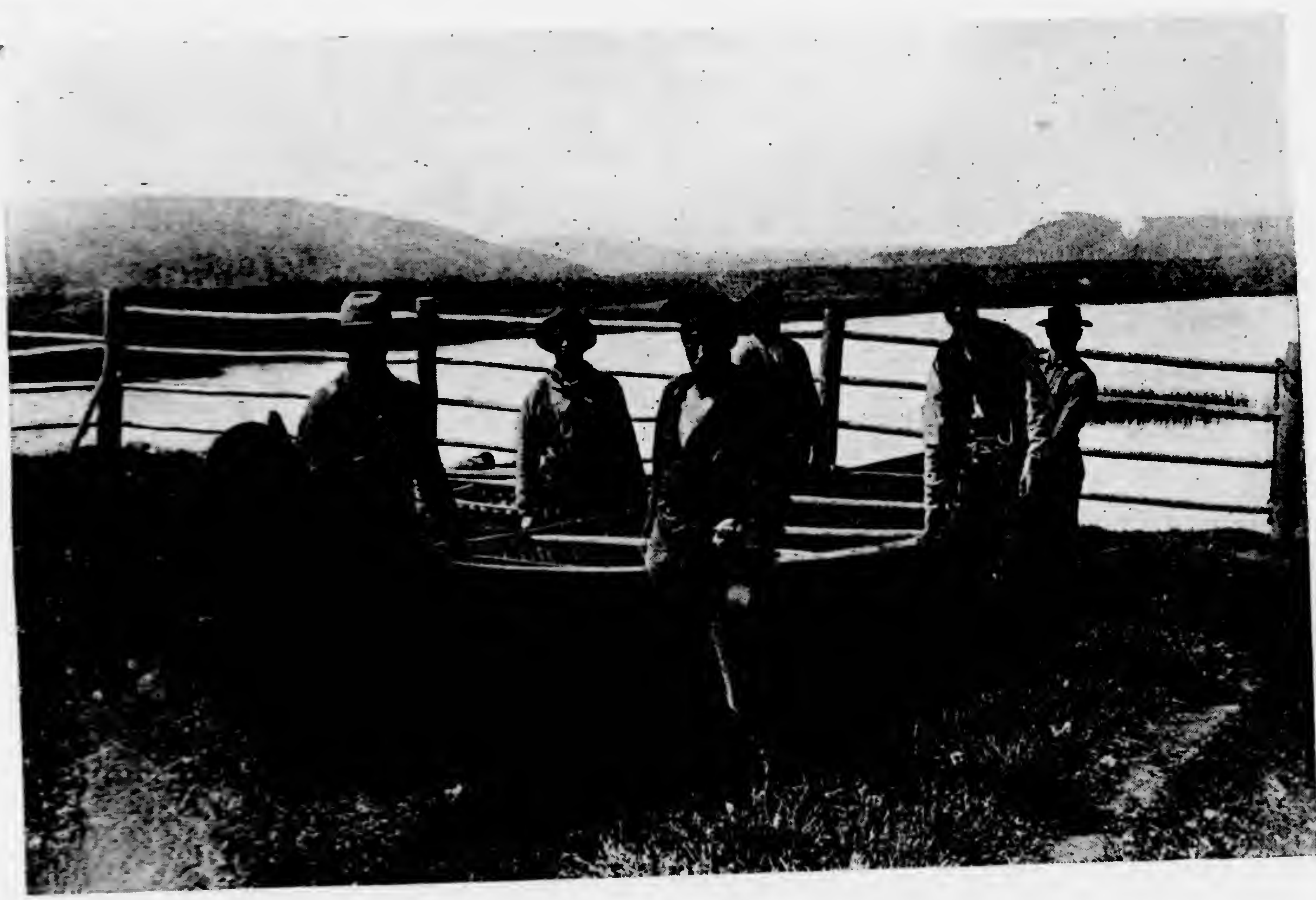

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Retake of Preceding Frame

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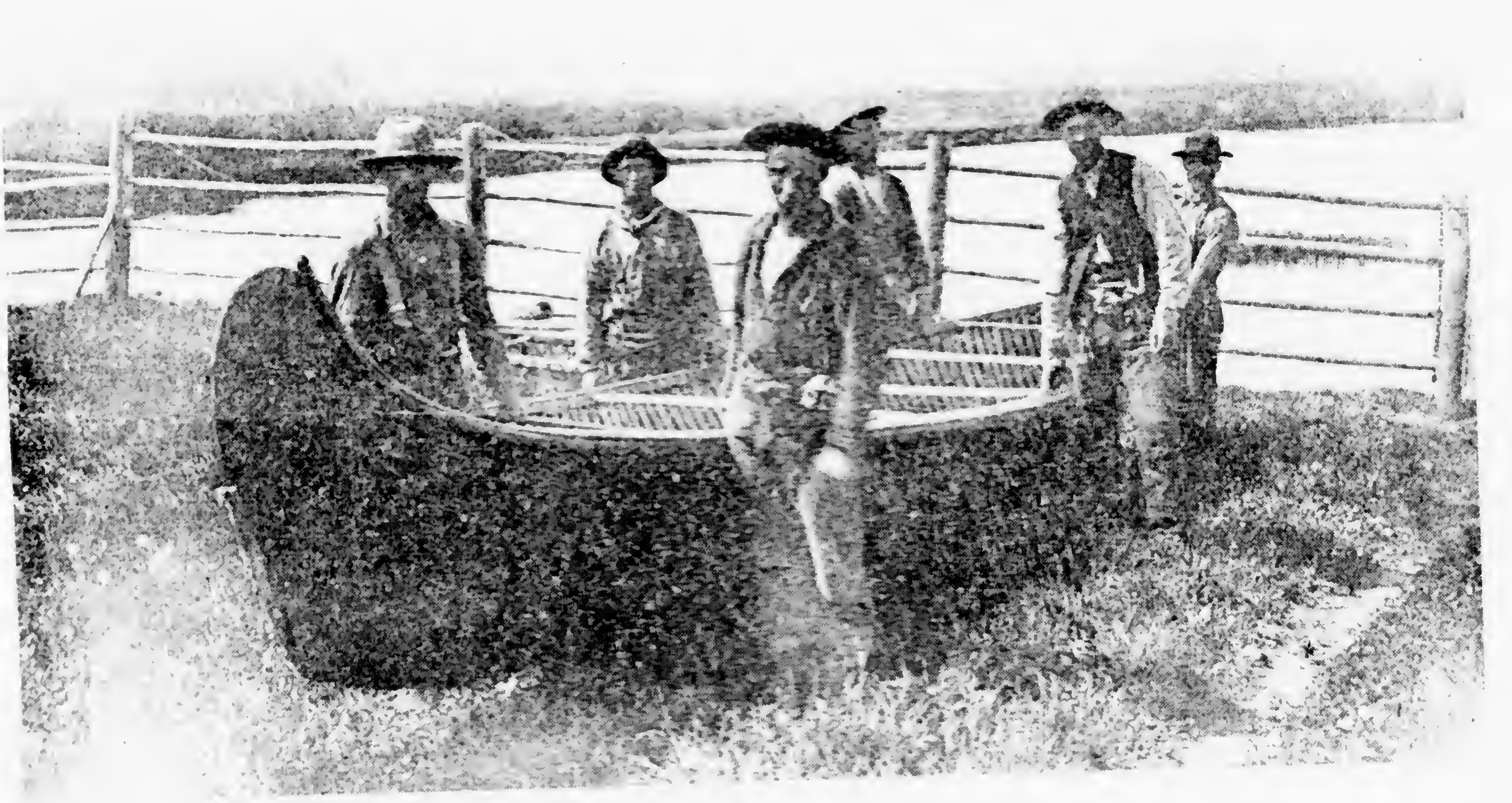

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men who opened on them with a deadly fire. The utmost consternation prevailed among the Caranchuas. They were falling helpless on every hand. In wild desperation the surviving ones began to kill their own women and children —probably in preference to having them captured. Strange to say, not one of the Indians made any effort to escape by flight. The carnage went on till every Caranchua, but one, in the camp that had been so hilarious such a brief period before, was now silent in death. And who could fail to admire that intense courage of the Caranchuas that seemed to have not once even thought of flight? Some of them could have escaped if they only would have fled. Whatever we may say of their treachery to others than their own tribe, we must admit that they were intensely true to each other.

The Texans remained at the camp till morning came. Then they crossed the river and returned over the prairie to the O'Connor ranch. They took with them as prisoner the one remaining Caranchua. He was a boy apparently about sixteen or seventeen years old, who during the massacre of the previous night appeared so inoffensive to the one confronting him that he would not kill him.

As they were riding along on the prairie toward O'Connor's ranch the question arose as to what disposition should be made of the Indian boy prisoner. One proposed that he be taught to work and be made useful. Another suggested that in every case where an Indian boy more than about ten years old had been adopted it had been found that he had retained enough of his wild instinct to finally desert his benefactors and return to wild life, and that he would carry with him dangerous information of settlement conditions, liable to promote disaster. Another suggested that he, being the last of his tribe, had no tribe to return to, and therefore would be likely to prove true. Then another suggested that he might go to some remaining tribe, and become a source of future trouble. The final conclusion was that it would be unsafe to keep him unless he could be transported to some distant region from which he would not be likely to return. But the transportation facilities of those times in Texas may be compared with those of the Orient three thousand years ago.

Finally Jose suggested that as he had been an involuntary servant of the Caranchuas for some time, besides having been robbed of his canoe and his load of honey, that it might be an act of justice to himself if they would give the boy to him. He promised that the boy should never cause any of them any trouble, and he knew how to be the boy's surety that he would never prove to be a future enemy. They all accepted the suggestion of Jose and agreed to turn the boy over to Jose.

"Well," said Jose, "now you all agree that he is my Indian." They all called out, "Yes, he is your Indian, and you may do as you like with him."

"Well, then," said Jose, "I will arrange the whole matter in a minute." Jose's shotgun, like all of the others, was loaded with heavy buckshot. The boy was riding ahead of the party a few feet, looking forward with no intimation of what was about to occur. Jose leveled his gun at the boy's heart, then fired and all was over.

I do not know what afterward became of Jose. I seldom visited the O'Connor ranch without seeing Juan. He had his own quarters there and was provided with everything needed as long as he lived. O'Connor became a millionaire and died at an advanced age. He was one of the signers of the declaration of independence when Texas began her struggle for independence from Mexico.

These details of the Caranchuas were given to me during leisure hours of ranch life, by my old acquaintance and friend, Tom O'Connor, the leading actor, fifty-six years ago. The last one of the participants in that bloody drama of the Caranchuas has gone to the spirit land. I have often been requested to give these memories to the public. I do not know whether the world will be any better than if I had allowed them to slumber in oblivion forever, but now, after carrying, in my own mind, for fifty-six years these details of a past age of unwritten history, I give them at last to your readers.

reptiles for showmen and for the oil which is disposed of to drug stores.

Just north of Boston and over the southern border of New Hampshire deer have become so numerous that one can occasionally see them —as I myself have—from a trolley car out of Lowell.

This wild life is, however, only to be discovered by the leisurely stroller through the parks, boulevards and environs of a great city. The hysterical rushing-to-catch-a-car chap, if he ever caught a glimpse of a fox, would imagine it merely a new sort of collie; and a muskrat, which might have crawled from a city brooklet to nibble at the tender shoots lining the bank, would be thought a giant wharf rat.

LIVINGSTON WRIGHT.

Woodcock and Young.

SULLIVAN COUNTY, N. Y., June 16.—*Editor Forest and Stream:* I hope that the ruffed grouse have bred well, but May was wet and rather cold. How does the woodcock carry her young? We know that she does it. A friend saw a hen bird carrying two young woodcock this spring. She had been alarmed by dogs and the little ones were attached to her legs in some way. I think she holds them between her legs. Possibly they may cling to her. This is a wise bird in spite of the fact that when suddenly flushed in bright sun, they may seem stupid.

Newfoundland Reindeer.

ST. JOHN, N. F., June 13.—*Editor Forest and Stream:* As many readers of FOREST AND STREAM are interested in the experiment now being tried by Dr. Grenfell, viz.: the introduction of domesticated reindeer into the island, the following newspaper notes, which give the latest information, will be welcome. Dr. Grenfell is very enthusiastic over the success of the venture so far, and is sanguine as to the future. Every lover of nature the world over will sympathize with the learned doctor and hope the experiment will be brought to a successful issue.

"From Captain Bartlett, of the Strathcona, we learn that the 250 reindeer imported last season are now all at St. Anthony and are proving a splendid success. There is every sign that they will increase quickly, as since they have been brought there, seventy fawns have been born, so that the herd has now increased to over 300. All the fawns are alive with the exception of two, which were born dead, and three killed by accident. The others are all doing well, and have proved to be splendid beasts of burden, being engaged all the winter hauling out logs from the woods, some six miles inside of St. Anthony, for the construction of mission buildings at that and other places.

"The deer are thriving splendidly on the moss which is found there in profusion, enough being at St. Anthony to support hundreds of thousands of the animals, and which the Laps say

reported that he saw one of them for a moment but got no shot at it.

Mr. Daisey wrote us, under date of June 15, that he has seen the tracks of these animals since, as well as previous to, his meeting with them, but has not had another opportunity to see the cats themselves. He estimates their length at not more than four feet, possibly a little less. As he had a good view of them, he tells us he is confident they were panthers.

The Starling.

NEW YORK CITY, June 16.—*Editor Forest and Stream:* There is no doubt that the starling is increasing rapidly. During the present spring I have observed them everywhere about New York. In the district lying east of Brooklyn; that is, Flatbush and Flatlands, they appear to be especially numerous. The presence of so many old barns and outhouses there would account for this, for the starling loves to nest in such places. Lacking these, however, it will readily take to holes in trees. It lays five or six eggs and nests at least twice a year. Having showed that it can survive our winters, it is safe to predict that it will eventually become as numerous almost as the English sparrow.

The question now is whether it will prove a blessing or a curse to this country. Certainly it is an agreeable bird, has a handsome presence (indeed the sheen of its plumage is unsurpassed) and a charming voice. This it employs in run-

Retake of Preceding Frame

and College Institute." I also found a portion of the bones, particularly those of the smaller animal, at the residence of Prof. S. G. Love, to whom I am much indebted for information bearing upon the subject.

The left side of the lower jaw, preserved almost entire, was two feet in length; and the size of cranium, from sections observed, was some three and a half feet in length. The depth of the jaw bone was seven and a half inches; its width six inches. There were two fragments of one tusk; the point, three feet and seven inches in length, six inches in width, with marked depressions upon one side of surface; the other fragment, two feet five inches in length, seven and a half inches in diameter and much decayed; an intermediate section and the one adjoining the cranium were gone. There were six teeth; larger ones seven and a half inches in length, weight five and a half pounds, with mammillated eminences (distinguishing the species), of about two inches in elevation. The enamel was well preserved. Sections of scapular were thirteen inches long, seven inches wide; fragments of ribs, twelve to eighteen inches in length. A section of the ribs, as first found, was five feet in length. Head of femur bone was also here.— I should judge the height of the larger skeleton to be fifteen feet, its length seventeen or eighteen feet.

The smaller skeleton (found at a short distance from the larger one), was probably seven feet in height; tusks four feet long, four inches wide; teeth three and half inches in length; sections of jaw and rib bones were also found.— T. A. CHENEY, *Leon, N. Y., Nov.* 13, 1871.

A NEW FOSSIL BUTTERFLY.— Mr. S. H. Scudder has discovered a new species (and genus) of butterfly from Aix which is contained in the museum at Marseilles. He calls it *Satyrites Reynesii*, after the direction of the museum. The specimen consists mainly of the two forewings, the venation of which can be made out very satisfactorily. It is of the form, and has the general appearance, of Portlandia, though nearest to the East Indian Debis.

ANTHROPOLOGY.

FLATHEAD INDIANS.—I will give you now a short outline of the religious traditions of the Flatheads, comprising also their notions about the globe, etc.

The earth, according to them, is not spheroidal but flat, and surrounded with water on all sides, like an island, and heaven or sky is nothing else than a huge hollow mountain, covering the earth, as the covering of a kettle. Before the creation, *Skòmelten* (obsolete word, meaning mother, and which was substituted by the word *Skói*), a woman very powerful, and who took existence by herself, begot a son without assistance of man, and this son undertook to create heaven, and earth, and man; and for his dwelling he chose the summit of the covering, namely, heaven, whence he took the name of *Amòtkan*, which means, *He who sits on the tops of the mountains;* while Skòmelten, his mother, remained above on another land beyond the waters; for besides our earth, they thought that *Amòtkan* created other worlds, under, above and around us.

This *Amòtkan* was then considered as their invisible God, who has also many sons, though no wife; and when the Indians saw the whites for the first time, they considered them to be the natural sons of *Amòtkan*, and consequently immortal, until they saw one of them killed by the Blackfeet.

The first generation of mankind became very wicked, and turned a deaf ear to the admonitions of *Amòtkan*, who, in his wrath, drowned them all in a general inundation. *Amòtkan* undertook a second creation of a race of people, twice as tall as the first ones; but proving worse than the first, they were all destroyed by fire which came from heaven. The third generation being as bad as the first and second, was destroyed by *Amòtkan* through a general pestilence. The fourth generation would all have been annihilated on account of their crimes, had not mother *Skòmelten* interceded with her son in behalf of mankind. The wrath of *Amòtkan* was appeased by the prayers of his mother, and he promised never to destroy his creations again. But until that time the world was in perfect darkness, there being no sun; and the people being persuaded that the darkness was the cause of their wickedness, they held a general council for the purpose of enlightening the world; but as every one refused, *Sinchlèp* (a small prairie-wolf), being the smartest of all the animals, undertook and succeeded in lighting the world very little less than the actual sun, and the people were very glad. But the animals of those times had the power of speaking, no less than the people, and *Sinchlèp*, being very cunning, interfered too much in their secret business, and in passing by during the day published the actions which the people performed in secret; wherefore, in anger, the people took *Sinchlèp* by the tail, which at that time was very long, and fastening him to the ground, prevented his being seen any more. The crow then offered himself in place of *Sinchlèp*, but, being naturally so very black, gave little light, and, unable to endure the ridicule of the people, he retired with shame.

Finally *Amòtkan* sent one of his sons, called *Spakaní*, to enlighten the world. Before doing so, *Spakaní* wished to marry with a woman of the earth. In coming down from heaven, he landed first in the camp of the Flatheads; but the people seeing him, though very handsome, but so different from themselves, refused him admittance to their lodges. *Spakaní*, very much displeased, left the place, and seeing near the village a small cottage, inhabited by a family of frogs, he went in, complained of the people, and showed his desire to marry one of the frogs. There was one, very large and fat, and thought herself very happy to become the wife of the son of *Amòtkan*, and with one jump she became one flesh or incarnated with the cheek of *Spakaní*, and thus matrimony was celebrated or consummated. The people, on seeing the cheek of *Spakaní* so disfigured, and enraged at the presumption of Mistress Frog, tried with sticks to kill her, until the frog, very much ashamed, prayed her husband to leave the earth; and since he had come to make himself sun, to go up immediately, which he did; but to revenge himself for the contempt of the people, he does not allow them to see him clearly during the day, when he covers himself with a shining robe, and at the approach of night, he deposits his robe, crosses the waters under the earth, and then only shows himself as he is, with his wife frog on his cheek.

For these Indians, the sun and moon are one and the same thing; and this notion accounts for the reason why they have but one and the same word to express both sun and moon, namely, *spakaní;* and so also the spots in the moon are nothing else than a frog.

Having heard this story, I asked them (there were several chiefs among those present) whether they really believed the fable; and they answered that they did, not knowing better; then I asked them what they thought when they saw the sun and moon at the same time during the day. They all started, looked at one another in surprise, looked up, as though searching the sun and moon, then

joined in a general laugh, and covered their faces as if ashamed; and one of them, looking at me with only one eye across his fingers, said, "Well, we were all beasts, and like enough not one of us has ever observed and remarked what you say now." Since that time it was agreed to call the moon by the name of *spakaní skukuèz*, meaning the *sun of the night*.

As to the immortality of the soul, the end of the world, the recompense or punishment after death, they have the tradition that man in dying, dies only half—that is, the body; the other half (which they anciently did not know how to designate, but which afterward their ancestors called *Singapèns*) does not die, but the singapèns of the good ones go to stay with Amòtkan; though without knowing to what particular bliss, and the *Singapèns* of the wicked go to another place, not determined, having no other punishment than to be deprived of the company of *Amòtkan*. For wicked they intend liars and thieves, as they consider lying and theft, if not the exclusive, at least the greatest sins. Moreover, they said that the earth and the people have one day to come to an end, and that after this last day all the dead shall come to light again, and shall be placed in another land, better than the present, and that after such epoch the people shall die no more.

Notwithstanding the power and nobility of Amòtkan and Skòmelten, these were not the deities which the Flatheads worshipped, but Spakaní, the sun. After him came as geniuses the animals of every kind, the beaver, the crow, the deer, etc. But *Sinchlèp*, the prairie-wolf, was regarded the most powerful and favorable to mankind. To show the power and favor of *Sinchlèp*, their ancestors reported that there was a time when a large portion of the earth was inhabited by a set of giants, terrible men, who killed every one they met with, for which they were called *Nàtliskèliguten*, which in ancient language means "killers of men;" that *Sinchlèp*, in pity for the smaller people, went through all the earth, killed every giant, and converted them all into large stones; and even of late, when the Flatheads in crossing the mountains saw a basaltic stone standing upright, they said to one another, "*Keep aside, there is a Nàtliskèliguten killed by Sinchlèp;*" and every large piece of silex they saw, was for them a fragment of an arrow of the "killers of men." As it oftentimes happens that one or more of these prairie-wolves come at night to howl near the village, there are still many, particularly the old women, who believe

that *Sinchlèp's* howling foretells the arrival by the next day of somebody, either friend or foe, provided he only howls three times.

The worship which our Indians rendered to the sun, consisted in raising up towards the sun a morsel of meat or roots before eating them, and saying, "Sun, have pity of us, that animals and fruits may grow abundantly." In their particular distresses each one prayed to whatever first met his eyes, whether a tree or a stone.

In worshipping the sun, our Indians were not as fervent as the Blackfeet are even now; who, not satisfied with offering a parcel of their food, very often cut off large pieces of flesh from their bodies and offer them to their *Natósa* (the sun), particularly when they go to war. I asked an old man, well nigh a hundred years of age, if he prayed when he was young, and how he prayed. "Oh! yes," he answered, "every morning my mother took me into the woods, and having found a dry pine-tree, broken and rotten from old age, she told me, 'My son, go and rub yourself against that tree, and pray.' And so I did, saying, 'O my good tree! have pity of me, and let me live as long as you have lived;' and I repeated always the same prayer; my mother did the same at another tree not far from mine, until our sore shoulders compelled us to put an end to our prayers."

Generally the prayers of our Indians consisted in asking to live a long time, to kill plenty of animals and enemies, and to steal the greatest number of horses possible; and this was the only instance when to steal was not a fault, but a great merit and bravery, since no man could ever hope to become a chief unless he had killed at least seven Blackfeet, and stolen twelve horses.

As it happens rather often that both people and animals are killed by lightning, so they regarded it as an evil genius; and the rainbow was for them nothing else than the same lightning looking down for prey amongst the people; they believed that the only means to avoid being killed, was to move off immediately and to go and encamp at some miles' distance.

Note.—The above is from a letter of Father Mengarini to Geo. Gibbs, Esq.; though written some years ago, it is published for the first time in the "Journal of the Anthropological Institute of New York," Vol. i, p. 81, 1871.

Mr. Gibbs states that the frog-wife story exists in a modified form among the Nisquallies and other tribes also, as does much of the remaining mythology of the Rocky Mountains Flatheads. It is noticeable that the Mexicans, according to Garva, quoted by

Gallatin ("Trans. Am. Ethn. Soc.," vol. i, p. 97), believed in the destruction of the world four times by various causes, on each occasion of which the sun also perished, so that the present is the fifth sun.

MICROSCOPY.

GASES AND VAPORS IN MICRO-CHEMISTRY.—Mr. E. Ray Lankester describes in the "Quarterly Journal of Microscopical Science" his gas-chamber, which is a modification of the one used by Schweigger-Seidel. A watch-glass-shaped piece of glass has its edges ground and cemented to a flat plate of glass. The top of the dome thus formed is ground away so as to make a large opening into its cavity, and closed by a thin cover glass which bears the object to be examined upon its under surface and therefore inside of the cavity of the dome. This covering glass is held in position, and the joint rendered air-tight, by means of oil. Into the top and sides of the dome are inserted glass tubes, three in number, through which re-agents, in the form of gas or vapor, are introduced into the dome by means of suction or of pressure. To prevent too rapid drying of the object, as a drop of blood, the gas may in some cases be previously passed through warm water in a Wolff's bottle. Heat may be applied by introducing one end of a stout copper wire through one of the tubes, and heating the end which remains outside, or by similarly introducing a platinum wire connected with the poles of a galvanic battery. In this manner liquids may be vaporized inside of the dome, if desired.

Among the re-agents thus used are water, hydrochloric acid gas, carbonic acid gas, acetic and osmic acids, nitrogen tetroxide, hydrogen sulphide, chlorine, iodine, bromine, ammonia, alcohol, ether, chloroform, carbon bisulphide and carbolic acid.

The advantages claimed for gaseous re-agents are, that some can be used in no other state, that they are applied without a deluging stream which might displace the particles under observation, that the action of diluents (as water or alcohol) is avoided, and that minute traces of the re-agent may be introduced, increased, stopped or counteracted with great facility. The author believes that in chemical histology all re-agents should be applied in the gaseous form, though not exclusively so, if possible.

MICROPHOTOGRAPHY.—A good popular article on this subject is published by Mr. Charles Stodder in the "Boston Journal of

AGRICULTURE OF THE HIDATSA INDIANS

A DOCTOR's thesis of unusual practical value is that of Dr. Gilbert L. Wilson submitted in June to the faculty of the University of Minnesota for the degree of Ph.D. in anthropology. With funds largely from the American Museum of Natural History, New York, research work has been prosecuted each summer since 1910 among the Hidatsa and Mandan Indians on the Mandan Reservation, North Dakota. So important have the findings of Mr. Wilson been for probable development of a drought-resistant maize for the farmers of the northwest that both Dean A. F. Woods, of the college of agriculture, University of Minnesota, and Mr. M. L. Wilson, of the Agriculture Experiment Station, Bozeman, Montana, have contributed toward the financial support of the research.

It is interesting to learn that in western North Dakota where maize has been a doubtful crop as grown by the white farmer, the Hidatsa and Mandan Indians have for centuries been successfully cultivating it. With crudest wooden and bone tools they developed an agriculture that in some respects surpassed that of most white farmers at present in that area.

Maize, sunflowers, beans, squashes and tobacco were raised by the Hidatsas, but their principal crop was maize. The chief varieties of maize were white and yellow flint, "sweet corn," and those producing white and yellow meal. Corn planting began when the wild gooseberry came to full leaf. The corn hills were prepared with digging-stick and bone-bladed hoe. The earth was raked over the seed and patted down with the hands. Each corn hill stood exactly where a hill had stood the year before. The fields were hoed twice during the summer. The second hoeing was accompanied by hilling up.

Corn was husked in the field. Friends and relatives commonly joined in a husking bee. Fine full ears were braided in strings; and from these strings, carefully dried, seed ears were chosen for the next year. A provident family kept two years' seed on hand, in order that the ill-favored grain of a poor year might not have to be sown. In the selection and preparation of seeds of all their cultivated crops, these Hidatsa Indians were far more careful than most of our American farmers. The braided strings of ears were transported from the field to the village on the backs of ponies. Smaller loose ears were borne in baskets on the backs of the women; these smaller ears made the main part of the harvest. Before each lodge stood a drying stage, a rather elaborate structure floored with planks split from cottonwood trees. On this floor the loose ears were spread to dry. The braided strings were hung on a railing above, and were bound closely in small bunches to prevent the wind from shelling the drying grain. When well dried the smaller ears were threshed or shelled, and this threshed grain and the braided ears were stored and sealed in jug-shaped caches or pits dug in the ground. Green corn, after having been boiled, shelled and dried, was stored in the caches in bags. Curiously, sweet corn, or "gummy corn" as the Indians call it, was never boiled green. It was prepared by parching, after having become thoroughly ripe.

Fallowing of fields was practised by the Hidatsa agriculturists, and they knew that wood ashes increased the yield of a field. When new ground was cleared the felled trees and bushes were spread over the field and burned for the sake of the ash.

While most of the field work was done by the women, the men assisted in part of the labors. They aided in clearing the fields, and did the heavy lifting when a stage was built. However, it was thought that a younger man was better employed hunting, or warring. But when the men's hunting and war days were over they thought it no shame to help their women plant and hoe. Field work was done in the early hours of the day, the women commonly rising with the sun, and returning to the village to eat and rest about ten o'clock in the forenoon.

Seed corn from the most intelligent and skilled of the Hidatsa women is being sold to northwest farmers by a commercial seed house. This fact and the breeding experiments by scientific experimenters bid fair to make another contribution to American economic life by the Indian.

The thesis is being printed by the University of Minnesota.

ALBERT ERNEST JENKS

SPECIAL ARTICLES

THE CHEMICAL CONSTITUTION OF CHITIN[1]

THE prevalent ideas concerning the molecular structure of chitin have been based upon the fact that it gives off acetic acid when acted upon by strong reagents, such as concentrated acid or alkali, and that its elementary composition suggests the empirical formula $C_8H_{15}NO_6$.[2] Since it is also known that chitin yields on decomposition glucosamin it was a logical inference that the above formula represents an acetylated glucosamin

$$\begin{array}{l} CH_2OH \\ CHOH_3 \\ CH—NH—CH_3CO \\ CHO \end{array}$$

of which chitin is the polymere.

This hypothesis regarding the structure of chitin has been strengthened by other observations, viz., that if chitin is dissolved in strong sulphuric acid, allowed to stand several days and then diluted with a large quantity of water, a white precipitate is formed which on analysis proves to be a monoacetylglucosamin. Occasionally, however, a substance is isolated which represents a monoacetyldiglucosamin.

An investigation upon chitin of lobsters which I conducted recently at the Woods Hole Fisheries Biological Laboratory brought out certain facts which indicate that, while the observations and analyses mentioned previously are doubtless correct, the hypothesis to which they gave origin is based largely upon misconception. I shall present here a brief outline of the principal results of the investigation, reserving a more detailed statement for publication in the near future.

It will not be necessary in this preliminary note to discuss the experimental procedure beyond the mere statement that pure chitin was hydrolyzed with varying strengths of sulphuric acid, and for varying lengths of time, the cleavage products as well as the volatile substances formed during hydrolysis having been quantitatively determined.

The results of fundamental significance yielded by this investigation are the following:

First. Very little volatile acid is formed in the early period of hydrolysis of chitin, though all its glucose molecules may already be split off. A very large production of volatile acid is invariably found when the sugar molecule itself is attacked by the acid medium.

Second. The volatile acid produced is not acetic only. At least in one experiment it was possible to show that two per cent. of the acid was formic. There is good reason for believing that other volatile acids, too, may be formed, but the attempt at isolating and identifying those has not yet succeeded.

Third. The maximum yield of sugar is about 81 per cent.

Fourth. The amino group is readily split off from the glucosamine. The hydrolyzed material contains the ammonium sulphate which can be distilled off directly by making it alkaline, and the ammonia can be collected in standard acid.

Fifth. The nitrogen of the amino group ***does not represent the total nitrogen in the chitin molecule.*** There is another nitrogenous part in the molecule which is characterized by great resistance, so that the nitrogen of that small fraction can be obtained only by digesting with concentrated sulphuric acid. There is a remarkably constant relation between this easily detachable nitrogen group and the stabile nitrogen fraction. In my experiments, the latter formed 12.04 to 12.45 per cent. of the total nitrogen.

The interpretation of these results is very obvious. The chitin molecule is certainly more complex than previously assumed. It may be regarded as consisting of two parts: one containing all the glucose and all the amino groups, the other being a stable nitrogenous compound which yields no glucose. It would be venturesome at this time to express an

[1] Published with the permission of the Commissioner of Fisheries.

[2] The formula actually computed from the analytical data is $C_8H_{14}NO_6$, but $C_8H_{15}NO_6$ is the one usually given because it corresponds to the hypothesis.

Nature Magazine - Jan. 1934.

AN ANCIENT INDIAN LOOKOUT

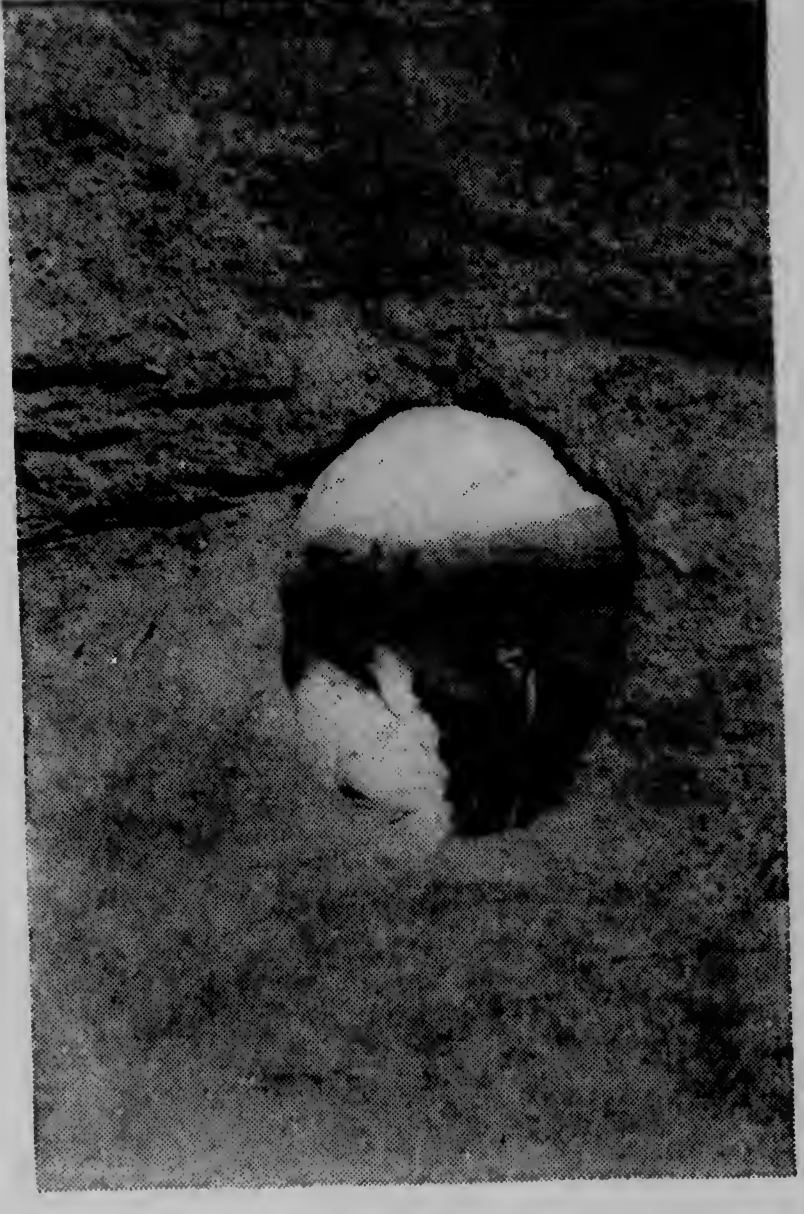
BY BRUCE BRYAN

IN THE Little Dragoon mountains of southeastern Arizona is a stretch of boulderous and precipitous country rich in relics of the past. Centuries ago this region was inhabited by the Ho-Ho-Kam, also known as the "Red-on-Buff People" because of the curiously decorated pottery they made. The Ho Ho-Kam dwelt both in highly situated caves approached by narrow declivities and in stone-and-adobe walled houses and pit rooms on the flat surface of the range. In the caves were stored water and grain in huge clay ollas, and when an enemy attacked the segregated villages the natives retired to the more defensible mountain clefts.

From the number of these natural caves which show signs of prehistoric Indian occupation and which overlook village sites on the more level rangeland, it is obvious that the Ho-Ho-Kam lived in a more or less continual state of apprehension of the nomadic tribes who preyed upon them for food, weapons and women. The early inhabitants of the Little Dragoons were fortunate in that they possessed a natural lookout from which they could keep a constant watch for the approach of their enemies. In one of the enormous boulders guarding the sloping, treacherous approach to the mountain caves is a huge hole approximately four feet in diameter, apparently the result of some curious phenomena of wind and sand erosion.

Crouched behind this natural window, an Indian sentinel was afforded an uninterrupted survey of an expanse miles in area in all directions stretching away from his mountainous retreat. The coming of a hostile band could be spotted, during the daytime, miles before it could reach within effective striking distance, giving plenty of time to alarm the villages and permit the people to flee to the caves.

A VANTAGE POINT
From here the Ho-Ho-Kam Indians could watch the approach of their enemies



MODERN SENTRIES
When enemies were sighted the Indians retired to caves as at the left

Warlike Apache bands used both the caves of the Ho-Ho-Kam and the natural lookout as recently as the last half century in their bitter struggle with the white settlers. Silver and tungsten have been found in great quantities in this region, and many are the old ranchers and their wives who can still recall nights when they sat up till dawn with rifles across their knees listening for the stealthy footsteps of a painted Apache scout.

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Retake of Preceding Frame

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Retake of Preceding Frame

The Implements of the Trenton Gravels.—Mr. Henry W. Haynes, of Boston, read a paper before the Boston Society of Natural History last January upon the argillite implements found in the gravels of the Delaware river, &c., compared with the palæolithic implements of Europe. The communication is published in Vol. xxi of the Proceedings. The author comes to the following conclusions: The objects have come from the gravel beds of the Delaware valley, and only occasionally have they been found upon the surface. They show incontestable marks of human workmanship. The general appearance of the country is similar to that of the palæolithic gravels of the Old World. Dr. Abbott has sent us a pamphlet reprint from the Society's Proceedings reviewing the whole subject.

Antiquities of New Mexico and Arizona.—Dr. W. J. Hoffman, of the Bureau of Ethnology at Washington, sends us a revised edition of a pamphlet on the above named subject, which first appeared in the Proceedings of the Davenport Academy of Natural Sciences. The author has had a great deal of experience in the Indian country as a physician, is a man of great tact and address, and has been connected with the government surveys for a long time. We have in the brochure before us an excellent epitome of our knowledge of the Pueblos. The subject of glazed pottery is treated at length and several analyses given. On the subject of crania and deformations the treatise is especially full and the bibliography invaluable.

Asiatic Tribes in North America.—From the Proceedings of the Canadian Institute, we are in receipt of a brochure of 38 pages from the pen of Professor John Campbell, on the Asiatic Tribes of North America. In this the author indicates the origin of three Indian families: the Tinneh or Athabascans, the Iroquois, and the Choctaws. The Tinneh family are associated with the Tungusians of Siberia and Northern China, and the Iroquois and Choctaws (who with the Cherokees are simply disguised Iroquois) with the populations of Northeastern Asia, classed by Dr. Latham as Peninsular Mongolidæ. With respect to the Tinneh, Professor Campbell, at the close of his argument remarks, "Certainly, no two families representing the Old World and the New present closer affinities in name, vocabulary, grammar, physical appearance, dress, arts, manners and customs, than do the Tungus of Asia and the Tinneh of America."

Under the term Choctaw is included the entire Muscogee family, together with the Cherokees, the Choctaws representing the Tehuktchi or Tshekts, and the Cherokees the Koriaks or Koraeki. The Tuscaroras of the South are taken as the oldest and purest form of the Wyandot-Iroquois and through them the last named family are brought into relationship with the Choctaw-Cherokee, and by this path with the Koriak in Northeastern Asia.

from every country in the world. For the purpose of completing the imperfect collections, the museum is prepared to exchange its duplicates for objects which it does not already possess. Thus, while the American Indian of the Far West is well represented, the museum feels the need of specimens from northwestern Canada, Mexico, Central America, and South America. Collectors and museum directors who desire to enter into exchange relations with the Linden Museum may address the director of the Museum für Länder- u. Völkerkunde (Linden Museum), Stuttgart, Germany.

Brotherhood of North American Indians.—A bill to incorporate the Brotherhood of North American Indians was introduced in the United States Senate on February 8. The purposes and objects of the corporation shall be "to teach, obtain, and maintain rights, liberties, and justice for all Indians equal to that of any people and inferior to none; to preserve and perpetuate the ancient traditions, arts, and customs of North American Indians; to unify their efforts and interests; to counsel together; to promote and encourage industry and thrift among Indian people; to collect, secure the preservation of, and to publish the records, papers, documents, and traditions of historical value and importance to North American Indians; to mark, by appropriate monuments, places historic and sacred to the American Indian; to impress upon present and future generations of American Indians the importance of united action for the common good; to promote a feeling of friendship, brotherhood, and good citizenship among its members; and to provide for the aged and infirm of the Indian race." The bill provides that the principal office of the Brotherhood shall be in the District of Columbia; that its membership shall consist of two classes, namely, "persons of Indian blood, and honorary members whose qualifications, rights, and obligations shall be prescribed by the constitution and by-laws." The officers are to consist of a "great sachem, as many great chiefs as there are local brotherhoods, great secretary, great assistant secretary, great treasurer, great assistant treasurer, chief registrar, chief assistant registrar, chief chancellor, chief historian, chief chaplain, board of managers, and executive committee." The incorporators belong to the Cayuse, Cherokee, Chippewa, Chickasaw, Choctaw, Cree, Delaware, Flathead, Kootenai, Nez Percé, Paloos, Oneida, Oto, Pend d'Oreille, Quapaw, Quinaielt, Sioux, Umatilla, Wallawalla, and Yakima tribes.

Museums of the Brooklyn Institute.—In the report of the Museums of the Brooklyn Institute of Arts and Sciences for the year 1910, recently

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pewa of the Sault, who were distinguished by the name Pahouitigouchirini. The Marameg are mentioned under the name Malamechs in the Proces-verbal of the Prise de Possession in 1671 as present at the conference on that occasion. According to Shea they are mentioned in the MS. Jesuit Relation of 1672–73 as being near the Mascoutin, who were then on Fox r., Wis. If, as supposed, the people of this tribe are those referred to by La Chesnaye (Margry, VI, 6) under the name "Malanas ou gens de la Barbue," they must have resided in 1697, in part at least, at Shaugawaumikong (the present Bayfield, Wis.), on the s. shore of L. Superior. The attempt to identify them with the "Miamis of Maramek" mentioned in a document of 1695 (N. Y. Doc. Col. Hist., IX, 619) as residing on Maramec (Kalamazoo) r., in Michigan, is certainly erroneous. (J. M. C. T.)

Gens de la Barbue.—La Chesnaye (1697) in Margry, Déc., VI, 6, 1886. **Malamechs.**—Prise de Possession (1671), ibid., I, 97, 1875. **Malanas.**—La Chesnaye, op. cit. **Marameg.**—Jes. Rel. 1669-70, Thwaites ed., LIV, 133, 1899.

Maraton. A Chowanoc village in 1585 on the E. bank of Chowan r., in Chowan co., N. C.

Maraton.—Smith (1629), Va., I, map, repr. 1819. **Mavaton.**—Martin, N. C., I, 13, 1829. **Waratan.**—Dutch map (1621) in N. Y. Doc. Col. Hist., I, 1856.

Marble. The various forms of the carbonates of lime and magnesia, classed as marbles, were used to some extent by the Indian tribes for carvings, utensils, and ornaments. They include many varieties of ordinary marbles such as are used for building, as well as the cave forms known as stalactite, deposited as pendent masses by dripping water, and stalagmite, which is deposited by the same agency upon the floor. Travertine formed by rivers and springs is of nearly identical character. These deposits frequently present handsome translucent and banded effects. The purer, less highly colored varieties are sometimes called alabaster (see *Gypsum*), and the compact, beautifully marked forms are known as onyx. See *Mines and Quarries*. (W. H. H.)

Maria. A Micmac settlement in Maria township, Bonaventure co., Quebec, containing 80 Indians in 1884, 93 in 1904.

Mariames. A tribe mentioned by Cabeza de Vaca as living, in 1528–34, "behind" the Quevenes, probably in the vicinity of Matagorda bay, Texas. The people subsisted mainly on roots and seem never to have enjoyed plenty except in the season of the prickly pears. They ground the bones of fish, mixed the dust with water, and used the paste as food. They are said to have killed their female infants to prevent their falling into the hands of their enemies, and also, because of their continued warfare, to avoid the temptation of marrying within their tribe. The region where the Mariames lived was within the later domain of the Karankawan tribes, which are now extinct (see Gatschet, Karankawa Inds., 46, 1891). Manzanet (1670) mentions a tribe called the Muruam, probably identical with this, and Orozco y Berra (Geog., 303, 1864) mentions the Mahuames as a former tribe of N. E. Mexico or s. Texas, which was gathered into the mission of San Juan Bautista, Coahuila, in 1699. These also may be identical. (A. C. F.)

Mahuames.—Orozco y Berra, op. cit. (identical?). **Mariames.**—Cabeza de Vaca (1542), Bandelier trans., 82, 1905. **Marianes.**—Cabeza de Vaca, Narr., Smith trans., 58, 1851. **Marians.**—Harris, Voy. and Trav., I, 802, 1705. **Mariarves.**—Cabeza de Vaca, Narr., Smith trans., 93, 1871. **Muruam.**—Manzanet (1690), MS., cited by H. E. Bolton, inf'n, 1906 (identical?).

Marian. The Christian Hurons, so called by their pagan brethren on account of their frequent repetition of the name of Mary.—Shea, Cath. Miss., 183, 1855.

Maricopa. An important Yuman tribe which since early in the 19th century has lived with and below the Pima and from about lat. 35° to the mouth of Rio Gila, s. Ariz. In 1775, according to Garcés, their rancherias extended about 40 m. along the Gila from about the mouth of the Hassayampa to the Aguas Calientes, although Garcés adds that "some of them are found farther down river." They call themselves *Pipatsje*, 'people,'

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Maricopa being their Pima name. Emory states that they have moved gradually from the Gulf of California to their present location in juxtaposition with the Pima, Carson having found them, as late as 1826, at the mouth of the Gila. They joined the Pima, whose language they do not understand, for mutual protection

MARICOPA WOMAN. (AM. MUS. NAT. HIST.)

against their kindred, but enemies, the Yuma, and the two have ever since lived peaceably together. In 1775 the Maricopa and the Yuma were at war, and as late as 1857 the latter, with some Mohave and Yavapai, attacked the Maricopa near Maricopa Wells, s. Ariz., but with the aid of the Pima the Maricopa routed the Yuma and their allies, 90 of the 93 Yuma warriors being killed. After this disaster the Yuma never ventured so far up the Gila. Heintzelman states, probably correctly, that the Maricopa are a branch of the Cuchan (Yuma proper), from whom they separated on the occasion of an election of chiefs (H. R. Ex. Doc. 76, 34th Cong., 1857). Like the Pima, the Maricopa are agriculturists, and in habits and customs are generally similar to them. Venegas (Hist. Cal., II, 182, 185, 192, 1759) states that about 6,000 Pima and Cocomaricopa lived on Gila r. in 1742, and that they extended also to the Salado and the Verde; they are also said to have had some rancherias on the w. side of Colorado r., in a valley 36 leagues long. Garcés estimated the population at 3,000 in 1775. There were only 350 under the Pima school superintendent, Arizona, in 1905.

By act of Feb. 28, 1859, a reservation was set apart for the Maricopa and the Pima on Gila r., Ariz.; this was enlarged by Executive order of Aug. 31, 1876; revoked and other lands set apart by Executive order of June 14, 1879; enlarged by Executive orders of May 5, 1882, and Nov. 15, 1883. No treaty was ever made with them.

The following rancherias and other settlements at different periods are judged, from their situation, to have belonged to the Maricopa tribe: Aicatum, Amoque, Aopomue, Aqui, Aquimundurech, Aritutoc, Atiahigui, Aycate, Baguiburisac, Caborh, Caborica, Cant, Choutikwuchik, Coat, Cocoigui, Cohate, Comarchdut, Cuaburidurch, Cudurimuitac, Dueztumac, Gohate, Guias, Hinama, Hiyayulge,

MARICOPA YOUNG MAN AND WOMAN

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Retake of Preceding Frame

Micmacs

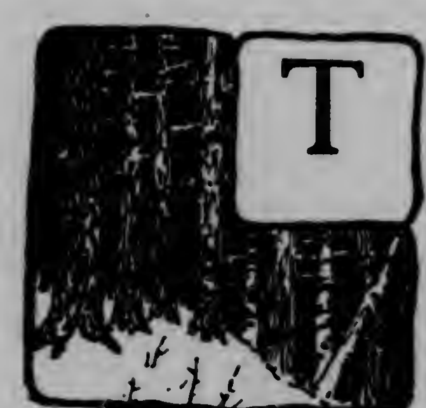
By L. L. Bickings.

"... the glorious, the free, the divine forest."

Woodcraft, and How It Works Out.

By EDWARD BRECK.

Photographs by the Author and Others.



THE American Indian, before contact with Europeans, was our only simon-pure practiser of woodcraft; that is, he gained food, shelter, raiment, weapons and implements from virgin nature; and in a sense even today a man's woodcraft may be judged by the nearness to the primitive aboriginal standard to which he approaches. But one cannot deny history, nor progress, and it is manifestly quite impossible today to ignore the results of civilized man's ingenuity; the very clothes he wears would laugh at him in derision. To be logical he would have to betake himself naked to the forest, there knock over with stick or stone as many hares or other fur-bearers as he could, from which to fashion raiment for himself with the aid of flint knife and tough roots; he would have to construct weapons and utensils out of wood and bone and stone, dry salt from the sea, cure hides for his tepee, collect roots and fruit and wild grain for his larder, and so on, up to the gathering of tinder and striking fire into it with the flints. It will readily be seen that even Nessmuk, with his ten-cent tin, was a long cry from that. As for the "tough camper," he is a bore, a ridiculous pretender, a bluff. One of his ilk, who had, with great hardship, spent a winter in a Northern lumber-camp, swaggered up one day to our canoes laden for an easy trip with few portages. Sizing up the different articles with his lip curling in contempt, he exclaimed, "Great Scott, why don't you stay at the St. Regis and be done with it?" A few questions, put in the Socratic manner, brought out the facts that Daniel Boone was his prophet (excellent model indeed), whose methods he considered about identical with his own; in fact he rather went him one better. "For," quoth he, "real woodsmanship teaches a man to get along without any civilized things at all." On examination, however, our confidence in him was somewhat shaken by the discovery that his rifle, instead of being a single-shot muzzle-loader, was an up-to-date repeater, and that he packed a patent compass with illuminated disk, a fishing-reel, a watch, and several other articles that I trow the valiant Kentuckian, not to speak of the primitive Amerind, had to do without.

The intimate knowledge of nature's secrets which pure woodcraft presupposes has become less necessary to the amateur, especially to him who follows beaten tracks, mostly on account of the ever-increasing employment of guides, without whom, in many parts of the country, it is nowadays illegal for a non-resident to enter the woods. But it is just as true that a knowledge of the art will enormously increase the delights of the expedition, besides smoothing the path and, in the last instance, possibly save a man's life.

I remember one drizzly evening in May on the Port Medway river. It had been raining hard all day with a persistent, searching steadiness that left the forest, even during a momentary hold-up of the rain, dripping like a shower-bath. At four we reached the agreed-upon camping-place, and we landed miserable and shaking with cold. The first thing under the circumstances, even before putting up the tents, was to make a fire by which to warm out. How? Everything was drenched. But Charlie and Hod didn't seem to be in the least put out. Hod speedily found an old dead log—pine it happened to be—and, with a few strokes of his full-sized axe delivered with muscle and skill, laid bare its dry and resinous heart. A splinter of this was soon whittled into a series of shavings on a stick with his jackknife, which, down under the shelter of a wet backlog, was soon alight. In a trice, fed by other shavings and splints of the dry pine and then by larger pieces, some of them more or less wet, a roaring camp-fire turned the dreary, drenched knoll into a home, rich with the promise of impending comfort.

And how was the stick of shavings ignited—by rubbing two sticks together, or by striking a spark into some carefully collected punk by means of flint and steel? Not so. Horace merely took from his pocket his waterproof match-box filled with wax vestas, and, drawing one of these across his manly buttock in the most approved style of the country grocery, applied it to the dry shavings!

The process well illustrates the difference between woodcraft as actually practised, and that of the pre-Columbian Indian. The latter had to have his flints, or his friction-sticks, or in winter his sun-glass of ice, while the modern woodsman simply never goes into the woods without matches, the *good* woodsman carrying them in a waterproof receptacle. I have seen the time when, temporarily at least, I was not a good woodsman. It was on the Shelburn with Allie Paine. We went down the banks of the river by ourselves in the morning, leaving the guides to follow. It came on to rain hard, and the river proved a tough "proposition" for the guides, so that it was nearly night before they hove in sight with the canoes and all the grub. Meanwhile we got wet and fearfully hungry, and set out to make a fire and roast and eat some trout without salt. We had our jackknives only and no waterproof match-box, so that our matches were all but actually wet. Such a hacking at old stumps there never was, and drying out of old birchbark under our shirts. When the little pile of inflammable material had been collected with infinite care the matches would not ignite, and we dried them, how I cannot to this day understand, by placing them between the folds of a dry handkerchief which was heated by rubbing carefully but pretty strenuously. It was a curious "stunt" of woodcraft, but we made our fire and roasted the trout, which Paine averred were good. In fact he declared, "I have never eaten any better raw, unsalted trout anywhere, not even at Delmonico's."

Now it is easy to say to the novice, "Go into the woods and learn by experience all about the trees, the animals and birds and their habits, the plants and vines, how to use an axe, to shoot, to fish, to make a fire, pitch a tent, make a brush lean-to, paddle, pole and carry a canoe,"—all that and much more; but such advice is at best superfluous, as well as unpractical, for the average youngster has no time to become a past master in the art. What he should ask is: "What are the most important points of woodcraft, the necessary things that I can reasonably hope to learn?" There are certain things a man can and ought to make himself master of, or at very least fairly familiar with, leaving the rest to experience and a study of a few excellent manuals, which, though too

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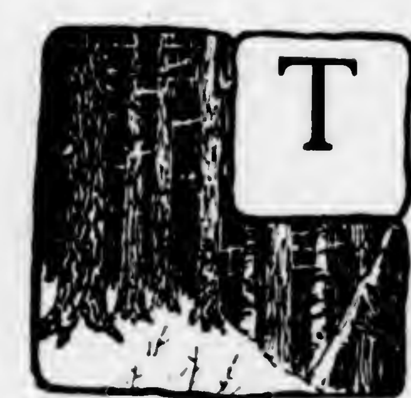

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I remember one drizzly evening in May on the Port Medway river. It had been raining hard all day with a persistent, searching steadiness that left the forest, even during a momentary hold-up of the rain, dripping like a shower-bath. At four we reached the agreed-upon camping-place, and we landed miserable and shaking with cold. The first thing under the circumstances, even before putting up the tents, was to make a fire by which to warm out. How? Everything was drenched. But Charlie and Hod didn't seem to be in the least put out. Hod speedily found an old dead log—pine it happened to be—and, with a few strokes of his full-sized axe delivered with muscle and skill, laid bare its dry and resinous heart. A splinter of this was soon whittled into a series of shavings on a stick with his jackknife, which, down under the shelter of a wet backlog, was soon alight. In a trice, fed by other shavings and splints of the dry pine and then by larger pieces, some of them more or less wet, a roaring camp-fire turned the dreary, drenched knoll into a home, rich with the promise of impending comfort.

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The process well illustrates the difference between woodcraft as actually practised, and that of the pre-Columbian Indian. The latter had to have his flints, or his friction-sticks, or in winter his sun-glass of ice, while the modern woodsman simply never goes into the woods without matches, the *good* woodsman carrying them in a waterproof receptacle. I have seen the time when, temporarily at least, I was not a good woodsman. It was on the Shelburn with Allie Paine. We went down the banks of the river by ourselves in the morning, leaving the guides to follow. It came on to rain hard, and the river proved a tough "proposition" for the guides, so that it was nearly night before they hove in sight with the canoes and all the grub. Meanwhile we got wet and fearfully hungry, and set out to make a fire and roast and eat some trout without salt. We had our jackknives only and no waterproof match-box, so that our matches were all but actually wet. Such a hacking at old stumps there never was, and drying out of old birchbark under our shirts. When the little pile of inflammable material had been collected with infinite care the matches would not ignite, and we dried them, how I cannot to this day understand, by placing them between the folds of a dry handkerchief which was heated by rubbing carefully but pretty strenuously. It was a curious "stunt" of woodcraft, but we made our fire and roasted the trout, which Paine averred were good. In fact he declared, "I have never eaten any better raw, unsalted trout anywhere, not even at Delmonico's."

Now it is easy to say to the novice, "Go into the woods and learn by experience all about the trees, the animals and birds and their habits, the plants and vines, how to use an axe, to shoot, to fish, to make a fire, pitch a tent, make a brush lean-to, paddle, pole and carry a canoe,"—all that and much more; but such advice is at best superfluous, as well as unpractical, for the average youngster has no time to become a past master in the art. What he should ask is: "What are the most important points of woodcraft, the necessary things that I can reasonably hope to learn?" There are certain things a man can and ought to make himself master of, or at very least fairly familiar with, leaving the rest to experience and a study of a few excellent manuals, which, though too

Old Mattio, a Nova Scotia Micmac.
An excellent type of woods Indian.

comprehensive and encyclopaedic to digest all at once, ought to be kept on hand for ready reference. They represent the grammar of the woods language, and though futile without experience, it is a fact without dispute that a knowledge of the grammar of a strange tongue greatly aids the practical learner.

I know two little stories, both true, that may serve to show what a knowledge of woodcraft is good for. The first concerns a young fellow in a New York bank. He was (and still is) of the average American build and strength and "sand," and he had been ducking and trouting and "roughing it" in a rather tame way for years. He had just enough confidence in himself to be risky, so that, when the boss of the Maine lumber-camp, where he was staying for a few days in October, warned him about straying too far into the woods, he smiled indulgently and a little resentfully. He strolled out in the morning with no intention of going far, when he jumped a buck, took a pot-shot and drew blood. The inevitable followed. He had never shot a deer and this one's antlers looked good to him. He went on and on even after the ceasing of the blood on the trail should have warned him that further pursuit was futile. When, about noon, he concluded to give it up and return, he found that he was lost and likewise hungry. Confidently he took his back-track along a logging-road, but an irregular cross-road puzzled him sorely, and he became aware that he really had no idea whether he was going right or not. He swore a little, and had sense enough to recognize that aimless rambling was foolish, so he concluded, quite wisely, to go north until he struck the north branch of the Red river, on which the camp was situated. But where was north?

Slight flurries of snow alternated with cold rain and the direction of the sun was impossible to determine. He tried the old trick of standing a stick upon the middle of his watch-case, but he could not see that any particular shadow was cast to the one side or the other; the light was too diffused. He had quite forgotten in his hunting excitement to take any note of the wind's direction, and even if he had it seemed to vary with every hill he climbed and valley he traversed. A hare sat up and watched him and a partridge "put-putted" within twenty feet without flying, but he was too intent upon finding the trail to take advantage of these opportunities for a meal too obviously necessary in the nearest future. After trying out a half-dozen logging and tote-roads that proved to be blind, so far as he could see in his impatience, he was forced to rely upon two things only, his luck and the course of a brook. If he followed this far enough down he was sure to strike a bigger stream, probably the Red river itself or one of its tributaries. This was excellent reasoning for a novice, but he reckoned without the many ridges he had passed, and by this time his sense of direction was completely gone. He was drenched, and the weight of his clothes began to tell on his strength. His rifle seemed to weight fifty pounds, and his feet were sore. His hunger, up till now forgotten, suddenly returned in full force, for he had been at least nine hours without food, walking nearly all the time. Nevertheless he refused to confess himself really "up against it" and wasted another hour in hopeless floundering, the many little ponds and swamps adding to his confusion. Once he found that he had walked in the traditional circle, coming back to the same lake he had left half an hour before. Finally he sat down in the lee of a big rock and reflected. "It's a joke anyhow," he remarked to himself. "Nothing serious. Many a man has spent the night in the woods." And he forthwith made up his mind, very wisely, to look out for a place to bunk in.

It had grown late, five o'clock and night was close upon him. He had nothing but a rather dull hunting-knife, with which he succeeded after much difficulty in digging out of a log enough dry wood to start a little fire with the aid of his match-box, which most fortunately had resisted the wet, though not waterproof. Once going the fire proved a great comfort, and he wasted the rest of the daylight in warming himself. He had nothing to eat, but he was so utterly fagged that he hardly had time to light his pipe before he drowsed off to sleep, sitting almost in the fire.

Somewhere about midnight he awoke trembling with cold and so stiff that he could scarcely move. Sleep had overtaken him before he could collect a supply of fuel, and in the absolute darkness all he could get hold of was a few drenched sticks that refused to light. His matches were all but gone and he feared to waste the rest before daylight. To complete his wretchedness the wind had changed and the rock no longer protected him from the freezing sleet. In the four or five hours that followed he got all the romantic experience he wanted for a lifetime. He stool up most of time, jumping up and down to keep from freezing, and altogether his sufferings were extreme.

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Now for the reverse of the medal. "Brooks," a friend of the above unfortunate, half city- and half country-bred, of gentle birth, but a woodsman by preference, found himself far in the forest of Canada, trapping with two companions. It was an unknown country to him, and the party had come by canoe nearly the whole distance, some thirty miles from the nearest settlement, by water, a very roundabout course, but necessary, on account of the weight of the provisions, traps, etc. It was planned for two of the party to make another trip to the nearest settlement before freezing up, to get more provisions, the last mail, etc., besides carrying out what fur might have been taken up to that time. But Providence disposed otherwise. The watercourses froze tight much earlier than usual, and one of the native trappers, in crossing an ice-capped gorge, had fallen and hurt himself grievously. Besides several bad cuts about the head, he broke two ribs, one of the bones in an ankle, and appeared to be hurt also internally. The fact that the accident took place at the turning-off place of a second trapping-line resulted in his being found before freezing to death, taken to camp and made as comfortable as possible. Neither of his companions was expert in surgery, though the New Englander was able to set the broken ribs, and bind up the several breaks and sprains in satisfactory fashion.

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It was absolutely necessary to get a physician and somebody to help carry the injured man out; for they were afraid to undertake the task alone, not knowing how seriously he might be hurt. The men were brothers, and it fell to "Brooks," to make the journey overland, a matter, if luck willed it, of two days or so. "Brooks" was not so big or so strong as the young banker mentioned already, but he was much more experienced. He had several advantages over the latter. In the first place he was a man who habitually studied maps, and, where none could be procured, he had local hunters make them for him, or he drew them himself as well as possible from descriptions given by natives, so that he always had at least a general idea of the "lay of the land," with the principal water-courses, lakes, hills, roads, etc. His objective now was a lumber-camp some twenty miles off to the west, whence he could 'phone to the neighboring settlement. Another advantage was that he always went abroad prepared for accident, and invariably carried a compass, a full waterproof match-box, a hunting-knife and a few inches of surgeon's plaster. For this journey he carried both sweater and coat, the latter slung with a cord round his shoulders and containing a lunch of buttered biscuit, salt, cold meat and a little tea. He would have included chocolate, but his supply was exhausted. His belt supported his knife, his cartridge-loops all full, and, for this occasion, a half-axe with short handle in its sheath. He wore ordinary moccasins with three pairs of socks, and all his underclothing was of wool. He also carried a watch, and a tin mug, the latter slung on his belt. In an inside pocket he carried a piece of rabbit-wire, and a fish-hook and line.

Starting as soon as he could get these things together, eat a substantial meal, and secure from his companions all the hints about the best course to hold that they could give, he traveled due west until toward evening, when he made camp on the shore of a lake, where he found a lot of driftwood on a little protected beach. As the day was not dark enough to obscure the position of the sun, he was not obliged to have recourse to his compass, but at night the weather changed and it came on to snow. He had, however, made himself comfortable under a brush lean-to, constructed by piling poles against a big rock and covering them with heaps of boughs, leaving the leeward side open, where he made his fire, having collected a plentiful supply of driftwood, piled up within reach. A mass of boughs served him as a bed, and, after washing his lunch down with a cup of hot tea, he lay down lengthwise to the fire and slept well, though awaking half a dozen times to replenish the fire.

In the morning he was obliged literally to break out of his snow-house and to proceed by compass alone, as the storm had not abated. There were no snow-shoes in camp, these being among the supplies yet to be procured, and his progress was slow; in fact he was not able to estimate its rate, and, except that he was still going west, he was lost. Neither was he so very sure of his exact direction, on account of frequent detours round unfamiliar bodies of water. One rather wide stream puzzled him, for only one of any size had been named to him, and that flowed within a mile or so of the lumber-camp; while he judged that he might have made seven or eight miles the first afternoon but hardly more than two or three during the morning of the second day. He therefore still proceeded westward, unfortunately directly into the icy wind, which, with its flurries of snow, nearly blinded him. At about four o'clock he gave it up and camped again, this time in a little partly protected valley, by a brook. His lunch was nearly gone, but from his belt dangled a hare, and wrapped up in his pocket (he now wore his coat) was the liver of a large porcupine, both shot the evening before. Besides this he threw down a grouse that he had caught floundering in the snow, a rare chance. He camped with the same ease as the night before, though he had far harder work in gathering enough firewood for the night. His lean-to was quickly tight, for the snow drifted over it in short order. He made his fire, cooked part of the liver, and smoked his pipe serenely before lying down to rest, first placing by the fire several large stones taken from the brook. The night was very cold, and he used these stones as warmers, placing them at his back and feet, and replacing them with hot ones as soon as cold. It may not have been like sleeping on a bower of roses in fair Araby, but it was not so bad, and there was a charm in lying there so tight and comfortable in the middle of the icy, angry wilderness, with the gale raging round about.

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woodcraft, but the storm was too thick to show him that there were other such hills, many of them in fact, and he was obliged to rely on his judgment of distance only, as to which was the right one, a poor criterion on a day like this. Another day went by and another night, and the fourth morning he roasted part of his partridge, and, his tea being gone, he made a fine beverage of the checkerberries and other food taken from the bird's full crop; that is, of half of them, for he kept some for the next meal. On this day he ran into a big bull moose lying down in a swamp. It was a tempting shot, and surely he was justified in killing the animal, if but for the few pounds of beef that he would secure. But he felt himself still strong and judged that he must now be near the camp. Besides he had put up several partridges and was reasonably sure of getting one or two. But at night he had not got a single fair shot, and before going to sleep again, he set a snare with his wire in a rabbit track. In the morning he was rewarded by a fat bunny, which he roasted, making a brew of some frozen cranberries found in a bog, bared of snow by the wind.

He suffered a good deal by this time, for his legs and feet pained, and his eyes likewise. His bowels were out of order on account of his irregular and too meaty bills-of-fare. But his persistence in going ever westward was rewarded at last by his striking the big lumber-road that was on his emergency map. He judged rightly that he had veered to the south, and so, taking the right, he came, pretty well fagged out, to the long-sought camp. It had taken him six days instead of two, but he arrived with all his limbs intact and no serious consequences ever ensued to his health. It was because he *knew how to live in the woods*, and, knowing, was not afraid, thus escaping the enormous handicap of mental suffering, which in the end is equally physical.

The two cases are not parallel, may be objected. Not quite, but if "Brooks" had been caught in the same manner as the New Yorker (which would not have been possible, as he was a woodsman), he would have got out of the scrape far more easily. He would, of course, not have started out as unequipped, nor blindly followed the buck out of all touch with camp; but, if he had, he would have shot game enough to live on for a day or two, and he would have camped early enough in the afternoon to gather sufficient firewood and make himself fairly comfortable. His forethought exemplified one of the chief points of good woodsmanship.

It is difficult to select the real first principles of woodcraft, leaving out the numerous semi-essentials, which, taken altogether, make up what Mr. Kephart happily terms wildcraft. Let us say that a first-class woodsman (I speak of the North woods) should know all about tramping, tree and bush and flower lore, axemanship, hunting, fishing, trapping, trailing, lumbering, camping, cooking, canoeing, weather lore, a little hygiene, with a smattering of other branches of kindred subjects. Hunting and fishing and trapping of course presuppose a knowledge of the habits of the forest's wild inhabitants.

The first necessity is the *desire* to be a woodsman; for many there are who go out with guides who do all the work, all the planning, and even some of the shooting and fishing, so that long trips are taken in comfort without the "sports" knowing much more of the woods at the end than at the beginning. It is like "going to sea" in a modern liner: the sea is there, but no masts, not even sailors,—just a big ocean-going hotel. If you wish to be a woodsman, take every opportunity to learn by doing things yourself. The open sesame is the habit of *observation*. The tenderfoot sees little; the trained woodsman sees everything and everything tells him something. The youngster has to pass through the stage of admiration, of primitive joy at being in the woods; he is taken up with the delightful novelty of the situation, and the picturesque side appeals to him almost exclusively. The older man heeds all this only secondarily, and has all his faculties free to observe details. It follows that the man of the least culture, say the Indian, has the best chance to learn; but the man of education need not despair, for he can become both a woodsman and a lover of all that is noble and fine in the forest as well.

Now habitual observation is nothing more than study, continual study. When I was a lad it used to annoy me, when out with a guide, that he nearly always noticed interesting things sooner than I did. This was partly because I loved to give myself up to the magic of the woods, and partly because of his training. At last I got tired of having him call my attention to every porcupine, or beaver-dam, or raven's nest, and I forthwith proceeded to acquire the habit of keeping my eyes peeled for anything out of the ordinary. The result was magical, and I recommend the process to all beginners. It is merely a variation of the old game of counting cats. Of course, here experience is a great advantage, for it imparts a trained instinct as to where to look and what one is likely to see or hear. A black thing in a tree can mean one of only two or three things to a woodsman, while to the tenderfoot it may represent almost anything. It is the same with sounds. An interesting instance occurs in "calling" moose. The novice very seldom hears the grunt of the answering bull as soon as his guide, because he does not know exactly what to listen for. His ear may have actually caught the sound, but it meant nothing as yet to his brain, and hence he did not know that he heard it. Observation, then, is the great thing. Watch everything, the features of nature, wild animals, the wind and weather, and just how the guides go to work to pack, paddle, pole, carry, pitch camp, cut wood, make the fire and cook supper. The next desideratum is to be a good Yankee and ask lots of questions. Guides are long-suffering in this respect; in fact they generally delight in telling all they know—and sometimes a little more.

If you wish to take up woodland subjects *seriatim*, begin with the trees and shrubs. Certain trees grow in certain kinds of country. Make yourself familiar with the chief ones, oak, pine, spruce, hemlock, tamarack, fir, beech, maple, birch, cedar, chestnut, ash, dogwood, poplar, hickory, walnut, etc. Learn to recognize them, and when in doubt ask the guide. There are many species of the same kind of tree, and the subject is not an easy one. Learn to know their fuel value, both in summer and in colder weather, and also, in a general way, their commercial value. Learn to divide them into hard and softwood trees. This tree-knowledge is of the greatest importance. Old woodsmen are continually referring to "that bunch o' yellow birch," or "that Norroway pine," or the "old hackmatack by the brook yonder," for in the woods trees are naturally the best landmarks. The trapper must know his withe-wood; the worker in bark vessels the best roots for sewing. One should be acquainted with the food of the moose and deer and bear and beaver and muskrat, what berries are edible for man and which are poisonous, and should recognize the poison-cup of a toadstool. Trees and shrubs and vines with their flowers and fruit *are* the forest, and the forest is the house of the woodsman.

It is inevitable that the novice will admire the deft axemanship of the forest-dwellers and strive to emulate it, an excellent ambition; but let him begin under the tutelage of an old hand, and thus learn a correct style and avoid cutting off a toe or two. I hear a laugh at that word style, but, believe me, style counts as much in the use of an axe as it does with a driver in golf, or the manipulation of a fencing-foil. Furthermore, practically no beginner out of his teens can become an adept with the axe—to acquire that steady unerring stroke that wastes no energy and strikes at the proper angle and with just the necessary force every time. But wielding the axe is a magnificent exercise, and everybody should at least pass his novitiate in the art. Happy the boy who is taught in good time, for axemanship is like violin-playing—the masters all begin as children.

The next important subject to take up is that of the weather. Never put your nose out of camp without a glance at the sky, and particularly at the direction of the wind, for you will have found out what kind of weather the different winds are likely to bring, and woodsmen's plans are all made with due deference to them. Do not be fooled either by local winds that obtain near the earth and are subject to changes at every rise of ground. These are very important in hunting, it is true, but for weather guides look at the movements of the clouds high in the heavens, which frequently take courses directly opposite to those of the breeze that sweeps the camp.

There is hardly need to say more in an article on the general nature of woodcraft. In fact it may be asserted that the novice who "gets the habit" of observation, and masters the details suggested above will need no further instruction, for he will go ahead himself in the right path. He will not stop until he has mastered a thousand and one secrets of the woods,—how to repair a toboggan or a snowshoe, cut and shoe a proper canoe-pole, gralloch and dry out or salt down the skins of his big game, "hang" an axe-head, patch a canoe, blaze trees, make camp-furniture, whittle and fix a knife-handle, run a rapid with either pole or paddle, make a fire in the wet or still-hunt a moose!

Knowledge is confidence. Having once mastered the art of always being ready (remember the match-box, compass and emergency lunch!), there can be no fear of getting lost; it will be only an interesting if annoying episode. We've all done it: it's a fine thing—to *have done!* And despise not the compass, for, while it is true that it is a mockery unless one knows the general character of the country and the lay of the land, nevertheless people who are not criminally careless will always have found this out, and traveling in a straight line will nearly always be the one great necessity on occasions of woodland aberration. Very well then: in the North woods, on days when wind and sun fail, and in flat sections where there are no tall trees to look over the country from, the compass is the only means of going straight.

Conclusion: be meek, very curious and highly observant. Don't think you know it all in a couple of seasons, or in twenty. There is not one of us oldsters who does not learn something in this great and fascinating book of Woodcraft every time he tramps out into the glorious, the free, the divine forest.

Indian Village
Cape Cod, Mas

An Indian Village on Cape Cod.

MOST people outside of Massachusetts will be surprised to learn that there is an Indian community at Mashpee, on Cape Cod, the members of which are descended from the once powerful Natick tribe. There is a considerable admixture of negro blood, but two-thirds of the tribe show marked Indian characteristics. None of them speaks the tongue of his forefathers, and only a few of the oldest have any knowledge of it. From these Mr. Frank E. Speck, a Boston anthropologist, has collected a vocabulary of twenty-nine distinctly Natick words. The list includes "wigiwam" (house), "papus" (baby), "hanca" (come in), "sukitac" (succotash), "samp" (dried, pounded corn), "teipai" (ghost), and "wikwasin" (night fishing by torchlight). The Mashpee family names sound thoroughly Indian—such as Webquish, Attaquin, Quepish, and Poguet.

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Retake of Preceding Frame

Report of the Second Annual Papago Indian Farmers Institute

By A. M. Philipson, Farmer, Sells, Arizona.

THE Second Annual Papago Indian Farmer's Institute convened at the School Hall of the San Xavier Day School at 7:30 o'clock on Monday evening March 10th, 1919. The house was called to order by A. M. Philipson, agency farmer, who made a few preliminary remarks after which the San Xavier band entertained the crowd with two selections of well rendered music. There were about two hundred Indians present.

Superintendent T. F. McCormick, then spoke in a general way of the benefits to be derived by attending the institute in an educational way and encouraged the people to take an interest in the discussions and lectures. He also spoke of the school and urged the school's patrons to see that their children were all in regular attendance.

Professor Crider, Horticulturist of the University of Arizona, was then introduced. He said that he was glad to be present and he thought he could make a better discussion if the people would ask him questions, but he did not want them in Papago or Spanish, but in any other language that he might understand, which was mostly English. The audience was interested in his lecture from the start. He discussed methods of planting and taking care of orchards and gardens. The following are some of the important statements he made:

"Every farm should have a few fruit and nut trees and a good little garden. Strawberries do well in this climate and will begin to bear fruit the first year after planting. Grapes, peaches, apricots and figs begin to bear fruit the second year after planting. Plums, nuts and olives require a little longer time, say four to five years, also pears; all of these fruits can be successfully grown here. Even some varieties of apples do quite well especially among the foot-hills of the mountains where sufficient water is available for irrigation.

In starting an orchard, prepare the soil the same as it should be prepared for corn. Then dig the holes for the trees from twenty to thirty feet apart. The hole should be dug at least two feet wide and two feet deep. Trim off all broken or bruised roots and cut the trunk of the tree off about one third down from the top. Pack good wet soil around the roots and set the tree about two inches deeper than it stood than it stood in the nuresry. Two or three year old trees are the best for planting. Cultivate the orchard well to keep the weeds down and irrigate it regularly. Plant a crop of vetch in the fall and plow it under in the spring, this will fertilize the orchard soil and make the tree grow faster and better. Prune the trees annually in January or February, pruning them with the idea of making a well balanced, spreading low tree, which is both wind resisting and get-at-able for fruit gathering.

For planting trees in colliche the hole should be dug four feet wide and five feet deep, this hole should be filled around the roots with good soil. Leave a depression around each tree for irrigation.

Arrange your gardens so that you can have some kind of fresh vegetable every day. This can easily be done in

physician was accompanied by a good interpreter who was a strong friend of the Altaha family. After a good, plain talk Frank accepted the treatment. His recovery was very doubtful, but after many days he was found to have passed through the critical period of the disease, but was suffering from after effects of pleuritical complications that might require on operation to insure complete recovery.

To operate in camp and leave the patient exposed to the excessive weather offered little hope of recovery. The only thing was for Frank to be brought to the hospital—the much dreaded house of sickness at the Agency. But Frank and Laura consented. She coming along to stay by his side let come what might. While complete recovery is not certain, Frank seems well along toward the time when he can go back to camp. Laura has spent many hours weeping but none complaining, never leaving the bedside except to go to store for what he might want. She has little to say except to her husband, but her large, plaintive eyes tell of the terrible struggle to which she meekly submits.

Frank Baha is a former school boy, speaks good English and is making a good start as a stock grower. He married Beatrice, daughter of Ellen, one of the two Altaha sisters and the one which recently fell a victim to influenza. They live in another camp 25 miles from the camp of the "R" band. In December, after Frank had completed his stock work, he took his wife and three little children to visit his mother. They had been there two days when it was realized they were all exposed to the dread sickness. He did not attempt to run away, as that would endanger those living in his home camp. A few days later Beatrice's mother and grand-mother died. She worked very hard during their sickness and burial. Beatrice did not complain, and almost before they knew she was sick she was dead. There was no grand-mother to take the little ones, so day after day Frank has sat in the wickeup caring for them until it is safe to take them where other kind camp women can give them a mother's care.

Tribal custom decrees that immediately after a death in a family the camp must be moved to a new place and a new wickeup be erected. This little band soon realized that such moves frequently meant other deaths and they consented to dispense with this custom. After all sickness had disappeared they washed their clothing, moved to a new camp where the ground was dry and warm and are now waiting to see that no new cases appear before renewing their ordinary life and business. Notwithstanding there were not more than one hundred persons in the afflicted camp, yet the death toll was ten souls. This, with the six in October makes a total of sixteen persons from among the tribe.

Judging from the fatalities in these two camps, and from similar epidemics among other tribes, had influenza swept through the entire tribe and the schools the total fatalities would doubtless have been not less than 250 persons. During all this time the police force was never used to enforce a quarantine order except to see that unauthorized persons kept away from the schools. The several camps have enforced all orders, and in fact have very largely maintained quanatines of their own. This obedience, together with their quiet and uncomplaining cooperation have so far saved hundreds of lives, if we reckon from known results elsewhere. Twice has this obedience prevailed over their dread enemy.

Time, indeed, is a sacred gift,
And each day is a little life.
—*Sir John Lubbock.*

this country as some varieties of vegetables do well in the hot summer and others do better in the cool winter. Chille peppers, mangoes, egg-plant and spinach do well in summer. Onions, cabbage, lettuce, radishes, turnips, carrots, parsnips and celery can be successfully grown in the fall, winter and early spring.

The seed bed for gardens should be well cultivated after deep plowing so at to make the soil very fine. Then furrow the land with a breaking plow in rows about twenty four inches apart. Plant the seeds in the edge of the furrow about two inches deep near the top of the ridge. Let the water run down and fill the furrows to within an inch or so of the seed, but do not let it cover the seed. Cultivate with a push plow or hoe between the plants and rows after each irrigation as soon as the soil is dry enough to work well.

Tomatoes can be successfully grown here in the spring and fall if planted in April, but they do not yield well in the hot summer."

L. Laythe, Pima County Agricultural Agent, was then introduced. His talk was an explanation of the work he has to do which consists in carrying out demonstration work in improved methods of farming and plant breeding under the supervision of the agricultural experts at the University of Arizona. He said he would be glad to have some of the Indians undertake some of this kind of work and that he would be glad to render all the assistance he could to help them make their work successful.

After the band played some more selections the meeting was adjourned until 7:30 o'clock Tuesday evening, March 11th.

Ben O. Johnson, President of the Pima County farm Bureau, was the first speaker on the second evening of the Institute Mr. Johnson's talk was along the line of organizutions and the benefit derived therefrom. He showed how better prices could be obtained for farm products, and how an advantage in buying could be gained in buying large quantities of necessaries through the organization.

Professor Thompson of the University of Arizona gave an interesting discussion on sorgum and other forage crops giving special attention to Soudan grass and milo maze.

He said in part: "Plant Soudan Grass in spring after all danger of frost is past and the soil has become warm. Prepare the seed bed the same as it should be prepared for wheat, then plant about a half bushel of seed to the acre with an ordinary grain drill set to sow two pecks of wheat. It can be planted any time during the summer up to July 1st. It can be cut for hay when it is about 3 feet. high or just when it begins to bloom. It also may be used as pasture and is good for all kind of live stock and poultry.

"If well irrigated it will yield several good crops in one year. It is a hot climate crop and must be planted annually as the first heavy frost in the winter will kill it. Milo Maze is the best of the sargum crops for grain. It is also a good forage crop and can be used for silo or fodder. Prepare the seed bed for Milo Maze the same as it should be prepared for corn. Drill in rows so it can be cultivated. Plant in May or June so the seed can mature before frost comes in fall. Seed for planting should be picked before frost comes. Keep the seed in a dry, airy place so it will not have a chance to get musty. The seed is good for all kinds of stock and poultry. It may also be used to make bread for human food but is not quite as good as wheat."

Dr. Williams, Live Stock Specialist, of the University of Arizona, was greeted with loud applause when he was introduced, for everyone present seemed anxious to hear a good lecture on Live Stock.

He began by telling about the conditions that used to exist in this country before the ranges had been overstocked and overgrazed. He showed how overgrazing injured the pasture on the ranges and exposed the plants to destruction by erosion during the rainy season. "Experience," said he, "should give the cattlemen an idea of about how many acres or square miles of range are required to keep a given number of cattle in good condition, and not destroy the pasture. "It is better to have some left over than to feed too short."

"The stockman's greatest asset is the range and he should not abuse it by overgrazing at any time.

The second point is to get good pure bred selected animals.

The best are those that will do the most good for the owner. A little pony is at best a poor seller while a bigger horse is more useful and a better seller. Breed horses for good, lively, high-headed, intelligent animals; not race-horses, but somewhat speedy and wise to learn the cowman's needs in following cattle. The Scotchman says "No foot, no horse," see that your horses, above all, have good straight legs and sound hoofs. As soon as possible, get rid of all your little ponies, ill-bred horses and burros as they are a menace to your range. They eat up the grass that should be kept for your cattle and good horses. Use only good registered males. Cull out bad females and sell them off and buy good ones in their place. This applies to horses and cattle alike. Raise only enough horses for your own use, as it does not pay to raise them to sell when cattle are so much more valuable and prolific.

There is always a ready market for your cattle. The best cattle for you to raise are the White Faced Herefords. Use only big White Faced Hereford bulls. If possible, have a special time for calving so you can give the cow special attention at that time. Castrate male calves at from 2 to 4 months old, a good time is to do this at branding time, but it should not be done during the fly season. Never allow grade male calves to become bulls before at least four or five crosses when they become almost pure bred.

A common disease among young cattle is blackleg which may be prevented by vaccination. There are several kinds of vaccine, one of which is furnished by the U. S. Government free.

Be sure that your cattle have an adequate supply of water within at most three miles from the range as cattle cannot do well if they are required to walk farther than that to water.

Do not sell your best stock, sell females only for culling. Sell steers when two or three years old.

Hogs do very well in this country and should be raised on your irrigated farms, as they eat up the refuse that would be otherwise wasted and pick up the grains left in the fields after harvest. The best hogs for this country are the Duroc Jersey breed."

Mr. Hollingsworth, farmer at the Presbyterian Training School, was present with some of the young Indian men, they brought a Hybred Hampshire-Poland China pig along with them on Tuesday evening which Mr. Williams exhibited with some distinction.

Brother Anslem of The San Xavier Mission exhibited some fine lettuce. There were many ladies present and every one seemed to enjoy the lettuce very much.

The band closed the exercises by playing "The Star Spangled Banner."

Jim Hill once described the good citizen and good employee as the one who put lubrication in the gear box instead of sand.

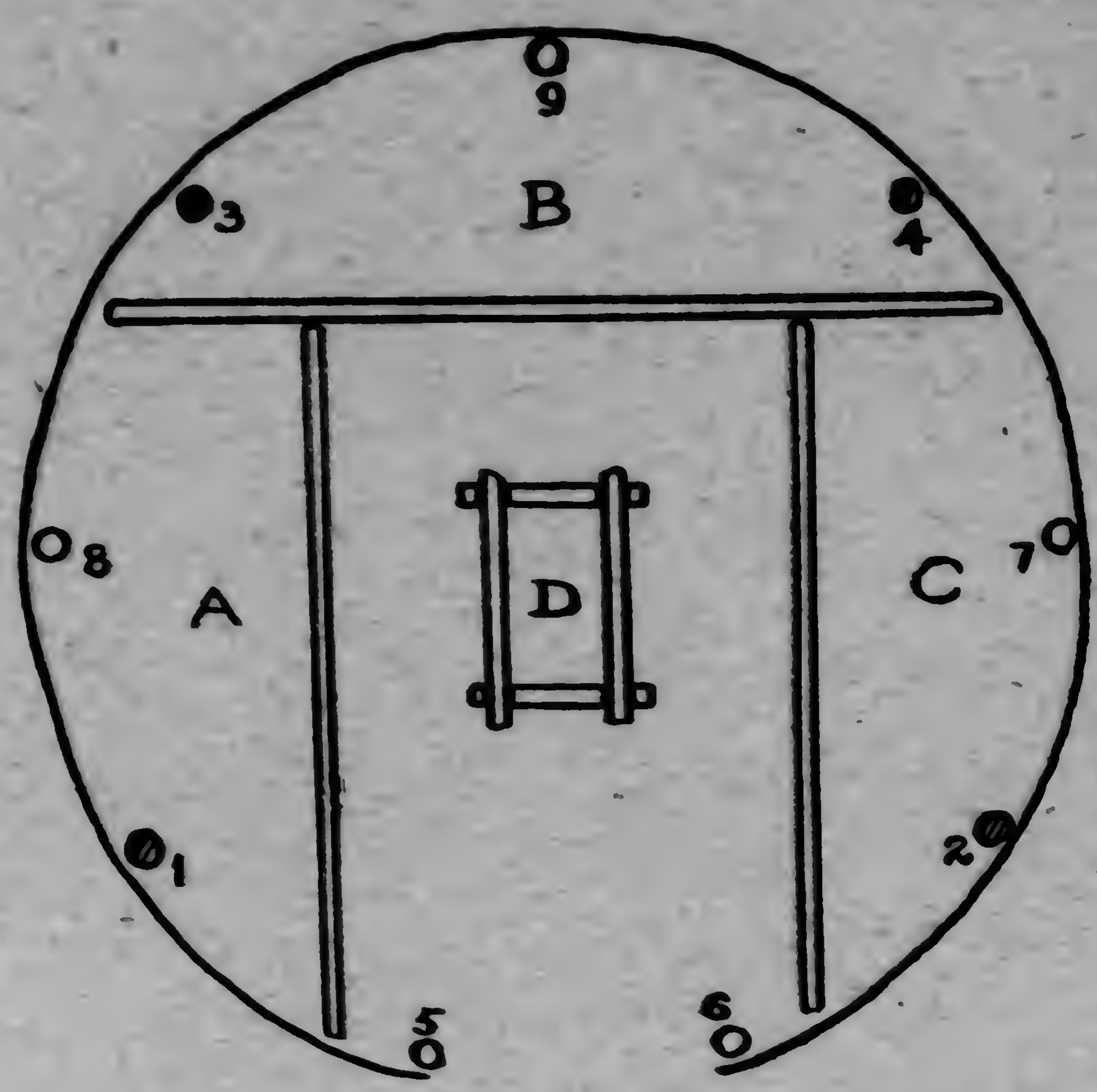

Fig. 2—Plan of Penobscot dwelling

Fig. 1—Conical bark house of the Penobscot

Notes on

Penobscot Houses

W. C. Orchard

in "The American Anthropologist"

DURING one summer the writer, in the interest of the American Museum of National History, made a brief visit to the Penobscot Indians on Oldtown Island, Maine, where some data were collected with reference to primitive architecture. Unfortunately, at the time of this visit a large majority of the Indians were away attending to their summer trade in fancy basketry and Indian curios at the various resorts; in consequence, the information could not be verified to the fullest extent. Several of the older men were questioned, and their statements furnished sufficient basis for the construction of models of a conical and a square bark shelter, a detailed description of which may prove of interest. Features of a third type of bark house were lightly touched upon, but the information was too vague to be of scientific value. It is hoped that at some time in the near future this matter may be taken up again.

The conical bark shelter (fig. 1) is built usually about ten feet high and ten feet in diameter; the frame work consists of two sets of poles, one set inside and one outside. The inner poles support the bark and the outer help to hold it in position.

Nine poles, about twelve feet long and three and one-half or four inches in diameter at the larger end, are used for the inner frame. Four of these are tied together at a point about two feet from the tips, laid in pairs, one pair on top of the other. A rope of cedar bark or a thong, bound around the poles twice and tied with a common knot, is employed to hold them together.

To erect a lodge, the four poles tied together are stood up and spread apart, as shown in figure 2. Nos. 1, 2, 3 and 4 are the poles fastened together; 5 and 6 are two poles placed between 1 and 2 to form door posts; 7, 8 and 9, placed between 1 and 3, 3 and 4, 4 and 2, complete the circle of foundation poles. A short pole is tied between 5 and 6, about six feet from the ground, forming a lintel. A hoop of some flexible wood is fastened to the inner side of the poles, about seven or seven and one-half feet from the ground, to give additional strength, also to support sticks laid across, upon which clothing, etc., are placed to dry.

The covering consists of a number of pieces of birch-bark about three feet and one-half wide and as long as the diameter of the tree will afford. The pieces are lapped and sewed together with split spruce-root, forming long strips which are fitted around the poles. The width of the bark is about one-third the height of the lodge, consequently three tiers are necessary to complete the covering. The two lower tiers are made in two sections each, to facilitate handling for transportation. One section suffices for the upper tier. The pieces of bark are so fitted and trimmed that all the seams are vertical. The covering of the poles is effected by commencing with a section of the lower tier at one of the door-posts. The end of the bark strip is turned around the pole and fastened by means of two or three strings of split spruce-root, passed through from the front, around the pole, and out to the front again and tied. The strip is then stretched around to the middle pole at the back (No. 9) and fastened through the top edge with a spruce-root string which is thrust through the bark, around the pole, and tied with a common knot. The string does not pass through the bark a second time, but is led back to the starting point over the edge. A similar fastening is made at each pole. The operation is repeated on the opposite side, with the end of the second section overlapping the end of the first at the back. The second tier is put on in the same way, the lower edge being allowed to overlap the first tier. The third or upper tier is started from the middle pole at the back, fastened through the upper edge, and is not turned around the pole as is done with the bark at the door-posts. The strip is carried around till the two ends overlap at the starting point, and a fastening is made at each pole, as with the lower tiers. To reach to the upper edge of this tier any convenient article that is high enough and can be used to elevate the person building the house, is taken inside and the fastening completed there. Some of the width is taken up by the longitudinal lapping, which leaves sufficient opening between the top edge of the bark and the intersection of the poles for a smoke-hole.

The outside poles, cut about ten feet long, are then put in position, one opposite each pole inside. They are secured by sharpening the lower ends and driving them into the ground a few inches, and by tying the upper ends to the corresponding poles inside, just above the edge of the top tier of bark.

A door is made of a tanned moose-hide, laced to two poles, one at the upper and one at the lower end, the upper end being tied through the bark to the lintel. In rainy or windy weather, the lower end is fastened by means of a thong or a cedar-bark rope, to the nearest pole to the door opening, or to small sticks driven into the ground close to the wall of the tent.

The door of the lodge faces towards the south or west, according to the surroundings.

The interior furnishings consist of

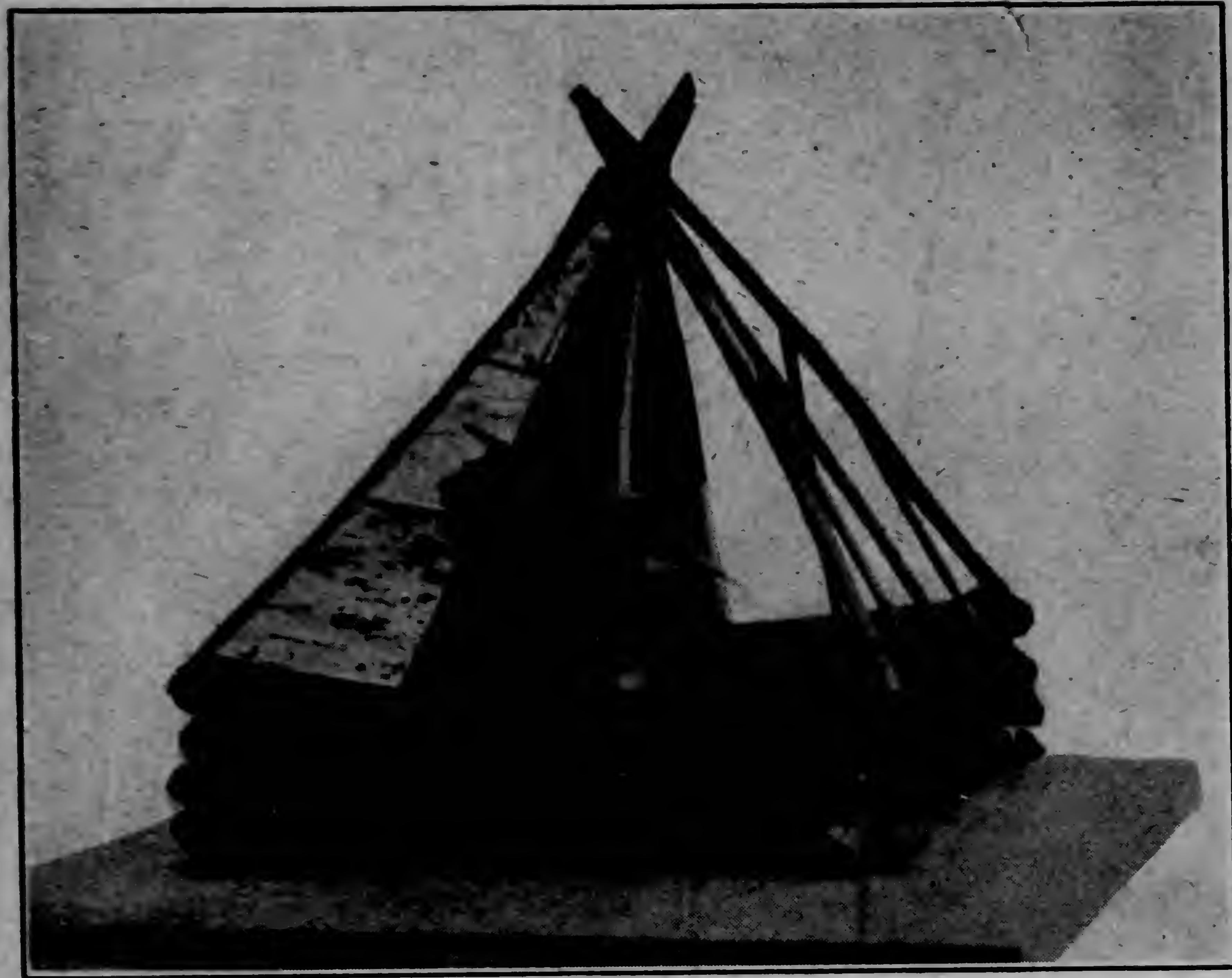

Fig. 4—Square house of the Penobscot

beds for sleeping or lounging, and a fire place. The beds are made of boughs of spruce or fir, or of any accessible soft boughs, covered with tanned skins kept in place by poles laid along the spaces allotted for that purpose on the ground. The space marked A is usually occupied by the owner; B is the place of honor, and C is assigned for ordinary guests. D, the fire place, consists of four logs, two of which are about two feet long and the others about fifteen inches. The short logs are laid across the rectangular space formed by the poles, which keep the bedding material within bounds; the longer ones are laid lengthwise of this space and on top of the shorter poles, forming a frame work which keeps the fire from scattering. The cooking-pots are suspended over the fire by means of two forked sticks, one driven into the ground at each end of the fire place. Resting in the forks, a cross stick supports the pot-hangers, which are made from twisted withe with a loop at one end to slide along the cross stick, while at the opposite end there is a crotch in which the pots are hung. The stone fire place built outside of the wigwam for use in hot weather consists of a rectangular space enclosed on three sides by a stone wall about two feet high. The approximate size of the enclosure is four feet by eighteen inches, one long side of this space being left open. The pots and kettles are suspended in the same manner as those inside the wigwam.

For more permanent use than the circular lodge, and also for better protection from the cold in winter, a square wigwam was erected (fig. 3). The lower part of such a structure consisted of four or five tiers of logs built up in the usual method employed for log cabins, the upper part consisting of a roof of birch-bark supported by poles. The minimum size of the wigwam was ten feet square and ten feet high at the apex, and larger according to the number of persons to be accommodated.

The log structure was built from three to four feet high, and on the side facing the warmest quarter, sections of two or three of the upper logs were cut out to make an opening for the door, from two and one-half to three feet wide, the lower logs being left entire to keep the snow from drifting in. The roof consisted of four main poles about twelve feet long, tied together in the same manner as the poles for a circular lodge. The poles were spread apart, one being brought to each corner of the log structure, notched into the intersections, and tied with spruce-root or cedar-bark cords.

At the opening left for the door, two poles were notched into the ends of the logs and carried up to the point where the main poles crossed, with a short pole for a lintel tied across, about six feet from the ground. The three remaining sides were filled in with poles, one from the centre of the log to the apex, and the spaces on either side with shorter poles, at right angles to the logs, reaching to the main pole and tied at that point with spruce-root or cedar-bark cord. The birch-bark covering was fitted and laid on in tiers, the upper overlapping the lower, and tied to the supporting poles in the manner described for the circular lodge. Outside poles were used to hold the bark more securely.

The arrangement of bedding and the fire place also corresponded with that of the circular lodge.

The crevices between the logs and between the bark and the top of the log structure were packed tightly with moss, to keep out the cold winds, and for further protection from cold, the walls were banked outside with moss and leaves, covered with earth. The usual moose-hide door and method of fastening were employed.

A Boost for Conservation

That the sportsmen of Canada are awake to the dangers threatening the wild life of Canada—both on land and in water—is evidenced by the co-operation we are receiving from our subscribers in response to our appeal in the January issue to help in the cause of conservation, by giving loyal support to *Rod and Gun* and the work it is doing for the sportsmen— not only of this generation, but of the next also. Men who are in hearty sympathy with the aims expressed on our editorial page, and in the columns of the magazine, have sent us in the subscriptions of friends and fellow sportsmen, thus extending our influence.

We publish below a gratifying letter from one of our supporters—a letter showing the spirit actuating the true conservationist. Sportsmen such as this, taking an active interest in the cause, can accomplish much.

"Camp No. 4, Dore Lake,
Big River, Sask.,
Jan. 2, 1926.

Greetings, Friend Ed.
And a Happy New Year.

The article entitled "Will You Help the Cause of Conservation?" in the January number finds a hearty response in me.

Will I help? I'll tell the cock-eyed world I will.

For the sooner a whirlwind campaign with conservation its objective point is started, the better it will be for all mankind.

I certainly wish there was some means by which the word conservation (or the meaning of the word) could be brought home forcibly to the half breeds and Cree Indians in the North Country. This, however, is a subject I will take up later on.

In my list of subscribers I am including two Prince Albert, Sask., hospitals—two fine institutions, as I don't know of any better place to send the magazine.

Good luck, old timer,

Sincerely,
Appleby.

Moose calling at Parent, Que.
—Courtesy C.N.R.

Retake of Preceding Frame

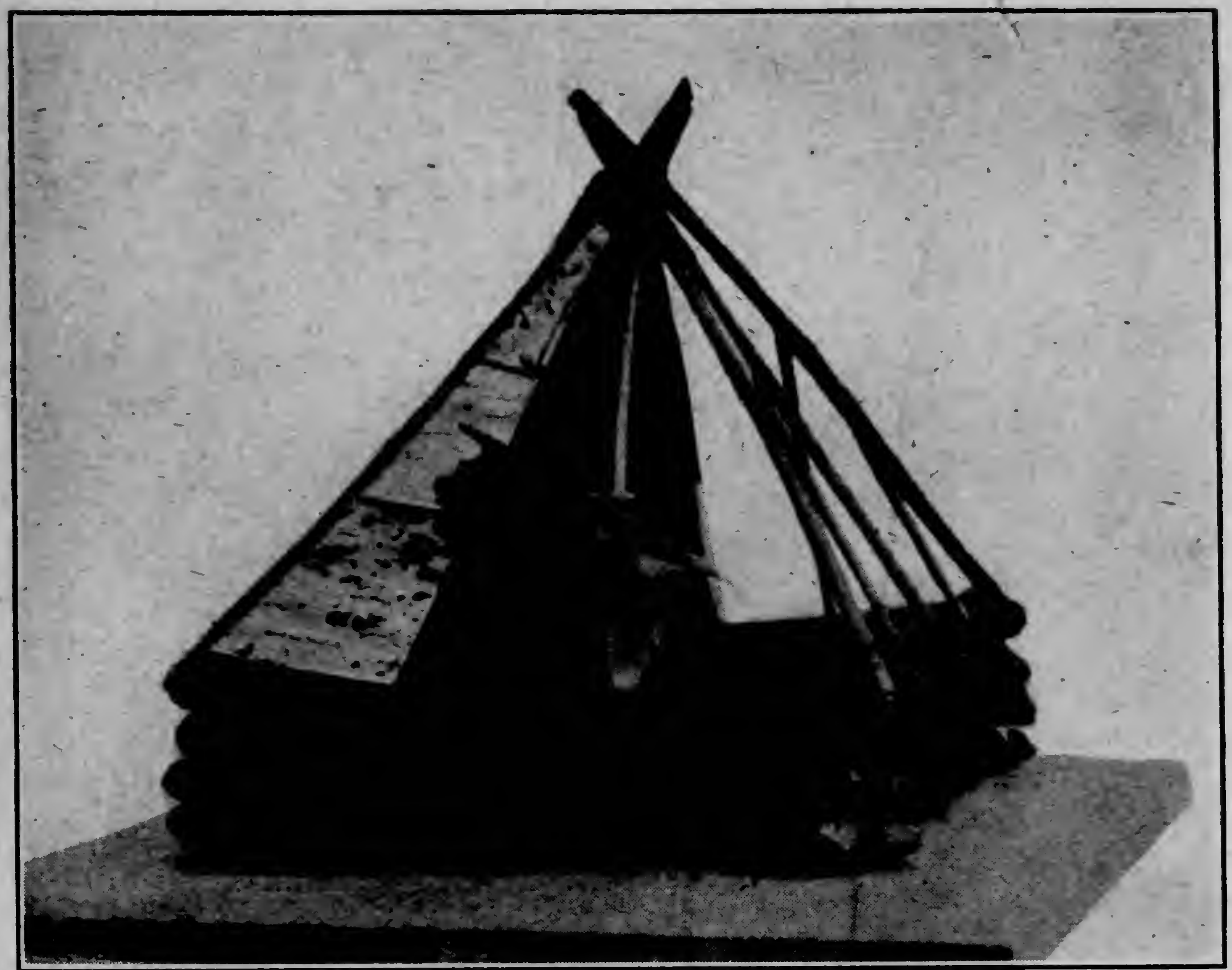

Fig. 4—Square house of the Penobscot

beds for sleeping or lounging, and a fire place. The beds are made of boughs of spruce or fir, or of any accessible soft boughs, covered with tanned skins kept in place by poles laid along the spaces allotted for that purpose on the ground. The space marked A is usually occupied by the owner; B is the place of honor, and C is assigned for ordinary guests. D, the fire place, consists of four logs, two of which are about two feet long and the others about fifteen inches. The short logs are laid across the rectangular space formed by the poles, which keep the bedding material within bounds; the longer ones are laid lengthwise of this space and on top of the shorter poles, forming a frame work which keeps the fire from scattering. The cooking-pots are suspended over the fire by means of two forked sticks, one driven into the ground at each end of the fire place. Resting in the forks, a cross stick supports the pot-hangers, which are made from twisted withe with a loop at one end to slide along the cross stick, while at the opposite end there is a crotch in which the pots are hung. The stone fire place built outside of the wigwam for use in hot weather consists of a rectangular space enclosed on three sides by a stone wall about two feet high. The approximate size of the enclosure is four feet by eighteen inches, one long side of this space being left open. The pots and kettles are suspended in the same manner as those inside the wigwam.

For more permanent use than the circular lodge, and also for better protection from the cold in winter, a square wigwam was erected (fig. 3). The lower part of such a structure consisted of four or five tiers of logs built up in the usual method employed for log cabins, the upper part consisting of a roof of birch-bark supported by poles. The minimum size of the wigwam was ten feet square and ten feet high at the apex, and larger according to the number of persons to be accommodated.

The log structure was built from three to four feet high, and on the side facing the warmest quarter, sections of two or three of the upper logs were cut out to make an opening for the door, from two and one-half to three feet wide, the lower logs being left entire to keep the snow from drifting in. The roof consisted of four main poles about twelve feet long, tied together in the same manner as the poles for a circular lodge. The poles were spread apart, one being brought to each corner of the log structure, notched into the intersections, and tied with spruce-root or cedar-bark cords.

At the opening left for the door, two poles were notched into the ends of the logs and carried up to the point where the main poles crossed, with a short pole for a lintel tied across, about six feet from the ground. The three remaining sides were filled in with poles, one from the centre of the log to the apex, and the spaces on either side with shorter poles, at right angles to the logs, reaching to the main pole and tied at that point with spruce-root or cedar-bark cord. The birch-bark covering was fitted and laid on in tiers, the upper overlapping the lower, and tied to the supporting poles in the manner described for the circular lodge. Outside poles were used to hold the bark more securely.

The arrangement of bedding and the fire place also corresponded with that of the circular lodge.

The crevices between the logs and between the bark and the top of the log structure were packed tightly with moss, to keep out the cold winds, and for further protection from cold, the walls were banked outside with moss and leaves, covered with earth. The usual moose-hide door and method of fastening were employed.

A Boost for Conservation

That the sportsmen of Canada are aware to the dangers threatening the wild life of Canada—both on land and in water—is evidenced by the co-operation we are receiving from our subscribers in response to our appeal in the January issue to help in the cause of conservation, by giving loyal support to *Rod and Gun* and the work it is doing for the sportsmen—not only of this generation, but of the next also. Men who are in hearty sympathy with the aims expressed on our editorial page, and in the columns of the magazine, have sent us in the subscriptions of friends and fellow sportsmen, thus extending our influence.

We publish below a gratifying letter from one of our supporters—a letter showing the spirit actuating the true conservationist. Sportsmen such as this, taking an active interest in the cause, can accomplish much.

"Camp No. 4, Dore Lake,
Big River, Sask.,
Jan. 2, 1926.

Greetings, Friend Ed.
And a Happy New Year.

The article entitled "Will You Help the Cause of Conservation?" in the January number finds a hearty response in me.

Will I help? I'll tell the cock-eyed world I will.

For the sooner a whirlwind campaign with conservation its objective point is started, the better it will be for all mankind.

I certainly wish there was some means by which the word conservation (or the meaning of the word) could be brought home forcibly to the half breeds and Cree Indians in the North Country. This, however, is a subject I will take up later on.

In my list of subscribers I am including two Prince Albert, Sask., hospitals—two fine institutions, as I don't know of any better place to send the magazine.

Good luck, old timer,
Sincerely,
Appleby.

Moose calling at Parent, Que.
—Courtesy C.N.R.

Southern Workman - Sept. 1908.

THE SAC AND FOX INDIANS OF IOWA

WILLIAM G. MALIN [1]

THERE is found to-day in the central zone of Iowa a condition of human existence, the parallel of which cannot be produced within the territorial limits of the United States. A race whose manner of life and moral and religious ethics are the very extreme of conservatism, while their neighbors are intensely progressive; a race without a trace of admixture of blood, except in a very few cases among the older peope, although they have been in daily contact with their white neighbors for the past sixty years in all the ramifications of their business interests, presents an anomalous condition of human existence which challenges the attention of the thoughtful student.

To the casual observer it seems an inexplicable mystery why the Sac and Fox, or more properly speaking, the Mesquakie Indians of Iowa have not long since discarded their ancestral wickiup and their nomadic life and adapted the white man's permanent home and mode of living, as being better adapted to their comfort and happiness. I believe it is an accepted fact that these Mesquakie Indians are the most strenuously opposed to having their children educated or to changing their mode of life for that of their white neighbors of any tribe living within the jurisdiction of the United States.

It is the intention of the writer to attempt to give in this paper a reason for this conservatism or, rather, to furnish a theoretical solution for the problem presented.

From the best and most authentic information, obtained from the Indians themselves as well as from other sources, the reason for the mystery referred to above is deeply imbedded in their religious superstitions and social teachings. These have been co-existent with the life of this picturesque people, the tribal legend having been passed on from generation to generation since the day when the Great Spirit created the first Indian and named him "Mesquakie" in honor of the red earth from which his body was formed.

Their legend states that the Great Spirit instructed Mesquakie how to erect his wickiup and how to procure his actual necessities, and told him he must not seek for further knowledge but remain a child of nature, just as he came from the hands of his creator. He was further informed that this world was not his permanent abiding place but that he was immortal, and that "in the land beyond the setting sun" a permanent home had been provided where all good Indians who obeyed the instructions of the Great Spirit should be gathered together at the consummation of all things terrestrial, and live in perfect harmony and peace forever. If, on the contrary, he should seek to acquire more knowledge than that imparted by the Great Spirit, or should change his nomadic mode of life for a permanent residence, he should be debarred from entering the home of the good and obedient,

[1] Superintendent of Schools for the Sac and Fox Indians of Iowa.

and be deprived of the association of his kindred in that far away, ideal Indian home in the land beyond the setting sun.

During nine years of intimate association with these people as their superintendent, this legend has been repeated to me many times by their old men, and they appear to believe and accept it as honestly and adhere to its teachings as faithfully as do their white brethren the Bible story of the Garden of Eden.

If the honest seeker after the truth will take the Indian's viewpoint, much of the mist and darkness that seem to overshadow and obscure the minds of these people will be cleared away and the mystery of their conservatism fully explained. Basing their religious and social life upon the teachings of their legend, as outlined above, they have evolved a system of moral ethics to which they adhere in their social relations, as strictly at least as do their white neighbors to theirs.

The Framework of a Wickiup

We have here a band of three hundred and forty pure-blood Indians living upon three thousand acres of land which was purchased with their own money but which is held by the Governor of Iowa as trustee, governing themselves in their relationship with each other in strict accordance with their traditions, without any reference to the laws of the state. Many of them live in the most primitive style, just as did their progenitors when the Mayflower pushed its prow into Plymouth harbor; and notwithstanding the fact that earnest missionary effort has been put forth among them for several years, not one convert to Christianity has ever been made of their number.

Their marriage relations are based upon an agreement made by

the parties interested to live together as husband and wife, and it is a conceded fact that their marital vows are as sacredly kept as are those of their white neighbors. The crime of illegitimacy is almost unknown among them. If, however, married life proves unsatisfactory to the contracting parties, either party may annul the same without the edict of the court or payment of attorney's fees, by merely returning to his or her home, as the case may be; no loss of social prestige attaches to either party because of the separation.

Their burial ceremonies are both solemn and impressive. The rude box or casket containing the dead body is placed beside or over the grave, the body being shrouded in the dead person's best raiment

A Typical Wickiup

or in a new blanket. Numerous presents are placed inside the casket by friends of the deceased; these always include prepared food and a bottle of water, sufficient provision for their needs during the long journey to the future home. One of the head men of the tribe takes his station at the head of the casket and pronounces an oration, and at short intervals he sprinkles into the casket specially prepared tobacco of their own raising, finely pulverized for the occasion. Immediately after the completion of the burial ceremonies presents of clothing, blankets, etc. are made to those who assisted in the funeral services. After the lapse of a few days from the date of these ceremonial rites, another impressive religious ceremony is observed; namely, the adoption of some one to take the place of the deceased in the bereft household, for it is believed by these people that the spirit of the deceased will not take its departure to the home beyond the setting

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Retake of Preceding Frame

sun but will linger around its old home camp fire until its place in the earthly household has been filled by another. This ceremony consists of a religious dance or promenade, participated in by the women, a feast to which friends and relatives of the deceased are invited, the selection of a suitable person to take the place of the deceased, and the distribution of presents to the invited guests.

They have also other festivities and dances which have a religious significance. They recognize the beneficence of the Great Spirit in the changing seasons, and they give expression to their gratitude in songs and dances, feasts and orations, which may appear unintelligible and incongruous to the white man but seem to fully meet the Indian's highest ideal of true and acceptable worship of the Great Spirit.

A Group of Head Men of the Sac and Fox Tribe

When asked, Why do you dance at your religious feasts? An old man answered, "Because we are glad and thankful to the Great Spirit." And then he added, with a look of inexpressible contempt, "White man dance for fun."

Notwithstanding their traditions, however, many changes for the better have taken place in their home life during the past two decades; and there are now several frame houses occupied as permanent homes. These houses are furnished with some of the appliances of civilized life, such as cook stoves, sewing machines, chairs, and other furniture. Each succeeding year sees some advance made in their agricultural pursuits; and considerable quantities of corn and other grain are produced and marketed by them. Many of the young men find employment as section hands on the two railroads which cross their lands;

others hire out with the neighboring farmers during the busy season and earn good wages. The men wear citizen's clothing, except a very few of those well advanced in years, who still adhere to the old Indian costume, including the red or blue blanket.

The transition from the teachings of their old traditions to those of the new life by which they are surrounded is, in the Indian mind, a slow and tedious process which, at the present rate, will take generations to accomplish. That an impression favorable to education has been made in the minds of many of these people is evident. Ten years ago, when asked to send their children to the agency school, many of them would become violently angry and abusive. Now they say, "*Mebbe, bye and bye.*" Intellectually these Indians are the equals of any with whom I have come in contact; they acquire a

The Home of a Progressive Sac and Fox Indian

knowledge of the English language and the various branches taught in our common schools as readily as do other children of the same age. They excel in penmanship and drawing and are very apt in music. They are quiet and well disposed in manner, easily controlled in school, and very respectful to their elders and to those in authority.

These Indians make the proud boast that as a tribe they have never been at war with the white man but have always been on good terms with him. They are quietly disposed and law abiding; although not under the jurisdiction of the state laws, very seldom if ever is any complaint made of their violation by these Indians.

The chaotic conditions existing at this agency, caused by a divided jurisdiction over these people and their lands, has resulted in much harm to them; but, as their status is now understood by the Government, measures will soon be taken by the proper authorities which will greatly relieve the situation and result in their more rapid advancement.

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THE ECONOMIC CONDITION OF NEGROES IN THE NORTH

IV NEGRO GOVERNMENTS IN THE NORTH

RICHARD R. WRIGHT, JR.

THERE are several places in the North where the local governmental machinery is in the hands of Negroes. A careful study of these places might be of interest, and not without value to the student of politics as well as to the student of the so-called race problem. Only a brief sketch of them can be given in this short article.

There are three types of government represented by the places treated of in this paper.

I A TOWNSHIP GOVERNMENT—In Cass County, Michigan, about ninety miles east of Chicago, Illinois, and ninety-five miles west of Detroit, Michigan, is situated Calvin township, one of the Negro governments. This township had, in 1900, a population of 1271 persons, of whom about sixty per cent were Negroes. The history of the township is interesting. Some were fugitive slaves who found a hospitable home among the Quakers who had settled in the county; and others were manumitted slaves from the South, who were sent to the community by their masters. So by 1860 Cass County, Michigan, had quite a large Negro population, the number being 1368, 795 of whom were located in Calvin township. As early as this date—1860—the Negroes formed a majority of the population, there being at this time only 580 whites. But it was not until 1875 that the first Negro was elected to public office. In this year, John Allen, one of the farmers and pioneers of the township, was elected township treasurer and served with credit two years. From that time to this a Negro has held some township office. But it has been only within the past decade and a half that the government has been chiefly in the hands of Negroes, so that it could with any degree of truth be called a Negro government.

The officers of the government are superviser, clerk, treasurer, road commissioners, and school directors. All of these except the treasurer are colored. The supervisor is the son of one the early pioneers in the county. His father came originally from North Carolina to Indiana, thence to Cass County, Michigan, about 1840, where the present supervisor of the township was born fifty-two years ago. The duty of the supervisor is to preside over the town meeting, and act as a member of the County Board of Supervisors. There are twelve townships in the county; and the twelve supervisors constitute the Board of Supervisors of Cass County, who have charge of the general business of the county—the levying of taxes, the building of roads, etc. The present supervisor has been elected to his office seven times, which is considered quite a compliment. The township clerk is the secretary of the town meeting and keeps a record of all the business of the town; also

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than this is the matter of the chants. A few chants are given in text with English translations, while the remainder are given in English only. I am personally acquainted with Sam Bosley, Skinner's chief and nearly exclusive informant and interpreter, and agree with Skinner that he has a most excellent command of English. However, he is a very poor dictator of texts. Words are given frequently with wrong divisions in the text of the Chants and Dance Songs. Often what is given as a single word should be divided. Again, though, Bosley speaks good English, he is not an accurate interpreter. Word after word in the Indian text is omitted in translation; even whole sentences have no English correspondents; and there are whole sentences in the supposed translations which have no Indian equivalents. These statements are made on the basis of a grammatical analysis by myself. Therefore it is abundantly clear that the chants which can not be controlled by the Indian originals can be used for comparative purposes only with the utmost caution. On the other hand, the English paraphrases will be of assistance to any one who undertakes to obtain the Indian originals. In closing I would point out that Skinner does not correlate what is known about Potawatomi ethnology from printed sources with his own, with the result that a future investigation is needed to clear up a number of points: also certain kinship terms (see p. 36) need to be defined more accurately.

TRUMAN MICHELSON

Observations on the Ethnology of the Sauk Indians. Part II. *War Customs.* A. SKINNER. (Bulletin of the Public Museum of the City of Milwaukee, vol. 5, No. 2, pp. 59–95, Plates 2–12. Milwaukee 1925).

In this paper Skinner gives us a series of very interesting observations on the war customs of the Sauk Indians which for the most part are quite novel and are presented in attractive form. First we have an outline of Sauk history (which is not quite accurate in one or two respects), then notes on the sacred bundles, war parties, prisoners, war honors, etc. It may be noted that he incorporates or paraphrases Galland's writings, to which I have repeatedly called attention; see the *Journal of the Washington Academy of Sciences*, ix. 595; *Current Anthropological Literature*, 2:234, 235; *Am. Anthropologist*, N. S., 17:576; *ibidem*, 26:96. There is no attempt to criticise these, and to correlate the statements made on the social organization with Skinner's own previously published data, which is a pity. If Skinner

thinks that Galland's Mam-ish-aum-uk is Mämishiwûk (MA-mī-'cī'Ag^{ki} in my transcription) "attendants," he is in error: it doubtless stands for a word closely allied to this, mämī-'cAmawAg^{kA} "the one whom I serve as ceremonial attendant." Galland's Mam-ish-aum-uk is doubtless colored by his mish-aum (mī'cām ^{mic}) "sacred pack," with which it has no connection. If Skinner merely means that Galland's word is inappropriate, he is quite right. It may be observed that Galland's Monato-kush-a is corrupt: the Sauk word is Ke'cemanetōwA,—which Skinner does not note. Correct Monato-kusk-a on p. 77 to Monato-kush-a. Galland's O-ke-mau-uk-a "chieftains" is ugimāwAg^{kic}; Us-kaup-a "servant(s)" [more properly, "ceremonial runner"] is A'ckāpäwA; Wis-uk-a is Wī'sA'kä'A, Nah-me-pa-she is Nāmipe'cīwA, etc. Skinner's statement that Sauk beliefs have disintegrated greatly in the past century (p. 81) is not quite true. Doubtless many ceremonies have ceased to be practised but there are still plenty of Sauk who have a full knowledge of them. The attempt to reconstruct the culture hero cycle in its pristine form is not convincing. Skinner follows Brinton, *Myths of the New World*, 194, and Hoffmann, *14th Ann. R. B. A. E.*, 162 as cited by Boas, *Traditions of the Thompson River Indians*, 101, in considering the coarse vulgar tales appurtenant to the Culture Hero among the Central Algonkians as later additions and degenerations: against which see Boas, *loc. cit.*, 4 et seq., *J. A. F.* 1914, 395; Lowie *Primitive Religion*, 371. The philological proofs which Skinner, and Brinton before him, gives as justification for his position in reality are no proofs at all. It is utterly impossible to etymologize correctly Wēnabūžū, Nänabus Mä'napus just as it is in the case of Fox Īyāpā'tä'A, Fox Aiyāpā'tä'A, Mexican Kickapoo Pä'pā'tä'A' Ojibwa Nänāpādam (see the *40th Ann. Rep. B. A. E.*, 376); and all attempts to do so thus far simply defy the known laws of Central Algonquian phonology. That some of the tales occur among some Siouan tribes in the Rabbit cycle is no support for the proposed etymology, for they also occur in other tribes in an entirely different setting.[1] An exhaustive comparative study alone can point to the sources of which the culture hero myth of the Central Algonquians is composed, and we might get some insight regarding the chronology. The extraordinary likeness in detail of this myth, including even some trickster elements, points rather to recent dissemination as a unit.

[1] Nor would such eymologizing account for the name of the culture hero among the Sauk, Fox, Kickapoo, Prairie Potawatomi, Peoria, and Cree.

But what a theoretical discussion of the myth has to do with war customs of the Sauk Indians, is not for me to say.—Skinner complains, 86, that there is practically no Fox material available for comparative study of the sacred packs. The difficulty is that he does not know what material is available nor where it is deposited. Years ago I gave a list of institutions in which Fox ethnological specimens are to be found, but Skinner apparently has never seen it.—The analysis of twenty-five Sauk war bundles is well-done; and the accompanying plates are really remarkably fine.

TRUMAN MICHELSON

Observations on the Ethnology of the Sauk Indians. Part III. *Notes on Material Culture.* A. SKINNER. (Bulletin of the Public Museum of the City of Milwaukee, vol. 5, No. 3, pp. 119–180, Plates 13–26. Milwaukee 1925.

In this paper Skinner gives a very good account of the material culture of the Sauk, and embodies some miscellaneous data. There are a few points that call for adverse criticism. On page 123 we are told that Meskwaki (Fox) collections are to be found in the Field Museum, the American Museum of Natural History, and especially in the private collection of Mr. Milford G. Chandler of Chicago (which, by the way, has since been practically entirely transferred to the Museum of the American Indian). As I have intimated before, Skinner does not know the institutions in which Fox ethnological specimens are to be found, so I give a list of them: American Museum of Natural History, Cambridge University Museum of Archeology and Ethnology, Chicago Historical Society, Davenport Academy of Sciences, Field Museum of Natural History, Historical Department of Iowa, Museum für Völkerkunde (Berlin), Museum of the American Indian, Public Museum of the City of Milwaukee, State Historical Society of Iowa, United States National Museum. Sauk words for articles of *native* manufacture, etc. are given; and an ethnozoology. Since a totally inadequate scheme of Sauk phonetics is employed, these words serve no scientific purpose and simply serve to increase the cost of printing. Such atrocities as wajina'kwäk (p. 125; wä^{d}tcināwA e'kwäg^{kic}) "noon," skua'täm (ibidem; A'ckwā-täm^{mic}) "door" manotäo p'äniäk (p. 138; nenōtäwipenyag^{kic}) "Indian potato" (plural, not singular as Skinner has it), muko-päniäk (p. 138; mA'kwipenyäg^{kic}) "bean-potato" (sic: "bear-potatoes")

Shegák (p. 145; cegāg^{kw}A) "Skunk" to cite only a few examples—are ample proof of the above assertion. It remains to be said that the plates at the end are unusually fine, and that Skinner has laid us under deep obligations for reproducing ethnological specimens in such elegant style.

TRUMAN MICHELSON

SOME NEW PUBLICATIONS

Allison, Vernon C. The Antiquity of the Deposits in Jacob's Cavern. (Anthropological Papers of the American Museum of Natural History, v. 19, pt. 6, 1926: 297–335, 24 figs.)

Bosch-Gimpera, P *and* Serra-Rafols, J. de C. Études sur le néolithique et l'énéolithique de France. (II-Les civilizations du Nord de La France.) (Révue anthropologique v. 36, nos. 7–9, 1926: 319–345, 2pls., 8 text-figs.)

Bounak, M. V. V. Le mouvement anthropologique en Russie depuis 1914. (Révue anthropologique, v. 36, nos. 7–9, 1926: 346–360.)

Brinton, Daniel G. Notas sobre el Mangue. (Anales del Museo Nacional de Arqueologia, Historia y Etnografia, v. 20, no. 4, 1925: 399–41[illegible].)

Bugiel. Lec chants funéraires de la Pologne. (Bull. and Mem. de la Société d'Anthropologie de Paris, 7th serie, v. 16, nos. 1, 2, 3, 1925: 122–147.)

Bégouen, M. le Comte. Quelques nouvelles figurations humaines préhistoriques dans les Grottes de L'Argiège. (*Revue Anthropologique*, IV-VI, 1926, 181-191).

Bloomfield, Leonard. On the Sound System of Central Algonquian. (*Language*, I, 1925, 130-156).

Campos, Rubén M. Los instrumentos musicales de los antiguos mexicanos. (Anales del Museo Nacional de Arqueologia, Historia y Etnografia, v. 20, no. 4, 1925: 333–337, 6 pls.)

Chamupati, Pt. The Cult of the Aga Khan. (The Vedic Magazine, v. 25, no. 3, 1926: 111–123.)

De Créqui-Montfort, G *and* Rivet, P. La langue Uru ou Pukina. (Journ. de la Société des Américanistes de Paris, n.s., v. 17, 1925: 2[illegible]–244).

Danforth, C. H. Hair, with special reference to Hypertrichosis. American Medical Association (535 North Dearborn St.): Chicago, 1925.

De Aranzadi, Telesforo, De Barandiaran, Jose Miquel, *and* De Eguren, Enrique. Exploraciones de la Caverna de Santimamine. Bilbao, 1925, Artes Graficas, "Grijelmo", S. A.; 50 pp., 37 figs., 8 pls.

De Barandiaran, Jose Miguel. (*See* De Aranzadi, Telesforo, De Barandiaran Jose Miguel, *and* DeEguren, Enrique.)

De Eguren, Enrique. (*See* De Aranzadi, Telesforo, De Barandiaran, Jose Miguel, *and* De Eguren, Enrique.)

Dorsey, George A. Why We Behave like Human Beings. Harper and Brothers, New York; 512 pp. ($3.50).

Darsie, Marvin L. The Mental Capacity of American born Japanese Children. (*Comparative Psychology*, Monographs, III, 1926, serial no. 15).

DeAngulo, Jaime The Linguistic Tangle of Oaxaca. (*Language*, I, 1925, 96-102).

KÓPELI, LATE SNAKE CHIEF AT WALPI

(died Jan. 2, 1899. - Fewkes.)

KÓPELI, LATE SNAKE CHIEF AT WALPI

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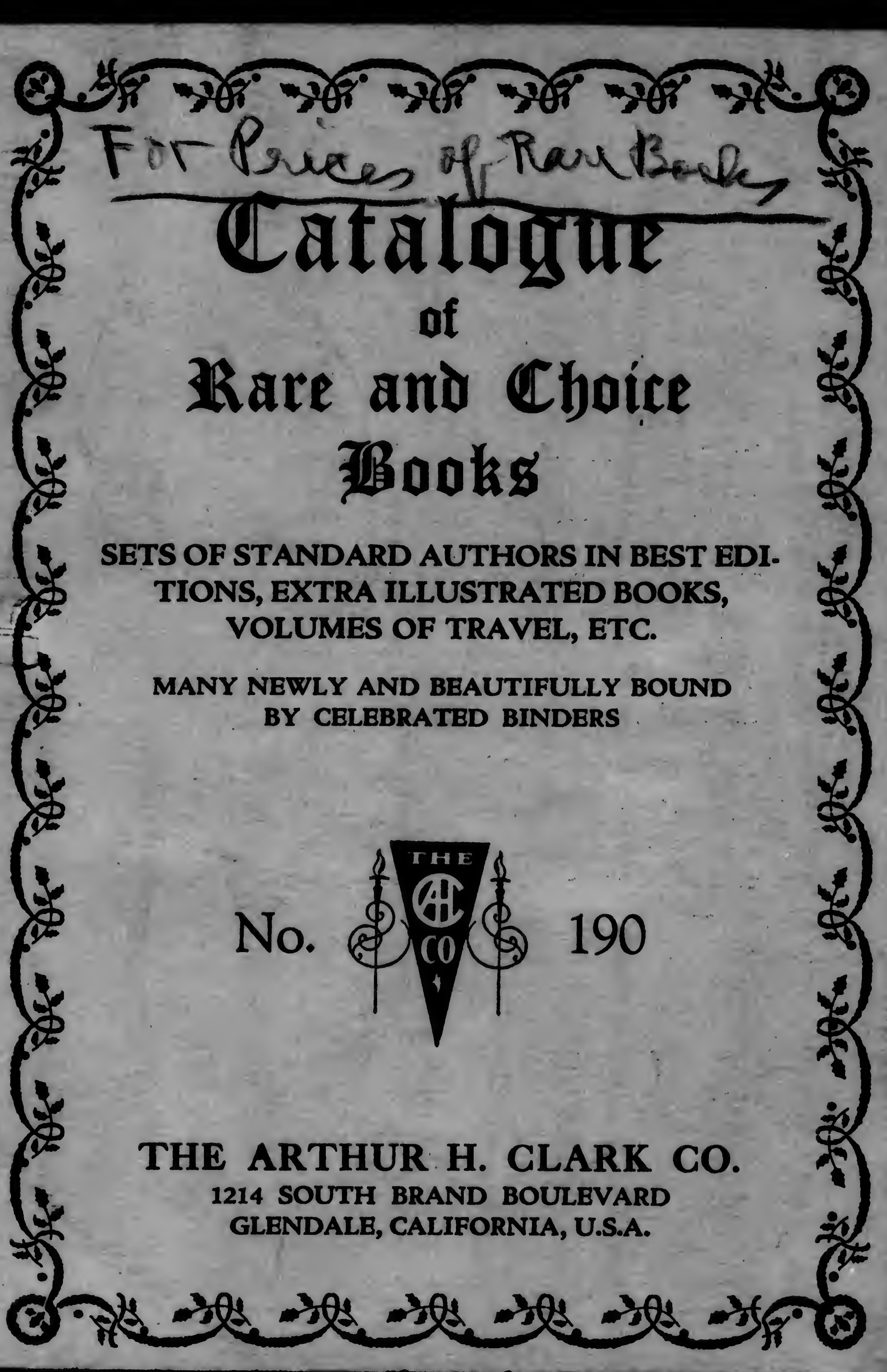

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CALIFORNIA: Sawyer (Lorenzo) Way Sketches; incidents of travel across plains from St. Joseph to California in 1850; frontispiece. Printed on hand-made paper, deckle edges. 8vo, pp. 125, strongly and artistically bound in boards, uncut. N. Y., 1926. $15.00. 61

Only 350 copies were printed. It is now out of print. One of valuable source works on history of overland trail, gold rush and migration across plains to California in 1850. Contains biographical sketch of Sawyer, whose narratives for the first time are made available to students of early western history.

CALIFORNIA: Sutter (Gen. John A.) Life and Times, by T. J. Schoonover; illustrated. 8vo, pp. 315, cloth. Sacramento, 1907. $6.50. 62

CALIFORNIA: Taylor (Zachary) California and New Mexico; message to House of Representatives, January 24, 1850, and accompanying documents. Complete with all folding maps, large aand thick 8vo, pp. 976, newly bound in half morocco. Wash. [1850]. $40.00. 63

Of special interest on New Mexico, California, and Texas. The volume deals with the early military campaigns, treaty with Mexico, territorial rights and laws, Indian depredations, missions, Mormons, Fremont's expedition, smuggling, customs and revenues, discovery of gold and mining, trails, Indian agents, a full report on the constitution of the state of California, report of the Post Office department, etc. Among the reports are those of James Buchanan, J. M. Clayton, W. M. Meredith, J. Collier, R. J. Walker, J. S. Calhoun, W. L. Marcy, R. B. Mason, W. T. Sherman, J. Collamer, and many others whose reports cover important and valuable material on the Southwest.

CALIFORNIA: Truman (B. C.) Occidental Sketches. 12mo, pp 212, cloth. San Francisco, 1881. $10.50. 64

Pioneer adventures and experiences, 1849-1879, in Calif., Nev., Utah, Idaho and Colo. One chapter is devoted to the Wickenburg Apache massacre.

CALIFORNIA: Van Dyke (T. S.). Millionnaires of a Day; an inside history of the great southern California "boom". 12mo, pp. 208, cloth. N. Y. 1890. $12.50. 65

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CLUB LIFE: Arnold (Walter) Life and Death of Sublime Society of Beef Steaks; a history of the Society with names of members, and toasts and songs; illustrated with original photographs. Small 4to, pp. 180, half morocco, uncut, gilt top. London, 1871. $7.50. 81a

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LAUT (A. C.) Through Our Unknown Southwest. First edition, with numerous plates. 8vo, pp. 301, cloth. N. Y., 1913. $7.50. 283

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LEONARD (Zenas, fur hunter and trapper) Narrative, 1831-36, reprinted and edited from rare original of 1839, by W. F. Wagner; maps and illustrations. 8vo, pp. 318, cloth, uncut. Cleveland, 1904. $17.50. 287

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Indians of North America

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Wash. Herald - March 5, 1903.

WANT YAQUIS EXTERMINATED

Millionaire Mine Owner Offers Money for Campaign Against Indians.

Galveston, March 4.—A special from Parral, Mexico, says that Padro Alvarado, the rich mine owner, has offered the government $10,000,000 to be devoted to a campaign to rid Mexico of the bloodthirsty Yaqui Indians. Alvarado says Mexico can never progress as a nation until these redskins are exterminated.

He proposes equipping a regiment of picked fighters to run down the Yaquis. Alvarado is the man who offered to pay the Mexican debt two years ago. A few months ago he gave $10,000,000 to the poor of Mexico. The new offer has been sent to President Diaz by a commissioner from Alvarado.

The Town of Stockbridge Mass.

The Indian Mission Stockbridge Indians

BY WILLIAM E. CURTIS.

Special Correspondence of The Star and the Chicago Record-Herald.

STOCKBRIDGE, Mass., August 28, 1907.

There is a great deal of history about old Stockbridge and romance and tragedy. It is one of the oldest towns in New England and one of the most beautiful in the world, being surrounded by the Berkshire hills, watered by the Housatonic river and its branches, decorated with numerous lakes and shadowed by the most glorious trees you ever saw. Early in the settlement of the Indian problem it was made a trading station, and a school was established here, where the last of the Mohicans, who originally occupied the Berkshire country, were collected, educated and christianized by John Sergeant, Jonathan Edwards and Gideon Hawley until after the revolution, when they were removed in a body to the reservation of the Six Nations in Cattaraugus county, New York. An appropriate monument, an enormous boulder surmounted by a rough shaft of granite, marks the Indian burial ground, and it is inscribed:

"Sacred to the memory of
The friends of our fathers."

Sergeant died in 1749, but by that time he had established the mission on a sound basis and had introduced industrial education and agriculture with considerable success. He was a broad-minded pioneer, and would have been an empire-builder had his horizon been farther extended. And he gave the Mohicans and many Mohawks who came here for instruction from the region around Schenectady a fair knowledge of the peaceful arts, as well as the blessings of Christianity. In a quiet corner of the Stockbridge cemetery the dust of John Sergeant has been lying more than a century and a half, under the following quaint inscription, which was written by one of his Indian pupils:

Here lyes
The body of the
Rev. Mr. John Sergeant,
who dyed
The 27 day of July. A. D. 1749,
In the fortieth year of his age.

The Indian Mission.

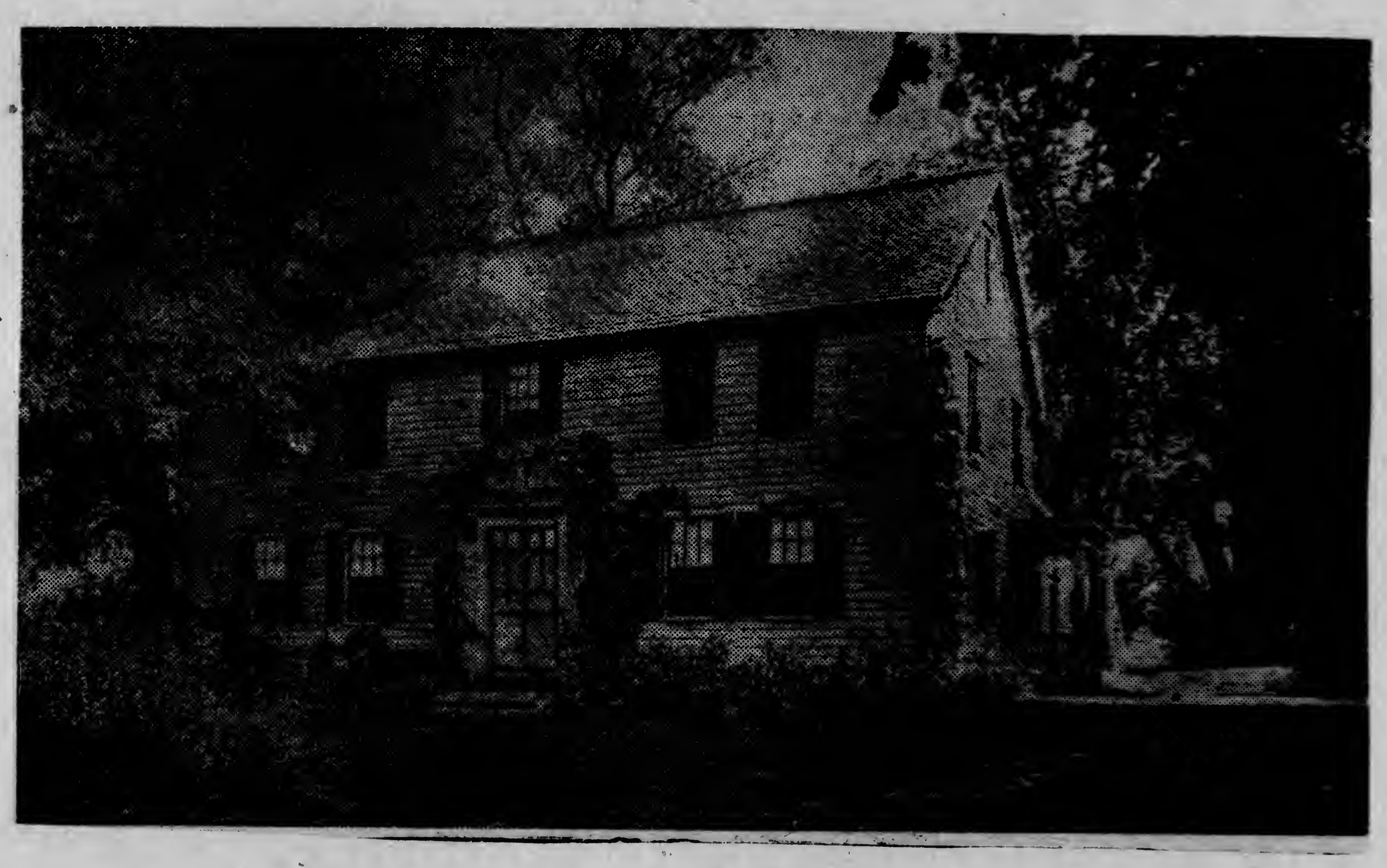
Sergeant was a native of New Jersey, a graduate of Yale and a tutor there for several years. He taught school in Connecticut and preached for four years until he was selected to establish a mission for the Indians at Stockbridge. It was originally and until 1775 sustained by the Society for the Propagation of the Gospel in Foreign Parts of London, which was supported by the king, the Prince of Wales and a long list of dukes and other noblemen. The Rev. Dr. Watts took up a collection for the mission annually, and among Sergeant's books when he died was an autograph copy of his famous treatise, "On the Improvement of the Mind." The king took an active interest in the mission, and Sergeant's reports were often submitted to him. Sergeant's success was so great that when he died it was reported that "there was scarcely a semblance of the traditional character of the savage among the Stockbridge Indians." One hundred and eighty-two of the Mohicans accepted Christianity and were baptized during his fourteen years of ministration, and nearly all of the tribe could speak English. Their church stood on the green in the center of the village, where the present church stands, and Jonathan Edwards was his successor.

The mission building, which occupies one of the most beautiful hills in the neighborhood of Stockbridge and commands one of the most extended views in New England, now belongs to Mr. S. W. Woodward of Washington, who has restored it as nearly as possible to its original condition when it was built in 1732, the year that George Washington was born. The original frame of oak is untouched and much of the clapboard sheathing remains in a perfect state. It is a two-story gable house of simple outlines and the oldest in all this part of the country. Mr. Woodward is building a stately villa nearby and his family is occupying the old mission house in the meantime.

Wash. Star. Sept. 7. 1907

OLD MISSION HOUSE, STOCKBRIDGE, MASS.

Built by Rev. John Sergeant, First Missionary to the Stockbridge Indians, in 1740.



OLD MISSION HOUSE, STOCKBRIDGE, MASS.

Built by Rev. John Sergeant, First Missionary to the Stockbridge Indians, in 1740.

Retake of Preceding Frame

Wash Star Sept 7. 1907

Author of Indian Stories Tells of Old Bison Drives

Piskans Were Places Where Tribesmen Decoyed Buffaloes, James Willard Schultz Says in Article on Old Native Hunting Method

By JAMES WILLARD SCHULTZ
Tribune Historical Writer

PISKAN: Enclosure. That is the name the Blackfeet tribes had for the places where they decoyed herds of buffaloes to cliffs and drove the frightened animals over them to fall into large corrals built of rocks, logs and tree branches.

Says The Tribune's Butte correspondent in a recent number: "Prehistoric buffalo slaughters, an epoch of Montana history forgotten by the Indians and only recently revealed by excavations on the state's central and western prairies, is the subject to be presented by Prof. Melville Sayre of Montana School of Mines before the American Association for the Advancement of Science at Pittsburgh. Aside from millions of buffalo bones buried in layers several feet deep in hundreds of places throughout Montana, no record remains of this ancient group of hunters. No legends have been handed down to the Indians who now inhabit Montana; just which tribes were such mighty hunters may never become known."

In the long ago, 40 or 50 years back, I knew one white man and a number of Pikuni—so called Blackfeet—Indians who took part in the cliff slaughtering of herds of buffaloes. The white man was Hugh Monroe, who, when 18 years old, and in the employ of the Hudson's Bay company, arrived at its Mountain Fort post on the Saskatchewan in 1816.

He was at once detailed to live and travel with the Pikuni and learn their language, so in time, to become post interpreter. The tribe at once set out southward, travelling, camping, hunting here and there along the trail at the foot of the Rockies, and so Hugh Monroe, or Rising Wolf, as he had been named, was the first white man to traverse the country between the headwaters of the Saskatchewan and the Missouri rivers. He died in 1896 on Two Medicine river, Blackfeet Indian reservation, and his monument is Rising Wolf mountain at Upper Two Medicine lake, Glacier national park, which I named for him. Two of the old Pikuni men who told me of participating in the overcliff killing of buffalo herds were long since dead, Red Paint and Lodge Pole Chief.

At Round Butte

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About a quarter of a mile below Ahnut Skimiko, and a like distance south of the river, was the last piskan that the Pikuni ever used, and, fortunately, we know approximately when that was. Two years ago there died at Browning, the Blackfeet Indian agency, an old man named Many Tail Feathers, in his 85th year. His father, of the same name, must, therefore, have been born in about 1820, for in those times young men of the tribe did not marry until, by raiding enemy tribes, they acquired good bands of horses. For the transportation of a lodge and the various belongings of a family many horses were required.

Some time before this, Many Tail Feathers married, and the Pikuni camped near this piskan and made a large killing of buffalo at it. On the night following the great slaughter of the animals he had a dream, as the people of the Backfeet tribes call it, a puhpokan—vision—to them a happening of supreme importance; they believe that their dreams, visions, are actual experiences of their shadows (souls), while their bodies lie inert.

Many Tail Feathers' vision was that a buffalo bull came to him and said: "Young man, you and your people, with your piskans, are doing my kind great wrong; you are exterminating us. Because I love my children, be cause I pity them, I have come to you. I ask you to make your people cease using their piskans. If you will do that I will do much for you. I will give you of my own Sun power, so that you shall become a great and successful warrior and of great in- had an early name for the creek that has been forgotten. At some time in the dim past they renamed it Mahkwiyi Mutsitohpaipi Ituktai—Wolf Also Jumped creek, and for good reason: A wolf that was in the tail of a buffalo herd that they were driving over the cliff paused at its edge, looked hopelessly back at the oncoming people and then jumped off and down into the piskan below, where it was at once killed by one of the hunters surrounding the enclosure.

Crows Had Piskans

Blackfeet history (oral) has it that some of the piskans, particularly some of those between Marias (Bear) river and Yellowstone (Elk) river, were built and used by the Crows, Shoshoni and other enemy tribes before the blackfeet swept down from the north and drove them south of the Yellowstone and west of the Rockies. This invasion and occupation of the vast plains country began early in the 18th century, when French-Chippewa and English-Chippewa traders for the Hudson's Bay company began coming west from York factory, the company's main post on Hudson's bay, to trade guns to the Blackfeet tribes for their furs. The enemy tribes, without guns, fled before them.

The first white man to visit the Blackfeet was Anthony Hendry of the Hudson's Bay company. In the spring of 1754, with a flotilla of canoes manned by French-Chippewas, he set out west from York factory and struck the camp of one of the three tribes about 30 miles north of the present city of Calgary. His mission was to try to induce the Blackfeet to go annually to York factory to trade. In that he failed, the chiefs replying that they were not a canoe people, and to go to that far and swampy country with their horses would be to lose them all from starvation. While in the camp, he was invited to join in a piskan killing of a herd of buffaloes, but, busily trading, did not go. In his notes of his trip, he relates that the piskan was in the timber and that from its entrance ran two long, ever diverging lines of fence.

Blackfeet legend has it that the piskan was of miraculous origin. In very far back time came a severe winter, the buffaloes disappeared and the people began to starve. One day a woman, gathering wood, heard someone singing a strange and very impressive song but no singer was anywhere in sight. The singing continued; seemed to be coming from a hollow log; she looked into it, saw that the singer was a stone of very peculiar shape, sitting in a nest of buffalo hair. She took it up, nest and all, saw that it was much the shape of a buffalo.

Said the stone to her: "Take me, for I am Natoyi. I am Buffalo Stone. Carefully keep me, do as I instruct you and you shall have plenty of buffaloes." (There is no English equivalent for Natoyi. Nearest approach to it is Sun powered; sacred; holy.)

Wise Men Called

The woman took Buffalo Stone to her lodge and called in four wise men to listen to his instructions. He had them drop some sweet pine needles on some coals drawn from the fire and purify themselves in the perfumed smoke of their burning, teaching them at the same time a song which was: "My perfume is Sun powered." Then another song: "My land is Sun powered." Then long he talked to them, describing just what should be done for the procuring of buffaloes.

Following his instructions, they had the people build a large piskan at the foot of a nearby cliff and then from the top of the cliff, directly above the piskan, lay two ever diverging lines of rock piles far out upon the plain. When all was finished, Buffalo Stone taught the four Itoiks, leaders, to sing and pray for a storm that would cause the buffaloes to drift toward the long V of rock piles and had them select the swiftest, most enduring runner of the tribe, one named Red Antelope, to entice the buffaloes in between the lines of rock piles when they should appear.

A large herd was soon sighted out upon the plain and the Itoiks sent men, women and well grown children to lie close at the rock piles; the strongest, bravest of the men to where there would be the most danger, the piles near the edge of the cliff. When the people were all so placed, Red Antelope, taking advantage of every depression, every rise of the plain, neared the herd; then, only partly exposing himself to their sight, he repeatedly waved his robe

Joseph Nunn ... Who

AS WRITTEN BY JOSEPH NUNN

I WAS born in the county of Suffolk in Bury St. Edmonds, April 20, Sunday, in 1851. My father's name was Jonathan Nunn and my mother's maiden name, Harriett Wallace. Father was a carpenter and a wheelwright. He worked 60 years for one man.

I worked my way to New York in 1872 on the old City of Paris steamer. I landed in New York with two black eyes and 2 cents. I was shanghaied at Liverpool.

I had met a man in starting from England to Utica, N. Y., and when we got to New York we worked our way to Troy on the steamer, Sunnyside, on the Hudson river. Then we got a job on the Champlain canal and worked there all winter. I voted for Horace Greeley that fall.

Then the next spring I went to Saratoga and worked on a ditch, Ballston Spa to Saratoga. Then went up to the Adirondak mountains to peel tan bark. Then the panic of 1873 came, with no work in the United States. So we went from there to Buffalo and got work on the Welland canal from Lake Erie to Lake Ontario. I worked getting out rock at Queenston Heights.

Then myself and a chum went to Port Arthur on Thunder bay, Lake Superior. We got aboard a ship and went to Duluth. There we got work loading flour at two bits an hour. In 1874 I got into a box car on the

Fame of Mon... Brought Thou...

By CLYDE McLEMORE
Tribune Historical Writer

BEGINNING with discoveries at Gold creek and Bannack in 1862 and followed by richer finds at Virginia City and Nevada City in 1863, Last Chance in 1864, Blackfoot City and Diamond City in 1865 and scores of less valuable but important placers found during those years and the two following years, the fame of her fabulous gulches brought to Montana thousands upon thousands of gold seekers. These restless, hopeful and persistent men, a heterogeneous multitude from everywhere, carefully and diligently prospected every stream and gulch in the western and southern parts of the territory.

They came in large parties, often in parties large enough to be properly called trains, but after their arrival the larger groups immediately disintegrated. When traveling in search of likely locations and when prospecting, they associated in parties of four or five.

While they were not the first to visit the Missouri in that region on a similar mission, a small party was prospecting the bars in the vicinity of the Great falls in the spring of 1868, when, on April 14, one of their number, in drunken bravado, attempted to see how close to the falls he could row a skiff. He was caught in the current and swept over to his death. His companions on the bank helplessly witnessed the tragic spectacle. The survivors made a futile search for the body. The following day one of them addressed a communication to the Helena Herald, telling the details:

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Built a Skiff

"For some time past there has been a camp of five of us 'on the prospect' stationed on the north bank of the Missouri just above the Great falls, from which point we were testing bars and gulches for gold for a range of 20 miles. As a means of crossing the river we had, a few days previous, built a strong and somewhat unwieldy skiff, to be propelled by oars. Some whisky was brought to the camp day before yesterday and by 10 o'clock in the morning Patterson, who was usually a sober man and industrious, and a big hearted mountaineer, became intoxicated, got reckless and mischievous, and to show his skill and strength, as well as his whisky courage, jumped into our skiff alone and pushed out into the stream, boasting that he could cross the river nearer the brink of the main rapid or first fall (there being a succession of heavy rapids, falls or cascades, before reaching the main fall below) than any other son of a gun dared to do!

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With that, the bull turned and walked away, and Many Tail Feathers awoke, lay thinking of his wonderful vision, decided that he must obey it. Came morning, and he hurried out to the piskan, set it afire, returned to camp and, telling of his vision, urged that the people cease the piskan slaughtering of buffalo herds. The chiefs and the Sun priests (medicine men) got together to consider the request. The few ahwa kakiks—decoyers, callers of the buffalo— were against it. Others said, what mattered the piskans? They were not necessary for the procuring of food; with their bows and arrows and their guns, the hunters could always procure plenty of meat for all. And, anyhow, visions were Sun-given sacred experiences and not to be disregarded. There was naught to do but grant the request of the buffalo bull of Many Tail Fathers' vision; the Pikuni would use the piskans no more. Nor did they, and their brother tribes, the Kainah (Bloods) and the Siksika (Blackfeet), being told of the vision, also ceased the use of them.

As the Many Tail Feathers we knew was born in 1847, his father, as I have stated, must have been born in about 1820, and as he had his vision before he married, we can safely estimate that the last use of a piskan by the Pikuni was in the early 1840s.

Hugh Monroe—Rising Wolf—in the long ago, often told of his very exciting participation in the piskan slaughtering of buffalo herds, but I have forgotten the dates of them. I do remember that he took part in one that was at the cliffs of Two Medicine river valley, just above where Holy Family mission now stands.

In southern Alberta and in Montana the Blackfeet tribes had many piskans.

A favorite one was at a cliff somewhere along the stream between Great Falls and Helena, that the whites named Wolf creek. The Blackfeet

The first white man to visit the Blackfeet was Anthony Hendry of the Hudson's Bay company. In the spring of 1754, with a flotilla of canoes manned by French-Chippewas, he set out west from York factory and struck the camp of one of the three tribes about 30 miles north of the present city of Calgary. His mission was to try to induce the Blackfeet to go annually to York factory to trade. In that he failed, the chiefs replying that they were not a canoe people, and to go to that far and swampy country with their horses would be to lose them all from starvation. While in the camp, he was invited to join in a piskan killing of a herd of buffaloes, but, busily trading, did not go. In his notes of his trip, he relates that the piskan was in the timber and that from its entrance ran two long, ever diverging lines of fence.

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Terribly frightened, the buffaloes broke into swift flight, straight ahead, straight toward the cliff, diverging neither to right nor left because of the people constantly springing up from their hiding places. So going, the leaders of the herd came to the cliff and, because of the pressure of those in their rear, they could not stop nor turn aside. Down over the cliff they went and blindly the others followed them. A dark river of buffaloes poured with thunderous roar into the piskan, some of them being killed or crippled by the fall and those uninjured running crazily around and around in it, seeking to escape, but soon falling, pierced by the arrows of the men surrounding the high, strongly built enclosure.

Mentioned in Journals

As he had been told to do, a youth with dog and travoi stood near the piskan to aid the four Itoiks. While all of the people waited, they helped themselves to what they wanted of the kills. One chose the tongue, another the dorsal ribs, another the brisket and the fourth one the tenderloin of a fat cow. The youth loaded the portions on his travois and as they started following him to camp and their well earned feast, the people, singing, talking, laughing, sprang into the piskan and began, with their flint knives, the greatest, one-time butchering of buffaloes that had ever occurred. Powerful, oh, powerful, helpful, was Iniskim—Buffalo Stone.

Anthony Hendry, in 1754, and then Andrew Cocking, another Hudson's Bay company man, in 1772, noted in their journals that the Blackfeet had many horses. They doubtless began taking them from more southern tribes late in the 17th century. In time, the ahwa wakiks rode out to decoy herds of buffalo to the piskans, instead of going on foot. After use of the piskans ceased, the ahwa wakiks frequently decoyed herds from long distances close to camp, to be run and killed by the hunters upon their swift, trained buffalo horses. My good and absolutely truthful friend, Eli Guardipe, born in 1857, tells me that, in his youthful days, he more than once saw herds so decoyed and so close to camp that, after the run of them, the women went out afoot to help in the butchering of the kills.

Names of some of the piskans still survive. In, Alberta, northwest of Fort Macleod and on Willow creek, at the edge of Porcupine hills, is Had-his-head-crushed piskan. (Itsipah sikikini kotsop.) One of the hunters at the piskan fell into it and was trampled to death by the buffaloes.

Also on Willow creek, northwest of Fort Macleod, Stahow (Ghosts) piskan, a man saw a herd of buffaloes being driven over the cliff and falling into it. He went to it, saw a dead mouse lying upon its back and surrounding it a few diminutive women. Suddenly all vanished.

On Bull Head creek, Blood Indian reserve, Pomi (Grease) piskan, a herd of buffaloes killed in it proved to be extremely fat.

Kishtsipi Onistai (Spotted Calf's) piskan, named for a chief who claimed it to be the best of all piskans.

And so, as the Blackfeet say: Kyi! Kinyayi!—So! I finish!

By CLYDE McLEMORE
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While they were not the first to visit the Missouri in that region on a similar mission, a small party was prospecting the bars in the vicinity of the Great falls in the spring of 1868, when, on April 14, one of their number, in drunken bravado, attempted to see how close to the falls he could row a skiff. He was caught in the current and swept over to his death. His companions on the bank helplessly witnessed the tragic spectacle. The survivors made a futile search for the body. The following day one of them addressed a communication to the Helena Herald, telling the details:

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"We tried to persuade him from his hazardous undertaking, but to no purpose. He heeded not a word that was said to him, but shipped his rudely constructed, softwood oars and began rowing in a circle, each round dropping down nearer and nearer to the invisible suction of the great foaming rapid.

"~~Again we appealed to him to~~ come

Abst. Trans. Anthropological Soc. Wash. 1880-81. 1881

of ideas, because it leaves out the distinctive element of a general conception.

The characteristics of the mind exhibited by animals was then discussed, and the conclusion reached that from such the human intellect could not be developed.

Dr. Porter, in conclusion, adverted to Huxley's Life of Hume, and objected to such terms as "potential beliefs of memory" and "potential beliefs of expectation" as being a method of hiding the author's confusion of thought.

TWENTY-SIXTH REGULAR MEETING.

JUNE 15, 1880.

Wyandot Government—A Short Study of Tribal Society.

BY J. W. POWELL.

In the social organization of the Wyandots four groups are recognized, the family, the gens, the phratry, and the tribe.

THE FAMILY.

The family, as the term is here used, is nearly synonymous with the household. It is composed of the persons who occupy one lodge, or in their permanent wigwams, one section of a communal dwelling. These permanent dwellings are constructed in an oblong form, of poles interwoven with bark. The fire is placed in line along the centre, and is usually built for two families, one occupying the place on each side of the fire.

The head of the family is a woman.

THE GENS.

The gens is an organized body of consanguineal kindred in the female line. "The woman carries the gens," is the

penetrate the origin of things. He imagined that men and animals sprung from decayed trees. Seeing the map of the world in hemispheres, he imagined it to be two great disks near each other. The sun and moon were brilliant plates endowed with mysterious power. Once being alarmed by thunder, he imagined a great man in the sky.

At eleven years of age he was delighted with the revelation to his mind of a great Creator of the world. Since then his old perplexities have frequently returned when he has taken up the inquiry as to the beginning of existence on the part of the Creator himself.

Professor Porter, resuming his discussion, remarked that Mr. Ballard's inquiries as to the origin of things were unaided by signs of any sort. It was argued that they belong to the higher order of conceptual thought. As embracing in thought much more than can be individually represented, they involve what may be called the *compendiary mode of thought.* By the capacity of man to arrive at general truths, he is separated by a wide chasm from the brute.

Professor Porter sought to explain conceptual knowledge in such a manner as to free it from some of its traditional difficulties. A concept was defined as the notion of a group of things recognized as related by certain common features, the things being apprehended as indefinite in number and in respect to individual variations. In handling a general conception, we must have something on which to hang the indeterminate part. A word may serve this end. But with the word goes a mental image which is also capable of serving without a word.

The notion of a word is itself a general notion. This admitted, the absurdity of the doctrine that general notions cannot exist without words is evident. For the *figuration* of the conception, words present certain preëminently practical advantages, but this does not invalidate the argument.

Professor Porter objected to Professor Huxley's reference to Galton's composite portraits as illustrating the generation

formulated statement by which a Wyandot expresses the idea that descent is in the female line. Each gens has the name of some animal, the ancient of such animal being its tutelar god. Up to the time that the tribe left Ohio, eleven gentes were recognized, as follows:

Deer, Bear, Highland Turtle (striped), Highland Turtle (black), Mud Turtle, Smooth Large Turtle, Hawk, Beaver, Wolf, Sea Snake, and Porcupine.

In speaking of an individual he is said to be a Wolf, a Bear, or a Deer, as the case may be, meaningt hereby that he belongs to that gens; but in speaking of the body of people comprising a gens they are said to be relatives of the Wolf, the Bear, or the Deer, as the case may be.

There is a body of names belonging to each gens, so that each person's name indicates the gens to which he belongs. These names are derived from the characteristics, habits, attitudes, or mythologic stories connected with the tutelar god.

The following schedule presents the name of a man and a woman in each gens, as illustrating this statement:

	Wun-dát.	English.
Man of Deer Gens	De-wa-ti-re	Lean Deer.
Woman " "	A-ya-jin-ta	Spotted Fawn.
Man of Bear "	A-tu-e-tes	Long Claws.
Woman of Bear "	Tsá-ma^{n}-da-ka-é	Grunting for her Young.
Man of Striped Turtle gens	Ta-há-so^{n}-ta-ra-ta-se	Going Around the Lake.
Woman of Striped Turtle gens	Tso-we-yuñ-kyn	Gone from the Water.
Man of Mud Turtle gens	Sha-yan-tsu-wat′	Hard Skull.
Woman of Mud Turtle gens	Ya^{n}-däsh-shu-räs	Finding Sand Beach, &c.
Man of Smooth Large Turtle gens	Hu$^{n\prime}$-du-cu-tá	Throwing Sand.

	Wun-dát.	English.
Woman of Smooth Large Turtle gens	Tsu-ca-e^n	Slow Walker.
Man of Wolf gens	Ha-ró-u^n-yû	One who goes about in the Dark; a Prowler.
Woman " "	Ya^n-di-no	Always Hungry.
Man of Snake gens	Hu-ta-hú-sa	Sitting in curled Position.
Woman " "	Di-je-rons	One who Ripples the Water, &c.
Man of Porcupine gens	Ha^n-dú-tu^n	The one who puts up Quills.
Woman of Porcupine gens	Ké-ya-runs-kwa	Good-Sighted.

THE PHRATRY.

There are four phratries in the tribe, the three gentes, Bear, Deer, and Striped Turtle constituting the first; the Highland Turtle, Black Turtle, and Smooth Large Turtle the second; the Hawk, Beaver, and Wolf the third; and the Sea Snake and Porcupine the fourth.

This unit in their organization has a mythologic basis, and is chiefly used for religious purposes, in the preparation of medicines, and in festivals and games.

The eleven gentes as four phratries constitute the tribe.

Each gens is a body of consanguineal kindred in the female line, and each gens is allied to other gentes by consanguineal kinship through the male line, and by affinity through marriage.

To be a member of the tribe it is necessary to be a member of a gens; to be a member of a gens it is necessary to belong to some family; and to belong to a family a person must have been born in the family so that his kinship is recognized; or he must be adopted into a family and become a son, brother, or some definite relative; and this artificial relationship gives him the same standing as actual relationship in the family, in the gens, in the phratry and in the tribe.

Thus a tribe is a body of kindred.

Of the four groups thus described, the gens, the phratry and the tribe constitute the series of organic units; the family, or household as here described, is not a unit of the gens or phratry, as two gentes are represented in each—the father must belong to one gens, and the mother and her children to another.

GOVERNMENT.

Society is maintained by the establishment of government, for rights must be recognized and duties performed.

In this tribe there is found a complete differentiation of the military from the civil government.

CIVIL GOVERNMENT.

The civil government inheres in a system of councils and chiefs.

In each gens there is a council, composed of four women, called Yu-waí-yu-wá-na. These four women councillors select a chief of the gens from its male members—that is, from their brothers and sons. This gentile chief is the head of the gentile council.

The council of the tribe is composed of the aggregated gentile councils. The tribal council, therefore, is composed one-fifth of men and four-fifths of women.

The sachem of the tribe or tribal chief is chosen by the chiefs of the gentes.

There is sometimes a grand council of the gens, composed of the councillors of the gens proper and all the heads of households and leading men—brothers and sons.

There is also sometimes a grand council of the tribe, composed of the council of the tribe proper and the heads of households of the tribe and all the leading men of the tribe.

These grand councils are convened for special purposes.

METHODS OF CHOOSING AND INSTALLING COUNCILLORS AND CHIEFS.

The four women councillors of the gens are chosen by the heads of households—themselves being women. There is no formal election, but frequent discussion is had over the matter from time to time, in which a sentiment grows up within the gens and throughout the tribe that, in the event of the death of any councillor, a certain person will take her place.

In this manner there is usually one, two, or more potential councillors in each gens who are expected to attend all the meetings of the council, though they take no part in the deliberations and have no vote.

When a woman is installed as councillor a feast is prepared by the gens to which she belongs and to this feast all the members of the tribe are invited. The woman is painted and dressed in her best attire and the sachem of the tribe places upon her head the gentile chaplet of feathers, and announces in a formal manner to the assembled guests that the woman has been chosen a councillor. The ceremony is followed by feasting and dancing, often continued late into the night.

The gentile chief is chosen by the council women after consultation with the other women and men of the gens. Often the gentile chief is a potential chief through a period of probation. During this time he attends the meetings of the council, but takes no part in the deliberations, and has no vote.

At his installation, the council women invest him with an elaborately ornamented tunic, place upon his head a chaplet of feathers, and paint the gentile totem on his face. The sachem of the tribe then announces to the people that the man has been made chief of the gens, and admitted to the council. This is also followed by a festival.

The sachem of the tribe is selected by the men belonging to the council of the tribe. Formerly the sachemship inhered in the Bear gens, but at present he is chosen from the Deer gens, from the fact, as the Wyandots say, that death has carried away all the wise men of the Bear gens.

The chief of the Wolf gens is the herald and the sheriff of the tribe. He superintends the erection of the council-house and has the care of it. He calls the council together in a formal manner when directed by the sachem. He announces to the tribe all the decisions of the council, and executes the directions of the council and of the sachem.

Gentile councils are held frequently from day to day and from week to week, and are called by the chief whenever deemed necessary. When matters before the council are considered of great importance, a grand council of the gens may be called.

The tribal council is held regularly on the night of the full moon of each lunation and at such other times as the sachem may determine; but extra councils are usually called by the sachem at the request of a number of councillors.

Meetings of the Gentile councils are very informal, but the meetings of the tribal councils are conducted with due ceremony. When all the persons are assembled, the chief of the Wolf gens calls them to order, fills and lights a pipe, sends one puff of smoke to the heavens and another to the earth. The pipe is then handed to the sachem, who fills his mouth with smoke, and, turning from left to right with the sun, slowly puffs it out over the heads of the councillors, who are sitting in a circle. He then hands the pipe to the man on his left, and it is smoked in turn by each person until it has been passed around the circle. The sachem then explains the object for which the council is called. Each person in the way and manner he chooses tells what he thinks should be done in the case. If a majority of the council is agreed as to action, the sachem does not speak, but may simply announce the decision. But in some cases there may be protracted debate, which is carried on with great deliberation. In case of a tie, the sachem is expected to speak.

It is considered dishonorable for any man to reverse his decision after having spoken.

Such are the organic elements of the Wyandot government.

FUNCTIONS OF CIVIL GOVERNMENT.

It is the function of government to preserve rights and enforce the performance of duties. Rights and duties are co-relative. Rights imply duties, and duties imply rights. The right inhering in the party of the first part imposes a duty on the party of the second part. The right and its co-relative duty are inseparable parts of a relation that must be maintained by government; and the relations which governments are established to maintain may be treated under the general head of rights.

In Wyandot government these rights may be classed as follows:

First—Rights of marriage.
Second—Rights to names.
Third—Rights to personal adornments.
Fourth—Rights of order in encampments and migrations.
Fifth—Rights of property.
Sixth—Rights of person.
Seventh—Rights of community.
Eighth—Rights of religion.

To maintain rights, rules of conduct are established, not by formal enactment, but by regulated usage. Such custom-made laws may be called regulations.

MARRIAGE REGULATION.

Marriage between members of the same gens is forbidden, but consanguineal marriages between persons of different gentes are permitted. For example, a man may not marry his mother's sister's daughter, as she belongs to the same gens with himself; but he can marry his father's sister's daughter, because she belongs to a different gens.

Husbands retain all their rights and privileges in their own gentes, though they live with the gentes of their wives.

Children, irrespective of sex, belong to the gens of the mother. Men and women must marry within the tribe. A woman taken to wife from without the tribe must first be adopted into some family of a gens other than that to which the man belongs. That a woman may take for a husband a man without the tribe he must also be adopted into the family of some gens other than that of the woman. What has been called by some ethnologists endogamy and exogamy, are correlative parts of one regulation, and the Wyandots, like all other tribes of which we have any knowledge in North America, are both endogamous and exogamous.

Polygamy is permitted, but the wives must belong to different gentes. The first wife remains the head of the household. Polyandry is prohibited. A man seeking a wife consults her mother, sometimes direct, and sometimes through his own mother. The mother of the girl advises with the women councillors to obtain their consent, and the young people usually submit quietly to their decision. Sometimes the women councillors consult with the men.

When a girl is betrothed, the man makes such presents to the mother as he can. It is customary to consummate the marriage before the end of the moon in which the betrothal is made. Bridegroom and bride make promises of faithfulness to the parents and women councillors of both parties. It is customary to give a marriage feast in which the gentes of both parties take part. For a short time at least, bride and groom live with the bride's mother, or rather in the original household of the bride.

The time when they will set up housekeeping for themselves is usually arranged before marriage.

In the event of the death of the mother, the children belong to her sister or to her nearest female kin, the matter being settled by the council women of the gens. As the children belong to the mother, on the death of the father the mother and children are cared for by her nearest male relative until subsequent marriage.

NAME REGULATIONS.

It has been previously explained that there is a body of names, the exclusive property of each gens. Once a year at the green-corn festival, the council women of the gens select the names for the children born during the previous year, and the chief of the gens proclaims these names at the festival. No person may change his name, but every person, man or woman, by honorable or dishonorable conduct, or by remarkable circumstance, may win a second name commemorative of deed or circumstance, which is a kind of title.

REGULATIONS OF PERSONAL ADORNMENT.

Each clan has a distinctive method of painting the face, a distinctive chaplet to be worn by the gentile chief and council women when they are inaugurated, and subsequently at festival occasions, and distinctive ornaments for all its members, to be used at festivals and religious ceremonies.

REGULATIONS OF ORDER IN ENCAMPMENT AND MIGRATIONS.

The camp of the tribe is in an open circle or horse-shoe, and the gentes camp in following order, beginning on the left and going around to the right:

Deer, Bear, Highland Turtle (striped), Highland Turtle (black), Mud Turtle, Smooth Large Turtle, Hawk, Beaver, Wolf, Sea Snake, Porcupine.

The order in which the households camp in the gentile group is regulated by the gentile councillors and adjusted from time to time in such a manner that the oldest family is placed on the left, and the youngest on the right. In migrations and expeditions the order of travel follows the analogy of encampment.

PROPERTY RIGHTS.

Within the area claimed by the tribe each gens occupies a smaller tract for the purpose of cultivation. The right of

the gens to cultivate a particular tract is a matter settled in the council of the tribe, and the gens may abandon one tract for another only with the consent of the tribe. The women councillors partition the gentile land among the householders, and the household tracts are distinctly marked by them. The ground is re-partitioned once in two years. The heads of households are responsible for the cultivation of the tract, and should this duty be neglected the council of the gens calls the responsible parties to account.

Cultivation is communal; that is, all of the able-bodied women of the gens take part in the cultivation of each household tract in the following manner:

The head of the household sends her brother or son into the forest or to the stream to bring in game or fish for a feast; then the able-bodied women of the gens are invited to assist in the cultivation of the land, and when this work is done a feast is given.

The wigwam or lodge and all articles of the household belong to the woman—the head of the household—and at her death are inherited by her eldest daughter, or nearest of female kin. The matter is settled by the council women. If the husband die his property is inherited by his brother or his sister's son, except such portion as may be buried with him. His property consists of his clothing, hunting and fishing implements and such articles as are used personally by himself.

Usually a small canoe is the individual property of the man. Large canoes are made by the male members of the gentes, and are the property of the gentes.

RIGHTS OF PERSON.

Each individual has a right to freedom of person and security from personal and bodily injury, unless adjudged guilty of crime by proper authority.

COMMUNITY RIGHTS.

Each gens has the right to the services of all its women

in the cultivation of the soil. Each gens has the right to the service of all its male members in avenging wrongs, and the tribe has the right to the service of all its male members in time of war.

RIGHTS OF RELIGION.

Each phratry has the right to certain religious ceremonies and the preparation of certain medicines.

Each gens has the exclusive right to worship its tutelar god, and each individual has the exclusive right to the possession and use of a particular amulet.

CRIMES.

The violations of rights are crimes. Some of the crimes recognized by the Wyandottes are as follows:

1. Adultery.
2. Theft.
3. Maiming.
4. Murder.
5. Treason.
6. Witchcraft.

A maiden guilty of fornication may be punished by her mother or female guardian, but if the crime is flagrant and repeated, so as to become a matter of general gossip, and the mother fails to correct it, the matter may be taken up by the council women of the gens.

A woman guilty of adultery, for the first offense is punished by having her hair cropped; for repeated offenses her left ear is cut off.

THEFT.

The punishment for theft is two-fold restitution. When the prosecutor and prosecuted belong to the same gens, the trial is before the council of the gens, and from it there is no appeal. If the parties involved are of different gentes, the prosecutor, through the head of his household, lays the matter before the council of his own gens; by it the matter is laid before the gentile council of the accused in a formal manner. Thereupon it becomes the duty of the council of the accused to investigate the facts for themselves, and to

settle the matter with the council of the plaintiff. Failure thus to do is followed by retaliation in the seizing of any property of the gens which may be found.

MAIMING.

Maiming is compounded, and the method of procedure in prosecution is essentially the same as for theft.

MURDER.

In the case of murder, if both parties are members of the same gens, the matter is tried by the gentile council on complaint of the head of the household, but there may be an appeal to the council of the tribe. Where the parties belong to different gentes, complaint is formally made by the injured party, through the chief of his gens, in the following manner:

A wooden tablet is prepared, upon which is inscribed the totem or heraldic emblem of the injured man's gens, and a picture writing setting forth the offence follows.

The gentile chief appears before the chief of the council of the offender, and formally states the offence, explaining the picture-writing, which is then delivered.

A council of the offender's gens is thereupon called and a trial is held. It is the duty of this council to examine the evidence for themselves and to come to a conclusion without further presentation of the matter on the part of the person aggrieved. Having decided the matter among themselves, they appear before the chief of the council of the aggrieved party to offer compensation.

If the gens of the offender fail to settle the matter with the gens of the aggrieved party, it is the duty of his nearest relative to avenge the wrong. Either party may appeal to the council of the tribe. The appeal must be made in due form, by the presentation of a tablet of accusation.

Inquiry into the effect of a failure to observe prescribed formalities developed an interesting fact. In procedure

against crime, failure in formality is not considered a violation of the rights of the accused, but proof of his innocence. It is considered supernatural evidence that the charges are false. In trials for all offences forms of procedure are, therefore, likely to be earnestly questioned.

TREASON.

Treason consists in revealing the secrets of the medicine preparations or giving other information or assistance to enemies of the tribe, and is punished by death. The trial is before the council of the tribe.

WITCHCRAFT.

Witchcraft is punished by death, stabbing, tomahawking, or burning. Charges of witchcraft are investigated by the grand council of the tribe. When the accused is adjudged guilty, he may appeal to supernatural judgment. The test is by fire. A circular fire is built on the ground through which the accused must run from east and west, and from north to south. If no injury is received, he is adjudged innocent; if he falls into the fire, he is adjudged guilty. Should a person accused or having the general reputation of practising witchcraft become deaf, blind, or have sore eyes, earache, headache, or other diseases considered loathsome, he is supposed to have failed in practising his arts upon others and to have fallen a victim to them himself. Such cases are most likely to be punished.

OUTLAWRY.

The institution of outlawry exists among the Wyandots in a peculiar form. An outlaw is one who by his crimes has placed himself without the protection of his clan. A man can be declared an outlaw by his own clan, who thus publish to the tribe that they will not defend him in case he is injured by another. But usually outlawry is declared only after trial before the tribal council.

The method of procedure is analogous to that in case of murder. When the person has been adjudged guilty, and sentence of outlawry declared, it is the duty of the chief of the Wolf clan to make known the decision of the council. This he does by appearing before each clan in the order of its encampment, and declaring in terms the crime of the outlaw and the sentence of outlawry, which may be either of two grades.

In the lowest grade it is declared that, if the man shall thereafter continue in the commission of similar crimes, it will be lawful for any person to kill him; and if killed, rightfully or wrongfully, his clan will not avenge his death.

Outlawry of the highest degree makes it the duty of any member of the tribe who may meet with the offender to kill him.

MILITARY GOVERNMENT.

The management of military affairs inheres in the military council and chief. The military council is composed of all the able-bodied men of the tribe; the military chief is chosen by the council from the Porcupine gens. Each gentile chief is responsible for the military training of the youth under his authority. There is usually one or more potential military chiefs who are the close companions and assistants of the chief in time of war, and in case of the death of the chief take his place in the order of seniority.

Prisoners of war are adopted into the tribe or killed. To be adopted into the tribe it is necessary that the prisoner should be adopted into some family. The warrior taking the prisoner has the first right to adopt him, and his male or female relatives have the right in the order of their kinship. If no one claims the prisoner for this purpose he is caused to run the gauntlet, as a test of his courage.

If at his trial he behaves manfully, claimants are not wanting, but if he behaves disgracefully he is put to death.

FELLOWHOOD.

There is an interesting institution found among the Wyandots, as among some other of our North American tribes, namely, that of fellowhood. Two young men agree to be perpetual friends to each other, or more than brothers. Each reveals to the other the secrets of his life, and counsels with him him on matters of importance, and defends him from wrong and violence, and at his death is chief mourner.

The government of the Wyandots, with the social organization upon which it is based, affords a typical example of tribal Government throughout North America. Within that area there are several hundred distinct governments. In so great a number there is great variety, and in this variety we find different degrees of organization, the degrees of organization being determined by the differentiation of the functions of the government and the correlative specialization of organic elements.

Much has yet to be done in the study of these governments before safe generalizations may be made. But enough is known to warrant the following statement:

Tribal government in North America is based on kinship in that the fundamental units of social organization are bodies of consanguineal kindred either in the male or female line: these units being what has been well denominated "gentes."

These "gentes" are organized into tribes by ties of relationship and affinity, and this organization is of such a character that the man's position in the tribe is fixed by his kinship. There is no place in a tribe for any person whose kinship is not fixed, and only those persons can be adopted into the tribe who are adopted into some family with artificial kinship specified. The fabric of Indian society is a complex tissue of kinship. The warp is made of streams of kinship blood, and the woof of marriage ties.

With most tribes military and civil affairs are differentiated. The functions of civil government are in general differentiated only to this extent, that executive functions are performed by chiefs and sachems, but these chiefs and sachems are also members of the council. The council is legislature and court. Perhaps it were better to say that the council is the court whose decisions are law, and that the legislative body properly has not been developed.

In general crimes are well defined. Procedure is formal, and forms are held as of such importance that error therein is *prima facie* evidence that the subject matter formulated was false.

When one gens charges crime against a member of another, it can of its own motion proceed only to retaliation. To prevent retaliation, the gens of the offender must take the necessary steps to disprove the crime, or to compound or punish it. The charge once made is held as just and true until it has been disproved, and in trial the cause of the defendant is first stated. The anger of the prosecuting gens must be placated.

In the tribal governments there are many institutions, customs, and traditions which give evidence of a former condition in which society was based, not upon kinship, but upon marriage.

From a survey of the facts it seems highly probable that kinship society, as it exists among the tribes of North America, has developed from connubial society, which is discovered elsewhere on the globe. In fact, there are a few tribes that seem scarcely to have passed that indefinite boundary between the two social states. Philologic research leads to the same conclusion.

Nowhere in North America have a people been discovered who have passed beyond tribal society to national society based on property, *i. e.*, that form of society which is characteristic of civilization. Some peoples may not have reached kinship society; none have passed it.

Nations with civilized institutions, art with palaces, monotheism as the worship of the Great Spirit, all vanish from the priscan condition of North America in the light of anthropologic research. Tribes with the social institutions of kinship, art with its highest architectural development exhibited in the structure of communal dwellings, and polytheism in the worship of mythic animals and nature-gods remain.

TWENTY-SEVENTH REGULAR MEETING.

OCTOBER 5, 1880.

Scheme of the Tenth Census for the Enumeration of Untaxed Indians.

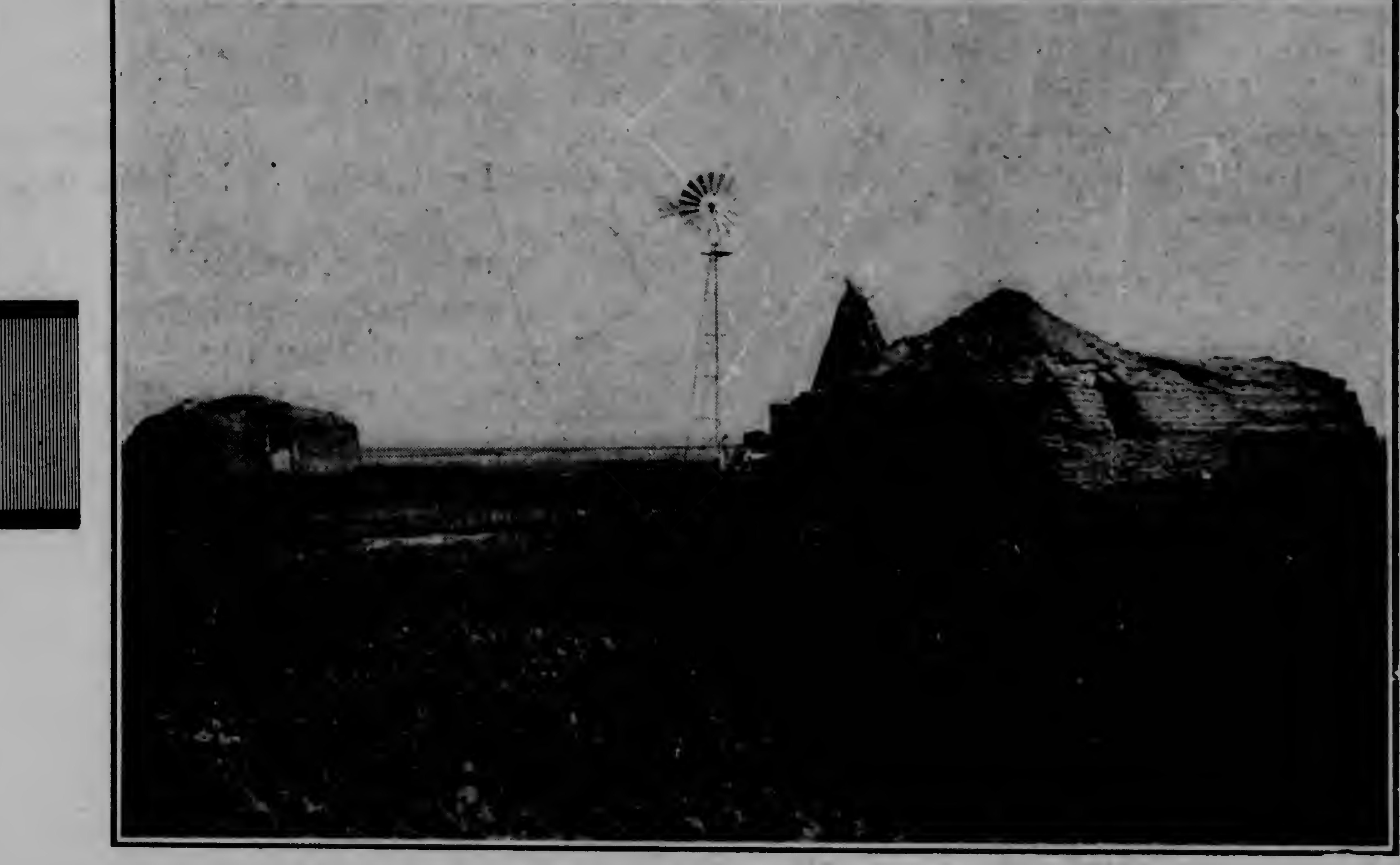
BY GARRICK MALLERY.

The speaker exhibited the schedules prepared by the Bureau of Ethnology for this purpose and explained the object of the inquiries made therein.

Ossuary at Accotink, Va.

BY E. R. REYNOLDS.

This ossuary was discovered on the 15th of April, 1869 by a party of gentlemen from the Shenandoah Valley. It is situated on the farm of Lewis Ashton, Esq., Fairfax County, near the confluence of Accotink Creek and the Potomac, at Marlborough. The cutting of its banks by the creek revealed human remains and implements. Mr. Printz and other members of the party succeeded in recovering the bones of twelve very large Indians. They had been buried with their feet to the east under a stratum of earth six feet deep. The skeleton appeared to be between six and seven feet long, and correspondingly large in other respects.

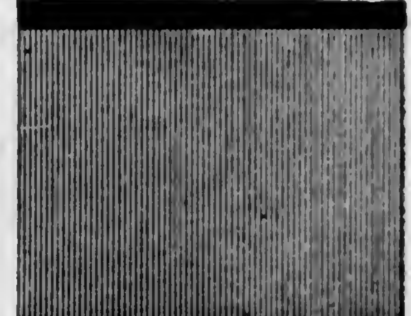


One of the early turf houses on the Western prairie.

Last Mountain Valley lies to the east of Long Lake, that part of the Valley west and north of the Mountain itself is open prairie, all along the east side of the Valley from the banks of the Qu'appelle to the shores of Big Quill stretches the blue line of bluff country, which include the Big and Little Touchwood Hills.

movement on foot to "conserve moisture", "build dams", "store up rainfall", "further irrigation schemes", and "plant trees" besides growing crop more adapted to holding the surface soil together.

But how puny man's efforts are in comparison to the enormous task ahead, and the expense involved, and in plain view of what is happening, the crime



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Retake of Preceding Frame

Again, when a milder breeze was desired, they would vary the invocation thus,

"Pa mai, pa mai
Ka makani nui o Hilo.
Waiho aku ka ipu nui,
Ho mai ka ipu liilii."
Blow, blow, ye strong winds of Hilo,
Put away the great wind gourd,
Bring forward the little wind gourd.

JOSEPH S. EMERSON

A NOTE ON TWINS

IN Laguna, N. M., twins are considered a misfortune. So much so in fact, that a woman is not told she is giving birth to twins for fear she might in some way interfere with the birth of the second child.

It is believed that twins are due to some evil person—a witch—with whom the prospective mother might unwittingly have quarrelled or whom she had offended in some way, during pregnancy.[1] As soon as the twins are born, ***kcurna wawa***,[2] a root, is burned constantly in the middle of the room. The smoke from this will drive away the witch.[3]

To further counteract the evil influence of the witch, the twins are taken to the medicine man (*tcaiyani*). He gives each twin a teaspoonful of the urine of their mother that has been preserved for a week. Unless this is administered the twins will continue to be an evil influence in the community—"they will know all and become witches themselves."

[1] The Zuñi believe a woman will have twins who eats the wafer bread her husband has taken with him on a deer hunt and brought back home, for the deer have twins. The bread, however, may be eaten with impunity if she passes it four times around the rung of her house ladder. It is also believed that a woman who eats venison and mutton or venison and beef at the same meal will also be the mother of twins. See E. C. Parsons, "Zuñi Conception and Pregnancy Beliefs," *Proceedings, XIX International Congress of Americanists*, Washington, 1915, p. 381.

At Hopi, twins are believed to be due to intercourse in the day time, one child begot by the man, the other by the sun; in Pueblo Indian folk tales, twins are begot by the sun in several cases.—Unpublished note by E. C. Parsons.

[2] Father Noel Dumarest (Notes on the Cochiti, N. M., *Memoirs of the American Anthropological Association*, Vol. VI, No. 3, pp. 153, 154) refers to the "katshrana," an herb which is kept on the person of an invalid. This terrifies the witches and with it in the house they become powerless.

[3] At Cochiti a fire is lighted at birth and not extinguished for four days. During this time the man guards the lying-in woman for fear the witches may carry off the child and make a witch of him. (Dumarest, "Notes on Cochiti, N. M.").

The use of urine in this instance is another case of inoculative magic,[1] for a witch may make two balls of earth wet by urine and roll the balls in the direction of the woman who has urinated.[2] Since the mother may be bewitched by her urine, the twins may be cured by it.

My informant, Dzaid'yuwi of Laguna, one of twin sisters, told me that her mother had not known of this preventative measure until she and her sister were quite old. Before they were given the medicine they hurt whoever crossed their path. If they only touched a person, a large bump would immediately form. However, after drinking the medicine, its potency caused the evil spirit to leave them. It is also believed that if a pottery jar in the making will not burn, a twin who is near is the cause. A twin passing an oven must blow upon it hard or spit three times,[3] otherwise the bread will not bake.

Mrs. Parsons has described the ceremonial treatment of a child by the medicine man.[4] For twins the routine is very similar. However, instead of one *Iyetiku,* the most sacred symbol or fetich of the Keresans, there are two, one for each child. These are symbolic of the *Naiya* (mother) *Iyetiku,* the deity within the earth, and Mrs. Parsons described it as an ear of corn wrapped in unspun cotton and set in a little buckskin cap. These two ears are placed on either side of a bowl of medicine and the *tcaiyani* sprinkles a row of meal with his arrow point, from the door to each *Iyetiku.* It is by these paths that the *Kopishtaiya* or benevolent spirits enter. The *tcaiyani* then offers a prayer that the children may have everything they will need and will always remain in good health. He then gives the mother a drink of the medicine in the bowl four times. This medicine is called *madzi-wawa* (blood medicine). It is a tea made of the root of eriogonum and is administered also at the menstrual period and before and after confinement.

ESTHER SCHIFF

[1] Elsie Clews Parsons, "Zuñi Inoculative Magic," *Science*, n. s., vol. XLIV, pp. 469–470, 1916.

[2] Elsie Clews Parsons, "Mothers and Children at Laguna," *Man*, Vol. XIX, p. 37, London, 1919.

[3] These are common Pueblo Indian rites of exorcism.

[4] Elsie Clews Parsons, "Mothers and Children at Laguna," *Man*, Vol. XIX, p. 37.

NG AND FISHING.

nal of the Rifle, Gun, and Rod.

NEW YORK, APRIL 26, 1906. No. 3.

vited to the recent amendment of the regulation contained in paragraph 108 of the Firing Regulations for Small Arms with regard to the use of the sling as an aid in firing. The paragraph as amended now provides that "the gun sling may be used at all ranges as an auxiliary to steady the piece in connection with the arm or arms alone, provided that for purpose of adjustment for shooting, neither end shall have been passed through either sling swivel. No knot will be tied in the sling, and the sling will not be added to or modified in any manner," and the Chief of Staff directs that this regulation be strictly observed.

In addition to a report on the merits of the new sling, suggestions are invited from commanding officers relative to the general subject of the sling as an auxiliary in firing, as it may be possible to construct one that will be superior to either the present short sling or the long one formerly issued.

Very respectfully,
W. P. Hall,
Military Secretary.

It will be noted that while the new gun sling is to be issued, reports are to be rendered both as to its efficiency as compared with the former model and also in relation to any modifications that may seem desirable.

This is certainly a wide departure from previous practice in such matters, inasmuch as the men who use the gun sling are to be given an opportunity, through their company commanders, to express their views. The field is now open for an improved gun sling, and that our experts have been at work in this direction is proved by the description of the Shaw gun sling by Lieut. Townsend Whelen, which appears in this issue.

An International Match.

For the third successive year, the Cercle des Carabiniers, of Paris, and the Manhattan Rifle and Revolver Association, of New York, will engage in a friendly contest with rifle and revolver, on May 19, 24, and 26. Each organization will compete on its home range and will be represented by a team of fifteen men, the conditions calling for forty shots with rifle, at 200 yards, on the French target, and forty shots with revolver, at 50 yards, on the Standard American target. In both the

The importance of the Adirondacks in their relation to the canals, river commerce, and water supply for domestic, sanitary, and other purposes is so far-reaching that the welfare of the whole state may be said to be involved in their preservation. When, in addition to these considerations, are added the value of the Adirondacks as a refuge and health restorer in both summer and winter; the pleasure which the sight of the trees gives to the escaped prisoners of city life; the educational and scientific value of the flora and fauna which are preserved here, but have become extinct in other parts of the state; and the wholesome sport enjoyed by many in fishing and hunting, one appreciates the inestimable value of forests to the commonwealth and the importance of the duty to preserve them.

MITCHEL SABATTIS.

The most famous woodsman and guide of the Adirondacks has passed away. Not for twenty years at least has there been any one living who could successfully dispute this title with Mitchel Sabattis, the Indian, of Long Lake; in fact, in the whole recorded history of the Adirondacks I can think of but two men whose names stand higher in woodcraft, and whose deeds have fixed themselves more securely in the memory of man. They are Nat Foster (the Natty Bumppo of Cooper), who operated in the Brown's tract at the beginning of the last century; and John Cheney, of Newcomb, who was born in 1800 and won his fame as a hunter, trapper, and guide in the Adirondacks between 1830 and 1865. As early as 1849 Cheney appears as one of the leading figures in The Adirondacks; or, Life in the Woods, by the historian J. T. Headley.

Mitchel Sabattis' age, as well as the correct spelling of his name, have been subjects of controversy for a good many years, and it is possible that there was much uncertainty on these points even in the mind of the famous Indian guide himself. It was common talk to refer to him as a centenarian as far back as I can remember, and both his first and last names have appeared in print spelled in at least a half dozen different ways. Col. William F. Fox, superintendent of New York state forests, who has a wide familiarity with Adirondack lore and has been personally acquainted with nearly every Adirondack celebrity during the past thirty years, is of the opinion that the old Indian's name was originally Michel Saint Baptiste, and that the various forms in which his name was spelled were merely corruptions of the original French form. Col. Fox's opinion is based partly upon a study of the Jesuit relations, both the documents which have been translated into English and those in the original French, wherein he has discovered that multitudes of Indians, in all the northern tribes, who came under the influence of the early French missionaries, assumed or were given the two names, then very popular in religious circles, of St. Michael the Archangel and St. John the Baptist.

The theory of Col. Fox is interesting; but, however reasonable it may seem, the old man himself assured me, when I visited him in his home at Long

Lake in 1899, that his name was spelled Mitchel Sabattis. At the same time, he gave me as his date of birth Sept. 29, 1824, which would put him in his eighty-second year at the time of his death, although I notice that S. R. Stoddard, of Glens Falls, in his Adirondack Guide, edition of 1876, gives the year 1823 as the date of his birth.

Among the various orthographies which are frequently met in print are: For the first name, Mitchell, Mitchel, Michael, Michel, Mitshell; for the last name, Sabattis, Sabatis, Sabbatis, Sabbattis. Headley used the form Mitchell, not giving the last name, in 1849; Adirondack Murray in 1869, in Adventures in the Wilderness, Michael Sabatis; Stoddard in 1874 and subsequently, in The Adirondacks, Illustrated, Mitchel Sabattis; Col. Fox in 1891 in The Adirondack Park, in Annual Report of Forest Commission, Mitchell Sabattis.

Mitchel Sabattis was a full-blooded Indian of the St. Francis tribe, a branch of the Abenakis. He was born at Parishville, N. Y., near the St. Lawrence river, his grandparents having been born at Francisville, Province of Quebec, Canada. His father, like himself, was a man of more than local renown, and was a great hunter and woodsman. He was generally known as Captain Peter, a title which he earned during Revolutionary days, he having commanded a company of Indians who served as allies of the Americans. Headley saw him in camp at Long Lake in 1849, and refers to him as having been past eighty at the time. Stoddard says he died in 1859 at the age of 108; and adds, "As a proof of his physical powers a place is still pointed out a little below Raquette pond, known as Captain Peter's rock, from which he once leaped to the shore, fully sixteen feet distant."

Mitchel Sabattis spent most of his life on or about Long lake, in Hamilton county, New York, the geographical center of the Adirondacks—much of the time in camp, although, of course, he made many long hunting trips in all directions, and his services were constantly in demand by the early explorers, surveyors, and sportsmen. His acquaintance with all sections of the Adirondacks became perhaps more extensive than that of any other woodsman or guide, red or white.

"Honest John" Plumley, Murray's celebrated guide, whose brother Jerry Plumley was the first white child born at Long Lake, told me that the first day he (John) ever saw the waters of Long lake—in the summer of 1833—there was a small party of Indians camping at the foot of the lake, and that Mitchel Sabattis—then a mere boy of eight or ten—was paddling about in a birch-bark canoe. Mitchel signalled to "his little white brother," John Plumley, who was but a year or two his junior, to go with him and have a ride in his canoe, and John and his father were paddled down the lake by Mitchel to the camp of the Indians, where they found Mitchel's father, Captain Peter, and several other Indians. They were engaged in skinning a moose, which they had killed the night before in a bay of the lake. The Indians gave John's father a part of the moose as a sign of their friendliness.

Mitchel was one of the greatest hunters that ever lived in the Adirondacks, though it is probable that in the number of animals killed, and especially in exciting adventures of the chase, his record was not up to that of either Nat Foster or John Cheney. He killed probably thousands of deer in his day; and besides bears, wolves, beaver, and every kind of fur-bearing creature inhabiting the North Woods, he is credited with having taken twenty moose. He killed his last moose in 1854.

It was as a still-hunter of deer that Mitchel Sabattis won his greatest renown; and his wonderful skill in this line was well known in every part of northern New York for over half a century. Many rivals he had, who sought to wrest from him the distinction of being the mightiest still-hunter of the Adirondacks; and there is a well-authenticated story that Caleb Chase, the famous boat-builder and panther hunter, of Newcomb (who at the hale old age of seventy-six helped us to liberate a herd of elk near his home last month) did finally succeed in outdoing him. Chase, who came to the Adirondacks in 1842, at the age of twelve, told me in 1901 that he and Mitchel Sabattis had been fast friends and hunting companions in early life, and that he had learned his woodcraft from Mitchel, who was six years his senior. Soon Chase became almost as proficient as his Indian tutor, and a generous rivalry grew up between them, which lasted for years, and the fame of which spread far and wide. Mitchel had a record of ten deer killed by fair still-hunting in a single day, and to outdo this Chase bent all his energies, finally succeeding in killing eleven deer by still-hunting in one day. And he always insisted that he could have killed twelve, only that his ammunition gave out. Of course, the feat of Caleb Chase did not detract from the universal fame which Sabattis had gained, and continued to enjoy, throughout the Adirondacks, during the remainder of his life.

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Mitchel Sabattis.

HARRY V. RADFORD.

Retake of Preceding Frame

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Mitchel Sabattis.

HARRY V. RADFORD.

technics comes the necessity of uniformity in classification and terminology—that confusion may be avoided, and investigations be so recorded as to make possible scientific deductions, relationships of technics—and possibly of peoples.

The accompanying key to basketry, though in condensed form, is presented here with the thought that it may prove as helpful to the ethnologist unfamiliar with the work, as it has to the writer in serious study of collections from many parts of the world. An enlarged issue, fully explained and amplified, will appear later.

Acknowledgment must be made to the two authors who have previously treated basketry classification—Otis T. Mason and J. Lehmann—whose works have made it possible to take a step in advance, and record in clearer and more definite form this key to the technic.

The classification recognizes three kinds of basketry—plaited, woven and coiled ware, the division being based upon their construction or building process, as the elements plait, weave and coil. The fundamental process of the three distinct technics is easily discerned upon slight examination.

Plaiting constructs a mat-like surface by means of active elements only, which move over and under each other in regular order. No passive foundation elements are incorporated, neither are new elements added after the completion of the base, as those already furnished continue to plait the body of the basket.

Weaving is known by its upright warps extending from base to upper edge, as the surface is constructed on these passive warps, crossed by an active binding element, or weft. Two types of weaving—checked and twilled wicker—are less easily recognized because of the equal size of the warp and weft, but even here the distinct weft element added at the base may be traced encircling the basket.

Coiling can easily be distinguished by the spiral movement of its elements. This consists either of an active element, or of a passive element bound down by an accompanying active element.

This key approaches Mason's classification nearest at types of weaving, although here there are differences. Mason entirely excludes plaiting as a basketry process, while his types of coiled ware are based upon the components of the internal element—the foundations. The composition of the inner element is the last consideration, and a later division than is shown on this condensed key.

KEY TO BASKETRY TECHNIC

I. *Plaiting of Crossed Active Elements*

A. Parallel elements in two directions.
  1. Over and under one ...... Checked Plaiting.
  2. Over and under more than one, Twilled Plaiting.
B. Parallel elements in more than two directions, Lattice Plaiting.

II. *Weaving of Active Across Passive Elements*[1]

A. Parallel warps in one direction.
  1. Weft interlaced .... Wicker Weave.
    a. Warps coarser than weft, Plain Wicker Weave.
    b. Warps of same size as weft.
      a'. Over and under one, Checked Wicker Weave.
      b'. Over and under more than one, Twilled Wicker Weave.
  2. Weft twined.
    a. Weft of two strands.
      a'. Over one warp .... Plain Twine Weave.
      b'. Over two warps . Twilled Twine Weave.
    b. Weft of three strands.
      a'. Plain weft .... Three-ply Twine Weave.
      b'. Braided weft, Braid Three-ply Twine Weave.
  3. Weft wrapped .... Wrapped Weave.
B. Parallel warps in more than one direction.
  1. Weft interlaced .... Lattice Wicker Weave.
  2. Weft twined.
    a. Warps oblique, Oblique Lattice Twine Weave.
    b. Warps vertical and horizontal, Vertical Lattice Twine Weave.
  3. Weft wrapped .... Lattice Wrapped Weave.

III. *Coiling of Active Element or of Active Along Passive Element*

A. Active element only.
  1. Weft spiral .... Spiral Lace Coil.
  2. Weft twisting .... Twisted Lace Coil.
  3. Weft interlacing ..... Interlaced Lace Coil.

[1] Active elements are weft. Passive elements warp.

4. Weft knotting .... Knotted Lace Coil.

B. Active and passive elements.

1. Weft spiral .... Twisted Coil.
2. Weft twisting .... Twisted Coil.
3. Weft interlacing .... Interlaced Coil.
4. Weft looping .... Looped Coil.

MARY LOIS KISSELL
AMERICAN MUSEUM OF NATURAL HISTORY

FUSARIUM WILT OF CABBAGE

WILT or "yellows" disease of cabbage, due to an undescribed species of *Fusarium,* has been known in this department for some years, as a trouble of minor importance, but it is now gaining such headway in some cabbage sections that active measures will have to be taken to combat it.

Some of the important symptoms are: retarded growth, wilting of the foliage, yellowing and dropping of the lower leaves. Later the upper leaves are affected and drop off, leaving the stem bare. In some cases one half of the leaf turns yellow while the other half retains its normal green color for a time. Microconidia are present in great numbers in the water-carrying vessels of the living plant. Soon after the death of the plant, pinkish masses composed of macroconidia form abundantly on the surface.

This disease was first observed by Dr. Erwin F. Smith in 1895. Experiments made by him in 1899 point to the soil as the source of infection. In 1900 Mr. W. A. Orton, of the U. S. Department of Agriculture, made field observations on the disease in South Carolina, and isolated the fungus, but did not carry on further work.

In April, 1908, the writer isolated the fungus from some material sent in from the south. During the past summer the disease has been reported from several states. In the kraut district of northern Ohio it has been very destructive.

Pot experiments were started in one of the greenhouses, to determine the parasitism of the fungus. After the cabbage plants had been growing in the pots for about ten days, pure cultures of the fungus were mixed into the soil, care being exercised not to injure the rootlets. In about three weeks some of the plants began to show symptoms of the disease. An examination of the plants a little later showed 83 per cent. of successful inoculations. None of the controls contracted the disease. The fungus was again recovered from one of the diseased plants, fresh soil was secured, young plants set out and inoculated as in the previous case with pure cultures of the *Fusarium* isolated from one of the previously inoculated plants. The greenhouse conditions for these later experiments were very unfavorable, but a fair percentage of the inoculations were successful. The controls did not contract the disease. This disease will be studied further.

L. L. HARTER
BUREAU OF PLANT INDUSTRY,
U. S. DEPARTMENT OF AGRICULTURE

THE SEPARATED BLASTOMERES OF CENTRIFUGED EGGS OF ARBACIA

IN recent years embryologists have been attempting to find out the rôle in development played by the visible materials of the egg (pigment, yolk, oil, etc.); whether they are organ-forming materials or merely passive inclusions. By no means has a uniform conclusion been reached.

In the eggs of *Arbacia,* the experiments of Lyon and Morgan show that the visible substances, by means of the centrifuge, can be thrown into any part of the egg without affecting in any way the embryonic development up to the pluteus. The simple experiment which I wish to record adds further proof that the visible substances in this particular egg are not organ-forming materials. Driesch and Morgan have shown that the one half, one fourth, one eighth and one sixteenth blastomeres of the sea-urchin egg are capable of developing into normal but smaller plutei. Lyon further showed in the centrifuged eggs of *Arbacia* that the visible substances separate readily into four distinct layers and that the first cleavage is nearly always at right angles to the stratification, but some few are parallel to it. The purpose of my experiment was to take those centrifuged eggs in which the first division plane was parallel to the stratification, separate the first two blastomeres and see

SYSTEM OF BASKETRY TECHNIC

ONLY in recent years have anthropologists interested themselves so generally in the industrial arts of primitive peoples. With this awakening interest has come the appreciation of the prominent place occupied by the cruder forms of weaving—namely, basketry—in the domestic economy of these simple households. It has assisted in the sheltering, the clothing and the feeding of tribes in many parts of the world. This wide distribution of locality, as well as that of usefulness, enables one to better understand the multiplicity of technics which are constructed of materials from so many climes, and in a manner to fit such a diversity of use. With the aggregation of

Fig. 1.

Fig. 2.

freed of dust particles by about the tenth expansion—depending upon the dustiness of the air originally drawn into the apparatus. Having freed the condensing chamber of dust particles, a dense cloud can again be formed by compressing the bulb firmly and then releasing. In this instance the expansion—*i. e.*, the ratio of the final to the initial volume of the gas—is greater than the critical value which for dust-free air is about 1.30.

The apparatus is now ready for the perform-

[1] J. J. Thomson's "Conduction of Electricity through Gases," p. 167.

DO OUR INDIANS TALK OLD CHINESE?—New light has been thrown on the ancestry of the American Indian by Dr. Edward Sapir, noted Canadian anthropologist, now on the faculty of the University of Chicago, says Science Service's *Daily Science News Bulletin* (Washington). Dr. Sapir says that his research work on Indian linguistics has convinced him of the identity of the language of certain Indian tribes with that of the primitive Chinese. We read:

"The similarity of the two tongues and the linguistic distribution of tribes scattered at random over the Americas have convinced Dr. Sapir that these groups must have entered this continent as a wedge from Asia. By a close comparison of the primitive Chinese, Siamese, and Tibetan, all in the same language category, with the language of the 'Nadine group' of North America, Dr. Sapir has found the same peculiarities of phonetics, vocabulary, and grammatical structure on both sides of the Pacific Ocean. The American Indians speaking the language of the Nadine group are found in all parts of the North Amer[illegible] continent, from northern Mexico to the southern boundary of Alaska, widely distributed among other Indian tribes whose language and customs are entirely different. With minor changes, he asserted, the Navajo of New Mexico speaks the language of the Sarcee in Alberta, and the linguistic stock of the Tlingit, just south of the Eskimos in Alaska, is much the same as that of the Hupa in California. It is probable, according to Dr. Sapir, that the migration of Asiatics speaking primitive Chinese or Tibetan took place some time in the past, and that these immigrants settled or moved over the mountains and plains, some remaining in northwestern Canada to become the Tlingits, and others moving out to the Queen Charlotte Islands off the west coast to form the Haida group, and still others penetrating to the deserts of the Southwest. From the modern Chinese, which in academic circles is considered relatively simple, students of linguistics can reconstruct primitive Chinese, which is vastly more complex than any of the dialects known to the Mongolian of to-day. Dr. Sapir has discovered not only that the Indians of the Nadine groups speak with a tonal accent, raising or lowering the voice to give certain meaning to words, in a manner similar to the tonal peculiarities of the Chinese, but also that the meanings of certain words are identical. Further, he has disclosed the fact that the Indians have retained certain prefixes and suffixes that long ago have disappeared from Chinese speech, but which are clearly discernible in the early forms."

Literary Digest - Nov. 14, 1925

ANTHROPOLOGY

Blood Tests Relate American Indians to Siberian Tribes

EXTENSIVE blood tests carried out on Indians of British Columbia by Prof. R. Ruggles Gates of King's College, London, and Dr. G. F. Darby, bring fresh evidence showing close relationship of the American Indians to certain tribes found mainly on islands of the Siberian coast, such as the Giliaks of Sakhalin.

Scientists differentiate four main blood types called A. B, O and AB. The importance of these blood types was made evident during medical operations involving blood transfusion, since serious consequences or even death would result if blood of an individual of type A were transfused into an individual of type B. Type O will mix with either A or B, but A and B if mixed together will cause "clumping" or coagulation. A simple test with a single drop of blood quickly determines the blood-group to which a person belongs.

Practically all pure-blood American Indians of various tribes previously tested were found to belong to the blood-group O. In this they differ from Mongolian peoples on the mainland of Asia and Japan, who have a high proportion of B type.

Haida, Tsimshian, and certain other Indian tribes of British Columbia have been considered by anthropologists to be more like Mongols in appearance than other American Indians. Prof. Gates and Dr. Darby now show that in blood these tribes belong practically all to group O. Out of 300 individuals tested, only two were B and 12.7 per cent. A. And most of the latter were clearly of mixed origin.

Thus, the Mongol-like Indians of Canada's northwest are found different in blood type from the mainland Asiatics, but like certain tribes of the Siberian coast and Sakhalin Island.

These findings support the view of the American anthropologist, Dr. Ales Hrdlicka of the Smithsonian Institution, who has shown that various racial remnants in northern and eastern Asia and neighboring islands resemble the Indians so strongly as to be often indistinguishable from them in appearance. Such are the Giliaks and Samoyeds.

It would be highly desirable, Prof. Gates says, to determine the blood characteristics of all such tribes, before mixed marriages make it impossible to determine exactly their racial origin.

Science News Letter, February 17, 1934

Soil erosion has so stripped away the fertile top soil in the Missouri-Iowa corn belt that in many sections lands yield only 15 or 20 bushels an acre even in good years, instead of the 75 bushels they once produced.

The new value, which is for standard conditions, in free air, at the freezing point (0 degrees Centigrade), is near the mean of values of other experiments, the recognized velocity in text-books now being 1,088 feet per second. This means that sound travels a little over a fifth of a mile in a second. The old trick of finding the distance of a lightning flash by counting seconds until thunder is heard, then dividing by five to obtain the distance in miles, is still useful.

An accurately surveyed base of about four miles in length was available to Dr. Miller. The source of sound was the discharge of a large gun at the Sandy Hook Proving Ground. Six listening stations were placed along the course, the first one being about 100 feet from the gun, and the last one four miles away. At each station was a microphone, similar to those used in radio studios. Each microphone was connected by an electric circuit to a recording galvanometer which made a photographic record of the time of the arrival of the sound at the corresponding station. The galvanometer was of the type known as a string galvanometer, which is used in laboratories for various purposes, one such use being the recording of the sounds from the heart beats in medical researches. Meteorological observations for temperature, humidity, barometric pressure, and the velocity and direction of the wind were made at both ends of the course and at two intermediate stations. Seventy-one sets of records were obtained.

THE USE OF BLOOD TESTS IN ANTHROPOLOGY

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THE RECENT COLD WAVE

THE cold weather carrying "highs" that come from the Arctic have affected particularly the northeaste part of the United States and the weather of the na has been distorted. As a result the eastern secti the country from Richmond northward has had the most frigid weather in its history. It is this area had been shifted northward into t province of Quebec.

The great masses of air with high baro known to weather men as "highs," ha the Arctic basin. When this area g air, it flows over much like water f tub. And like water the highs f route.

Last year, and usually, the narrow valley of the Mac and southward through C Rockies. Montana and the frigid weather fro frigid "highs" seem out of the Arctic pushed on farther the Hudson Bay tures over the ar eastern United out having sp western states

As a resul and its avoi Montana a the west i the north Yellowst tinental in Mon days w

The vary count just New lant usu in

1881

PAINT-POTS.

This is a provincialism, or local phrase for the dwindled remnants of
salses or mud geysers, which are difficult to describe or comprehend
otherwise than by actual view of them.
Having in detail described the various kinds of geysers in my last
year's report, I here only need to add that from the choking of the supply
pipe, or fissure, to the regular intermittent Geyser, or from the bursting
out of new ones, many of them dwindle into salses, with only an occa-
sional eruption of their seething, foaming, muddy contents, and still
dwindling in power, while increasing in their density and coloring, as
well as the fetid smell, and nauseous, often noxious gasses escaping there-
from in spasmodic, hissing or gurgling throes or eruptions, become what
are called paint pots. These are sometimes in gulches or basins com-
mingled with or bordering the other kinds of geysers, but usually in more
or less detached localities, each of which generally exhibits a preponder-
ance of red, yellow, or other coloring characteristic of the predominant
iron, sulphur, or other mineral substances of the basin, but in many of
them are found closely and irregularly intermingled pools or pots of seeth-
ing nauseous paint-like substances of nearly every color and shade of
coloring known to the arts, and with a fineness of material and brilliancy
of tinting seldom equalled in the productions of man. Although so
brilliant, the colors of these paints are not permanent, but soon fade, and
as the deposits are so numerous, accessible, and constantly accumulat-
ing, it is a question for scientific research to learn if the addition of lead
or other minerals in proper proportions may not render these mineral
paints practically valuable. There is direct evidence that the Indians
used this paint liberally in adorning or besmearing their persons, their
weapons, and their lodges. They also used a much more durable variety
of red and yellow paint found in bands, layers, or detached masses, in
the cliffs, a notable deposit of which was discovered by myself during
the past season in the face of the almost vertical walls of a yawning,
impassible earthquake fissue nearly opposite the mouth of Hellroaring
Creek, which has evidently been visited by Indians in modern times.

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SITE OF INDIAN FIGHT MARKED.

Central Falls, R. I., Sept. 22- The dedication of a bowlder and a tablet to mark the place of the Pierce Indian fight in 1673 took place here to-day. A historical address was delivered by a descendant of Capt. Michael Pierce, who with his company of Plymouth colonists, were ambushed and almost annihilated by Indians on the spot marked by the bowlder.

(The Washington Herald) Sept. 23, 1907.

Vol. II, p. 234 - 1889.
on his head, and meeting a stranger, after the usual greetings, the latter asked what burden he carried. The young man replied, "My mother." The stranger then said, "Give her to me in marriage." The man said, "But she is dead." The stranger nevertheless insisted that the woman should be given him in marriage. The young man declined, when to his astonishment the dead woman spoke out, saying, "Yes, let me be the wife of this stranger." The son remonstrated with his mother, saying to her, "You can't, you are dead." But the mother abused her son, calling him vile names for refusing her request, whereupon the son threw his mother over the precipice and ran away. And the stone shown is her back.

So far the curious legend as told me; now the moral appears to be that an offer of marriage to a Bedouin woman suffices to raise her from the dead! — *H. C. Bolton.*

INDIAN TOBACCO. — When the Rev. Samuel Kirkland was crossing Oneida lake in a storm, his Seneca brother, Te-kan-a-di-e, solemnly threw overboard two pinches of tobacco to propitiate the spirit of the storm. This did no good, and the missionary was allowed to pray audibly. The little party escaped, the frail canoe falling to pieces as they reached the land. The Indian acknowledged his own failure, but said he had never known two pinches of tobacco to be without avail before.

While the Onondagas use the original, or "real tobacco," for ordinary smoking, they use no other for religious purposes. They think this brings them nearer to the spirit world and gains the favor of the higher powers. This goes beyond the public rites of worship and touches minor matters. When plants are collected for medicine for their own use, tobacco is scattered around the first one found, and it is left untouched that there may be a blessing on those afterwards gathered. A young Onondaga told me that some boys did this in gathering ginseng last fall, and they thought it brought them wonderful luck, though not a required act. — *W. M. Beauchamp.*

Vol. 2. No. 6 Sept. 1889

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SPECIAL ARTICLES

ORGANIZATION OF HETEROTYPIC CHROMOSOMES

IN a recent article H. C. Sands[1] gives a preliminary account of his interpretation of chromosome structure in *Tradescantia*. This account seems to differ much in fundamentals from the results of a study conducted by the writer on various species of the South African Liliaceous genus *Gasteria*. To consider only the most interesting feature, the heterotypic chromosomes, we find first that at metaphase there are three pairs of small chromosomes in the center of the plate, with four pairs of much larger ones arranged in radiating fashion around them. In favorable material it is easy to see that the metaphase chromosomes are organized internally into chromomeres, though these are somewhat irregularly arranged. Even before they separate the larger chromosomes each show a cleft at the outer end opposite the fiber attachment, and before anaphase is far advanced they are nearly completely divided longitudinally into two halves. Usually this is entirely completed before telophase sets in, and the halves are widely separated. The smaller chromosomes are slow to split, but finally do so. Consequently there is at telophase a diploid number of separate chromosome-halves and the homotypic division has been prepared for.

As the larger chromosomes separate in anaphase it is clear that in each half-chromosome there is a double row of rounded chromomeres. These are few and apparently quite definite in number, well separated from each other and stain sharply in contrast to the almost colorless matrix. As the membrane first appears around the group of telophase chromosomes (which are well separated in this genus and easily studied) it becomes evident that there are no longer two rows of chromomeres, but that four are now present. When the chromosomes are obliquely placed these can clearly be distinguished, especially in the later stages when the chromosomes begin to broaden at the ends in preparation for a more even distribution of the chromatin in the interkinetic nucleus. The smaller roundish chromosomes show comparable changes, though less clearly because of their size. It would seem that this can only mean that both the gametophyte divisions in the pollen grain have been completely prepared for. The chromomeres which enter the construction of the sperm nuclei seem to be already formed and merely awaiting the mechanical distribution of these mitoses. Unfortunately it has not been possible to trace the history of the chromomeres as such through these two divisions.

By a method based on smear preparations it has been possible to largely confirm the results of sectioned material and to obtain fixations in which synizesis (synapsis) has been almost entirely eliminated. The best results on the anaphase and telophase stages were obtained when the dividing cells were pressed from the anther before fixing and embedding.

The writer would consider, then, that the material worked upon, *Gasteria*, tends to demonstrate a very great precision in the chromomere constitution of the meiotic chromosomes. It is hoped that it will be possible soon to make a full report giving the evidence for the views here expressed.

WM. RANDOLPH TAYLOR
UNIVERSITY OF PENNSYLVANIA

[1] Sands, H. C.: "Perigenesis," SCIENCE LVI, 517-518, 1922.

THE INTELLIGENCE OF INDIANS

THE accompanying tables show that if we rank mixed bloods of certain heredity with nomadic and sedentary full blood Indians according to intelligence as indicated by Scale A of National Intelligence Tests the sequence proves to be:

I. Mixed Bloods.
II. Mexicans.
III. Plains and South Eastern Full Bloods.
IV. Plateau Indians, Full Bloods.
V. Navajos and Apaches, Full Bloods.

While the number of cases is small the indications of the measures are consistent with this inference. The results will shortly be reported more in detail by the writer who has been giving these tests in United States Indian Schools of the Southwest.

THE RELATIVE INTELLIGENCE OF INDIANS OF NOMADIC AND SEDENTARY TRIBES AND MIXED BLOOD INDIANS

The scores are of the National Intelligence Tests, Scale A, Form 1.

	No. Cases	Score Median	Per cent. attaining Median of Pl. & S.E.
12 and 13 years:			
Mixed Bloods	15	103	80 per cent.
Mexicans	145	85	60 per cent.
Plains & S. E.	8	76	—
Pueblo	46	64	40 per cent.
Navajo & Apache	12	52	10 per cent.
14 and 15 years:			
Mixed Bloods	39	110	80 per cent.
Mexicans	132	92	70 per cent.
Plains & S. E.	55	85	....
Pueblo	82	80	44 per cent.
Navajo & Apache	19	60	20 per cent.
16 and 17 years:			
Mixed Bloods	41	104	71 per cent.
Mexicans	28	91	54 per cent.
Plains & S. E.	60	90	....
Pueblo	95	78	34 per cent.
Navajo & Apache	30	77	23 per cent.
18 and 19 years:			
Mixed Bloods	31	114	60 per cent.
Mexicans	2	....	....
Plains & S. E.	53	88	....
Pueblo	26	71	30 per cent.
Navajo & Apache	24	77	40 per cent.

T. R. Garth

University of Texas
July 8, 1922.

THE OPTICAL SOCIETY OF AMERICA

ABRIDGED MINUTES OF THE SEVENTH ANNUAL MEETING[1]

The seventh annual meeting of the Optical Society of America was held at the National Bureau of Standards, Washington, on October 25, 26, 27 and 28, President Troland presiding.

One hundred and thirteen persons registered as in attendance at the meeting. Eighty-five of these were from outside Washington. The actual number attending at one time or another was probably about 150. The number in attendance at any one time at the sessions for the reading of papers ranged from about thirty to over one hundred.

[1] The complete minutes including abstracts of papers and descriptions of exhibits will appear in the January number of the *Journal of the Optical Society of America.*

An exhibit of optical instruments was held in connection with this meeting; and visitors were also given an opportunity to inspect the optical equipment of the Bureau of Standards.

The condensed program follows:

October 25

Bureau of Standards laboratory exhibits open to informal visits.

Business meeting:

Reports of officers and general committees.

Reports of committees on nomenclature and standards.

October 26

Glass Plant open to informal visits. Pot of optical glass being stirred.

General session:

Address of welcome: Dr. S. W. Stratton, director, Bureau of Standards.

Response: Dr. Leonard T. Troland, president, Optical Society.

Papers on miscellaneous optics.

Session on solar, stellar and planetary radiation:

Invited papers by Dr. C. G. Abbot and Dr. W. W. Coblentz.

Glass Plant open to informal visits.

Moulding, annealing and inspection of optical glass.

Illustrated address (by invitation): Professor W. J. Humphreys, U. S. Weather Bureau, on "The optics of the atmosphere."

Glass Plant open to visitors:

Pot of optical glass removed from furnace.

October 27

First session on physiologic optics.

Second session on physiologic optics.

Special session on physiologic optics for papers by invitation of the committee.

October 28

Session on photometry, colorimetry and optical pyrometry.

The exhibit of optical instruments, October 26, 27 and 28.

A synopsis of the proceedings, papers and special features of the meeting is given below:

1. *Business*

The report of the secretary and membership committee was read in part.

The president communicated an informal report from the treasurer, the formal report to be submitted at the end of the fiscal year.

The following reports of general committees were received informally:

Physiologic optics: F. K. Richtmyer, chairman.

Am. Nat. vol. XI, no. 7. July 1877.

Major Powell spoke on the philosophy of the North American Indians. The speaker called attention to the fundamental difference in modes of thought which characterize the savage and the civilized man, and illustrated it by numerous examples.

We must, if we would fully understand Indian philosophy, leave that realm of thought where the sun is a great orb swinging in circles through the heavens, where the winds drift in obedience to cosmic laws, where falling stars reveal the constitution of the heavenly spheres, and pass to a lower realm where the sun is regarded as a little beast cowed by the heroic mien of a rabbit, and in very fear compelled to travel on an appointed trail through the firmament, where the wind is but breath, foul or fair, ejected from the belly of a monster, and where the falling star is but the dung of dirty little star-gods.

The savage philosopher believes in a system of worlds (not globes, but localities of existence), the world of this life and the world or region to which he will proceed hereafter. Among the lower tribes these worlds are arranged horizontally or topographically: the world of the hereafter is beyond some river, sea, cañon, chasm, or mountain range, and there is no world of the past, the progenitors of man having come out of the sea or from burrows in the ground. Their hereafter-land is reached by a bridge, a ferry, or a dangerous mountain pass.

Among the higher tribes the worlds are arranged vertically, a world or worlds below and others above. In this stage there is also a past world, that is, humanity came to existence from another land, situated sometimes above, sometimes below; but the righteous always goes in an opposite direction from that by which he came. These worlds communicate by magical ladders. The sun and moon are always personages; meteorological phenomena, acts of persons or of personified animals. All geographic phenomena, remarkable facts of nature, and the habits and customs of savage man, — the origin of all is known, and there is nothing that is not explained in their philosophy.

The theology or system of gods of the North American Indians is not fetichism, though there are many survivals from the fetichistic stage of thought. The gods of all the nomadic tribes are animals, for in all animal nature the nomad sees things too wonderful for him, and from admiration he grows to superstitious reverence, and the animals become his gods. His veneration for the past, so highly developed in the savage, modifies this theology, for it is not the animals of to-day that he reveres, but their ancient prototypes, a god for every race or species of animal. Man is not sharply separated by this system from other animals, but the heroes of the past are the hero-gods of to-day, while the race of man is partly superior, partly inferior to the animal races. Places have their genii or daimons, and all have unlimited power of self-transformation. The generic term for god in most Indian languages is ancient. Individuals,

— A Lyceum of Natural History has been established at Indianapolis, with Prof. E. T. Cox as President, and Mr. H. E. Copeland as Recording Secretary. At the first meeting after organization communications were made by Profs. John Myers, H. E. Copeland, and D. T. Jordan. The latter described the habits of a grasshopper destructive to corn and cotton in the Gulf States, while Professors Jordan and Copeland reported the discovery of the food of the Menomenee, or deep-water white fish of Lakes Superior and Michigan, fresh-water snails (*Physa* and *Limnæa*) having been found in the stomachs. We regret to announce that Mr. Copeland has, since the receipt of this notice, died.

PROCEEDINGS OF SOCIETIES.

PHILOSOPHICAL SOCIETY, Washington. — January 14, 1877. Mr. Gilbert, of Mr. Powell's Survey of the Rocky Mountain Region, read a paper on the Lake Bonneville basin, of which Great Salt Lake is the residue. Outlets to the north had been supposed on theoretical grounds to exist by several geologists, but he believed no one had published any actual identification of an outlet up to the present time. Such an outlet had been examined by him during the past summer, being a narrow cut through a mountain pass, of which the lower portion was formed through part of a bed of limestone while the upper portion of the banks were of gravel, inclined about 30°. The bed of the old channel now formed a continuous marsh. The old beaches which had been traced for many miles differed in level between the northern and southern limits as much as five hundred feet, the distance being about three hundred miles. The southern beaches were higher than those at Salt Lake and the northern ones lower, if observations by the aneroid barometer could be relied on. The speaker thought that this indicated a sinking of the land toward the north since the Glacial epoch, and taken in connection with the changes of outlet at Lake Winnipeg and elsewhere, he considered that it might be inferred that a general sinking of all northern land had taken place since that period.

February 10, 1877. Dr. Billings described some details of the methods employed in investigating the questions of the production of living organisms *de novo*, in suitable fluids from which external germs were excluded, and the "germ theory" of disease. He described a simple and apparently effectual method for protecting the fluid in a wine glass, for instance, by covering the glass with a watch-glass of a little larger diameter, with the convex side upward, the downward curvature of the edges of the watch-glass preventing the lateral introduction of currents of air and germs between the glasses, while the actual access of air was not interfered with. It is of course necessary to destroy anything which might adhere to the glasses before using, by exposing them to a very high temperature.

clans, and tribes have their own special tutelary deity, whose image is their badge or totem.

The land of want, in their hereafter, is always open; there go the bad souls. The conditions of admission to the land of plenty are vague and variously fixed. There the few living righteous will meet the many good who have died in the past. Who are the good and who the bad? Their standards are as different from ours as their ideas of meteors. The bad man may be he who failed to sacrifice to his tutelar deity the spleen of the last elk killed; or he who slept on his back the night before the battle, when his gods had taught him to sleep on his belly. It is certain that the Indian philosophy is a stage of progress and not a degeneration of monotheism. Nor does it proceed from classical polytheism, in which human attributes were deified, nor that earlier kind where the forces and phenomena of nature were deified. Their myths are not symbols. The Indian gods are animal gods, and the Indian religion zoölatry, a development from fetichism.

February 24th. Mr. G. K. Gilbert, of Major Powell's Survey, read a paper on Geological Investigations in the Henry Mountains of Utah. These mountains stand in the midst of a plateau region, and form several groups or subgroups, the structure of which is exposed by erosion and denudation. They were formed by an upward flow of lava through horizontal strata, which flow did not reach the surface, but apparently severed the connection between two layers and intruded itself between them in the form of a mound or low cone, the superincumbent strata being forced up without fracture in the form of a dome which reached an angle at the sides of some sixty degrees. The superincumbent strata have been largely removed by natural causes. The facts were very remarkable and not yet fully explained. To these formations or subterranean lava cones he had applied the name of *laculites*.

BOSTON SOCIETY OF NATURAL HISTORY. — February 21st. Mr. C. S. Minot read a paper on the Systematic Position of the Trematodes, and Mr. Scudder made a communication on "perfect" and "imperfect" metamorphoses of insects.

March 21st. Papers were read by Dr. T. M. Brewer, entitled Notes by Captain Bendire on the Birds of Oregon; and by Mr. Scudder on Polymorphism of our Blue Butterflies.

APPALACHIAN MOUNTAIN CLUB, Boston. — February 14th. Osgood's White Mountain Guide Book was discussed and criticized. Mr. George Dimmock described a trip to Mount Mitchell, in North Carolina, and Miss M. F. Whitman a climb through Tuckerman's Ravine.

March 14th. Prof. J. H. Huntington read a paper on the Source of the Connecticut River.

AMERICAN GEOGRAPHICAL SOCIETY, New York. — March 13th. Dr. W. J. Morton lectured on South African Diamond Fields and the Journey to the Mines.

Retake of Preceding Frame

the use of the life should be economical. Let me, in that point of view, invite you to compare, or rather to contrast with one another, those two sorts of experiments from which we have to get our knowledge of the causes of diseases. The commercial experiments which illustrated the dangerousness of sewage-polluted water supplies cost many thousands of human lives; the scientific experiments which, with infinitely more exactitude, justified a presumption of dangerousness cost the lives of fourteen mice."

We see, then, that in one way or another experiment must form the basis on which medical science is to be built up. The question for us to decide is, "Shall these experiments be few, carefully planned, conclusive, economical of animal life, or shall they be numerous, accidental, vague and wasteful of human life?" I think in settling this question we may safely take for our guide the words of Him who said, "Ye are of more value than many sparrows."

H. P. BOWDITCH.

THE DECORATIVE ART OF THE INDIANS OF THE NORTH PACIFIC COAST.

IT is well known that the native tribes of the North Pacific coast of America ornament their implements with conventionalized representations of animals. The tribes of this region are divided in clans which have animal totems, and it is generally assumed that the carvings represent the totem of the owner of the implement. This view is apparently sustained by the extensive use of the totem as a crest. It is represented on 'totem poles' or heraldic columns, on the fronts of houses, on canoes, on the handles of spoons, and on a variety of objects.

It can be shown, however, that by no means all the carvings made by the natives of this region have this meaning. A collection of data made in a number of museums show that certain objects are preferably ornamented with representations of certain animals, and in many cases an intimate connection exists between the use to which the object is put and its design.

This is very evident in the case of the fish club, which is used for despatching halibut and other fish before they are hauled into the canoe. Almost all the clubs that I have seen represent the sea lion or the killer whale, the two sea animals which are most feared by the Indians, and which kill those animals that are to be killed by means of the club. The idea of giving the club the design of the sea lion or killer whale is therefore rather to give it a form appropriate to its function and perhaps secondarily to give it by means of its form great efficiency. This view is corroborated by the following incident which occurs in several tales: A person throws his fish club overboard and it swims away and kills seals and other sea animals, cuts the ice and performs other feats taking the shape of a sea lion or of a killer whale. Here also belongs the belief recorded by Alexander Mackenzie (Trans. Roy. Soc. of Canada, 1891, Sec. II., p. 51): "The Haida firmly believe, if overtaken by night at sea and reduced to sleep in their canoes, that by allowing such a club to float beside the canoe attached to a line it has the property of scaring away whales and other monsters of the deep which might otherwise harm them."

Here is another instance in which I find a close relation between the function of the object and its design. Small grease dishes have almost invariably the shape of the seal or sometimes that of the sea lion, that is, of those animals which furnish a vast amount of blubber. Grease of sea animals is considered as the sign of wealth. In many tales abundance of food is described by saying that the sea near the houses was covered with the grease of seal, sea lion and whales. Thus the form of the seal seems to symbolize affluence.

Other grease dishes and food dishes have the form of canoes, and here I believe a similar idea has given rise to the form. The canoe symbolizes that a canoe load of food is presented to the guests, and that this view is probably correct is indicated by the fact that in his speeches the host often refers to the canoe filled with food which he gives to his guests. The canoe form is often modified, and a whole series of types can be established forming the transition between canoe dishes and ordinary trays. Dishes of this sort always bear a conventionalized face at each short end, while the middle part is not decorated. This is analogous to the style of the decoration of the canoe. The design represents almost always the hawk. I am not certain what has given origin to the prevalence of this design. On the whole the decoration of the canoe is totemistic. It may be that it is only the peculiar manner in which the beak of the hawk is represented which has given rise to the prevalence of this decoration. The upper jaw of the hawk is always shown so that its point reaches the lower jaw and turns back into the mouth. When painted or carved in front view the beak is indicated by a narrow wedge-shaped strip in the middle of the face, the point of which touches the lower margin of the chin. The sharp bow and stern of a canoe with a profile of a face on each side, when represented on a level or slightly rounded surface, would assume the same shape. Therefore, it may be that originally the middle line was not the beak of the hawk, but the foreshortened bow or stern of the canoe. This decoration is so uniform that the explanation given here seems to me very probable.

On halibut hooks we find very often decorations representing the squid. The reason for selecting this motive must be looked for in the fact that the squid is used for baiting the hooks.

I am not quite certain if the decoration of armor and weapons is totemistic or symbolic. Remarkably many helmets represent the sea lion, many daggers the bear, eagle, wolf and raven, while I have not seen one that represents the killer whale, although it is one of the ornaments that are most frequently shown on totemistic designs.

I presume this phenomenon may be accounted for by a consideration of the ease with which the conventionalized forms lend themselves to decorating certain parts of implements. It is difficult to imagine how the killer whale should be represented on the handle of a dagger without impairing its usefulness. On the other hand, the long thin handles of ladles made of the horn of the big horn sheep generally terminate with the head of a raven or of a crane, the beak being the end of the handle. This form was evidently suggested by the slender tip of the horn, which is easily carved in this shape. The same seems to be true in the cases of lances or knives, the blades of which are represented as the long protruding tongues of animals, but it may be that in this case there is a complex action of a belief in the supernatural power of the tongue and in the suggestions which the decorator received from the shape of the object he desired to decorate.

To sum up, it seems that there are a great number of cases of decoration which cannot be considered totemistic, but which are either symbolic or suggested by the shape of the object to be decorated. It seems likely that totemism was the most powerful incentive in developing the art of the natives of the North Pacific coast; but the desire to decorate in certain conventional forms once established, these forms were applied in cases in which there was no reason and no intention of using the totemistic mark. The thoughts of the artist were influenced by considerations foreign to the idea of totemism. This is one of the numerous ethnological phenomena which, although apparently simple, cannot be explained psychologically from a single cause but are due to several factors.

FRANZ BOAS.

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*RECENT HYDROGRAPHIC EXAMINATIONS IN THE APPALACHIAN AREA.**

THE systematic study of the discharges of the streams of the United States has, with one or two exceptions, been undertaken onl in recent years. The expense and time quired for such investigations prohibits private engineer from undertaking th and they can be carried on, therefore, by large corporations, municipal or authorities, or by the National Gover Among the most valuable contribut this branch of engineering have bee tigations ordered by the cities of B New York in connection with th their water supply. The Sudbu for Boston supply data since 187 of the Croton for New York These are on relatively small ever, the former having a dr 78 square miles and the lat miles.

The army engineers in the improvement of the carried on systematic ol discharge of that river a from 1871 to 1879, incl period to the presen Water Power Compa observations. The the water powers Mass., on the Me on measurement years, but thei little informat sey, in the in the city of

* Read b
November
Survey, W

glomerates, sandstones and limestones, the beds of which are tilted at various angles. In the Allegheny front and to the westward the strata are seen to be nearly parallel.

The Piedmont section is the oldest of the four divisions above noted, the rocks dating from Archæan times. The Blue Ridge, the western boundary of this sec-ion, is the coast line of an old continent, ut of a continent facing westward and wards an inland sea. The greater Ap-achian valley would, therefore, represent shore deposits of such a sea, and one d naturally expect to find rocks diver- in color and composition along such . Further to the westward or out e sea should be and are found a more homogeneous character.

blishing the gauging stations dur-nd 1895 it has been the endeavor te them as much as possible in ent types of areas. An impor-eration has been that of the ue of such stations. Wherever n a water-power privilege de-specially when there is one the larger rivers a gauging established as near such a In the accurate determi-e of a water power at a hings should be known: t place, which can be r all; and second, the arge of the river to g series of observa-

practice to com- finding its way g a certain per- n the area as int. Several problem of ation, these tempera- nditions

WHITE HOUSE,
WASHINGTON.

March 2, 1905.

My dear Mr. Harriman:

I am pleased that Mr. Curtis is to exhibit his really marvellous collection of Indian photographs in New York. Not only are Mr. Curtis' photographs genuine works of art, but they deal with some of the most picturesque phases of the old-time American life that is now passing away. I esteem it a matter of real moment that for our good fortune Mr. Curtis should have had the will and the power to preserve, as he has preserved in his pictures, this strange and beautiful, and now vanishing, life.

Hoping that his exhibition will have the success it deserves, I am,

Very sincerely yours,

Theodore Roosevelt

Mr. E. H. Harriman,
120 Broadway,
New York.

Mr. Edward S. Curtis

of Seattle, Washington, invites you and your friends to view his exhibition of

Photographs of Indians and Indian Life

showing their curious rites, ceremonies and customs

The making of this series of historical photographs is the life work of Mr. Curtis. Years have been spent living and working among the Western tribes

Exhibition to be held at the

Waldorf-Astoria

for one week, beginning

Monday, March the twenty-seventh

Monday and Tuesday from ten to five
Wednesday, Thursday, Friday and Saturday, from ten to ten

Under the Patronage of

Mrs. E. Henry Harriman
Mrs. W. Emlin Roosevelt
Mrs. Douglas Sloane
Mrs. J. Archibald Murray
Mrs. Douglas Robinson
Mrs. Richard Watson Gilder
Mrs. Benjamin Welles
Mrs. Robert C. Morris
Mrs. William Sheffield Cowles

Mr. E. Henry Harriman
Mr. George Bird Grinell
Mr. H. C. Bumpus
Dr. Louis R. Morris
Mr. F. D. Millet

In reply to a letter telling the President that Mr. Curtis who had charge of the photographic work of the Harriman expedition, was to exhibit his collection of Photographs of Indians and Indian Life, the President wrote Mr. Harriman:

the foresters' art in the United States, from the point of view of supplies, as follows:

(1) The consumption of forest supplies, larger than in any other country in the world, promises not only to increase with the natural increase of the population, but in excess of this increase *per capita*, similar to that of other civilized, industrial nations, annually at a rate of not less than 3 to 5 per cent.

(2) The most sanguine estimate of timber standing predicates an exhaustion of supplies in less than 30 years if this rate of consumption continues, and of the most important coniferous supplies in a very much shorter time.

(3) The conditions for continued imports from our neighbor, Canada, practically the only country having accessible supples such as we need, are not reassuring and may not be expected to lengthen natural supplies appreciably.

(4) The reproduction of new supplies on the existing forest area could under proper management be made to supply the legitimate requirements for a long time; but fires destroy the young growth over large areas, and where production is allowed to develop, in the mixed forest at least, owing to the culling processes which remove the valuable kinds and leave the weed trees, these latter reproduce in preference.

(5) The attempts at systematic silviculture—that is, the growing of new crops—are so far infinitesimal, compared with the needs.

THE AMERICAN INDIAN AND IRRIGATION.

WORK BEGUN BY BUREAU OF INDIAN AFFAIRS TWENTY YEARS AGO HAVING GOOD EFFECT IN ADVANCING CIVILIZATION OF THE INDIAN.

ILLUSTRATIONS FROM PHOTOGRAPHS BY GEORGE BUTLER AND WALTER B. HILL, OF THE BUREAU OF INDIAN AFFAIRS.

THERE are many who have a vague conception of the Indians and know there are such within the confines of our country ; but few have concrete knowledge of them, either tribally or individually, and still fewer know, or can realize, the labor and effort that has been and is being expanded to advance to a better life and make worthy citizens of these wards of the government.

When the Indian, turned from his old-time occupations of the hunt, intertribal wars, and the like, was forced to protect himself from the invasion of the foreigners, many of whom were not of the better and more considerate element, the government found it incumbent to overcome, collect, and hold on reservations set aside for the purpose the different Indian tribes; thus advancing as humanely as possible the progress of civilization, while minimizing wars between invader and invaded that were as replete with horrors as the mind of savage and Christian could make them.

Having curtailed their liberty, restricted their territory of occupation, which was often distant from their old haunts, and imposed a new mode of life, the self-created guardian found it incumbent to issue rations, clothing, and other supplies to mitigate physical suffering threatening the Indians in their new environment. Thus, of necessity, was inaugurated this factor in the intricate Indian policy, that has done more than all else to retard and suppress the development and advancement of these peoples.

While there seemed no alternative course, it would appear that the issuance of rations and annuities was contemplated to continue only so long as the urgency of the case demanded. It was to be discontinued just so soon as the Indian became adapted to the new order of things and could, with governmental aid at first, become self-support-

tion. But, to be sure, according to the Chief Geographer, "timber growth in the United States is certainly renewing itself much faster than it is being consumed."

The certainty in this respect it would be even more difficult to establish than regarding the standing timber, but a probability calculation is here also possible by borrowing some figures from the experience of a country where timber production is a well-established business and accurate statistics are available.

In German state forest administrations, comprising some 10 million acres under good management, the production of timberwood (over 3 inch) has constantly increased in response to this management, until now it may be stated in the large average, with a rotation of about 100 years, as 43 cubic feet per acre per year, of which 50 per cent, or round 22 cubic feet, are saw-log and bolt size material. These figures must be reduced by 15 to 25 per cent if private and corporation forests are also brought into consideration.

Hence, if we were to assume that in the unmanaged wild woods of the United States a production of 40 cubic feet of useful wood and 15 cubic feet fit to supply saw material takes place, we would indeed be beyond reasonable expectation, especially since fire ravages thousands of acres annually, and the young growth at least is destroyed on them.

Again ruling out the waste and brush lands, which either by nature or by ill-treatment have become incapable of producing any valuable timber growth, the area on which such growth might take place may be set down as not to exceed 500 million acres. With such assumption the new growth would represent 7.5 billion cubic feet of log material—about our present annual consumption.

Any one who is at all familiar with the condition of the timbered forest areas of the United States will readily agree that not one-half the assumed production takes place over this vast area. In the untouched woods the natural decay offsets the accretion, while on the culled area, both in the old and young growth, the larger portion of the after-growth is of weed trees—not valuable timber.

Another way of approximating the possibilities—not probabilities—is to assume the reported stumpage on the lumberman's holdings, namely, round 5,000 feet, B. M., per acre in the eastern United States, as representing the average capacity over the whole forest area. Nature has taken hundreds of years to produce this; but, assuming the same stand left to nature could be secured in 100 years, then the average accretion per acre and year would be 50 feet, B. M. This would not suffice to supply as much as three-quarters of our present annual requirements of lumberwood. And how far are our premises below the probabilities?

Not that under good forestry practice even a better average could not be obtained, for the 50 feet, B. M., represent about 10 cubic feet, forest-grown material, while the German practice produces at least over 16 feet of saw material per acre per annum. In exceptional cases on selected small areas as much as 90 cubic feet of saw material has been attained.

But we have so far no forestry practice, no silviculture, no systematic reproduction. Not even protection of nature's crop against the annually recurring fires exists. And these fires, while they may not destroy or even seriously damage the old crop, as in many cases and conditions they do not, they kill with absolute certainty all the young crop, and there is so far but little hope that they will soon be stopped. What incentive can there be for private interest in spending money or foregoing immediate revenue for a crop which is so readily lost?

We may as well wake up to the realization that our efforts to secure a more rational treatment of our forest resources and apply forestry in their management are not too early, but rather too late; that they are by no means sufficient; that serious trouble and inconvenience are in store for us in the not too distant future; that the blind indifference and the dallying or amateurish playing with the problem by legislatures and officials is fatal.

We can, then, summarize the situation, which justifies the urgent need of

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futile as an effort to measure with the same yard stick an African, a Chinaman, and an Eskimo. And also it can be seen how impossible it would be to devise a policy that would be applicable to all.

There has long been evidenced a desire to induce the Indians to give up the old nomadic camp-life of forest and plain and turn to agricultural pursuits that would entail permanent dwellings and tend to self-support. Therefore irrigation has been considered as a means of affording farms for those Indians on reservations within the arid and semi-arid region of the country where most of them are.

Irrigation is no new matter with those Indians in the southwest where crops were raised by irrigation long before the advent of the Spaniard. The relics of reservoirs and canals, large and small, built and used by the people of the cliffs, the pueblos, and plains houses, are still largely in evidence as to one source of their subsistence. Some of these old works are still in successful use, and others of more recent construction by the Indians of the past and present generations are also large factors in the life of these people. It was but a matter of course, then, that the government should as long ago as the sixties, if not before, consider a policy already formulated and in force.

Just so soon as the conditions were favorable and the demand for farms or small cultivable areas has been made by the Indian with apparent good faith, the government has endeavored to extend aid in the building of the necessary ditches. Sometimes no pecuniary as-

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HEADWORKS OF WHEATFIELDS CREEK DITCH, BUILT BY NAVAJOS UNDER GOVERNMENT SUPERVISION.

sistance could be given, and in many cases the Indians took matters in their own hands, building ditches to the best of their ability; some proving successes, others failures.

It was as difficult in the early days as now to secure money appropriations for an unknown project. This, in conjunction with the few and modest demands made for irrigation systems on Indian reservations at that time, may account for the slow though steady growth of a policy that has been proven wise without having to its discredit any big or costly experimental blunders.

During later years the further encroachment of the whites, the increasing aridity, the gradual doing away with the baneful ration system, the commendable allotting of lands in severalty, the progress and advancement of the Indian through natural and educational channels, and his awakening to a fuller realization of the new conditions, coupled with a natural desire for existence and welfare, are all tending to increase his demands for arable lands, for homes, for a chance to become self-supporting and independent. Urgent pleas are coming now from all the reservations within the arid region, and they call for irrigation works of greater magnitude than were formerly thought of. To carry them out will necessitate expenditures in excess of amounts that have heretofore been appropriated, since the limitations and restrictions are such that the Indians cannot undertake the work unaided. To make a success of it a plan of procedure will have to be elaborated from the methods of the past.

In the old days, when the need for an irrigation ditch was apparent and its utility reasonably assured, usually the government agent urged the Indians to construct it, detailing to their assistance any of his available employés, and aiding them in whatsoever manner he could. Sometimes an increased ration or an extra article of issue was the incentive to labor; in some cases a small daily wage was paid, while in the non-ration tribes an issue of food was nearly always responded to.

Sometimes a little money could be had to pay for the running of a level line by some local surveyor, if such could be found in the region. Often the grade or fall of the ditch was determined by a carpenters' level and a long, straight-edged plank, by a wooden triangle and a plumb bob, or by digging or plowing a small furrow for a short distance and running water into the little channel.

While most of these early ditches were crude makeshifts, resembling the little *acequias* of the Mexicans, they have served their purpose and done good work.

In later years both individual and communal farming among the Indians have greatly increased, and the demands for more and larger arable tracts has necessitated the undertaking of larger, better, and more permanent irrigation works. When a meritorious case is presented a local engineer is sometimes secured to make an examination and report on the scheme. If it is found feasible, he may be continued on the work to direct it to completion, or one of the superintendents of irrigation, in the employ of the Bureau of Indian Affairs of the Department of the Interior for such work, may be assigned to it.

While the object is to give the Indian productive farming land, it has been the custom, with very few exceptions, to employ him in every way possible on the work. The idea is to give him manual training, to teach him to build and care for a ditch, to create a market for his labor, and make him work for a daily wage, even though he be paid to work for his own advantage. Under such a system it has been possible to do most of the work with Indian labor, and only such material as the reservation could not furnish has been bought, and such skilled labor as the Indian could not do has been hired. As a rule the Indian has proved an apt and willing pupil, doing as good and as much work as white employés in like occupations, and is reliable and trustworthy.

In some instances money has been secured for the construction of these irrigation systems by small annual appropriations for the past few years, or by special appropriation to some particular scheme, or by tribal sanction for the application of their own funds.

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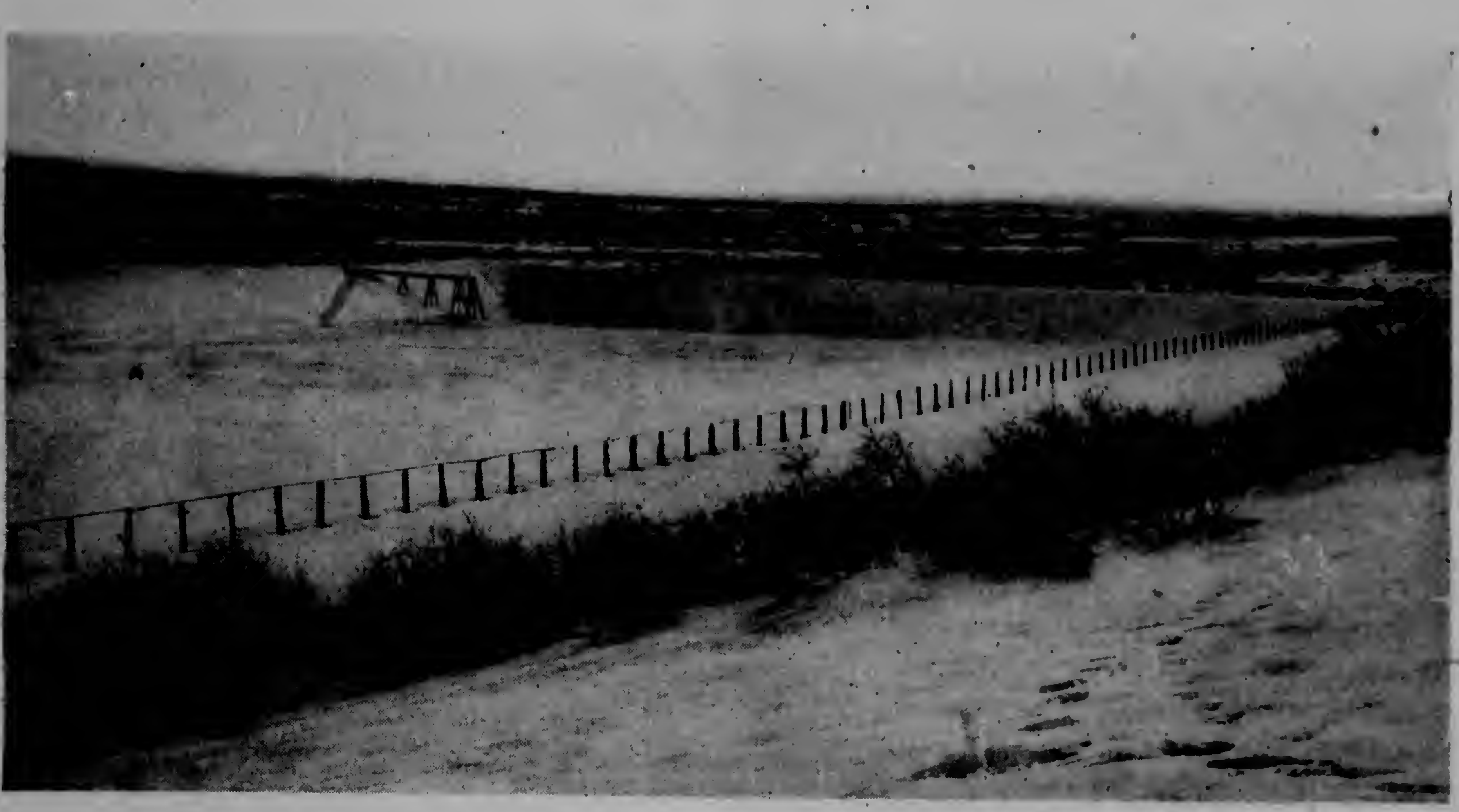
Retake of Preceding Frame

CROW INDIANS AT WORK WITH SCRAPER TEAMS, BIGHORN CANAL, MONTANA.

Photo by D. S. Cole, Hot Springs, S. D.

HEADGATE AND PART OF CANAL, BIGHORN RIVER, MONTANA. THIS CANAL ON THE CROW RESERVATION IS THE LARGEST AND MOST IMPORTANT OF THE INDIAN IRRIGATION WORKS NOW UNDER WAY.



A SNOW PICTURE OF RESERVOIR NO. 2, FORT LEWIS INDIAN SCHOOL, COLORADO; BUILT BY INDIAN LABOR, UNDER DIRECTION OF WHITE MEN.

IRRIGATED FIELD UNDER INDIAN DITCH, SHOSHONE RESERVATION, DUCK VALLEY, WYOMING; AGENCY AND SCHOOL BUILDINGS IN THE BACKGROUND.

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In this last way was made possible the undertaking on the Crow Reservation in Montana of the largest, best planned and executed irrigation system that we have among our Indians. The last and largest ditch of this system, the Big Horn Canal, is now nearing completion. It has a bottom width of 30 feet at the head, banks to safely carry about 7 feet of water, a length of 35 miles, and is capable of irrigating about 35,000 acres of excellent land.

There are quite a number of smaller ditches built during recent years that are constructed according to modern and approved methods, and which are doing considerable good. Still other and larger systems are now under consideration. That these are and will be profitable to both the Indians and the government is well proven, for it gives the Indians occupation and a source of livelihood during construction that warrants the abolition of the ration system for those engaged. By the time the ditch is completed they have had a training that prepares them for the cultivation of their little farms, and it is reasonable now to expect them to labor for existence.

As to the policy of irrigation being one of the greatest factors for education and civilization of the American Indian there can be no question. The building of irrigation works on a reservation, bringing land otherwise barren and profitless under the most favorable conditions for agriculture, affords an opportunity of inestimable value to the tribe to become independent, an offer they are quick to take advantage of. Government control and direction of the works cannot, however, be withdrawn for years, or until such time as the Indian is advanced sufficiently to intelligently coöperate for the best development of communal works, to place reliable and capable members of his own tribe in charge of the canals, and to subserve personal interest to the good of the whole.

Indian irrigation is therefore a problem that is yearly growing to larger proportions, demanding more money, more work, and greater care in the inception, construction, and subsequent control of the different projects; and only by its aid, in conjunction with the allotment of lands, can we hope for our red brother's evolution to worthy citizenship.

CRATER LAKE NATIONAL PARK.

A DESCRIPTION OF THE REGION AND OF THE SHEET OF WATER WHICH FORMS ITS CHIEF ATTRACTION.

BY

J. MAYNE BALTIMORE.

THE Crater Lake area, the subject of this article, records in titanic strokes the graphic story of the rise and fall of a wonderful volcano, leaving behind it one of the natural wonders of the world.

The actual history of Crater Lake as known to man dates back only a comparatively few years. Twenty years ago the general public was unaware of its existence and the first official recognition came in 1885, when it was proposed as the center of a national park; no law was passed, though President Cleveland set aside by proclamation ten townships in the region, which were later included in the Cascade Range Forest Reserve. From that time interest languished except for sporadic outbursts of enthusiasm at the accounts of some hardy explorer, until the Mazamas, the well-known mountaineering club of Portland, Oregon, took an interest in the lake, and in the summer of 1896 held their annual meeting on its rim, and named the

EDITORIALS

Am. Forests, April 1930.

Indian Forests

IN FACT and fiction, the American Indian is closely associated with the forest. It is his natural and traditional environment. It is where he finds his greatest health and happiness and the fullest expression of his native genius. And yet in our efforts to fit the Indian into American civilization, his natural environment seems to have been pretty generally overlooked. It is true that Congress has passed acts providing for the management and cutting of forests on Indian reservations under approved forestry practice and that the Indian Forest Service has made commendable progress in the management of reservation timber.

But Indian Forests with their abundant possibilities of promoting the welfare of the Indian have not been fully visualized or seized upon by Congress, although the Department of the Interior in recent years has urged the creation of a number of Indian Forests. There are pending in the present session of Congress four bills, introduced in the House by Congressman Leavitt and in the Senate by Senator Frazier, designed to withdraw from entry or sale and to reserve as Indian Forests the classified timber and grazing lands in the Coville and Yakima Indian reservations in Washington, and the Warm Springs and Klamath Indian reservations in Oregon. If these bills are passed, as they ought to be, several million acres of virgin forests will be saved for the Indians of these reservations and managed by the government under conservative forest practice. The net income from the sale of timber and forage will be deposited in the Treasury of the United States to the credit of the Indians and will draw interest at the rate of four per cent annually.

The general public doubtless has little conception of what has and is happening to Indian timberlands in the absence of specific legislation such as that provided in the bills just mentioned. The Indian reservations, aggregating over seventy million acres, belong to the Indians. The Indian Service in the Department of the Interior functions not as owner of the land but as guardian or trustee of the real owner—the Indian. Under the policy of the government, Indian lands are from time to time opened to entry by the reservation Indians and thus pass from federal stewardship direct to individual Indian ownership. Approximately thirty-six million acres have to date been turned over in fee simple in tracts of about one hundred and sixty acres.

Experience has shown that the Indians seldom develop these small tracts as homesteads. They do not take to farming. Furthermore, much of the land allotted has not been agricultural. More often than not the Indian sells his undeveloped "homestead" or the timber upon it to a lumber company or the best buyer available. The result is that large areas of forests in the reservations have been broken up and dissipated and lost for all time so far as the Indians and their custodian, the federal government, are concerned.

Approximately thirty-five million acres of unallotted Indian lands remain, of which some six or seven million acres bear valuable forests. The integrity of these forested areas ought to be maintained as tribal forests. They could be made to contribute more to the welfare of the Indian than almost any other institution. Their management for the commercial production of timber would provide permanent income and work for members of the different tribes. In addition, their recreational possibilities for camping, hunting, fishing, mountain hiking and wilderness trips are large and under development would bring an influx of visitors that would provide employment for the Indians as guides, caretakers, packers, game wardens, and in numerous other capacities. In the course of time the Indian could be trained to occupy ranger and other administrative positions in the tribal forests. This type of life would be far more to the bent of the Indian than farming. He would be in his natural habitat and following pursuits for which he is inherently gifted.

The possibilities are appealing and unlimited. The bills introduced by Representative Leavitt and Senator Frazier not only merit prompt passage but nation-wide support as the beginning of a humanitarian movement to preserve for the Indian the last remnants of American forests that he can rightfully claim as his own.

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... of the Budget,

recommendations formulated and transmitted to Congress and included in a deficiency appropriation bill. In support of this traditional government procedure the Secretary cites a recommendation which has been enroute during the winter through the regular channels of the Department—the Bureau of the Budget, the President, and finally to Congress—requesting a supplemental appropriation of $180,000 for insect control work on the National Forests in Idaho, Montana and Wyoming.

The complacency of the Department in failing to avail itself of the opportunity of preparedness in controlling forest insects will be hard for the public to accept. Failure to have a free hand and an emergency fund with which to stop insect attacks in their early stages has unquestionably cost the nation millions of feet of public timber and hundreds of

INDIAN AFFAIRS

The following bills would create Indian Forests on certain Indian reservations. All bills introduced by Senator Frazier, of North Dakota, December 4, 1929, and referred to the Committee on Indian Affairs:

S. 2489—To provide for the establishment of the Colville Indian Forest.

S. 2490—To provide for the establishment of the Klamath Indian Forest.

S. 2488—To provide for the establishment of the Warm Springs Indian Forest.

S. 3166—To provide for the establishment of the Yakima Indian Forest.

H. R. 6865, H. R. 6863, H. R. 6864, H. R. 8529—Similar bills introduced by Representative Leavitt, of Montana. Referred to the Committee on Indian Affairs.

to which he adheres. Certainly, the National Forests of Montana are a striking example of the government's failure to control insect attacks either in their incipient or subsequent stages. Starting in a small way at Swan Lake in the Flathead National Forest, Montana, as long ago as 1910, an infestation in lodgepole pine has defeated every effort of the Department to cope with it. Today, it is far-flung in three states and threatens to invade the forests in Yellowstone National Park. No one will venture an estimate of the amount of timber that has been killed or the total area blighted by this beetle that refuses to wait upon the "customary correlation of government expenditures or the functioning of the Bureau of the Budget." Had the Department in years past the authority which Senator Oddie's bill contemplates it could have dealt with the early and subsequent outbreaks with adequate funds and more effective control.

The $180,000 which the Department recently recommended to the Bureau of the Budget and the Bureau of the Budget recommended to the President and the President recommended to Congress is not for use in fighting the beetles in lodgepole pine. That battle has been abandoned as hopeless by the department's forces. The special appropriation is to apply to a new outbreak of the same beetle in white and yellow pines in the Couer d'Alene National Forest in Idaho. All of which serves to emphasize the fact that bugs, if not properly controlled, may be as destructive as forest fire.

The public is not interested in "customary correlation with all other expenditures of the federal government" or other forms of meticulous procedure in dealing with either forest fire or forest insects on the National Forests. It is interested in just one thing—prompt and effective control at minimum cost. Upon that record will it judge the Department's stewardship.

Am. Nat. Vol. 17, No. 9. 1883.

leaves, were not strikingly inferior in appearance to the water plant. The soils treated with inorganic acids first lost their retentiveness, and eventually all became similarly affected. The water plant alone formed a secondary radical branch.—*L. P. Gratacap, 77th st. and 8th ave., New York City.*

TUCKAHOE.—In the forthcoming volume of the Smithsonian report. Professor J. Howard Gore will have a paper on tuckahoe, or Indian bread. The word is a very common one in the sandy region of the Atlantic slope, but it does not apply to the same substance, being applied to Orontium, *Arum virginicum*, *Convolvulus panduratus* as well as to various fungi. The synonymy is quite formidable of the true tuckahoe, as *Pachyma cocos* (Fries), *Pachyma solidum* (Oken), *Pachyma pinetorum* (Horaninow), *Pachyma coniferarum* (Horaninow), *Lycoperdon solidum* (Clayton), *Lycoperdon sclerocium* (Nuttall), *Lycoperdon cervinum* (Walter), *Sclerocium cocos* (Schweinitz), *Sclerocium giganteum* (MacBride), *Tuckhaus rugosus* (Rafinesque).

The affinities, habitat, growth and formation and chemical composition are worked out with the greatest care, several tables of analyses being given.

"The most notable peculiarities of this substance are the entire absence of starch ('No fungus has yet been found to contain true starch,' Sach's 'Botany,' p. 241), the comparatively small amounts extracted by solvents, the gelatinous character of the cellulose, and the very small amount of albuminous substance. Nothing else yet analyzed has been reported to contain so large a proportion of pectinous matter. In ordinary fruits, such as are commonly used for making jellies, these pectin bodies seldom amount to ten per cent. According to Sach's Botany, 'the origin of colloidal pectin is still unknown.' Its nutritive value seems also to be entirely undecided. The older writers considered the pectin bodies of no value as foods, while later authors seem inclined to give them a value approximately that of starch. It seems certain that a diet of tuckahoe (*P. cocos*) alone would not sustain life, because of the lack of sufficient nitrogenous materials to repair the waste in the animal tissues; still, it might prove a valuable adjunct to highly nitrogenous foods.

"Various medicinal properties have been ascribed to *P. cocos*, such as an antidote to mineral poisons, for poultices on the ulcers that follow yellow fever, diarrhœa, cancers, and the most startling of all—the statement made in Hobb's 'Botanical Hand-book'—that it is aphrodisiac. It is easy to understand how these properties could be ascribed to tuckahoe—a representative name for all round or tuberous esculent roots—and now when *P. cocos* is the only root bearing the name of tuckahoe, it retains the traditional virtues of a large part of the Indian materia medica. From the large number of correspondents upon this subject, not one has been found who ever knew of any use to which it has been

Am. Anthropologist, Vol. 7, No. 2. April 1894.

"DER BUDDHISMUS ALS RELIGIONS-PHILOSOPHISCHES SYSTEM" is an erudite inquiry into the origin and essence of the most remarkable of all the oriental religions, based more on speculation and research than on Zoroastrianism and Confucianism, but merged in mysticism during the later centuries of its history. Prof. Dr. Adolf Bastian has gathered in 63 pages (Berlin, 1893) the more important points of a lecture delivered by him in the ceremonial hall of the Ethnologic Museum in Berlin, of which he is the director, and illustrated the whole with three plates of diagrams. The purpose of the lecture is to prove that the metaphysical systems of India took origin independently of occidental philosophic development and yield the most fruitful points of comparison with occidental systems. By a series of parallels Bastian shows that the more noteworthy ideas of our philosophies, ancient and modern, have had their mainspring in Buddhism; also that the spirit of quietism and mysticism prevailing there is antagonistic to the progressive tendencies of our epoch. A. S. GATSCHET.

ABORIGINAL USE OF SINEW.—The aborigines of America put sinew to a very great number of uses for which it is peculiarly adapted by its flexibility, lightness, great strength, and durability, and employ it in a variety of forms and sizes. In the making of clothing for men and horses, in the fabrication of weapons, including clubs, bows, arrows, etc., in the building of lodges, and for domestic and many other purposes its use is universal. For bow-strings and rough sewing the sinew of the buffalo is preferred as being coarser in texture, that of the elk being next in favor for these uses. The sinews of the deer, the antelope, the mountain-sheep, and the mountain-lion are also in high favor, that of the mountain-lion being considered the finest and most durable. The sinew is prepared for use by first removing all adhering flesh with the back of a knife. It is then stretched on a board or lodge pole and left to dry for an hour or so preparatory to the separation of the fibers or threads by twisting in the hands. By the same or similar twisting motion and by pulling the fiber can be extended to a reasonable length. Cords or small ropes are made by twisting many fibers together between two forked sticks fastened in the ground and during

(No tribes mentioned)

the process rubbing with thin skins of the elk and deer to soften them. The largest cord I have seen made in this manner was one-fourth of an inch in diameter. To prepare it for sewing the sinew is wet and at the needle end rolled on the knee with the palm of the hand to a fine, hard point like that of a shoemaker's bristle. As suggested, the sinews are made sufficiently fine for use in fixing the guiding feathers and fastening the iron or flint heads of arrows and in the wrapping of clubs, etc. Formerly the awl used in sewing was of bone taken from the leg of the eagle. This has been displaced by the common sailor's needle. The over-stitch is that most commonly employed in aboriginal sewing.

ISHAM G. ALLEN.

CENTRAL AMERICAN VOCABULARIES.—Toward the end of the eighteenth century the King of Spain, Charles III, gave orders to the colonial authorities to collect Indian vocabularies. Twenty-one of these are preserved in a manuscript of the royal archives at Seville, Spain, and when the ambassador Manuel M. Peralta had notified the Geographical Society of Madrid in 1882 that they were then accessible, the government of Costa Rica took occasion to publish a part of the manuscript for the ninth congress of Americanists, to be held in 1892 at San Maria de la Rabida, province of Huelva, in an edition of 200 to 300 copies. The Maya dialects contained in the collection, which is in lexicon octavo, are as follows: Poconchi, Cakchi, Quiché (two vocabularies), Cakchiquel (two vocabularies), Tzutuhil, Pocomán, Pupuluca, Chol, Zotzil, Tzental, Chanabal, Zoque, Mam. Subinha (pages 75–80) agrees with Maya dialects in a few words only. Belonging to other stocks are the Chapaneco (Mexico), Cabecara, Viceyta, Terraba (Costa Rica), and Lean y Mulía, which forms a dialect of the Xicaque of Honduras, and is especially valuable, as so little of that family has been published. The book holds 110 pages of solid text, and its main title is as follows: "*Lenguas indigenas* de Centro-America en el siglo XVIII segun copia del archivo de Indias (en Sevilla), hecha por el Licenciado don Leon Fernandez y publicada por R. F. Guardia y Juan F. Ferraz." San José de Costa Rica. Tipografia nacional, 1892.

A. S. GATSCHET.

Trouble after trouble in the endless maze of down timber hindered our progress from here on; but finally we reached the Peace River and the trading post of Hudson's Hope, where we obtained supplies for the return trip. It was not until late in November that we arrived at Jasper, where our trip had begun in June. Appalachia, XIII, no. 3, June 1915.

The Indians and the Mountains.

By Allen H. Bent.

We who call ourselves Americans owe more to the original Americans, whom we call Indians, than we can ever repay. Because in our arrogance we thought them an inferior race, we have killed them by thousands and taken from them the land over which they had roamed, not for centuries but for thousands of years. Notwithstanding all this, there are to-day living in peace 324,000 Indians in the United States and 106,000 in Canada. In Mexico and Central America a large majority are either Indians or persons of mixed blood.

In addition to our lands we are indebted to the red men for many articles of food: maple sugar, Indian corn, succotash and potatoes—the latter of South American origin. "Succotash" is an Indian word, and many more of their words have been introduced into the English language: tobacco, cayuse, caribou, chipmunk, skunk, musquash, raccoon, quahaug, wigwam, maize, etc., and possibly our familiar "caucus." One of their sports, lacrosse, has become popular in many regions, particularly in Canada, and those who love the woods, the rivers and the hills should not forget that they are indebted to the Indians for the birch bark canoe, the toboggan, the mocassin and the snow-shoe. Many of our roads have been developed from Indian trails, following identically the tracks trodden by generations of red men.

And now let us look at the map of North America. More than half of the forty-eight commonwealths that make up the United States bear Indian names. In Canada the names of Quebec, Ontario, Manitoba, Assiniboia, Saskatchewan, Athabasca, Keewatin, Yukon and Ungava bear witness to the same influence. Mexico perpetuates the name of the Aztec war god Mexitl, who seems to be in the ascendant there to-day. Four

of the six mountainous Central American republics bear Indian names: Guatemala, Honduras, Nicaragua, and Panama. The same preponderance is shown in the naming of lakes and rivers; but when it comes to the mountains there are relatively few Indian names. And for this there is probably a good reason.

In eastern North America the Appalachian, Alleghany, and Adirondack Mountains bear Indian names, as well as some lesser groups, as the Unaka and Nantahala ranges in the southern Appalachians, the Shickshock Mountains in the Gaspé peninsula, and the Torngat Mountains on the Labrador coast. The latter is really an Eskimo word, meaning evil spirits. Of individual mountains the only ones that have borne Indian names for any length of time are Ktaadn and Monadnock, both of which, standing conspicuous and alone, were landmarks for the Indians, with Moosilauke, Ossipee and Chocorua on the outskirts of the White Mountains. Mt. Kearsarge, in Merimack County, New Hampshire, appears on Pownall's map of 1776 with an Indian name, Cowassawissock.

In the White Mountains the great chief of the seventeenth century, Passaconaway, his son Wonnalancet, and his grandson Kankamagus have mountains bearing their names. Paugus, the chief who was killed at the battle of Lovewell's Pond in 1725, Waternomee, who was killed at the mouth of Baker's River by Lieut. Thomas Baker in 1712, and Weetamoo, are perpetuated in mountain names, but these have been given in recent years. The names Osceola and Tecumseh of course have no special significance as related to the White Mountains.

Surrounding the White Mountains is a cordon of Indian gathering places on lakes and rivers that preserve many interesting tribal names: the Coös intervales on the Connecticut River in the northwest; the Ammonoosuc in the north, the Androscoggin in the northeast; beautiful Kezar Pond in the east; the green intervales of the Saco in the southeast; Ossipee, Winnipesaukee and Squam Lakes in the south; and the Pemigewasset valley in the southwest.

In the western part of the United States are the Uintah Mountains in Utah, the Panamint Mountains in eastern California and the Wallowa Range in eastern Oregon, while of conspicuous individual mountains named by the Indians

Shasta stands almost alone, although Rainier has an Indian name, Tacoma, as also has Baker—Kulshan, "the great white watcher." Near the latter is the lower and less known Mt. Shuksan—the word meaning "place of the winds." Mt. McKinley, the highest mountain in North America, is called by the nearby Indians Denali or Tennally. By another tribe it is called Traleyka. In Montana is Piegan Mountain, named after the Piegan tribe, and in California are Tenaya Peak, named after the last chief of the Yosemite tribe,[1] and the Kaweah Peaks preserving the name of one of the neighboring tribes.

In the Canadian Rockies one of the finest peaks, Assiniboine, bears the name of the Siouan tribe that once hunted in the southern part of the range, as Athabasca preserves the name of the tribe that hunted among the northern heights. Another superb mountain, one of the Ten Peaks, has a striking Indian name, Hungabee (the Chieftain) given it by an early visitor to those wilds, S. E. S. Allen. Mts. Wapta and Saskatchewan bear Indian names, as do the Waputik and Spillamacheen Ranges. In the western ranges there are few Indian names. The Kootenay River preserves the name of the tribe that hunted over that territory. In Mexico the three great sleeping volcanoes, Popocatepetl, Ixtaccihuatl and Citlaltepetl, are Indian in name; the last is now generally known by the name of the city near its base, Orizaba.

The reason for the preponderance of Indian names for rivers and lakes is that the Indians lived on their shores, where they could fish and where they could raise the corn, beans, squashes and pumpkins that were practically their only crops, except in the southwest where melons were cultivated. The white men naturally settled in similar places and frequently adopted the Indian names. The early white settlers were not interested in mountains; they had to wrest a living from the soil; while the Indians, looking upon the mountains with both religious awe and imaginative feeling and being of a sensitive nature, did not care to discuss these things with the unappreciative whites. Dr. Charles A. Eastman says that "being a natural man, the Indian was intensely poetical," and he might have added that pioneers are not.

[1] L. H. Bunnell, one of the battalion that captured Tenaya in 1851, says the old chief called the High Sierra Kay-o-pha, Sky Mountains.

Mrs. Schäffer, who has camped in many wild places in the Canadian Rockies,[1] wrote a few years ago, "I often wonder when passing an Indian camp-ground, be it ancient or modern, if ever for an instant the natural beauty of a location consciously appeals to them," and she promptly answered her own query by adding, "I have seen not one but many of their camps and seldom or never have they failed to be artistic in their setting."

Dr. Eastman, who has just been quoted, is the son of a full blooded Sioux, and therefore speaks with authority. In his interesting book, "The Soul of the Indian," he says:

> There were no temples or shrines among us save those of nature . . . the shadowy aisles of the primeval forest, the sunlit bosom of virgin prairies, the dizzy spires and pinnacles of naked rock, and the jewelled vault of the night sky.
>
> The solitary communion with the Unseen was the highest expression of our religious life. . . . The first religious retreat marked an epoch in the life of the youth, which may be compared to that of confirmation or conversion in Christian experience. Having first prepared himself by means of the purifying vapor bath, and cast off as far as possible all human or fleshly influences, the young man sought out the noblest height, the most commanding summit in all the surrounding region. . . . At the solemn hour of sunrise or sunset he took up his position overlooking the glories of earth and facing the Great Mystery, and there he remained, naked, erect, silent, and motionless, exposed to the elements and forces of His arming for a night and a day or two days and nights, but rarely longer. Sometimes he would chant a hymn without words, or offer the ceremonial 'filled pipe.' In this holy trance or ecstasy the Indian mystic found his highest happiness and the motive power of his existence. . . . Of the vision or sign vouchsafed to him he did not speak, unless it included some commission which must be publicly fulfilled.

Dr. John Lederer, the first man to reach the top of the Blue Ridge in Virginia (in 1669) tells of his Indians' reverence for the mountains. In the account of his discoveries, published in London in 1672, he says "The Apalataean mountains, called in Indian Paemotinck (or the origine of the Indians) are barren rocks, and therefore deserted by all living creatures but bears." Farther he writes "when from the top of an eminent hill I first descried these mountains . . . their distance from me was so great that I could hardly discern whether they were

[1] "Old Indian Trails," by Mary T. S. Schäffer. G. P. Putnam's Sons, 1911.

mountains or clouds, until my Indian fellow travelers prostrating themselves in adoration, howled out after a barbarous manner—Okee poeze, i. e., God is nigh."

George Bird Grinnell, who has spent many a long vacation hunting and fishing with the Indians, records a pathetic prayer he heard from one of the Piegans who regard Chief Mountain (which overlooks the Plains in Montana), as one of their minor gods.[1]

> Hear now, you Chief of Mountains, you who stand foremost; listen, I say, to the mourning of the people. Now are the days truly become evil and are not as they were in ancient times. But you know. You have seen the days. Under your fallen garments the years are buried. Then were the days full of joy, for the buffalo covered the prairie, and the people were content. Warm dwellings they had then, soft robes for coverings, and the feasting was without end.
>
> Hear now, you Mountain Chief. Listen, I say, to the mourning of the people. Their dwellings and their raiment now are made of strange thin stuff, and the long days come and go without the feast, for our buffalo are gone. Useless indeed, the drum, for who would sing and dance while hunger gnawed within him. . . .
>
> Hear now, you who stand among the clouds. Pity, I say, your starving people. Give us back those happy days. Cover once more the prairies with our real food, that your children may live again. Hear, I say, the prayer of your unhappy people. Bring back those ancient days. Then will our medicine again be strong, then will we be happy, and the aged die content.

The Kootenays, who are true mountain Indians, says Mr. Grinnell, have always hunted more or less here, and so have the Stonies, but the Blackfeet and the Sarcees are true plains Indians and always depended on the buffalo. The principal deity of these Indians is the Sun, and not far from Chief Mountain is their Going to the Sun Mountain.

The Rocky Mountain Range from Montana to Arizona, is the home of various tribes of the Shoshone family, but according to their legends they came from the plains not many generations ago. Warren A. Ferris, an early fur trader, has left an interesting narrative (written in 1833) in which a Flathead Indian tells how it happened:[2]

[1] *Forest and Stream*, Vol. 29, p. 442, December 29, 1887. The Rock Climbers. By St. Mary's Lakes. Article signed Yo. Chief Mountain is in what is now Glacier National Park.

[2] "The Trail of Lewis and Clark," by Olin D. Wheeler, Vol. 2, p. 45.

Big Foot, the great chief of our tribe, assembled his warriors in council. My heart tells me, said he, that the Great Spirit has forsaken us; he has furnished our enemies with his thunder to destroy us, yet something whispers to me, that we may fly to the mountains and avoid a fate which, if we remain here is inevitable, . . . let us seek their deepest recesses where, unknown to our destroyers, we may hunt the deer and the bighorn. . . . During one whole moon we pursued our course southwestward, through devious paths and unexplored defiles. . . . The Great Spirit seemed again to look kindly upon us. We were no longer disturbed by our enemies, and joy and gladness came back to our bosoms. Smiles, like little birds, came and lit upon the lips of our children. . . . The eyes of our maidens were again like twinkling stars, and their voices soft as the voice of a vanishing echo. There was plenty in every lodge, there was content in every heart, we smoked the calumet in peace.

One of these Shoshone women of the mountains, the patient and heroic Sacagawea, who, captured as a child and carried as a slave into the Mandan country where she was married to a French Canadian, guided Lewis and Clark over the Rocky Mountains in 1805 and 1806. She richly deserves the beautiful monument that was erected in 1905 in City Park, Portland, Oregon. She has another monument, the snow clad Sacagawea Peak in the Bridger Range near Bozeman, Montana, overlooking the spot where she was captured and the place where she stood and pointed out the pass that would take the party across the mountains. She was an extraordinary woman, the sister of a Shoshone chieftain. Dr. J. K. Hosmer says of her: "In the whole line of Indian heroines from Pocahontas to Ramona, not one can be named whose title to honored remembrance is any better than hers."

While Indians accompanied Francesco Montaño on the first ascent of Popocatepetl in 1522, Darby Field on the first ascent of Mt. Washington in 1642, Dr. Lederer on his first ascent of the Blue Ridge in Virginia in 1669, and Charles Turner, Jr., on the first ascent of Mt. Ktaadn in 1804, they can hardly be called mountaineers in the sense employed to-day by the six thousand members of the mountaineering clubs in America. But whatever we may think of the Indians as climbers, their lore of the mountains,—their poetry,—is most interesting, as will be seen in the following pages.

Travellers on the lower St. Lawrence River will remember the glimpses that they have had, through the mists perhaps,

of the beautiful Shickshock Mountains, the northeastern end of the Appalachian system; but few have penetrated these mountain fastnesses, and fewer still know how they originated. The Wabanakis, or children of light, so called because they live nearer the rising sun than other tribes, have as the central figure of their mythology a demigod or hero, Glooskap, meaning the Liar, so called because when he left the earth he promised to return and has never done so. Charles Godfrey Leland says:

Glooskap represents the Good principle and his brother Malsumsis the wolf or Evil principle. The latter tried at two different times to kill his good brother when he was sleeping. Therefore Glooskap arose in sorrow and in anger, sought Malsumsis in the deep, dark forest, and smote him so that he fell down dead. And Glooskap sang a song over him and lamented, but Malsumsis, being dead, was turned into the Shickshoc mountains in the Gaspé peninsula.

Mr. Leland, in his "Algonquin Legends of New England," from which this story is taken, gives also two remarkable legends about Mt. Ktaadn. The first was related to him by Mrs. Marie Sakis, a Penobscot Indian.

There was once an Indian girl gathering blueberries on Mount Ktaadn. And, being lonely, she said: "I would that I had a husband!" And seeing the great mountain in all its glory rising on high, with the red sunlight on the top, she added: "I wish Ktaadn were a man, and would marry me!"

All this she was heard to say ere she went onward and up the mountain, but for three years she was never seen again. Then she reappeared bearing a babe, a beautiful child, but his little eyebrows were of stone. For the Spirit of the Mountain had taken her to himself; and when she greatly desired to return to her own people, he told her to go in peace, but forbade her to tell any man who had married her.

Now the boy had strange gifts, and the wise men said that he was born to become a mighty magician. For when he did but point his finger at a moose, or anything which ran, it would drop dead; and when in a canoe, if he pointed at the flocks of wild ducks or swans, then the water was at once covered with the floating game, and they gathered them in as they listed, and through that boy his mother and every one had food and to spare.

Ktaadn had wedded this girl, thinking to bring up a child who should build up his nation, and make of the Wabanaki a mighty race. And he said, "Declare unto these people that they are not to inquire of thee who is the father of thy child; truly they will all know it by seeing him; for they shall not grieve thee with impertinence." Now the woman had

made it known that she would not be questioned, and she gave them all what they needed, yet, for all this, they could not refrain nor restrain themselves from talking to her on what they well knew she would fain be silent. And one day when they had angered her, she thought: "Truly Ktaadn was right, these people are in nowise worthy of my son, neither shall he serve them; he shall not lead them to victory; they are not of those who make a great nation." And being still further teased and tormented, she spake and said: "Ye fools, who by your own folly will kill yourselves, ye mud-wasps, who sting the fingers which would pick ye out of the water, why will ye ever trouble me to tell you what you well know? Can you not see who was the father of my boy? Behold his eyebrows; do ye not know Ktaadn by them? But it shall be to your exceeding great sorrow that ye ever inquired. From this day ye may feed yourselves and find your own venison, for this child shall do no more for you." And she arose and went her way into the woods and up the mountain, and was seen on earth no more. And since that day the Indians, who should have been great, have become a little people.

The other Ktaadn legend which Mr. Leland has preserved for us was told him by Tomah Josephs, a Passamaquoddy Indian:

Of old times. Once an Indian went forth to hunt. And he departed from the east branch of the Penobscot, and came to the head of another branch that leads into the east branch, and this he followed even to the foot of Mount Ktaadn. And there he hunted many a day alone, and met none, till one morning in midwinter he found the track of snow-shoes. So he returned to his camp; but the next day he met with it again in a far distant place. Wherever he went, this track came to him every day; so he followed it and it went up the mountain, Ktaadn,—which, being interpreted, means the great mountain—until at last it was lost in a hard snow-shoe road made by many travellers. And since it was hard and even, he took off his snow-shoes, and went on and up with the road; and it was a strange path and strange was its ending, for it stopped just before a high ledge, like an immense wall, on a platform at its foot. And there were many signs there, as of many people, yet he saw no one. And as he stayed it seemed to grow stranger and stranger. At last he heard a sound as of footsteps coming, yet within the wall, when lo! a girl stepped directly out of the precipice upon the platform. But though she was beautiful beyond belief, he was afraid. And to his every thought she answered in words, and that so sweetly and kindly and cleverly that he was soon without fear, though he saw that she had great magic power. And they being soon pleased one with the other, and wanting each other, she bade him accompany her, and that by walking directly through the rock. "Have no fear," she said, "but advance boldly." She he obeyed and lo! the rock was as the air, and it gave way as he went on. And ever as they went the maiden talked to him, answering his thoughts, so that he spoke not aloud. And anon

they came to a great cavern far within, and there was an old man seated by a fire, and the old man welcomed him. And he was very kindly treated by the strange pair all day; in all his life he had never been so happy. Now as the night drew near, the old man said to his daughter: "Can you hear aught of your brothers?" Then she went out to the terrace, and returning said, "No." Then anon he asked her again, and she going and returning as before, replied: "Now I hear them coming." Then they listened, when lo! there came, as at the door without, a crash of thunder with a flash of lightning, and out of the light stepped two young men of great beauty, but like giants, stupendous and of awful mien. And like their father, their eyebrows were of stone, while their cheeks were as rocks.

And the hunter was told by their sister that when they went forth, which was every few days, their father said to them: "Sons, arise! it is time now for you to go forth over the world and save our friends. Go not near the trees, but if you see aught that is harmful to those whom we love, strike and spare not!" Then when they went forth, they flew on high, among the clouds; and thus it is that the Thunder and Lightning, whose home is in the mighty Ktaadn, is made. And when the thunder strikes, the brothers are shooting at the enemies of their friends. Now, when the day was done the hunter returned to his home, and when there, found he had been gone seven years.

Mr. Leland in commenting on this tale says:

It seems to have nothing in common with the very widely spread Indian myth that the thunder is the flapping of the wings of a giant bird, and the lightning the flashes of its eyes. The tradition is of Eskimo origin, supernatural beings partially of stone being common to Greenland and Labrador. In the Eskimo mythology the higher or benevolent spirits, protecting mortals, are distinguished from evil ones, by dwelling in cliffs, to which there are invisible entrances. The Iroquois have the very stone giants themselves, and a very curious picture of them has been preserved. There is a remarkable resemblance between Katahdin and Hrungnir of the Edda. The connection between the stone giants of the Indians, the Eskimos, and the Norsemen, if not historical, is at least identical in this, that they all typify the mountains.

In the west Theodore Winthrop, in his journal[1] gives a legend that was told him by one of the Indians he fell in with in 1853. He says, "Dr. Tolmie told the Indians at Squally that I wanted to go up Mt. Rainier to see Tamanous, the guardian spirit, and this was their reply":

[1] Edited and published with Winthrop's "The Canoe and the Saddle," by John H. Williams, Tacoma, 1913.

A wise old man, who killed many elk, made a sort of pick of their horns and went to the top of a high mountain to look for shell money, which Tamanous gave him to understand was there. He arrived at the top and found a great lake with much otter, but giving no thought to these he set himself to digging this wampum, or hiaqua. He dug twenty strings of it and started down the mountain, a rich man. On his way down, he was overtaken by a violent snow storm, and was in danger of death. To propitiate the tamanous, angry, he threw away one string after another, but the storm did not abate until he had cast away the very last. He then returned sadder and wiser, sure that the tamanous of the mountain did not wish his hoards to be taken.

In "The Canoe and the Saddle" Winthrop enlarges this story to sixteen pages and makes his Indian a sort of Rip Van Winkle, returning to his squaw after many years' absence.

A more poetical story of Mt. Rainier is told by Professor William D. Lyman.[1]

Nekahni, the great spirit, lived upon the slopes of Mt. Rainier, in the upper portion of what we now call Paradise Valley. There he kept his flocks of wild goats, and from that lofty height he watched and ruled the earth spread out before him. In the lower part of the valley lived Lawiswis. She was of the nature of both sea shells and roses; so that, when she went to the shore, the sea shells all worshipped her and caught the dew of the morning as a nectar for her to drink. When she was in Paradise, the roses made her like obeisance and served her with like nectar. She was the queen of the fairies, and of everything beautiful. Nekahni loved this fairy queen and built her a bower in Paradise, which was surmounted with masses of wild roses, and these roses at that time were pure white and had no thorns. In the dark and sullen gorge of the Nisqually River dwelt a frightful looking creature, Memelek . . . who hated Lawiswis on account of her beauty and innocence, and because Nekahni favored her. Accordingly one day when Nekahni was busily engaged with his goats, high up on the rocks of what we now call Gibraltar, Memelek determined to wreak her wicked vengeance upon Lawiswis. She therefore stole up out of the gorge to the bower in Paradise, and letting loose her snakes bade them go and sting to death the fairy queen who was lying asleep. And now the roses around the bower saw the imminent danger of their adored mistress. Nekahni was far away and could not come in person, but by a magical petition they let him know the danger, and instantly just as the loathful reptiles were crawling upon them, the roses turned a bright red, and were covered with sharp thorns which pierced the coils of the reptiles, so that they turned back in dismay and fled to their hideous mistress. Thus Lawiswis was saved and the discomfited Memelek was forbidden ever to come up out of the deep gorge of the Nisqually and there she has remained ever since.

[1] *The Mountaineer*, Vol. 2, Seattle, 1909.

Another legend told by Professor Lyman[1] relates to Mts. Hood, Adams and St. Helens, three mountains known as "the Guardians of the Columbia."

According to the Klickitats, there was once a father and two sons who came from the east down the Columbia to the region in which Dalles City is now located, and there the two sons quarrelled as to who should possess the land. The father to settle the dispute shot two arrows, one to the north and one to the west. He told the sons to find the arrows and there settle and bring up their families. The first son, going northward over what was then a beautiful plain, became the progenitor of the Klickitat tribe, while the other son was the founder of the great Multnomah nation of the Willamette Valley. To separate the two tribes more effectively, Sahale, the Great Spirit, reared the chain of the Cascades, though without any great peaks, and created the great tomanowas bridge under which the waters of the Columbia flowed. On this bridge he stationed a witch woman called Loowit, who was to take charge of the fire. This was the only fire in the world. As time passed on, Loowit observed the deplorable condition of the Indians, destitute of fire and the conveniences which it might bring. She therefore besought Sahale to allow her to bestow fire upon the Indians. Sahale finally granted her request, and the lot of the Indians was wonderfully improved.

In order to show his appreciation of the care with which Loowit had guarded the sacred fire, Sahale now determined to offer her any gift she might desire. Accordingly Loowit asked to be transformed into a young and beautiful girl. This was effected, and all the Indian chiefs fell deeply in love with her. Loowit paid little heed, until finally there came two chiefs, one from the north called Klickitat, and one from the south called Wiyeast. Loowit was uncertain which of these she most desired, and as a result a bitter strife arose between the two. This waxed until, with their respective warriors, they entered upon a desperate war. The land was ravaged, and misery and wretchedness ensued. Sahale repented that he had allowed Loowit to bestow fire upon the Indians, and accordingly he broke down the tomanowas bridge, which dammed up the river with an impassable reef, and put to death Loowit, Klickitat and Wiyeast. But, inasmuch as they had been noble and beautiful in life, he determined to give them a fitting commemoration in death. Therefore he reared over them as monuments the great snow peaks; over Loowit, what we now call Mt. St. Helens; over Wiyeast, the modern Mount Hood; and above Klickitat the great dome which we now call Mount Adams.

Professor Lyman also records this legend of Mt. Adams:[2]

[1] "The Columbia River," by William D. Lyman of Whitman College, Walla Walla, Washington. G. P. Putnam's Sons, 1909.

[2] *Mazama*, Vol. 4, No. 2. Portland, Oregon, December, 1913.

During the times of the Watetash, or animal people, Enumtla, the god of thunder, kept the inhabitants in continual terror by the flashing of his eyes, which made the lightning, and his dreadful roar, which was the thunder. He dwelt in the clouds over Mt. Adams. Speelyi, the Klickitat coyote god, coming along one day, found all the animal people in terror over the outbursts of the thunder god. Being besought to save them he consulted his two sisters . . . and was told by them how to overpower the obstreperous god. He transformed himself into a downy feather and floated down upon a sunflower stalk. Enumtla soon descried the feather from his cloudy throne and swooped down to investigate. Feeling suspicious, he decided to thunder and send down a dash of rain. But the magic feather never stirred. Much puzzled, Enumtla paused, and at that instant the feather rose into the air and belched forth a terrific volley of thunder and lightning and torrents of rain. The suddenness and fury of his onslaught so dazed the thunder god that he could not get his customary form, and though he rallied and fought so desperately that the earth shook, Speelyi had such an advantage that he soon got a grip upon him and they came crashing to the earth, tearing the very rocks asunder, but with Speelyi on top. Now the feather had expanded and was of gigantic size. With his huge club Speelyi pounded the fallen Enumtla into submission and then pronounced sentence thus: "You shall no more kill and terrify the people. You may live, but can thunder only on hot days. You may flash lightning, but not destroy." Since then there have been few destructive thunder storms around Mt. Adams, and the people are no longer afraid.

Mt. Shasta in Northern California needs no introduction to mountaineers. It is magnificent to look upon, and it is no wonder that the Indians thought it was the abode of the Great Spirit. Joaquin Miller, who lived with these people in his youth and married one of their maidens, in his "Life Amongst the Modocs," published in 1873 and dedicated to the Red Men of America, tells this strange story:

The Great Spirit created this mountain first of all. . . . He pushed down snow and ice from the skies through a hole which he made by turning a stone round and round, then he stepped out of the clouds on to the mountain top and descended and planted the trees all around by putting his finger on the ground. The sun melted the snow, and the water ran down and nurtured the trees and made the rivers. After that he made the fish for the rivers out of the small end of his staff. He made the birds by blowing some leaves which he took up from the ground among the trees. After that he made the beasts out of the remainder of his stick,—the grizzly bear out of the big end, and made him master over all the others. He made the grizzly so strong that he feared him himself, and had to go up on the top of the mountain to sleep at night. Afterwards, when the Great Spirit wished to remain on earth,

and make the sea and some more land, he converted Mount Shasta by a great deal of labor into a wigwam, and built a fire in the centre of it and made it a pleasant home. After that his family came down from the Heavens, and they all have lived in the mountain ever since. Before the white man came they could see the fire ascending from the mountain by night and the smoke by day. . . .

One late and severe spring-time many thousand snows ago, there was a great storm about the summit and the Great Spirit sent his youngest and fairest daughter up to the hole in the top, bidding her speak to the storm that came up from the sea, and tell it to be more gentle or it would blow the mountain over. He bade her do this hastily, and not put her head out, lest the wind would catch her in the hair and blow her away. . . .

The child hastened to the top, . . . but having never yet seen the ocean (where the wind was born) when it was white with the storm, she put her head out to look that way, when lo! the storm caught her long red hair, and blew her out on to the mountain side. Here she could not fix her feet in the hard, smooth ice and snow, and so slid on and on down to the dark belt of firs below the snow.

Now, the grizzly bears possessed all the wood and all the land even down to the sea at that time, and were very numerous and powerful. They were not exactly beasts then, although they were covered with hair, lived in caves, and had sharp claws; but they walked on two legs, and talked, and used clubs to fight with, instead of their teeth and claws as they do now. At this time there was a family of grizzlies living close up to the snow, . . . and the father found this little child, red like fire, hid under a fir bush . . . and took her to the old mother, . . . who said she would bring her up with the other children. . . . When their eldest son was grown up he married her. . . . and many children were born to them. But, being part of the Great Spirit and part of the grizzly bear, these children did not exactly resemble either of their parents, but partook somewhat of the nature and likeness of both. Thus was the red man created, for these children were the first Indians.

Among the Navahoes of Arizona and New Mexico is a legend of how the First Man and the First Woman built the seven sacred mountains of their land.[1] They made them all of earth they had brought from similar mountains in the fourth world. (The Navahoes believe that their first parents had come up through four worlds before reaching this.) Through Tsisnadzini, the mountain in the east (probably Pelado Peak, New Mexico) they ran a bolt of lightning to fasten it to the earth. They decorated it with white shells, white lightning, white corn and dark clouds. All these things they covered with a

[1] Abridged from Dr. Washington Matthews' volume on Navaho Legends, published for the American Folk Lore Society in 1897.

sheet of daylight. Tsotsil, the mountain to the south (San Mateo or Mt. Taylor, as it is now called) they fastened to the earth with a great stone knife, thrust through from top to bottom. They adorned it with turquoise, with dark mist, and all different kinds of wild animals, and over all they spread a covering of blue sky. Dokoslid, the mountain to the west (San Francisco Mt., the highest in Arizona) they fastened to the earth with a sunbeam. They adorned it with abalone shells, with black clouds, yellow corn and all sorts of wild animals, and over all they spread a yellow cloud. Depentsa, the mountain in the north (San Juan, in southwestern Colorado), they fastened with a rainbow. They adorned it with black beads, with dark mist, with different kinds of plants, and many kinds of wild animals, and over all they spread a covering of darkness. Dsilnaotil was fastened with a sunbeam. They left its summit free, in order that warriors might fight there. The mountain Tsolihi they fastened to the earth with a cord of rain and placed on top of it a live bird named Tsozgali. The mountain of Akidanastani they fastened to the earth with a sacred mirage-stone.

When the mountains were made, the god of each of the four quarters of the world carried one away and placed it where it now stands. The others were left in the middle of the world and are there still. A pair of gods were then put to live in each mountain: East, Dawn Boy and Dawn Girl; south, Turquoise Boy and Turquoise Girl; west, Twilight Boy and Haliotis (abalone) Girl; north, Darkness Boy and Darkness Girl. It should be added that the Navahoes symbolize by color the four cardinal points: East, white; south, blue; west, yellow; north, black; the significance of each being apparent. Four is the mystic number of all Indians. In addition to the four worlds, four winds, and four deified elements, earth, air, fire and water, the Navahoes claim that the moon has four kinds of water: spring water, rain water, snow water, and hail water; and that four games were brought from the lower world. Four sentinels are stationed at important places; they used to have four kinds of arrows; chain-lightning arrows, sheet-lightning arrows, sunbeam arrows, and rainbow arrows; and when the gods came to visit them, they always announced their approach by calling four times. Everything of importance is repeated four times. Furthermore they say that four rivers

flowed from the sacred lake of their emergence. A small lake somewhere in the San Juan Mountains is said to be the place through which the people came from the fourth world to this world. It is surrounded, the Indians tell, by precipitous cliffs, and has a small island near its centre, from the top of which rises something that looks like the top of a ladder. Beyond the bounding cliffs there are four mountain peaks, which are frequently referred to in the songs and myths of the Navahoes. These Indians fear to visit the shores of this lake, but they climb the surrounding mountains and view its waters from a distance. The San Juan Mountains abound in little lakes, but which one of these is considered by the Navahoes as their Place of Emergence is not known. Island Lake, on a branch of the South Fork of Mineral Creek, three miles southeast of Ophir, Colorado, at an altitude of 12,450 feet, accords in appearance with the Navahoes' description.

The Indians of Mexico have an interesting legend of their great volcanoes:[1]

> Ixtaccihuatl was the daughter of a rich chief. She loved a youth who had nothing, and when he came to ask for her hand, the father would not listen to him and drove him away. Day by day the girl pined, till finally, as she was about to die, she was changed into this mountain, which even to this day preserves her form. Her lover became Popocatepetl and stands at her feet, keeping eternal watch over her while she sleeps.

There is a legend among some of the other tribes which says that Popocatepetl is the abode of the departed spirits of wicked rulers, whose writhings and agonies cause the noise and fire at times of eruption.

I have just barely touched the lore of the Aztecs of Mexico, and have made no attempt to reach the Mayas of Yucatan or the Incas of Peru, and yet these three tribes were far superior to the Indians that dwelt in what is now the United States and Canada. The field is an inexhaustible one, for the Indians have an extensive as well as a fascinating folk-lore. Such men as George Bird Grinnell, George Wharton James, Charles Godfrey Leland, Joaquin Miller, and Dr. Washington Matthews have done a great work in preserving such tales as they have for us. Enriched with the imagination of centuries these legends recall to us more than anything else the real Indians.

[1] This is told by R. W. Poindexter, Jr., in the Sierra Club Bulletin, Vol. 8, No. 2, p. 104, June 1911.

Western Field - March 1908.

A TOAST TO CALIFORNIA

I STOOP and pluck a flower of sunset shades,
And lift its cup so filled with golden beams
My eyes are dazed; and o'er this field that gleams
With yellow bloom and glistens down the glades,
My spirit floats—floats down the dim decades
In thought, to those who saw this land in dreams
And westward came. Their silence now, that seems
Though true to law so sadly strange, pervades
This, their loved home. And now this shining flower
That gave them hope gives us new thought, new light
As emblem of our State. Sound then her praise,
As she enfolds the glow of evening's hour
Within her chalice fair! Eschscholtzia's bright
Gold cup to California dear I raise!

—*Mary Emerson Doble.*

FRESH PASTURES

By "Montezuma"

PART IV.—(*Concluded*).

MAN proposes and Chance disposes. When we pulled out into the Verney Channel we were fully resolved that we would simply outfit at Hartly Bay and then returned to Gribble and its mysterious white fauna but when we arrived at Hartly Bay we suddenly changed our plans as will appear further on.

The tide was running high. All the waters of the vast Gardners Inlet were rushing through the narrow passage, and for a land-lubber like the writer it was a rather startling experience to be at one moment in the bottom of a ten foot well and at the next perched on the ridge of a razor-backed wave above. But the other two were Ancient Mariners, and I hadn't shot any albatross, so we rode that tail race of Gehenna without any incident further than again encountering our friends the whales, who derisively flicked a good-by with their tails and went on decimating the billions of little crustaceans and animalculae which the nature sharps say they alone can swallow.

It was night when we rounded Hawkesbury Island, and as it was quite a pull to the settlement we decided to land and make supper. It was as black as a pocket—no moon till late—and the seven mile stretch of water without a single light in sight to guide our course was not inviting. Fortunately there was no swell at all, the bay being as still as a mill pond.

While we were eating supper we were entertained by the grunting and plunging of innumerable grampuses, the general effect being that of the milling of the Bulls of Bashan. There was about half an hour of this groaning Inferno and old Sourdough Ned actually had the gall to try to get me "buffaloed" over it, saying that he wouldn't take chances out among those beasts, in the dark, in an open boat. So insistent did he become, and so earnest did he appear, that I actually thought the old villian really meant it, and I was just getting ready to open on him when I got the

side-light from our fire on his grin-contorted mug. Then I thumped instead of cussed him, and in revenge appropriated his share of our last forty-drops of Scotch.

I had just knocked out the heel of my last pipeful of tobacco when away up to the nor'-nor'west I saw a tiny flicker on the horizon—a Siwash's lamp in his hut at Hartly Bay. Instantly we laid our last bearings and were soon re-embarked for our last pull.

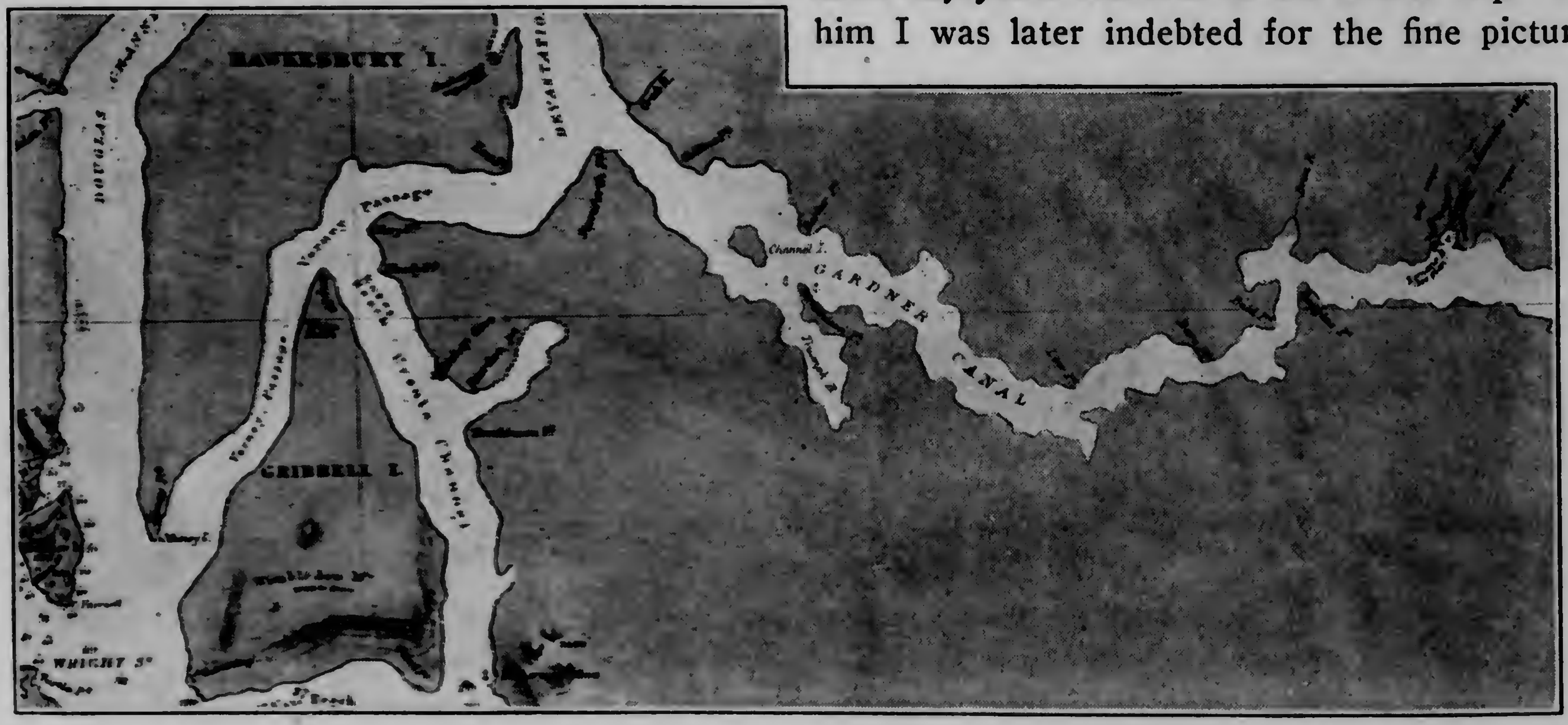
I shall long remember that night's wonderful experience. It was as black as tar but very clear though the stars were mere pin points. We had gotten about a half knot from shore when suddenly the drip from our oar blades took fire and our wake was a jewelled fan of multicolored flames. Against the jet of our surroundings the phosphorescence contrasted most exquisitely, and we all gave exclamations of delighted wonder as a grampus, rolling some hundred rods to starboard, was revealed to the minutest detail, outlined in luminous color. Everywhere were leaping salmon irradiated with the beautiful iridescent fires and our oars dripped opals, diamonds, rubies, emeralds and sapphires at every recovery. The display lasted about twenty minutes then suddenly ceased and we were in utter darkness again. Anon we would catch an evanescent flicker ahead and we held our course straight as a die, pulling up to the little Siwash dock just about midnight. We had just made down our beds when a Siwash, attracted by our lantern-light, ambled up. To our no small interest he informed us that in about another hour a south bound steamer, whose name we misunderstood from his almost unintelligible mouthings to be the "Benson", was expected in port.

In the flickering flare of the candle light I caught Betten looking at me with a certain diffidence. "There's no supplies worth considering to be obtained here," he said hesitatingly, "and you know I'm due to judge the Northwest trials in 'steen days. We can always come back and we will! Still, if you insist on staying—"

"There's not a toothful of budge nearer than Vancouver" interjected Ned tentatively, and I succumbed.

"Pack up your duffel, you two old Nostalgists, and do it *poco pronto*. There's the *Benson's* whistle outside the point now." In an hour more we were on the boat—she proved to be the *Venture*—headed for the land of the free and the home of the brave.

The *Venture* people were of the same stripe as the *Camosun* folk. They treated us royally and we made many choice acquaintances aboard her among the passengers, several of whom we found to be sportsmen and good fellows, whose acquaintance we shall certainly cultivate on our return to the land of big fish and many bears. One of the most pleasant experiences on this return trip was the picking up at some way station of that prince of good fellows and clean sportsmen, F. M. Kelly, who was just returning from his summer's mooch in this delectable northland. Mr. Kelly has for years been one of Western Field's most valued contributors, and this opportunity of meeting him in the flesh was one of the most enjoyable features of the whole trip. To him I was later indebted for the fine picture



The Gardner Inlet Region

A Typical Siwash Village—Alert Bay

and clear, concise description of the Gribble Island white bears which appeared in a previous paper. Among others whose *Venture* acquaintance I value are Mr. William Edwin Curtis of Ladner, B. C., a typical English sportsman and affable gentleman and a cannery-owner of importance by the way—to whom, as well as to another cannery-owner, Captain Stapledon, whose plant is on the mouth of the Naas River, I am indebted for many courtesies including cordial invitations to "come again and stay longer at our places."

The voyage down was without any particular incident and we were very generously treated by our Vancouver friends on our arrival at that port. By way of variety we went to Seattle by water, taking passage on that particularly fine boat the *Iroquois*, whose officials leave nothing lacking to the comfort of her passengers. The purser of the boat was a relative of both my companions, a most charming gentleman, and we got the cream of everything.

So ended one of the red letter trips of my life. It wasn't particularly resultful in the way of trophies, but we didn't make it with that end especially in view. We got all the trophies we needed and had the time of our lives. Above all, we learned the country, the way to get there, what to do and how to do it. The next time we reach out for the aurora borealis and bears, we'll land!

A last word as to special equipment peculiarly desirable and we have done. Things imperative are water-proof receptacles for matches and the foods most susceptible to moisture. Waterproof clothing—"Duxbak" is the best—and waterproof cover and bag for bed and clothing. A good axe and dependable compass. Warm woolen clothing and underclothing. Rubber boots, thigh or hip, with leather soles well hobbed with nails on soles and short stout caulks on heels. (Light foot wear, moccasins, etc., are useless here.)

Take a *full* supply of medicines, tobacco, spirits, etc., Remember that you want to take all your supplies with you. There is no source of their replenishment, nearer than Vancouver, that can be depended on. Take plenty of ammunition and fishing tackle, with spare rods and guns. Leave revolvers and shotguns behind. Go any time from April first to September first. The last date will give you ordinarily a full month of good weather, sometimes more.

Remember you will have only two methods of transportation, by water and on foot. Horse and dog teams are impossible in the sections under consideration. And above all don't pay the first price that your Siwash retainers demand for their services. They may ask you ten dollars a day when really *Sitcum dollar hyas closhe!*

Go up and find out what that last jargon means.

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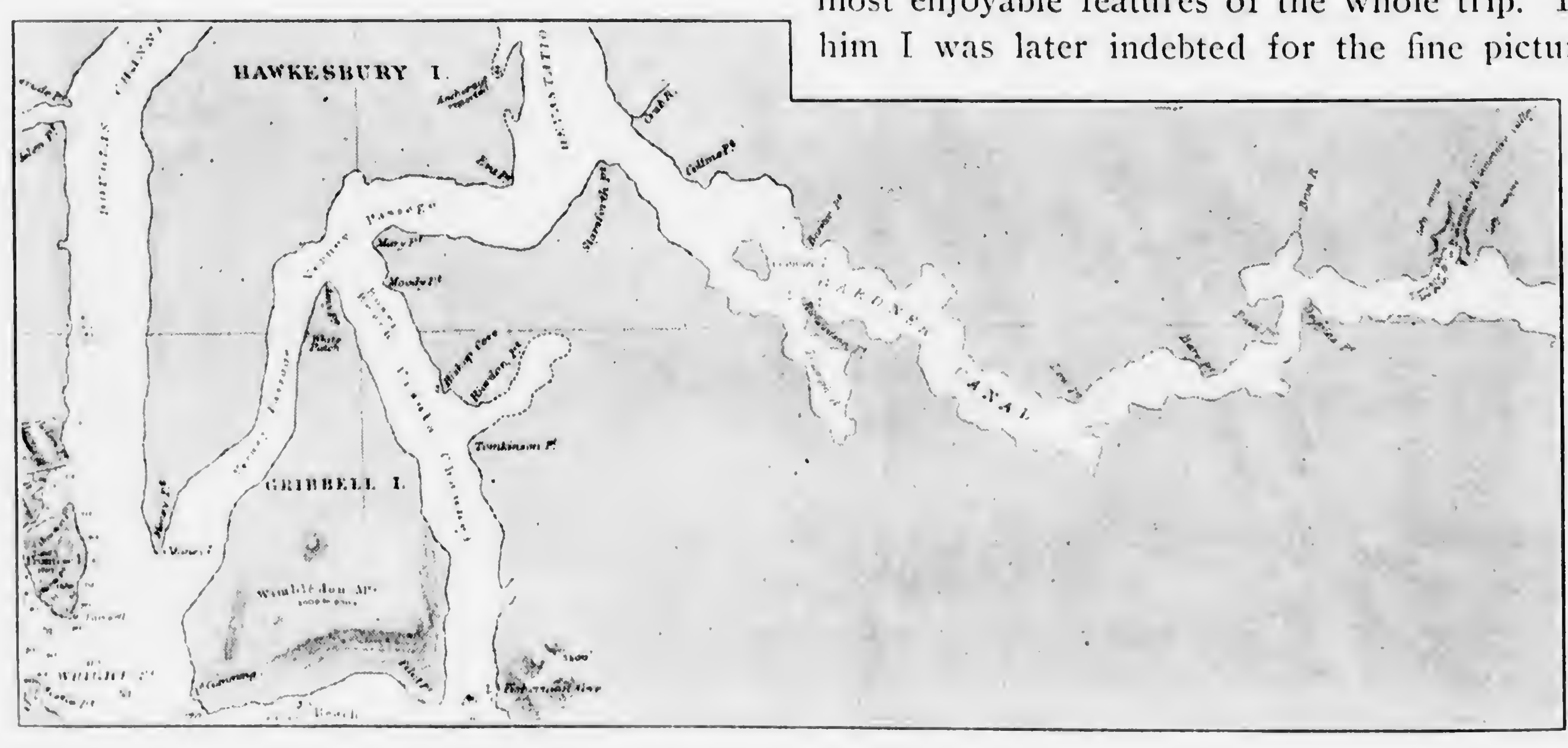

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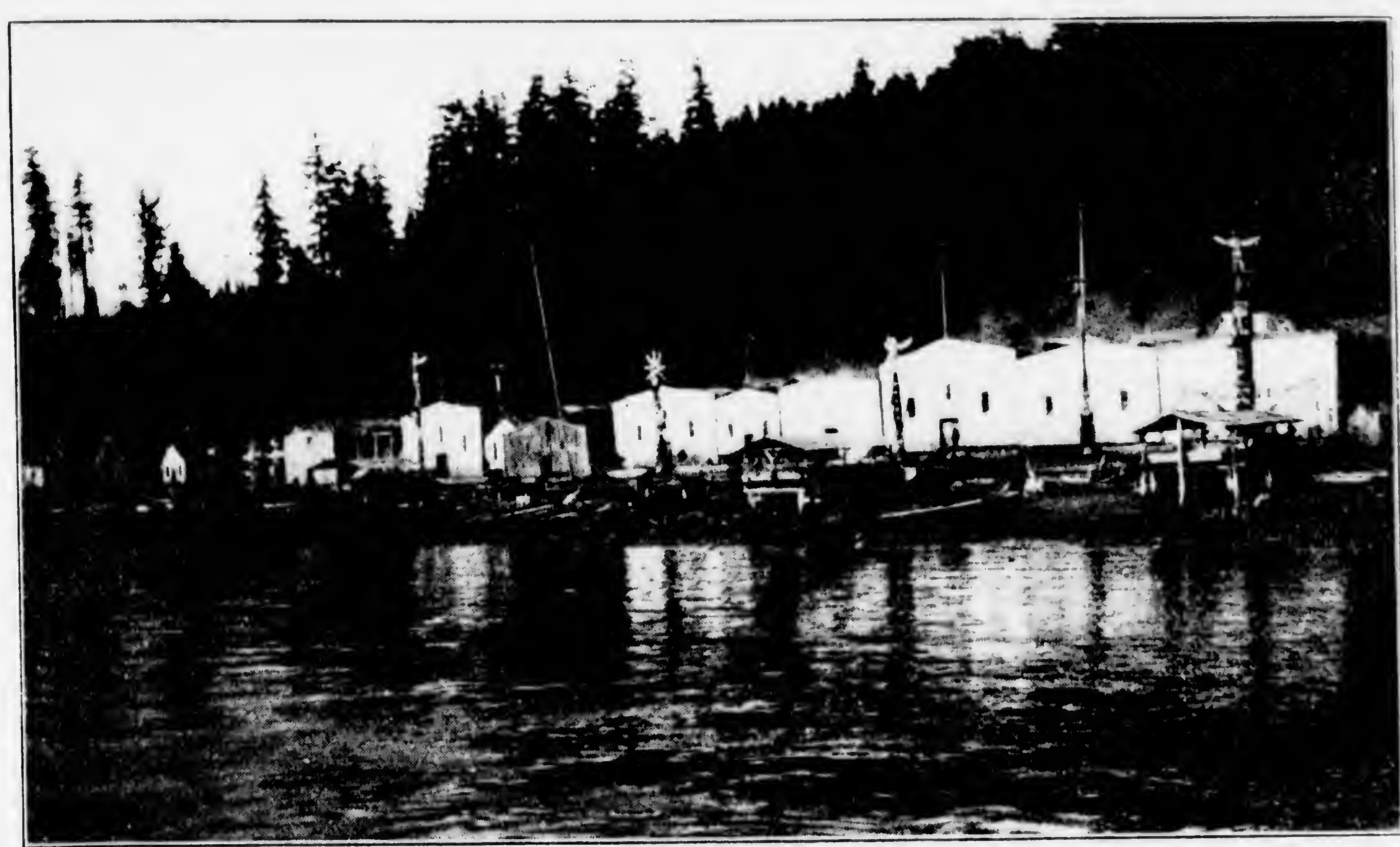
A Typical Siwash Village—Alert Bay

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Retake of Preceding Frame

SONG OF THE EARTH-MOTHER TO THE WEST-WIND

O WIND! Blow out from the golden West
Bring up the damp of the silver sea,
And leave it pearled on my sun-dried breast!—
So cool! so cool! blow over me!

Shake off the dust from my smallest flower,
Make rustle the leaves of my tallest tree,
And kiss my maids in their June-rose bower!—
Ah sly! so sly! blow over me!

Pipe up your music; a merry dance
Lead off o'er meadow, and brook, and lea,
And make my pretty children prance!—
So gay! so gay! blow over me!

Waft on the breath of the columbine,
Catch up the scent of the rosemary,
And blind them all in a perfume fine!—
So sweet! so sweet! blow over me!

Blow high! blow low! sweet, sly, and gay!
Blow on o'er valley, and hill, and lea,
And sink to rest with the dying day,
So tired, tired, over me!

—Bernard F. Trotter.

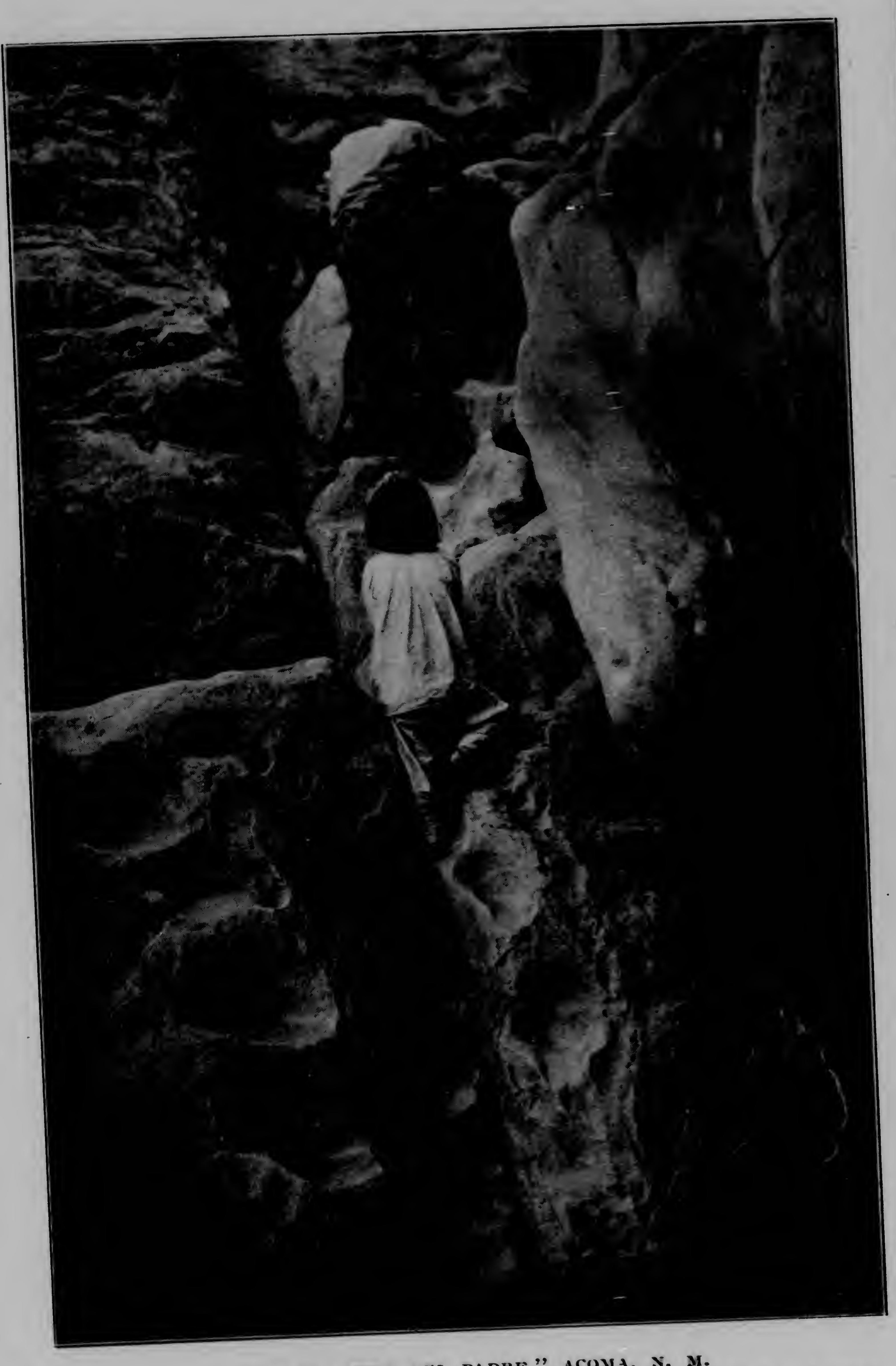
THE WORLD WHEREOF I DREAM

THERE'S the morning's roseate hue,
There's the sunlight's golden glow,
There's the night tide and the dew,
And the gentle winds that blow.
There's the shadows in the wood,
There's the music of the stream,
And God's golden solitude
In the world whereof I dream.

There's the forest's leafy ranks,
Where the shadows come and go;
There's the fern embowered banks
With the silver streams aflow.
And to while the hours along,
Through the shadow and the gleam,
There's a wealth of rippling song
In the world whereof I dream.

There's green vales that stretch away,
And the woodland's bud and flower,
There's the golden dream of day,
There's the gentle twilight hour.
There's the tender peace of night
Kissed by distant stars agleam,
There is hope and joy and light
In the world whereof I dream.

—Harry T. Fee.



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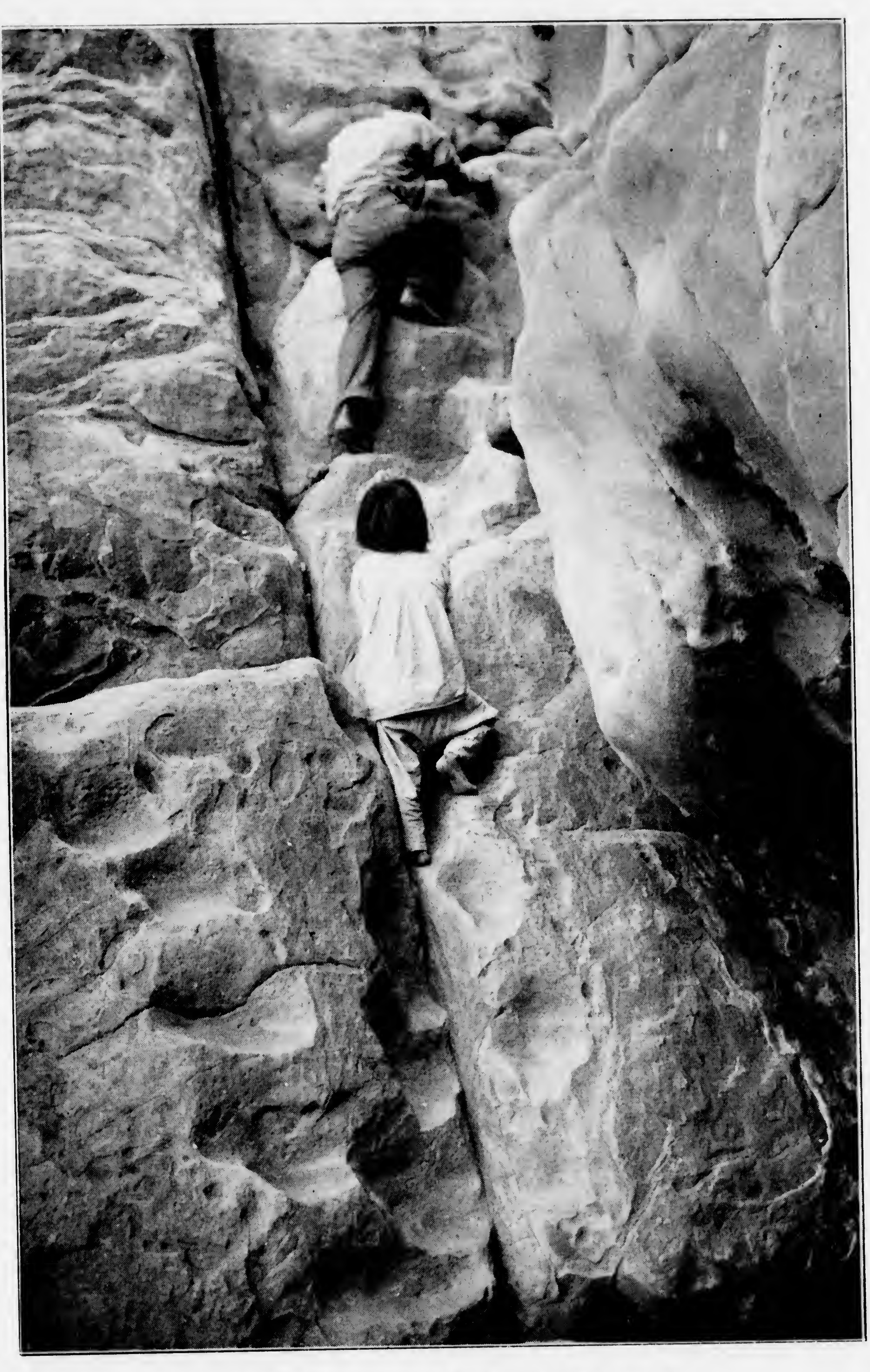
(See Benavides's "Memorial"). Photo by A. C. Vroman.

Land of Sunshine, Feb. 1901.



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Retake of Preceding Frame

INDIAN TYPES—AN ACOMA MAIDEN

By Carpenter, Field Museum

The Redman—Feb. 1914.

INDIAN TYPES—AN ACOMA MAIDEN

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Retake of Preceding Frame

TWO VIEWS OF THE CARLISLE INDIAN SCHOOL CAMPUS—ONE IN SUMMER, THE OTHER IN WINTER

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SCRIBNER'S MAGAZINE

VOL. XXXIX MAY, 1906 NO. 5

VANISHING INDIAN TYPES

THE TRIBES OF THE SOUTHWEST

By E. S. Curtis

ILLUSTRATIONS FROM PHOTOGRAPHS BY THE AUTHOR

WHEN Coronado, with his venturesome little band of three hundred mail-clad Spaniards, crowded his way into the North in search of the seven cities of Cibola, with their fabled hoards of gold, he encountered many small bands of roving Indians, whom he termed "wild Indians." These so-called wild Indians were the Apaches and Navajos. From their geographical proximity and linguistic relationship they were, and have been considered, in a broad way, as one group. It was with the Southern branch of this Athapascan group that Coronado and his men were brought most in contact. The village Indians of the region called them "Apaches," meaning enemy in its broadest sense—that is, "Every man's enemy." These roving bands of marauders were then living more from what they might steal from the less warlike villages and Pueblo Indians than from their hunting or farming.

From Coronado's day to the one of the final struggle when old Geronimo was made prisoner, every page of the Southwest history tells us of the Apache's cunning, ferocity, and physical endurance. Scarcely a tribe of our American Indians but what have engraved their record of crime and infamy high up on history's wall, yet above them all is the Apaches'.

From 1540 to 1853 New Spain and Mexico carried on a so-called warfare with these people. The Apaches were vastly outnumbered by the Mexican soldiery, but what they lacked in numbers was more than made up in courage and craftiness. The Apache ever had a thorough contempt for the Mexican soldier, and in later years, when they were fighting with firearms as well as arrows, they would not waste cartridges on the Mexicans, but would kill them with arrows, spears, and stones, saving their cartridges for other and more worthy foes.

When this Southwest region became a part of the United States the Apaches were a serious problem with which we had to contend. Our Government vacillated between a simpering peace policy and the other extreme, their extermination. Their zone of wandering being intersected by the international boundary-line further complicated matters. They would raid down into Mexico and then rush back with the plunder to our side of the line, out of reach of the pursuing soldiers. Next, it would be a raid on the Arizona side and a flight into the wild mountains of Sonora. The Mexican Government attempted to assist their miserable army by giving a scalp bounty, and for years they paid out their gold coin for Apache scalps. Scalp hunting became a recognized industry. The horror of this was that, to the Mexican official, all scalps looked alike, whether from the head of a hostile or a friendly Indian. The price was one hundred dollars for a man, fifty dollars for a woman, and twenty-five dollars for a child. It is small wonder that the tribe sank deeper into savagery than ever, when we stop to think that the men knew there was a price set on the scalps of their wives and children; and there was a horde of human fiends, white

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in color, but more savage than the savage himself, who were hunting them as they would a cougar of the mountains.

After years of wabbling between peace and extermination, General Crook, with his wonderful insight into the Indian character, was given the difficult task of settling the Apache question. It took him a considerable time to perfect an army organization fit for a campaign in a country where the mountains in winter were deep in snow and bitterly cold, and the desert in summer a waterless furnace. He also had to contend, for a time, with the well-meant but more than useless Peace Commission, as well as the politician and grafter, who desired anything but a final settlement of the Indian troubles, as it was out of such troubles that they made their living. This crowd of fellows could well have been classed with the Mexican scalp hunters. The scalp hunting caused the loss of many white settlers, through the Apache's desire for revenge, and the grafter helped to continue the trouble that he might grow rich.

General Crook took the Apache question up in a manner which showed the Apache that he had to deal with a man different from any with whom he had heretofore been brought in contact. He sent out asking the Apache head men and chiefs to come to his camp, so that he might talk with them. When they assembled, he told them, "I have come here to settle the Apache fighting. You who want peace can come on to the reservation, raise crops and I will help you start your farms and the Government will buy hay and grain from you and pay you for your work. Any of you who do not want to do this and want still to fight and steal, can go back to the mountains, and I will fight you until you come in or kill the last one of you, but I am going to do just what I say. I am not going to lie to you, but I am going to kill the last Apache who does not settle down on the reservation."

The chiefs drew off to themselves for a talk. Their spokesman said to his brother Indians: "He is a new kind of man. He doesn't say anything about the Great Father or that the Great Father sent him, but he tells us that he does not lie and that he will kill everyone who does not come on the reservation."

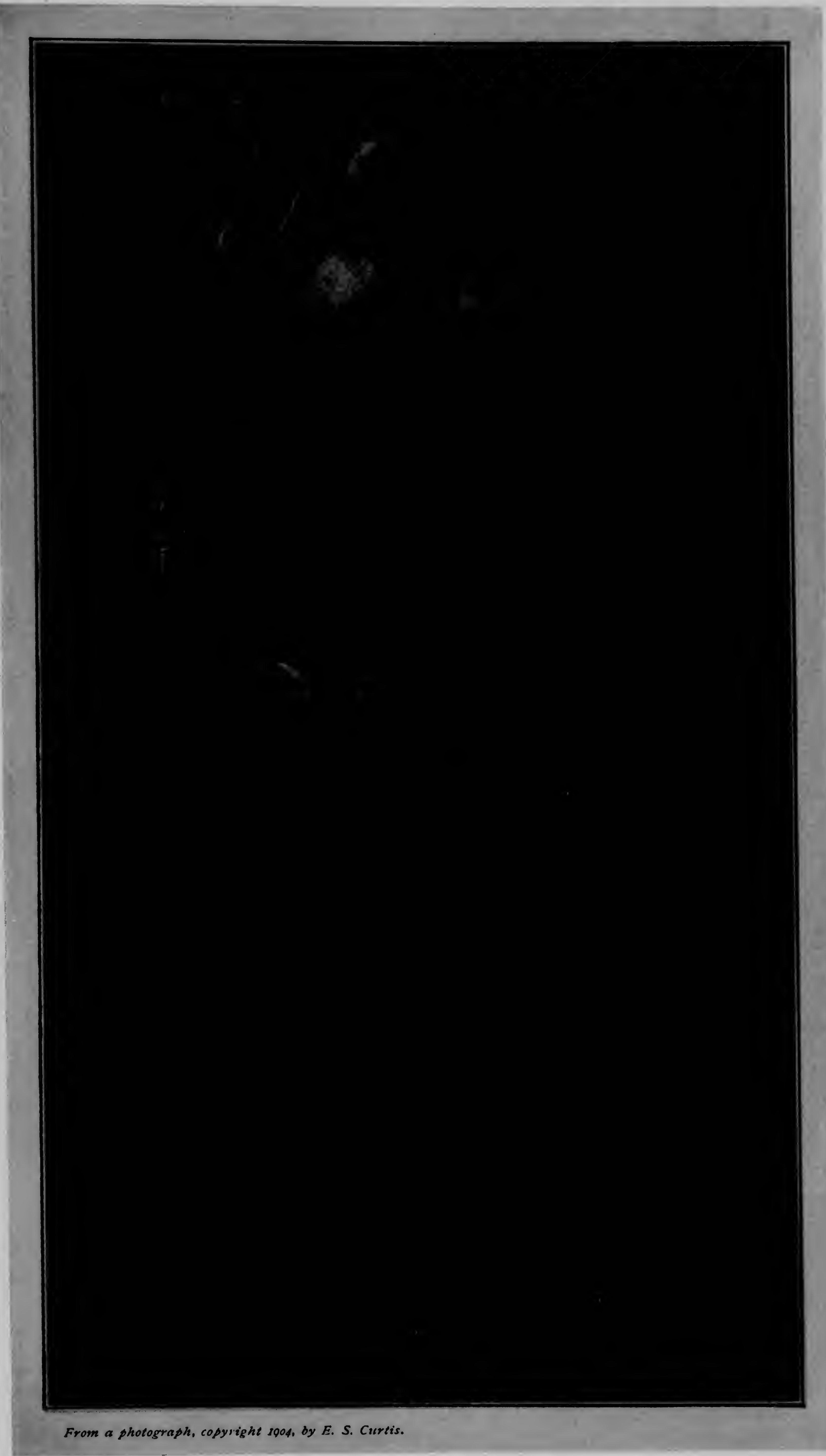
They realized that this was truly a new kind of man, and the outcome of that conversation was, that Crook was furnished the company of strong young Apaches for which he had asked, which enabled him to fight Apaches with Apaches. In less than two years the Apaches were a conquered people, the first day since Coronado met them three hundred and thirty-three years before.

The next two years saw great improvements among them. Lands were cleared, irrigating ditches dug, new homes built, and all was prosperity and peace. The Apache problem seemed settled. Sioux and Cheyennes and other tribes of the North were making trouble, and Crook was transferred to the Department of the Platte and at once began his campaign against the Northern tribes. He was scarcely off the Apache reservation before the contractors, Government employees, and political grafters were at work to undo all that had been done.

Their efforts succeeded so well that each year found the Apache growing more dissatisfied and restless. This culminated in the outbreak of 1882. Crook was hastily summoned and took charge of the Department of Arizona. Geronimo and many of his band were taken to the Southeast as prisoners, and the others were settled on the White Mountain reservation, which has since that time been their home.

This reservation is a part of the high table-lands of Southeastern Arizona. It is one succession of mountains and high mesa parks, broken here and there with valleys and streams. The mountains and mesa lands are wooded with pine, cedar, fir, juniper and oak, and in the valleys is found mistletoe-grown cotton-wood, willow, alder and walnut, with much sumach, all jungle woven with the vine of the grape, hop, and columbine. Everywhere, on mountain and in valley, there is a great profusion of the many varieties of cacti, and in springtime, canyon and valley, mountainside and mesa are a blazing mass of wild flowers.

Entering the reservation by the Holbrook way, the first few miles is through a splendid pine forest which covers one-fifth of the reservation. Going down the Black Canyon the road is through a few miles of fine oaks, and then on to the valley of the White River, which has long been the home of the Apache, and before him the home of a race of which history knows but little.



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Vash-Ghon, Jicarilla Apache Chief.

Retake of Preceding Frame

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A Hill-top Camp.—Jicarilla Land.

For several miles the road clings to the crest of the canyon, at the bottom of which flows White River. As we pass along this road, low mounds are seen everywhere about us. To the uninitiated they mean nothing, but let us make a close examination. The surface is strewn with fragments of Indian pottery, and we at once know we are standing on the ruins of the home of a prehistoric people. About us has been a community life of which only a backward reckoning and the study of the Pueblo creation myths can give us any comprehension. Here they lived their life, with its cares, its joys, and its mysteries. We realize that the crumbling rock was once the walls of a home where into the world were born tiny brown infants. The infants grew to maturity, mated to dark-skinned companions, and passed on to withered leaves of life's autumn, to sit in the shade of these walls and cackle at the romping antics of other brown infants. Ages have passed, the walls have crumbled, and in the ruins trees have taken root and grown to rugged old age.

There are approximately 2,000 of the Apaches scattered about on a reservation of two million acres. Of agricultural land they have something over two thousand acres, the greater part of which is now under cultivation. This arable land lies along the different streams which have their source among the high peaks in the northwestern part of the reservation, and break through the hills and mountains on their way to Salt River.

White River and its eastern branch, with their comparatively wide valleys, come first in importance; then the Cibicou, Carrizo, Bonito and Turkey Creek.

The Apache home, which he calls congueh, is built by forming its framework of poles, thatched with native grass. Through this loosely matted covering the smoke from the camp-fires finds its outlet, and the rain and snow sift through, making them a poor shelter in times of storm.

Squaw labor is of small account, more especially since the Apache has many wives; hence the Apache family builds many homes—in fact, a home wherever circumstances may require. The Apache himself likes nothing better than to be on the move. In his own words he says: "Why live all the time one place when many fine places to live?"

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A Jicarilla Type.

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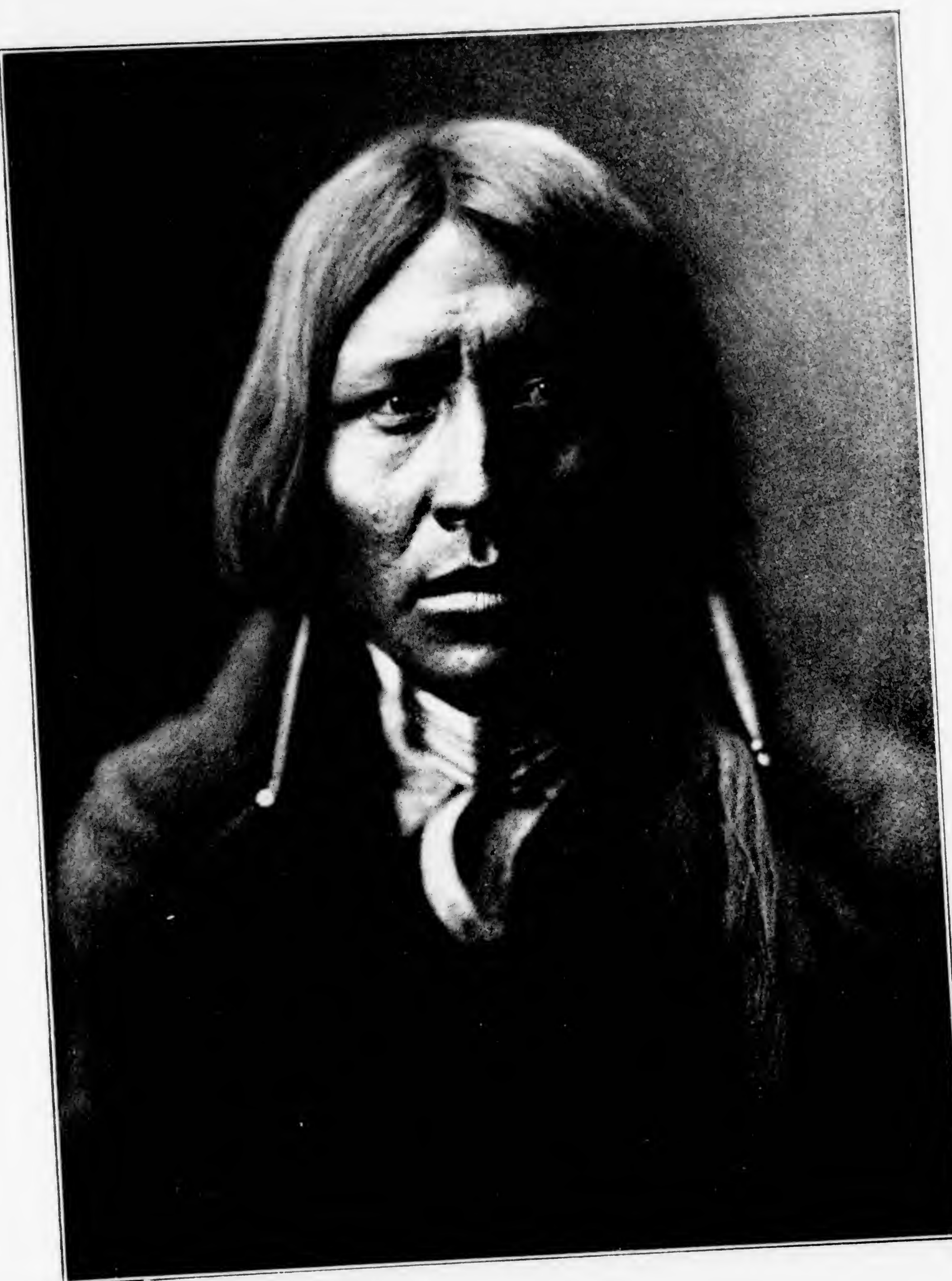

Retake of Preceding Frame

In the good old days the zone of wandering centred in the mountains in what is now Southeastern Arizona. This was their stronghold, their fortress. From here they raided to the Southeast well down into Sonora (Old Mexico), west to the Colorado River, north into the Hopi and Navajo country, and east as far as central Texas. From this mountain rendezvous they would swoop down upon the Mexicans or Indians of Sonora, or perhaps upon the Pueblo villages of the north, and in later years the white settlers of the Southwest were kept in momentary peril of these roving bands. To follow them was a fruitless task and led to certain destruction. The Apache is a true nomad, a child of nature, whose birthright is a craving for the war-path, and who drew from his mother's brown breast the indomitable courage and endurance of which the world knows no equal, and a cunning which is beyond reckoning. His character is a strong mixture of savagery, courage, and ferocity, with a gentleness and affection for his family, particularly his children. He knows no such thing as fear. Death, which he faces with indifference, holds no terror for him. On the other hand, a friend may die and he will grieve to such an extent that he will commit suicide. Mr. Cooley speaks of an instance where a medicine man was killed in a tulapi debauch. His friend, a medicine man, rode up, looked at the body, chanted a few words and stabbed himself, saying, "I want to go with my brother."

General Crook, who knew the Apaches as no other man knew them, and who finally conquered them, said they were the worst tribe of American Indians to subdue. They had the instinct of the animal, the ferocity and cunning of the tiger, with the reason and logic of civilization. They rarely burned or otherwise tortured their captives, but the Mexican early learned to shoot his women rather than let them be taken prisoners.

The taking of scalps has been spoken of so commonly in the press of the United States that it has become a general practice, when speaking of a man having lost his life among the Indians, to say, "He lost his scalp." Novelists even of to-day, when locating their stories in Apache-land, almost invariably scalp the victims of Apache vengeance. As a matter of fact, one can say that the Apache never took scalps. Men who have lived in the Apache country and have been closely associated with them for thirty years or more, claim that no full-blooded Apache ever scalped a man he killed. On the contrary, he would not touch a body after death, and would throw away his weapons if stained with human blood. Their own dead the men never help to bury. This task is left to the women.

The Apache woman, according to her code, is strikingly modest and proverbially virtuous. The success with which they conceal their bodies with their scant clothing is quite marvelous. In their conversation they know no sex distinction. The Apache language has no profanity, but what it lacks in that is more than compensated in coarseness.

With these people civilization is making considerable advancement. He who was a renegade is fast becoming a worker of the soil. Old Geronimo, the worst of them all, is passing his final years, virtually a prisoner, at Fort Sill. Jolly old Cheno, whose record of crime has few equals, tends his crops and tells of a long time ago when he, lone-handed, within a single night, killed thirty Mexicans. The spirit of the Apache is not broken; he has lost none of his cunning, craftiness or endurance, but he sees that the day of the war-path is no more.

The Apaches, like many other North American tribes, are sun-worshippers. Their myths tell them that the sun is the all-powerful deity and to it all supplications are addressed. On going into battle, planting corn, or in starting on a cattle-stealing expedition, the sun is asked to look with favor. That they believe in a future world is proved by their custom of killing horses and burying them, as well as their clothing and implements of the chase, for life in the future world. Not only the medicine men but the people claim to hold communion with the Chindi or spirits of their ancestors. They are also great believers in omens, talismans and amulets, but are very conservative and it is with difficulty that one gets them to discuss things supernatural. They will not talk about God among their own people with familiarity, and scarcely at all with the white man.

The Apache medicine man is the strongest influence among them; he is their wise man and prophet. They have a sub-chief and head chief, but the medicine man is the

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The Apache Cowboy.

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The Apache Cowboy.

Retake of Preceding Frame

statesman, the power behind the throne. The chief has been elected by his people; they know they have made him such, and that he is but human; but the medicine man they believe understands things of the supernatural and receives his power from God. With all his jugglery and hypocrisy he has much that is real. Life's problems, from his degree of civilization, have been

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The Lost Trail.—Apache.

well worked out. He is a deep student of nature and the supernatural. There is always about his person the medicine string and its accompanying bag of hoddenton, amulets made from slivers of lightning-shattered trees, trinkets of stone, shell and metal, none of which he allows touched by profane hands.

The Apache handicraft shows best in their basket work. It is in this that they show their love and appreciation of the beautiful. They have but few forms or shapes, and each of them shows the workings of a primitive mind on the problem before it. The basket is to be used for certain purposes. For this reason its form and material construction must be such as their knowledge tells them is best, but while its purpose is that of a utensil, it must have lines of symmetry and beauty. While decoration with them is secondary to form and usefulness, every basket is a wonderfully designed piece of handiwork and causes one to wonder how a people apparently so dull to the beautiful can be its creator.

Wherever one meets an Apache squaw he will see the burden basket or tatsaca. This is a roughly made basket, decorated with diagonal lines which are more often painted than woven. The bottom is covered with buckskin, from which strips of the same material extend to the top; buckskin fringe hangs from the base, upper rim, and perpendicular strips. These baskets are in constant use. The women carry them on their backs by a leather string which passes across the forehead. They are also hung from the pommel of the saddle, and in them is carried everything, from the youngest baby to camp utensils. The tus, or water-bottle, is a closely woven basket, coated inside and out with piñon gum. Its form is that of a vase, its coloring a deep rich brown

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Getting Water.—Apache Land.

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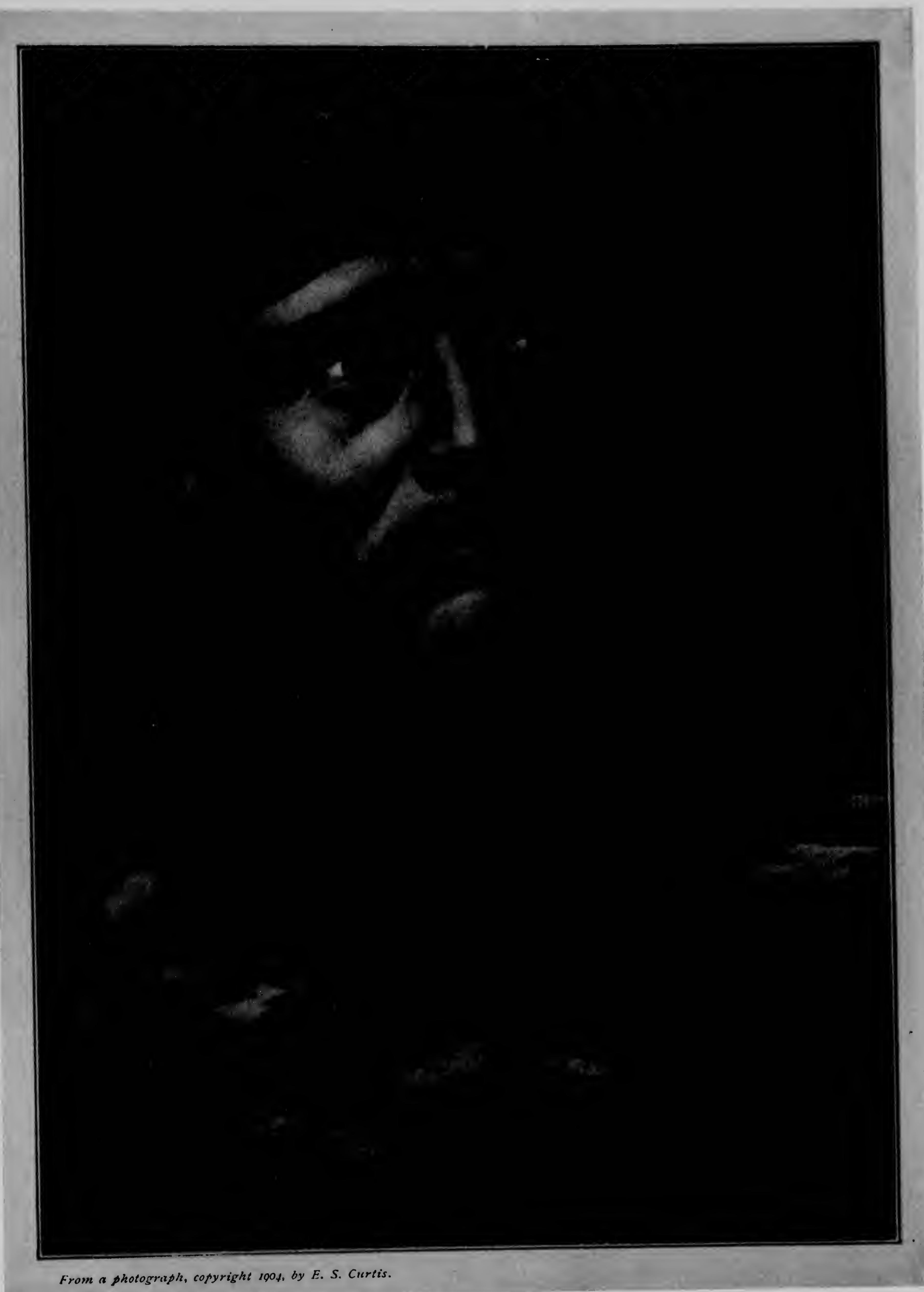
The Navajo Medicine Man.



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A Chief of the Desert.—A Navajo.

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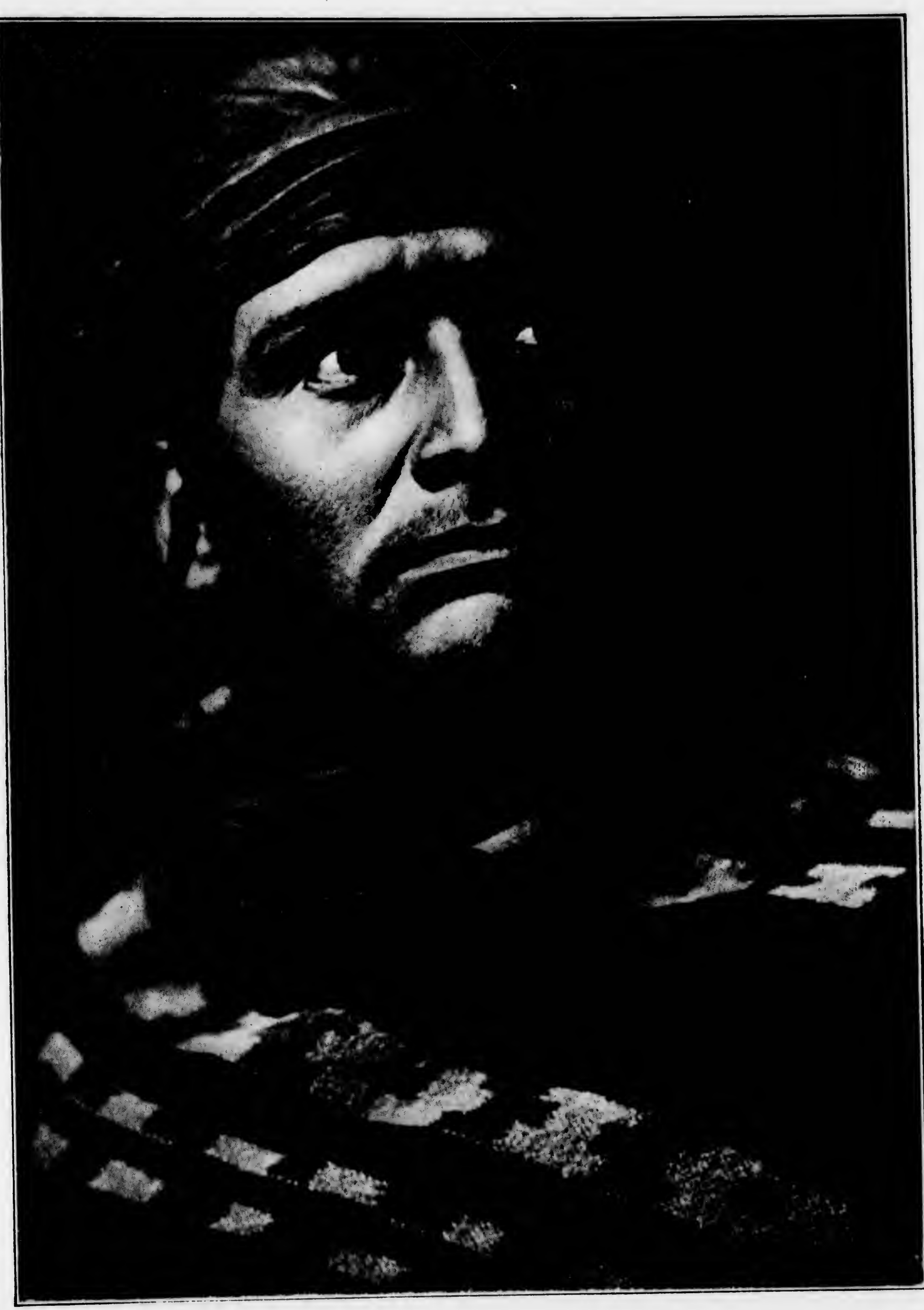
The Navajo Medicine Man.



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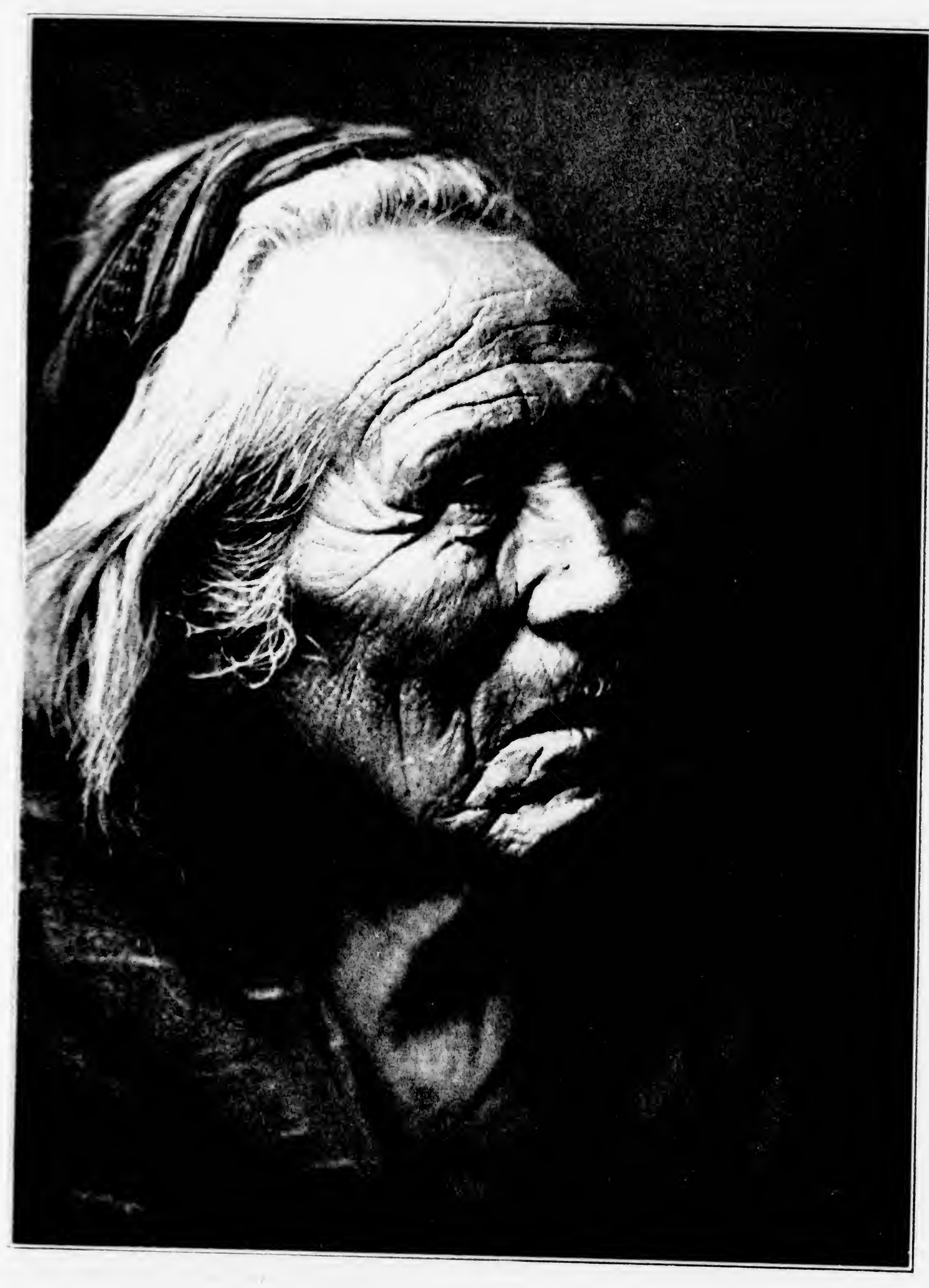
A Chief of the Desert.—A Navajo.

Retake of Preceding Frame



Retake of Preceding Frame

from the gum with which it is coated. The tuseskoga is the most pretentious of their basket work. Its form is vase-like, as is their water-bottle; it is elaborately decorated and so closely woven that it is water-tight. The tsa is a low, bowl-shaped basket, which is used as a food dish for dry or liquid foods, and by the medicine men for their medicine paraphernalia. The materials used in their basket-making are cotton-wood and willow as the basic material. Usually the black in the design is from the martynia pod, the browns or reds are from the root of the cactus. The women do but a limited amount of weaving in beads. Most of the beads worn by them are simply strung on threads, which are wound about the neck or wrists, yard after yard, until they form a coil an inch or more in thickness.

Saddle bags or pouches are made from rawhide, with *appliqué* of the same material and red flannel, decorated further with earth paints as well as a long fringe of the leather. These carryalls are hung across the saddle, and the burden basket is hung over the pommel at one side; on the other side is hung a water-bottle, and from the back of the saddle another burden basket and a second water-bottle, and then a few miscellaneous traps are fastened on, and on top of all this the Apache girl climbs, completing a splendid picture of pagan barbarism.

With the women the primitive dress was a short buckskin skirt and waist of the same material; both skirt and waist were ornamented with *appliqué* of skin and buckskin fringe and, like everything else that the Apaches wore, were hung with metal pendants. The form of the garments is now the same as of old, but the material is bright-colored calico, cretonne or flannel, or such as can be procured from the trader.

Contrary to the general opinion, the Apache is a good worker. Men and women alike work at the heaviest sort of labor. The first Apache women I met were at work in a woods felling timber and cutting it into cordwood. To see women in the forest working as woodmen was a novel sight to me.

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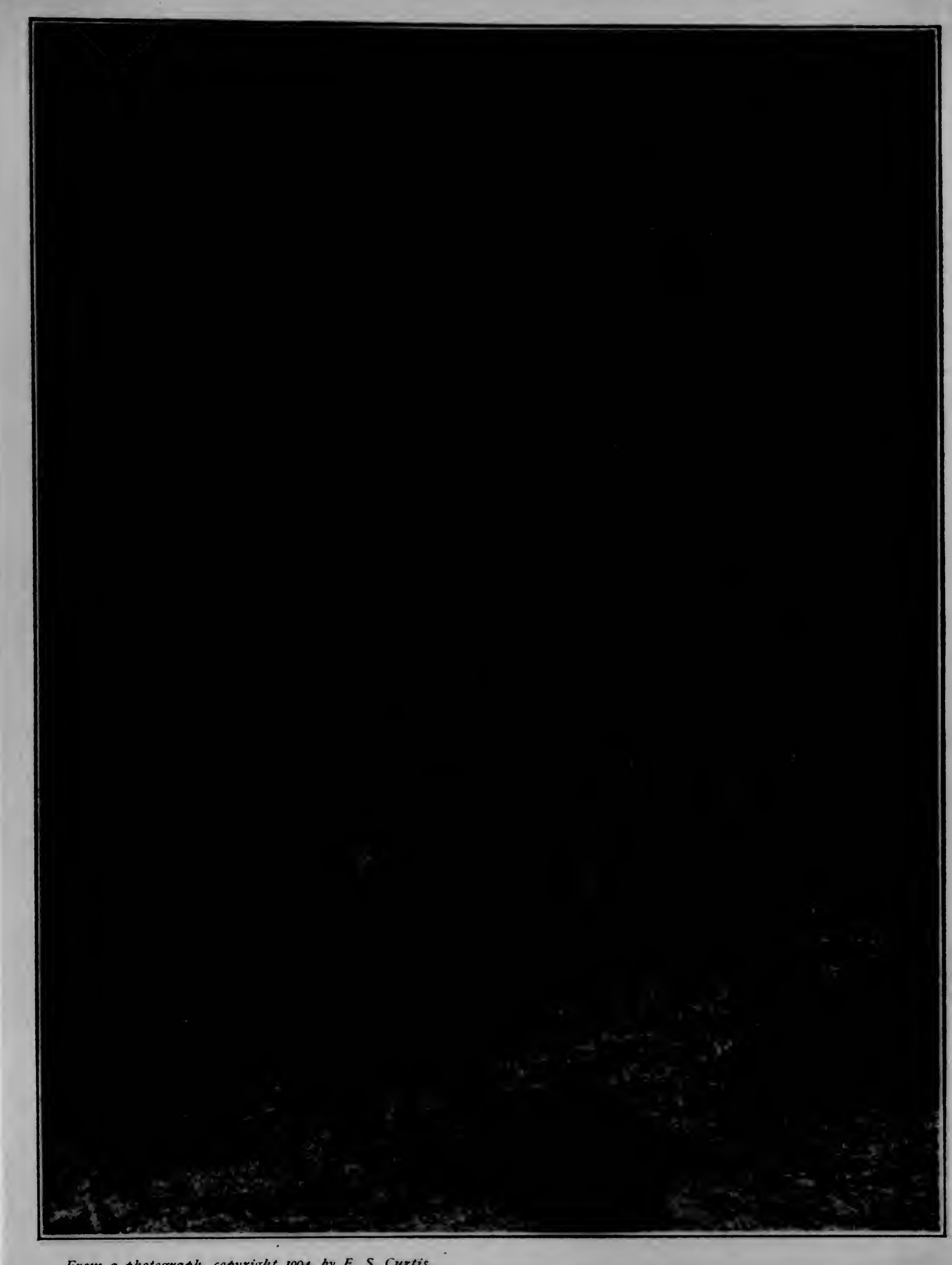
The Navajo Blanket Weaver in the Canyon de Chelly.



From a photograph, copyright 1904, by E. S. Curtis.

Out of the Darkness.—A Navajo picture in Canyon de Chelly.

These people must be self-supporting, as the Government no longer treats them as objects of charity, nor does it owe them any vast sums of money which must be paid in annuities. The Government has lately adopted the wise plan of helping them to support themselves. The policy is to provide as much work for them as possible. This work is of a public improvement nature, such as building and improving the

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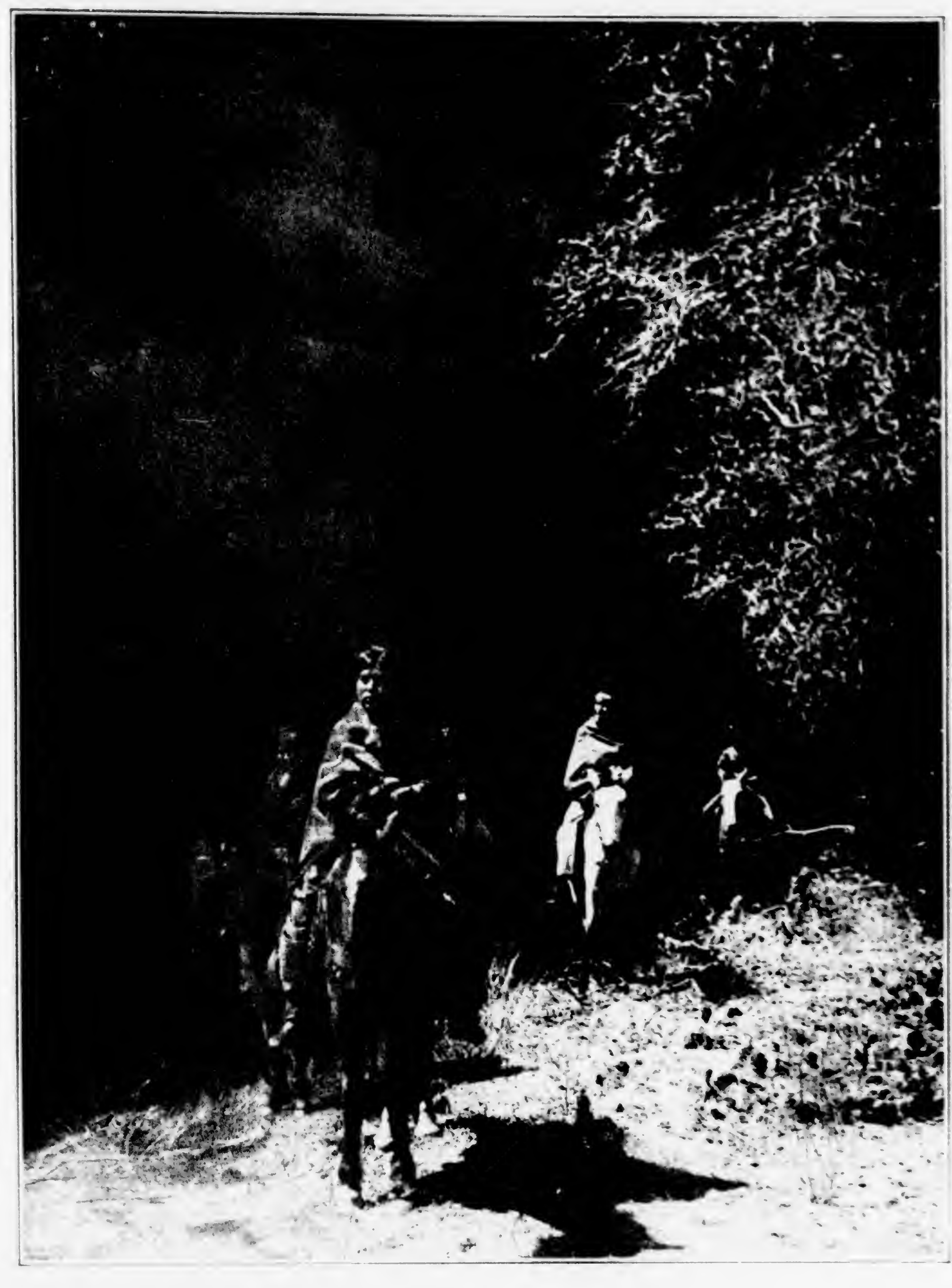

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Retake of Preceding Frame

highways and constructing large irrigating ditches for the benefit of the community. In time gone by if an Apache wanted a wagon, he would go to the agent and make his wants known. As he got it without effort, no care was taken of it. Now if he wants a wagon the agent gives him work that he may earn it, and it is safe to presume that when he has worked a month and a half for a wagon he will take care of it.

To-day their principal source of living is their farms along many of the streams or narrow valleys. In their natural state these valleys were a jungle of small timber and undergrowth which had to be cleared away before the land could be cultivated. Their crops can be grown by irrigation only, and many of their irrigating ditches are miles in length and well constructed. Corn is the principal crop, although small grain, beans, and vegetables form a considerable portion of their harvest.

While their environment is much the same, and the root of the language exactly so, in culture, character, and appearance the Navajos differ much from the Apaches. The Apaches were by every instinct a fighting people. On the contrary, the Navajos never were. From the nature of the country and their great numbers had they had any organized fighting ability they would have been much harder to conquer than any other of our Indians.

During the so-called Navajo war the Navajo nation had no chief with any considerable following—in fact, they never have had, like other tribes, a head chief who could demand co-operation of other head men or chiefs. In historical times Manuleto had a greater following than any other chief. Had the Navajos been under a capable leader not one of the soldiers who went into Canyon de Chelly would have come out alive.

The Navajos are a pastoral, patriarchal, semi-nomadic people. Their whole culture and development centres in their flocks. Their reservation of 12,000 square miles is desert, broken with mountain and mesa. On the mesa and low mountains there are considerable areas of piñon and cedar, and on the higher mountains a limited area of beautiful pine forests. Over this region the Navajos drive their flocks. At the season when the slight rainfall gives even a scant pasturage on the desert plains, the flocks are pastured there. As the pasturage on the lower levels is both burned with the hot, scorching sun and exhausted with pasturing, the flocks are taken up into the higher mountains, where there is more moisture. Again as the deep winter snows come on the sheep must be taken down out of the mountains to escape them. During this time they are kept on the wooded mesa, where there is less snow, and a plentiful supply of wood, of which there is none on the plains below. Year in and year out the Navajo flocks are driven back and forth from plain to mountain-top, mesa and foothills.

While the Navajo's life is a wandering one, he is not what could be called a true nomad. His zone of wandering is limited; on the same grounds his father and father's father have kept their flocks. The average Navajo could not guide you a distance to exceed fifty miles. Last season the writer had with him two Navajo men of middle age, who had lived their lives within a day's ride of the mouth of Canyon de Chelly, and this was the first time they had traveled the entire length of the canyon. This seems strange, from the fact that it is a most remarkably scenic spot, and the larger part of the great wealth of Navajo legendary lore centres in this canyon.

The Navajo family usually has three homes, the location of which is determined by the necessities of their life. One is the summer home, where they grow their small crops of corn and vegetables. This farming they do in the narrow sand washes, where, by planting to a great depth, they get sufficient moisture to mature the crops. In a few limited areas they have irrigated farms. In Canyon de Chelly, which may be termed the "garden of the reservation," there are tiny irrigated farms and splendid peach orchards.

In their pastoral life they naturally do not lead a community existence. Their domiciles, or hogans, are usually grouped two or three in the same locality. Each hogan represents a family, and a group is usually that of relations formed into a clan. The hogan is a dome-shaped structure of poles covered with earth. From its low construction and earth covering it is inconspicuous. One might ride from morning until night across the reservation and not see a hogan or an Indian. Still he has possibly passed within a stone's throw of many hogans and been peered at by dark

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Navajo Child.

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Navajo Child.

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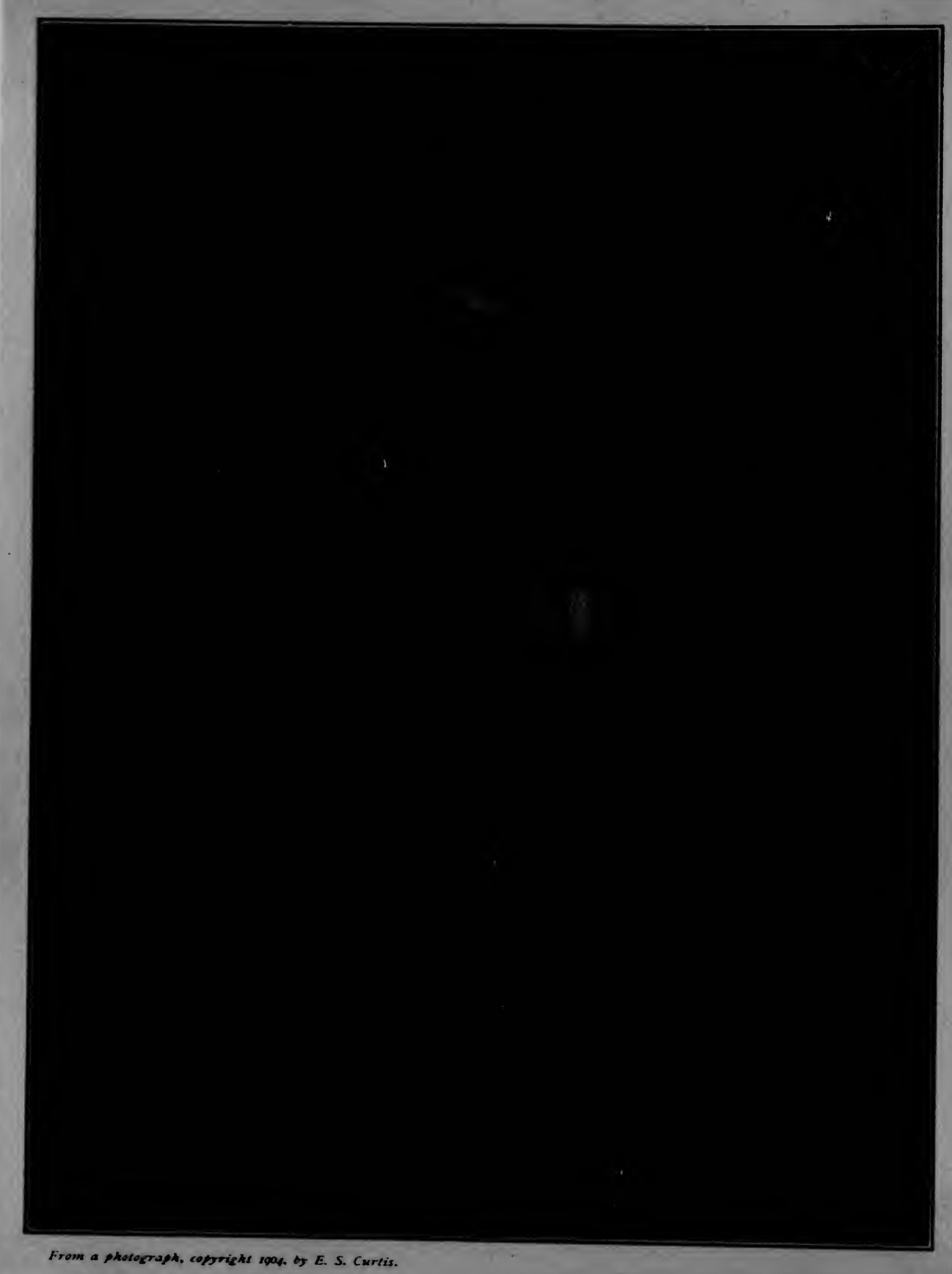

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The Singer.

eyes from brush concealments. At the end of a long day in the saddle the visitor will begin to wonder where the 20,000 Navajos have concealed themselves. To answer that question, just as the long shadows of evening are creeping on he has but to go to the summit of some of the many low mountains and look about. Here and there in every direction he sees the smoke of camp-fires as they are preparing their final meal of the day. In this clear, rare atmosphere the horizon is the only limit to his vision.

Just below, perhaps a mile away, is the smoke from a group of some half-dozen hogans; miles beyond is another group; and still beyond another, and so it is along the whole sweep of the horizon.

With a little Government assistance in utilizing the possible water-supply for irrigation, the Navajos will take care of themselves and in time make a splendid community of shepherds and farmers. For the student there is among them a great wealth of ceremonial life which shows but a slight deterioration by the contact with civilization. The medicine men are still the dominant factor of the Navajo life. These medicine men are so-called singers, and the medicine ceremonies, "sings." The principal ceremonies are the two great nine-day sings, termed by Washington Matthews, who spent many years in the study of their life, the "night chant" and the "mountain chant." Besides these two elaborate ceremonies, they have one-day sings, two-day sings and four-day sings, all for the curing of disease.

Thirty miles square of mountain-top in northeastern New Mexico is the reservation of the Jicarilla Apaches. There is no more reason why these people should be termed Jicarilla Apaches than that the Navajos should be termed Navajo Apaches. The only thing in common with the Jicarilla and the Apache groups proper is the linguistic relationship. In appearance, life, and manners they resemble more the Northern Plains Indians.

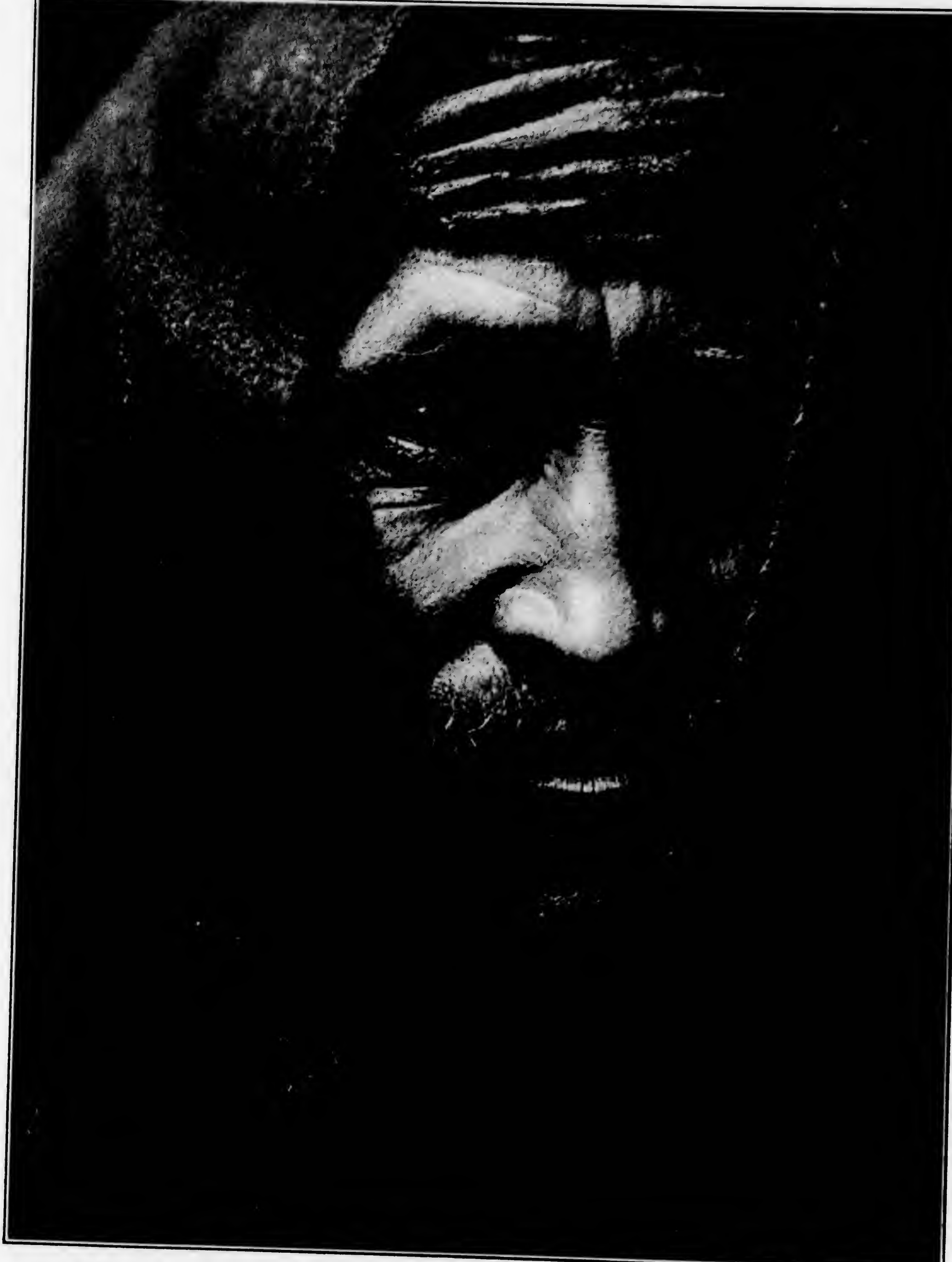
It is with the Jicarillas that we see the dividing-line between the great Northwest plains tribes and the countless numbers of desert and village Indians of the Southwest and Mexico. Their culture shows the contact with both with a slight leaning toward the ways of the northern brothers. Their domicile, while not well constructed, is the tepee of the plains peoples. The feather head-dress is also worn by them, whereas with the Apaches the head-dress of this kind is unknown.

In their legends and myths they closely resemble the Navajos. Their origin legend, the story of the Deluge, their person of miraculous birth and the countless miracles which he performed, are almost identical with those of the Navajo.

They were not continuously at war with the Whites as the White Mountain Apaches were. However, by those who have lived in the region of the Jicarilla reservation they are considered "a bad lot." They are unfortunately, brought much in contact with the Mexicans, and from them get liquor. This fact, undoubtedly, is greatly responsible for their unsavory reputation.

Their reservation as a place upon which a community of people are expected to be self-supporting is a rather hopeless one. It might be asked why this unfortunate selection was made. Such questions are difficult to answer. It is not their original home; it was set aside for them and they were moved upon it. At that time they, like nearly all Indians, were drawing rations, and it is likely that any place where there was room enough for them to roam about answered as well as any other. As a place to live, if one is relieved of the necessity of being self-supporting, it is ideal, and in the summer-time at least is a wonderfully beautiful spot and should make glad the heart of the aborigine as well as the scenic-surfeited ultra-civilized. Owing to the high altitude, the great depth of winter snow makes sheep-raising impracticable. Being on the divide, there is no extensive water-shed, which makes irrigation a serious question with the chances against a successful outcome. Since the Government ceased issuing rations the Indians have been given employment on irrigation works.

This effort to irrigate is by means of small reservoirs depending on the winter snow-fall or flood season for their water-supply. It is too early yet to say whether the effort will meet with any degree of success or not. The summer grazing is good and with a small acreage of irrigated land which would supply the necessary winter food, Jicarilla would easily be self-supporting.



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PACIFIC SPORTSMAN

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WE-CHA-SHA ISH-NAH-NAH

By El Comancho [W. S. Phillips]

Perhaps you might justly call him taciturn or even surly if you did not know this Other People friend of mine for he spoke little and meditated much.

Because he was given to silence and was a good listener who cared more for the society of his own peculiar Gods than for that of his fellow men this bronze statue of silence was called We-cha-sha Ish-nah-nah, the Lone Man, which like every Indian name was the one that best fitted its owner.

How the Lone Man came to be a trail mate of mine has nothing to do with this little portrait of him.

Six feet in his mocasins, muscled lean and strong like a hunting panther, firm and sure on his feet and as silent as a shadow when he passed thru woodland ways or followed rocky trails. Hair as black as a glossy, sunglinted crow wing—eyes just two intense black spots in the bronze of his face, steady as beads, yet missing nothing. How shall I describe his facial build? Square, high forehead, higher than the ordinary Indian, draped with two sweeping lines of that blue black hair, a nose straight, lightly boned and thin nostriled as a race horse. High cheek boned, of course, and square jawed like the embodiment of dogged tenacity—you knew he could and would do what he really wanted to do and this effect was emphasized by the thin mouth.

Lone Man should have been born white because the white man's way would have written Lone Man's name into the understanding of the farthest away corners of the earth—he was born great.

That he was born to a blanket did not wipe out this fact—it merely limited the field for his greatness but in his field he was the greatest man there was.

To most people an Indian is an Indian but I would like to know the line of Those who went Before—each leaving some part of his individual strength to be transmitted down thru the ages until they all combined to produce We-cha-sha Ish-nah-nah, the Sioux hunter that I used to know.

It was the second day of as bitter a blizzard as ever broke away from Medicine Hat when Ike Ward kicked the snow away from the cabin door and stamped into our den, bringing a rush of freezing air and whirling flakes upon Lone Man and me as we smoked quietly, watching the big cottonwood chunks as they reduced to white ashes and vanished up the black chimney throat in the suck of the gale.

"Say, Hank's woman is lost somewhere's—Gone sense yest'day evenin'. Got ketched by th' blizzard after she lef' Jew Jake's—an' she aint never got home."

Ike swept the thinnest icicles from his mustache into the fireplace.

Lone Man's eyes looked strangely like fire points in the storm twilight of the room and they were leveled at Ike straight as gun sights.

Ike finished with the worst of the icicles and straightened up—

"Hank's kids is cryin' fer the'r mammy a heap an' Hank is plumb loco—" He paused and looked out into the driving whirl of the storm.

"Nobudy's goin' t' last very long—out there"—with a wave of his hand—"An' a woman, 'specially a little woman, with kids, aint got no business—out there."

Perhaps it was the change from the bitter cold of the outside to the warm air of the room that made Ike's eyes shine and then—.

Ike knew the cruelty of the winter in all those miles of desert and Bad Lands as well as I knew—as Lone Man knew.

"We gotto' find Mrs. Hank—er them kids'll go loco like Hank," said Ike. "They're turnin' out down th' valley as fast as they git word. I come up t' let yo' fellers know. She's been gone 'bout forteen hours a-ready an' aint nobudy seen her sence she left Jake's fer home—Mrs. Jake seen her last, juss at the aige o' the' cottonwood grove crost th' Belle Fourche—that was las' night."

Lone Man had quietly donned his winter buckskins and fur. He belted his heavy blanket round his middle and in the fold he put a small package that contained plenty of matches, some dry tea, a small tin panikin, a handful or two of parched corn, half a pint of whisky and a chunk of jerked venison. A big Hudson Bay knife hung sheathed at his belt and his Winchester hung in its case, suspended muzzle down and butt front under his left arm pit.

"Go find 'em—" said Lone Man as he led the way into the storm.

Ike and I tramped along behind, the bitter blast burning into our flesh even thru our furs as we crossed the wind swept ridges on the trail down the valley.

We traveled east, the wind came from the northwest—Mrs. Hank had gone southwest from Jakes to get home.

A mile and a half from Jake's, Lone Man left the trail and bore a little east of south. That way led to the open, wind swept desert where no human being could weather a storm like this for long.

"Where yo' headin' Lone Man?" said Ike.

"Go find 'em, Hank's woman"—we caught the sense of the reply rather than the words for the storm tore all sound to rags and licked it up into one minor keyed, ceaseless droon.

We plodded on behind Lone Man to the brakes of the Belle Fourche where the river cut a square banked channel thru the desert. Under the bank the wind blew less keenly. "Wait little bit," said Lone Man.

We watched him,—carefully across the ice, thinly covered with restless, wind moved snow, the Indian felt the snow with his hands as you would feel under a bed quilt for a marble.

Bye and bye Lone Man crossed back to us. "No trail," said he—"No git this far—go with wind that way,"—pointing southeast to the empty desert.

Ike and myself did not look into each others eyes—we knew that desert—we knew Lone Man and his wilderness learning that read true a trail beneath the snow. We feared that which we reasoned the desert must hold.

"Come on,"—and Lone Man led the way down the river, blanket hooded over his head against the storm, and his eyes leaving nothing unread as we passed on.

Bye and bye he held up his hand for us to stop while he bent over the ice and followed something invisable to us along the river bank. Then he looked at the sheer bank as it rose ten feet above the ice—and motioned to us to come.

He spat between his teeth. "Go this way," said he, pointing to a washout in the bank.

Half way up there was the distinct print of a woman's shoe—made before the ground turned to steel under the grip of the north wind.

Lone Man led away from the river, following an invisable trail as a hound follows a scent. How I wish I could tell you! Good old Lone Man!

Over the wind swept ridges, across the snow covered flats—the wind at our backs now and the empty, hungry desert always before. The Indian feeling the ground with mocasined feet—sometimes with bare hands—scanning each foot of the landscape with understanding eyes—Ike, with me beside him, behind, each not daring to read the other's eyes and hoping against fate for the sake of Mrs. Hank's kids.

The river was two miles behind us—three—then four, and we were coming to the first little breaks that showed where the west fork of Little Wild Horse Creek began. The ground was barren here—a loose kind of shale that was always damp under normal conditions.

Lone Man stopped and pointed down to the ground—"Find 'em purty soon,"—and he spat between his teeth and started on.

We had looked at a woman's track made before the ground froze solid—and there were knee marks and dragged earth—the woman had fallen down there—we knew the meaning—worn out muscles make a trail like that.

Then Lone Man began to waver—first to the left then to the right—each way until the wind cut against that cheek and swung us back the other way on the woman's trail. Lone Man did not need to translate this into "hunting shelter"—we knew.

Ten minutes later we jumped down over a cut bank after Lone Man and helped him force whisky down Mrs. Hank's nearly frozen throat. We chaffed her hands, loosened her clothes and did what we could to call back the flickering spark that hovered just on the edge of the Great Divide.

"Git fire," said Lone Man as he whipped off his blanket and wrapped it around Mrs. Hank's unconscious form and began to rub her hands.

Ike gathered the dead sage brush, scant willows, buffalo chips—anything that would burn and soon there was a good blaze tucked away in the washout in the hillside where we had found Mrs. Hank.

"Rub 'em hard," said Lone Man. I helped to fight the cold away and bring back the circulation to Mrs. Hank's cold veins.

The plains twilight fell and we worked on—darkness came and after a long time Mrs. Hank opened her eyes vacantly. We had won.

Lone Man did not cease his hard work but lifted Mrs. Hank to her feet and we made her walk 'round and 'round the fire.

She strangled on the whisky but bye and bye she drank hot tea nicely—it took Ike some time to make even a panikin from melted snow—and a little later she drank hot venison broth from the same panikin.

She seemed to be in a trance and all she could say was "sleepy—so sleepy."

By midnight she was warm and sound asleep in Lone Man's blanket after a second cup of steaming hot tea and a spoonful of finely cut venison boiled in snow water.

Lone Man twisted the blanket into folds about her and secured it in place with thongs making an unresisting bundle of little Mrs. Hank.

"Go home now," said Lone Man as he shouldered his bundle and we started back for a five mile tramp into the teeth of the storm.

It was dark and fearfully cold but Lone Man led the way straight to Hank's House. We carried the little woman—first one and then the other, without loseing our trail gait and just as gray dawn came we pushed open Hank's door.

"How, Hank; we bring um your woman," said Lone Man, then while Hank and the kids went wild Ike and I built a fire in the kitchen stove and thawed ourselves out.

Lone Man had slipped out into the storm again and it was three days before he came into our cabin, threw off his togs and pulled up by the fire for a silent smoke.

Mrs. Hank never knew how she had failed to reach home—she had just wandered until she dropped of exhaustion as others had before her on the plains and it was due entirely to Lone Man that she did not perish. She never got near enough to him to thank him as far as I know for Lone Man always slipped away before she could reach him.

"Say, aint he th'—damdest injun?" queried Ike as we stood in the spring sunshine and watched Lone Man cross the little flat at the horse corral leading his pony. But I noticed a mighty brotherly expression in Ike's eye when I answered—"He shore is."

SOME FACTS ABOUT THE ALASKA GRIZZLY.

By L. L. Bales.

L. L. BALES

The Alaska grizzly bear is the largest carniverous animal that is known to exist in the world today and on the Alaska Peninsula, where they are the most plentiful, it is nothing unusual to see bear tracks where the front foot measures twelve inches in width and the imprint of the hind foot eighteen inches in length. The front feet are armed with claws five inches long. In life the largest specimen of the Alaska grizzly are as long as a cord of wood, as high, and nearly as wide, and with the exception of the human family, will give the right of way to no living thing.

They afford the best sport there is in Alaska today and are game worthy of any hunter's steel. They are the true mountaineers of the north and will go over mountain peaks and sides where other game does not.

The Feeding Grounds

The Alaska Peninsula is an ideal place to hunt bear in, there being no timber and very few patches of stunted alder brush, which is the only cover the bear have and which they seldom take advantage of unless wounded, and he who would follow a wounded grizzly into an alder patch, would not be a brave man, but a foolish one, for if they hear you coming they will lay still until you are within a few feet of them when they will come with a rush that is irresistable. I have seen a wounded grizzly strike with their forearm a tough black alder four inches through and break it as smoothly as tho it had been shot off with a cannon ball.

A fox terrier or an Irish terrier will find a wounded bear in the brush and the hunter, being guided by the barking of the dog, can locate the bear and kill him at his leisure. In the spring of the year when the bear come out of their winter dens these bulky brutes make a trail through the snow that can be seen five miles away with an ordinary pair of field glasses, showing as plain as tho a saw log had been dragged thru the snow. They are tireless travelers and in the spring are on the move eighteen hours out of the twenty-four and in localities where they are little hunted are often seen in the daytime.

But usually about 8 or 9 o'clock in the morning they can be seen making their way up over the snow fields on the mountain sides to a point usually but a few yards from the summit where they will dig a hole in the snow and lay there until 3 or 4 o'clock in the afternoon when they will start down for the low rolling hills and flats. They choose this almost inaccessible locality for their resting place for several reasons, viz: when a male grizzly comes out of his den in the spring he is usually very fat

The Bolsheviki Will Get You If You Don't Watch Out

FOR some time past we have been hearing discussions implying this rather startling question: "Is it possible, by any chance, that the spirit of Bolshevism may sooner or later find its way into the Indian Service?"

We hope not; but it seems to us that unless we keep cool heads and warm feet in these trying days of uncertainty and unrest we may soon see the Bolsheviki rearing his horrid front in our midst. There may even now be heard rumblings and low mutterings of unrest reverberating through the air. Hence this kindly admonition; "The Bolsheviki will get you if you don't watch out."

True, we have always had agitators in the Indian Service and on Indian reservations. And this is not to be wondered at even in this day of schools and other civilizing agencies. As the Indian becomes more civilized and better educated the more pronounced is his "noble discontent." When we teach him to *want* things and to *know* things he then begins to think, to reason and to draw conclusions. He wants to know the why and wherefore, and he begins to ask questions and to argue the case. To deal with him during this period of his transition requires great patience, tact and forbearance. When he reaches this stage in his development he is likely to fall an easy victim of the Bolsheviki spirit. He is in the receptive mood and with this mental attitude it is not strange that he should be easily led astray by the professional agitator and malcontent. To fail to recognize this fact is to fail to take into account the psychologic laws which control the actions of restless, segregated masses. The more intelligent a primitive people become the stronger is its desire for self-determination and independence; and in the case of the Indian the more we try to suppress his attempts at self-expression the more inclined he is to question our sincerity and even to resent the most benevolent intentions of those who mean only to do him kindness and to safe-guard his welfare. And doesn't history teach us that this has been true in all times and of all peoples, even from the time of Moses down to the present day? And isn't it also true that the history of the development of other primitive races mirrors the development of the Indian race? His human impuslses are not essentially different from those of other people. So we have here fertile soil for the propagation of the seed of Bolshevism.

Then, too, there is the spirit of unrest among employees—not as yet very marked or noticeable, it is true, still it is there in degree. They are hoping and wishing for change—change for the better we trust, but anyway a change. They are not content with the way things are going. Low salaries, long hours and the high cost of living irritate them. Living conditions at many isolated agencies and schools are unsatisfactory. Neither the more progressive Indians nor the employees are satisfied with our schools —their organization and administration —and we hear suggestions that a survey be made by a commission of unbiased and competent educators outside of the Indian Service for the purpose of determining the present-day educational needs of the Indian and what should be done to make the schools more able effectively to supply those needs. Some are suggesting the advisability ot transferring the

Indian schools to the UnitedStates Bureau of Education or placing them under the Federal Board for Vocational Education. Others are hoping that the Bill now pending in Congress proposing to create a national department of education may become a law and that the Indian schools will be transferred to that department; this on the theory that educational matters should be administered by a central office composed of men specially qualified as educators. It is also urged that the schools would fare better if they were completely divorced from other Indian problems. It is alleged that legislation relating to per capita payments, leases, land sales, etc., is frequently considered of first importance while the educational needs of the Indian receive only perfunctory consideration. For this reason some think the schools should be taken completely away from the Indian committees in Congress and placed under the Committees on Education.

We wonder if we know just what we do want? Or is it simply the spirit of Unfulfilled Desire, the Cosmic Urge, getting the better of us? Although Indians and employees in the Indian Service have for years been wont to express their dissatisfaction as much as they dared, or as they thought they dared, they seem to be daring a little more as time goes on and as the present world-wide spirit of discontent gathers momentum to strengthen their courage. It may be alright for us to live with our heads in the clouds and to strive for the highest good provided only we at the same time keep our feet firmly planted on the earth and our wills subservient to reason. Failing in this proviso means to invite disolution, ruin and the com- of Chaos and Old Night—the reign of BOLSHEVISM!—*Indian School Journal.*

Good luck is a lazy man's estimate of a worker's succes.

Philadelphia Conference

On January 22-23d a representative group of friends of the Indian met in the City Club, Philadelphia, Pa., on the invitation of The Indian Rights Association, to confer on matters pertaining to Indian welfare.

Sessions were held morning, afternoon and evening; Indian affairs were freely discussed, and a committee appointed to draft resolutions embodying the opinions of the Conference. The following resolutions were adopted:

"As friends of the Indian, we stress the importance of pressing forward as rapidly as possible towards full citizenship for the Indians, and to that end we urge:

1. That the exigencies of the war have demonstrated the ability of the Indian to take full part with us in the defense of our common country, and we claim, on behalf of those 8,000 or more loyal Native Americans who have served in the army of freedom, that full rights as citizens shall be immediately conferred upon them."—*Indian's Friend.*

To help increase the world's supply of sweetness, sugar beets have been grown by the members of the boys' and girls' clubs this year. Their work has been done under the direction of the United States Department of Agriculture in connection with the States agricultural college in each of the States where sugar beets can be grown successfully. In New Mexico during the past summer the club members raised about 10 tons of sugar beets. Over 200 gallons of sirup has been made out of part of the roots.

If the prospective home orchardist prepares the soil where his fruits are to stand as thoroughly as he does his garden before planting vegetable seeds, the subsequent rapid growth of his fruit trees will amply repay him.

The Redman – Nov. 1915.

Our Gifts from the Indian:

From the Detroit Free Press.

A NOTEWORTHY incident was reported in the papers some time ago. Thirty Pueblo Indians headed by a chief presented a petition to the United States Government in favor of universal peace and protesting against the horrors of "cilivized" warfare as displayed in the terrible European conflict! This looks as if some Indians, at least, have been considerably misunderstood, and the more sympathetic and intelligent understanding of the Indian now spreading confirms the suspicion. We are fortunately beginning to recognize, before the red man has been entirely submerged or extinguished, that "Good Indian" as not necessarily "Dead Indian." We are awakening to the idea that total destruction of the Indian would be a misfortune to the world—the deprivation of an element that could not be replaced.

Our debt to the Indian for the many gifts he has brought us has not been wiped out by the doubtful blessings we have bestowed on him. Among other things he has given us the snowshoe, the moccasin (called the most perfect foot-gear ever devised), the bark canoe, the conical tent or tepee, from which the Sibley army tent was copied, and the game of lacrosse. The art of maple-sugar making, the cultivation of maize and tobacco and of a native rice of fine flavor are derived from the Indians. The words succotash and hominy are Indian, as well as a host of geographical names of great beauty, and many common terms of speech.

The civilization of the whole of North America has been modified by the existence of an ever-receding frontier of Indian tribes. But for this, observes a writer in *The Theosophical Path*, the white man would have easily explored the whole continent, and, in the absence of opposition,

the American character would probably have lacked certain qualities of hardiness. The Indian's trails, waterways, camping places, and trade routes were adopted by explorers, traders, and settlers, and the railroad followed. In their contact with the Indians the early settlers received many lessons in statecraft and diplomacy from those masters of art, who were also orators of high rank. The story of Penn proves that their diplomacy was not double-dealing. The Indians of the Southwest have something to teach us about irrigation. The climate in former years was as arid as it is today, yet their success was so great that lands now practically worthless were once occupied by large populations. The ruins of pueblos and other remains have proved this. The Smithsonian Institution is making extensive researches into Indian economies, especially in respect to food sources. The Indian could live where the white man would starve in a week.

The study of history compels us to admit that the Indians have many excellent qualities and certain virtues as highly developed as their white supplanters, perhaps more so. Some individuals and even tribes have shown the bad qualities of cruelty, treachery, intemperance, and laziness, but it is now well known that the two former were not so prevalent before the coming of the white man. The drunkenness, of which so much has been heard, is, of course, a modern vice for which the greed of the trader is largely responsible; the laziness was the inevitable sequel to the destruction of the only industry known to most of the tribes—hunting. The Pueblo Indians, who were largely devoted to agriculture, did not lose their industrial habits, and the thousands of successful Indian farmers in the other parts are proving that the Indian is an excellent worker when conditions permit. The Indian looks with astonishment at the American wearing himself out in the feverish race for money. The fighting common between hostile tribes was due to causes similar to those which precipitated what we call "Christian warfare," so that we have nothing to boast of in that manner.

The Indians, on the whole, possess good intellectual capacities. Environment has shown great possibilities of improving members of the lower stocks. Many Indians who have been trained in our colleges have shown high ability. United States Senators and other legislators of Indian blood, capable Indian writers, artists, physicians, and business men are well to the front.

Among Indian women, too, there have been and are many able and devoted representatives. Who can forget the heroine Sacajawea, who saved the Lewis and Clark expedition, and to whom statues have lately been erected at Portland, Oregon, and Bismarck, North Dakota? Catherine Tekatawitha, Louise Sighouin, and many others in more recent times have stood for the highest ideals. The Indian girl makes an excellent

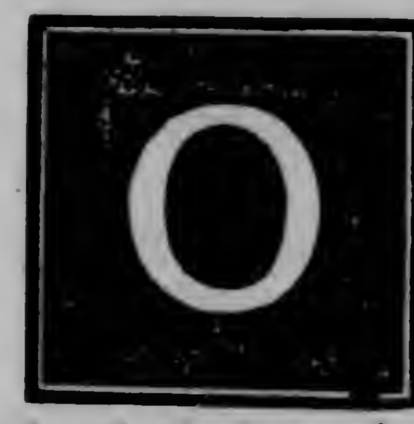
nurse, both tender and painstaking, and several Indian women have become successful physicians.

The impassivity and taciturnity so characteristic of certain Indians is the effect of the habit of reflection, not the result of poverty of words or of ideas. There are fifty-eight different languages spoken in North America, some of them of great complexity, and a sign language is in general use by which Indians speaking different tongues can freely communicate with each other. Memory was carefully trained by the custom of reciting ancestral traditions and the sacred chants of their religious ceremonies. Before replying to the argument of an opponent in council an orator was expected to repeat all the points of the other's address in order to show that he comprehended them.

It is doubtful whether if a number of untrained white people were thrown entirely upon their own resources under the condition in which the Indians of the plains were found, and had to depend mainly upon hunting for food, clothing, housing, and other necessaries of life, they would succeed in building up a more creditable social organization than that of the Indians.

Indian Eloquence:

By Charles Eugene Banks, in Seattle Post Intelligencer.



ORATORY seems to have been a native gift of the American aborigine. The speeches of Logan, Black Hawk, and many other of the chiefs of history have been models for school readers for three generations. Sitting Bull was a noted orator. Chief No Shirt, of the Umatillas in Oregon, is a fine orator, although he has never read a book and speaks no English. I asked him why he was called called "No Shirt." He explained that it was a title he himself chose "because," he said, "my people have been stripped of everything."

At the annual ceremonies over the grave of Seattle at Suquamish,

Wash., August 21, Charles Alexis, a full-blooded Suquamish Indian, delivered the following address, which for simplicity, purity of diction, and choice of words in order is a model of spoken composition. It has the deep directness and flow of a Greek oration. What speech of our college-bred statesmen can compare with it?

"In the days unknown to the present inhabitants of Suquamish the fathers of our tribe lived in the simple form of life. Sound memories survive the life of our greatest of chiefs, Kitsap, who held his tribe in the light of the brightest moons of his time.

"In time of peace his eloquent speeches were re-echoed with cheers from his people.

"In time of war amongst his neighboring tribes his arbitration for peace was law.

"The neutral spirit which he caused his tribe to possess brought to light the name of Suquamish, which means tribe of refuge.

"He planned and constructed with the aid of his people the first and largest log structures ever built on the Sound. With rude implements they felled and hewed large cedar trees and soon completed the home of their council, which was later known to the white man as "Old Man House."

"In the glory of his reign our tribe enjoyed all the blessings of aboriginal life. Food was plentiful and the prices of fish and meat were exchanged for the other.

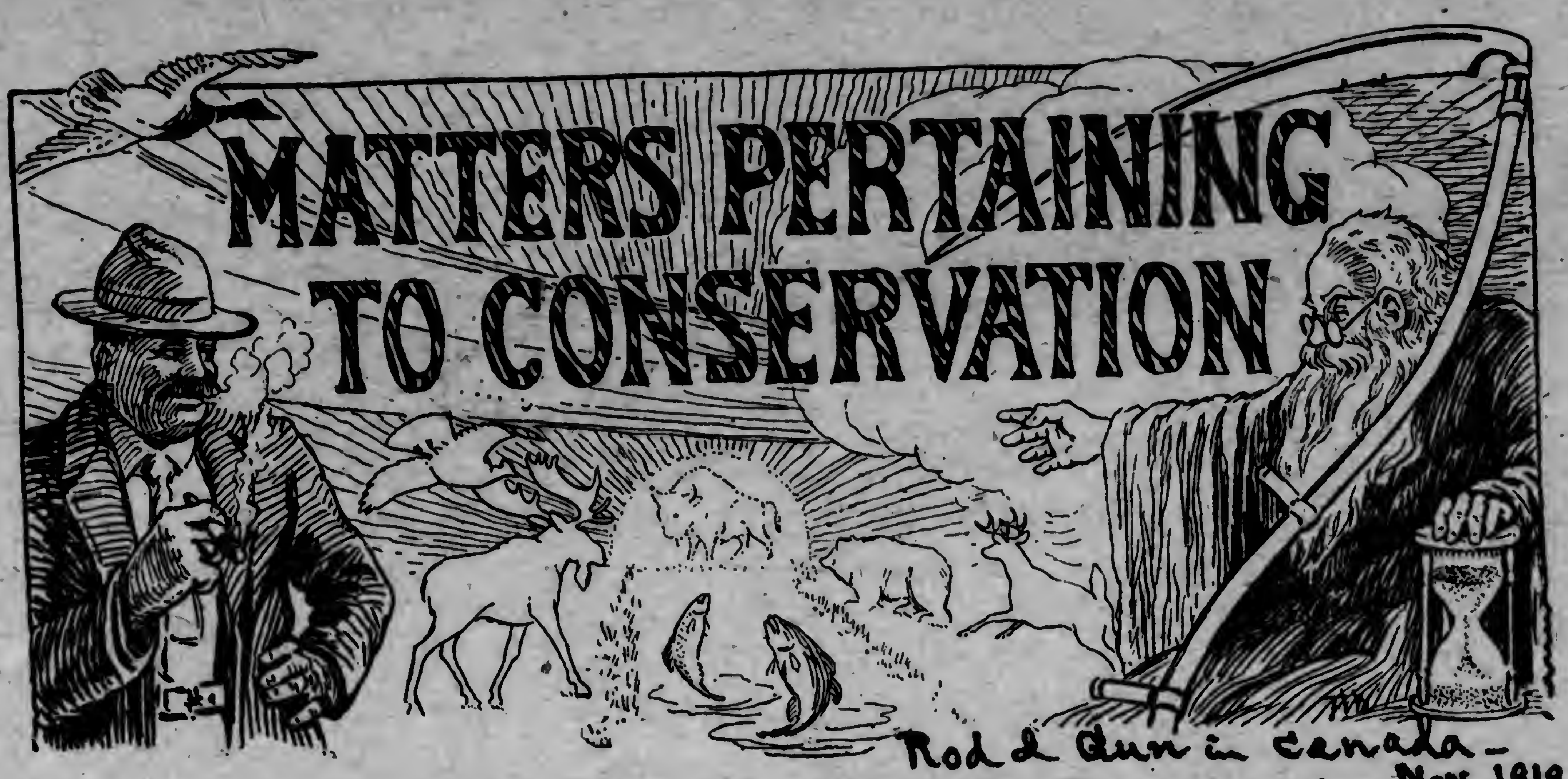
"Religion was unknown, but the medicine man with his spirit belief was feared. The principal amusement was dancing with the beat of the drum.

"The only defense was the bow and arrow, the spear and tomahawk and a deadly poison on the points of Chief Kitsap's arrows, which once caused the retreat of the northern tribes.

"Such conditions existed until the time of our honored Chief Sealt (Seattle). He met with the troubles of an invading civilization. He was forced from one hunting ground to another until the treaty of Point Elliot, when he ceded his last domain and chose the western shore (of Elliot Bay) for his hunting grounds forever.

"We of today only hear of the past, but we may boast of the wisdom of our chiefs. Their eloquent speeches have caused the fruits of our tribes to ripen.

"Ignorance, the greatest rival of man, is fast losing control of our race. The treacherous customs of our fathers have vanished at the mercy of the church and the schools. We have learned the meaning of civilization and we shall seek forever hand in hand with our white brothers that higher standard of living, and we earnestly hope that they will continue to assist us that some day our race may mark an era in American history."



Rod & Gun in Canada – Nov. 1919.

Relation of Indians to Wild Life Conservation

DUNCAN CAMPBELL SCOTT

(Deputy Superintendent General of Indian Affairs)

Address delivered before the Wild Life Conference, Ottawa

MR. Chairman and Gentlemen: It would take a good deal of time to deal fully with all branches of the subject which you have allotted to me; therefore, I will only say something of what the Department of Indian Affairs is actually doing to conserve wild life by endeavouring to induce the Indians to obey the laws.

We should have a good deal of sympathy for the Indian. He is the original fur hunter of the country, and, when he was alone in that industry, he had everything his own way. When the fur traders came, everything was changed, and, looking back over the old days, and reading the records of that time, one cannot help wonderiig that any Indians now remain to hunt or to be subject to restrictive regulations, considering the stormy period they went through in their first relations with the white man. The Indians were then debauched by liquor supplied to them by Government employees, military officers and fur traders, until the middle of the last century—1850 or thereabouts—when laws were enacted, providing that no more liquor should be given to Indians. Then a halcyon period for the Indian set in, when he could not get whiskey in trade, and when the fur trade was in the hands of one or two great companies. The fur-bearing animals were carefully conserved by the companies and by the Indians themselves in their own interests. The number of skins to be taken was limited, and the trade was very carefully regulated. These conditions prevailed until the independent fur-trader made his appearance upon the scene. Now the trade is so divided and parcelled out between hunters, who are not Indians, and many companies and individuals, who are engaged in buying furs, that the Indian finds it, year by year, increasingly difficult to support himself and make way midst competition and the restrictive regulations which he is expected to recognize and obey.

The Provincial Governments are attempting to deal with the fur trade by enacting restrictive legislation, and the Department of Indian Affairs endeavours to induce the Indians to obey the Provincial laws. That is the fixed policy of the Department. As you are all well aware, we have what we call Treaties with the Indians. These Treaties are really cessions of land, surrenders of large areas of Indian lands over which the Indians had usufructuary title. It has been British policy ever since the year 1763 to require a surrender of these titles before the country was thrown open for settlement. In most of the Treaties, the question of hunting and fishing was mentioned. I will read the clause which is inserted in these Treaties:—

> "Her Majesty further agrees with her said Indians, that they, the said Indians shall have right to pursue their avocations of hunting and fishing throughout the tract surrendered as hereinbefore described, subject to such regulations as may from time to time be made by Her Government of Her Dominion of Canada, and saving and

excepting such tracts as may from time to time be required or taken up for settlement, mining, lumbering or other purposes, by Her said Government of the Dominion of Canada, or by any of the subjects thereof duly authorized therefore by the said Government."

While allowing the Indians this privilege, these Treaties, for the most part, contained the general provision that the Indians shall be loyal subjects of His Majesty and obey the laws passed from time to time by His Majesty's Government.

The Indian Act contains no specific legislation on the subject of hunting and fishing, but contains the following clause, which controls the application to Indians of Provincial laws in Manitoba, Saskatchewan, Alberta and the Northwest Territories:—

> "The Superintendent General may, from time to time, by public notice, declare that, on and after a day therein named, the laws respecting game in force in the province of Manitoba, Saskatchewan or Alberta, or the Territories, or respecting such game as is specified in such notice, shall apply to Indians within the said province or Territories, as the case may be, or to Indians in such parts thereof as to him seems expedient."

From time to time, by proclamation we have brought Indians under the provisions of the Provincial Game laws, and, through correspondence with our agents, and, through the exercise of all the influence we can bring to bear on the Indians themselves, we are endeavouring to get them consistently to obey these laws.

We have not had much trouble with the Provincial Governments on the question of Indian hunting. Of course, we sometimes get exaggerated reports that the Indians are killing all the moose in certain districts, but when we investigate them, we usually find that there is little foundation for the reports.

On the whole, it may be said that the Indian obeys the hunting and fishing regulations equally as well as the white man. The Indian who has to maintain himself on his hunting grounds by killing animals for food is entitled to a measure of sympathy, and we have found that the Provincial governments are willing to recognize his exceptional position in this regard. The Indians who are difficult to deal with are those who are remote from civilization, living in aboriginal conditions and not open to the influences of civilization, but this class is fast disappearing.

I repeat, Mr. Chairman, that, so far as the Department of Indian Affairs is concerned, our fixed policy is to endeavour to induce the Indians to obey the laws passed by the Provincial authorities for the conservation of wild life and the preservation of game, and to endeavour also to mitigate the laws to meet any special conditions that surround the present mode of life of the natives.

Migratory Bird Law Prosecutions

THE following is a list of cases that have been brought to court by officers of the Dominion Parks Branch of the Department of the Interior. It is intended to publish the details of all prosecutions instituted by the Department for violations of this Act. As many similar cases may be brought to court, by private individuals, bird protection societies and others, it is requested that any person knowing of such prosecutions, will report them to the Dominion Parks Branch for record purposes.

ST. JOHN, NEW BRUNSWICK.

Before His Honour, J. G. Richie, Police Magistrate and County Court Judge:—

A company was charged with having in its possession, contrary to law, gull parts, namely 47 portions of breasts of Herring and Great Black Backed Gulls. These were to be used for millinery purposes. They had been sold to the company by an Indian from the State of Maine who probably acted as agent for the Indian plumage hunters in his vicinity.

The company entered a plea of guilty, and a fine of ten dollars ($10.00) was imposed.

DIGBY, NOVA SCOTIA.

Before Magistrate Taylor:—

The defendant was charged with buying, selling and having in her possession, the wings and breasts of several species of gulls. There were twenty-nine portions in all. The defendant pleaded guilty, and a fine of ten dollars and costs, amounting in all, to thirteen dollars and twenty-three cents ($13.23) was imposed.

The bird plumage was shipped to Nova Scotia from the State of Maine, and the defendant was the agent for a resident of New York State. The plumage was being sold to tourists for millinery purposes. The

Outdoor Life - May 1907.

THE INDIAN TRAILER.

HARRY C. RUBINCAM.

The sun had dropped behind the mountains. The mystic haze of the prairie, dotted here and there with the weird twinkle of sheep herders' campfires in the distant foothills, had given place to still, star-lit darkness. Our own campfire was dying low as we smoked in silence. One of the Mexicans kicked at the logs with a heavy boot, and they flared up with renewed vigor. Then for the first time we beheld "Jim." Just within the rim of circled light from the burning brands, he sat astride his pony. To this day I marvel that he could approach within so few feet of us without attracting attention, and when I asked those trained plainsmen about it, Americans and Mexicans alike shook their heads and looked reflectively at the sky.

My company insured a bank against robbery, and I had been sent for post haste, because two uncouth gentlemen, with shooting irons and paper muslin masks, had rudely descended upon the said bank and withdrawing certain funds without complying with the time-honored formalities of the banking business, had hastily mounted horses and ridden rapidly away. The telegraph wires fairly sizzled with messages in every direction. Posses scoured the country for miles around. Nothing further than that the robbers had gone south, could be learned. The sheriff finally organized a posse of six and started in that direction, wiring a brother officer in the adjoining county, near the Indian Reservation, to have a Navajo trailer meet him on the main trail, and this silent individual, barely visible in the flickering light as he sat astride his sleepy looking steed. must be the man.

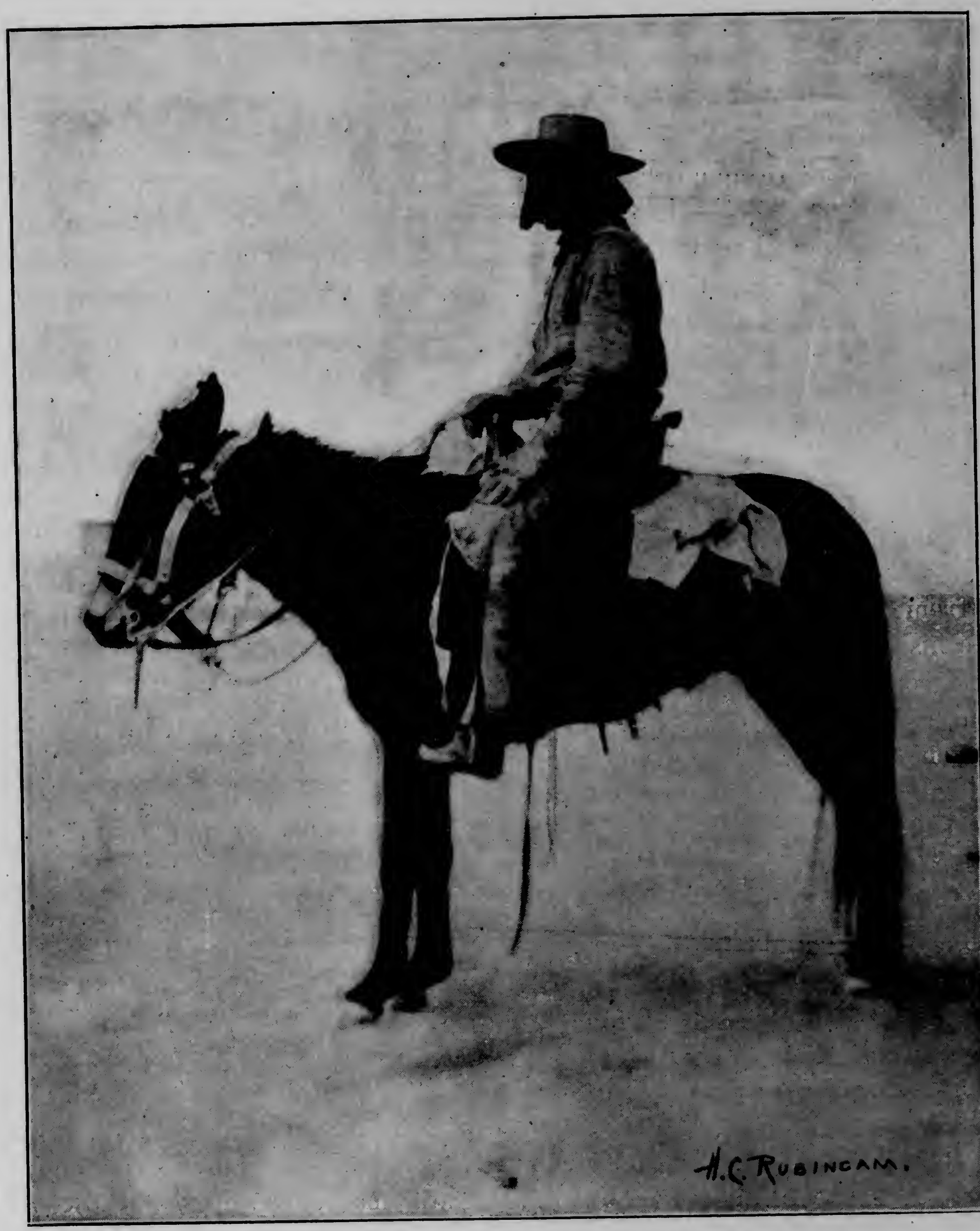
"Are you the trailer?" asked Curly, but the Indian sat as motionless as a statue. He repeated the question in Spanish, following with the same query in hesitating Navajo dialect, with the same result.

We looked at each other in wonder. It was a little uncanny. Then one of the Mexicans tried it. He fluttered and trilled up and down the scale of all the dulcet sounds of the Spanish language. The Indian grunted.

"He ees the trailer," the descendant of Castilian nobles then informed us.

The trailer drew closer to the fire and dismounted. He was short and stocky and the color of old leather. High cheek bones were toned down by a full, strong brow and a straight, well-shaped nose. A square jaw framed full sensuous lips that were entirely out of keeping with his other features. His eyes had a sullen look, though his gaze was calm and unwavering. He was not a handsome type of the red man, and his face was as devoid of expression as a death mask, except for those sullen, dull-glowing eyes.

Though the night was one of those cold, clear January nights that seem colder by contrast after the warm sun of New Mexico has gone, the Indian was but lightly dressed. A warm gingham shirt, faded blue overalls, the flat sombrero, peculiar to the Navajo, moccasins and a pair of handsomely beaded buckskin gloves, protected him from the biting chill. A quirt hung on his wrist, and a huge revolver was held at his



The Indian sat as motionless as a statue.

waist by a belt full of cartridges. The inevitable blanket was under him, thrown across the saddle. His mount was a marvel of horseflesh. He may have been a cross between a burro and a broncho. Indeed, he might have been anything but a horse. A more scraggy, unkempt, square-cornered animal cannot be imagined. He wore both halter and bridle, the latter with a curb bit and rope rein. A home-made saddle of the Mexican type, with English stirrups and elaborately studded with brass nails, was cinched fore and back in the style of the plains. Hanging from the saddle were two flour sacks, bulked out as though filled with provisions; a coffee pot, a frying pan and a lariat.

We decided to call him "Jim." That he had some picturesque Indian name

there is no doubt, but if he told it, which I question, it was lost somewhere in the voluminous vocabulary of the Mexican who assumed the duties of interpreter.

This Mexican explained to "Jim" about the two unkind individuals who had galloped away with the coin of the realm ruthlessly dragged from its quiet interest-earning occupation. He was supposed to tell him of their height and approximate weight; of the direction they took; of the fact that they rode bay horses and such other meagre details as we knew, but from the time consumed and the emphasis necessary, I can well imagine that he told "Jim" of all the robbers that had ever infested North America since Cortez landed. The trailer did not mind, however, as he never uttered a sound or looked in the Mexican's direction. When the tale was told he unsaddled his horse, turned him loose with a trailing lariat and without indicating that he understood or had even heard what the Mexican said, he rolled himself in his blanket and went to sleep.

The next morning breakfast was hastily disposed of, horses saddled and all looked to the Indian. He had saddled his horse in an unconcerned manner, mounted and was now slowly riding around the camp in an ever-widening circle. As he leaned on the neck of his mount and carefully scanned the ground with those sullen eyes, I wondered how much real ability to perform the task before him and how much pretense were mingled in his black-thatched skull. We had camped a hundred yards or so off the road, and when the Indian suddenly stopped circling, rode directly to the road, dismounted and began examining the trails closely, I was convinced the circling was a charlatanic preliminary, Since, I have changed my mind. He was a strange creature and I have come to regard that circle as a necessity of habit, much as the dog turns so many times before curling down to sleep.

"Jim" found what he said was the trail, and we followed it for fifty miles or more. Mixed as it was with many a trail by split, shod and unshod hoofs, he never faltered or even dismounted to examine it. He would call attention to stops and even changes of the horses from one side to the other. Once he became quite loquacious and said they had stopped to roll a cigarette. I must have shown my skepticism then for he glanced at me keenly and reaching to the ground from his sadle, held for my inspection a handful of sand mixed with fine smoking tobacco. Ten yards further on he again reached down and handed me a half-burnt match. This was done without exultation or even a change of expression. One would suppose I had ordered him to do it, and he did it as a matter of course. The trail was followed to Magdalena. Here both had dismounted at the river and watered their horses. The trailer showed us imprints of their high-heeled boots and also some moccasin prints, saying two Indian women were there at the same time and had talked with the robbers. His attention was called to other moccasin prints, but these, he said, were made the day before and others last week. While we stood gazing in wonder and doubt, two Indian women came with their water jugs. They came every day, they said. Two days before, maybe three, they had seen and talked with two American cowboys, who rode lathered horses, and asked some questions about the roads south. They forded the river and rode southeast. There we lost them. For some reason "Jim" could not pick up the trail again,

The Indian sat as motionless as a statue.

waist by a belt full of cartridges. The inevitable blanket was under him, thrown across the saddle. His mount was a marvel of horseflesh. He may have been a cross between a burro and a broncho. Indeed, he might have been anything but a horse. A more scraggy, unkempt, square-cornered animal cannot be imagined. He wore both halter and bridle, the latter with a curb bit and rope rein. A home-made saddle of the Mexican type, with English stirrups and elaborately studded with brass nails, was cinched fore and back in the style of the plains. Hanging from the saddle were two flour sacks, bulked out as though filled with provisions; a coffee pot, a frying pan and a lariat.

We decided to call him "Jim." That he had some picturesque Indian name

there is no doubt, but if he told it, which I question, it was lost somewhere in the voluminous vocabulary of the Mexican who assumed the duties of interpreter.

This Mexican explained to "Jim" about the two unkind individuals who had galloped away with the coin of the realm ruthlessly dragged from its quiet interest-earning occupation. He was supposed to tell him of their height and approximate weight; of the direction they took; of the fact that they rode bay horses and such other meagre details as we knew, but from the time consumed and the emphasis necessary, I can well imagine that he told "Jim" of all the robbers that had ever infested North America since Cortez landed. The trailer did not mind, however, as he never uttered a sound or looked in the Mexican's direction. When the tale was told he unsaddled his horse, turned him loose with a trailing lariat and without indicating that he understood or had even heard what the Mexican said, he rolled himself in his blanket and went to sleep.

The next morning breakfast was hastily disposed of, horses saddled and all looked to the Indian. He had saddled his horse in an unconcerned manner, mounted and was now slowly riding around the camp in an ever-widening circle. As he leaned on the neck of his mount and carefully scanned the ground with those sullen eyes, I wondered how much real ability to perform the task before him and how much pretense were mingled in his black-thatched skull. We had camped a hundred yards or so off the road, and when the Indian suddenly stopped circling, rode directly to the road, dismounted and began examining the trails closely, I was convinced the circling was a charlatanic preliminary, Since, I have changed my mind. He was a strange creature and I have come to regard that circle as a necessity of habit, much as the dog turns so many times before curling down to sleep.

"Jim" found what he said was the trail, and we followed it for fifty miles or more. Mixed as it was with many a trail by split, shod and unshod hoofs, he never faltered or even dismounted to examine it. He would call attention to stops and even changes of the horses from one side to the other. Once he became quite loquacious and said they had stopped to roll a cigarette. I must have shown my skepticism then for he glanced at me keenly and reaching to the ground from his sadle, held for my inspection a handful of sand mixed with fine smoking tobacco. Ten yards further on he again reached down and handed me a half-burnt match. This was done without exultation or even a change of expression One would suppose I had ordered him to do it, and he did it as a matter of course. The trail was followed to Magdalena. Here both had dismounted at the river and watered their horses. The trailer showed us imprints of their high-heeled boots and also some moccasin prints, saying two Indian women were there at the same time and had talked with the robbers. His attention was called to other moccasin prints, but these, he said, were made the day before and others last week. While we stood gazing in wonder and doubt, two Indian women came with their water jugs. They came every day, they said. Two days before, maybe three, they had seen and talked with two American cowboys, who rode lathered horses, and asked some questions about the roads south. They forded the river and rode southeast. There we lost them. For some reason "Jim" could not pick up the trail again,

Retake of Preceding Frame

so we returned after a day's fruitless search.

We afterward found from actual demonstration that "Jim" could tell if a footprint was made yesterday, to-day, or within the hour. He could pick out the footprint of any member of the party. When we returned to town he showed that he could guess within a few pounds the weight of the maker of a footprint. He could distinguish the tracks of a mounted horse from one without a rider and a led horse from one running free.

But he was always a mystery. He would not talk to anyone but a Mexican, although Americans who could speak Spanish with the fluency of a grandee tried to engage him in conversation. He simply looked at space. When I wanted to make his picture he could not be made to understand. A Mexican spent ten minutes trying to explain it to him with free gestures that included the Indian, the camera, the horse, the sun, myself and the high heavens. It was a closed book to "Jim." When I told the Mexican to ask him to mount his horse and ride into the open he proceeded to do so without interpretation of the request, indicating for the only time in five days that he at least understood English. He bestrode his horse calmly while I made several exposures, exhibiting no curiosity either then or afterward as to what I was doing.

When he received his per diem for the time of his employment he climbed upon his mongrel mount and silently rode off into the blue, leaving behind him no knowledge as to whence he came or whither he went.

Elk in Big Salmon Lake, Mont. Photo by M. P. Dunham.

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Elk in Big Salmon Lake, Mont. Photo by M. P. Dunham.

Retake of Preceding Frame

Outing - March 1902

INDIAN BLANKETRY

By GEORGE WHARTON JAMES

WHAT a marvelous art is that of weaving, and how much the human race of to-day owes to the patient endeavors of the "little brown woman" of the past for the perfection to which she brought this—one of the most primitive of the arts. We have already seen how basketry had its origin, and what an important place it held in aboriginal life. Blanketry was a necessary outcome of basketry. The use of flexible twigs for baskets readily suggested the use of pliable fibres for textiles, and there is little question that almost simultaneously with the first rude baskets the first textile fabrics made their appearance.

It is strange, too, what a close relation the textile art bears to pottery as well as to basketry. It is to the art of working in clay that we owe much of our knowledge of primitive weaving, as Professor Holmes has well shown in his Prehistoric Textile Fabrics Derived from Impressions on Pottery. From impressions found on fragments of pottery he reconstructed the original fabrics, and the methods followed in weaving them in prehistoric times.

Whence the art had its origin, we do not know. But it is matter of record that, in this country, three hundred and fifty years ago, when the Spanish first came into what is now United States territory, they found the art of weaving in a well advanced stage among the domestic and sedentary Pueblo Indians, and the wild and nomad Navahoes. The cotton of these blankets was grown by these Arizona Indians from time immemorial, and they also used the tough fibres of the yucca, and agave leaves and the hairs of various wild animals, either separately or with the cotton. Their processes of weaving were exactly the same then as they are to-day, there being but slight differences between the methods followed before the advent of the whites and after. Hence, in a study of Indian blanketry, as it is made even to-day, we are approximating nearly to the pure aboriginal methods of pre-Columbian times.

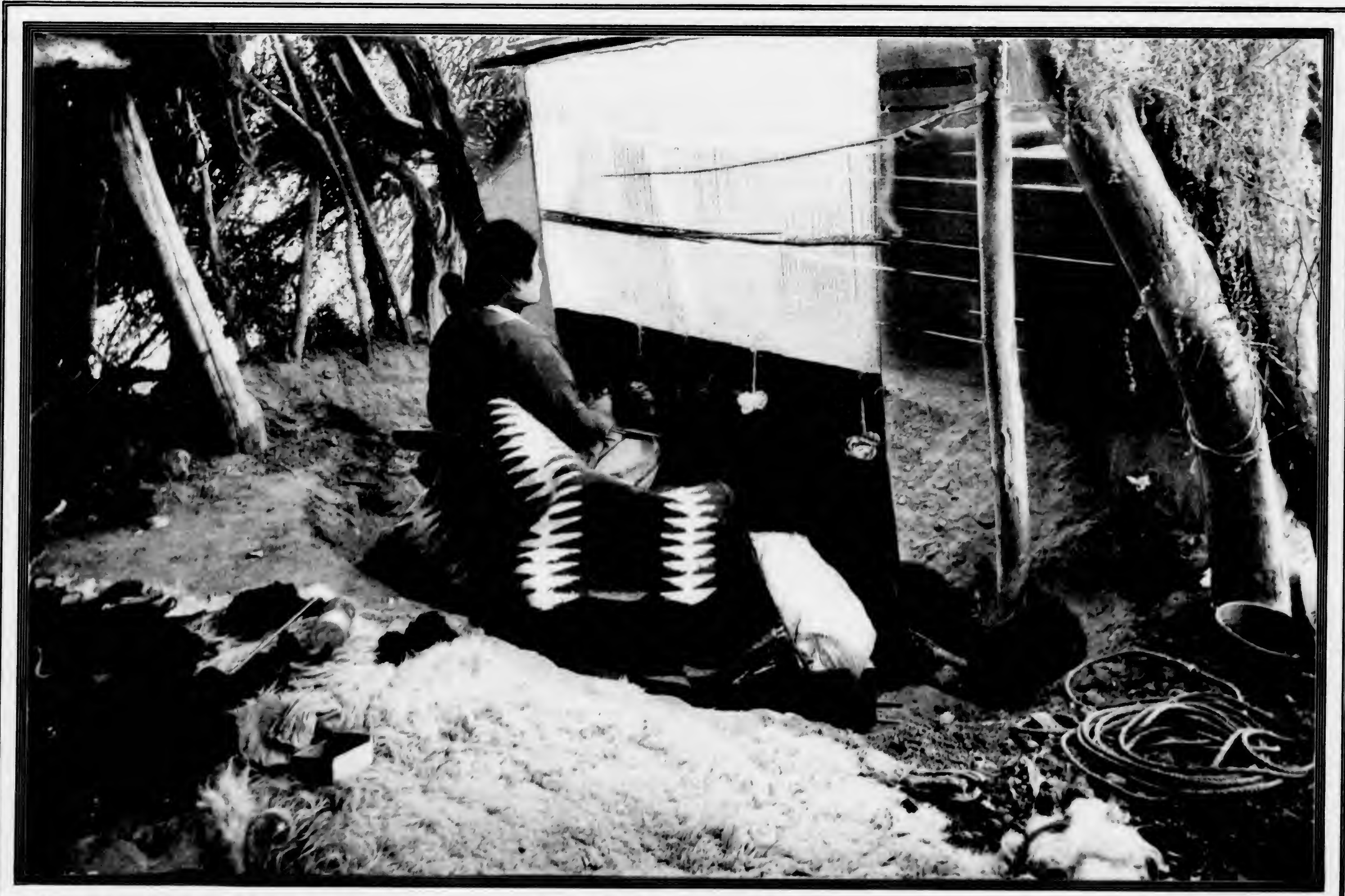
Archæologists and ethnologists generally presume that the art of weaving on the loom was learned by the Navahoes from their Pueblo neighbors. All the facts in the case seem to bear out this supposition. Yet, as is well known, the Navahoes are a part of the great Athabascan family, which has scattered, by separate migrations, from Alaska into California, Arizona and New Mexico. Many of the Alaskans are good weavers, and according to Navaho traditions their ancestors, when they came into the country, wore blankets that were made of cedar bark and of yucca fibre. Even in the Alaska (Thlinket) blankets, made to-day of the wool of the white mountain-goat, cedar bark is twisted in with the wool of the warp. Why, then, should not the Navaho woman have brought the art of weaving, possibly in a very primitive condition, from her original Alaskan home? That her art, however, has been improved by contact with the Pueblo, Hopi, and other Indians, there can be no question, and, if she had a crude loom, it was speedily replaced by the one so long used by the Pueblo. Where the Pueblo weaver gained her loom we do not know, whether from the tribes of the South, or by her own invention. But in all practical ways the primitive loom was as complete and perfect at the Spanish conquest as it is to-day.

Any loom, to be complete, must possess certain qualifications. As Dr. Mason has well said: "In any style of mechanical weaving, however simple or complex, even in darning, the following operations are performed: First, raising and lowering alternately different sets of warp filaments to form the 'sheds'; second, throwing the shuttle, or performing some operation that amounts to the same thing; third, after inserting the weft thread, driving it home, and adjusting it by means of the batten, be it the needle, the finger, the shuttle, or a separate device."

The frame is made of four cottonwood or cedar poles cut from the trees that line the nearest stream or grow in the mountain forests. Two of these are forked for uprights, and the cross beams are lashed to them above and below. Sometimes the lower beam is dispensed with, and wooden pegs driven into the

earth are used instead. The frame ready, the warp is arranged on beams which are lashed to the top and bottom of the frame, by means of a rawhide or horse-hair riata (our western word lariat is merely a corruption of *lariata*). Thus the warp is made tight and is ready for the nimble fingers of the weaver. Her shuttles are pieces of smooth, round stick upon the ends of which she has wound her yarn, or even the small balls of yarn are made to serve this purpose. By her side is a rude wooden comb with which she strikes a few stitches into place, but when she wishes to wedge the yarn of a complete row—from side to side—of weaving, she uses for the purpose a flat, broad stick, one edge of which is sharpened almost to knife-like keenness. This is the "batten." With the design in her brain her busy and skilful fingers produce the pattern as she desires it, there being no sketch from which she may copy. In weaving a blanket of intricate pattern and many colors the weaver finds it easier to open the few warp threads needed with her fingers and then thrust between them the small balls of yarn, rather than bother with a shuttle, no matter how simple.

But before blankets can be made the wool must be cut from the backs of the sheep, cleaned, carded, spun and dyed. It is one of the interesting sights of the Southwest region to see a flock of sheep and goats running together, watched over, perhaps, by a lad of ten or a dozen years, or by a woman who is ultimately to weave the fleeces they carry into substantial blankets. After the fleece has been removed from the sheep the Navaho woman proceeds to wash it. Then it is combed with hand cards—small flat implements in which wire teeth are placed—purchased from the traders. (These and the shears are the only modern implements used.) The dyeing is sometimes done before spinning, generally, however, after. The spindle used is of the simplest character —merely a slender stick thrust through a circular disk of wood. In spite of the fact that the Navahoes have seen the spinning wheels in use by the Mexicans and the Mormons, who, at Tuba City, live practically as their neighbors, they have never cared either to make or steal them. Their conservatism preserves the ancient, slow and laborious method. Holding the spindle in the right hand, the point of the short end below the balancing disk resting on the ground, and the long end on her knee, the spinner attaches the end of her staple close to the disk, and then gives the spindle a rapid twirl. As it revolves she holds the yarn out so that it twists. As it tightens sufficiently she allows it to wrap on to the spindle, and repeats the operation until the spindle is full. The spinning is done loosely or tightly according to the fineness of weave required in the blanket. There are practically four grades of blankets made from native wool, and it must be prepared suitably for each grade. The coarsest is, of course, the easiest spun. This is to make the common blankets. These seldom have any other color than the native grey, white, brown and black, though, occasionally, streaks of red or some other color will be introduced. The yarn for these is coarse and fuzzy, and nearly a quarter of an inch in diameter. The next grade is the extra common. The yarn for this must be a little finer, say 25 per cent. finer, and is generally in a variety of colors. The third grade is the half fancy, and this is closer woven yarn and the colors are a prominent feature of the completed blankets. These half fancy blankets are those generally offered for sale as the "genuine" Navaho material, etc., and, were the dyes used of native origin, this designation would be correct. Unfortunately, in by far the greater number of them aniline dyes are used, and this, by the wise purchaser, is regarded as a misfortune. The next grade is the native wool fancy. These are comparatively rare blankets, as the yarn must be woven very tightly, and the weaving also done with great care. The highest grade that one will ordinarily come in contact with is the Germantown. This style of blanket is made entirely of purchased Germantown yarn, which has almost superseded the native wool fancy, as, to the ordinary purchaser, a Germantown yarn blanket looks so much better than one made from its Navaho counterpart. The yarn is of brighter colors—necessarily so, owing to the wonderful chromatic garnish offered by the aniline dyes; it is spun more evenly (not necessarily more strongly, and, indeed, as a matter of fact, is far less strong), and (to the Indian) is much less trouble to procure. Then, too,



The Navaho Weaver at Her Loom.

Photo. copyright, George Wharton James.

when woven, owing to its good looks, it sells for more than the native wool fancy, upon which so much more work has had to be put. Hence Madame Navaho, being no fool, prefers to make what the people ask for, and "Germantowns" are turned out *ad lib.*

But, to the knowing, there is still a higher grade of blanket. This is not, as one expert (*sic*) would have it, an attempted copying of ancient blankets, but a continuation of an art which he declares to be lost. There are several old weavers who preserve in themselves all the old and good of the best days of blanket weaving. They use native dyes, native wool—with bayeta when they can get it—and they spin their wool to a tension that makes it as durable as fine steel. They weave with care, and after the old fashions, following the ancient shapes and designs, and produce blankets that are as good as any that were ever made in the palmiest days of the art. Such blankets take long in weaving, and are both rare and expensive.

The common blankets and the extra common are sold by the pound, the price, of course, varying, and of late years steadily increasing. Half fancy blankets are generally sold by the piece, and vary in price according to the harmony of the colors, fineness of the weave, and striking characteristics of the design. This is also true of native wool fancy, the price being determined by the Indian according to her notions of the length of the purchaser's purse. On the other hand, Germantown yarn having a fixed purchasable price, the blankets made from it are to be bought by the pound.

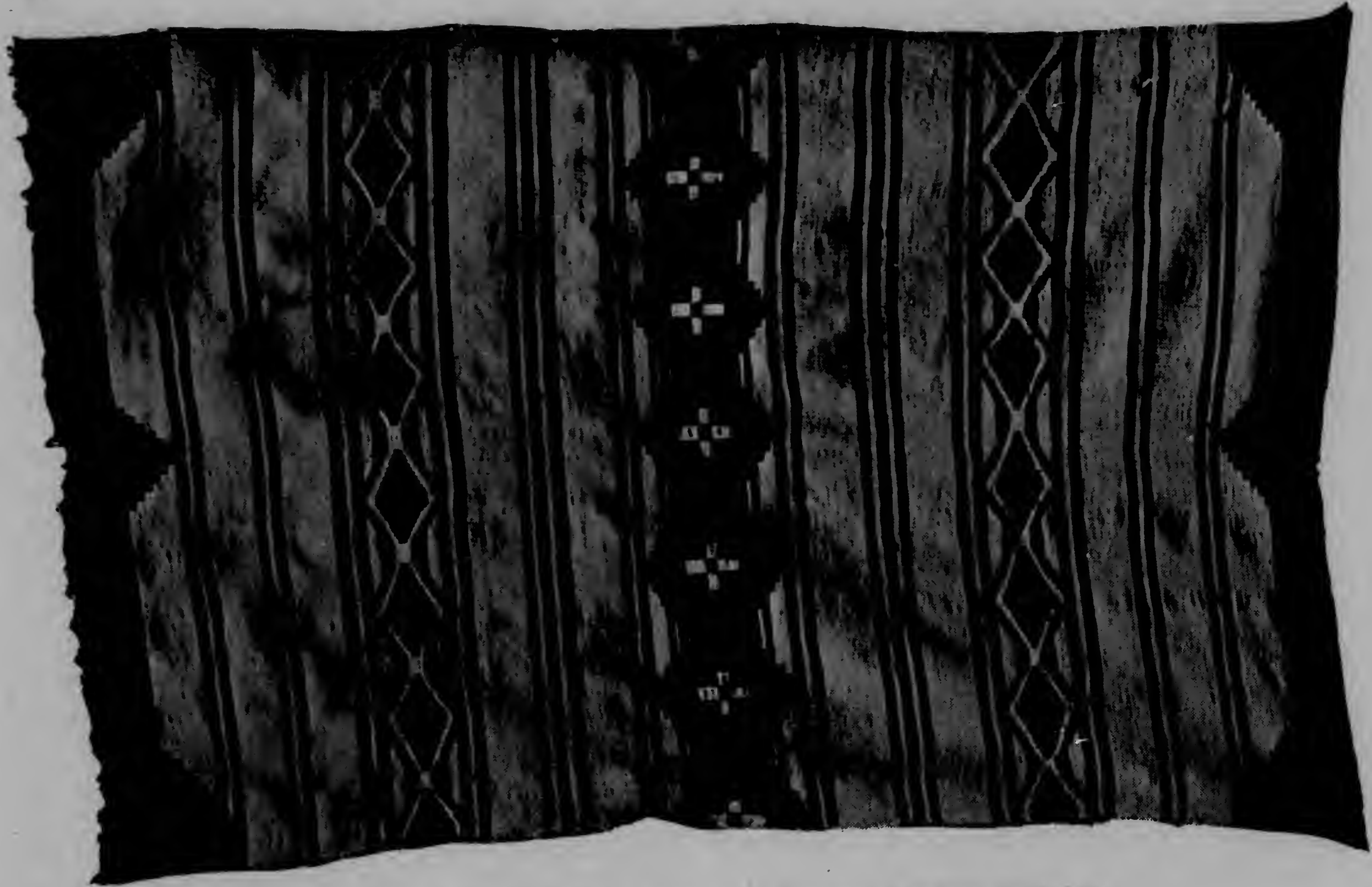
These remarks, necessarily, refer to the original purchases from the Indian. There are no general rules of purchase price followed by traders, dealers, or retail salesmen.

In the original colors, as I have already shown, there are white, brown, gray and black, the last rather a grayish-black, or, better still, as Matthews describes it, rusty. He also says: "They still employ to a great extent their native dyes" of yellow, reddish, and black. There is good evidence that they formerly had a blue dye; but indigo, originally introduced, I think, by the Mexicans, has superseded this. If they, in former days, had a native blue and a native yellow, they must also, of course, have had a green, and they now make green of their native yellow and indigo, the latter being the only imported dye-stuff I have ever seen in use among them. . . . The brilliant red figures in their finer blankets were, a few years ago, made entirely of bayeta, and this material is still (1881) largely used. Bayeta is a bright scarlet cloth with a long nap, much finer in appearance than the scarlet strouding which forms such an important article in the Indian trade of the North."

This bayeta or baize was unraveled, and the Indian often retwisted the warp to make it firmer than originally, and then rewove it into his incomparable blankets. From information mainly gained by Mr. G. H. Pepper, of the American Museum of Natural History, during his three years' sojourn with the Navahoes as the head of the Hyde expedition, I present the following accounts of their native dyes. From the earliest days the Navahoes have been expert dyers, their colors being black, brick-red, russet, blue, yellow, and a greenish-yellow akin to the shade known as old gold.

To make the black dye three ingredients are used, viz.: yellow ochre, pinion gum, and the leaves and twigs of the aromatic sumac (*Rhus aromatica*). The ochre is pulverized and roasted until it becomes a light brown, when it is removed from the fire and mixed with an equal amount of pinion gum. This mixture is then placed on the fire and as the roasting continues it first becomes mushy, then drier and darker, until nothing but a fine black powder is left. This powder is called *keyh-batoh.* In the meantime the sumac leaves and twigs are being boiled, five or six hours being required to fully extract the juices. When both are somewhat cooled they are mixed, and almost immediately a rich bluish-black fluid, called *ele-gee-batoh,* is formed.

For yellow dye the tops of a flowering weed (*Bigelovia graveoleus*) are boiled for several hours until the liquid assumes a deep yellow color. As soon as the dyer deems the extraction of the color juices nearly complete, she takes some native alum (*almogen*) and heats it over the fire, and, when it becomes pasty, gradually adds it to the boiling decoction, which slowly becomes of the required yellow color (*kayel-soly-batoh*).



Bayeta Blanket in Collection of Mr. A. C. Vroman, Pasadena, California.

The brick-red dye (*says-tozzie-batoh*) is extracted from the bark and roots of the sumac, and ground black alder bark, with the ashes of the juniper as a mordant. She now immerses the wool and allows it to remain in the dye from half an hour to an hour. Whence come the designs incorporated by these simple weavers into their blankets, sashes, and dresses? In this, as in basketry and pottery, the answer is found in nature. Indeed, many of their textile designs suggest a derivation from basketry ornamentation (which originally came from nature), "as the angular, curveless figures of interlaying plaits predominate, and the principal subjects are the same—conventional devices representing clouds, stars, lightning, the rainbow, and emblems of the deities. But these simple forms are produced in endless combination and often in brilliant, kaleidoscopic grouping, presenting broad effects of scarlet and black, of green, yellow, and blue upon scarlet, and wide ranges of color skilfully blended upon a ground of white. The centre of the fabric is frequently occupied with tessellated or lozenge patterns of multi-colored sides, or divided into panels of contrasting colors in which different designs appear; some display symmetric zig-zags, converging and spreading throughout their length; in others, bands of high color are defined by zones of neutral tints, or parted by thin, bright lines into a checkered mosaic, and in many only the most subdued shades appear. Fine effects are obtained by using a soft, gray wool, in its natural state, to form the body of the fabric in solid color, upon which figures in orange and scarlet are introduced; also in those woven in narrow stripes of black and deep blue, having the borders relieved in bright tinted meanders along the sides and ends, or with a central colored figure in the dark body, with the design repeated in a diagonal panel at each corner.

"The greatest charm, however, of these primitive fabrics, is the unrestrained freedom shown by the weaver in her treatment of primitive conventions. To the checkered emblem of the rainbow she adds sweeping rays of color, typifying sunbeams; below the many angled cloud group, she inserts random pencil lines of rain; or she softens the rigid meander, signifying lightning, with graceful interlacing, and shaded tints. Not confining herself alone to these traditional devices, she invents her own methods to introduce curious, realistic figures of common objects—her grass brush, wooden weaving

fork, a stalk of corn, a bow, an arrow, or a plume of feathers from a dancer's mash. Thus, although the same characteristic styles of weaving and decoration are general, yet none of the larger designs is ever reproduced with mechanic exactness; each fabric carries some distinct variation, some suggestion of the occasion of its making, woven into form as the fancy arose."

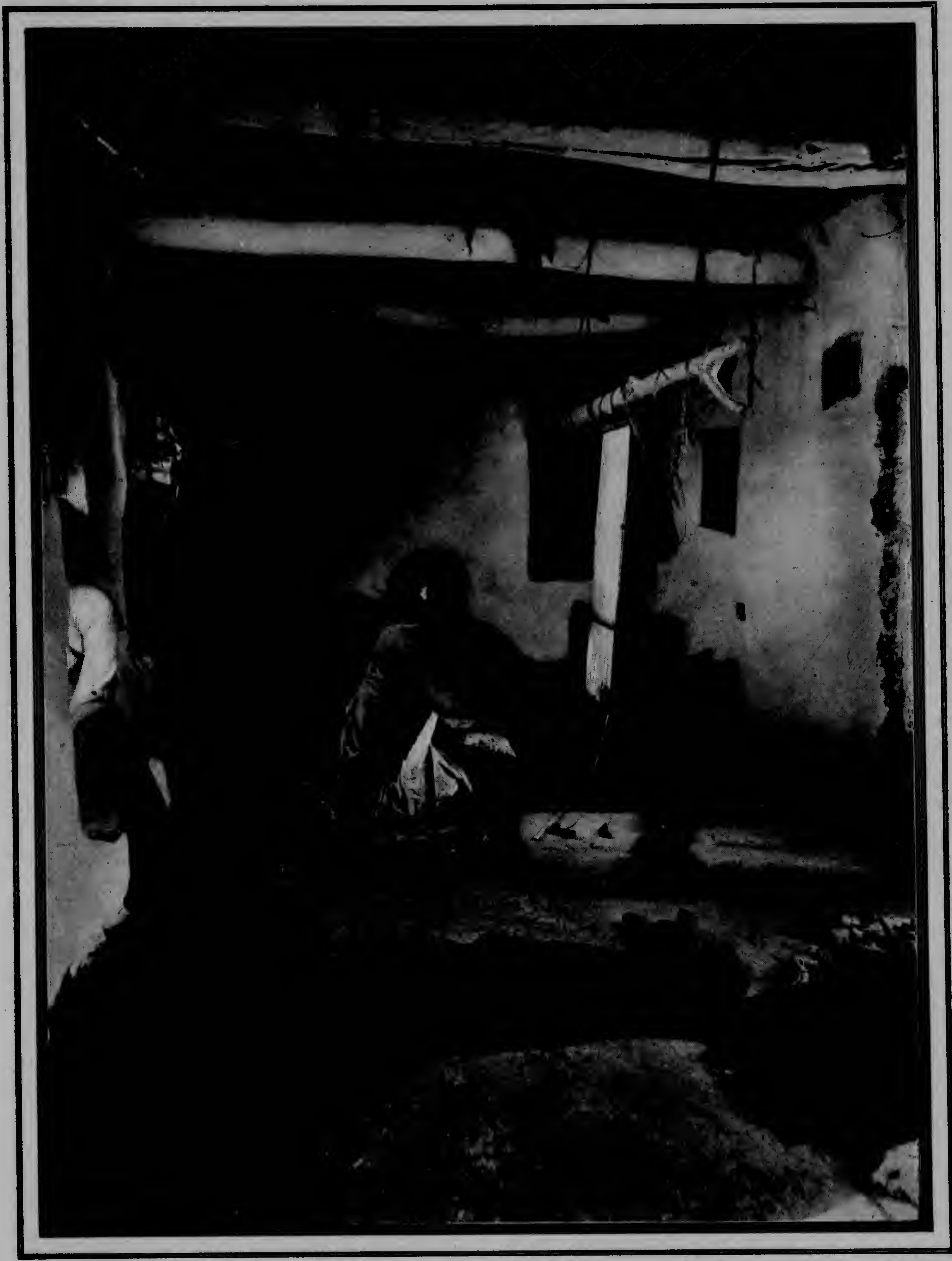
I have thus quoted from an unpublished MS. of one of the greatest Navaho authorities of the United States—Mr. A. M. Stephen—in order to confirm my own oft-repeated and sometimes challenged statements that the Navaho weaver finds in nature her designs, and that in most of her better blankets there is woven "some suggestion of the occasion of its making."

This imitative faculty is, *par excellence*, the controlling force in aboriginal decoration as far as I know the Amerind of the Southwest.

With many of the younger women, submission to the imitative faculty in weaving is becoming an injury instead of a blessing. Instead of looking to nature for their models, or finding pleasure in the religious symbolism of the older weavers, they have sunk into a lazy, apathetic disregard, and they slavishly and carelessly imitate the work of their elders. This is growingly true, I am sorry to say, with both basket makers and blanket weavers. On my recent trips I have come in contact with many fair specimens, both in basketry and blanketry, and when I have asked for an explanation of the design the reply has been: "Me no sabe! I make 'em all same old basket, or all same old Navaho blanket." Here is perversion of the true imitative faculty which sought its pure and original inspiration from nature. It will not be out of place here to correct a few general misapprehensions in regard to the older and more valuable Navaho blankets. These erroneous ideas are partly the result of the misstatements of an individual who sought thereby to enhance the value of his own collection.

It is true that good bayeta blankets are comparatively rare, but they are far more common than he would have his readers believe. The word bayeta is nothing but the simple Spanish for the English baize, and is spelled bayeta, and not "balleta" or "vayeta." It is a bright red baize with a long nap, made especially in England for Spanish trade (not Turkish, as our "expert" claims), and by the Spanish and Mexicans sold to the Indians. Up to as late as 1893 bayeta blankets were being made plentifully. Since then comparatively few have been made. The bayeta was a regular article of commerce, and could be purchased at any good wholesale house in New York. It was generally sold by the rod, and not by the pound. The duty now is so high that its importation is practically prohibited, the duty, I believe, being 60 per cent. And yet I venture the assertion that I can find several weavers who will imitate perfectly, in bayeta, any blanket ever woven, and that the native dyes for other colors will be used. We are told that an Indian woman will not take the time to weave blankets such as were made in the olden time. I have several that took nine, twelve and thirteen months to make, and if the pay is good enough any weaver will work on a blanket a year, or even two years, if necessary. The length of time makes no difference, as several traders whom I personally know can vouch. Indeed, it would be quite possible to obtain the perfect reproduction of any blanket in existence, which would be satisfactory to any board of genuine experts, the only differences between the new and the ancient blankets being those inseparable from newness and age.

While bayeta blankets are not common by any means they aggregate many score in the mass, and are to be found in many collections, both East and West. It is a difficult matter to even suggest in a photograph or an engraving any idea of the beauty and charm of one of these old Navaho blankets. The bayeta blanket here presented is now in the private collection of Mr. A. C. Vroman, of Pasadena, Cal. It is 30x49 inches in size. The background is white with narrow stripes of bayeta (red) and green. The ends are black, as are also the diamonds near each end. The crosses of the middle pattern of diamonds are in white. This is a fine blanket and in an excellent state of preservation. Mr. Vroman has several other fine old style bayeta Navaho blankets in his collection, and I know of many others as well as those in my own modest assortment, and yet the collector before referred to has presumed to say, speaking of one of his own, "Not

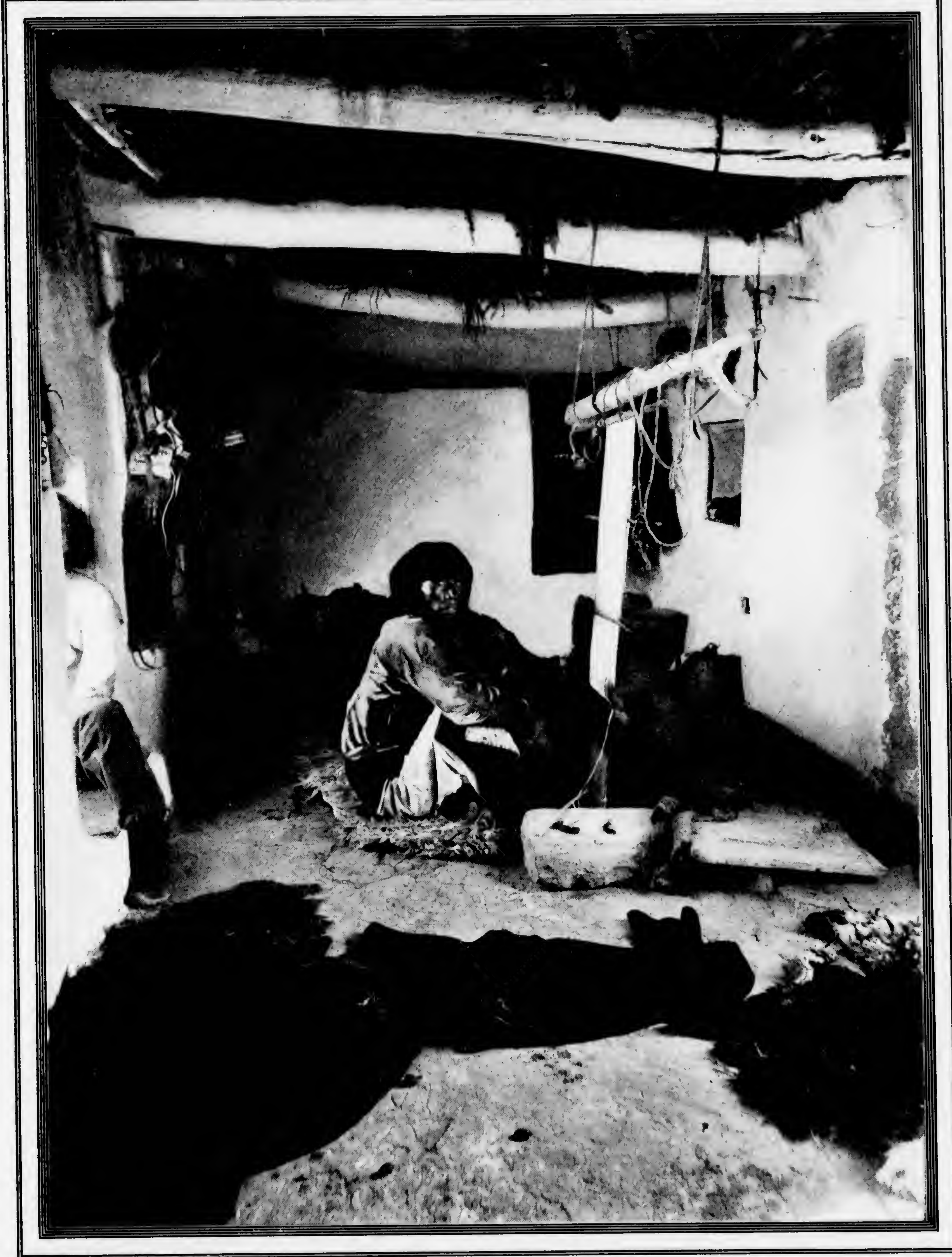


Zuni Squaw Weaving Ceremonial Kilt of Cotton and Wool.

a dozen (similar ones) could be bought at any price!"

It will be observed that I have written as if the major portion of the weaving of Navaho blankets was done by the women. Dr. Matthews, however, writing in or before 1881, says that "there are . . . a few men who practice the textile art, and among them are to be found the best artisans in the tribe." Of these men but one or two are now alive, if any, and I have seen one only who still did the weaving.

Retake of Preceding Frame



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On the other hand, among the Pueblo Indians it is mainly the men who perform this work. At all the Hopi villages, at Zuñi, at Acoma, Laguna, and several other pueblos I have photographed the men at work. The loom products, however, are readily distinguishable from those of the Navahoes, the latter having far outdistanced them in the excellency of their work. Only among the Hopi are blankets made that in any way resemble the work of the Navahoes, and these are of the style that would be classed as half fancy or extra common. They are generally, however, woven broad instead of long.

The Hopis to this day preserve the custom of wearing a bridal costume completely woven out of cotton. After the wedding breakfast, the groom's father "takes some native cotton and, running through the village, distributes it among the relations and friends of the family, who pick the seeds from the cotton and then return it. . . . A few days later a crier announces from the roof of a house that on a certain day the cotton for the bridal costume will be spun in the kivas." Here the friends assemble and "the rasping of the carding combs and the buzzing of the primitive spindles" are heard accompanied by singing, joking and laughing of the crowd. This cotton is then woven by either the bridegroom, his father or other male relations, into two square blankets, one measuring about 60 by 72 inches, the other about 50 by 60 inches, and a sash with long knotted fringes at each end. When woven they are given a coating of wet kaolin, which adds to their whiteness.

This preparation of the garments often takes several weeks, during which time the young married couple have resided at the home of the groom's parents. Now the bride, with considerable simple ceremony, walks with one of the robes on, and the other in a reed wrapper, to her mother's home, where, unless her husband has prepared a separate home for them, they continue to reside. The Rev. H. R. Voth fully describes this interesting ceremony in the American Anthropologist. I have two of these cotton gowns in my collection, and they are strong and well-woven. In the Field Columbian Museum, Chicago, is a fine model showing the young bride wearing her new garment going to her mother's home.

In their ceremonial dances the Hopi women wear these cotton blankets, highly embroidered at the sides and edges with red, green, and black wool. Similar in style to these, though long and narrow in shape, are the ceremonial kilts or sashes of the men. In pictures showing the march of the Antelope Priests during the Hopi Snake Dance these beautiful sashes are well shown. In late years a few Navaho weavers have invented a method of weaving a blanket both sides of which are different. The Salish stock of Indians make baskets the designs of which on the inside are different from those on the outside, but this is done by a simple process of imbrication, easy to understand, which affords no key to a solution of the double-faced Navaho blanket. I have purchased two or three such blankets, but as yet have not found a weaver who would show me the process of weaving. Dr. Matthews thinks this new invention cannot date farther back than 1893, as prior to that time Mr. Thomas V. Keam, the oldest trader with the Navahoes, had never seen one. Yet one collector declares he had one as far back as fifteen years ago.

In addition to the products of the vertical loom the Navaho and also the Pueblo women weave a variety of smaller articles of wear, all of which are remarkable for their strength and durability as well as for their striking designs.

In weaving these sashes, belts, hair bands, garters, etc., the weaver uses a "heddle frame" almost exactly similar to those found in Europe and also used in New England. None of these has been found, according to Dr. Mason, in places that assure us of their use before the Spanish occupancy, so the inference is natural that they were introduced by the Conquistadores or the early colonists, 350 years ago.

One of these heddles brought from Zuñi by Major J. W. Powell is here shown. Its crossbars are of wood, 28 inches long. "There are 94 healds of small reeds, 5¾ inches long, and these are attached to the cross bars by lashings of rawhide thong, supplemented by wrappings of yellow yarn. The excursion of the loose warp filaments is 4½ inches up and down. The holes or stirrups through the healds have been bored with hot wire." Other heddles have but sixteen healds, so that but 31

Hopi Woman in Native Woven Dress and Sash.

warp strands could be used. In my own collection I have several from various pueblos, and they vary in the healds from a small (20) to a large (75) number. These are so rudely made and clumsy in appearance, it seems impossible that any weaver could do good work on them. And yet they make most beautiful sashes and belts, work, indeed, that, of its kind, I have never seen equalled, much less surpassed.

The illustration shows a Zuñi woman at work weaving a sash on one of these heddles. One end of her warp cords wrapped around a cylindrical stick is fastened to some fixed object, in or out-of-doors, as she prefers, the other to a similar roller which is affixed to a strap or belt passed around her waist. Thus she herself is the "tightening machine"—the most flexible and sensitive that could be designed—and she sits or squats as best suits her in the progress of her work. Mason aptly terms this "the most pliant, delicate and responsive of tension devices." He thus describes the processes of weaving: "When the woman and her loom apparatus were set up for work, she raised or lowered the heddle with one hand. The warp filaments which passed through the stirrups in the healds being fixed in their places, were by this movement raised or lowered with the frame, but the alternate threads which passed between the healds remained steadfast and straight. Whether

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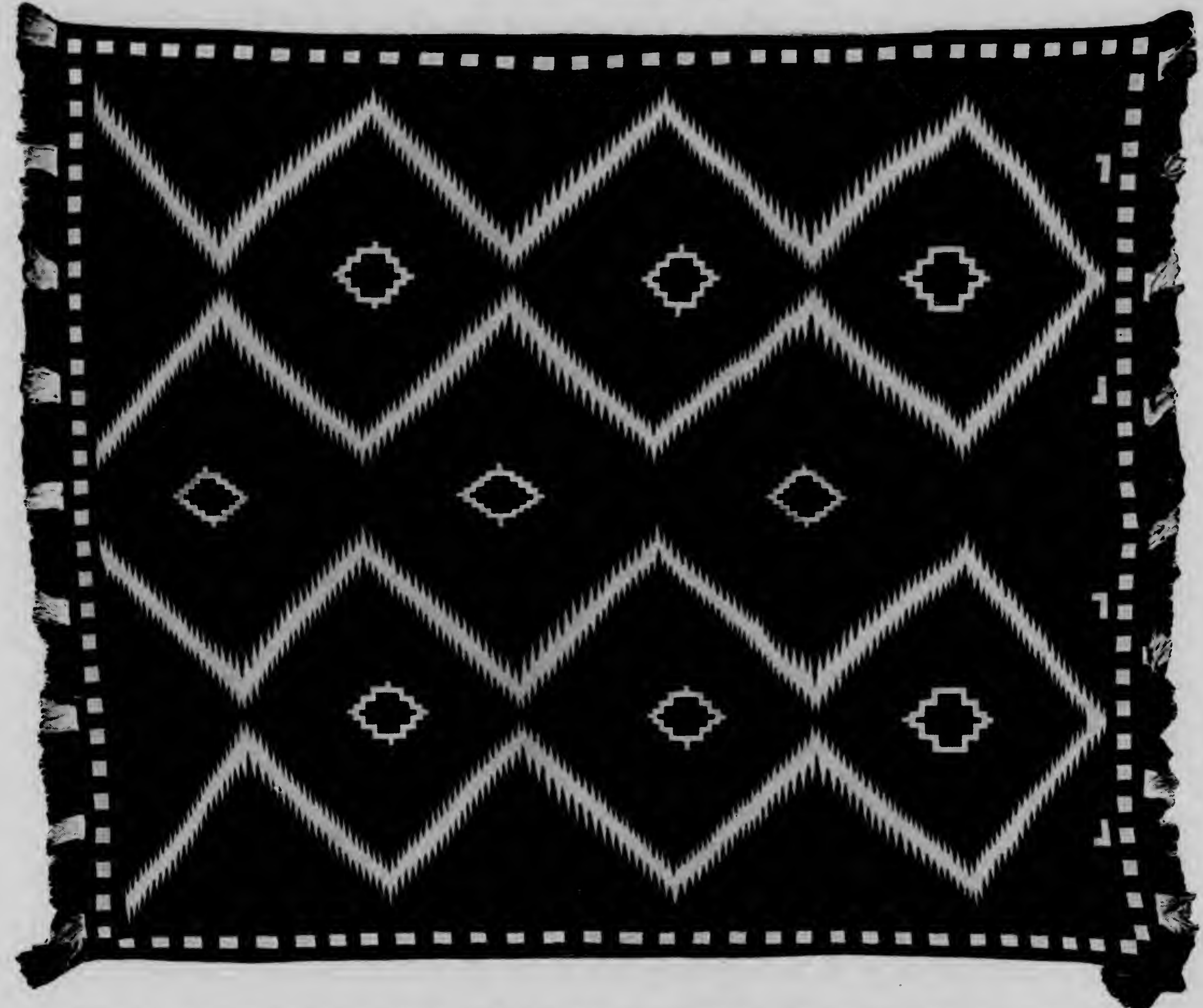

Navaho Blanket of Unusually Good Design Made of "Germantown" Yarn, in Collection of Mr. Caspar Whitney.

the frame was raised or lowered, a "shed" was formed in the warp; the weaver then passed through this shed a simple bobbin or shuttle, often a rod with the weft woven on it, after the manner of a kite string, containing the weft or woof filaments, usually of white thread and quite fine. When the weft had been passed through this shed between the heddle frame and the body of the weaver it was beaten home by means of the shuttle, or with a separate tool. This completed one weft. The alternate warp series were then brought to the top or depressed, and a second shed formed. The shuttle was passed back through this shed and the weft again beaten home. If a pattern was to be wrought, the shuttle was not passed through the shed as described, but worked, as in darning, through a certain number of the upper warp threads each time before a new shed was made."

The Mexicans have always been expert weavers, but their work, though fine, can not be compared for durability and strength, nor, indeed, in artistic design, with the work of the Navaho. Some of their zarapes and ponchos, however, are very beautiful and are highly prized by their possessors, but, unfortunately, like much Navaho work, aniline dyes have driven out the purer and more interesting native colors.

The Thlinkets of Alaska, also, are good blanket weavers, and in the United States National Museum, and also in the Museum of Princeton University, fine collections of their work are to be seen. They generally consist of cape and body blanket. They are made of the wool of the white mountain-goat. The colors are white, black, blue and yellow. The black is a rich sepia, gained from the devil fish; the blue and yellow from two barks indigenous to the Alexandrian archipelago. The white is the native color, and the fringe of both cape and blanket are undyed. To strengthen, or, rather, to give solidity to the garment, the fibrous bark of the yellow cedar root is twisted into the warp.

FIELD AND STREAM

SEVENTH YEAR APRIL, 1903 NUMBER TWELVE

INDIAN SIGNS AND SIGNALS

BY EDWARD S. FARROW

LATE INSTRUCTOR OF TACTICS AT THE UNITED STATES MILITARY ACADEMY, WEST POINT

THE CONSTANT exercise of the bump of locality through successive generations and the thorough investigation of every "sign," have rendered all Indians sure guides over boundless prairies and through pathless forests. They carefully notice all marks left on the ground, rocks, grass, trees or brush—the form, size, stride and directions of footprints and the firmness of impression.

Indians derive much valuable information by carefully observing "signs"; but to follow the trail successfully they must not only possess a thorough understanding of all "signs," but also a knowledge of the character and habits of the thing trailed, the general features of the country round about, and the powers of the eye and ear must be cultivated to a great degree of acuity.

When traveling over an unknown country, Indians are guided by their nomadic instinct and the information received from those who visited the section before. This fund of knowledge is very great. One of my Indian scouts, Chuck, in 1880, became quite noted for the accuracy with which he could designate suitable camps and various physical features of the country, relying entirely upon the information received from his father, who hunted in the same localities many years before. Indians, when traveling, set up mounds of stones to indicate the route and various other items of information, to those who may follow. In a timbered country, where the "trail" is frequently covered with snow, the stones are placed in the forks and branches of the trees; or the trees are blazed so that the notches face the traveler and at least two of them may be in sight at once. Indians seldom refer to the sun, moon or stars for direction when traveling, but place confidence in something nearer at hand, which they believe to remain in the same place and which they thoroughly

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comprehend. Indians never allow anything deviating from the common order of things to escape a rigid investigation. A close scrutiny will generally reveal both the plan and purpose of every active living creature. While keenly alive to all sounds, they are able to unmistakably recognize the most ordinary, such as the croaking of frogs, the barking of coyotes, the hooting of owls, the cry of panthers or wolverines, the screaming of hawks and eagles, the creaking of limbs, and so forth.

Indians when walking, point the toes inward, whether in moccasins or other footgear. Many white men in the Indian country wear moccasins, but they leave a track with the toes turned outward. The various patterns of boots and shoes leave their distinctive tracks, and the particular way in which a boot or shoe has been pegged or repaired will enable an astute trailer to follow its print among hundreds of others. A careful notice of the form and depth of the impressions will generally indicate whether the person carried a burden or uot; whether traveling at will or in haste; whether sober or intoxicated. The age of the track may be determined in various ways. If rain has fallen, it may be seen whether the tracks were made before, during, or after it, by carefully noticing the grass and so forth, trodden down, and by observing whether or not sand or anything adheres to it. The morning or evening dew upon the "trail" will also furnish a test of time. The position of the grass, sand and dust drifted from or upon the track will serve to determine its age relative to the blowing of the wind, or its sudden change of direction. Should there be several tracks, and the time when one was made be known, the ages of the others may be determined by noticing where they cross and observing which overlies the others. When the "trail" becomes lost in an unfavorable locality, it is best not to consume time in hunting it, but to proceed in the probable direction until a favorable ground is found, and then hunt it. In a grassy locality, or on plains of coarse sand or shingle, the "trail" is seldom visible at a short distance, but may be noticed by looking out well ahead.

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PEO.—CHIEF OF THE UMATILLAS
A principal Scout in Farrow's Salmon River campaign of 1880

In a rocky country, or where the ground is very hard, when it is desirable to ascertain the track of a prowling enemy or animal, the Indians usually sprinkle sand (if obtainable) over the trails in suitable places. While once encamped near the Payette River, in Idaho, in a point of rocks, it was observed that night-prowling animals visited my camp, much to the annoyance of the men, and at the expense of unguarded supplies. One of my Indian scouts secured

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Retake of Preceding Frame

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YIA-TIN-I-A-WITS

Farrow's War Chief in his Salmon River Campaigns of 1879 and 1880

Horse or pony tracks may be followed over any "trail"; but it is often difficult to follow them over rocks or very hard ground. When they pass over any grass without treading it down, the "trail" is shown by the grass assuming a different shade of color from that about it. The appearance of horse or pony tracks is very different at a walk, trot and gallop. The Indian pony is seldom or never shod, and the distance between his tracks (walking) is about two feet, ten inches. The track may be readily distinguished from that of the American horse (larger and generally shod), or that of the mule (about the same size, but narrower and more angular). When the pony trots, the tracks are from six and one-half to seven and one-half feet apart, the impressions less distinct and more irregular. In the gallop, they are from eight to nine feet apart, and unless the ground is very hard there are no distinct impressions, but a mere disturbance of the earth. A careful study of the impression left on the ground will serve to determine the pace at which the animal was moving. A walking or feeding horse should leave a well marked track, and a sudden scattering of earth, sand or gravel would indicate fright and an increased pace. A knowledge of the movements of the pony will frequently give valuable information regarding the rider—whether he is moving leisurely and is subject to surprise, or whether he has discovered his pursuers and is moving rapidly on in order to avoid a conflict. To determine whether the horses have

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riders or are running loose, follow the trail into a wood and observe whether or not it lies under any branches of the trees too low to permit the easy passage of a mounted man beneath them. An Indian rider always mounts on, and dismounts from, the right side, and by noticing the places where the mounts and dismounts are made, it may be ascertained whether the rider is an Indian or a white man.

To show to what skill a trailer may attain by constant and careful practice, I will briefly mention a few exploits of my chief of Umatilla scouts—Yia-tin-i-a-wits. Being once in rapid pursuit of a few Indians who had murdered the owner of a ranch, on the south fork of the Salmon River, in Idaho, and having followed them about forty miles, apparently gaining all the while, Yia-tin-i-a-wits suddenly informed me, "No catch him—hiyu run—no sun!" meaning that we were discovered, and that the Indians were traveling by night. He pointed out to me where they had gone under low branches of trees, which might have been readily avoided, and also where they had crossed rocks and ravines at bad places, when good crossings might have been selected very close by, if there had been sufficient light for the purpose of picking the trail.

Once, while hunting on the upper Clearwater River, and ignorant of the location of the renegade Bannock Indians, Yia-tin-i-a-wits became very much exercised, fearing that a hostile war party might find his "trail" and attack in the rear. After a brief consultation with the chief members of his party, he dismounted, cut open his shoes; and, putting them on with the heels foremost, walked, thus equipped, in the rear of all, a distance of eight or ten miles. The ruse was a perfect success, for that very day a hunting party came close in rear; but, seeing the track of what they supposed a single man going away from the party, they put their ponies about and at full speed started off, hoping to overtake him, preferring to make a sure success of capturing one rather than risk an attack upon the entire party.

Wishing to scout in two directions, I once sent out two detachments of ten men each. They started from my camp together, followed the same "trail" for about two and one-half miles and then separated—one party going to the right and the other to the left. Having occasion to communicate with the commander of one detachment, I started Yia-tin-i-a-wits after him. It was plain sailing until he came to the diverging "trails." For a while he was puzzled to tell which detachment had gone to the right. He soon selected the tracks on each "trail" made by the men in advance (presumably those of the commanders), and, with a positive assurance, informed me that the route on the left had been taken by the party wanted. When I asked his reason for so thinking, he showed me that the distance between the impressions on the left "trail" was wide, and the deepest parts of the tracks were formed by the toes—all of which denoted the elasticity of youth, for which the man in question was much noted, in comparison with the commander of the other detachment. Yia-tin-i-a-wits followed his selected "trail" about ten miles, when his figuring proved correct.

It is the custom with most Indians to run their ponies when approaching either friends or enemies, and unless their status is known they should be halted in due time. This is done by raising the right hand back, to the rear, and waving it forward and backward. "Who are you?" is signaled by waving the right hand to the right and left several times in quick succession; "we are friends," by raising both hands and grasping the left with the right, as in shaking hands; "we are enemies," by closing the right hand and placing it against the forehead, or by waving the blanket (usually red) in the air. To say by signs "that after a certain journey a good camp will be found, and that game may be found along the road," first indicate the course of the sun, from its rising to the point at which it will appear on reaching the camp; then straddle one finger of the left hand with two fingers of the right, trotting them in

imitation of the motions of a pony and rider; then act as though halting, dismounting and firing; then remount and proceed on the way; finally stop, bow the head, rest it on the hand and close the eyes in imitation of sleep.

To intimate that "such a one is dead," place one hand over the other and then quickly slip it beneath (gone under); that "such ones are husband and wife," point to each and place the forefingers in contact throughout (meaning one); that "such ones are brothers and sisters," point to each and place two fingers in the mouth (meaning nourished at the same breast); that "such ones are good friends," point them out and fold the arms over the breast.

The Indians have a system of signaling by means of smokes during the day, and fires at night. The color (light or heavy), the volume (thin or dense), and the varying brilliancy of flame, are all significant signals. Every tribe jealously guards the secret of its code of signals. Smokes may be raised several hundred feet in a vertical column by making a fire without much blaze and piling on green boughs, grass and weeds.

The Indian alphabet is very similar to ours, being made up of long and short lines. By spreading a blanket over the column of smoke and quickly displacing it, the length or shortness of the columns as well as their frequency may be regulated. Their system of telegraphing is successfully pursued by Indians when separated and preparing for a fight or defense.

AN ANGLER'S THOUGHTS OF SPRING

The winter snows have disappeared,
The brooks are flowing free,
The glowing sun my heart has cheered,
The streams are calling me.
Each sweet bird voice bids me rejoice,
They sing, "Have never a fear!"
For spring days are the angler's choice.
And spring at last is here!

I see the Goddess of the spring,
Walk on the scented breeze;
I see her lovely magic hand,
With green, paint all the trees;
I see her scatter o'er the land,
Fresh diadems of flowers,
And then, to make the whole complete,
She sends refreshing showers.

Oh, come away with me a while,
And fish, and let sweet spring
Around thee throw her loving arms,
And teach thy heart to sing.
Oh, come and cast the gorgeous fly
Upon the water clear,
For the fisher's life is full of joy
And his heart of sweet good cheer.

The angler's life is full of joy,
For him the birdlets sing.
The little leaves, as he goes by,
Commence their whispering.
And the sweet Goddess of the spring
Is very good to him,
She takes his cup of happiness
And fills it to the brim.

—IRA J. BRAZEE

ON THE USES OF THE BRAIN AND MARROW OF ANIMALS AMONG THE INDIANS OF NORTH AMERICA.

Smithsonian Repts.-for 1870.

By Titian R. Peale,

United States Patent Office.

The uses of the brain and marrow of animals among savage people having become of interest in connection with the ethnological researches which are being prosecuted with so much ardor in this and other countries, a brief exposition of the facts relative to the subject, observed by myself, and collected from the writings of others, may not be unacceptable for the Smithsonian report. It may not, perhaps, be improper to state, as introductory to the subject of this communication, that I am, with one exception, (that of General Swift,) the only survivor of the celebrated expedition of Major Long to the Rocky Mountains. We owe this delay of the inevitable summons of the grim messenger principally to the fact that we were the youngest of a party numbering twenty-six. I was appointed as assistant naturalist and draughtsman of the expedition, and, among other duties, was directed by the letter of my instructions to give attention to the method employed by the natives in the preparation of the skins of animals killed for food or for their furs.

The material used for the preservation of the skins is principally the brains of the animal from which they were taken. While the skins are fresh, or in their green state, they are stretched on the ground, and scraped with an instrument of bone or stone, resembling an adze; the adhering portions of flesh are removed, and the surface is then plastered over with the brains, mixed in some cases with the liver, and on this is poured, from time to time, warm water in which the meat has been boiled. The whole is then suffered to dry, after which the skin is again subjected to the action of the brain and hot water, further stretched, and, while still wet, scraped and rubbed with stones until perfectly dry. It is further softened by rubbing and passing it backward and forward over a twisted sinew, stretched horizontally. The brain of an animal is sufficient to dress its skin; but, in some cases, a less quantity is sufficient for the purpose. I have myself used this process in the preparation of skins, but have found animal brains inferior, as a curing material, to a mixture of saltpeter and alum. The Indian, however, has no choice, and makes use of such materials as he can procure, and which, probably from accidental discovery and subsequent experience, he has found to produce the desired effect.

The marrow of bones of animals has generally been esteemed as a luxury, and among the Indians of this continent is held in high estimation, particularly that of the bones of the buffalo, the elk, the moose, and the deer. The round bones of these animals are roasted on the coals or before the fire, then split with a stone hatchet, and in some cases with a wedge driven in between the condyles when the bone has these ter-

ON SHELL-HEAPS.

By Rev. James Fowler, of New Brunswick.

I have lived for a number of years near the coast, but have never enjoyed the pleasure of discovering any of these heaps, and, as the result of my inquiries, have come to the conclusion that none such are to be found along the shores of this county or the neighboring county of Northumberland. Their absence may be accounted for by the fact that the whole coast is very low, and, being composed of the soft sandstone shale of the carboniferous formation, is constantly wearing away by the action of the waves. Within the last ten years the sea has encroached several rods upon the land. At Bay du Vin a church was erected about fifty years ago at such a distance from the shore that it was thought the sea could never reach it, (the bank or cliff being ten feet high,) but the church toppled into the sea five or six years ago, and the burial-ground that lay around it will soon have disappeared. Ten years ago a single storm, in October, removed the coast-line from four to five rods inland in exposed situations, and changed the appearance of long stretches of the shore. If shell-heaps ever existed on this coast, they must long ago have been swept away by the constant encroachments of the sea. Again, there are portions of the mainland protected by outside beaches running parallel with the coast and separated from it by distances varying from a few rods to a mile. These are composed of loose sand, and are continually changing their positions, owing to the action of winds and tides, so that any heaps that may have accumulated on them must have been buried or swept away long ago.

The coast of the Bay of Fundy is composed of harder rocks than our coast, and is consequently better fitted for preserving any deposits on the banks. I do not see, however, why heaps should not be found in some of the more sheltered bays or recesses of the coast, but I have not yet been able to discover their existence.

I have made inquiries about the stone implements of the aborigines, and have succeeded in securing two arrow-heads and an ax. Several have been found in this locality; but as those who find them are ignorant of their value, they never think of preserving them, and they soon disappear, or are broken up by children. Should these I have be of any service I can forward them.

I regret that I am incapable of furnishing you with more positive information, but negative conclusions are sometimes valuable.

minations. The marrow is then scooped out with a piece of wood cut into the form of a spoon, and eaten on the instant by the members of the party, seated around the camp fire. A feast of this kind can only be fully enjoyed after a successful hunt. When the marrow is collected in quantity for storing during the hunting season, which occurs usually twice a year, the bones of the larger animals are broken into small fragments and boiled in water until all the marrow which they contain and the grease which adheres to them are separated, and rise to the surface, when they are skimmed off and packed in bladders, or in the muscular coat of the stomach and in the large intestines, which have been previously prepared for this use. Not only is the marrow of the large bones of the limbs preserved in this manner, but also that of the vertebral column. The bones of this are comminuted by pounding them with a stone hammer, similar to those which are plowed up in the Eastern States.

Popular Science Monthly - June 1906.

THE HUMAN SIDE OF THE INDIAN

By ALEXANDER F. CHAMBERLAIN, Ph.D.

CLARK UNIVERSITY

THE oneness of the American Indians with all races of men (including us whites) is readily admitted by those who have seen them in their human activities and not merely in their forced relations with so-called 'higher civilization.' The writer was fortunate enough, a number of years ago, to come into the friendliest contact with the Kootenay Indians of northern Idaho and southern British Columbia, one of the least spoiled aboriginal peoples of the continent, and brought back with him to the east many pleasant experiences and reminiscences of 'savage' life. Since that time the building of the Crow's Nest Pass railroad and the opening up of the Kootenay district consequent upon it have made impossible some of the incidents occurring during his visit as an investigator under the auspices of the British Association for the Advancement of Science.

The Kootenays are very fond of their children, the men much more so than is commonly believed, or even supposed. To see a man carrying a little child is by no means a rare sight. Among the Lower Kootenay in Idaho, the writer saw one of the older men of the tribe playing in right human fashion with his children. The little ones ran merrily all about him, pulling his hair, pinching him, etc. One little tot of some five years of age persisted in crawling all over him. He was very affectionate toward them and even allowed this child to put its toes into his mouth. Surely the white man could go no further!

About the same time, a young woman of fifteen was busy chopping firewood—and she handled the axe remarkably well. After carrying on her back to the tent the wood she had cut to pieces, she looked around for a little girl of five or six who was amusing herself at a distance. '*Tláne! tláne!* (Come! come!),' she cried loudly, but the child did not or would not hear. Soon she ran over to the child, caught her, spanked her and brought her home. The spanking was quite after the fashion of the whites, and was probably learned from them, as that method of punishment is un-Indian. The Kootenays seldom, if ever, whip their children, and one of them said that he would rather die than see a white man chastise his offspring. At one of the stores in the Upper Kootenay country a little Indian boy was playing 'hide-and-seek' with a little white girl as blithely as might be. This same little

fellow, whose skin seemed even dirtier than the shirt forming his only garment, was promised some candy if he would wash his face. Going to the river, a few yards off, he marched in, clothes and all, coming back dripping from head to foot, but beaming with smiles. The candy he ate in a way that would do credit to any white child. Not alone the children, but the adults as well, are very fond of candy, which they call *gāktlētl k'kōktsi,* or 'variegated sugar (sweetness).'

On another occasion, and at a different place, the writer had a little Indian boy to breakfast with him. After the first shyness was over, the little fellow conducted himself with a grace and dignity quite unknown to many white children of his age. And through it all his beautiful dark-brown eyes shone in the most captivating fashion.

At the Mission of St. Eugene, on the St. Mary's river a few miles from Ft. Steele, B. C., a school of a more or less industrial character had been established, and, at the time of the writer's visit, was attended by about sixteen girls and ten boys, a number of whom were of mixed blood, children of white men who had married Kootenay women. The school was conducted by members of one of the Catholic sisterhoods, under the superintendence of Father Coccolo, the resident missionary, who exerts a great and abiding influence over these Indians, who thoroughly appreciate his absolute devotion and self-sacrifice. The children, who were from seven to fifteen years of age, showed gratifying progress in their attempts to acquire some of the learning of the whites. Although they had been in attendance only a few months, some of them could already read from 'Sadler's Dominion Catholic First Reader,' and sang also, not very badly, 'God Save the Queen,' and 'Great and Glorious St. Patrick,' which seemed to be their *pièces de résistance.* Some could write a very fair hand—it is curious with what facility the Indian can often master this art as compared with his white brothers under similar circumstances. It should be mentioned in this connection that many of the Kootenays, as their drawings made for the writer indicate, have a good graphic sense. They can likewise draw maps and recognize on the maps of their country made by white men the chief topographical features. No extensive carvings on rocks or pictographic records have been reported from their country, however, the 'Painted Rocks,' on Lower Arrow Lake, being quite within the territory of the Salish Indians, and not belonging to the Kootenays. While in the Lower Kootenay country, the writer received from the daughter of David McLaughlin, from whom he collected many native texts of myths and legends, the Kootenay equivalent for 'God save the Queen,' which is presented here as a literary curiosity:

Gắmnākōtlṓkōnîqan
May he save
Yắkasinkînawắskē
He who made us

Gūwîtlkā nāsūkwin pắtlkē!
Great woman chief!

On a Sunday afternoon, which is the holiday of the week among those Indians more or less under the influence of the Roman Catholic missions, the Lower Kootenays indulge in horse-racing, or, more properly, horse-running, on the great grassy plains beside the Kootenay river. Their whole herd is collected in an open space near the camp and then driven in all directions over the prairie and through the bushes, chased by laughing and shouting Indians, armed with quirts, willow gads, etc. The horses are run down, tripped, lassooed, driven into the water. Some of the Indians took particular delight in driving the horses as close as possible, in full course, to the writer's tent, to his evident embarrassment, which they keenly enjoyed. As horse after horse thundered past, at very close quarters, shouts and peals of laughter would fill the air, accompanied by remarks in the native language provocative of still more amusement. While all this is going on, the children sport about in the bushes, or caper about in the plain, seemingly in imminent danger of life or limb. It is very interesting to see them chase one another with long whips, or try to lassoo each other. Often they attempt to run down or lassoo the colts or the tamer horses, and the skill some of them develop in so doing is really surprising.

Many of the Indians are quite fond of their horses and treat them better than do the white men. Some, however, use only too readily the spur and the heavy whip of the whites. The Indian Amelu, when out on the trail with the writer, even when the horses had no packs to carry, would walk them up and down the steep grades and was in other little ways 'merciful unto his beast.' In the Upper Kootenay country, an Indian was seen to beat cruelly with his whip the dog of a Chinaman, which had tried to bite the toe of his moccasin, after having been teased for a long time. Some of the younger Indians are rather companionable with their horses, and it is worth noting that they have coined a few slang words, such as *k'ādla,* instead of *k'kắtlahắatltsin,* 'horse,' and *mistak'ādla,* 'colt.' The Kootenay name of the horse bears witness to its exotic origin, for it signifies literally 'elk-dog,' these Indians having had recourse to the aspect of these two animals already familiar to them, in order to assign a name to the new creature, the horse, introduced by the neighboring Indians directly or indirectly through the whites. Other animals not originally natives of the Indian country have sometimes very interesting names. Thus, the cow is 'the variegated horned animal'; the pig, 'the cut-off nosed'; the mule, 'the big ear'; the hen 'the variegated tail,' or 'the spotted tail,' or, again, 'the prominent tail'—these names applying particularly to the 'rooster.' Some of the names of plants new to the Kootenays

and introduced through the whites are: Cabbage, 'edible leaf plant'; cucumber, 'plant that grows on the ground wild'; oats, 'horses' food'; orange, 'big rose-hip' (the apricot, peach, pear, tomato, apple, are all named after the hip of the prairie-rose). The daughter of David McLaughlin, of the Lower Kootenay, a *métis,* who spoke only Kootenay, coined for the writer a new word on the spot. This was a name for the sunflower, which she called *kākā́dlimū́kōwādlī́dl'yit,* which seems to be derived from the word for 'light.' The Indian Amelu was not nearly so ready to assign names to new things—it is probably true that women exceed men in this respect among some primitive races. When asked to name a strange plant Amelu would often reply simply, *nōtlūkinē,* 'it is strange (foreign, unknown),' or *tsákō nána,* 'it is small (a little thing),' or, again, *hòk·ā ṓphanē,* 'I don't know.' Still Amelu did know a great many things, for one evening he reeled off 91 names of birds. On other occasions he had named over 100 species of plants, shrubs and trees, besides a large number of animals, fish, etc. Of every one of all these he was able to give brief descriptions.

When a scientific investigator first makes his appearance among a primitive people, it is often difficult to convince them that his advent is not connected with the attempts of white men to steal their land or ill use their women—these are the two chief sins laid to the charge of the 'superior' race. The writer once by accident intruded on what might be called the meeting of the 'sewing circle' of the Kootenays, but the shouts of the women immediately reminded him of breach of primitive etiquette he was committing by peering into the women's tent. One of the chief men of the Upper Kootenays, who was unfriendly to the writer's objects, resurrected a dead-letter law of the tribe by which the women were forbidden to talk English with the white men. When the writer overcame this difficulty by using the Chinook jargon, the same man used his influence to have the women forbidden to talk anything but Kootenay, but by that time he had learned enough Kootenay to make this prohibition of not much avail. Some of the Indians understood very readily the idea of having their language and their legends preserved by means of the white man's records, and took the utmost pains to secure accuracy and completeness. Amelu was so interested in the matter that he suggested a new method of procedure, *viz.,* that the writer, if he really wanted to make the best possible investigations and record everything, should marry the niece of the old chief, who was about to resign office—the inheritance was in the female line—and thus become chief of the tribe, when he would be able to accomplish his heart's desire in the way of scientific knowledge. The ties of his own people, naturally, prevented this consummation, which certainly would have had its advantages for science, for as chief of the Lower Kootenays the writer might have accomplished much.

The reactions of the Kootenays to the proposal to have their stature, etc., determined were often very interesting. Most of them at first refused altogether, and their prejudices were very difficult to overcome. One Indian told the writer that he could measure him when dead, and another said that he was not a child—others, however, were very unwilling that their children, in particular, should be measured. To measure the women, was, of course, except in rare instances, impossible.

With the language it was different. The Indians would often come to the writer, without having been asked, and inform him that they had some words which they wanted him to put in his 'book' of their language, so eager, apparently, were some of them to help in the preservation of their speech. This is a rather common experience with those who have come into sympathetic relations with savage and barbarous peoples. Amelu, after he had told the writer a great many things about himself and his people, would sometimes turn round and catechize his catechizer, asking him all manner of questions about the whites, their manners and customs, etc., showing great interest, and being sometimes much amused. 'What do you call this in your language?' he would often ask, as he came across something new or interesting. 'Haven't you white people any stories about Coyote?' he would say, after relating some of the Kootenay legends. Once, when an Indian was asked to tell the story of the sun and moon, he began to give a version of the Bible account of the creation, as he had it, probably from some priest. He appeared surprised when the writer informed him that that was the story of his people, and after a little while admitted that it wasn't Indian, and began to tell the Kootenay story of how the coyote and the chicken hawk made the sun and moon. Amelu, who was an Indian under mission influence, did not hesitate to shoot a chicken-hawk for the writer, although that bird is one of the chief figures in Kootenay mythology—he had more fear of 'medicine-men' than he had superstitious views of mythological personages. He would not eat meat on Friday, but would eat the 'saw-bill' duck, which, he declared, ate so much fish that it was practically fish itself. Another 'religious' practise of his was wearing the old Indian breech-clout, even when he had adopted the trousers of the whites. In a few other respects also he was a curious mixture of the old and the new.

The Indians are very prompt to notice any personal peculiarities or idiosyncrasies of speech, action, movement, etc. In climbing into the saddle the Kootenays swing off the right foot, and not off the left, as does the white man. The fact that the writer (amateur in his horsemanship) happened to climb into the saddle 'off-side,' as we say, gained him at once the name, 'The man who rides like an Indian.' This circumstance was a road to the favor of these people, who are always delighted to have one do instinctively as they do. The mastery of the

difficult *k* and *tl* sounds, so characteristic of the Kootenay language, is also much appreciated by the Indians. This will be easily understood when one learns that, in the mouths of the whites the word for 'horse,' *k'kātlahaatltsin,* is made over into kallahalshin, or worse, while the distinction between words of entirely different significations, *e. g., g· ūstet,* 'trout,' and *k· 'ūstit,* 'tamarack,' is altogether ignored. His attention to these points caused the Indian to dub him 'The man who talks straight.' A third name conferred upon him recorded the fact that he never lied to them. In another the Indians called attention to his very dark hair, 'The man with hair like an Indian'—the possession of which was another bond of union with them. A fifth, and more formidable name, 'He uses the long stick'—he owed to the anthropometric apparatus which he carried with him. By use of these various names the coming and going of the writer was heralded all over the Indian country and the natives soon came to know him well and understand the reason of his presence among them. Some of the white settlers have also received interesting nicknames, one prominent individual, who had a glass eye, being termed 'The man who takes out his eye,' and the Indians are clever in their imitation of his manipulation of it.

To hear a white man blundering along in his efforts to speak Kootenay correctly is one of the best quarter-hours the Indians ever enjoy. Even the wives and children of white men who have married squaws extract considerable amusement out of the linguistic mistakes of their husbands and fathers. Any one who believes that the Indian never laughs will be heartily undeceived after a session of this sort. The inability of the whites to master the numerous gutturals with which the Kootenay language is provided is a never-ending source of laughter. The Indians went off into roars of merriment over such mistakes as saying *inisin* (horsefly) for *inisimin* (rainbow); *k'ūpi* (owl) for *k'ūpōk* (woodpecker); *hāhās* (skunk) for *hāhā* (crow), etc. When some one said for *kānkūptsē* (bread baked in a pan), the perfectly unmeaning *tankūptsē,* it reminded the Indians of a real word, *t'ānkūts* (grouse), and they indulged in a fit of laughter. When the writer mispronounced the word *g· ūstet* (trout), on one occasion, an Indian went off into the woods near by and returned with a diminutive 'tamarack,' the name of which is in Kootenay *k· 'ūstit,* pronouncing that word correctly, as he handed him the shrub. The writer's desire, which the Indians fully comprehended, to obtain a large vocabulary and a considerable body of texts of myths and stories in the native language led naturally enough to the very embarrassing demand that he should read every word and every sentence over and over again until he could repeat them all without the slightest error—this was worse than the child's well-known demand for the repetition of its favorite

stories without any deviation from the original text, since he could often write down the word correctly, when he could hardly satisfy the Indian's requirement in the way of pronunciation.

The Indians have their 'chatter' and 'nonsense' as well as the whites. Amelu was very fond of chanting and talking to himself in somewhat waggish fashion. This he called, in the Chinook jargon, 'cultus wawa' (nonsense). As he sped along the trail he would sing to his horse, slapping it on the flanks, or making rhythmic motions with his hands:

Tō tō tō tō!
Tum tum tum tum!
Tā tā tā tā
Tai tai tai tai!

The repetition was *ad libitum,* according to his mood, or his fancy. Another refrain, which had an 'infinite variety' of inflection, intonation, etc., was the following, which he sang with great animation:

Hai yā! hā hē yau!
Ē yā! hā hā hai yau!
Hē yā! hō yō!

This sounds a good deal like some of the refrains used in the gambling games of the Kootenays. Another refrain, which he chanted as the fire was being spoiled by the scattering of the burning logs, was:

Hum kē pupum!
Hum ke̱ pupum!

An interesting procedure, indulged in often by Amelu, was the mispronunciation and distortion of words, amounting not seldom to real punning. Thus for *saiwáskō,* the name of a species of dragon-fly, he would repeat: *Saiwásukw', sauwātskō, saúwāsko, saiwásekō, saiwátshkō,* etc. Sometimes when the Indians were telling legends in their own language, they would deliberately mispronounce or distort words to see if the writer noticed the difference—if he did not at the time they would generally tell him, and have a little fun over it. When they came to the parts of the stories where the animals played tricks on one another they would stop to laugh over it, making fun of those who couldn't talk very well. The Indians would laugh to themselves when the writer used a proper Kootenay term, and one of the other white men about a slang or jargon term without knowing it.

While the writer and Amelu were out botanizing and sampling every edible berry (the Indian, of course, tasting first), they ran across the 'soap-berry' (*Shephardia canadensis*), the *gōpātētl* of the Kootenays. The wry faces made by him as he chewed up a few of the

berries, greatly amused his guide, who explained that the Kootenays did not like these berries half as well as did the Shuswap Indians, for they 'tasted like bad whiskey.' It may be said here that the Kootenays have many names, but little use for whiskey, both on account of their own inclination against it, and by reason of the stringent laws and the good influence of the Catholic missionaries—the miners also, as a mere matter of self-defense, aid in the thorough enforcement of the law. The story is told of a Kootenay who, when sick, was told by a priest to take a little whiskey as medicine. He sturdily refused, with the emphatic declaration: 'You say whiskey bad. Bad one time, bad all time.' Poetic justice was satisfied by the recovery of the patient. The Indians are very skilful in their mimicry of the drunken white man. Among the Kootenay names for whiskey are the following: *wūō* (water, liquor), *sūyăpi wūō* (white man's water), *nipik· ā wūō* (spirit water), *nōtlūkinē wūō* (strange, foreign water).

After the tasting of the berries was over, Amelu took pleasure in crushing some of them between the palms of his hands and showing how 'soap' could be made. The leaves of the shrub he then used as a very primitive towel. Other experiences of the writer on this excursion convinced him that the Kootenays are not without a sense of humor. On the Mooyai trail the writer ran into a group of nettles, and Amelu hugely enjoyed his surprise at being stung.

This humorous reaction to the surprise, embarrassment, awkward predicament, accidental discomfiture, etc., of a fellow man is common among these Indians, both with reference to their own tribesmen and to individuals of other races, such as whites and Chinese, with whom they come into contact. In the region of the Columbia lakes, there are a cold spring and a warm spring (not steaming so as to be noticed) close beside each other, and a common trick of the Indians is to induce an unsuspecting stranger (red or white) to step into one immediately after the other. The writer, upon the suggestion of Amelu, once took a plunge in the Kootenay at Ft. Steele, but did not stay in more than a moment. The water was almost icy cold, as the Indian knew, by his own confession, and the haste with which his white friend got out of the water stirred deeply his sense of the ridiculous. Similarly, whenever the Indian horse threw him off into the pine-brush or cast him over its head into a creek, his guide would feel bound to laugh more or less heartily. Another fertile source of amusement was the embarrassment caused the writer by his first acquaintance with the snapping and snarling, no less than thieving, Indian dogs, who were the pest of the camp. One of these curs actually seized hold of a can of corned beef and was running off with it, when the use of another can as a missile caused him to give up his plunder. This action must have seemed very funny to Amelu.

This sense of humor is collective as well as individual. The writer was present beside the camp-fire one night, when one of the Indians was giving, for his benefit, an account of a government official who had recently 'inspected' the Canadian Kootenays. This individual was said to have insisted on taking with him all the appurtenances and conveniences of civilization, including a cook-stove, a feather bed, etc., and the group of listeners expressed loudly their merriment, as the speaker touched off the white man's peculiarities. The Indians were fully conscious of the fact that another official (likewise another white man, a storekeeper) was really very much afraid of them. They made this known to the writer in sarcastically humorous fashion. Indeed, the white settlers hardly are aware how much the Indians comment upon their appearance, their character and their actions, especially in a quasi-humorous way. One Indian actually told the writer, with 'fun' in his eye, however, the order in which the white people would be killed off, should trouble ever occur—a certain settler, who could see nothing good in the Indians, was to be the first victim, and the writer (if he had to be included) was to be the last.

The Kootenays take delight in playing tricks, not only upon one another, but also upon the whites. The writer had complained of the first horse procured from them as being altogether too fast for his liking and too 'wild,' so the next time he asked for a horse he was given a creature, which, except when he was in the company of other Indian horses, went at less than the proverbial snail's pace. The writer's indignant remonstrances evoked abundant mirth on the part of the 'guileless' natives. While measuring an Indian in the Lower Kootenay country, he had an experience of a more startling sort. The Indian suddenly rose to his full height, and, quickly drawing his knife from its sheath, pretended to strike him—the writer being soon reassured, however, by the loud laughter of the other natives about him. Tricks like this are much enjoyed by them.

In the mining regions of the Kootenay country, there are a considerable number of Chinese, who have taken up the claims abandoned by the whites, and manage to make a good living from them. The superior attitude assumed toward these people by the whites has its effect in the way the Indians look upon them. As a rule the Kootenays and the Chinese get along well together, but the former sometimes hector and bully the latter, and not infrequently Indians become semi-parasitic, doing odd jobs for the Chinese, or imposing upon their charity. Many of the Indians regard the Chinese as quite inferior beings, and the poor Celestials seem in more or less awe of them. In jesting fashion, the Indians will call the Chinese 'brothers' or 'cousins,' but persistently deny any close relationship. One of the Kootenays, who knew that the whites thought the Chinese and In-

dians looked alike, pointed out to the writer several differences between them of a physical character, and then remarked, in the Chinook jargon, 'halo siwash'—not Indian. The single braid, or 'pig-tail' of the Chinese is a matter of sport for the Indians who usually wear their hair free, or in several braids. The Kootenay name for Chinaman is *Gōōktlām*, or 'tail head,' in reference to the hair-braid. The Indians also make fun of the alleged use by the Chinese of cats as an article of food. One of the Chinese of Wild Horse Creek, a certain Lam Kin, acted as 'doctor' for some of the Ft. Steele Indians, his cure being a sort of medical tattooing, known by the Indians as *katlku*, which many of them affected after their own ancient shamanism had been more or less abolished through missionary influence.

One afternoon, when camped in the Lower Kootenay country, the writer thought he detected the presence of a skunk in the vicinity of the tent. He saw his Indian guide some distance away and hailed him about it. Only a non-committal answer was obtained. Noticing that the Indian did not venture to come near, he asked him what he had been doing, and started to go toward him, when he soon perceived what was the matter. Amelu had been trying to kill a skunk, and his scanty raiment exhaled abundant evidence of the encounter. He was given some money to get new clothes at the little store not very far off, and soon returned in triumph, having taken a bath in the river on the way back. How he induced the storekeeper to let him get near enough to purchase what he wanted he did not say, but perhaps the exchange was effected after the primitive fashion sometimes indulged in by children. However that may be, Amelu was a thoroughly shamefaced red-skin, as he stood off at a distance, afraid to come near the tent until the cause of his embarrassment had been disclosed. It appears that the Chinese in the mining districts of the Kootenay use certain parts of this animal for medicinal purposes, and the Indians catch them and sell them. Some of the Kootenays are said to catch skunks with their naked hands—usually they knock them over with sticks or stones. In capturing these and other small animals they take pleasure in getting as close to them as possible before striking. When using the writer's gun, Amelu would creep up so close to the grouse, known locally as 'fool hens,' that they would be blown to pieces when he did discharge his weapon. He also appeared to take great delight in 'gaffing' fish as compared with catching them with hook and line, although he enjoyed that very much, especially when he became aware of the writer's inexpertness as a fisherman.

Past one of the camping-places on the Kootenay river a steamer used to go every few days, and Amelu, from the moment he first heard the whistle till the vessel disappeared from his sight, would stand upon the bank waiting for it, gazing at it, peering after it. The sound of the whistle never failed to arouse him, or to call him forth, wherever he might be, and the steamboat was, doubtless, one of the wonders of his life. When a trip up the river, from the international boundary to the settlements on Kootenay lake, was proposed, he was beside himself with joy and anticipation. He became excited beyond all bounds, and when the whistle sounded danced with delight and capered about, not exactly like a gazelle, for he weighed 177 pounds and was heavily built. When he got on board and could examine things at his leisure, he was 'tickled to death.' He inspected everything that was at all accessible, watched the motion of the vessel and the revolutions of the wheel, listened to the noise of the engine and the hissing of the steam, gazed in rapt wonder at a score of different things that from time to time riveted his attention. But his keenest delight, after all, was when he could signal or shout to some of his tribe on the banks or in canoes in the stream. The relish with which he did this was unmistakable. And, on the journey back, he was quite as elated, if not so inquisitive. Certainly that trip on the 'fire canoe' was one of the events of his life.

The 'fire canoe' seems to have appeared more natural to the Indians than the locomotive, or 'fire wagon,' possibly because of its progress in the water, like a canoe, and not over the land with the 'fearful eye' of the latter, which so impresses many primitive peoples. In northern Idaho the Indians were very much frightened by the first steam trains. When the railroad was near Rathdrum, several Lower Kootenays, who had been sent into that part of the country to deliver some letters, were so affected by the sight of the puffing, snorting, fire-spouting locomotive that they threw down their letters on the spot, turned about and fled for dear life, not daring to look back once until they were safe again with their own people. They reported that they had been chased by the 'Evil One,' himself, and had escaped with the greatest difficulty. Later on, as happens with other peoples, familiarity bred contempt, and the Indians can now look at these creations of the white man's genius with much less of fear than of wonder or of interest. The Kootenay youth is more afraid of doing 'woman's work' than he is of the 'fire-wagon.' This was the case with Amelu, the writer's guide, who was with difficulty persuaded to make his own pan-bread on the trail. He was '*hiyu* shame' (much ashamed), and used to make it always before an Indian camp was reached. In other things also, he shared the disinclination of his fellow tribesmen to perform any labor that properly belonged to women, according to the customs of his people.

Some writers would deny to the American Indian all possession of romantic love, or of love in any very high sense of the term. This, of course, is an utterly untenable theory, as any one who has seen the Indian at home well knows. The writer's 'guide, philosopher and

friend,' Amelu, a young man of 22 years, was in love all the time he was with him, and gave expression to many of the orthodox symptoms of that state in an undoubted fashion. The shamefaced way in which he would answer when asked why he had been away from the tent (in the neighborhood of an Indian encampment) so long the night before was a convincing fact. One evening he asked for a little money, and no amount of coaxing would for a long time induce him to say what he wanted it for. At last, however, in real lover fashion, he admitted that he wanted to buy some article or other to take to his lady friend, who was to put the finishing touches upon it. On this occasion Amelu blushed as much as the redskin can, and that is a good deal. Altogether, as an eminent Americanist once said, the Indian is a man, even as we are men. This the writer knows by actual experience, from the moment of his first arrival among the Kootenays, when *halo naika cumtux* (Chinook jargon for 'I don't know') was the only conversation on their part, to the time when he sat with them, round the campfire and himself began the story-telling: *Kānáqē Skínkūts,* 'The Coyote was going along.'

For "Indians of North America bibliography"

See reel 120

Alaska and British Columbia

Indians in North and South Americas

Folder 1

C. Hart Merriam
Papers
BANC MSS
80/18 c

Tlingit

ALEUT-ESKIMO & TLINKIT

Vocabularies from Unalaska, Kadiak, Kenai, & Sitka.
Lisiansky's Voyage Round the World 1803-1806.
Republished by Davidson in U. S. Coast Survey Rept. for 1867,
pp. 293-298, 1869.

Aleut - Eskimo & Tlinkit

Vocabularies from Unalaska, Kadiak, Kenai, & Sitka
Lisiansky's Voyage Round the World 1803-1806.
Republished by Davidson in U.S. Coast Survey Rept. for 1867,
pp. 293-298, 1869.

THE WIVES OF PEARY'S ESKIMO MEN ON BOARD THE ROOSEVELT AT ETAH

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Retake of Preceding Frame

AN ESKIMO MOTHER AND HER CHILD

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Retake of Preceding Frame

Eskimo

matter on Eskimo with plate showing hut + large cache in Spurr's Reconnaissance in SW Alaska, Rept. U.S. Geol. Surv. XX, part VII, pp. 73-76 + pl. XII (vol. dated 1900).

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Caribou

~~DEER~~

ESKIMO of POINT BARROW, ALASKA (Native carvings ~~of deer figures)~~.

John Murdoch: 9th Ann.Rept.Bur.Eth. for 1887-88:

1892.

Quiver rod & Cap for same, Figs.191, 192..p.209.

Work-box (or trinket-box) in shape of deer,
Fig.334,...p.325.

Deer-head on bag-handle (illus.)....p.190.

W H A L E

ESKIMO of POINT BARROW, ALASKA (Native carvings of whale figures).

John Murdoch: 9th Ann.Rept.Bur.Eth. for 1887-88, 1892.

~~Wood & bone images of whale, Fig.404. . . .p.401.~~

White whale from gypsum, Fig.405,...... p.402.

Wooden whale, Fig.403.................. .p.403.

Soapstone whale, Fig.407............... p.403.

Flat image of whale, Fig.408........... p.404.

Ivory images,Fig.409,.Fig.409.......... p.404.

Pair of little ivory whales, Fig.411... p.405.

Giant holding whales (ivory), Fig.415.. p.406.

Whale flaked from red jasper, Fig.422.. p.435.

" " " glass, Fig 421 - - - p.435.

Ancient whale amulet, of wood, Fig. 423 - - p.436.

Bone ladle in form of whale, Fig.45.... p.105.

Harpoon boxes in form of whale, Fig.251..p.249.

Flipper toggles in form of whale, Fig.250,p.248.

SOUTHEASTERN LIMITS OF RANGE OF ESKIMO AND ALEUTS

Dr. Wm. H. Dall tells me that the Aleuts do not extend farther east than the Shumagin Islands, and that the natives in Prince William Sound are Eskimo.

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DEPARTMENT OF THE INTERIOR

UNITED STATES GEOLOGICAL SURVEY

...., 189...

The names of the Southern natives are perhaps best spelled Tlinkit and Tsimpsian. In the Ms. Mr. Grinnell speaks of meeting the first Aleuts at Prince William Sound, but the natives properly resident at this place are not Aleuts but Eskimo. The Aleuts do not come further east than the Shumagin Islands. The people of

B I B L I O G R A P H Y

ESKIMOS, of Cumberland Sound & Davis Strait:

F.Boas. The Central Eskimo.-- 6th Ann.Rept.Bur.Eth. for 1884-85: 410--413, 1888.

E S K I M O

BERING STRAIT:

E.W.Nelson: The Eskimo about Bering Strait.-- 18th Ann.Rept.Bur.Eth.for 1896-97, Part 1: pp.3-518, illus. map, 1899[publ.1901].

Simmons

Indians

1905

Simmons (H. G.) Eskimåernas forna och nutida utbredning samt deras vandringsvägar. (Ymer, Stockholm, 1905, xxv, 173–192, map, 6 fgs.) Discusses former and present distribution and migrations of the Eskimo tribes, with references to recent authorities, particularly Boas and Thalbitzen — the map is modified from that of the latter (it shows regions now uninhabited by Eskimo but containing evidences of their former residence: Southeast coast of Labrador, east coast of Greenland, the Arctic archipelago between Greenland, Baffin Land and Victoria Land, and a portion of the extreme N. E. Asiatic coast). One of the notable Eskimo "ruins" is "Eskimopolis" on Buchanan Strait, visited by the author in 1899. S. considers rash the conclusions of Storm and Isachsen as to the post-Norsemen population of Labrador by the Eskimo.

Photo by Dr. Rudolph M. Anderson

The Blonde Eskimo

Photo by Dr. Rudolph M. Anderson

The Blonde Eskimo

Retake of Preceding Frame

Blonde Eskimo - Rod & Gun in Canada Nov. 1913.

OUR MEDICINE BAG

Another North country controversy, presenting features of the Cook-Peary embroglio is threatened by the claims of G. L. Deschanbeault, a French Canadaian fur trapper of Fort Simpson, who, on arriving in Edmonton from the far north, declared that he and Joseph and William Hudson discovered the 300 blonde Eskimos in the Great Bear Lake country and lived with them fully three weeks before Explorer Steffannson and his expedition arrived on the scene, in the summer of 1911.

"We were in the Eskimos' camp when Steffannson and his party came in," Deschanbeault said, "and left there shortly afterward, pressing farther north. We obtained a number of valuable furs from the tribe and in exchange we gave them various articles. You can imagine my surprise when on reaching civilization I learned that Steffannson had taken all the credit for a discovery which the Hudsons and I originally made.

"We told Steffannson of the strange race of people and he joined camp with us. We heard of the blonde Eskimos through members of a tribe encamped on the Copper Mine river, about1,700 miles north of Edmonton. The Interpreter told us that strange stories were being told among his people of a tribe of 'huskies', who, although they resembled the ordinary Eskimos in habits, had the pale faces of the white men.

"Not one of the Eskimos on the Copper Mine River had seen the blonde "huskies," although the legend had been handed down from father to son of the existence of such a tribe on the shore of the Arctic Ocean. Our guide told us that the strange tribe had come farther south that summer, chiefly owing to the lack of food in the north."

Aroused by curiosity, Deschanbeault and his companions decided to follow the Copper Mine river to its juncture with the Great Bear Lake. On arriving at the shores of the Great Lake, the party came upon the encampment of the strange tribe. The Eskimos were dressed after the customary fashion of natives of the north, but instead of being short of stature and dark of countenance, the Eskimos were much blonder than the usual white man after he has spent several years under the blistering sun and biting frosts of the north country. Another contrast was that the men of the tribe were much taller than the ordinary Eskimos, the average height being about five feet ten inches.

After centuries of intercourse with the white man the ordinary Eskimo has come to adopt many of the habits of cilivisation. He uses the most up-to-date repeating rifles, which he trades for furs captured during the winter. But these blonde Eskimos had only the primitive bow and arrows and household implements which were in use all over the continent before the coming of the Hudson's Bay company.

"The fact that the blonde Eskimos had never come in contact with even the other natives of the nearby country," Deschanbeault said, "was evidenced by the fact that our interpreter had the utmost difficulty in making them understand anything, and we were quite unable to obtain anything like a comprehensive account of their history or their folk lore.

"The natives simply stared at us in open eyed astonishment and fingered our rifles, our clothes, and in fact the whole of our outfit, with a sort of reverent wonder."

When Deschanbeault and his companions came upon the encapment in the late summer of 1911 they found the Eskimos in a state of high glee. A record catch of fish had just been made, and, after having gorged themselves, chiefly with raw fish, the natives were proceeding to dry the catch and preserve it for winter use The fish were roughly cleaned with bone knives, and dried by means of sun and smoke.

"The ordinary Eskimo tribes have in most cases adopted the tepee of the Indian for summer use, but the blonde Eskimos did not appear to have sufficient intelligence to make use of the natural opportunities of the country. They lived in skin tents, but while skins were abundant it never appeared to have occured to them that they could make the tents of a sufficient height to enable them to live in them in comfort. The tepees were formed after the fashion of the igloo or ice hut which the Eskimo uses in winter, and were so low that a man had to crawl into them on his hands and knees, and it was impossible to remain in anything but a crouching position."

Deschanbeault estimates there are fully 300 men, women and children in the tribe. He learned there are several larger tribes on the shore of the Arctic ocean. However, no information as to the location of these people could be obtained from the natives, as they have only the vaguest idea of distance.

The tourist traffic this year over the Great Lakes between Sarnia, Ont. and Fort William, Ont. by the northern Navigation Company's Steamers (Grand Trunk Route) has been exceptionally heavy, in fact the big steamships of this line have been leaving port each trip with their full complement of passengers.

The route is a popular one and has become well known for its exceptionally good service. This is apparent by the many unsolicited letters that reach Grand Trunk headquarters from time to time from patrons who have taken the

COUNTING HAIRS

Two Eskimo met while out hunting. One had caught a wolf, the other had shot a caribou. Each carried the skin of his kill slung over his shoulders.

While talking about the skins, one claimed that the caribou had more hairs on than the wolf. The other answered: "No, the wolf has more hair than the caribou." They grew so excited over this matter that they sat down and began pulling out the individual hairs of the two pelts. It took them days to make the count, but they never finished, for while each was claiming that his hide had more hair than the other, they were starving and finally both died of hunger.

The narrator told Rasmussen that this sort of thing is what happens when people busy themselves with aimless things.

Knud Rasmussen: 'Across Arctic America,' 252-253, 1927.

ESKIMO HARPOON HEADS

The Eskimo of the Arctic Coast between King William Island and Kent Peninsula used harpoons made from the hard shin bone of the Polar Bear.

Knud Rasmussen: 'Across Arctic America,' page 169, 1927.

WHITE MEN ALWAYS WANT THEIR OWN WAY

Rasmussen, in his memorable expedition across Arctic America from Baffin Land to Alaska, obtained much of the old folklore from the native Eskimo, and in so doing secured many side lights as to the perception and reasoning of these interesting people.

Once when questioning a man as to the exact meaning of a story he had told, he received the following answer: "We don't really trouble ourselves so much about the meaning of a story as long as it is amusing. It is only the white men who must always have reasons and meanings in everything, and that is why our elders always say we should treat white men as children who always want their own way. If they don't get it, they make too much fuss."

Knud Rasmussen: 'Across Arctic America,' 254, 1927.

D O G S

ESKIMO of POINT BARROW, ALASKA (Sledges, dogs and harness)

John Murdoch: 9th Ann.Rept.Bur.Eth. for 1887-88;

353—360, illus. 1892.

Native carving of dog's head, ivory, Fig.417, p.407.

" " " " " , bone ladle, Fig.46...p.105.

So-called "dog-bells" not used by p.254

PINART IN ALASKA

The 'Annual Record of Science and Industry' for 1874-5 gives the following note on Pinart's Explorations in Alaska:

"The December Bulletin of the Geographical Society of Paris contains an account by M. Alphonse Pinart of his explorations of Alaska, prosecuted in 1871, with a map showing the regions of his travels. These embraced a considerable part of the island of Kodiak, the southern portion of the Aleutian Islands, of Unalashka, Unamak, and Oomnak, as also Bristol Bay and Norton Sound, and Plover Bay, on the Siberian Coast. A great amount of interesting information is given in regard to the tribes visited, and the geographical peculiarities of the country, the latter including original determinations of the altitude of several mountains, the discovery of a bay on the south side of Alaska (now called Pinart Bay), which was previously unknown; statistics of the Eskimo and Aleut population, etc. Numerous collections in ethnology and geology were made by M. Pinart, and a large number of geographical views of scenery taken, and many portraits secured. [246]

Several communications upon the geological and palaeontological collections of M. Pinart had been already made by French savans.-- Bull. Soc. Geogr. Paris, Dec. 1873, 561."

Ann. Record Science and Industry, 1874-5, 246, 1875.

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Ann. Record Science and Industry, 1874-5, 246, 1875.

Sitnazuak. A village of the Kaviagmiut Eskimo w. of C. Nome, Alaska; pop. 20 in 1880.

Chitashuak.—Jackson in Rep. Bur. of Ed., map, 1894. **Chitnashuak.**—Petroff in 10th Census, Alaska, 11, 1884.

Handbook Am. Indians
Pt. 2, p. 583, 1910

E S K I M O

POINT BARROW, ALASKA

John Murdoch. Ethnological Results of the Point Barrow Expd., 1881-1883; 9th Ann.Rept.Bur. Eth. for 1887-88, pp.3?-441, illus. 2 maps, 1892.

Pl.I-Map showing region known to Point Barrow Eskimo............facing p.2. (with location of tribes).

Pl.II-Map of hunting grounds of Point Barrow Eskimo........... facing p.18. (showing grounds for deer, seal, walrus and whale hunting).

Bibliography:

~~Bibliography of ethnography~~

List of works consulted on ethnography of Eskimo of Point Barrow region..pp.20-25.

W A L R U S

ESKIMO of POINT BARROW, ALASKA (Carvings of walrus figures)

John Murdoch: 9th Ann.Rept.Bur.Eth. for 1887-88: 1892.

Ivory figures of walrus, Fig.403.....p.401.

Harpoon box in form of walrus, Fig.251c..p.249.

Drum handle with head of walrus, Fig.385c p.387.

Grotesque soapstone "walrus man", Fig.390, p.394.

E S K I M O S

CUMBERLAND SOUND & DAVIS STRAIT:

F.Boas. The Central Eskimo.-- 6th Ann.Rept. Bur.Eth. for 1884-85: 399--675, illus. maps, 1888.

With Bibliography of authorities quoted, pp.410--412.

UPPER KUSKOKWIM

Brief vocabulary, with names of some animals. --J. S. Herron: Explorations in Alaska, 1899, 60th Cong. 2d Sess. Sen.Doc.No. 689, ~~[illegible]~~, p. 72, Washington 1909.

Walter McClintock, in his book entitled The Old North Trail, tells the following story, which was related to him by an Indian who had it from Mad Wolf, a Blackfoot.

An Indian woman who had gone to a stream for water returned hurriedly, and told the Indians that she had seen an enemy.

"Mad Wolf and the other chiefs hurriedly seized their rifles and ran down to the stream just in time to see a small party of Gros Ventres emerging from the forest. The Blackfeet opened fire and killed all except their leader. He stood his ground until his ammunition gave out, when he took refuge in the underbrush.

Our people clipped the branches off all around him with their bullets, but could not hit him. Finally they made a charge, but the Gros Ventre chief fought savagely with his knife, roaring all the time like a grizzly bear at bay and calling to the Blackfeet 'Come on, I am not afraid. My name is A-koch-kit-ope and my medicine is powerful.' When day broke, our [p.54] people were uneasy, thinking the Gros Ventre chief might have supernatural power. They told him he was free to go, but they would scalp the others. A-koch-kit-ope replied, 'No, they are my brothers and I will not leave them.' Feeling thirsty, he walked to the river and drank, daring any of the Blackfeet to

stand forth for a hand-to-hand conflict. When our people finally killed him, they discovered that the grizzly bear was his medicine. He had a grizzly claw tied in his front hair. The Blackfeet were so afraid that some of his power might escape, that they built a fire and burned A-koch-kit-ope's body. If a spark or coal flew out, they carefully threw it back into the fire, to prevent the possible escape of any of his power. They scalped the other dead Gros Ventres and had a scalp dance around the fire.

When the fire had burned out, the Blackfeet hurriedly moved camp. But in spite of their precautions, A-koch-kit-ope transformed himself into an enormous grizzly bear and followed them. He came upon the Blackfeet when they were pitching camp, killing some, while the rest escaped by flight.

The next spring when our people went up the canyon to cut lodge poles, they camped again near the big fir tree in the same park. Early in the night, while the horses were still picketed close to the lodges, an enormous grizzly bear came into camp. The horses were frightened and stampeded, just as ours have done. The dogs attacked him, and he killed some of them and put the others to flight. The people were afraid to shoot, because they recognized the bear as A-koch-kit-ope. He appeared beside the fir tree, where the year before the Gros Ventre medicine

man had hung his war bonnet. The grizzly boldly went through camp eating all the food he found and tearing to pieces hides and parfleches. Whenever our people camp near the fir tree in the canyon they see the medicine grizzly, whom they have named A-koch-kit-ope. He comes only at night and disappears before daybreak. The Blackfeet know his medicine is strong and are afraid to shoot at him. When we made peace with the Gros Ventres, we told them about this medicine grizzly and they said that he was A-koch-kit-ope, their great medicine man. They declared he could not have been killed, if all of his followers had not been slain first."

—Walter McClintock: The Old North Trail, 53-55,1910.

The name of the Bat in Absaroka

The Crow name of the Bat is Nă-kok' bud-dā-dā-pe.

Nă-kok is bird; bud-dā-dā-pe is the name of the nymphae (or labia minora) of the Crow women, which parts are often drawn down & greatly expanded like the 'Hottentot apron' and are thin, smooth & membranous, suggesting a bat's wing — hence the name.

Told me by Crow Indians — com

Scientific Monthly - Sept. 1935

MARRIAGE AND SEX CUSTOMS OF THE WESTERN ESKIMOS

By CLARK M. GARBER

FORMERLY PROFESSOR OF BIOLOGICAL SCIENCES AT CAPITAL UNIVERSITY AND SUPERINTENDENT OF ESKIMO AND INDIAN SCHOOLS IN ALASKA FOR THE UNITED STATES BUREAU OF EDUCATION

AN intelligent discussion of the marriage and sex customs and practises of a primitive people presupposes the author to have lived with them for a comparatively long period and to have made a systematic and organized study of their culture. One is not given the opportunity to study the intimate life habits and customs of a people by brief contacts with them. A perspicuous knowledge of the Eskimos' private life can be acquired only by living intimately with them, and particularly through the enjoyment of their utmost confidence. The scientist or student who would learn the things which lie within the secret lives of the Eskimos must be prepared to isolate himself from the civilized world, and for a period of time virtually become an Eskimo in his life habits. A few scientists and students—Nelson, Petrof, Rassmussen, Jenness, Stefansson, etc.—have been willing to suffer such isolation and hardships in order that they might contribute accurate information to the world's knowledge of Eskimo culture, while others have been content with cursory investigations. The cursory investigation can lead only to distorted ideas, exaggerations and false information. Unfortunately, much of this misinformation finds its way into print for the reading public to consume, and thereby false conceptions concerning the Eskimo people are broadcast.

The short-time investigator is unknowingly apt to find the Eskimos prepared to give him just the information he wants. They readily sense what is desired and often purposely deceive those who would learn their secrets. Furthermore, the Eskimo is prone to put only his good side forward. In his legends of conflict with the white man his side is always superior in arms, skill, strategy and shrewdness. His answers to interrogators are made to fit as near as possible to his interpretation of the white man's ethics. But there can be no doubt that a conscientious and intensive study of the Eskimo in his living state will yield a more lucid conception of his culture than will be gained by a lifetime study of museum specimens, especially when such study is the result of a comparatively long and intimate life with them. A picture of the Eskimos' past culture may be drawn from archeological specimens taken from reputed ancient village sites, and may also be drawn from their present culture and folk-tales handed down through innumerable generations. But if our store of knowledge of Eskimo life, past and present, is to approach a reasonable degree of accuracy it must be built upon an exhaustive study of both these sources of information.

The customs and traditions of a primitive people vary according to locality, clan, tribe, village or dialect, and thus we find it among the western Eskimos. This variation is not as distinct to-day as it was prior to their contact with the white man. Demarcation lines between tribes or clans have melted away, because of the white man's efforts to Americanize the Eskimos. It is therefore very difficult to determine where the Innuits, Kuskokwagamutes, Nunivagamutes, Malmutes or Unalits begin or end, and unless the investigator is familiar with Eskimo philology he may

find himself at a loss to differentiate them.

The Inception of Sex Knowledge

To the reader it may be an astounding fact that the Eskimo children learn of sex matters as soon as they are able to form ideas. To them it is not a matter of parental teaching in any form. It is a matter of observation, because they witness family functions being conducted right before their eyes. There is no effort on the part of the parents to conceal such matters from the children. The Eskimos' permanent home is an underground structure called an Innie.[1] The floor area of the actual living quarters does not average more than two hundred square feet. In this small room may often be found living a father and mother, three to six children, possibly an older son or daughter who is married, and likely the grandparents. Under such crowded conditions in such a small place the children, from the youngest up, witness the performance of all family functions. By their nature Eskimo children are great imitators. They attempt to mimic everything they see done. Hence their early and natural attempt at participation in sex relations, particularly during their play at housekeeping. I have witnessed Eskimo children at play during which the mimicry of the sex act of their parents was just as important a part as the sewing, tanning, caring for the imaginary children, etc. The dolls of the Eskimo children are in most cases fashioned in the form of the complete nude of either sex, *i.e.*, they are not asexual. At the age of ten to twelve years the Eskimo boys and girls arrive at puberty. No sooner is this in evidence than the parents are anxious to marry them off so that they may enjoy further means of support during their declining years. This is particularly true of the girls, since they do not contribute to the support of the family. Among the Innuits it was not uncommon to mark a girl by tattoo lines as an indication that she had attained the marriageable age. In the region of the Yukon and Kuskokwim Rivers Delta the girl's father would pass the news among the young hunters that his daughter had arrived at her first catamenia and could therefore be married any time. In this same section I found several instances in which the girl's mother, by physical manipulation, prepared her small daughter for the process of copulation in order that complete satisfaction might be assured the prospective husband, who was a skilled young hunter having the marks of an excellent provider. However, mating does not always take place immediately after puberty. It is often postponed until much later, and I have known both girls and boys to be between twenty-five and thirty years old before they were permanently married.

In the translation and compiling of a volume of folk-tales of the western Eskimos[2] I have found a large per cent. of their stories and legends based upon sex, mating, propagation and birth. These stories are often told to children as bedtime stories; hence they early in life become sex-minded. For instance, in their stories, "The Daughter of a Witch Doctor" and "How the Yutes first came to Nuviakamute," direct and literal reference is made to cohabitation, childbirth and sexual indulgences. In their folk-tales they talk about sex exploits as familiarly as we tell our children about Red Riding Hood.

Child betrothals among the western Eskimos are not uncommon, although it has never developed into a general practise or custom. Usually such betrothals take place between parents who are particularly affluent, and wish their good

[1] *Innie:* The permanent home of the western Eskimos built under ground.

[2] "Folk Tales of the Western Eskimos," by Clark M. Garber. Not yet published.

FLOOR PLAN AND SECTION OF A BERING STRAIT TYPE INNIE

In another type of innie frequently constructed by the western Eskimos the door to the inner chamber consisted in an opening in the center of the floor. This opening was connected by a deeper tunnel running directly under the innie from the hallway.

fortune to continue with their children. Or the parents of the betrothed children may be especially good friends and desire to honor each other through the betrothal and subsequent marriage of their children. In the case of a child betrothal the actual marriage does not take place until the girl and boy have reached the age of puberty or later. In the meantime they are not permitted any sexual freedom between them, but each may have such indulgences with others. Nelson says,[3] "From the lower Yukon to the Kuskokwim child betrothals are common and may occur in two ways. In such cases the girl is frequently not over four or five years old. Sometimes such arrangements are made by a couple to take effect when the first girl is born. In these child marriages when the girl reaches puberty both she and her husband are considered unclean, and neither of them is permitted to take part in any work for a month, at the end of which period the young husband takes presents to the kashim and distributes them. After this he enjoys the rights of other heads of families."

Promiscuity

The freedom of sex relations among the western Eskimos and particularly among their unmarried youth can not, by any reason or theory, be laid at the door of licentiousness. Such freedom of sex can be interpreted only as a biological development which has for its purpose the propagation and perpetuation of the race. I regret to say that the lewd side of Eskimo life developed as a result of their contacts with the white man. Murdock says of the Point Barrow Eskimos,[4] "promiscuous sexual intercourse between married and unmar-

[3] Nelson, Eighteenth Annual Report, Bureau of American Ethnology, pp. 291, 292.

[4] Murdock, Annual Report, Bureau of American Ethnology, No. 9, p. 419.

ried people, or even among children, appears to be looked upon simply as a matter for amusement.'' With due deference to Mr. Murdock's investigations, I fear that he was somewhat deceived by appearances. The amusement side of sexual freedom among the western Eskimos did not develop until they learned from unscrupulous whites about the sensuous pleasures they might derive from the abuse of a natural process which, up to that time, functioned in a natural way. Of course we can not believe that the Eskimo, even in his most primitive state, is ignorant of sex gratification. That would be both unreasonable and unnatural, but the conversion of their natural sex relations to a state of licentiousness was inaugurated by foreign influence. We learn by life in an Eskimo colony that the abuse of the practise of sex freedom was frowned upon. Farther on in his report, in his criticism of Mr. Simpson's writing, Mr. Murdock says,[5] ''since the immorality of these people among themselves, as we witnessed it, seems too purely animal and natural to be of recent growth or the result of foreign influence.'' The proper interpretation of this statement hinges on the word immorality in the sense in which Mr. Murdock applies it to the practise of sex freedom. After many years of intimate life with the western Eskimos it is impossible for me to interpret their sexual freedom in any sense of moral turpitude, because it is purely biogolical. It is fairly certain that they would not talk to their children in unrestrained terms regarding sex matters if they knew it to be contrary to custom and tradition. It is around custom and tradition that their sense of right and wrong is built. What appeared to Mr. Murdock to be amusement in connection with their sexual freedom was naught but their amusement at the white man's inquisitiveness.

[5] Murdock, Ninth Annual Report, Bureau of American Ethnology, p. 420.

The birth of a child out of wedlock is considered very improper, and usually means a severe scolding from the parents. But a girl who has given birth prenuptially is by no means disbarred as a candidate for marriage. In fact, her fecundity is thereby proven, and since children represent the criterion of a happy marriage she has no particular difficulty in finding a husband. It is in reality a greater crime for a girl to be barren than to have children out of wedlock. A girl who is barren is wanted by no man. She may become the second or third wife of a man, but because of her inability to bear children she will have all the menial tasks about the household to perform. In a later paragraph—''Influence of the Whites''—it will be found that prenuptial childbirth is often favored, especially when the father is a white man.

Promiscuous sexual intercourse among the youth of a primitive Eskimo village seldom, if ever, becomes a licentious matter to the extent of producing prostitutes. Prostitution found among the Eskimo girls is not a natural result of sex freedom. It is the result of the white man's perfidy. In all their legends, stories and folk-tales we find not a single reference to any condition or situation which might be interpreted as prostitution. Widows are more apt to become prostitutes than unmarried women. A widow who has already borne a family often becomes the common property of the men of the colony. The young men prefer her services to the services of the young girls. This apparent prostitution does not bar the widow from subsequent marriage, and when such marriage does occur she again becomes chaste. Any children she may have borne during her widowhood as a result of her prostitution are given away to childless couples, who are highly pleased to get them. In my inquiries into such cases of prostitution I have found that the widow does not so behave

of her own choice. Custom and tradition wield a powerful influence in the matter, so that she is more often forced into prostitution against her desire than by her desire.

Marriage Customs and Ceremonies

The primitive Eskimo has never developed a complex ceremony by which husband and wife are bound in wedlock. His mating is almost as simple as the mating of wild animals. His marriage is based on the economics of his existence. In the first place a wife who is a good housekeeper, skilled in making of fur garments and footwear, and efficient in the butchering and preparation of meats and skins, is most desirable. But the predominant factor in Eskimo mating is the wife's ability and willingness to bear children. Every young hunter in contemplating marriage considers this factor first. This is partly due to nature's scheme for propagation and perpetuation of the race, and partly due to tradition and custom. The result is a probationary marriage. The young hunter looks upon all the likely girls in the colony and observes them at their daily tasks. When he has decided upon the girl whom he believes will make him a good wife he approaches her father or guardian to arrange the matter. The prospective father-in-law, who is usually glad to be rid of his daughters, may agree to the young man's proposal, but exacts from him a promise to hunt and fish and turn the proceeds over as his consideration in the agreement. This, however, does not consummate the marriage relation. In the Yukon and Kuskokwim Delta region the young hunter takes the girl to his camp and lives with her in a state of trial marriage for a year. If children are begotten, proving the girl's fecundity, the marriage is thereby consummated. But if the girl fail to become pregnant with child she is returned to her parents, and the young hunter is free to select another. In the Bering Strait region and on St. Lawrence Island the period of probationary marriage may endure for three years, during which time the girl remains with her parents and the young hunter must turn over his entire catch to his prospective father-in-law. Co-

Photo by A. B. Martin

A TYPICAL ESKIMO WOMAN
of the Kuskokwim River Delta region. The ornaments worn across the breast of the parka are two brass alarm clock wheels, and between them a Russian bell. Approximate age 22 years.

habitation of the young hunter and his trial wife is permitted during this period, and if the relation does not prove satisfactory it may, without ceremony, be broken by either party. In such cases the trial husband is the loser, because he will have hunted and fished for the girl's

Retake of Preceding Frame

of her own choice. Custom and tradition wield a powerful influence in the matter, so that she is more often forced into prostitution against her desire than by her desire.

Marriage Customs and Ceremonies

The primitive Eskimo has never developed a complex ceremony by which husband and wife are bound in wedlock. His mating is almost as simple as the mating of wild animals. His marriage is based on the economics of his existence. In the first place a wife who is a good housekeeper, skilled in making of fur garments and footwear, and efficient in the butchering and preparation of meats and skins, is most desirable. But the predominant factor in Eskimo mating is the wife's ability and willingness to bear children. Every young hunter in contemplating marriage considers this factor first. This is partly due to nature's scheme for propagation and perpetuation of the race, and partly due to tradition and custom. The result is a probationary marriage. The young hunter looks upon all the likely girls in the colony and observes them at their daily tasks. When he has decided upon the girl whom he believes will make him a good wife he approaches her father or guardian to arrange the matter. The prospective father-in-law, who is usually glad to be rid of his daughters, may agree to the young man's proposal, but exacts from him a promise to hunt and fish and turn the proceeds over as his consideration in the agreement. This, however, does not consummate the marriage relation. In the Yukon and Kuskokwim Delta region the young hunter takes the girl to his camp and lives with her in a state of trial marriage for a year. If children are begotten, proving the girl's fecundity, the marriage is thereby consummated. But if the girl fail to become pregnant with child she is returned to her parents, and the young hunter is free to select another. In the Bering Strait region and on St. Lawrence Island the period of probationary marriage may endure for three years, during which time the girl remains with her parents and the young hunter must turn over his entire catch to his prospective father-in-law. Co-

Photo by A. B. Martin

A TYPICAL ESKIMO WOMAN
OF THE KUSKOKWIM RIVER DELTA REGION. THE ORNAMENTS WORN ACROSS THE BREAST OF THE PARKA ARE TWO BRASS ALARM CLOCK WHEELS, AND BETWEEN THEM A RUSSIAN BELL. APPROXIMATE AGE 22 YEARS.

habitation of the young hunter and his trial wife is permitted during this period, and if the relation does not prove satisfactory it may, without ceremony, be broken by either party. In such cases the trial husband is the loser, because he will have hunted and fished for the girl's

parents and receives no return for his efforts. The probationary marriage and the return of the trial bride to her parents in no way affects her chances for a successful marriage, for she may soon be chosen by another hunter, and this time prove her desirability by bearing children.

In the region of Bering Strait and the Arctic Coast the girl's consent is necessary before a trial marriage may be arranged. The young hunter in all cases must have merited the title of hunter by delivering his first kill of each kind of animal to the oldest man or chief of the village, who divides it into as many parts as there are innies in the village. Each home group receives a portion while the young hunter receives some undesirable part of the animal or none at all. Once he has qualified in this manner, he is accepted by the hunters of the village as one of them, and is then in a position to marry. When arrangements for the trial marriage have been concluded with the prospective father-in-law the young hunter retires to the cosgy,[6] where he awaits acceptance or rejection by the girl he has chosen. If within due time she brings into the cosgy and sets before him a platter of choicest foods she thereby indicates her acceptance. Grasping the wrist of the young man she guides his hand to and from the platter while he eats with as much gusto as will indicate the degree of his pleasure. Thereafter the young hunter takes his trial wife to his isolated hunting camp or, as frequently happens, he goes to live with the girl in her parents' innie. If within the period of probationary marriage a child should be born to them the marriage is thereby consummated. If no children are born to them the husband is free to return the girl to her parents and select another. The length of the probationary period is controlled by the shortage or plentifulness of girls in the colony. If a shortage of females prevails a father may exact a greater price for his daughter, and if there are plenty of females there is less competition, which results in a much shorter trial marriage, and less service on the part of the young husband.

Courtship

It will be seen in the foregoing paragraphs that courtship and love-making take place during the probationary marriage period. The western Eskimo, although capable of affection, is undemonstrative. There can be no doubt that a successful marriage promulgates a sense of love and affection between mates, but there is no marked development of this relation prior to marriage. Mr. Hall bears out this statement in his assertion,[7] "Love—if it comes at all—comes after the marriage." The folk-tales of the western Eskimos bring to light very little regarding love matches, but do deal very frequently with marriage arrangements, freak marriages and pertinent ceremonies. In the case of the Eskimos of the Bering Strait region it is apparent that a sort of courtship exists when the chosen girl carries food to and feeds her promised husband in the cosgy. This is usually accompanied by a considerable demonstration on the part of the male, just as a peacock struts before his mate. Undoubtedly it is accompanied by, or more likely caused by, an impelling sex impulse which might be termed courtship. Throughout their legends and stories there comes to light the functioning of the instinct to show off before the opposite sex, and the same instinct functions in their lives to-day. This does not lead to open courtship or love-making, but it does have a definite bearing on the matter of the young

[6] *Cosgy*—The village meeting place built on the order of a very large innie.

[7] Hall, "Arctic Researches," p. 568.

hunter's winning the girl he wants. If two men should select the same girl at the same time there must follow a series of contests in which the winner takes the girl and the vanquished seeks another. Furthermore, courtship of a girl almost always includes the courtship of her parents' favor. To accomplish this, the young hunter endeavors to perform some outstanding act of valor, some singular success in hunting or some difficult feat of endurance. In their legend[8] "How Quakseetko Won a Wife," from the Bering Strait Eskimos, we discover a vivid portrayal of the type of courtship, which was no doubt the usual procedure. Among the Eskimo girls and boys of lesser prominence the process followed the same general form, but was much less romantic.

Influence of the Whites

In those parts of Alaska where the whites have contacted the Eskimos for a comparatively long period the blood of the Eskimos has been so thoroughly mixed with the blood of the white race that one would have great difficulty in identifying a full-blood Eskimo. By reason of their practise of sexual freedom the Eskimo girls are exceptionally gullible to the advances of unscrupulous white men. Furthermore, they have quickly recognized the marked improvement in the mental and physical characteristics of their offspring when they cross their own blood with that of the white man. Except in the primitive Eskimo villages this mixing of bloods has taken place to such an extent that the Eskimo girls now consider it an honor and something very desirable to bear a child by a white man, and it matters not whether in wedlock or out. I have in mind three specific cases in which the desire to bear children by white men became so impelling that the Eskimo girls deliberately requested cohabitation. In one of these cases the refusal of the white man highly incensed the girl and her parents as well. This attitude is not so prevalent among the mar-

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of the white man highly incensed the girl and her parents as well. This attitude is not so prevalent among the mar-

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ried women, yet their chastity may, in many cases, be purchased for a few trinkets. However, in my examination into the effects of deceased Eskimo women, I have found numerous trinkets, such as buttons from sailors' uniforms, beads, brightly colored glass trinkets, etc., which indicate a rather frequent adulterous cohabitation with white men. I have also been informed by many of the old men that the white sailors often took their wives from them by force and by first getting the men insensibly drunk. Although the crossing of bloods usually takes place between white men and Eskimo women, I know a number of cases in which white women have crossed their blood with the blood of Eskimo men.

Polygamy, Monogamy and Polyandry

Polygamous marriages are by no means uncommon among the western Eskimos, but as a general rule the Eskimo is monogamous. There are many cases in which a chief or medicine man becomes affluent to such a degree that to maintain his prestige and large household he must have a second or third wife. If a man's wife should prove incapable of bearing children, or if she should bear only female children, it is his privilege to take a second wife for child-bearing purposes, while the more menial tasks are relegated to the first wife. The practise of infanticide, with special reference to female children, regulates the number of women in the colony, and the practise of infanticide in turn is regulated by economic conditions, such as famine and starvation. During the lifetime of an Eskimo mother it is not uncommon for her to bear as many as ten or twelve children, of which number a possible four or five may reach maturity. In some of the remote colonies where primitive life still prevails, the infant mortality rate often reaches 75 per cent. Murdock found,[9] "As is the case with Eskimos, most of the men content themselves with one wife, though a few of the wealthy men have two each. I do not recollect over half a dozen men in the two villages who had more than one wife each." Throughout their legends and stories the western Eskimos make many references to the polygamous marriage. To them a man who could afford two wives was indeed a great man, and the man who had three wives was looked upon in a worshipful attitude, not because of the three wives, but because he must be the acme of power and wisdom.

In this connection allow me to cite a case of a most unusual nature, one which lies within the author's experience. Upon arriving at a primitive coastal village I was met by an Eskimo man who was apparently about fifty years of age. This man seemed very anxious to have private conversation with me, so as soon as my dog team was properly cared for he was given the opportunity to make his wants known. Being their atanak (big chief) they depended upon me for advice in all matters, even in their domestic affairs. This man wished advice upon the following proposition. It appears that he had married a girl who was about sixteen, whereas he was between forty-five and fifty. She bore one child for him, after which he apparently became sterile. His inability to produce more children weighed heavily upon him, because to die without leaving plenty of children would be a very bad thing. He therefore wished my approval on a plan which he had evolved to alleviate his childless situation. He proposed to induce a healthy young man of the village to live for a time at his home and to cohabit with his wife until she should be with child. Because I

[9] Murdock, Ninth Annual Report, Bureau of American Ethnology, p. 411.

realized what such an arrangement would mean in the way of domestic happiness I gave my approval. On two separate occasions did this take place, resulting in the birth of two fine boys to the young wife. Thereafter the young man accepted his fee from the proud husband, and before long had a wife and family of his own. The tradition that a man must not die childless is, without a doubt, largely responsible for the existence of the Eskimo race to-day. This same sort of problem had been solved by many others in the same manner, so I was informed by the man whom I had favored. Here again we find concrete support for the statement that all the Eskimos' traditions and customs which have to do with sex, marriage and childbirth function toward one purpose—the propagation and perpetuation of the race. In this case we have seen a domestic difficulty solved in a primitive, but most logical and economical way.

Polyandry is much less common among the western Eskimos than polygamy. I have known several cases of polyandry, but always the people were beyond the age of reproduction. This is accounted for by the fact that there is more often a shortage of females than of males. Some authors believe that Eskimo women live much longer than men, basing their belief on the fact that men are exposed to greater hardships and stronger devitalizing factors during their lifetime. On the other hand, we must take into account the fact that an equally large number of Eskimo women die early in life as a result of childbirth, post-partum hemorrhage and infection. Furthermore, Eskimo women show the symptoms of old age much earlier in life than the men, because they have suffered the ravages of many childbirths and the devitalizing effect of suckling their children until they are four and five years old. As far as the practise of polyandry is concerned, I am confident that such cases are exceptions rather than customary. If two men marry and live with one woman the cause is an economic one. Every Eskimo man must have a woman to sew his garments and make his muklucks. If there is a shortage of women, then one woman must serve two men in that capacity.

Divorce

As a rule marriage, when once consummated by childbirth, is a permanent relation. However, marriage ties are just as easily broken as they are made. No special ceremony is required in case a divorce is necessary or desired. If a man find his wife to be a nag and scold he needs but expel her from his innie and send her back to her parents. I have observed that most cases of divorce and separation occur between older men and women, *i.e.,* widowers who have married widows. A man who marries a woman who bears children for him will endure much nagging and scolding before he will expel the mother of his children from his innie. Also the mother of a family will stand much abuse before she will leave her husband and children. In their children they have a common interest, which results in greater tolerance and in most cases develops into a real affection between man and wife, and in both of them for their children. Space does not permit a disclosure of the innumerable ramifications of the Eskimos' domestic relations. It will suffice to say that children, especially boys, represent the criterion of a happy home. The absence of children breeds discontent and ultimately divorce, or the marriage of a second wife for child-bearing purposes. Regarding divorce, Murdock says,[10] "Easy and uncere-

[10] Murdock, Ninth Annual Report, American Bureau of Ethnology, p. 412.

TYPE OF DWELLING OCCUPIED BY THE ESKIMOS

OF THE YUKON AND KUSKOKWIM DELTA. A SKELETON FRAMEWORK OF DRIFTWOOD, COVERED WITH BLOCKS OF TUNDRA SOD. THE SOD WALLS OF THE ENTRANCE WAY HAVE FALLEN DOWN, AND MUST BE REBUILT WHEN THE HOME IS AGAIN PREPARED FOR WINTER. IN THIS 9′ × 12′ DWELLING LIVES A FATHER, MOTHER AND FOUR CHILDREN. WHEN THE SPRING THAWS ARRIVE THE SOD ROOF AND WALLS DRIP WATER INSIDE SO THAT THE HOME BECOMES A VERITABLE MUD-HOLE OF FILTH. THIS TYPE OF INNIE IS MUCH INFERIOR TO THOSE BUILT BY THE INNUITS OF THE ARCTIC.

YUTE MAN AND WIFE FROM THE KUSKOKWIM RIVER

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monious divorce appears to be the usual custom among the Eskimo generally, and the divorced parties are always free to marry again." The folk tales of the western Eskimos are veritably full of references to divorce, separation, marriage, sex and childbirth. To them such things were no more improper than the simple process of wicking the seal-oil lamp. They were common, everyday occurrences in their lives, and they looked upon them in no other sense. Joking and badinage about sex and domestic life had no more significance than joking about the failure of a hunter.

Inbreeding

Until the ingression of the white man the Eskimo did not realize the benefit of blood-crossing. It was, and is to-day in the primitive villages, traditional that marriages should be confined to the immediate locality. In their folk-tales they frequently refer to the mating of young men and women with strange people in faraway places. The characteristic legendary outcome of such marriages is unhappiness and often tragedy. In view of the fact that their traditions and folk-tales go hand in hand it is not difficult to deduce that marriages with strangers from other and distant villages were frowned upon. In an effort to determine the extent of inbreeding the writer attempted to trace the genealogical connections of a prominent Eskimo family on the Kuskokwim River. The result showed that every other Eskimo family in the colony and vicinity was closely related to this family. It is common for cousin to marry cousin. I have known cases where uncles married nieces, and aunts married nephews. And it is not extremely rare that brother married sister. In four cases of which I have record a father married his daughter. Such close intermarriages are frequently mentioned in their legends and stories, but always with a large degree of distaste and condemnation. No penalty is attached to the marriage of a father with his daughter, etc., but it is strongly disapproved and unfavored by the people.

Celibacy

Celibacy, as a virtue, has never been adopted by the Eskimo people. Unless there is a marked shortage of women in the Eskimo colony not even the poorest man need be without a wife. Such shortages of females have occurred in times past and once during the author's life among the western Eskimos. The chief cause is the destruction of female babies as an economic measure during times of famine and starvation, so that not enough of them reach maturity. To overcome this difficulty a polyandrous arrangement was developed by which one woman would serve two men. In the 120 Eskimo colonies visited by the author not a single instance of celibacy was discovered. It may therefore be safely concluded that celibacy was unknown among the western Eskimos.

Exchanging and Loaning Wives

The exchange and loaning of their wives is a custom which is practised not only by the western Eskimos, but it is found among many of the earth's primitive peoples. It may take place as an amusement, as a matter of deference and hospitality shown to distinguished visitors, or the reason may be a practical one. Among the western Eskimos all three of these factors are responsible for the practise. In the region of the Yukon and Kuskokwim Delta the author frequently found himself honored by a village chief offering his wife as a bedfellow during the duration of the visit. This was his customary way of showing his respect and hospitality to visitors prominent among his people. Refusal of this offer is a base insult, which can

be assuaged only by presenting the host with a very fine gift. Murdock[11] speaks in the following manner concerning this practise among the Point Barrow Eskimos, "A curious custom, not peculiar to these people, is the habit of exchanging wives temporarily. For instance, one man of our acquaintance planned to go to the rivers deer-hunting in the summer of 1882, and borrowed his cousin's wife for the expedition, as she was a good shot and a good hand at deer-hunting, while his own wife went with his cousin on a trading expedition to the eastward. On their return the wives went back to their respective husbands. The couples sometimes find themselves better pleased with their new mates than with the former association, in which case the exchange is made permanent."

Among the Eskimos of Bering Strait, when the chief of one village visited the chief of another village, his host always loaned him a wife for the duration of his visit. If more than one person came to visit at the same time a consort was provided for each of them. This custom is often mentioned in their folk-tales. For instance, in the Legend of the Magic Pooksak we find a direct reference to this custom.[12] "The three wives of the famous chief Pumimyouk had been given to the visitors to be their partners or mistresses during their visit at Engyukarik. When the feast was over the three women departed each taking the man she had fed."

Jealousy

Jealousy among the western Eskimos, as among all people, is based upon the desire for exclusive possession of the mate. Westermarck[13] says, "Among the Eskimos the jealousy of the men seems to be feebler than among most other natives of America; but it is not absent." I have found during my life with the primitive and semi-civilized western Eskimos that the jealousy of the men and also the women is rather pronounced. After a wife is taken and children are being produced, the husband jealously guards the chastity of his mate. Jealousy in the Eskimo husband begins as soon as he has taken a wife in probationary marriage, and when proof of his wife's fecundity has been attained he demonstrates a deep concern for her chastity. While the young men and women of the village exercise sexual freedom prior to marriage there is little evidence of jealousy among them other than that of a petty nature. In a number of cases which I have observed the best girls of the village who would make the most likely wives were freely satisfying the sensuous desires of the young men, yet there was no evidence of jealousy among them. But as soon as one of these girls was taken to wife her husband constantly guarded her against the approaches of any of her former paramours. Even in polygamous marriages the same concern is shown regarding the chastity of all wives. This accounts in a great measure for the custom of the young husband leaving his wife with her parents or taking her with him to an isolated camp. Eskimo wives are equally jealous of their husbands, especially if the husband is a famous hunter and good provider.

Let me here cite an instance which will illustrate clearly the Eskimo husband's jealousy. In a village on Bering Strait there lived a man who was the husband of a fine type of Eskimo woman and the father of six equally fine children. There also lived in this village a man who, because of his previous relations with white people, had acquired a considerable degree of sexual licentious-

[11] Murdock, Ninth Annual Report, Bureau of American Ethnology, p. 413.

[12] "Folk Tales of the Western Eskimos," Clark M. Garber.

[13] Westermarck, "The History of Human Marriage," Vol. I, p. 307.

ness. By reason of his superior intelligence most of the men feared him and would tolerate his tampering with their women, regardless of their jealous hate of him. One day upon returning from his trap lines, the father of this fine family learned that this sexual pervert had cohabited with his wife. The violation of his wife right before his own family so stimulated and wrought upon his animal instinct of mate protection that he came to me in a great frenzy of jealous hate and demanded that I give him permission to eliminate the offender. Upon my refusal, the wronged husband informed me that if this man visited his wife again he would kill him, whether I gave my consent or not. Murders have been committed and feuds thereby started as a result of jealous rage on the part of Eskimo husbands whose wives have been incontinent.

In concluding this discussion the author wishes to stress the point that the acquisition of accurate ethnological data concerning the western Eskimo depends on the actual observation of the manifestations of their life process. In our day it is rarely possible to find a native people whose life is untouched by European influences. To acquire ethnological information of value concerning such natives the ethnologist must have the ability to differentiate between the material resulting from European influence and the purely native culture. He must be prepared to go and live for a time among the natives whom he would study. He must go among those natives where the European influence has not been felt, or where it has been felt the least. And it is no less important that he go with a clear understanding that to emphasize race difference will cause the natives to despise him. Only by adapting himself to the simple life of the native people, by gaining their utmost confidence, will he be successful.

In re Two skulls received from H. O. Bergh, Quatsino, British Columbia.

These are undoubtedly Indian skulls. One of them is that of a child, and the other one, seemingly, that of a male. The skulls are not at all deformed, which is not in conformity with what is usually found anywhere in northern portion of Vancouver Island. There is no mark of antiquity. All of the tribes are stopping deforming the heads, and it is quite likely that the skull represents some of the younger generation. Among the tribes slavery existed to a large extent. The fact that a man has not a deformed head causes him to be called a slave. It was only the royalty that had the deformed head.

Alaska and British Columbia 1889-1930

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PART TWO
PAGES 1-6

San Francisco Chronicle
LEADING NEWSPAPER of the PACIFIC COAST
SAN FRANCISCO, CALIFORNIA, AUGUST 18, 1929

Rotogravure Pictorial Section

INDIANS of the NORTH

KEEN, WISE EYES
Not even a modern camera could perturb this Indian chief of Ucluelet.

CLOWNS OR NIGHTMARES?
All dressed up to welcome the paleface are these Indians at Tofino, Vancouver Island.

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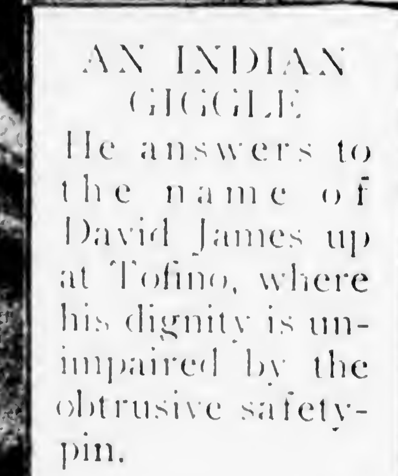

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ULTRA-SMART AT UCLUELET
'Tis a moot question whether the white feather or the moustache is the most unusual feature of this tribesman.

FROM ANCIENT TIMES
Typical Indians of the west coast of Vancouver Island with one of their old totem poles.

AT SPAIN'S LAST STRONGHOLD
Even Jessie Wilson cannot remember when Vancouver and Quadra signed the treaty at Nootka in 1792.

BRACELETS AND CALICO
With ever an eye to business, this squaw spreads her wares on the pier where tourists will see.

Photos by Courtesy of Victoria and Island Publicity Bureau.

IMITATING THE RHINO
This toga-clad gentleman seems weighted down by his intricate head-gear.

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Science News--Dec. 1929

2. SOUTHWARD MIGRATIONS OF THE NORTHWEST COAST TRIBES

C.-MARIUS BARBEAU

With reference particularly to the Tsimshian, the Tlingit, the Haida and the interior Athapaskans. The Gitksan tribe is made up almost entirely of northern Nass, Tsimshian and Tsetsaut elements (Sekanais and Tahltan). The Tsimshian and Nass are descended largely from ancestors that until recently were Tlingit, Tahltan or Haida. The family migrations everywhere in that country point southward and towards the coast. Their causes and origins. The two instances of the Wolf and the Eagle phratries as illustrations.

Recd. Dec. 1, 1928

~~Canada~~ Geographical Review, III: 157, Feb. 1917.

Yukon, Northwest Territories, British Columbia

COLLISON, W. H. In the wake of the war canoe: A stirring record of forty years' successful labor, peril, and adventure amongst the savage Indian tribes of the Pacific Coast and the piratical head-hunting Haidas of the Queen Charlotte Islands, B. C. 352 pp.; map, ills., index. E. P. Dutton & Co., New York, 1916. 8 x 5.

The subtitle of this volume connotes a sensationalism which is entirely foreign to its contents, for it is indeed the simple narrative of the life of a pioneer missionary on the British Columbia coast. Into this have been woven many facts of ethnologic and historic interest. It is to be wished that Mr. Collison had made his record of fact relating to the primitive customs and mode of life of the Haidas more complete, for he was the first scholar to become intimately acquainted with these people.

The volume deals specifically with the Tsimshians of the Nass and Skeena River region, and with the Haidas of the Queen Charlotte Islands. An all too brief chapter is devoted to the Tsetsant (spelled Zitz-Zaow by the author) Indians. This tribe, now practically extinct, previously occupied Portland Canal and is a foreign element on the coast, for it belongs to the Athapascan stock of the interior.

In addition to containing much valuable ethnologic data, the volume also includes some important historical matter relating to the missions and the early settlements along the northwest coast of British Columbia. It is above all a valuable record of the conditions of travel and life during an epoch which has now passed, and presents a vivid picture of the conditions which confronted the pioneer missionary. The book contains many good halftones, chiefly illustrating Indian life. One of these shows a well-built truss bridge which, though evidently the work of white men, is credited to Indian craft. The map which accompanies the volume has nothing to recommend it. It is poorly drawn, badly reproduced, and so full of glaring errors as to disfigure a book that in other respects has been printed in very attractive form. A. H. BROOKS.

P. 456 The Illustrated Canadian FOREST and OUTDOORS Aug. 1921

fact that June and July fires are invariably followed by an immediate and intensive attack of these insects, however, renders it imperative that lumbering operations be begun as soon as possible after the fire has taken place. If the logs can be placed in water within four or five days after the fire the young larvae will drown before their tunnels are begun and the

Two Remarkable Photographs

(From "American Lumberman.")

G. G. Johnson, general manager of the Capilano Timber Co., of North Vancouver, who is an amateur photographer of ability, while looking at a stand of timber well up on the west coast of Vancouver Island, discovered these evidences of early native art, and made the photographs herewith shown. These two figures were posts standing on either side of the entrance to the home of a former Indian chieftain on Kynoquot Inlet, Vancouver Island. The other parts of the home disappeared many generations ago. The home was originally built of poles covered with cedar bark. From talking with the present chief who lives in a modern cottage adjoining the site of the old chief's home, Mr. Johnson judged from the number of generations that the Indians speak of, that these posts must be about four hundred years old. They are carved from western red cedar trees, the giant arbor vitae—tree of life,—with which this part of the country is so generously supplied. It is truly remarkable that where all the conditions for wood decay are so prevalent that these figures have remained in such wonderful condition, as will be noted from the sharp outline around the eyes and other facial features, giving the expression to the face.

Retake of Preceding Frame

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The Come-Back Trapshooter

By Sideliner

George W. Lorimer Had Been Out of the Game for Fourteen Years, But He Won the G. A. H.

AND still they come back. All the old timers are not in the discard by any means. Youth is supposed to have things all its own way in sport but now and then it receives a jolt that is not in the reckoning at all.

Consider the case of the Grand American Trapshooting Handicap. There were 846 entrants in this big annual event. Gradually the race of elimination narrowed down to three contestants. These three were tied for first place, each with a score of 98. The mill was a long and hard one. To the man best able to stand up under the continued strain would go the trophy.

This man turned out to be George W. Lorimer of Troy, Ohio. One interesting thing about Lorimer is that he was once mayor of Piqua, Ohio. But a fact that strikes us of more vital interest is that his victory represented a rather unusual instance of come-back ability.

It happens that from 1898 to 1905, Lorimer was one of the best shots in the country. After that he dropped out of the ranks almost entirely. He did little shooting of any kind. In time his health began to break down as a result of overwork. Last June he was in quite bad condition and his doctor told him that he would have to get out and take up some outdoor sport. Lorimer took up trapshooting once more.

In due course of events he decided to enter the Grand American Handicap, a few weeks off. Every day found him out practicing over the traps. During these days of steady practice before the event he bought thirty-four different trapguns, one after another in hope of finding the one that fitted exactly right. And by one of the strange turns of fate which so often happen, the gun with which he won the event was the thirty-fifth and what is more he bought this on the grounds on the opening day of the tournament.

I am told that when Lorimer arrived at the tournament he was thirty pounds heavier than he had been a few months before. Certainly, he was in fit physical condition. But of course he had been out of the game so long that to all intents he was a newcomer. It did not seem possible that he would be a real contender. A newcomer with no record

George W. Lorimer, Fourteen years on the side-lines he came back a winner

is usually assigned a 16 yard position by the handicap committee but Lorimer's skill of years before was remembered and he was placed at the more difficult distance of 19 yards.

A new generation of trapshooters, another trapshooting audience had sprung up since Lorimer's day and he was practically unknown. But when the exciting moment of the triple tie came with Lorimer shooting against the respective State champions of Pennsylvania and Alabama, people sat up and began asking questions about this dark horse.

Then came the final show down. The Pennsylvania man broke 16 out of 20 targets. The Alabama man broke 17 out of 20. And Lorimer ended the suspense by smashing 19 out of the possible twenty.

Family Trees of the Aleuts

Photographs by Edith S. Watson

THE totem pole of the Indians of the Northwest Coast is a combination of a family tree and an heraldic crest. The following photographs taken by Miss Watson illustrate the variety and at the same time the similarity of these devices. These particular photographs were taken in the Aleut Bay region, but they apply to practically all the totem pole users.

These Indians trace descent on the mother's side and the place of honor at the top of the full sized pole was always given to the feminine side of the house. Thus a pole may show the Sun, the Guardian Spirit of Warriors, at the top. This shows that the warlike ancestry lies on the distaff side. Another much prized totem is the Copper somewhat resembling the keystone of an arch. This is a symbol of the great chiefs and its position on the pole indicates which side of the family carries the line. All natural phenomena and mountains belong to the Sun family and were their special familiars.

The great hunters claimed the figure of a bear as their special symbol. The legend runs that once upon a time a lost hunter was cared for by a bear for many years and when he returned to the tribe he surpassed all others in strength, hunting craft, and ferocity. To be a member of the bear clan is to be particularly honored and if the bear clasps the precious copper in his arms then you have a pride that makes the highest pedigree of Anglo-Saxon boast seem new and cheap.

Of course, special occupations have their special totems, such as whale, duck, fish, for fishermen.

The totem has a deeper significance than mere descent or rank. Through it the Indian becomes possessed of the familiar spirit of the thing represented, the bear, the whale, the sun. The highest of all, lifted above material things, is the Thunder Bird. This is the Great Voice, the spirit that moves upon and through all things, the emblem of the eternal mystery, of life, of death, of the hidden things that may not be made clear.

which Mr. MacManus says one cannot.

It has kept more than his body young. It has kept his mind, his fine spirit young. It has kept youthful and vigorous his imagination, his consuming interest in men and things. His to-day is the constructive energy of youth directed by the wisdom of experience.

It may be true as Mr. MacManus says: "My own son laughs at me when I tackle tennis, pool, or billiards."

But I would like to see anybody's son, unless it be Madame Dempsey's, last three rounds with that brute of a Trainer—Honestly, it's dreadful.

Kirk B. Alexander

By Theodore F. MacManus

The Trainer's Slave Exposes the Vagaries of the Variegated Sportsman

YOU all remember, of course, the lugubrious Mr. Venus, in Our Mutual Friend, and his cheery collection of bones, birds, and dead babies in bottles. Bones that were not of the animal family, you will recall, he was wont to label sententiously:—"Human Warious."

That's my saga of Kirk Alexander. He's one of the humanest, and one of the variousest fellers I've ever met up with.

To concentrate on him, as a sportsman, cruelly cramps, cabins, and confines my enthusiastic oversharp—nevertheless, the editorial will, shall be done. The task is eased by the fact that Kirk has never done badly a single sporting thing he has undertaken—with the possible exception of golf, in which he says he plays a continuous and hopeful game.

At Michigan he was really and truly top-hole in football, baseball, and tennis, with a better than fair quality of wrestling and boxing on the side.

At racquets he is a whole lot better than either his prudence or wisdom would permit him to say. He is a bona fide fisherman—not the sort who fishes well, and writes poorly about it, or fishes poorly and writes well; but one of the rare ones who distinguishes himself both in action and the narrative thereof.

Me, myself, I am a rotten poor fisherman with a yearning to be a good one. On the other hand, the Lord did give me the knack of judging good word-stuff. And you can freely take it from me that Kirk's book, "Log Of The North Shore Club," is worthy of the high price of ink and paper.

He has fished Lake Superior from Sault Ste. Marie to Port Arthur (for trout) in canoe, launch, Mackinac, and yacht, and explored Canadian rivers and lakes with Chippewas.

Kirk Alexander is another Detroit business man with football, baseball, tennis, wrestling, racquets, and even golf on the side

Incidentally, he has written all over the place, and written engagingly and well.

Meanwhile, God help him, he's a business man, and what's infinitely worse, an adviser to business men—what you call an advertising agent, for want of a more graphic expletive.

Kirk has been director at various times, of the Detroit Athletic Club, the University Club, Detroit Racquet Club, Detroit Country Club, and several others, but adds proudly that never yet has he been a bank director.

He has two sons and a daughter, and quite naturally and necessarily, a very charming and brilliant wife.

No more "homey" and delightful scene can be imagined than the Alexander nursery when the Three, following in father's footsteps, set about it systematically and scientifically to settle their difficulties by force of arms and legs—with the Old One delightedly in the door way.

They tell me that Kirk's real opinion of business will be made clear when he turns his back on it to engage in literary pursuits.

I want to be there to hear him, and I wouldn't be surprised if the delectable day were hovering on the horizon.

Photograph by Edith S. Watson

The sea and the mountains play moving parts in the lives of the Indians along the Northwest Coast

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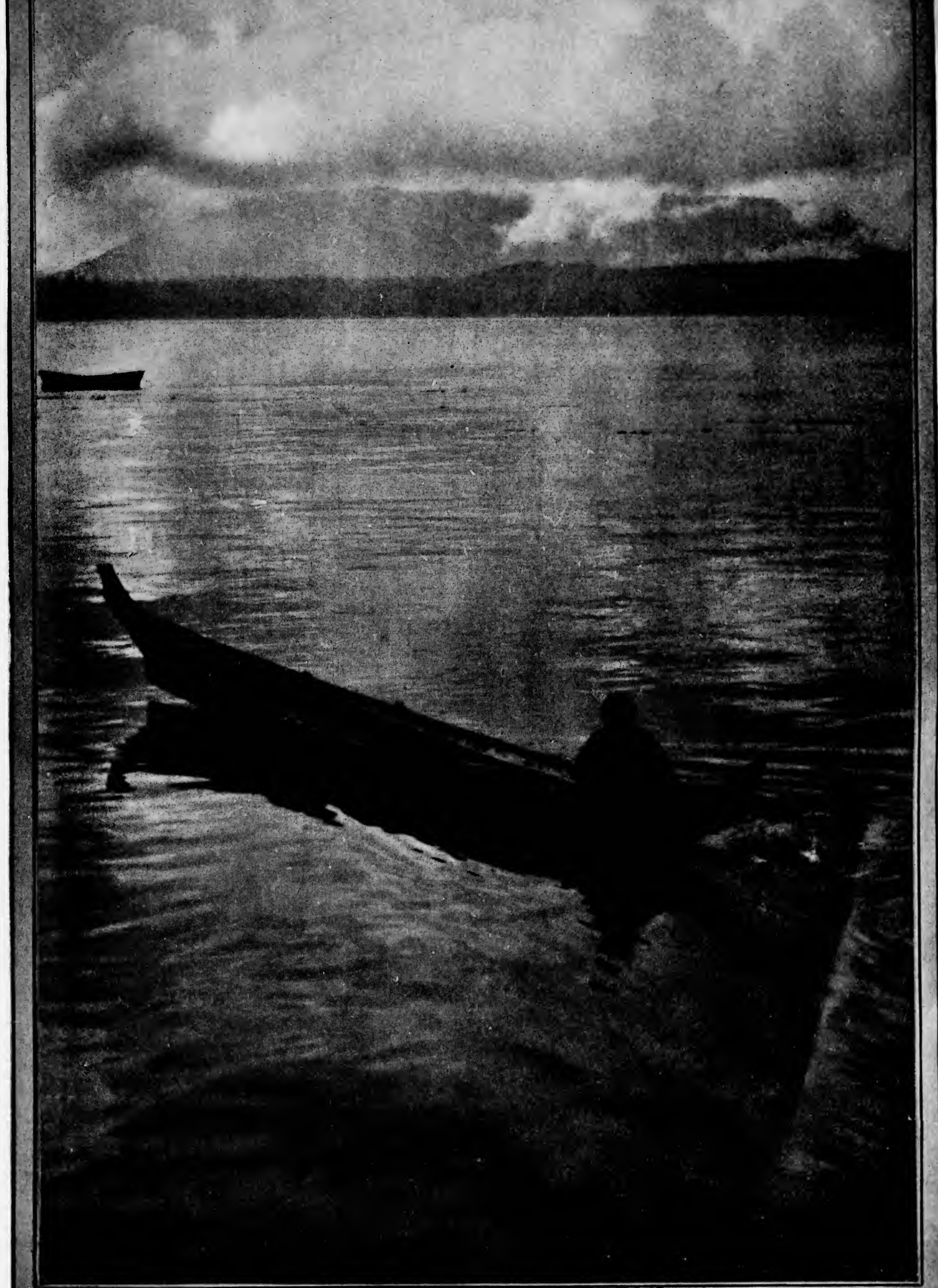


Photograph by Edith S. Watson

The sea and the mountains play moving parts in the lives of the Indians along the Northwest Coast

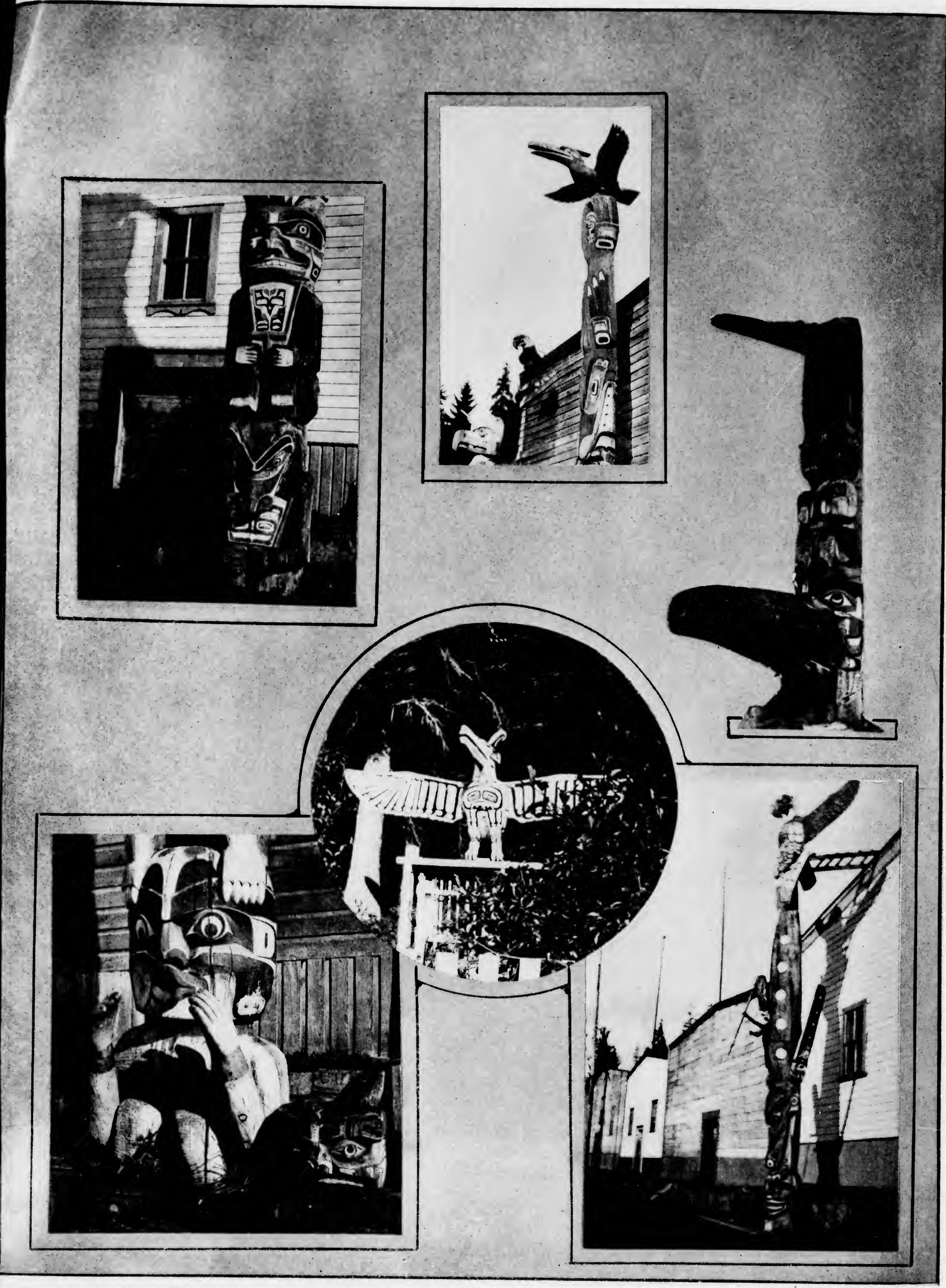
Retake of Preceding Frame

Photographs by Edith S. Watson

The totem pole is a family tree and a crest all in one. The bear with the copper (upper left) shows tribal authority and hunting skill

Photographs by Edith S. Watson

The Thunder Bird is the highest emblem of all; then the Sun, and next the Bear. The Whale belongs to the skillful fisherman



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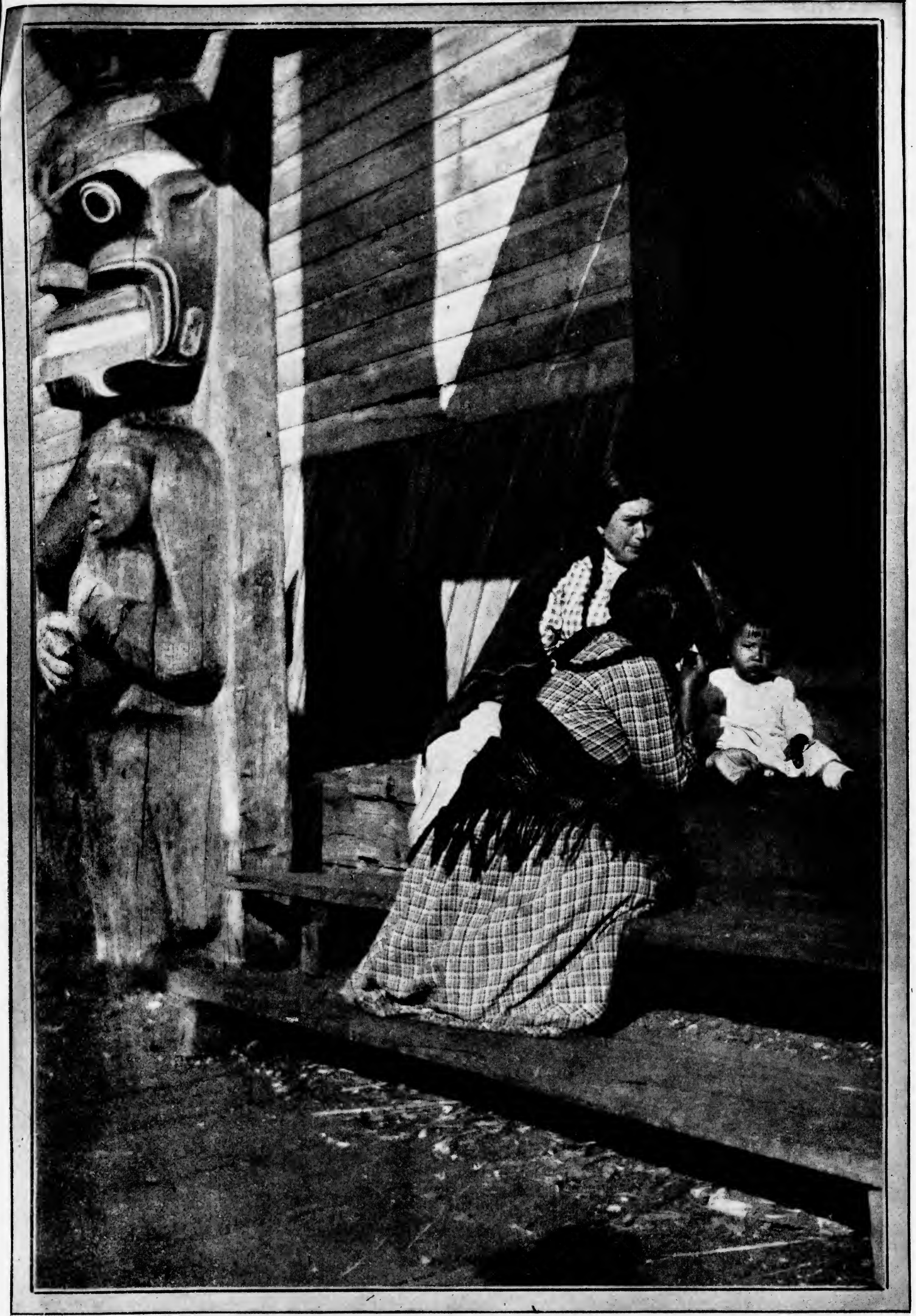

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Madonnas of the Aleuts

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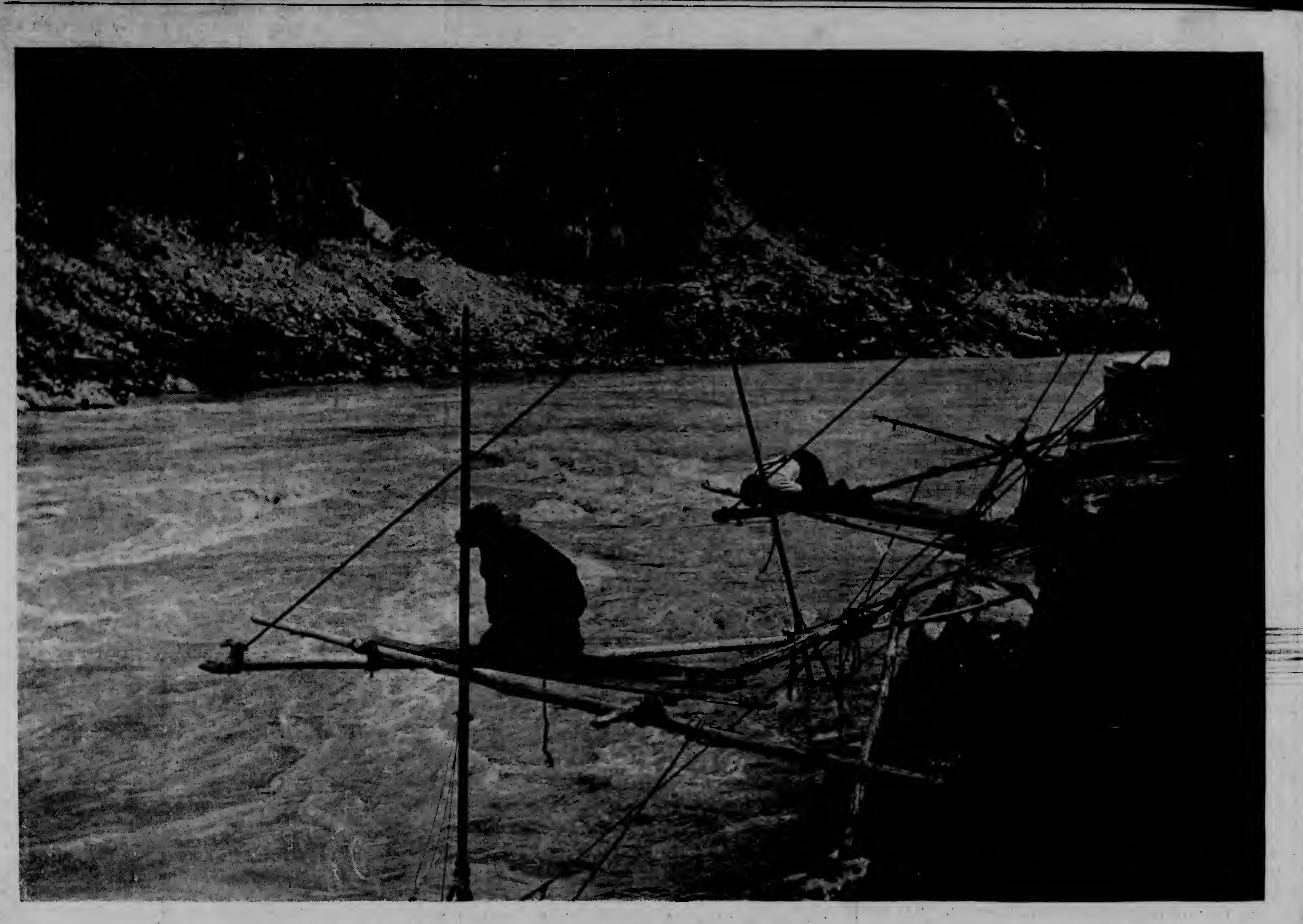
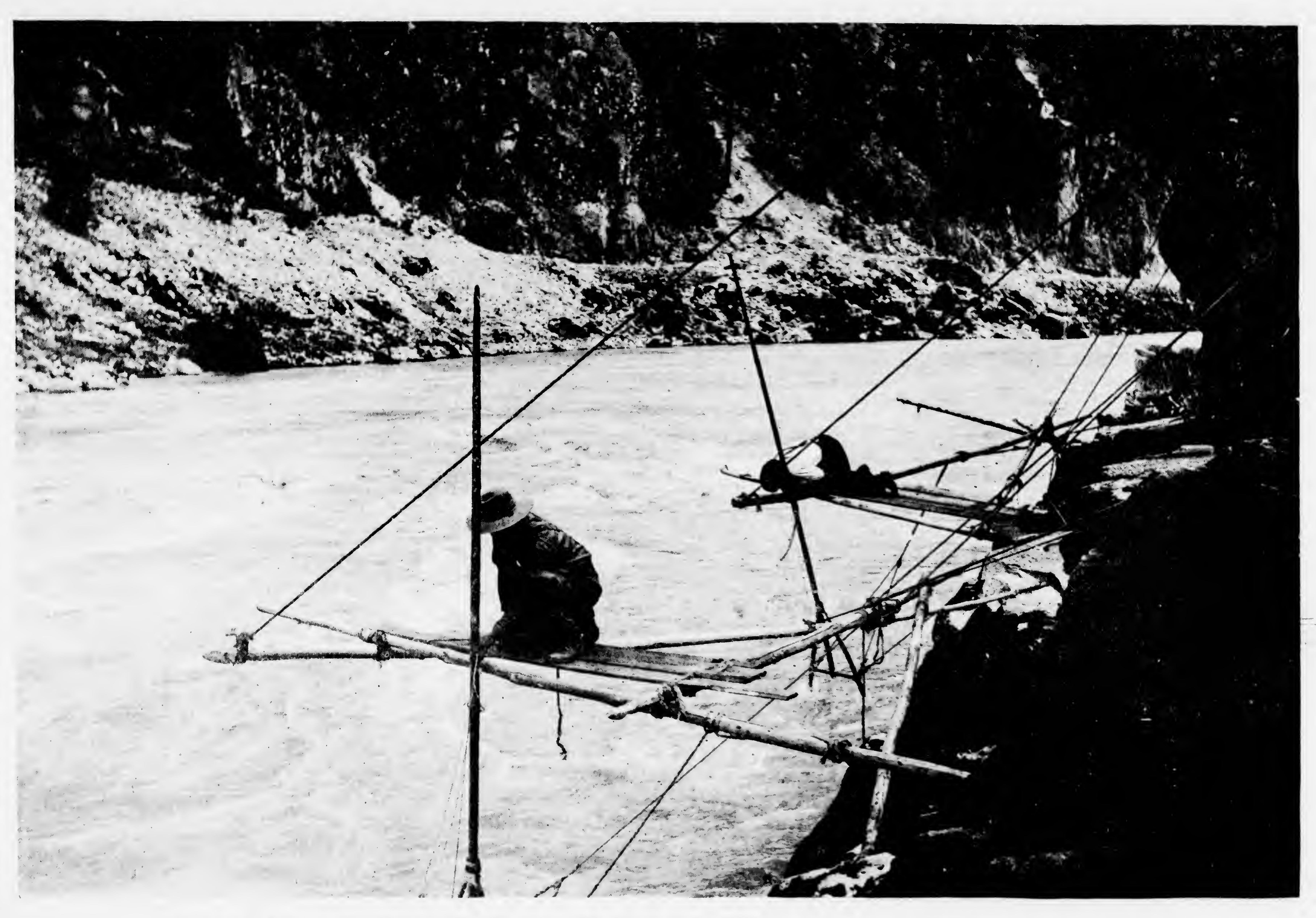


INDIANS FISHING FOR SALMON IN THE FRASER RIVER CANYON, BRITISH COLUMBIA

From a Photograph by John P. Babcock F. & S. May 25, 1907.



INDIANS FISHING FOR SALMON IN THE FRASER RIVER CANYON, BRITISH COLUMBIA

From a Photograph by John P. Babcock F. & S. May 25, 1907.

Retake of Preceding Frame

Executive Order

It is hereby ordered that the tract of land in Alaska, described as follows, in and surrounding the native village of Klawak, and within the Tongass National Forest, be and the same is hereby reserved, subject to any vested rights existing, for the use of the U. S. Bureau of Education and of the natives of indigenous Alaskan race who may there reside, viz:

DESCRIPTION

Beginning at a point on the shore of the salt bay or mouth of Klawak Stream, 114 links south of a post marked U. S. I. R. 1, which is a witness to said point on shore and stands about forty chains eastward from Klawak village; thence northerly by a marked line 58.49 chains to a point on the shore of Klawak Harbor which is 30 links north of a witness post marked U. S. I. R. 2; thence westerly along the shore, and then around the peninsula at the mean high-tide mark to point for corner No. 1, the place of beginning; situated approximately in latitude 55° 33′ north, longitude 133° 06′ west, and estimated to contain 230 acres; as represented upon a diagram accompanying this order and made a part thereof.

WOODROW WILSON

THE WHITE HOUSE,
21 April, 1914.

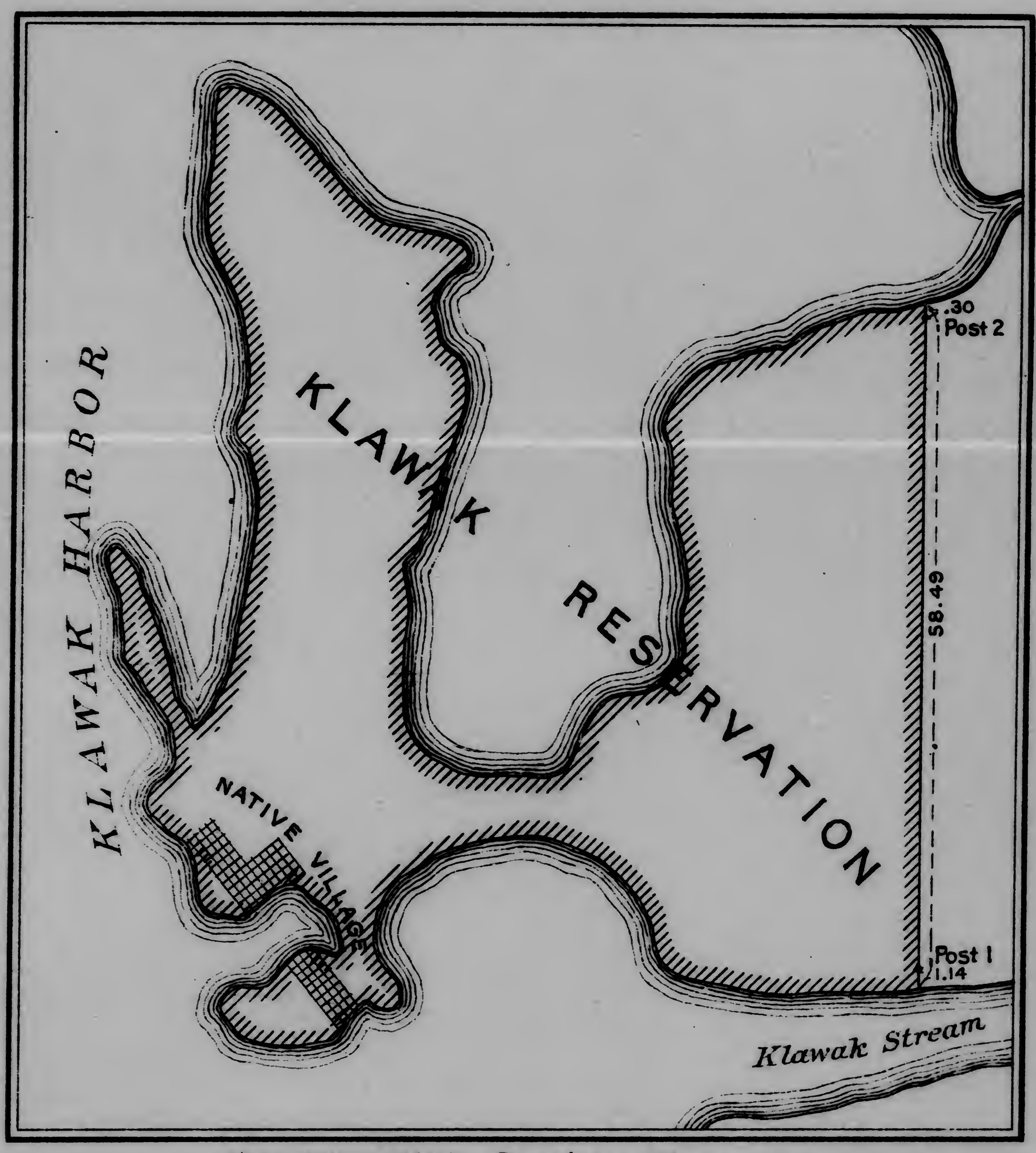
[No. 1920.]

KLAWAK RESERVATION

For use of Klawak Indians

ALASKA

Embracing a tract of land in the Tongass National Forest approximately in Latitude 55°33' N. Longitude 133°06' W as shown by shaded lines and designated "Klawak Reservation" Estimated area 230 Acres



Boundary of Reservation

DEPARTMENT OF THE INTERIOR
BUREAU OF EDUCATION
P. P. Claxton, Commissioner

INDIANS OF ALASKA-BRITISH COLUMBIA BOUNDARY REGION

The Report of the Indian Commissioner for 1868 contains an important Report by Lieutenant Robert N. Scott on Indians along the international boundary between Alaska and British Columbia, dated Nov. 12, 1867. A number of tribes are mentioned and these are arranged geographically by rivers and islands.

Report Commr.Ind.Affairs,for 1868,308-317,1868

Franz Boas: Tsimshian Mythology Nov. 23, 1917.

by molluscan and foraminiferal shells are then discussed and from this to a consideration of the form of horns and tusks the passage is easy. A brief discussion of phyllotaxis follows and is succeeded by a chapter on the shapes of eggs and other hollow structures, after which one finds an interesting description of the mechanical principles illustrated by the structure of individual bones and by the skeleton as a whole. The concluding chapter is an exposition of Professor Thompson's method of comparing the form of different organisms, or of their parts, by inscribing, for example, the outline of the skull of *Hyracotherium* in a system of Cartesian coordinates and then determining the deformation of the system necessary for a similar inscription of the outline of the skull of a horse. A graphic representation is thus obtained of the manner of growth characteristic of this particular line of evolution, and the method may thus serve in certain cases as a test of phylogenetic affinity.

This brief outline may give some idea of the scope of the book, but it altogether fails to indicate the interesting and suggestive manner in which the various topics are treated. Professor Thompson's style is marked by a clearness of expression which makes every page of interest and his book is one that may well be recommended as revealing food for thought and fields for investigation which have been too much neglected by students of morphology. J. P. McM.

Tsimshian Mythology. By FRANZ BOAS. Based on Texts recorded by HENRY W. TATE. Paper accompanying the Thirty-first Annual Report of the Bureau of American Ethnology, 1909–1910. Washington, Government Printing Office, 1916. Pp. 1037; 3 plates; 24 text figures.

The core of this paper consists of English versions of sixty-four Tsimshian myths and three war tales, written down for the author by Mr. Henry W. Tate, a Tsimshian Indian of Port Simpson, B. C., in his own language, between 1902 and the year of his death, 1914. The translations were made by Professor Boas on the basis of "a free interlinear rendering by Mr. Tate."

However, unlike most ethnologists who have published Indian stories, Professor Boas has not rested satisfied with the mere printing of "material," important as such publication undoubtedly is, nor even with the addition of comparative footnotes. He has made this work the occasion and the basis for studies of several different aspects of Tsimshian ethnology, and for what is by all odds the best investigation of the distribution of American myths and mythic elements which has so far appeared, one which goes a long way toward satisfying the often-voiced demand for a concordance of American myths. Besides the usual tables of contents, bibliography and alphabet explanatory of the characters representing native sounds used in the work, it contains an introductory description of the Tsimshian, and, best of all, a summary of the comparisons and a detailed index to the references used in the comparison, the latter prepared with the assistance of Dr. H. K. Haeberlin. In appendices III. and IV. students of American Indian languages will find useful material regarding the speech of the people among whom these myths were current. The work is also used as a medium for the publication of seven Bellabella and ten Nootka tales, by Dr. Livingston Farrand and Mr. George Hunt respectively.

The longer studies to which reference has been made are "A Description of the Tsimshian, Based on Their Mythology" (pp. 393–477), a treatise on "Tsimshian Society" (pp. 478–564), and finally the "Comparative Study of Tsimshian Mythology" (pp. 565–871), already mentioned as the crowning feature of this work.

While the value of myths as sources of information regarding the general ethnology of the tribe from which they were collected has frequently been commented upon, so far as I am aware we have here the first attempt to write an ethnological description based entirely upon them. For this reason, if for no other, the result is of interest. It shows that Tsimshian stories contain an incomplete, but upon

SCIENTIFIC BOOKS

On Growth and Form. By D'ARCY WENTWORTH THOMPSON. Cambridge University Press. 1917. 8vo. 779 pages with 408 text-figures.

In the author's own words the purpose of his book is to show "that throughout the whole range of organic morphology there are innumerable phenomena of form which are not peculiar to living things, but which are more or less simple manifestations of ordinary physical laws." This thesis Professor Thompson elaborates in a most interesting manner, developing with the aid of our fuller knowledge of physical forces and of the conditions under which they act, the mode of study initiated by Borelli many years ago, and applied, more recently, with striking and suggestive results, to several forms of organic activity by Rhumbler, Leduc, Przibram, Macallum and others. These results and many others less familiar receive clear exposition, but the book is far from being a mere compilation, a refreshing originality, being characteristic both in subject matter and in the manner of its presentation.

The contest between the vitalistic and mechanistic views of the phenomena of life has been carried on by generation after generation of men and always with the strategic results of the struggle in favor of the mechanists, as one vitalistic stronghold after another has fallen. The attack is drawing ever nearer to the central citadel and Professor Thompson's book is a massing of the attacking forces before this citadel. But the author with all his enthusiasm, recognizes limitations in his resources. "Nor do I ask of physics," he says," how goodness shines in one man's face and evil betrays itself in another. But of the construction and growth and working of the body, as of all that is of the earth earthly, physical science is, in my humble opinion, our only teacher and guide." Psychic phenomena are outside the limits of his attack. Even with this limitation, however, the book is one of the strongest documents in support of the mechanistic view of life that has yet been put forth.

It would be difficult to give an adequate résumé of the contents of a book, so crowded with facts and ideas of the greatest interest to morphologists; it must suffice merely to mention some of the problems treated. One finds an interesting discussion of the physical factors determining the size of organisms, especially interesting being the consideration of the conditions which may determine the minimum size of a living organism. This is followed by a chapter on the factors determining growth and then follow chapters on the structure and form of the cell, in which the phenomena of karyokinesis are regarded as "analogous to, if not identical with those of a bipolar electric field," and the forms assumed by organisms as expressions of the law that a liquid film in equilibrium assumes a form which gives it a minimal area under the given conditions. In this connection Professor Thompson expresses the opinion that in the simpler organism, whose form is due to the direct action of a particular physical force, similarity of form is not necessarily an indication of phylogenetic relationship.

The form of the cell in cell-aggregates is then taken up, the arrangement of the division planes being considered as illustrations of the principle of minimal areas, and the author then passes on to the consideration of concretions and spicules. This involves as an essential problem the question of crystallization in the presence of colloids, a question concerning which there is much yet to be learned. The further discussion of the forms assumed by spicules leads to their division into two groups, those of intracellular origin and those that are intercellular, linear growth of the former under restraint leading to forms which have for their mathematical basis geodetic curves, while in the case of the latter the phenomena of adsorption and the deposit of the crystalline material on interfaces are held to be sufficient for the explanation of even the marvellously complicated radiolarian skeletons.

The mathematical properties of the logarithmic spiral as applied to the forms shown

the whole trustworthy, picture of native life and thought. On the one hand this must be supplemented by the introduction of matters too well known among his people to be explained by the storyteller, and on the other by determining in how far the conception of what ought to be in the social and religious lives of the people conformed to things as they actually were.

The discussion of Tsimshian society derives a large part of its importance from the fact that it concerns one of the two areas over the data from which controversies regarding "the origin of totemism" have raged most violently. Evidence of the entire absence of such a thing as totemic taboos and of the importance of the father's as well as the mother's clan in the life of the individual are therefore of interest, as also the comparative study of the distribution of crests among the matrilineally organized peoples of this region. The general discussion of totemism on pages 515 to 519 should be read carefully by all interested in that subject.

In his treatment of the evolution of the north Pacific clan systems Professor Boas follows his usual cautious method. He criticizes adversely the reviewer's theory regarding a former extension of the Tlingit over what was later the Tsimshian coast, as also his suggestion that Haida moieties have arisen as the result of the amalgamation of two distinct peoples. The evidence for the former view was, however, not entirely traditional, being based partly on the presence of a considerable number of animal names in Haida identical with those in Tlingit, and the comparative lack of similar Tsimshian names, although in historic times relations between the Haida and Tsimshian were much more intimate than between the Haida and Tlingit.

To prepare the comparative study of Tsimshian mythology an enormous amount of painstaking work was necessary, particularly in the analysis of the various versions of the Raven legend, and future students will be saved an incalculable amount of labor. Two or three more efforts of the same kind would result in the much-desired concordance. The results of this comparison are summarized on pages 872–881, the more important points being the following.

As forecasted in Boas's "Indianische Sagen," published in 1895, Tsimshian mythology is distinguished from the mythologies of other Pacific coast peoples by the presence of a large number of tales of inland origin. An examination of the content of the material generally shows "that there are a number of very simple plots, which have a wide distribution, and which are elaborated by a number of incidents that have a very wide distribution and occur in a variety of plots." Comparing European and North American folk-lore Professor Boas finds that "European folk-lore creates the impression that the whole stories are units and that their cohesion is strong, the whole complex very old. The analysis of American material, on the other hand, demonstrates that complex stories are new, that there is little cohesion between the component elements, and that the really old parts of tales are the incidents and a few simple plots." There is a tendency among these Indian tales to shake off many of their supernatural elements along the border of their area of distribution, but this is "counterbalanced by another tendency of tales to take on new supernatural significance." In conclusion Professor Boas has a word to say (pages 879–881) regarding the general theory of mythology, with particular reference to that widespread impression that mythic tales represent an attempt on the part of primitive man to explain the phenomena of nature. Professor Boas thinks that this belief is not justified. His conclusion is that the material presented in this work "rather emphasizes the fact that its origin must be looked for in the imaginative tales dealing with the social life of the people." Still he would probably not deny that particular applications of such tales to the explanation of natural phenomena had been attempted at a very remote period in human history.

"Tsimshian Mythology" furnishes a notable addition to the sum of myth material and to our knowledge of northwest coast enthnology, but its chief claim to distinction rests on the great advance which it registers in the com-

parative study of myths current among American Indians and in the interpretation of them.

JOHN R. SWANTON
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WASHINGTON, D. C.

The Genus Phoradendron. By WILLIAM TRELEASE, Professor of Botany in the University of Illinois. Published by the University. Octavo, pp. 224, pls. 245. Price, paper, $2.00; cloth, $2.50.

It is fortunate for botanists that the author of this excellent treatise has made so thorough a revision of the genus *Phoradendron* instead of being content with merely attempting to straighten out the tangle existing in regard to the group of related forms hitherto known as *Phoradendron flavescens,* as he first contemplated. The author notes that Engelmann has shown too great a conservatism in his published studies of the various forms of species of the genus, by later withdrawing segregates of *P. flavescens* that he formerly had recognized, and that in continuing the work of Engelmann, also being influenced by his views, Torrey allowed a number of forms which he had designated as new species to lie unpublished in the Torrey herbarium. The author in addition to making a critical study of the abundant data and material of North American species collected by Engelmann, Torrey and others in the great herbaria of this country, visited those of Europe and extended the investigation to the collection of West Indian and South American species by Urban, Martins and others. This has enabled him to make a careful comparison of numerous types and variants of species of the genus, and to more carefully discriminate between varieties and species. He recognizes 262 differentiable forms, most of which he has classified as species. In this matter he apparently does not share the conservatism of Engelmann and Torrey. Of the species he now recognizes, 154 are listed from North America and 124 from South America. The genus is separated into two primary groups, the Boreales and the Æquatoriales, plants of the former are constantly without, and the latter constantly with cataphyls on their foliage shoots. Both groups contain species destitute of expanded foliage, which are well represented by *Phoradendron juniperinum* in the southwestern United States. All of our species belong to the Boreales, those of Mexico and Central America to both primary groups, and those of the West Indies and South America wholly to the Æquatoriales. These primary groups are each divided and then subdivided, making finally in all groups 55 minor subdivisions.

The book contains 224 pages of descriptive matter including very good and usable keys; these are supplemented by indexes of collectors, occurrence, and names. The illustrations, 245 full sized plates, are indeed works of art but are also true to nature. Few books of this class are so fully and beautifully illustrated.

GEORGE G. HEDGCOCK

MECHANICAL PROPERTIES OF WOOD DETERMINED

A NUMBER of fundamental laws governing the properties of wood, such as those covering the relations between strength and specific gravity, and between strength and moisture content, are laid down in a bulletin just issued by the Department of Agriculture. In this publication are presented the results of about 130,000 strength tests, probably the largest single series ever run on one material, made by the Forest Products Laboratory of the Forest Service on 126 species of American woods. The laws derived from the tests cover the general relations existing between mechanical and physical properties of each species, and also the general relations existing between these properties irrespective of species.

The results ought to prove of great value wherever knowledge of the properties of wood is essential. They have, for example, made possible the preparation of accurate tables showing all the needed strength properties for the woods used in airplanes. With these as a basis, specifications can be drawn up to eliminate all material that does not meet the exacting requirements of this highly specialized use.

Alligators in China.

A RECENT issue of the London Times announces the receipt at the Zoological Park of three young Chinese alligators (*Alligator sinensis*). This is a matter of very great interest, for up to the year 1879 it was generally believed that alligators belonged to the new world exclusively. It is true that nearly ten years before Swinhoe had demonstrated the existence of a great saurian in the Yang-tze-kiang described as a crocodile. In 1879 a French official of the Chinese customs, Mr. Fauvel, published a detailed account of the animal, which showed it to be an alligator not distantly related to the well known alligator of the Southern States, though much smaller. It is greenish-black above, and yellowish and grayish below. This is believed to be the origin of the famous dragon of the Chinese.

F&S. 733. ——— Nov. 9, 1907.

The Kuskwagamutes.

A PRESS dispatch says that Dr. George B. Gordon, curator of the department of American archæology of the University of Pennsylvania, who has just returned to Philadelphia after penetrating the Alaskan wilderness for 2,000 miles on the Mrs. C. C. Harrison expedition, reports the discovery of a small tribe of aborigines, hitherto unknown to ethnologists.

Dr. Gordon calls these unknown American inhabitants "Kuskwagamutes." He brought here a collection of their clothing, arms and utensils. The tribe was found about 800 miles from the mouth of the Kuskokwim River, and they were few in number. This people, Dr. Gordon says, came of Athabascan stock, but have been conquered by the Eskimos and have almost been absorbed by them. Instead, however, of wearing furs like the Eskimos, they made the skins of loons and other great birds into robes for clothing.

Fishing with Wooden Hooks

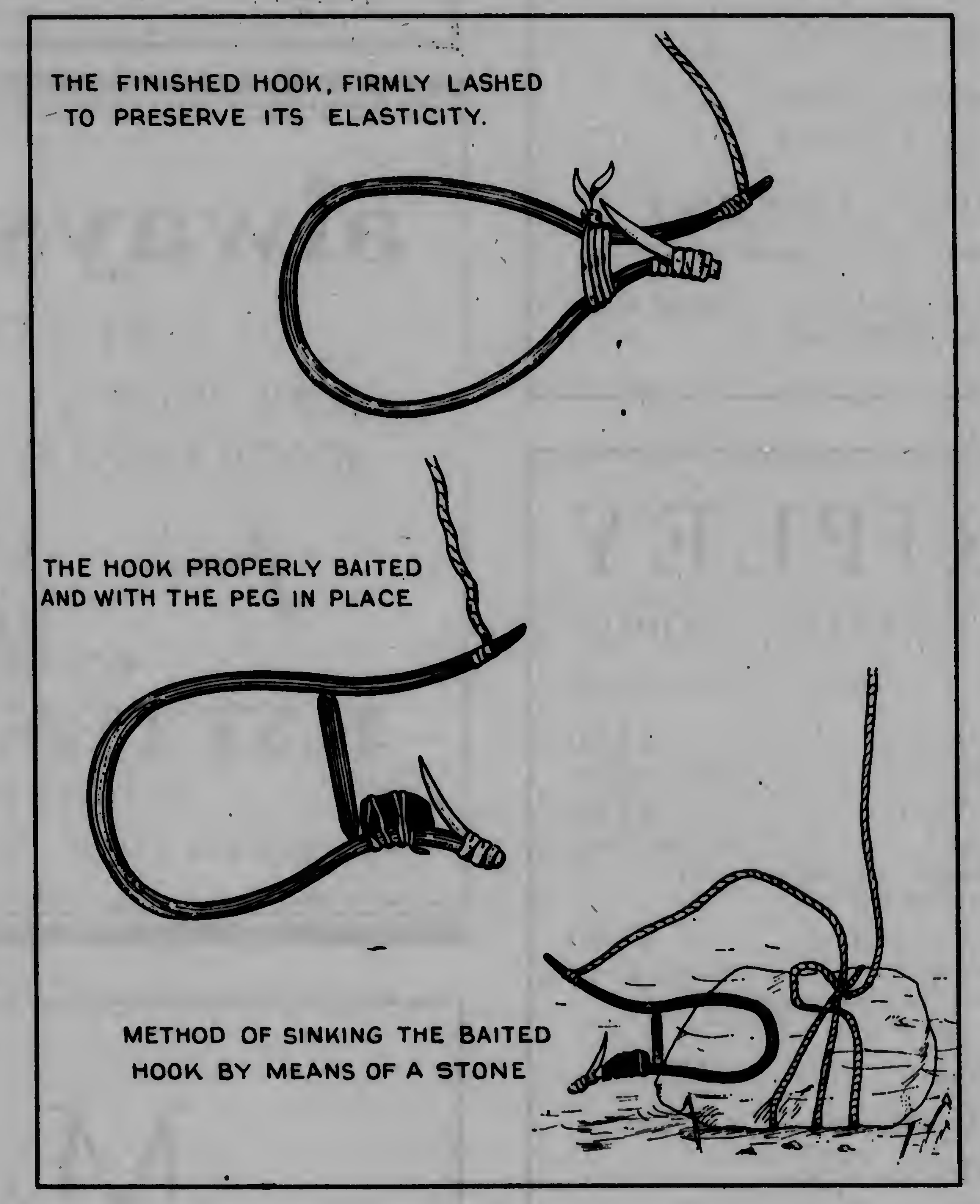
By GEORGE H. GRIFFIN

There was once a man who, because his family was hungry, fashioned a hook out of a piece of wood and likewise made a line from cedar bark, and with these simple implements caught a goodly supply of black cod. The fish he bore home to his family and the prospect of going without became a thing of the past.

Yes, I've heard that one before, you say,—another "fish" story, and knowingly nod your head. But this time the joke is on you, for it is a true story, and this is how it was done.

Many years ago, when the white man first visited the coast of British Columbia with a thirst for the extremely valuable furs of the sea-otter, he traded not only with the Haidas and the Kwakiutls, but many other "nations" of natives as well. These fast vanishing coast dwellers, perhaps more than any other race of Indians, fashioned many useful articles out of wood.

The method chosen, especially by the Haidas, in making fishhooks for the catching of cod was a simple and effective one. Selecting a knot from a rotten log either of hemlock or fir, they whittled it down with painstaking care, using a stone or iron knife. When it had reached dimensions slightly thicker than a lead pencil and about twelve to fourteen inches in length, the piece was inserted in the hollow stem of a kelp plant and the whole buried in the hot ashes of the kitchen fire. Here it was allowed to remain until the wood was thoroughly steamed, usually for a period of twelve hours. It was removed and bent into a distinct curve so that the two ends met; sometimes a wooden mold was used for this purpose, and the resultant loop, after being firmly lashed to prevent back spring, was slowly allowed to dry. When it had "set" it was warmed by the fire and rubbed with tallow; this process, it was claimed, was to prevent the hook from straightening out when in use. Next, a barb, made either of bone or hard wood, was lashed with withes or twine to the lower prong so that its point was towards the upper. The next step was to make a fishing line, the women usually performing this work.



THE FINISHED HOOK, FIRMLY LASHED TO PRESERVE ITS ELASTICITY.

THE HOOK PROPERLY BAITED AND WITH THE PEG IN PLACE

METHOD OF SINKING THE BAITED HOOK BY MEANS OF A STONE

Selecting the fine silky threads of red cedar bark next to the cambium layer, they were pounded out with a specially made hammer until a kind of floss was formed. Then, by means of the simple process of rolling this material between the open palm and the thigh, a thread was spun. Several of these threads were twisted together by using a primitive distaff, or spindle, to form the cord,—sometimes floss made from spruce roots or bark was used, or in lieu of these, the dried stems of kelp. One end of the line was attached to the upper prong of the hook and strongly affixed. When ready to fish, the Indian, taking a short peg, propped the tines of the hook apart, and, just in front of the barb next to the peg, tied a delectable morsel of bait, either a piece of squid, or a clam, or perhaps the white underflesh from the belly of the halibut. Holding the line about three feet from the hook, he wound it about a stone, some ten or fifteen pounds in weight. A loop was then tucked under one of the strands, and the whole carefully lowered over the side of the canoe. When bottom was sounded, a float, grotesquely carved, was tied to the upper end of the line.

Usually he was not content to make one setting but many, and when he had done so, like a true disciple of Izaak Walton, sat back and waited.

Presently on the calm surface of the sea the pegs began to bob up. They were the pieces of wood he had used to prop the prongs of his hooks apart, for the fish, in taking the bait, had knocked them out and the elastic loop of the hook had closed and had served to drive the barb into the soft flesh of the mouth. Serenely, the fisherman paddled to each one of his floats, and, after giving a gentle tug to free the loop on his stone sinker, hauled his prize to the surface.

Thus it has been truly stated, that the white man could teach the West Coast tribes nothing about the art of fishing. Haida, Kwakiutl, Tsimshian, Salish and all their allied kindred were masters of this subtle craft. They had to be, for fish formed practically the whole of their diet.

Journ. Am. Folk-Lore, Vol. 2, No. 7. Dec. 1889

TSIMSHIAN PROVERBS.

THE character of a people reflects itself in its proverbs and sayings. They contain the gist of philosophy; they reveal the feelings inspired by the aspect of nature; they prove which historical or legendary events have been most impressive; they show what is considered good, what bad, what is deemed venerable, what ridiculous.

I have collected a few Tsimshian sayings of this description, which are given here with explanations. The Tsimshian call these sayings Shim nahoulth nha houit (which means, "as the saying is"):

1. It is not good to be too covetous; or, translated more literally, it is not good to have too much one's own way (Whaṭi āmlth wa*g*ulsha wāltk).[1] The Tsimshian, who highly esteem wealth and prowess, still advise man not to regard solely his own interest, nor to rely solely on his own power and resources.

2. He is punished for leaving because he could not get the crab's claws (Tin wilāgwish da whatiu*k* haltha*g*aou da). The claws are considered the best part of the crab. The saying means: If you are not content with what fate assigns you, and impatiently try to improve your conditions, you will, instead of gaining, lose what you have.

3. A deer, although toothless, may accomplish something (Ambīiklth wun da wha wān); *i. e.* Don't judge a man by his outward appearance.

4. You are not the only one whom T*k*ēmshim gave intelligence (literally, into whom T*k*ēmshim put a mind). (Althga kshat nunglth nha sha*g*audish T*k*ēmshim). T*k*ēmshim, in Tsimshian mythology, is the creator of man and animals, of sun, water, and fire. He is the grandson of the Deity in heaven, and appears generally as the raven. He corresponds exactly to Yētl of the Tlingit of Alaska, and to Omeatl of the Kwakiutl of Vancouver Island. In general character the raven legend bears a striking similarity to the Lox legends of the Algonquin.

5. Heaven looks down on him (Tikīniazilth La*k*a); said of a poor man who is suddenly favored by good fortune. Heaven is considered the Deity, and the man upon whom he casts his eyes is successful in all his undertakings. Therefore it is a common prayer of the Tsimshian: O Heaven, look down upon us, your children!

[1] Bishop Ridley's alphabet for the Tsimshian language has been applied in the present paper. The vowels have their continental sounds, except u, which is pronounced as in *cur;* and ou, pronounced as in *bough; g* is a deep guttural; *k*, the German *ch* in *Buch;* lth, an explosive *l;* z, when initial, is equal to *ds;* when terminal, to *ts*.

6. He is just sleeping on a deerskin (Lam ktam wuunt); literally, letting him sleep on a deerskin: *i. e.* he is just now enjoying a comfortable rest, but soon he will have to endure hardships and privations.

7. He is just enjoying the water lilies for a short time (Lam *gak* onu*k*lth). The meaning is the same as that of the foregoing saying. It relates to a hunter, aiming at a bear, who is feeding on water lilies, — a parable of the transientness of the pleasures of life.

8. He wants to die with all his teeth in his head (Sha*g*um dum ba*k*t*k*a wāntk). He acts so foolishly that he will not live to be an old (toothless) man.

9. Is this war, father? (Hawulthā wildōgiadī abi?) Said when an extraordinary series of misfortunes has befallen a man. The saying is taken from a legend.

10. It seems you think that Nass River is always calm! (Walumsh *g*up lthawāltk gulth Kulōshimsh; literally, As though Nass River were always calm!). The estuary of Nass River is very rough, strong winds prevailing throughout the year, and making the passage of canoes dangerous. The saying is used for characterizing foolhardiness of men who assume that all circumstances must be favorable to them.

11. You think you are as handsome as the sun's (moon's) child (Wudi na lthgōlthk ga gemuga; literally, as handsome as the sun's (moon's) child). Used to signify a vain person. Sun and moon have the same name.

12. As awkward as Ushgaduquah (Gupwum ugh-gitsh Ushgaduquah). Ushgaduquah is a character in an Indian tale.

13. (You act) as if you were rich (Walumsh *g*up *g*aimunksh); said to signify an extravagant person.

14. You mistake the corner of the house for the door (Ltha gun lu*g*sou ran amōoshet), to signify a gross mistake.

15. Go where your ears will be full of grubs (*G*au dum wilu *k*shāna zimōnt), said to a man who goes foolhardily to his own destruction. The saying means: Your head will be full of grubs like that of a salmon which has been thrown away by wasteful people without having served any good purpose (not having been eaten).

16. What will you eat when the snow is on the north side of the tree? (Gaulth dum gabuna zida ltha shta maqushlth nashtaulth *g*an?) The saying refers to the end of winter, when food is scarce. It is a reproach to the careless and wasteful.

Mrs. O. Morison.

METLAKAHTLA, B. C., *January*, 1889.

the use of the life should be economical. Let me, in that point of view, invite you to compare, or rather to contrast with one another, those two sorts of experiments from which we have to get our knowledge of the causes of diseases. The commercial experiments which illustrated the dangerousness of sewage-polluted water supplies cost many thousands of human lives; the scientific experiments which, with infinitely more exactitude, justified a presumption of dangerousness cost the lives of fourteen mice."

We see, then, that in one way or another experiment must form the basis on which medical science is to be built up. The question for us to decide is, "Shall these experiments be few, carefully planned, conclusive, economical of animal life, or shall they be numerous, accidental, vague and wasteful of human life?" I think in settling this question we may safely take for our guide the words of Him who said, "Ye are of more value than many sparrows."

H. P. BOWDITCH.

THE DECORATIVE ART OF THE INDIANS OF THE NORTH PACIFIC COAST.

IT is well known that the native tribes of the North Pacific coast of America ornament their implements with conventionalized representations of animals. The tribes of this region are divided in clans which have animal totems, and it is generally assumed that the carvings represent the totem of the owner of the implement. This view is apparently sustained by the extensive use of the totem as a crest. It is represented on 'totem poles' or heraldic columns, on the fronts of houses, on canoes, on the handles of spoons, and on a variety of objects.

It can be shown, however, that by no means all the carvings made by the natives of this region have this meaning. A collection of data made in a number of museums show that certain objects are preferably ornamented with representations of certain animals, and in many cases an intimate connection exists between the use to which the object is put and its design.

This is very evident in the case of the fish club, which is used for despatching halibut and other fish before they are hauled into the canoe. Almost all the clubs that I have seen represent the sea lion or the killer whale, the two sea animals which are most feared by the Indians, and which kill those animals that are to be killed by means of the club. The idea of giving the club the design of the sea lion or killer whale is therefore rather to give it a form appropriate to its function and perhaps secondarily to give it by means of its form great efficiency. This view is corroborated by the following incident which occurs in several tales: A person throws his fish club overboard and it swims away and kills seals and other sea animals, cuts the ice and performs other feats taking the shape of a sea lion or of a killer whale. Here also belongs the belief recorded by Alexander Mackenzie (Trans. Roy. Soc. of Canada, 1891, Sec. II., p. 51): "The Haida firmly believe, if overtaken by night at sea and reduced to sleep in their canoes, that by allowing such a club to float beside the canoe attached to a line it has the property of scaring away whales and other monsters of the deep which might otherwise harm them."

Here is another instance in which I find a close relation between the function of the object and its design. Small grease dishes have almost invariably the shape of the seal or sometimes that of the sea lion, that is, of those animals which furnish a vast amount of blubber. Grease of sea animals is considered as the sign of wealth. In many tales abundance of food is described by saying that the sea near the houses was covered with the grease of seal, sea lion and whales. Thus the form of the seal seems to symbolize affluence.

Other grease dishes and food dishes have the form of canoes, and here I believe a similar idea has given rise to the form. The canoe symbolizes that a canoe load of food is presented to the guests, and that this view is probably correct is indicated by the fact that in his speeches the host often refers to the canoe filled with food which he gives to his guests. The canoe form is often modified, and a whole series of types can be established forming the transition between canoe dishes and ordinary trays. Dishes of this sort always bear a conventionalized face at each short end, while the middle part is not decorated. This is analogous to the style of the decoration of the canoe. The design represents almost always the hawk. I am not certain what has given origin to the prevalence of this design. On the whole the decoration of the canoe is totemistic. It may be that it is only the peculiar manner in which the beak of the hawk is represented which has given rise to the prevalence of this decoration. The upper jaw of the hawk is always shown so that its point reaches the lower jaw and turns back into the mouth. When painted or carved in front view the beak is indicated by a narrow wedge-shaped strip in the middle of the face, the point of which touches the lower margin of the chin. The sharp bow and stern of a canoe with a profile of a face on each side, when represented on a level or slightly rounded surface, would assume the same shape. Therefore, it may be that originally the middle line was not the beak of the hawk, but the foreshortened bow or stern of the canoe. This decoration is so uniform that the explanation given here seems to me very probable.

On halibut hooks we find very often decorations representing the squid. The reason for selecting this motive must be looked for in the fact that the squid is used for baiting the hooks.

I am not quite certain if the decoration of armor and weapons is totemistic or symbolic. Remarkably many helmets represent the sea lion, many daggers the bear, eagle, wolf and raven, while I have not seen one that represents the killer whale, although it is one of the ornaments that are most frequently shown on totemistic designs.

I presume this phenomenon may be accounted for by a consideration of the ease with which the conventionalized forms lend themselves to decorating certain parts of implements. It is difficult to imagine how the killer whale should be represented on the handle of a dagger without impairing its usefulness. On the other hand, the long thin handles of ladles made of the horn of the big horn sheep generally terminate with the head of a raven or of a crane, the beak being the end of the handle. This form was evidently suggested by the slender tip of the horn, which is easily carved in this shape. The same seems to be true in the cases of lances or knives, the blades of which are represented as the long protruding tongues of animals, but it may be that in this case there is a complex action of a belief in the supernatural power of the tongue and in the suggestions which the decorator received from the shape of the object he desired to decorate.

To sum up, it seems that there are a great number of cases of decoration which cannot be considered totemistic, but which are either symbolic or suggested by the shape of the object to be decorated. It seems likely that totemism was the most powerful incentive in developing the art of the natives of the North Pacific coast; but the desire to decorate in certain conventional forms once established, these forms were applied in cases in which there was no reason and no intention of using the totemistic mark. The thoughts of the artist were influenced by considerations foreign to the idea of totemism. This is one of the numerous ethnological phenomena which, although apparently simple, cannot be explained psychologically from a single cause but are due to several factors.

FRANZ BOAS.

RECENT HYDROGRAPHIC EXAMINATIONS IN THE APPALACHIAN AREA.*

THE systematic study of the discharges of the streams of the United States has, with one or two exceptions, been undertaken only in recent years. The expense and time required for such investigations prohibits the private engineer from undertaking them, and they can be carried on, therefore, only by large corporations, municipal or State authorities, or by the National Government. Among the most valuable contributions to this branch of engineering have been investigations ordered by the cities of Boston and New York in connection with the study of their water supply. The Sudbury records for Boston supply data since 1875 and those of the Croton for New York since 1868. These are on relatively small basins, however, the former having a drainage area of 78 square miles and the latter 353 square miles.

The army engineers in connection with the improvement of the Connecticut river carried on systematic observations of the discharge of that river at Hartford, Conn., from 1871 to 1879, inclusive, and from that period to the present time the Holyoke Water Power Company have continued the observations. The company in charge of the water powers at Lowell and Lawrence, Mass., on the Merrimac river, have carried on measurements of discharges for over fifty years, but their engineers have published little information. The State of New Jersey, in the interest of her water powers, and the city of Philadelphia, for the future development of her water supply, commenced seven and nine years ago, respectively, the study of certain drainage basins, but they are also relatively small areas. The U. S. Geological Survey, in May, 1891, established a gauging station on the Potomac at Chain Bridge, D. C., for the measurement of the discharge of the river at that place. It was started somewhat as an experimental station, the time given to it being that which could be spared by hydrographers from office work. Gauge height observations were continued until the end of 1893, when, on account of lack of time and of funds, they were discontined.

It has for years been the desire of the hydrographers of this survey to make a thorough and detailed study of the drainage system of one large river, to measure its different tributaries, and to study the relation of their discharges to that of the entire system. An opportunity was afforded for the development of this plan in the spring of 1894, and the Potomac basin was chosen as being convenient of access and as typical of large areas along Appalachian range. Gauging stations were established as follows: First, on the North Branch at Cumberland, Md.; second, on the South Branch three miles above Springfield, W. Va.; third, at Dam No. 6, ten miles above Hancock, Md.; fourth, one on the Shenandoah at Millville, W. Va., five miles above its mouth, and fifth, one on the main river at Point of Rocks, Md. Daily observations of the height of the river at Chain Bridge were also resumed, but measurements of the discharge were not made, as it was found that this point was not a favorable location for such measurements. In high water the velocity is too great, owing to the restricted channel, and in low water the daily tides introduce errors that are hard to eliminate. Work was actively prosecuted in this basin during the past spring, and a sufficient number of gaugings were made to construct

*Read before the National Geographic Society, November 15, 1895, by F. H. Newell, U. S. Geological Survey, Washington, D. C.

Forest and Stream LXI. Dec. 19. 1903, p. 481

CHINOOK.

"The Story of a Stump" by H. G. Dulog, in our Christmas number has attracted much attention, especially in the Northwest, because the inscription quoted affords an extremely interesting illustration of the quick development of a newly invented written language.

The Chinook jargon is well known to all who have traveled in northwestern America to have a wide currency, extending from the land of the Eskimo south to California, and from the Pacific Ocean east to the Rocky Mountains. It is properly termed a jargon, for it is a conventional language similar to the *Lingua Franca* of the Mediterranean, and the Pigeon English of China—a trade tongue spoken by many people and sufficient for the expression of simple ideas.

Although some persons have expressed the belief that the jargon was in use before the advent of the whites on the northwest coast, this may well enough be doubted; although it is probable that many words belonging to different tribal languages were in use among other tribes, and it is possible that there was some common tongue by which intercourse was carried on all along the coast before the coming of the whites. However, the Chinook jargon, as we know it, contains abundant internal evidence of English and French influence, and many of its words are drawn from these languages, just as many are drawn from the Chinook language and from that of the Nootka and other coast tribes. The multitude of different Indian tongues spoken along the coast greatly favored the establishment of some common speech. We are told that in 1792 Vancouver's officers who visited Gray's Harbor found that the natives there, though speaking a different language, yet understood many words of Chinook, and in the narrative of Hewitt, a captive among the Nootka in 1803, a brief vocabulary of the Nootka tongue is given which contains words now found in the jargon.

When Lewis and Clark reached the mouth of the Columbia in 1806, the Chinook jargon had become a spoken tongue, but when the Astor fur traders arrived it came into more general use, and received many additions. In this way its growth continued until the arrival of the railroad and the settlement of the country, since which time it has slowly begun to drop into disuse.

One of the most interesting developments in connection with this language is the establishment of a method of writing it. This invention is due to the energy of the French priest, Father Le Jeune, who in the year 1890 conceived the idea of adapting the Duployan system of stenography to writing the jargon. This was done at once, and it was found that the system answered perfectly well for the purpose. An Indian who saw the writing for the first time soon learned its principles, and taught other Indians. In July, 1891, a little instruction in it was given to the Shuswaps, later to the Thompson Indians, those of Douglas Lake, and other interior points, while in 1892 lessons were given to the lower Frazer and sea coast Indians. All these people took hold of this writing with extraordinary readiness, and easily perfected themselves in the reading and writing of it. It has since spread very extensively among British Columbia Indians.

In 1891 Father Le Jeune issued the first number of a little paper written in these characters, which he called the Kamloops Wawa—the Kamloops Speaker. This periodical, written by Father Le Jeune, and by him printed on a mimeograph, has had a very considerable circulation, and has done much to diffuse a knowledge of these written characters. How generally they are in use is shown by the copy of the letter carved on a stump included by our correspondent, H. G. Dulog, in the charming Story of a Stump, already referred to.

Syllabaries of Indian tongues are not great novelties. We have the alphabet of Sequoya, the Cree syllabary invented by the missionaries of the North, and now in general use among Indians and half-breeds of the Northwest, possessing as well a very considerable printed literature. But for extraordinary character and for swiftness of adoption there is perhaps nothing quite like the written Chinook *wawa*. As Mr. Pilling well says, "Written in an international language, 'set up' in stenographic characters, and printed on a mimeograph by its inventor, editor, reporter and publisher all in one, this little weekly seems to leave nothing in the way of novelty to be desired."

BC.

duce a certain effect upon the organization of human society, and all these conditions must be especially pointed out if they are to be understood and properly estimated. The complete scientific understanding of regimentation lies at the end of our work still as a far-distant goal before us. We must confess, even, that it never appeared so far until we had traveled a few steps on the long way to reach it."

CH. L. HENNING.

Boas on Indian face-paintings.

The American Museum of Natural History, New York city, has begun the second volume of its "Memoirs" in a very creditable way. They are published in large quarto, on superior paper, with fine typography and wide margins. Anthropology is included among the sciences dealt with in the second volume, and its first number, sent out June 16, 1898, contains important data from the Jesup North Pacific expedition, descriptive of "Facial Paintings of the Indians of Northern British Columbia" (pp. 24 and 6 plates with letter-press opposite). Researches like these will be helpful in settling the problem whether the characteristics of the American Indian race are derived directly from Asiatic sources or result from an intermixture of Asiatic with American tribes. For 1897 Dr Franz Boas had selected as a field of research the coast of British Columbia from the Skeena river (54° north latitude) southward to Victoria (48° 20′ north latitude), excluding Vancouver island, but taking in a part of the interior—Kwakiutl, Coast Selish, Fraser and Thompson River, Chilcotin (Tinné), and Bellacoola Indians. The map plainly shows all particulars. The work was divided between scientists of the Jesup expedition and those of the British Association for the Advancement of Science. The able assistants of Dr Boas were Livingston Farrand, of Columbia University, and Harlan I. Smith, of the American Museum of Natural History.

The Indians of the above area have a habit of reproducing on their foreheads, cheeks, chins, and jaws images of the animals which are used as their family crests. The animal forms are highly conventionalized, and may be recognized by a number of symbols characteristic of each species. They do not attempt perspective, but characterize solely by "distortion and dissection."

Nevertheless we must admire the ingenuity and invention of the artist, who often spreads the marks over one-half or the whole of a person's face, though it is often difficult to ascertain what animal or other object it is intended to represent. The plates show about one hundred of these faces, no two being alike. We see, for instance, the killer-whale in black and green; beak of hawk; mouth of frog in red; paws of wolf, beaver, and sea monsters; proboscis of mosquito in black; mosquito bites, a succession of red spots; feet of mountain goat; tail of raven, woodpecker, and other birds; tuft of puffin; back of whale in red; mouth of sculpin in red; feet of bear in black and red; crest of sea-lion; nest of eagle in red; bars of copper in red; fish-net; cirrus, cumulus, and stratus clouds in various colors.

Albert S. Gatschet.

The New Brunswick Magazine.

This is a new and popularly written periodical, published by W. K. Reynolds at St John, New Brunswick, for $1.50 per year. The first number bears date July 1, 1898, and deals mainly with historical descriptions and problems. Among the collaborators we find several university men, such as Montague Chamberlain, of Harvard, a writer on ethnography, who contributes to the present number an article on "The Origin of the Maliseet Indians." Another contributor is W. F. Ganong, Ph. D., now a professor in Smith College, Northampton, Mass., and an authority on certain branches of botany. For many years past he has investigated the geographic names in New Brunswick of Indian and European origin, and has recently issued a treatise on their cartography, adducing the testimony of old maps from 1600 A. D. down to the present time. In the present number he has an article entitled "Where stood Fort Latour?" Another paper is by James Hannay, on "The Brothers d'Amours, the first French settlers on the St John River."

The history and topography of the thinly peopled province of New Brunswick is very little known outside its own limits; hence we gladly welcome a periodical that brings nearer to us the land of our interesting neighbors, with its Anglo-French population, its numerous Indian towns, and the manifold industries and interests that it embodies.

Religion

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TINNEH ANIMISM

By JOHN W. CHAPMAN

IT is the object of this essay to take up some of the most conspicuous of the principles laid down by Dr. J. Warneck in his discussion of the religion of the Battaks of the Indian Archipelago,[1] and to show by an illustration from a new source how well worth considering is his proposition that "Animism is the key to an understanding of . . . all that is commonly called heathen superstition." Dr. Warneck says:

> An exact acquaintance with [Animism] is indispensable to an understanding of heathenism, because it is found all over the earth, and not only among the peoples of the Indian Archipelago. We find traces of it in almost every region of the earth, and every student of religion must reckon with it. The study of Animism gives a surprising insight into the inner life and thought of primitive peoples. With all its strangeness, this exotic world of ideas proves that even the "savage" thinks, and feels the need of a reasoned view of the world.

Whether the general description of Animism in the chapter on "Battak Heathenism" is accurate or not does not fall within the scope of this paper to discuss. It does furnish an excellent basis for comparison, and, while it is too long to quote entire, it may be abbreviated in such a manner as to bring into view some remarkable points of coincidence between the Battak system and that of the Tinneh of the lower Yukon.

In the citations which follow I shall indicate these coincidences by italics, and the reasons for regarding them as such will be more fully presented farther on.

> To the Animist (says Dr. Warneck) the "soul" is something entirely different from what we understand it to be. *It is an elixir of life, a life stuff, which is found everywhere in nature.* Man has two souls, one of which, the bodily soul, pertains to him during his lifetime. It is a power outside himself, conditioning his earthly well-being, but does not essentially belong to his person; at death it returns to the animistic storehouse. The other soul, the shadow soul, emerges only when the man dies. It is the shadowy continuation of his person, the part of

[1] *The Living Christ and Dying Heathenism.* Fleming H. Revell Co., New York.

prisoners were brought en route to the land of the Iroquois, where the British, the Tory, and the red man assembled to embark for the tragic descent on Wyoming, here today is Tioga Point Museum established to preserve the memory of the participants in all this vivid history and maintained for the benefit of the student of anthropology and archaeology.

TIOGA POINT MUSEUM,
ATHENS, PA.

his individuality that continues to live. The soul of the living man is conceived of as a kind of life-stuff, indestructible, and *animating alternately this man and that.* Among peoples of a lower grade the soul-stuff is conceived impersonally, as a vital power which at the death of its present possessor passes over to something else, man, animal, or plant. Higher developed peoples conceive the soul as a refined body, to some extent an *alter ego*, a kind of man within the man. But this soul never coincides with his person, but remains outside his consciousness. It is handed over to man at his conception from the loan office of nature. But *it is so independent and incalculable a thing that it may at any moment leave him for a longer or shorter period, as for example in dreams, or when it is frightened, or when it thinks itself insulted. The well-being of the man depends upon its moods. It can be nourished, strengthened and augmented: it can also be weakened, diminished and enticed away.* . . . The soul pervades the whole body, all the members of which are sharers in the soul-stuff, and therefore have a life of their own, a feeling of their own, and a will of their own. It is not the man who sees and hears and walks and breathes, but the eye sees, the ear hears, the foot walks and the mouth breathes. It is not the man who feels pain, but the part of the body where the pain is located. If the soul-stuff is removed from a member it feels pain and becomes ill. In man and beast this soul-stuff is found specially abundant in the head. . . . Head hunting has its root in this idea. The vital power and courage of the dead man is appropriated by him who possesses his skull. Medicine and magic are made out of human heads. . . . There is much soul-stuff in the blood, for life ebbs away with the blood. . . . Strength is imparted by drinking the blood of the slain foe. . . . Soul-stuff is ascribed to the placenta. There is a mysterious connection between it and the child, its "elder brother," all through life. . . . *The decayed piece of umbilical cord is carefully preserved. The hair also contains much soul power, and is therefore not cut by the heathen. . . . Saliva is medicinal, because it contains soul power. . . . The sweat also, as a secretion of the body, contains soul-stuff, and so far as it communicates itself to the clothes, these become saturated with soul-stuff. . . . A man's name is closely connected with his soul. It is therefore holy, and should not be named except when necessary. No one should utter his own name* or that of his parents. If one knows the name of anyone, he thereby obtains a certain power over him. . . . *It is very important that children should get the right name, and it is the duty of the magic priest to put them on the scent. . . . Sometimes hateful names are given to children, to make the envious spirits believe that the children are inferior. (If a child is born into a family which resembles some dead member of the family they say the dead man has reappeared in the child, and the name of the dead man is therefore given to the child. If an infant cries much it is a sign that it has not got the right name). . . . The soul does not hesitate to leave men if anything displeases it,* for it does not essentially belong to them, and has no interest in its temporary dwelling. Hence *caution must be used in chastising children. Give them their own way, lest the sensitive little souls leave them and they die. . . . Whilst the soul is represented as life-stuff, that stuff is also ascribed to animals and plants. . . . Objects also which are of value to men*

are thought to be animated, for their usefulness leads to the inference that they possess soul-stuff. *Soul is awarded to the hearth, the house, the boat, the hatchet, iron, and many other instruments*, not because they are fetiches, but because their usefulness is proof of their soul power. . . . *The souls of men, animals, plants, and even those of lifeless things invigorate one another. One can augment or invigorate one's own soul-stuff through that of others. . . . The important thing in eating and drinking is not so much the matter of the food as its soul-stuff*, for this alone gives health and strength to the eater. *No animistic heathen, therefore, expects the gods, or spirits, to consume the material of the food which he places before them as an offering, but only its soul-stuff. . . . The flesh of an animal that is eaten produces an effect on man corresponding to the qualities of the animal in question. . . . The numerous prohibitions as to food in sickness are rooted in this idea. Certain foods in some circumstances drive the soul out of the body, and these must be avoided.* When heathen people come to the missionary for medicine, they never fail to ask what food the sick man is forbidden to take. For the missionary, who is regarded as a magician, must know the kind of food to which the soul has an aversion at the time. . . . There are also objects which, in themselves, have no soul matter, but for some reason have such matter ascribed to them. Some peculiarly shaped root, or some wonderful stone is seen, and its striking shape is supposed to indicate an indwelling soul power. . . . Such objects may be called fetiches. . . . In this sense amulets are fetiches. They are mostly stones, scraps of lead, and things of extraordinary formation; these are carried about, and credited with the power of increasing their possessor's soul-stuff, and protecting him against evil spirits. . . . *The human soul can be decoyed away by other souls, and the souls of children are especially sensitive and difficult to preserve.* No one must visit the parents of a recently born child without bringing a present for the child's soul. . . . *The spirits of the dead are more capable than the living of drawing souls to themselves. . . . Souls may be blended. This consideration makes one like to be spat upon by people who are accounted fortunate.* People who are clever at speaking are entreated to *spit into one's mouth. Sick people are breathed upon by the healthy*, in order to bring them healthy soul-stuff. When a man dies, his soul power leaves him, in order to animate other things, men, beasts or plants. It always remains a power on this earth that can never be exhausted. The soul that continues to live, which must be clearly distinguished from the corporeal soul, is called begu—spirit, ghost. At first it feels very uncomfortable without a body; it searches for its old body and surroundings; *it sits on its grave and terrifies the living. . . .* For a long time *it is not safe to be near the house of the dead at night, because the dead man is moving about there.* From the moment of his departure *the spirit of the dead is feared, as*, out of ill will, *he would like to drag others with him into death. . . . A great number of things are to be observed in connection with the corpse, with its burial, and afterwards.* All their mourning customs are rooted in their fear of the dead. *The hair is cut off*, an offering to the dead, *pars pro toto*. It is fear that leads them to *place food on the dead man's grave, to bring him his tools and coin, that his shadow may use them in the other world and be content. . . . As soon as the coffin is brought into the house, the body is placed in it and the lid is fastened down, else the soul of some living person might slip into it. . . . They . . . bathe after the funeral. . . . The coffin is not carried out by the door in the usual way, for the soul must be deceived.*"

It will be noticed that in making the above citation I have drawn attention, for the most part, rather to coincidences of fact than of theory. This is not from want of sympathy with Dr. Warneck's deductions, but merely because the evidence is not always convincing that the Tinneh native would give the same reason for any particular observance that the Battak would. For instance, both the Tinneh and the Battaks cut the hair when a relative dies and place food on the grave; but the reason given for the Battak observance is fear of the dead, while that given by the Tinneh is grief, and solicitude for his welfare. I have ventured to subscribe to Dr. Warneck's important deduction that the soul is "an elixir of life, a life-stuff, which is found everywhere in nature," not because the Tinneh native so describes it, but because it furnishes a working hypothesis which appears to harmonize everything so far discovered, and to contradict nothing. The distinction between the corporeal soul and the shadow soul I have not emphasized from the desire to be conservative; yet there is much which would appear to support it.

To the student of the Tinneh system the description above given comes as an astonishingly accurate picture of the subject with which he has become more or less familiar. Even to the casual reader the coincidences indicated by the italics must suggest a resemblance between the two systems which is more than fortuitous, and points to a unity in the essential principles underlying each. In some directions the religion of the Battaks has had a further development than that of the Tinneh. This is the case with ancestor worship, which is found among the Tinneh only in a rudimentary form, if it is to be found at all. Fatalism also, which is highly developed among the Battaks, is apparently non-existent among the Tinneh.

The Tinneh, like the Battak, is a believer in the preëxistence of souls, in the future existence of souls, in the existence of souls in the lower animals and in inanimate objects, in the power of one

soul to affect another, and particularly in the power of the spirit of one who has lately died to attract to itself the spirits of the living, and in reincarnations. Like the Battak he has his mediums, who declare to the living that which they have received from the dead, and like him also he makes offerings and pours out libations for the benefit of his friends who are deceased, but apparently more from the desire to procure for them some satisfaction than from fear of what they may do to him if he neglects them. Like the Battak he believes in the existence of evil spirits and tries to propitiate them by offerings, and these spirits would appear to be a different order from the spirits of human beings. Finally, he has a vague belief, not yet touched upon, in the existence of a beneficent Creator, as the Battak also has, and like the Battak he has suffered the idea of this Creator to fall into the background of his consciousness, and offers him neither worship nor sacrifice, reserving his propitiatory service for those beings who seem to him to have a more immediate influence upon his destinies.

The belief of the Battak in preëxistence may be inferred from the legends that give an account of man choosing his own destiny before being born into this world. The same belief among the Tinneh is to be inferred from a tradition by which birthmarks are explained. According to this tradition, there is a place filled with the spirits of little children, all impatient to be "called," i.e., born into this life. As one is called, the rest slap him, through jealousy and impatience, and the marks of their rough treatment persist.

Among both peoples there is a body of tradition regarding the life of the future, and of the belief of both it might be said, as Dr. Warneck has remarked, "The other world is but a shadowy continuance of the earthly life, and of the values that hold good here." As to a belief in immortality, in any true sense, it is denied for the Battaks on the strength of a positive tradition, and it could hardly be claimed by the representative Tinneh, who is prepared to maintain that the white men who have of late years come into his country in such numbers are the reincarnations of deceased Indians.

There is a tradition among the Tinneh of the lower Yukon, that soon after death the spirit makes an underground journey to the city of the dead, somewhere near the sources of the river, but on

the farther side of the divide. On its arrival it is received by the inhabitants of the city, who come out to meet it. Its own relatives are in advance of the rest, and they welcome it and conduct it to the custodian of newly arrived spirits, who takes it in charge overnight.

The welfare of the spirits of the deceased is dependent to a considerable extent upon the living, who make feasts in their honor, and give away garments and food, from which the dead are supposed to receive a benefit. These feasts would appear to have more about them to indicate a true regard for the dead than the corresponding feasts among the Battaks, where the motive ascribed is fear.

The belief in reincarnations among the Tinneh has already been alluded to. It receives further confirmation from a very interesting belief regarding the spirits of infants. When these die they are not buried in coffins, but are wrapped in a mat and buried at the foot of a young and vigorous spruce tree, in the belief that the life of the tree will in some way assist the soul of the child to remain available for another appearance in the flesh. The parents therefore comfort themselves, thinking that they may receive their child again. The connection which is here asserted to exist between the life of the spruce and that of the child would point toward an acceptance of the view that the Tinneh and the Battaks have the same conception of the nature of the soul, or invigorating principle. There are other indications which tend to confirm this view. Among these are ideas which the Tinneh entertain with regard to the souls of bears and other animals, and also of inanimate objects. If we add to these the notion of special virtue residing in the secretions and in various parts of the body, as the hair, heart, and so on, and further, the notion that one's soul power may be augmented, diminished, or enticed away as the result of the influence of soul power obtained from another or imparted to him, we shall have very strong grounds for concluding that the two peoples, so widely separated geographically, are nevertheless possessed of a common method of reasoning concerning the phenomena of life.

The belief of the Battaks has been sufficiently indicated in the citation which has been used as a basis of comparison.

How closely it is paralleled in the belief of the Tinneh may be judged from the following observations.

They think that in hunting bears and other animals we are really hunting souls, which have those forms as their presentments. Every hunter has his songs, with which to charm the spirits of the animals which he pursues. Our souls are hunted in the same manner. Bear meat is not to be eaten by the women. The hunter eats the heart of the bear to obtain courage. The heart of the porcupine is even more efficacious for this purpose, for he runs from nothing. It is on this account, perhaps, that he was the first of the animals created. The heart of the rabbit must not be eaten by children, for it will make them timid. The feet of the ptarmigan, which runs swiftly over the snow, are attached to the snowshoes of children, in order that they may be good runners.

Nowhere, perhaps, does the character of these beliefs have a better illustration than in the Feast of Animals' Souls, which is held annually. At this feast images of all the animals that are hunted are carved upon the ends of sticks, and hundreds of these are stuck up around the interior of the council house and propitiated with songs and offerings. It is significant that among these images are also to be seen representations of bags of flour, guns, and other things useful for maintaining life. An aged Indian who was asked whether the people supposed that the images could understand what was being done answered, "No, but the animals upon the mountains see it, and they are pleased." This was said during a ceremony in which water was sprinkled over a group of images representing a herd of deer.

The fact that souls are attributed to insensate things has a more striking confirmation from the custom of patting and rubbing a gun or other implement that has fallen, to restore the soul that has suffered a shock, just as a man's soul is restored under the same circumstances.

Not only does the Tinneh belief resemble that of the Battak in ascribing soul to animals and to inanimate objects, but there is the same agreement with respect to the secretions and to the influence which one soul may have upon another. The Tinneh believes that the clothing, utensils, and other possessions of a good hunter convey virtue. The sputum of a consumptive must not be burned, for it will take away some of his vitality. The hair must not be burned. Old people sometimes put their spittle into the mouths of children to bring them good luck. Healthy persons breathe upon one who is sick in order to invigorate him; but, if the patient is too far gone, they will not do it lest their souls should get entangled with the departing soul and leave them.

The law of taboo, by which certain things—and notably certain kinds of food—are forbidden to certain persons, is found in operation among the Tinneh, as among the Battaks. Prohibition of the eating of the rabbit's heart by children is only one of many illustrations. Fresh fish is forbidden to women under certain circumstances. Red food must not be eaten by a person who is subject to hemorrhages. This may be taken in connection with the fact that it is forbidden to cut the hair of a person so afflicted, and also in connection with the fact that the Tinneh, equally with the Battak, will claim that the spirit of a deceased person, or one of those evil spirits, not human, whom he desires to propitiate, is benefited, not by the substance of the food which he sets out as an offering, but by its soul, of which alone he makes use, and the inference is not a difficult one that the Tinneh believes, as the Battak does, that the souls of men can be influenced by the souls of inanimate things. Indeed, it is a fact so obvious as hardly to deserve the name of an inference.

The Tinneh freely admits that his medicine has no power over the white man. His explanation of this is that white men have no souls. Viewed in the light of his belief that white men are deceased Indians, this is not, perhaps, so irrational after all. It is difficult to tell what kind of medicine ought to be prescribed for a ghost.

A comparison of the beliefs concerning the importance of names furnishes some singular coincidences. Reluctance to give one's name might be attributed to bashfulness; but what shall we say with regard to the following particulars in which both systems agree?

1. It is important that the children should get the right name, and it is the duty of the magic priest to put them on the scent.

2. Hateful names are sometimes given to the children. The Battak does this to make the envious spirits believe that the child is inferior. The Tinneh says that if he loves his child excessively it will die, and that he gives it a bad name to conceal his affection.

3. More remarkable still, if an infant cries inordinately, both peoples attribute it to the same cause, that the child is seeking to be named after some particular relative who is deceased. The Tinneh have an expression, "He is born like . . . ," e.g., "He is born like his grandfather." This means that the relative who is deceased is seeking to become the special guardian of the child. It is here that the magic priest is called in, to determine whether the surmise of the parents is correct, and the child receives his name at some public gathering, as a potlatch or a mask feast. This name he retains during his childhood, and at maturity he receives another name.

The belief that the soul may leave the body for a time, as in dreams or when it is frightened or feels itself insulted, has been noted as a tenet of the Battaks. There are numerous examples of its occurrence among the Tinneh. With regard to the punishment of little children, "Give them their own way," says the Battak, "lest the sensitive little souls leave them and they die." "Do not frighten them," says the Tinneh. "If they are punished too much their souls will get cranky and leave them." The Tinneh have to exercise great care not to subject the soul of the newborn child to any sudden shock. For twenty days the father is not allowed to chop wood or to do anything requiring severe exertion. He is not put to bed to keep him quiet, as among some primitive people, but all his movements must be regulated with the greatest caution. If he leaves the house a pair of scissors or a scrap of tin or some other metal is placed upon the breast of the child as a kind of shield to protect its soul.

As among the Battaks, the soul may leave a person for a time, or may be enticed away, to the detriment of its possessor. The medicine men have their trances, when the soul is supposed to journey everywhere, and to find out the secrets of the future. To eat the eyes of a man is supposed to confer the power of traversing the air. A sudden shock may detach the soul, and it may depart

during a fainting spell. The expression, "he came to himself," in the parable of the prodigal son, would be intelligible to a Tinneh, but in a different sense from that which it conveys to the English reader.

As we might expect, the mortuary customs of the Tinneh furnish many illustrations of their belief in this detachable quality of the soul, and they also point toward the distinction between this soul, or life principle, and the spirit, or what Dr. Warneck calls "that part of the individuality that continues to live." Here, as I have already indicated, there are many striking parallels.

1. The hair is cut by the mourners.

2. The spirit of the dead is feared, as he would like to drag others with him into death. Among the Tinneh, it is the duty of the medicine man to find out whether there are any souls in the community which are detached from their owners, at the time of a death, and would on this account be liable to be enticed away by the spirit of the dead man. If he discovers these, they are ceremonially restored to the ones to whom they belong, before the burial takes place.

3. As soon as the coffin is brought into the house, the body is placed in it, and the lid is fastened down, else the soul of some living person might slip into it. The Tinneh put off the making of the coffin as long as possible. If it is made at some distance from the house of the deceased, it is not taken to the house until the body is to be placed inside. If it is left in the shop overnight, the lid must not be placed upon it, and the tools which were used in making it must be placed inside.

4. The coffin is not carried out by the door, in the usual way, for the soul must be deceived. The Tinneh sometimes take off a portion of the roof. In former times the body was taken out through the smoke-hole, instead of by the door. Before the coffin is taken out it is sometimes passed several times through the fire, that the soul may not follow it. A new trail is sometimes cut through the bushes, still further to deceive the soul. Whether this is the spirit, as distinguished from the corporeal soul, is not clear; but this is probably the correct view. It is undoubtedly true that the Tinneh fear the spirit of the deceased person, sup-

posing that it is engaged in trying to entice their souls away from them. Dr. Warneck speaks of two customs of the Battaks which result from this fear. Thorns are put into the grave, to keep the spirit from coming back, and the personal belongings of the dead man are taken to the grave and scattered along the path, so that the spirit may not come back to the village looking for them. There are no thorn bushes in the valley of the Yukon, but wild roses grow in abundance, and there is at least one known instance of an Indian woman having placed these briers in the grave of a child. This may have been to prevent its reincarnation, for the parents had lost several children and had become discouraged and wished not to have another. The place which the dead man occupied during his sickness is switched with briers after the body has been removed. Frequently some of the bedclothing or other belongings of the dead person are left near the grave.

5. Food is placed on the grave, and the utensils of the dead man are also brought thither. The Tinneh graves may be seen decorated with the snowshoes, guns, belts, and other belongings of the dead, and, as we might expect, food is placed upon them. Sleds used in transporting the body are broken and remain at the grave.

6. Bathing after the funeral. This custom, mentioned by Dr. Warneck, is also found among the Tinneh. It is a ceremonial cleansing. Like many of the customs mentioned in this paper, it may have fallen into disuse, but the custom formerly was that, after a funeral, the men should assemble in the council house and bathe. The medicine man was then called in, and under his directions all went through the motions of cleansing the hands and were then pronounced clean.

7. For some time after the funeral, the house of the dead man is feared at night. Anciently, among the Tinneh, for four days after a funeral all work was forbidden in the village. At evening of each day a signal was given, and all the curtains were drawn. Everyone went to bed at once. In the morning they rose at a given signal. In practice, this rule was felt to give too much inconvenience, and by a shortening up process the observances of four days were compressed into the space of about an hour. Notwithstanding these precautions some perverse ghost might come as far as the entry, being unable to enter the house. If his voice should be heard by the living, the soul of the auditor would be in danger of going off with the ghost.

This account, condensed as it is, would be inexcusably incomplete without somewhat further mention of those beings which seem to be in a class outside the ordinary type of spirits with which we have been concerned. We are indebted to the Rev. Fr. Julius Jette for having distinguished four principal spirits whom the Tinneh think it necessary to propitiate. These are the Spirit of Cold, who kills men by freezing and then covers them with snow; the Spirit of Heat, who is at enmity with the Spirit of Cold and usually helps mankind; the Spirit of Wind; and the Spirit that Kills Us, an evil being who devours souls and so causes death. There is an extremely curious custom by which the wind is propitiated. One must get some young crows and set them adrift on a stick. So long as the mother follows and cares for them, there will be no wind; but should they come to the shore the wind will begin to blow. A short period of good weather may be secured by putting a louse on the water. So long as it keeps afloat the weather will be good.

Of the Tinneh belief in evil spirits there can be no doubt. The evidence of their belief in a beneficent Creator is slight but it is worth consideration. At least two different observers have come upon the account of a Being whose name is too sacred for common use. One has reported this name as Trorto. It would seem that he is the Creator. There is a common notion that the Raven is the Creator, but this is denied by an aged native who claims to have heard from his grandfather that the Creator made all things good, but that the Raven appeared, a different person, and mischievously threw everything into confusion. There seems to be good reason to think that it has always been customary to comfort orphans by telling them that there is One above who cares for them. As a means of comparing the Tinneh belief with the Battak, and as a suitable conclusion to this essay, I offer a quotation from Dr. Warneck's account of Battak heathenism:

> We have seen that one root of the Battak religion, and that the weakest, is its relation to mythological deities. A second root, the most vigorous of all, is the

fear produced by the secret, uncomprehended powers of nature. There is a third, very delicate and very difficult to discover, though deeply imbedded in the soul of the people. The eye, searching in the darkness, perceives the outline of a thought of some omnipotent power reigning over all those deities. Among the Battaks this is reflected in the general name, Debata, i.e. God. He is called simply God, also Lord, and Grandfather. [It is somewhat remarkable that the Tinneh also refer to the Creator as Grandfather, and that the name has been transferred to the Raven.] The idea which is here come upon of a supreme God is very vague, and is always in conflict with animistic feeling. . . . No Battak can explain why, in many situations of life, he passes over Batara Guru and the other gods, and feels that he is related to the Debata. That can only be explained by assuming that there is in the popular consciousness the remains of a purer idea of God, alongside and above the recognition of a plurality of gods, a view also that cannot be derived from those. . . . He is not worshipped; He is scarcely even feared; He is so little known that nothing can be said about Him, save that one occasionally flees to Him. He is really in contradiction with the form in which those heathen religions appear today. The realities of animistic heathenism are Polytheism and worship of spirits, together with the fear and magic that accompany them. Nevertheless, though painted over with colors of the loudest tints, the delicate outlines of the original picture have never been effaced.

ANVIK, ALASKA.

Journ. Amer. Folk-Lore, Vol. XXI, Jan-March 1908

AN ATHABASCAN TRADITION FROM ALASKA.[1]

An old man, his wife, and two sons lived in the valley between the Koyukuk and Yukon. The man had become too old to go out any longer, and told his boys that they must travel alone. They answered that they wished to go.

In the morning they found a porcupine track. Following this down stream, they came to a large river running full of ice. At the edge of the water the track disappeared. The brothers leaped on a cake of ice and floated down stream. Landing again and looking for food, they found a fish that had been left on the ice, and saw many sled-tracks. They followed these. Then they heard faint weeping. Going on cautiously, they saw a porcupine carrying a load. Coming close, they asked it why it cried. When it did not answer, they clubbed it dead, cooked it, and ate it.

Going on, they saw a village. An old woman came out, saw them, and called to the people of the village to prepare food for them. The brothers entered a large house, where an old man was seated on a caribou-skin. They sat down on each side of him on caribou-skins and were given food. Seeing only young women, besides the old man and woman, the brothers asked where the young men were. The young women said that there were none, but that they could do many difficult things that even men could hardly do. The older brother boasted that they could not overcome him, but the young women answered that they were only explaining why they did not need men.

In the morning the young women went hunting. The brothers went with them. Then the women outran the older brother and teased him. Becoming angry, he said, —

"You cannot do one thing. Stand at a distance and shoot at me. If I am not hit, I will shoot at you."

The younger tried to interpose, warning him of the women's ability; but the older remained angry and insisted. The women finally consented. When they shot, he leaped, but four arrows struck him together and he fell dead. The younger brother mourned for him.

When he wished to return and asked the way, he was told that it was dangerous, and the monsters he would meet were described to him. Nevertheless he started.

After going some time, he saw a cliff with the nest of enormous birds. The old ones were away, but he found a young eagle.

[1] Contributed as part of the Proceedings of the California Branch of the American Folk-Lore Society.

This tradition is communicated through Rev. W. A. Brewer of Burlingame, Cal. The author, one of his pupils, is from a Yukon tribe which he calls Tonidzughultsilhnu.

"What do your parents do when they come?" he asked.

"When they come," the eaglet answered, "it becomes dark, it blows, and there is thunder. When it is my mother, it rains. When it is my father who comes, it hails."

Then the young man killed the young bird. He waited. It became dark, and thundered, and rained, while the air was blown against him by the beating of the great bird's wings. The young man shot it, and springing forward killed it with his moose-horn club. When the other bird came, he killed it too.

He went on until he came to a porcupine as high as a hill, which was in a cave through which the young man must travel. He could find no way around. Hiding outside the cave, he made a noise. The porcupine started to back out, lashing its tail against the mountain-side until the tail was bare of its enormous quills. Then as it emerged the young man shot it and clubbed it to death.

Going on, he saw tracks of an enormous lynx. This the women had told him was the strongest of the monsters. Here, too, he tried to go around, but could not. Then he tried to shoot it, but the lynx caught his arrows with its claws. Seeing his attempts were in vain, he waited for death. Then the lynx ordered him to clear away the snow so it could sit at ease while devouring him, and to heap up wood by which it could cook him. The young man did this, but the lynx told him to gather more firewood. The young man gathered, going farther each time. Then he heard some one say, —

"Brother, quickly stand on my back and I will carry you away."

"Where are you?" he asked.

"Here."

Looking down, he saw an ermine at his feet. "I will kill you if I step on your back," he said.

"No, jump on me. I will carry you."

Then he jumped strongly, but the ermine did not even move.

"Your back is too small. I cannot sit on it."

"Lay a stick across my back, and put another across my neck for your feet."

He laid the sticks across the ermine and sat down. Immediately it carried him to his house.

The young man's parents rejoiced to see him. In gratitude they gave the ermine a shell necklace. That is why the ermine has white around its neck.

Arthur Wright.

Arctic Notes from Herschel Id. & Eastward

Forest & Stream - May 16, 1908. P. 775.

Natives.

Residing on, or visiting, Herschel are two bands of natives, the Nunatalmutes who live mostly on the mainland, and the Kogmollicks or shore Indians. The former live mostly on sheep, deer, fish, etc., on the mainland, the latter on seal, white whale and other products of the deep. They have good whale boats, fish and seal nets, etc. They are described as a very honest people, good natured and very fond of their children. They hold religious services every Sunday. They play football and baseball, and do so when the mercury registers 25 below. There has been no crime among them, and they are as a rule healthy. Injuries from frost bites appear to be the commonest ills.

A wedding was recently held on the island. The bride is described as very comely, about seventeen years old, and the bridegroom was her fourth partner. She had lost both her feet three winters previously from frost bite at Baillie Island. The guests, about fifty in number, assembled in an igaloo ten by twelve, and the wedding feast consisted of whale and seal meat and frozen rotten fish. The narrator of this episode was invited to the feast, accepted, and got as far as the door, but could not face the music and retired gracefully.

There would appear to be many natives to the eastward and northward from Herschel, who have perhaps never seen, or been seen by, a white man. None have been seen by the whalers on Baring Land or Bank's Land, but they are there, as marks of their recent fires have been found. One whaler wintered at Prince Albert Land in 1895-96, and among the natives seen by them there was only one old woman who had seen a white man before. The natives report that the old English man-of-war, the Investigator, a wooden corvette, which was frozen in in Mercy Bay, Bank's Land, in September, 1851, is still there intact and in good condition.

This enormous area of land and sea lying north of our continent, almost unknown to the civilized world, is a region full of mystery, about which there is yet much to learn. It is desolate and repellant for the most part, and for a major portion of each year is shut up tight in an icy barrier that no one so far has succeeced in forcing to any extent. Yet the very want of knowledge of this unknown region makes one wish the more to be better acquainted with it, and for a man with robust health and ample means it would appear to be a most fascinating way to spend a few years of his life in a systematic and intelligent exploration of these unknown lands and seas.

J. H. McIllree.

The Skqomish Tribe and Language of British Columbia is the subject of a paper read by Mr C. Hill-Tout at the Bradford meeting, 1900, of the British Association for the Advancement of Science, the report of which has recently appeared. The essay deals more with the ethnology and mythology of that interesting body of Indians than with their language, although a considerable vocabulary (pages 513–518) is given. The Skqomish language is one of the western dialects of the Salishan stock and is at present spoken by fewer than 200 people, who occupy the banks of Skwamish river and the shores of Howe sound, which forms its outlet. The Indian villages that formerly existed on English bay, Burrard inlet, and False creek, were not true Skqomish, but the language of this people was once spoken by a larger number of Indians than at the present time. After treating of birth, marriage, puberty, and death customs, the author describes the garments, dwellings, dances, wars, food, and other subjects pertaining to the tribe. Among the mythic stories and tales given are: "The Quais Brothers," "Tsáyanuk," "The Son of the Bright Day," "The Serpent Slayer," "The Deserted Youth," and "Sqeils the Copper Man."

A. S. Gatschet.

Am. Anthropol. Vol. 4, No. 1, p 197. March 1902.

of the Thompson Indians. The principal difference between the Salish tribes of the interior and the Lillooet in regard to their religious beliefs is based on the introduction of some of the secret societies of the coast. Mr. Teit's paper is the first fairly exhaustive description of the Lillooet, and supplants the earlier brief description given by Mr. Hill-Tout.

Archeology of the Gulf of Georgia and Puget Sound. By HARLAN I. SMITH. (Vol. II., Part VI.)

Mr. Smith's description of the archeology of the southern coast of British Columbia and the northern coast of the state of Washington is a continuation of his paper on the shell-heaps of the Lower Fraser River, published in Vol. II., Part IV., of this series. In the first part of the paper, which is fully illustrated with text figures reproduced from pen and ink drawings of specimens found in the region under discussion, the archeological finds between Comox in British Columbia, and Olympia, state of Washington, are described in some detail. The locations of shell-heaps, fortifications and village sites, are given; and wherever excavations were undertaken, the character of the site and the remains are described by the author. On the whole, it would seem that the culture of the area was quite similar in type to the culture of the modern coast tribes. However, some striking differences were found in various localities. Perhaps the most important of these is the proof which seems to have been definitely given by Mr. Smith of the close relationship of the prehistoric culture of southern Vancouver Island with that of the mainland and presumably the interior; so that it would seem that at an early time a wave of migration passed over the Coast Range westward to the coast, and across the Gulf of Georgia to Vancouver Island. This culture is characterized particularly by the occurrence of numerous chipped implements, of tubular pipes, and of other objects characteristic of the culture of the interior. In other places along the coast of British Columbia chipped implements are very rare, while on Puget Sound and on the outer coast of the state of Washington chipped implements begin to appear in greater number, and are apparently related to the types of Columbia River. Mr. Smith has also made full use of local collections, and has thus brought together an extended amount of material bearing upon the archeology of this region. Here are also found curious clubs of bone of whale and of stone which have often been claimed to be related to the clubs of New Zealand. Mr. Smith has succeeded in collecting illustrations of almost all the clubs of this kind that are known; and a discussion of this material shows very clearly that almost all of them may be referred to one single type, showing a bird's head surrounded by a head mask, which at the present time is characteristic of the western coast of Vancouver Island. Thus the theory of a foreign origin of this type would seem to be finally disposed of. Mr. Smith treats in a similar way the simpler forms of slave-killers from this coast and the peculiar single and double-bitted axes which are characteristic of Oregon. Another very peculiar type of specimens which is fully discussed in this book are the dishes from southern British Columbia and the Delta of the Fraser River, which have attracted the attention of archeologists. Mr. Smith has illustrated not less than nine of these, all of which show characteristic uniformity of type, and the provenience of which is restricted to a very small area. While the shell-heaps of the Fraser Delta have yielded a great many skeletons, skeletons are, on the whole, rare in the shell-heaps on the coast. Apparently this is related to the fact that in early times burials were not made in the shell-heaps, but in the cairns, while later on burials in canoes, and tree burials, seem to have been customary. Attention may also be called to the illustration and discussion of the interesting petroglyphs of the region between Comox and Nanaimo.

Kwakiutl Texts—Second Series. By FRANZ BOAS and GEORGE HUNT.

The second series of Kwakiutl texts, so far as published, contains traditions of the more southern Kwakiutl tribes, and particularly the

important "Mink Legend" and the "Transformer Legend." The former occupies about eighty-five pages, and the latter about seventy pages, of the series. The texts, so far as published, were recorded by Mr. George Hunt, and were revised from dictation by F. Boas. Thus it happens that the whole series of texts published in the Jesup Expedition are recorded by Mr. Hunt. That the bulk of this work was intrusted to Mr. Hunt is due to the fact that the Kwakiutl mythology is enormously extensive, and must be obtained from representatives of all the different families to whom the family traditions belong. The writer of these lines, who is responsible for the collection, could not undertake this work himself, and for this reason he taught Mr. Hunt to write Kwakiutl, and, by carefully controlling his work, trustworthy material has been gathered.

From a broader ethnological point of view a series of this kind collected by a single native recorder is of course unsatisfactory, because the critical insight into style and contents require more varied material. For this reason I have collected a considerable amount of material from various sources, largely intended to control the results obtained by Mr. Hunt, and also to present different styles of story-telling and differences of dialect. It is a matter of regret that this material has not been included in the present volume which thus would have gained very much in scientific value.

Franz Boas

The Psychology and Pedagogy of Reading, with a review of the history of reading and writing, and of methods, texts, and hygiene in reading. By Edmund Burke Huey, Ph.D., Professor of Psychology and Education in the Western University of Pennsylvania. Pp. xvi + 469. New York, The Macmillan Co. 1908.

The experimental studies of the last dozen years in the physiology and psychology of reading constitute an interesting and an important line of advance in experimental psychology. Motived partly by logical, partly by linguistic, partly by pathological, and partly by pedagogical, as well as by purely psychological interests, the investigations of the reading process have materially increased our knowledge of the visual processes, both central and peripheral. They have enriched our experimental technique, and have furnished unusually satisfactory data for an investigation of the higher mental processes. Historically, physiological psychology received one of its most important early impulses from an investigation of speech defects. The lamented Wernicke found a discussion of the linguistic processes a convenient introduction to the more general discussion of mental life, and many another teacher of related disciplines has found it convenient to follow his example. It is not uninteresting that language seems destined to supplement its former services to psychology by furnishing us with the best available technique for an experimental analysis of the more complex elaborative processes.

Reciprocally it would be surprising if any real advance in our knowledge of the linguistic processes should be without influence on language itself and the teaching of language. I regard it as fortunate that, as far as reading is concerned, these practical deductions have been drawn thus far mainly by those whose experimental work guaranteed real information and a scientific attitude.

The present work is made up of four parts: Part I. is a résumé of experimental and analytic researches in the physiology and psychology of the reading process. It occupies about one third of the book. Part II. is a compact account of the history of reading and of reading methods, pp. 76. Part III. contains an illustrated discussion of the more important theories and practises in teaching reading, pp. 119. Part IV. discusses the hygiene of reading, fatigue in reading, suitable type, length of line, etc. The conclusion contains some interesting speculations as to the future of reading. The book closes with an excellent bibliography and an index.

One of the most striking characteristics of Huey's style is his unusually careful recog-

A CONTINUOUS CALORIMETER

To the Editor of Science: In your issue of July 24 Professor Lyndley Pyle refers to the use of the continuous calorimeter by students of Washington University for the past fifteen years. It is gratifying to learn that the method has been so thoroughly tested elsewhere for this purpose. In taking up your valuable space in my article of May 15 I described a particular type of simple calorimeter that we have found most suitable for the elementary work. That this method is not generally used in place of the older and more troublesome method of measuring Joule's heat appears to be because sufficient attention has not been drawn to it. The directness, accuracy and ease of manipulation will appeal I think to all those who have charge of laboratory classes.

The method itself, is, of course, not new. Callendar used it more than twenty-two years ago at Cambridge for comparing the thermal and electrical units, but it was not until he came to McGill University in 1893 that steps were taken to thoroughly investigate the merits of the method. A continuous method was used by Graetz as early as 1882 for measuring thermal conductivities.

H. T. Barnes

McGill University,
July 29, 1908

SCIENTIFIC BOOKS

Publications of the Jesup North Pacific Expedition. Edited by Franz Boas. Leiden, E. J. Brill Limited; New York, G. E. Stechert & Co. 4to.

During the past year the following numbers of this publication have been issued:

The Lillooet Indians. By James Teit. (Vol. II., Part V.)

In this book Mr. Teit describes the customs of the Lillooet, a branch of the Salish Indians, who inhabit the valleys of the Coast Range of British Columbia, from Harrison Lake to the upper reaches of Fraser River. Mr. Teit visited the tribe twice, and describes in some detail the customs of both its lower and upper divisions. The plan of description is similar to that of Mr. Teit's well-known book on the Thompson Indians of British Columbia; the habitat and divisions of the tribe, material culture, warfare, games and pastimes, social organization and festivals, birth, childhood, marriage and death, and religion being taken up in detail. On the whole, the Lillooet resemble in their culture the tribes of the interior, but they form an interesting link between them and the coast tribes, having adopted many of the industries and a considerable part of the social traits of the coast tribes. Mr. Teit describes in detail how the influence of the coast culture gradually diminishes towards those divisions of the Lillooet that reside farthest away from the coast. Of special interest in the descriptions is the discussion of the imbricated basketry and of the basketry designs of the tribe, a subject which has received considerable attention in recent literature. The houses of the division of the tribe living near the coast were similar in structure to the large wooden houses of the Coast Salish, while the tribes of the interior lived in underground dwellings and in tents. Weaving like that produced by the Salish Indians of the Gulf of Georgia was confined to the Lower Lillooet. The tribe has been so much influenced by the whites that very few of the old specimens remain, and consequently not many of the objects in use among them formerly could be illustrated. The transitional stage in the social organization of the tribe is interesting from a theoretical point of view, in so far as it shows clearly how a semi-totemic organization may influence a people that in previous times was organized only in very loose village communities. At the present time the influence of the totemic organization may be observed particularly in grave-monuments which are still preserved, many of which represent figures of ancestors and of totemic beings. The religious concepts of the people differ only slightly from those of the Thompson Indians. The numerous rock-paintings in the Lillooet country have reference particularly to the puberty ceremonials, and are explained in a manner similar to those

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The Story of a Stump.

I STARTED from a little town on the Fraser River to look for Indians, pines, cedars, firs, balsams, mountains and, incidentally, for goats and sheep. For the first time in history the salmon run on the Fraser had failed. The great Government hatchery, just erected below the lower Seaton Lake, had not been able to get enough fish at its weir to begin operations. A few, a very few, sock-eyes were drying on sticks along the river bank, but the king salmon and the humpies were not.

Major and Aleck, my two Indians, were glad to get their ponies together for a turn in the hills, and the first night out we spent at the Short Portage.

This was a native settlement of about sixty souls. The patriarch patted me on the back saying, "Good man! Shoot mowitch." The children came out of their cabins at unusual hours to hammer a church bell installed on a stump, while awaiting its sacred edifice, and the population would take to prayer. They are good Catholics, strenuous and observant, and they do their full duties, though the times and seasons may be a little mixed.

Nor do they seem to be inclined to race-suicide. Major's wife stood on the bank as we rode by, with a six-inch smile on her comely face and many infant Majors by her side. As General Scott said of the Seventh, "It was a regiment of officers."

It is easy to understand that, in early days, during the interchange of barbarities called frontier war, some currency should be given to the saying that "There is no good Indian but a dead Indian." Time has worn the gloss off from this epigram. From a byword it has become a bore.

Three of my associates on the trip I am writing about, are living refutations of the slanderous proverb.

When we started from upper Seaton Lake, beyond the Portage, Aleck's wife was also of the party, under her husband's escort, until we reached a spot on McGilvray creek, where "many womans" were picking berries. There she left us. I had asked her name, but as she only answered by a shy giggle, I called her Carrie. A week afterward I found that her name really was "Keetee," so I hadn't been so far wrong.

I am told that the Seaton Lake district is an arid region with an average annual rainfall of twelve inches. We got about that in September alone. We were in the very spill-way of the clouds. It rained or snowed on more than half the days of my expedition, and was cloudy on some other days. So, when the rain had turned to snow, on the afternoon of our march from Seaton Lake, and we were all wet through with ice water, it was a comfort to find that Major could start a fire with a branch of dead pine needles in less time than most people could light a candle, and as soon as we got the packs off and began thawing, I took a lesson in Lillooet language and customs.

These Indians are progressive in the sense that they live in houses, wear modern clothes and work. They think little of the ways of their ancestors, the "old people," but withal, they have retained traits of simplicity and an honesty which is a real delight. You may leave your furnishings stowed in a tree beside the trail for safe keeping, and be absent many days, sure that no human despoiler will have injured or taken your property. I asked Major whether the Indians of old had used dogs for packing before the coming of the horse, and he denied it, but there is a suspicious feature in their language. The word for dog is "skákbah," and the name for horse is the same with a syllable that resembles a grunt prefixed. Among the Piegans the pony supplanted the dog as a beast of burden, and was called an "elk dog," or big dog, and it seems likely that the etymology of the word horse in Lillooet points to a similar connection of ideas.

When the men chattered away in their native tongue, the general effect, to a person ignorant of both languages, was somewhat like South German; but there were times when a succession of coughs, clicks and gulps broke in, giving a notion that the speaker's utterance had become inarticulate through pain.

In the flats near the short Portage and at other places in the district one finds circular mounds surrounding excavations about thirty feet across. These are called by the whites "keékoly holes." The word keékoly merely means "down" in the Chinook jargon, but this name is always applied to the hollows that mark the sites of the old communal houses. There may be one or two of these houses still left in some remote spot. Thirty years ago when miners began to stream into the Caribou these were the ordinary winter domiciles. The method of construction was to dig down from three to five feet below the surface, and in this cellar erect a rectangular frame with six stout posts and connecting beams on top. Then strong poles were laid radially for the roof so that the outer ends came to the ground and the inner ends abutted on a hole in the middle of the roof, which answered both for door and chimney. The poles were covered with bark, grass and earth; the excavated dirt was piled around the outside, a notched log was propped in the central hole for a ladder, and the mansion was ready. Of course everyone had to walk over the roof and climb down through the smoke to enter. The great virtue of these houses was that they were very warm in the severest weather, only a little fire of sticks was made in the center, but often the dwellers would climb out at nightfall to plunge in the icy lake in order to get cool enough to sleep. Each of the several families that lived in the house would have its special division allotted, and the winter was passed in making soup in a cooking basket, wherein the water was kept boiling by the addition of hot stones. Salmon dried in the sun, and shockingly ill-preserved, was the staple, with steelheads, rainbows and mountain trout fresh from

THE STORY ON THE STUMP.

the water; while camas and kimwood roots afforded the vegetables, and dried berries gave the fruit.

Rather a domestic people were the Lillooets. Fighting sometimes, either because they had to or else to keep in touch with the prevailing fashion, but in the main seeking a peaceful sustenance, housemakers, bridge builders and capable of carrying huge burdens on their backs. Not all of them even were successful hunters, and some, instead of buckskin garments, had to weave themselves shirts of the inner bark of the willow, twisted and pounded to clear the fiber from the trash.

Now we started on our trip with the picnic element definitely eliminated, as I have shown, and packing over the divide at the head of McGilvray creek, we dropped down about 2,000 feet into the valley of the Cadwalader, the main tributary of the south fork of Bridge River, and no mean stream. The bordering mountains are not very lofty in absolute elevation from the sea level, but they rise sharply from the low land, and a hunter may have to climb 3,000 or 4,000 feet through old burnt lands thick with brush or opener, but still very steep forested slopes, before he gets to the rocks of the goats or the snow swept slopes with short, curling grasses and patches of low moss amid the shingle, beloved of the herds of the Highland Pan.

The restriction of the game ranges is very marked. The great belts of the lower timber and slides are practically untenanted. A few deer haunts known to the Indians are the only exception to this rule. In the upper regions goats can often be seen; usually, on account of their conspicuous coats and exposed stations, at great distances. A sportsman of repute gave an account some years ago of hunting goats with horses and dogs, but as far as my observation goes their habitat is ill adapted to equitation.

For good climbers, however, the capture of goats is an easy thing, though the labor of the approach and of the packing out of the spoils is almost always considerable. But it seemed strange that among hundreds of high, cool ridges, where the ozone of the summit fills the air and the crisp, scanty herbage seems made for sheep, only a few places should harbor the bighorn.

For instance, on the mountains south of Cadwalader creek, the bighorn is not found. On the north, but one mountain side near the glacier that forms the source of a little stream known as John Bull creek, has the history of a single band of sheep now seldom seen.

In going up this valley a little incident happened which seemed to indicate that Major had a feeling for locality that amounted almost to a special sense. In the morning we passed a little snake torpid with cold. Major thought him dead, but by stirring him with a stick I elicited a faint wiggle, and we passed on. Some hours afterward, when we had gone, several devious miles, Major said to me, "Dat snake move." He had recognized the spot, to me quite undistinguishable from the rest of the tangle, and noticed the absence of the snake.

And here I heard of a fact, if fact it was, that had never been brought to my attention. In the edge of a lofty snow bank I discovered a labyrinth of tracks. When we got near they proved to be bear tracks a day or two old, and the long claw marks showed a grizzly bear.

Now Major had killed bears, some of them in contests that may be described as hand to mouth struggles, and he maintained that it was a custom of these animals to tramp around in a snow bank after they had made a kill and gorged themselves on meat, in order to clean their paws.

As the grizzly is a fast vanishing creature, his habits are getting to have the interest of an early myth, and I give this on Major's authority.

To be sure, the scarcity of bears in the autumn is hardly an index to their true numbers, for they are then quite undiscoverable in the brush.

When the snow melts in the spring, say from April to June, according to the earliness or lateness of the season, the bears come out on the open slides to dig for roots to satisfy the hunger that they have earned by a winter's fasting. At these times they can be seen a long way off with a field glass, and the hunters have little trouble in coming up to leeward and securing their victim. Aleck alone killed nine bears last spring, but he might try for ninety autumns without bagging a single one. And as for the grizzly, it seems as if the hunters had taken the short census and marked the favored resort of every survivor of the species.

After a short and rather barren experience near the John Bull glacier, we moved down the Cadwalader bottom and camped where a long, steep ravine carried the waters of the higher snow banks to the creek.

It was an inviting spot. We saw a goat miles away and marked him for the morrow, and Aleck started to make a supply of his unrivaled bread. It was good, and as his method differs a little from those I knew, I will give the details: He first gathered a lot of earth and gravel around his fire and got this stuff hot and well mixed with embers. A large tin pan was greased, the dough was put in, then water was poured around it to prevent burning. A gold pan, bottom up, was used as a cover. The whole was buried and covered with the hot earth and ashes. In a few minutes steam came puffing out of the pile, and in three-quarters of an hour the bread was done. It was not boiled, either. It was baked and well baked, and there was not a feature of a dumpling about it.

While Aleck was cooking I examined the neighborhood, and found a small stump with one side faced down with the ax for a couple of feet, and on this tablet there was an inscription in characters strange to me, which turned out to be Chinook writing. For it seems that a special syllabary has been invented to fit the jargon; and, in a way, it does fit it. It looks quite as the jargon sounds: ridiculous.

Both my men were Chinook scholars, though Aleck was far the better, and where their translations differed I took Aleck's, but I confess that I reflected with a certain pang on the time wasted over learning this class of literature when the student might have made great strides in knowledge by the same application to the pursuit, say of Latin or even English.

The inscription rendered so as to bring out its true intent, avoiding the bald vagueness of the jargon with its "wa-wa" and its "sick tum-tum" ran as follows:

Sept. 13, 1902. Cadwalader Creek.
Well, we had a hard time here.
Here we got low spirited.
It was like that all the time.
There was no good cause for misfortune.
We did nothing for three days.
We lay in bed.
Afterwards we killed lots of game.
We ate lots of game.
We have a camp a little above—about fifty yards from this stump.
We are six camping there.
This is one story if anybody passes on this trail.
We had been traveling in another quarter.

we killed lots of game.
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n traveling in another quarter.

We had two horses.
We were short of water and we looked for a creek. We reached it and drank, and a little bird came near and sang, "Well! well! well!"
Then he sang "He! he! he!!"
That little bird made us merry. Then we all laughed.
If anybody passes this trail, don't get low spirited.
If a man gets low spirited he may get sick.
I say that for everybody. JOE.

As a check on the accuracy of the translation, I offer an exact copy of the original which omits only the flat and unprofitable advice at the end.

As if we got a sick tum tum on purpose!

Now there is a truthful story of simple men.

I imagine this half dozen of Indian hunters, weary exceedingly, out of meat and short of water. (I hardly see how they could have missed water far in such a network of streams, but the stump says "short of water.") They reach the creek, drink eagerly and go to bed for three days with a "sick tum-tum." This might have been the result of over-drinking or under-eating, or the use of roots that give a most unattractive kind of starch to the Indian diet, or, perhaps, they were bed-ridden by reason of unseasonable rains or mere dark depression. On this point the stump is silent. Then comes the halcyon bird, harbinger of blessings, and he laughs to them, "Well! Well! Well! He, He, He!" and they all laugh together, and their rifles bring down game, and they eat abundantly, and dry their surplus meat (we saw their drying scaffolds), and, as a guide to the wayfarer, they tell the story of the stump and draw the moral:

Excellent men!

And now we, too, began to gather fruits of the chase; fool hens that were stoned to death, grouse, rainbow trout, goats and deer.

The trout were caught in a small lake with bait. One of them weighed about 2 pounds, others a quarter as much. The salmon colored band on the flank was bright and their red flesh was firm and good. The deer, though proclaimed a tremendous fellow by the Indians, did not rank with mule deer that I have seen in Wyoming and Idaho. The spread of his horns was only 19 or 20 inches, and they were neither heavy nor long. A similarly disappointing smallness was noticeable in the ram's horns brought in by three parties out of many that went hunting this autumn. Fourteen inches around the base and 33 inches on the outer sweep, were considered large dimensions. This is a matter of the tape line and cannot be laid to a sentimental exaggeration of the glories of vanished times.

Either the big fellows have learned caution or the game, harassed by continual pursuit, does not have time to grow big.

Goats did not entirely satisfy our ambitions, and we crossed the Bridge River and followed it down looking for sheep grounds, unoccupied by other hunters, where we would not be spoiling someone else's sport.

To one acquainted only with the upper reaches of the Bridge River, it would seem to have earned its name from having two rope ferries and numerous fords. But I am told that there is a fine government structure at the river's mouth, which replaced the Indian bridge that spanned and gave a name to the stream when the miners first poured in.

The Indian bridge was made on a plan, of which some specimens still remain in other places. Trees trimmed of their branches were supported and weighted by stone piles on the opposite side of the river in such a way that their small ends projected toward one another and left only a moderate gap to span. A long stick of timber was then lashed to the ends to fill the gap and then the passer, with one foot on either timber, just skated or shuffled along the two parallel sticks as best he might, on so uncertain a footway.

Horses were always taken across by swimming or fording in Indian times. And in one unaccustomed to this kind of engineering I am told that great strength of will was required to make the crossing, though an old squaw, or kloochman, as they call her, would trudge across with a heavy load on her back without a sign of hesitation. The old timers speak of the plan of the Indian bridge as the cantilever principle. At all events, its construction showed mechanical ingenuity and enterprise.

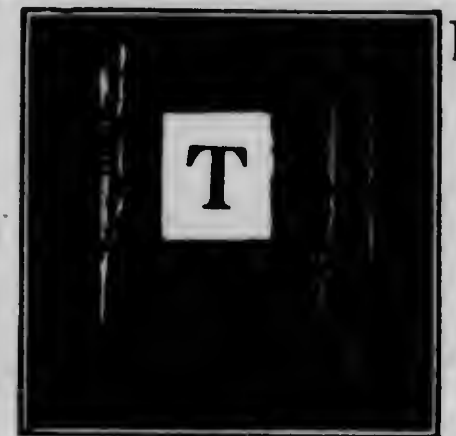
When we had made one or two fruitless halts for hunting along the Bridge River, my holiday time came to an end, and I turned from the diapason of the pines and the song of falling waters to the rattle of ordinary existence.

The chief of the Lillooets agreed to drive me out to the railroad, and he did it worthily, though much against his will, for it was raining hard, and he told me that nothing but his pledged word would have made him take that uncomfortable drive. The day I spent with him was full of interest. He was a fine-natured, broad-minded man. A linguist speaking Shuswap, Thompson River, English, Lillooet, a little Spanish, Chinook and I know not what other jargon. In spite of his accomplishments, he said that there were too many languages, one ought to suffice, and he consented that English should be that one. His English, indeed, was fine; not Major's glorified baby talk, nor Aleck's terse mumble, but idiomatic, weighty, reasonable, and I sat literally at his side, but metaphorically at his feet, learning some little part of the secret of the hills.

H. G. DULOG.

Kamaloops & Douglas Indians, B.C.

Indian Shorthand Writers
Kamaloops, British Columbia
Kamaloops and Douglas Tribes
Paper Printed In The Church 1



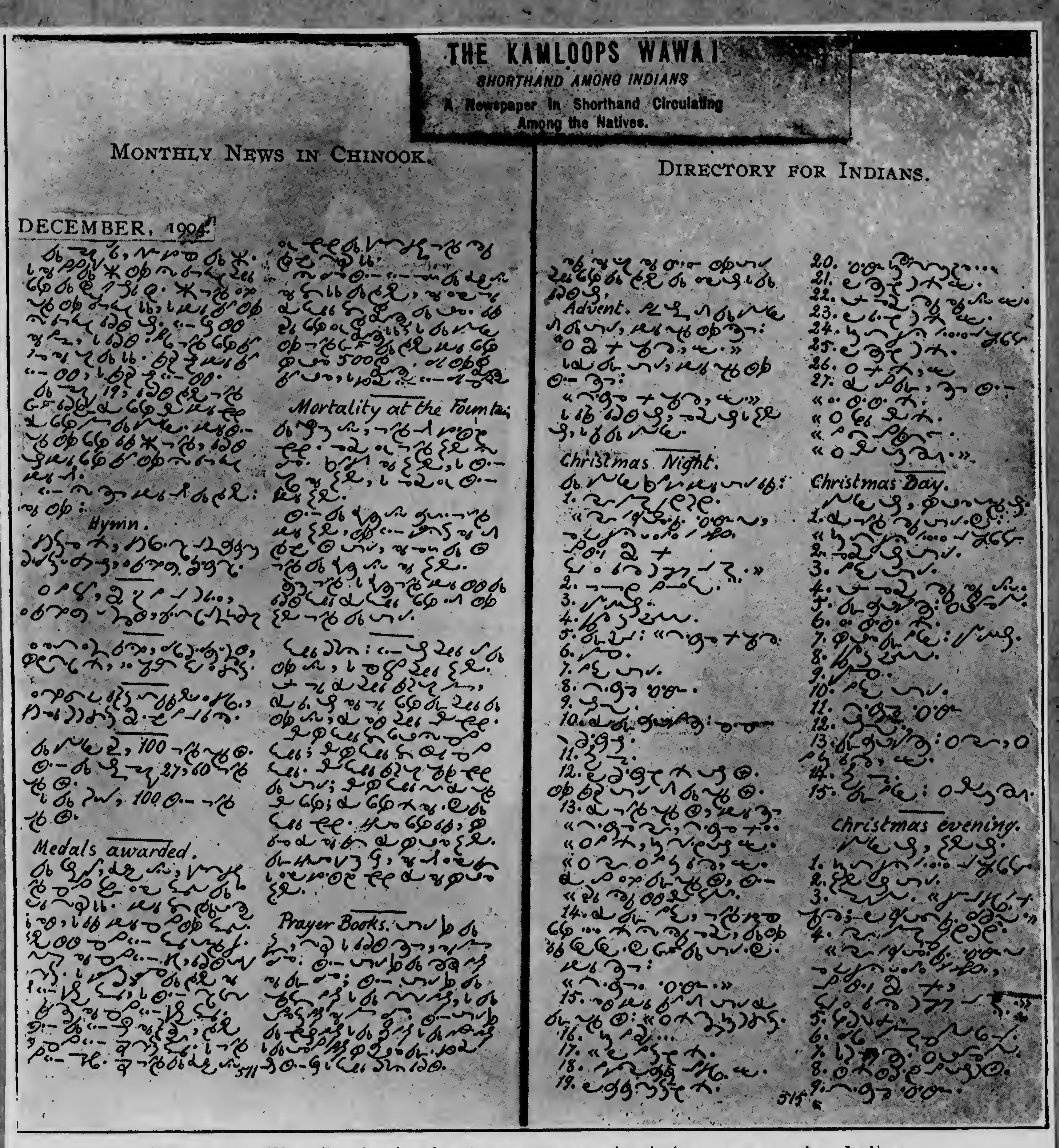
THE only tribe of real Indian shorthand writers in the world who contribute and subscribe to the queerest newspaper now being published anywhere are those belonging to the Kamaloops and Douglas River bands living in the interior of British Columbia. Over 2,000 of these natives have mastered the art and regularly read all the news pertaining to the tribe and individuals in their curious journal called the *Kamaloops Wawa.* Bible, hymn, prayer-books are likewise printed in this sign language.

In the rear of the church are the editorial rooms where Father Le Jeune gets up his quaint shorthand paper. This has 16 pages, about the size of the average book, devoted to church and various local information. "Wawa" is the word for talk in the Chinook jargon, hence Father Le Jeune had chosen it as a name for his quaint newspaper. It was printed on a mimeograph for the first year, but after this the priest succeeded in having type made for it and getting it printed on one of the presses of the nearest city. A full page of this unique publication, here reproduced, shows the curious shorthand symbols used for the Christmas night services of the last year.

Pacific Monthly
Dec 06

Indian Shorthand Writers
Kamaloops, British Columbia
Kamaloops and Douglas Tribes
Paper Printed In The Church

2



THE KAMLOOPS WAWA!

SHORTHAND AMONG INDIANS

A Newspaper In Shorthand Circulating Among the Natives.

MONTHLY NEWS IN CHINOOK.

DECEMBER, 1904.

Hymn.

Medals awarded.

Mortality at the Fountain

Prayer Books.

DIRECTORY FOR INDIANS.

Advent.

Christmas Night.

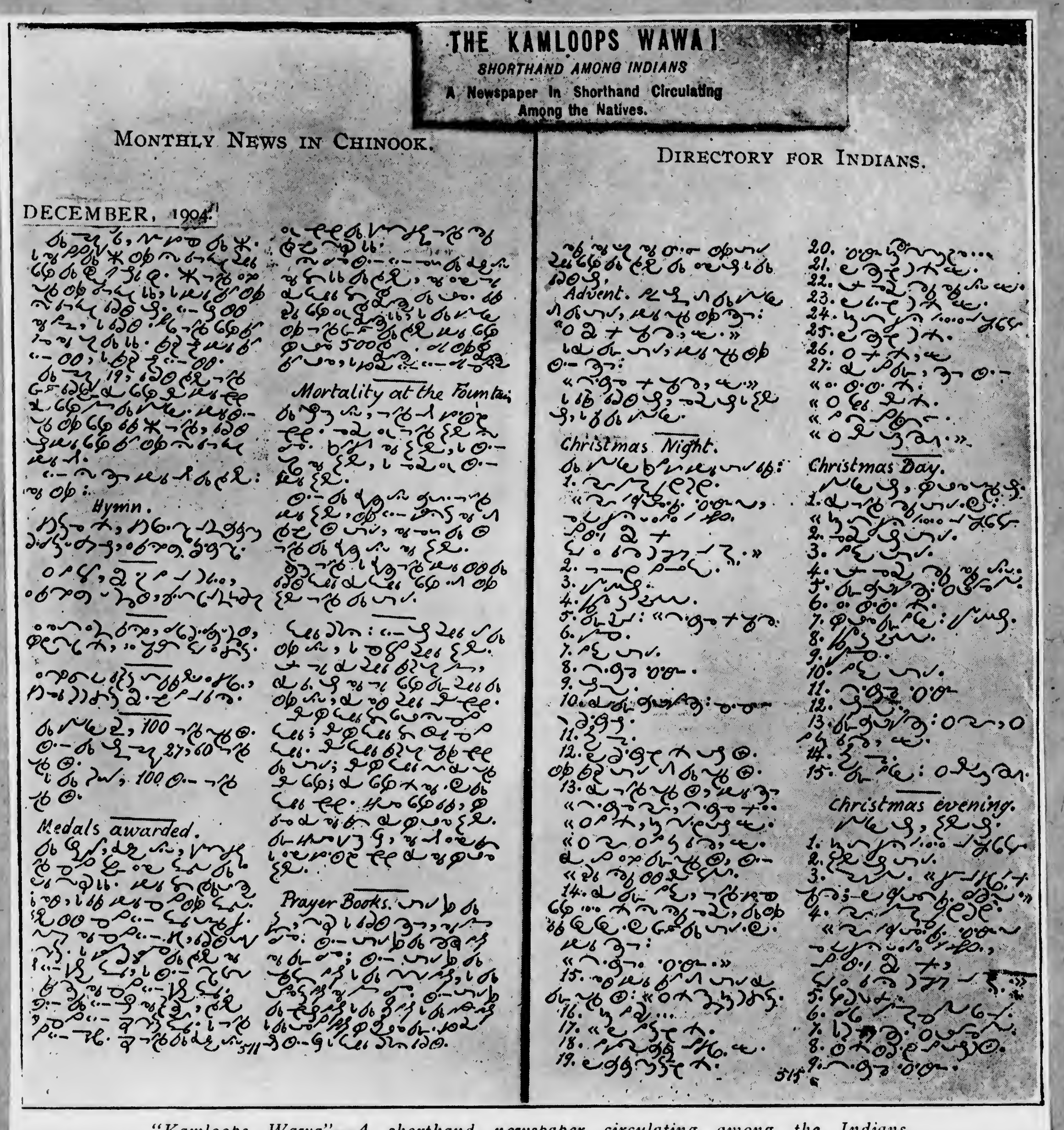
Christmas Day.

Christmas evening.

"Kamloops Wawa"—A shorthand newspaper circulating among the Indians.

Indian Shorthand Writers
Kamaloops, British Columbia
Kamaloops and Douglas Tribes
Paper Printed In The Church

2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Retake of Preceding Frame

Indian Shorthand Writers
Kamaloops, British Columbia

Kamaloops and Douglas Tribes

Religion
Father Le Jeune

3

This remarkable and up-to-date advance in Indian culture was brought about through the efforts of a French Catholic Missionary, Father Le Jeune, sent out from Brittany a few years ago. One of the most picturesque illustrations secured was one showing this enterprising priest kneeling surrounded by the chief and other members of his shorthand tribe in front of their church. Kamaloops, the headquarters of Father Le Jeune, is some 300 miles or more northeast from Victoria, the capital of British Columbia. Just across the river a few miles up from the town is the main Indian village, or rancherie. Here the natives congregate in large numbers at certain seasons, for this is the important center of Indian life for some 50 to 100 miles around; the occupation is principally hunting, fishing, ranching and farming on a limited scale. Prior to the appearance of the priest the fraudulent Shamans—pretenders at the curing of disease, claiming by aid of supernatural or magic powers to be able to ward off evil spirits and prevent sickness—completely held the people in their superstitious grasp. Besides hindering their progress in religious matters, a good deal of property was squeezed from the people by their misleading influence. These so-called magical prophets fled at the coming of the French Father, who exposed their tricks and false creed to the Indians. Before the French priest began his work the tribes of this locality, living along the canyons and banks of the Thompson and Fraser Rivers in British Columbia, were unable to write their language and had no written literature, although each possessed a language which had an extensive Mythology, preserved and rehearsed by frequent recitation.

Today, nearly all these different tribes, some half dozen or more, are writing letters to one another in their several languages, reading a newspaper, Bibles, and song books, all by means of shorthand.

Father Le Jeune found that to be successful in his mission it would be absolutely necessary to devise a system of communication, both to arouse and gain their interest by placing instructive printed matter in their hands. Having no written language or grammar of their own, he conceived the novel and useful idea of teaching the Indians of the various tribes to write their language, and showed them a sign to represent each sound which they uttered in pronouncing their words. The signs were simply the shorthand symbols of the Duployan phonographic systems. After working out an Indian vocabulary containing nearly all the words most commonly employed in every day usage in his shorthand signs, the priest, in early fall when the village was thickly populated, first showed and explained his system to one of the bright Indian boys. He took to it intuitively and set to work to decipher some Indian prayers which the Father gave him. Before Christmas he had pretty thoroughly learned the art of writing his language, and pleased with his quick success, he set to work at once to instruct his friends. The new "talk language" created wide-spread interest and the Indians were all eager to learn it.

Indian Shorthand Writers
Kamaloops, British Columbia
Kamaloops and Douglas Tribes 4
Religion Father Le Jeune

Indian Girl shorthand writer.

Soon the young as well as the adult members of each habitation for miles around were engaged in practicing the new method of communication. A glimpse at night into one of their homes—a wigwam made of poles covered with mats, or a birch bark dwelling or log cabin where the women still use stone implements to prepare and scrape deer skins —grouped eagerly around, bent on learning shorthand, was indeed a remarkable sight—a curious blending of primitive surroundings elbowing against higher civilization. During the first few months of their schooling it was found that as soon as a few Indians of a camp had learned to read and write shorthand they were extremely anxious to teach the whole community. Consequently, Father Le Jeune taught a few members of each village and left it to them to teach their neighbors. They made rather slow progress in the summer time, owing to the fact that they were off at work ranching and picking berries, but in the winter when they returned they devoted whole nights to study, and in this way made excellent progress and soon became proficient.

Indian Shorthand Writers
Kamaloops, British Columbia
Kamaloops and Douglas Tribes 5
Religion
Father LeJeune

After about 500 or more had mastered this system it became necessary that their interest be retained by placing reading matter before them, and thus was one of the main purposes of the Priest realized, for he wished them to be able to read the Bible as well as other of his religious books. His task was to provide this literature printed in the characters of the system. Father Le Jeune was not satisfied with teaching his Indian parishioners to write letters in their own language by means of shorthand and to read a paper in their native tongue, but he had published various parts of the Bible in nine different languages spoken by the several tribes in this region, using the same method, and still is laboring on additional publications. Shorthand, he claims, is so many times simpler than English orthography that he takes no credit to himself for this wonderfully novel work of being the first to teach these natives to write. Then, as they apply the symbols to their own language, they are not obliged to learn the grammar and spelling of other language, in addition to the task of committing the shorthand alphabet. The Indians now using this phonetic system for writing are some half dozen tribes, or more, living along the Thompson and Frazer Rivers. It is in these languages that the prayers, hymns, parts of the Bible and the church ritual have been published. So expert have these Indians become in their shorthand work that they have been awarded medals from a recent shorthand exhibition held in France where their efforts in the shape of compositions was a wonder and surprise to all European stenographers and other beholders.

Indian Shorthand Writers
Kamaloops, British
Columbia
Kamaloops and Douglas Tribes 6
Religion Father Le Jeune

A few years ago Father Le Jeune took Louis, chief of the shorthand-writing Indians, and Chief Chilliheeta on a four months' tour through Europe. The party visited France and England and while in London called on King Edward at Buckingham Palace. The King was deeply interested in his progressive Indian subjects of British Columbia and was likewise greatly astonished and gratified at their remarkable advancement. Probably the most memorable event, however, was a special audience given at the Vatican by the late Pope Leo. He gave each of the chiefs a medal and a special one for Father Le Jeune and also sent 2,000 or more through the Priest to his far-off Indian children in British Columbia. These are awarded yearly for the meritorious and studious natives who excell in shorthand and otherwise aid in looking after the education of others. The competition is keen for these coveted souvenirs, and to win one is looked upon as a marked honor and considered a great event by the lucky recipient.

Indian Shorthand Writers
Kamaloops, British Columbia
Kamaloops and Douglas Tribes
Religion
Father Le Jeune

7

The Indians are very enthusiastic in taking part in their various observances. In the summer the flat green land, lying between the river and the dry grazing land of the mountains, may often be seen glistening with the white tents of visiting Siwashes and other tribes who have come from afar to participate in some religious rite. The little dusty street comprising the main thoroughfare of the village will be lined with fir trees cut from the mountains and set in avenues by the Indians. Up and down between the rows of trees the ceremonial procession will pass, while bright wild flowers are scattered in the pathway.

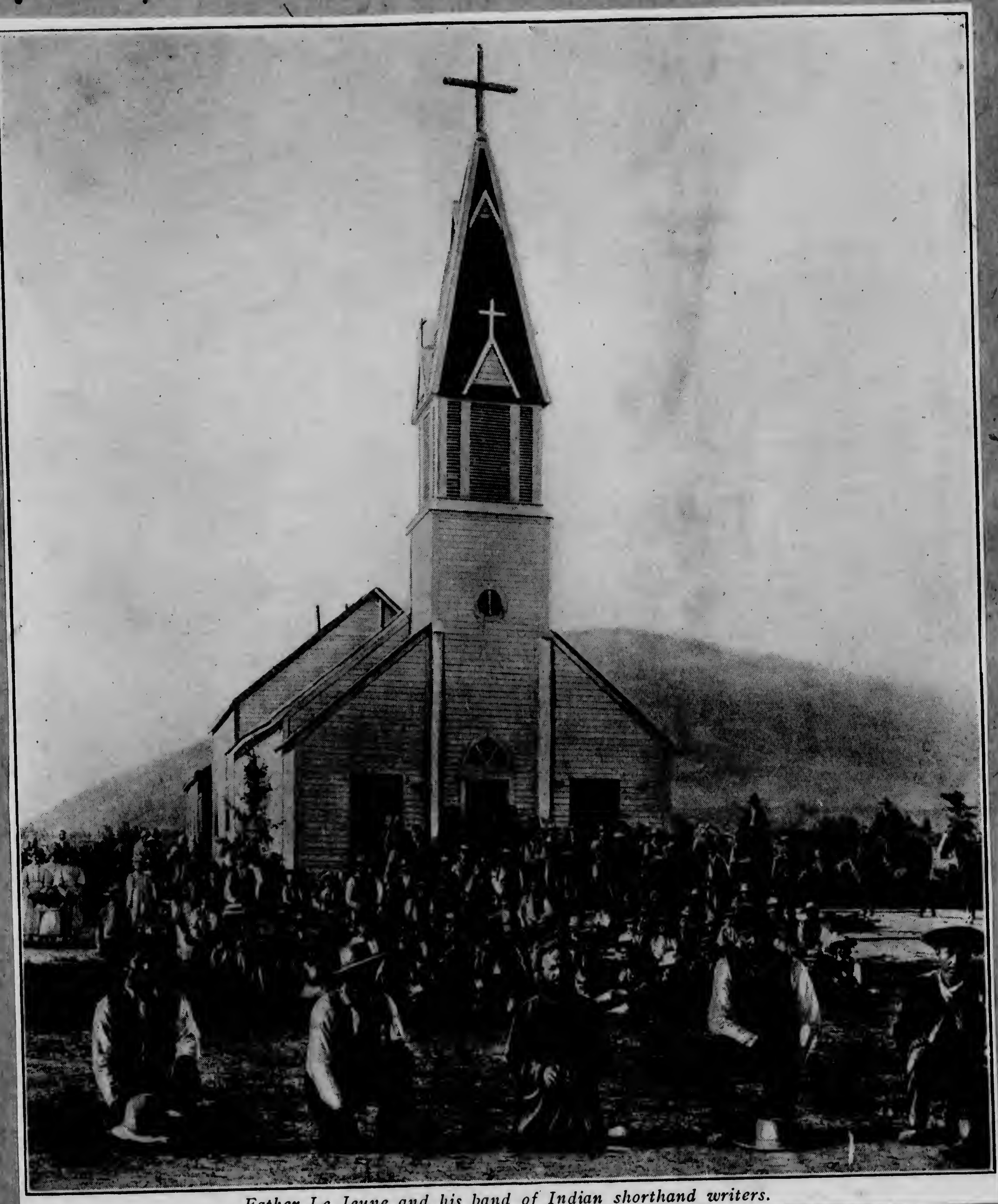
Several years ago the Passion Play was enacted here by the Indians under the direction of the priest. They are quite proud of their performance and speak of this event with unusual pride. For a novel picture of progressive Indian life, Father Le Jeune's queer "Wawa" and his band of Indian shorthand writers quite overshadows all others.

The focus of all religious and intellectual activities and the one point of pilgrimage from long distances by land and river is the church. This structure, a white frame one, similar to those to be found in villages of Eastern Canada and the United States, was built by the Indians and presented to their highly appreciated priest. They have also made him a present of a carriage and team to enable him to make his visits to far-off villages. The church has a cheerful interior with comfortable pews. The most striking oddity, however, to the white visitor is the curious hymn and prayer books whose pages are full of the curious shorthand symbols. Father Le Jeune preaches in the several native dialects of the country, especially Chinook, the ordinary trade language used between different tribes and whites throughout much of British Columbia, Alaska, and the northwestern coast of the United States. On church and feast days the whole community attend services. The church is well lighted by acetylene gas, and illustrated stereopticon lectures are frequently given by the pastor.

Indian Shorthand Writers
Kamaloops, British Columbia

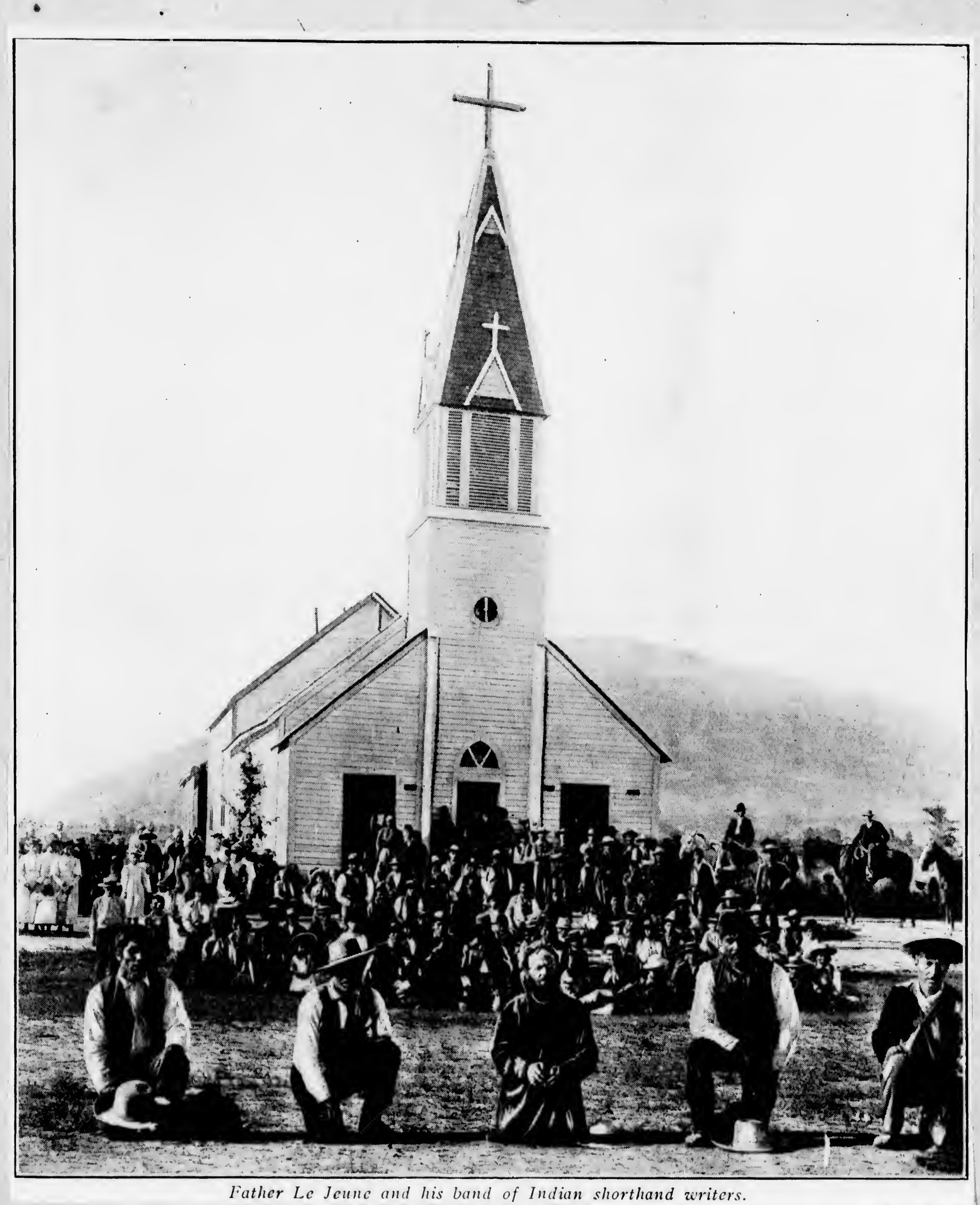
Kamaloops and Douglas Tribes 8

Religion Father Le Jeune



Father Le Jeune and his band of Indian shorthand writers.

Indian Shorthand Writers
Kamaloops, British Columbia
Kamaloops and Douglas Tribes
Religion
Father Le Jeune



Father Le Jeune and his band of Indian shorthand writers.

Retake of Preceding Frame

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Chief Louis, and Grandchild, of the Douglas Tribe.

Indian Shorthand Writers
Kamaloops, British Columbia 9
Kamaloops and Douglas Tribes
Chief Louis Of The Douglas Tribe

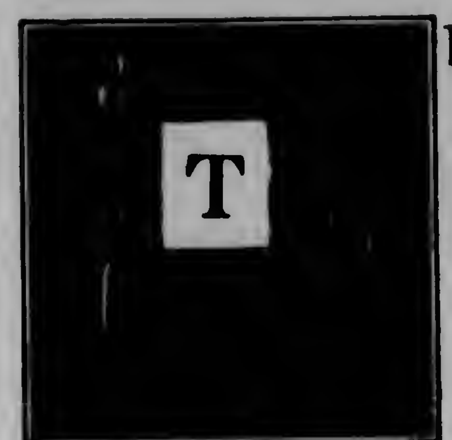
Chief Louis, and Grandchild, of the Douglas Tribe.

Retake of Preceding Frame

Pacific Monthly Dec 1906

Indian Shorthand Writers of British Columbia

By Lillian E. Zeh



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This remarkable and up-to-date advance in Indian culture was brought about through the efforts of a French Catholic Missionary, Father Le Jeune, sent out from Brittany a few years ago. One of the most picturesque illustrations secured was one showing this enterprising priest kneeling surrounded by the chief and other members of his shorthand tribe in front of their church. Kamaloops, the headquarters of Father Le Jeune, is some 300 miles or more northeast from Victoria, the capital of British Columbia. Just across the river a few miles up from the town is the main Indian village, or rancherie. Here the natives congregate in large numbers at certain seasons, for this is the important center of Indian life for some 50 to 100 miles around; the occupation is principally hunting, fishing, ranching and farming on a limited scale. Prior to the appearance of the priest the fraudulent Shamans—pretenders at the curing of disease, claiming by aid of supernatural or magic powers to be able to ward off evil spirits and prevent sickness—completely held the people in their superstitious grasp. Besides hindering their progress in religious matters, a good deal of property was squeezed from the people by their misleading influence. These so-called magical prophets fled at the coming of the French Father, who exposed their tricks and false creed to the Indians. Before the French priest began his work the tribes of this locality, living along the canyons and banks of the Thompson and Fraser Rivers in British Columbia, were unable to write their language and had no written literature, although each possessed a language which had an extensive Mythology, preserved and rehearsed by frequent recitation. Today, nearly all these different tribes, some half dozen or more, are writing letters to one another in their several languages, reading a newspaper, Bibles, and song books, all by means of shorthand.

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in the wall, Rafe came on him within a score of yards. His face, frozen in sleep, was peaceful now that it lacked the horrible contradiction of baleful eyes; Death's mysterious alchemy had loosened the frost's bonds and spread thereon the peace of his last thought. Who shall predicate it? It may have been of the Abbe's warning, "Sin carries the seed of its own punishment"? More likely it was of the child which had won free because he had bowed to the decree; of the young wife whom his last generous act had set in the way of happiness.

So Jeanne and Rafe read it as they prepared him for winter burial. Bending two young spruce, they lashed him in a buffalo robe from top to top; then when the freed trees bore him on high with stately swing, they headed for Pelly and Dominique, leaving him to the gentle cradling of the winds.

The Cowboy's Prayer

By Charles B. Clark, Jr.

O Lord, I've never lived where churches grow;
I love creation better as it stood
That day You finished it so long ago
And looked upon Your work and called it good.
I know that others find You in the light
That's sifted down through tinted window panes,
And yet, I seem to feel you near tonight
In this dim, quiet starlight on the plains.

I thank You, Lord, that I am placed so well;
That You have made my freedom so complete;
That I'm no slave of whistle, clock and bell,
Or weak-eyed prisoner of wall and street.
Just let me live my life as I've begun
And give me work that's open to the sky;
Make me a pardner of the wind and sun
And I won't ask a life that's soft or high.

Let me be easy on the man that's down
And make me square and generous with all;
I'm careless sometimes, Lord, when I'm in town,
But never let them say I'm mean or small.
Make me as big and open as the plains,
As honest as the horse between my knees,
Clean as the wind that blows behind the rains,
Free as the hawk that circles down the breeze.

Forgive me, Lord, when sometimes I forget:
You understand the reasons that are hid,
You know about the things that gall and fret,
You know me better than my mother did.
Just keep an eye on all that's done and said,
Just right me sometimes when I turn aside,
And guide me on the long, dim trail ahead
That stretches upward toward the Great Divide.

Am. Anthropol. Vol. XI, no. 7. July 1898.

duce a certain effect upon the organization of human society, and all these conditions must be especially pointed out if they are to be understood and properly estimated.' The complete scientific understanding of regimentation lies at the end of our work still as a far-distant goal before us. We must confess, even, that it never appeared so far until we had traveled a few steps on the long way to reach it."

CH. L. HENNING.

Boas on Indian face-paintings.

The American Museum of Natural History, New York city, has begun the second volume of its "Memoirs" in a very creditable way. They are published in large quarto, on superior paper, with fine typography and wide margins. Anthropology is included among the sciences dealt with in the second volume, and its first number, sent out June 16, 1898, contains important data from the Jesup North Pacific expedition, descriptive of "Facial Paintings of the Indians of Northern British Columbia" (pp. 24 and 6 plates with letter-press opposite). Researches like these will be helpful in settling the problem whether the characteristics of the American Indian race are derived directly from Asiatic sources or result from an intermixture of Asiatic with American tribes. For 1897 Dr Franz Boas had selected as a field of research the coast of British Columbia from the Skeena river (54° north latitude) southward to Victoria (48° 20′ north latitude), excluding Vancouver island, but taking in a part of the interior—Kwakiutl, Coast Selish, Fraser and Thompson River, Chilcotin (Tinné), and Bellacoola Indians. The map plainly shows all particulars. The work was divided between scientists of the Jesup expedition and those of the British Association for the Advancement of Science. The able assistants of Dr Boas were Livingston Farrand, of Columbia University, and Harlan I. Smith, of the American Museum of Natural History.

The Indians of the above area have a habit of reproducing on their foreheads, cheeks, chins, and jaws images of the animals which are used as their family crests. The animal forms are highly conventionalized, and may be recognized by a number of symbols characteristic of each species. They do not attempt perspective, but characterize solely by "distortion and dissection."

Nevertheless we must admire the ingenuity and invention of the artist, who often spreads the marks over one-half or the whole of a person's face, though it is often difficult to ascertain what animal or other object it is intended to represent. The plates show about one hundred of these faces, no two being alike. We see, for instance, the killer-whale in black and green; beak of hawk; mouth of frog in red; paws of wolf, beaver, and sea monsters; proboscis of mosquito in black; mosquito bites, a succession of red spots; feet of mountain goat; tail of raven, woodpecker, and other birds; tuft of puffin; back of whale in red; mouth of sculpin in red; feet of bear in black and red; crest of sea-lion; nest of eagle in red; bars of copper in red; fish-net; cirrus, cumulus, and stratus clouds in various colors.

ALBERT S. GATSCHET.

The New Brunswick Magazine.

This is a new and popularly written periodical, published by W. K. Reynolds at St John, New Brunswick, for $1.50 per year. The first number bears date July 1, 1898, and deals mainly with historical descriptions and problems. Among the collaborators we find several university men, such as Montague Chamberlain, of Harvard, a writer on ethnography, who contributes to the present number an article on "The Origin of the Maliseet Indians." Another contributor is W. T. Ganong, Ph. D., now a professor in Smith College, Northampton, Mass., and an authority on certain branches of botany. For many years past he has investigated the geographic names in New Brunswick of Indian and European origin, and has recently issued a treatise on their cartography, adducing the testimony of old maps from 1600 A. D. down to the present time. In the present number he has an article entitled "Where stood Fort Latour?" Another paper is by James Hannay, on "The Brothers d'Amours, the first French settlers on the St John River."

The history and topography of the thinly peopled province of New Brunswick is very little known outside its own limits; hence we gladly welcome a periodical that brings nearer to us the land of our interesting neighbors, with its Anglo-French population, its numerous Indian towns, and the manifold industries and interests that it embodies.

Arizona

C. Hart Merriam
Papers
BANC MSS
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Medical

Observations on non-surgical drainage of the liver and gall-bladder: Elliott C. Prentiss. The emptying of the liver and gall-bladder by means of the duodenal tube, whose tip is at, or just below, the papilla duodenalis, after a solution of $MgSO_4$ has been injected into the duodenum, is the subject dealt with in this paper. The Refuss tip is used, as it is heavy enough to drag the tube to the pylorus after insertion into the stomach, and the openings in it are large and well placed. It is easily swallowed and requires an average of one to one and one half hours to pass into the duodenum. Condition of patient causes some variations in this time interval and passage in some cases is impossible. With tube in position run in 15 per cent. to 30 per cent. $MgSO_4$, using one ounce at a time, and allow to remain five minutes. Therapeutic results are satisfactory in conditions such as chronic cholecystitis even when gall stones are undoubtedly present. Valuable for treatment of gall-bladder infections—such infections as usually progress to formation of gall stones and other complications ultimately requiring operations. Thus, by repeated drainage of liver, cures are frequently obtained and many operations prevented.

The cause of hay fever in Arizona and the Southwest: Dr. Samuel H. Watson and Dr. Charles S. Kibler. This paper presents the results of the first research work ever done as to the cause of this disease in this section of the country—a complete list of all the plants which grow here, that can possibly cause the disease, is given, and the relative importance of the various plants as a cause is indicated.

Radium, its actions on human tissue cells: W. Warner Watkins. The discovery of, and developments in connection with, radium, represent one of the best illustrations of cooperative work of different branches of science. In these branches the applications of radium by the medical sciences is the most interesting. To understand radioactivity, the fundamental structure of the atom must be borne in mind and the phenomenon of ionization. Of the different particles discharged by disintegration of radium atoms, the alpha particle, which is a positively charged helium atom nucleus, has limited application in medicine, since its penetration into the tissues is so slight; the beta particle, which is a negatively charged electron, is usually filtered out when radium is used biologically, because the gamma ray, which is a very short wave light ray, is exceedingly penetrating, and ionizes the atoms of the tissue molecules, producing beta rays which are the real therapeutic rays in radium treatments. Radium may be used either to destroy foreign growths in the body tissue, or, by limiting its application, to stimulate the normal cells of glands of the body. This latter effect will, eventually, be the important field of application of radium.

The supply of radium: Arthur L. Flagg. The principal sources of radium are from the ores of carnotite and pitchblende. The carnotite ores of the United States are the largest known deposits of uranium-bearing ores. The carnotite occurs in sandstone as grains or incrustations, usually in irregular lenticular masses which are mined by simple methods. The sorting of the ores entails much waste which can be eliminated with proper care. The total production of elemental radium in the United States since 1913 amounts to about 184.9 grams. Much of this has been exported and a too large amount used as an illuminant on cheap watches and other novelties of short useful life. Mesothorium is a valuable and practicable substitute for radium in making luminous paints and its use should be encouraged in order to conserve the radium for its more legitimate uses in therapeutics and in scientific research.

Archeology and Anthropology

Discovery of three skeletons of the Hohokam race in southern Arizona, a prehistoric desert people of the Southwest: C. J. Sarle. Three human skeletons were recently found near Tucson, buried face down, without reference to direction and without personal belongings, which seem from their associations to be referable to a prehistoric people designated Hohokam by Russell (1905). That the grounds for this reference may be understood the paper describes the culture of these ancient people, stating in substance that they were pueblo dwellers, agricultural, and weavers. The pueblos were built of clay and wattle and often included large community houses. This people cleared land and tilled the soil, wove, used edged stone implements, mainly eolithic in simplicity (little modified by secondary flaking), and were excellent potters, decorating their ware with colored designs which exhibit a high degree of artistic skill. They etched the numerous pictographs so common on rock surfaces near the village sites, and seem to have adhered closely to the practice of cremation, a fact

that gives special interest to the skeletons described. Burial pots are seldom accompanied by personal effects. The published paper will contain a diagnosis of skeletons by some anthropologist. Dr. Edgar L. Hewett stated that the skulls were of cliff dweller type, and that the doliochocephalic shape had been disguised by pressure of the cradle board.

A prehistoric skull excavated near Tucson: ROBERT F. GILDER. The author described objects found in excavating prehistoric ruins west of St. Mary's Hospital, Tucson, Arizona. Special attention was called to a skull uncovered some five and a half feet beneath the surface, under a floor.

Orientation of prehistoric house outlines near Bear Canyon, Tucson, Arizona: H. B. LEONARD and A. E. DOUGLASS. The work was done in 1920-1921. Some five compounds were surveyed and plotted: notes, directions and levels taken. The longest walls point about a dozen degrees to the west of south. This work of mapping and surveying ruins in the southwest should be undertaken by more people with engineering skill. As the material is rapidly disappearing all possible notes should be made so that in the future students may substantiate any claims.

Yaqui ceremonial dances: MRS. PHEBE BOGAN. About two miles northwest of Tucson, Arizona, there is a settlement of some two hundred Yaqui Indians who were driven from Sonora, Mexico, by the Indian wars following the overthrow of Madero in 1913. The ceremonial dances of these Indians, particularly those held during Easter or Holy week each spring since their settlement in this locality, furnishes the material for this paper. Lantern slides showing the dancers, their costumes, and the location of the dances were used to illustrate the talk.

Native American artists: EDGAR L. HEWETT.

Life forms in the pottery decoration of the Pueblo area: KENNETH M. CHAPMAN. The decoration of ancient pueblo pottery is geometric in form, and this geometric treatment is also found in the drawing of life forms. Later types of Pueblo ware were developed in various areas within the Pueblo region. In some of these areas the decoration broke away from the limitations of geometric art. Life forms became more realistic, but were combined with a new and more varied symbolism. Following the Spanish invasion, there appeared a still greater diversity of decorative styles, until now each Pueblo community has its own distinctive decorative art in which various life forms still persist. Of all the life forms the bird predominates throughout this transition from ancient to modern.

Progress report in research in Jamez region: WESLEY BRADFIELD. The beginning of a series of excavations and studies in the Jamez culture region in New Mexico was begun in 1921 by the School of American Research. The two sites chosen for the first more intensive study were Un-shagi and Guiusewa—four miles above, and at the site of the old Jamez Mission, near Jamez, Hot Springs. Work in the large burial place was described and tentative plans for the coming season's work. These sites are under the control of, or are owned by the School of American Research.

Some archeological studies in the neighborhood of Flagstaff: L. F. BRADY. The occurrence of pottery fragments and other artifacts at depths varying from four to nearly twenty feet in undisturbed stratified alluvial at the north of Flagstaff, together with the presence of semi-fossilized stumps of yellow pine at similar depths, suggested a method for computing the date of the nearby "small-house" ruins in the neighborhood. The pottery fragments and other articles suggested an early stage in the development of the "small-house" culture, which is perhaps one of the earliest forms of the proto-pueblo culture of the Southwest. Much field work still remains to be done.

A half century of archeological research in the Southwest: PAUL A. F. WALTER.

History and Sociology

Pueblo land tenures in New Mexico and Arizona: R. E. TWITCHELL.

The arms conference at Washington: H. A. HUBBARD.

Some sociological characteristics of the Southwest: FRED D. MERRITT.

Beginning of representative government in New Mexico: LANSING B. BLOOM. From Rome and Spain, New Mexico received the form of municipal government which she exercised from the founding of Santa Fe, about 1609, down to the American occupation in 1846. Under Spain also she elected deputies to the Cortes of 1810, 1820 and 1822-3. With the coming of Mexican independence, she chose deputies to Durango, Chihuahua, and for twenty-five years to the Congress in Mexico City. And during the same period deputies of her own election served in successive deputations of the territory. New Mexico had received the form of representative government from the outside, but, thrown almost entirely upon her own resources, she made these forms her own by adaptation and use.

supplementary thereto," has been passed by Congress and approved by the President. The act makes available for the next nine fiscal years an aggregate sum of $23,120,000 of federal funds to be expended in instruction and practical demonstrations in agriculture and home economics. To obtain this total the states must appropriate for like purposes a total of $18,800,000. Thereafter the government is to appropriate $4,580,000 annually, and the states to take their full quota must appropriate $4,100,000 annually. The purposes for which the funds are to be expended are defined by the act as follows: "That cooperative agricultural extension work shall consist of the giving of instruction and practical demonstrations in agriculture and home economics to persons not attending or resident in said colleges in the several communities, and imparting to such persons information in such subjects through field demonstrations, publications and otherwise; and this work shall be carried on in such manner as may be mutually agreed upon by the Secretary of Agriculture and the state agricultural college or colleges receiving the benefits of this act." Beginning with the year 1914–15 the act appropriates $10,000 to each state as a basic fund for each fiscal year. The act then appropriates additional federal moneys to be distributed among the states according to the percentage that the rural population of each state bears to the total population of that state. To share in the additional funds the state must duplicate the money received from the government in appropriations for the same purpose. According to the *Cornell Alumni News* from which the above is taken the amounts available to the College of Agriculture at Cornell, based on the percentage of rural population in New York State, will begin next year with the basic $10,000 granted each year, and will increase annually according to the following table: 1915–16, $33,443; 1916–17, $52,979; 1917–18, $72,515; 1918–19, $92,051; 1919–20, $111,587; 1920–21, $131,123; 1921–22, $150,659; 1922–23 and thereafter, $170,195.

A Southern Geographic Society has been established at Knoxville, Tenn., for the purpose of stimulating the interest of its members and of the public in the study and appreciation of the science of geography. It is planned to hold monthly meetings, on the second Friday evening, from October to May, inclusive, at which addresses or lectures will be given in which will be presented the results of studies, travels and researches pertaining to the science of geography, and related subjects. From time to time excursions will be conducted by the society for the study of features of geographic interest. One of the features in the plans of the society is that of a field school of geography and nature study, which it is proposed to conduct in connection with the Summer School of the South. Beginning with the summer of 1915 it is proposed to conduct at a suitable place in the mountains for a period of four to six weeks, a camp school for the study of geography and related subjects, including plants, animals, physiography, geology, forestry, etc. From day to day excursions will be made under competent instructors for the study of the flora, the fauna and the physical features of the region.

After making investigations and collecting data for the last 12 years, the Ohio State Archeological and Historical Society has published an Archeological Atlas of Ohio which is the first book of this kind to be published by any state. Dr. William C. Mills, the curator of the museum of the society which is located on the campus of The Ohio State University, is the author of the book. A map of each county of the state, showing the mounds, village sites, rock shelters and other interesting archeological matter is the chief feature of the new book. Opposite each map is a description of the county. Other maps show the early Indian trails and towns, and the principal mounds and other earthworks of the entire state. The frontispiece is a photograph of the Serpent mound located in Adams county. Other photographs are included of the various forts, Indian trails and mounds which are described by the author.

In a report on the Museum-Gates Expedition which investigated the culture of the ancient pueblos of the upper Gila River region

of New Mexico and Arizona, Dr. Walter Hough, of the U. S. National Museum, states that among thousands of interesting and valuable objects pertaining to the lives of the early inhabitants, many dried vegetables, fruits, and other perishable articles were found, as well as a desiccated turkey. In a cave which formed the rear chamber of a row of ruined stone abodes, on the banks of the Tularosa River, a tributary of the San Francisco River, the explorers found much material representative of the domestic life of the ancient dwellers. Upon excavation, this cave room yielded its treasures in sections as it were, different depths offering distinctly marked periods of occupation. Among the objects of importance was a brush made of grass stems bound in a round bundle, similar to those in use by the Pueblo Indians of to-day. During the habitation of this cave four burials had been made at different times, shown by the different levels from which the digging had been begun. In one corner near a rock mass some small bows and arrows, and other offerings were unearthed, indicating the location of an ancient shrine. From the rubbish and débris the remains of several mammals and birds were identified; among them, deer, pronghorn, bison, woodchuck, mice, rats, muskrats, rabbits, lynx, fox, skunk, bear, a hawk, an adult turkey, chicks and eggs, and many feathers of other birds, all of which occupied the cave at one time or another, or were killed and stored there by the early Indians. From early historical reports, it has been understood that the Pueblos raised turkeys, but the discovery of this desiccated adult and chicks proves conclusively that turkeys were kept in captivity, probably for their feathers, which were used in the manufacture of native garments. Ears and scattered grains of corn of a smooth and short grain, in yellow corn, blue and carmine but much faded with aging, were also found, as well as the remains and seeds of gourds, squashes, beans, other vegetables and fruits and nuts. In the Tularosa cave there was pottery of a rude form, while from several large open-air pueblos examples of a very fine finish and ornamentation were collected. The designs on the bowls commonly consist of four elements based on the world quarters, the bottom usually being circular and blank. Other designs are of combined hatched and solid color, or of a checkered variety. Many small collections of pottery were found in caves and springs where they had been deposited as offerings.

According to Ernest F. Burchard, of the U. S. Geological Survey, the total quantity of Portland, natural and puzzolan cement produced in the United States last year was the greatest in the history of the cement industry, amounting to 92,949,102 barrels, valued at $93,001,169, compared with 83,351,191 barrels, valued at $67,461,513, in 1912. The total production of Portland cement in 1913 as reported to the Geological Survey was 92,097,131 barrels, valued at $92,557,617; the production for 1912 was 82,438,096 barrels, valued at $67,016,028. The quantity of Portland cement produced, 92,097,131 barrels, is equivalent to 15,623,620 long tons. Compared with the production of pig iron for 1913, which was 30,966,301 long tons, the Portland cement production is nearly 50.5 per cent. of the quantity of pig iron. Of the 113 producing plants in the United States in 1913, 23 were in the state of Pennsylvania, whose output was 28,701,845 barrels of Portland cement, the largest quantity produced by any one state. The second greatest production came from Indiana, with 10,872,574 barrels, and California was third, with 6,159,182 barrels. The natural cement produced in the United States in 1913 amounted to 744,658 barrels of 265 pounds each, valued at $345,889, compared with an output of 821,231 barrels, valued at $367,222, in 1912, a decrease in 1913 of 76,573 barrels and of $21,333 in value. Puzzolan cement was manufactured in 1913 at three plants in the United States, in Alabama, Ohio and Pennsylvania. The output of puzzolan and Collos cements in 1913 was 107,313 barrels, valued at $97,663, compared with 91,864 barrels, valued at $77,363 in 1912, an increase in quantity of 15,449 barrels and in value of $20,300. The United States has a comparatively small export trade in cement. In 1913 the

DOGS AMONG THE HOPI

Dr. J. Walter Fewkes, in an article on 'Property-right in Eagles among the Hopi', states: "The ancient Hopi had a domestic dog which was a pet rather than a beast of burden. The good qualities of this pet were recognized and recounted in their legends."

Am. Anthropologist, Vol. 2 (NS), No. 4, page 706, December 1900.

NATURE GODS OF THE HOPI

In writing of the nature gods of the Hopi, Dr. J. Walter Fewkes in his article entitled 'Designs on Prehistoric Hopi Pottery' states: "The great nature gods of sky and earth, male and female, lightning and germination, no doubt arose as simple transfer of a germinative idea applied to cosmic phenomena and organic nature. The earliest creation myths were drawn largely from analogies of human and animal birth. The innumerable lesser or clan gods are naturally regarded as offspring of sky and earth, and man himself is born from Mother Earth. He was not specially created by a Great Spirit, which was foreign to Indians unmodified by white influences."

J. Walter Fewkes, Designs on Prehistoric Hopi Pottery, 33d Ann.Rept.Bureau Ethnology (for 1911-12), p. 274, 1919.

The Hopi Santa Claus

A very Merry
Christmas from
all of us -

Barbara and Edwin
McKee -
Grand Canyon 1932

HOPI INDIANS THREATEN TO GO ON "WARPATH"

Become Angered When One of Them Was Shot by Arizona Police Officers.

PHOENIX, Ariz., February 8.—Five thousand residents in the northeastern portion of Arizona are alarmed over the reports that the Hopi tribe of Navajo Indians were threatening to go on the "warpath," according to reports received here.

Approximately 2,000 Indians are living on the Navajo reservation, but it was not known what proportion of them were involved in the threatened uprising. The Hopis became angered, it was said, when one of their number was shot and killed several days ago by police officers. The Indians opened fire on the police when they attempted to arrest a fellow tribesman and one was killed by the officers, according to information received by Thomas Flynn, United States district attorney.

The shooting occurred near Lees Ferry, a crossing on the Grand Canyon of Arizona, about fifty miles south of the Arizona-Utah boundary line. Word of the threatened trouble was first brought to Flagstaff by an Indian runner.

Although instructions from the United States authorities at Washington were being awaited by officials here before taking any action, a number of deputy United States marshals were preparing to make the journey to the reservation to investigate the reports.

Efforts probably will be made to have troops from El Paso accompany the sheriffs to the scene.

The Indian reservation is located in one of the most inaccessible portions of the state. Flagstaff, which is about 150 miles away, is the nearest point to which telegraph and telephone communication is available. Snow is several feet deep throughout this section.

Officials of Indian Service and Department of Justice Take Steps to Quiet Hopis

Indian service and Department of Justice officials took steps today to head off the threatened uprising of Hopi Indians on the Western Navajo reservation in Arizona.

Instruction went to Thomas Flynn, United States attorney at Flagstaff, and Supt. Thackery of the Pima Indian reservation to take a posse to Tuba, center of the trouble, to arrest the policemen connected with killing the Indian.

This was expected to quiet the Indians, who it was reported had threatened to burn the Tuba reservation buildings.

Tuba is isolated by deep snows and officials said it might be several days before it was learned if the posse's mission were successful. Thackery, it was said, is respected by the Indians and it was believed he could placate the tribe.

Officials here were not informed of the nature of the crime of which the Indian killed was accused.

Evening Star Feb. 8, 1916.

22: 3. July-Sept. 1920.

DID THE SO-CALLED CLIFF DWELLERS OF CENTRAL ARIZONA ALSO BUILD "HOGANS"?

SPREADING west from the desert of the little Colorado river upward toward the pine clad slopes of the San Francisco mountains the evidence of an ancient population is everywhere apparent. Ruins of large pueblos and forts crown some of the cinder cones. Small isolated castles top the crags in the canyons. Cliff houses cower under overhanging ledges while the remains of small stone houses and pueblo-like groups of houses lie scattered over the gray plains among the cedars and the pines.[1]

Potsherds gathered from these sites have the same characteristics, black geometrical designs on a white slip, black geometrical designs on a red slip, corrugated ware and red bowls with polished black interiors. This complex of pottery has associated with it in the canyons, burials containing skulls showing a flattening of the back of the head. This is a characteristic of the cliff-dweller culture as described by Kidder.[2] The pottery except for the red bowls with the black interior is similar to that found by Kidder in the Marsh Pass region. A few potsherds similar to those described by Kidder as belonging to another type which he has called the slab-house culture have been gathered on some of the sites.

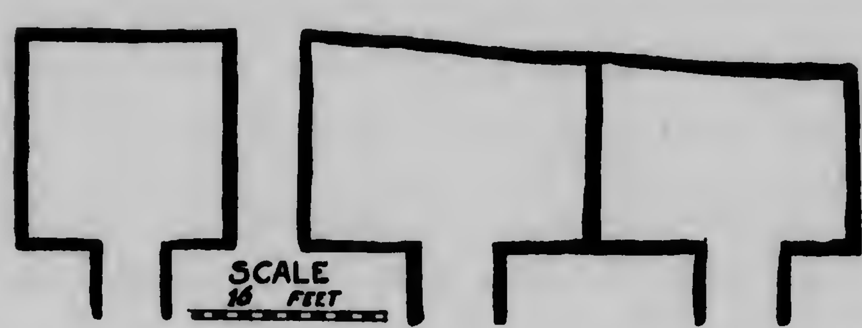

FIG. 14.—Plans of single and double vestibuled houses. The single houses scattered through the pine forests at the foot of the San Francisco mountains, over the sage brush plains and lava flows, and on the crests of the cedar clothed craters are common. The twin houses are rare and have been found in but two of the larger groups or villages. In both types of houses the characteristic feature is the vestibule or entrance on the south or southeast side. The houses figured here lie one quarter of a mile north of the Flagstaff City reservoir.

Among the ruins of pueblos and small houses at the base of the San Francisco mountains, in groups in the pine forest or in the cedar and piñon groves, usually overlooking a flat or a natural park, regular rows of boulders, strike the eye of the careful observer. Similar boulder sites have been described by Mindeleff in the neighboring Verde valley.[3] The rows of small boulders enclose squares ranging from fifteen to twenty-feet on a side. A characteristic of these squares, which has not been

[1] M. R. F. and H. S. Colton, "Little known Small House Ruins in the Coconino Forest," *Memoirs, American Anthropological Association*, vol. V, no. 4, 1918.

[2] Kidder and Guernsey, "Archeological Exploration in Northeastern Arizona," *Bulletin* 65, *Bureau, American Ethnology*, 1919.

[3] C. Mindeleff, "Aboriginal Remains in the Verde Valley, Arizona," *Thirteenth Annual Report, Bureau of American Ethnology*, 1891–1892, 1896, p. 237.

lize into the Neuter, Erie, and Seneca nations. The route of the migration of these nations at least seems to have been eastward from the head of Lake Erie, one band crossing the Detroit river and following the northern shore of Lake Erie, the other following the southern shore; and it is noteworthy that the characteristics of Iroquoian culture are as marked and constant at the most western and earliest of sites along this migration path as at the eastern and later end. From this we can only infer that this culture did not originate on either side of Lake Erie but was already fixed before the Iroquoian people had approached it.

The place of origin of these people is unknown. The movement of these nations however having been uniformly eastward so far as we know, and their peculiarities of culture having been fixed before they arrived at their historic seats in different parts of a wide stretch of country to which their eastward movement had brought them, it is fair to assume that there must have been an earlier movement which brought them to the head of Lake Erie, and that this movement must also have been from the westward. Their place of origin must then be looked for at some point to the westward of the Detroit river.

It is just at this stage of reasoning that the Kankakee site becomes of interest. It is west of the Detroit river, and therefore in a line with a possible eastward movement having that river as its eastern terminus. It is pre-European. It is undeniably of Iroquoian origin. There is then the possibility that it marks a stopping place of a band of some Iroquoian nation in its early eastward migration from its point of origin at some unknown western point.

Should this be true other similar sites may be expected to exist between the Kankakee river and the Detroit river. None has been identified, yet this may be due to the fact that northern Illinois, Indiana, and Ohio have never received any systematic study. An attempt to locate and identify any such possible sites would constitute a very definite piece of research work for archaeologists of that territory. This can be accomplished by an examination of existing local collections of Indian articles. Should this reveal any articles of the typical Iroquoian culture, triangular points, chevron designs on pottery, or an abundance of articles of bone and antler, the place of origin of these articles should be located and thoroughly examined and the results of the examination should be carefully compared with the constants of Iroquoian culture.

FREDERICK HOUGHTON

BUFFALO,
NEW YORK

noted before, is that the row of stones forming the south or southeast side is broken by a gap about six feet wide and from this gap two lines of stones project perpendicular to the side of the square. (See figure 14.) When we consider that these squares are the plans of dwellings of some sort, the parallel walls beside the door suggest the vestibule of a house. Although these ruins are fairly common the writer worked two summers in the region before he recognized them as a distinct type.[1]

In north central Arizona two Indian tribes build earth lodges—the Navajo and the Havasupai. In common with the Navajo hogan our ruin shares the door on the southeast side. The size of the room more nearly approaches that of the hogan than that of the small stone houses that also dot the region. Except for the line of small boulders which mark the sites no trace of the building material exists. The ruins of a Navajo hogan is a circle of soil on the ground surrounding a depression. Our ruin is a square or rectangle of stones surrounding a depression. To this extent the two are similar.

The Havasupai, who by tradition give as their ancient home the San Francisco Mountain region, build hogan-shaped shelters of willow branches in Cataract canyon. On the plateau above, these shelters take the form of earth-lodges. Some of these are round and some square but none were seen where the ground plan would indicate a vestibule.

It might be well to note that the vestibule is regularly a feature of some round earth-lodges such as those of the Pawnee. From the evidence presented above we can infer that our dwelling like the Navajo hogan, was

[1] The largest groups are located as follows:

Two groups north of Flagstaff reservoir on the Schultz Pass road. Township 22 N-R7E Section 33. Twelve houses seven of which show the vestibule.

Babbitt pasture, two houses, Township 21 N-R7E Section 4.

Top of Turkey Tank Mt., one distinct house, five others indistinct. Township 21N-R9E, Section 11.

Dead man's flat, two houses distinct, three others indistinct. Township 24N-R8E, Section 29.

Dead man's flat, three houses, two distinct other indistinct. Township 24N-R8E, Section 28.

Dead man's flat, one house distinct, two others indistinct. Township 24N-R8E, Section 28.

Two miles south of Fortress Mt., two houses distinct. Township 21N-R9E, Section 22.

House in spatter cone SE of Red peak. Township 22N-R9E, Section 33.

Dan Francis estate, two houses. Township 21N-R7E, Section 9.

Elden spring, one house distinct, many indistinct. Township 21N-R7E, Section 11.

South of Dry Lake Mt. one house distinct, others indistinct. Township 22N-R7E, Section 34.

constructed of logs and earth; and that the body of the house was usually square, like some Havasupai lodges, and that a covered passage led to the interior similar to the entrance to the Pawnee earth-lodge. The evidence seems fairly conclusive that we are dealing with an earth-lodge of some sort.

The Navajo hogan and Havasupai shelters appear so have vestibules but the construction is such that the vestibule does not show on the ground plan. Another difference is worthy of note; the ground plan of our dwelling is usually square, not round. However, two round ones were discovered on Deadman's flat. In three instances our vestibuled houses were joined together by a common wall, but in these cases each room had its own separate door facing to the southeast. Such twin hogans the writer has not observed among the modern Indians of the Arizona plateau. Although the boulder sites about the San Francisco peaks differ from existing earth-lodges yet those differences are not great.

Besides the double or twin character of some of the houses, other variations were noted. Even though the door is almost invariably found on the south or southeast side, yet several cases exist were the door faces the west. In a group of houses, for they are most often found in small groups, the house farthest to the southeast has its door facing the other houses of the group. Abnormalities in shape have been recorded such as the two houses having round ground plans. In general the plans are fairly constant.

Trenches were dug through one house in an attempt to discover the fire-place, but the results proved indeterminate. About the San Francisco peaks the alluvial soil contains a large percentage of charcoal even to a depth of twenty feet telling the tale of ancient forest fires. Although charcoal fragments were obtained everywhere in the excavation no definite conclusion was reached as to the position of the fire-place. It seemed reasonably clear, however, that it was not in the center of the room.

Scattered over the sites of the earth-lodges are potsherds no different than those found in the pueblo ruins,—that peculiar kind of pottery complex characteristic of the cliffdweller culture. One can not help but conclude that the earth-lodges and the pueblos were built by the same people.

This is but a preliminary study. Since a few potsherds, similar to those figured by Kidder and Guernsey (*loc. cit.*) and referred to the slab house culture have been gathered on the sites of the earth-lodges it is [301] possible that a further study of the remains may throw light on that little-known culture.

Harold Sellers Colton
University of Pennsylvania,
Philadelphia

The Californian - March 1894.

ANCIENT CANAL (RESTORED) THROUGH THE SUPERSTITION MOUNTAINS.

PRE-COLUMBIAN ENGINEERING IN ARIZONA.

BY R. E. L. ROBINSON.

WHILE there are on every hand throughout the length and breadth of Arizona and New Mexico decaying evidences of a vast population that lived at sometime anterior to history, we are yet compelled to base our estimate of the civilization of those ancients upon the results of investigation in a few distinct lines.

Fruitful investigation has been carried on in the mounds and beneath the tumble-down walls in the hope of finding relics, manuscripts, and articles of household use upon which to predicate conclusions. With this no fault can be found; but in view of the narrowness of the opportunities of research it is strange that so little of the attention of inquirers has been bestowed on the old systems of engineering—strange, that is, because of all the remains indicative of the advancement and status of the mound-builders nothing yet discovered is so well preserved or so easy of inspection. Among the engineering works left by Pre-Columbians nothing yet found in Mexico, Central America, or South America so well proves them well-informed and industrious as the canals by which the desert valleys of the Salt and Gila rivers were irrigated. It may not, therefore, be uninteresting for me to speak at some length of my observations as to this network of canals.

From the junction of the Gila with the Great Colorado to near the Gila's source in the Mogollon Mountains, a distance of several hundred miles, and along such of the Gila's tributaries as the Salt and the Verde besides others of less note, every few miles one comes upon these ancient water ways. To the casual observer they appear like *arroyos* in the desert; but if he thinks for a moment he will remember that winter rains and cloudbursts do not cut ditches straight as a taut line, often through gravel-beds and solid

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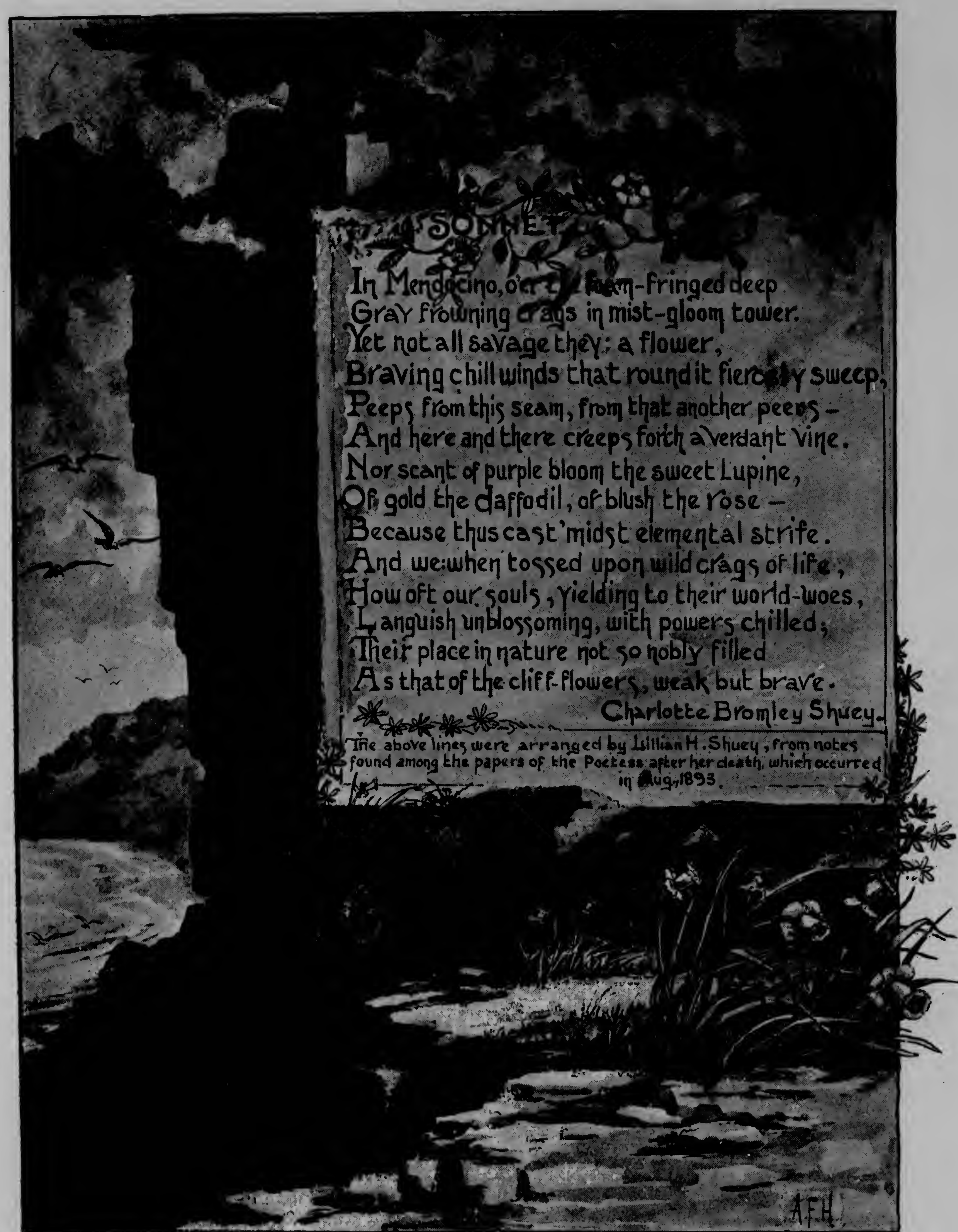
BY R. E. L. ROBINSON.

WHILE there are on every hand throughout the length and breadth of Arizona and New Mexico decaying evidences of a vast population that lived at sometime anterior to history, we are yet compelled to base our estimate of the civilization of those ancients upon the results of investigation in a few distinct lines.

Fruitful investigation has been carried on in the mounds and beneath the tumble-down walls in the hope of finding relics, manuscripts, and articles of household use upon which to predicate conclusions. With this no fault can be found; but in view of the narrowness of the opportunities of research it is strange that so little of the attention of inquirers has been bestowed on the old systems of engineering—strange, that is, because of all the remains indicative of the advancement and status of the mound-builders nothing yet discovered is so well preserved or so easy of inspection. Among the engineering works left by Pre-Columbians nothing yet found in Mexico, Central America, or South America so well proves them well-informed and industrious as the canals by which the desert valleys of the Salt and Gila rivers were irrigated. It may not, therefore, be uninteresting for me to speak at some length of my observations as to this network of canals.

From the junction of the Gila with the Great Colorado to near the Gila's source in the Mogollon Mountains, a distance of several hundred miles, and along such of the Gila's tributaries as the Salt and the Verde besides others of less note, every few miles one comes upon these ancient water ways. To the casual observer they appear like *arroyos* in the desert; but if he thinks for a moment he will remember that winter rains and cloudbursts do not cut ditches straight as a taut line, often through gravel-beds and solid

Retake of Preceding Frame



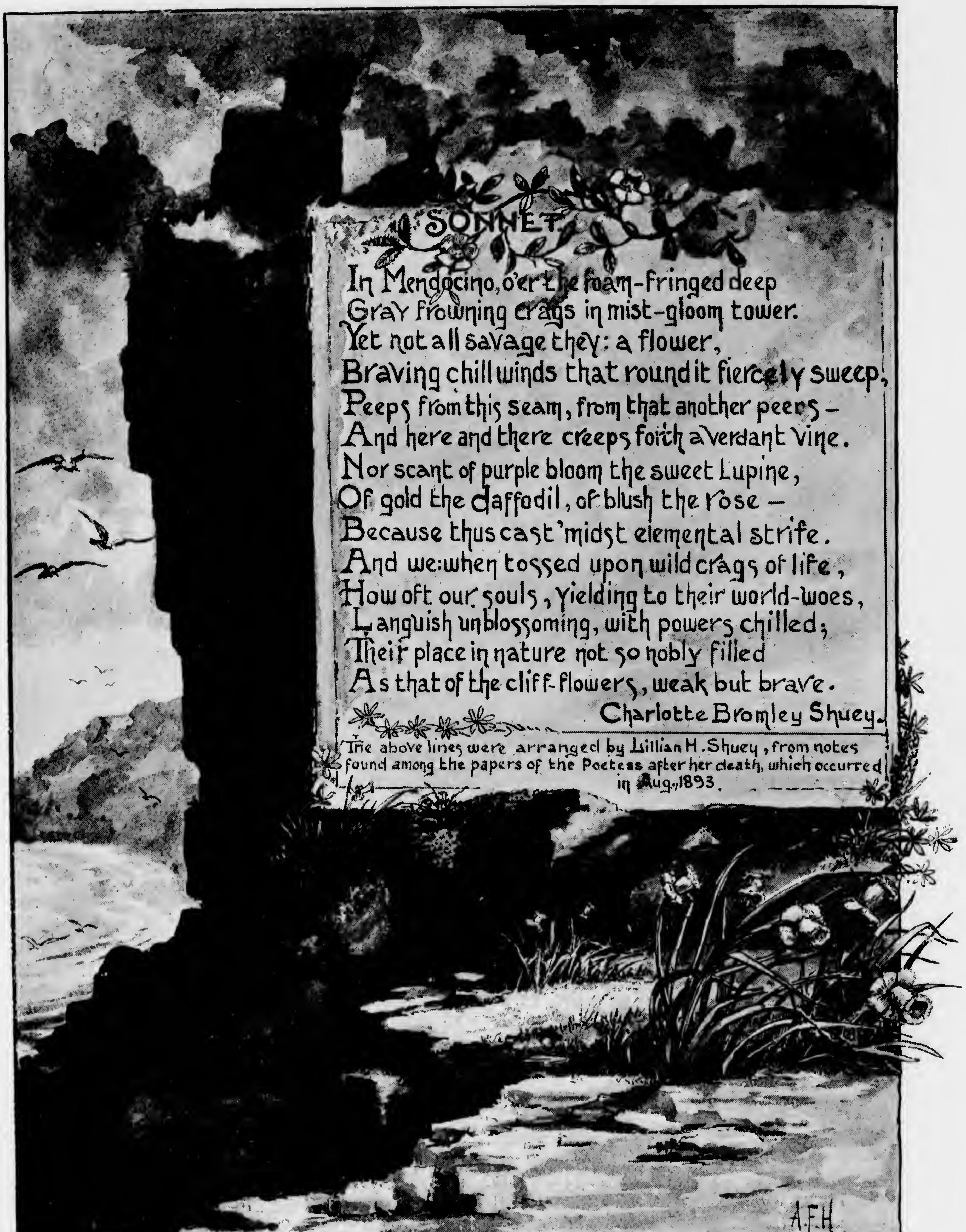
ANOTHER VIEW OF THE SUPERSTITION GORGE.

granite. To the mere passer-by this is the distinguishing feature; but to him who cares to investigate there are a hundred other characteristics that brand the work as artificial.

Where stone has been removed during the progress of excavation the walls are smooth as if they had been broken so by repeated strokes of some blunt instrument—probably axes of quartzite or obsidian, as such instruments are found in all the ruins. Where the excavations were made in gravel or soil only, the bottoms are trough-shaped and show a lime sediment of from one-eighth to one-half an inch in thickness, which settled there during the generations the canals were in use. This sediment acted very much as a lining, preventing percolation; and the theory has been advanced that it, also, is artificial and was put there to prevent leakage. This is hardly reasonable;

A PRE-COLUMBIAN CUT THROUGH SOLID ROCK.

[From a recent photograph taken along the line of an ancient water-way in Arizona.]



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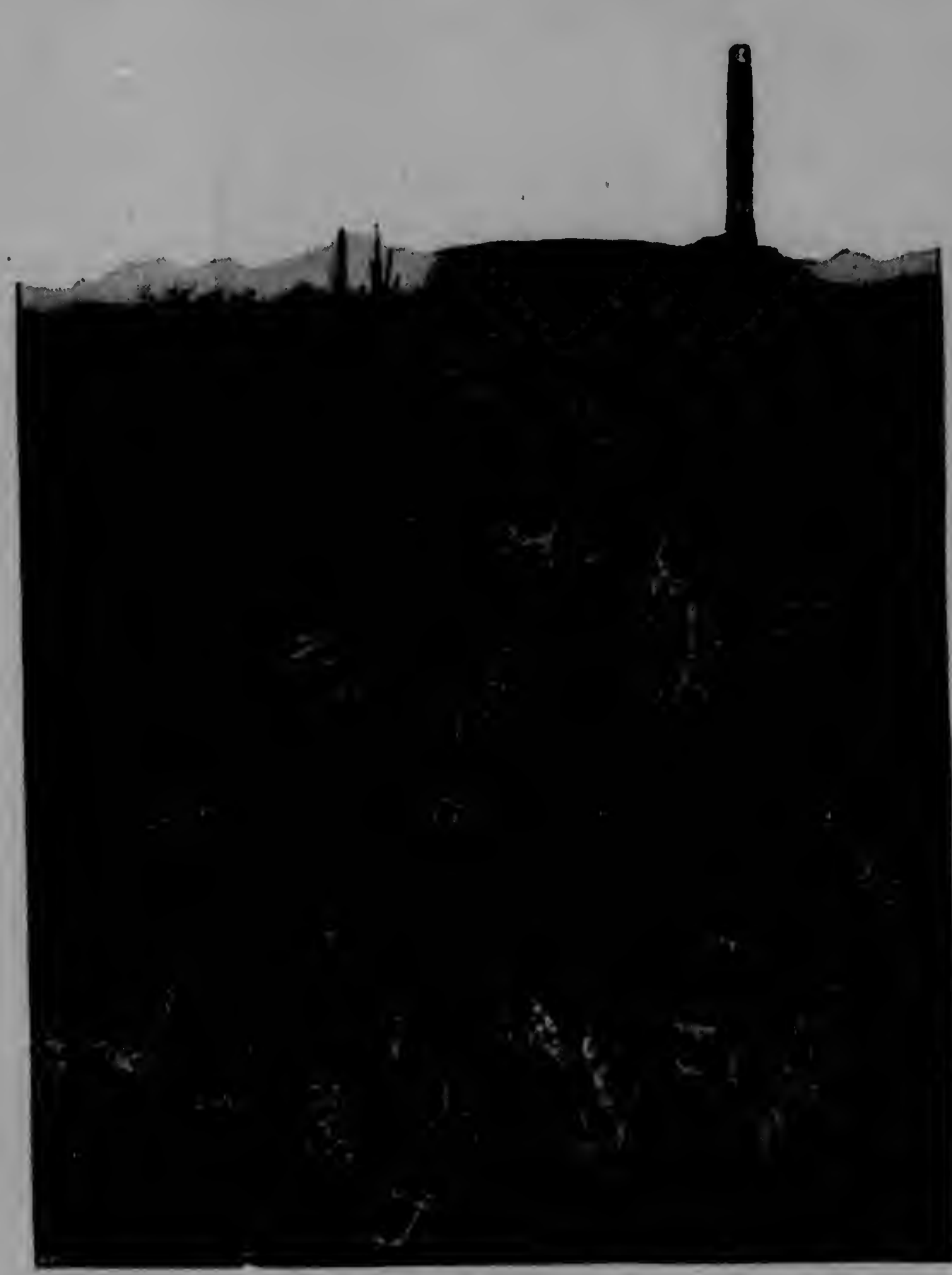
for the lining is found where the course lay through stone, as well as where it lay through sand and clay.

In locating the canals every possible advantage was taken of *arroyos* and "draws;" and nowhere have I yet found the grade of the water-bed more than thirty inches to the mile, so that the rush and wash of the immense volume of water they must have carried was minimized and the banks and bottoms protected. At intervals there were "falls" several feet in height, where the water dropped abruptly over the artificial walls constructed to equalize the grade. In one or two instances the natural fall of the ground through which the canals ran was more than ten feet per mile, down which the water would have rushed like a mountain torrent, tearing away the embankment in a very short period, had no precaution been taken to prevent it. Consequently, if the engineers wished the depth capacity of the ditch to be eight feet, they began the work at the headgate by sinking twelve feet, then, by allowing the excavation the grade of two feet, at the end of the mile there were yet four feet to overcome. This they accomplished by dropping that distance. Then they started a new section, following the same grade as before. In many of the places where these falls were, there are yet depressions that remain filled with water for some weeks after the rainy season has passed and other parts of the desert have become dry and parched. These were rounded out, basin-like, by the continual fall of the water in transit through the canal. The identity of a fall is easily determined by the wall of boulders designed to prevent the wearing away of the bank.



OLD INDIAN-CARVINGS ON ROCKS SOUTH OF THE SALT RIVER, ARIZONA.

[From a recent photograph.]

Many of the modern canals in the valley run upon the same grade and wherever possible through the same excavations that were utilized by the

Pre-Columbians; so that actual experience has proven that with all our modern knowledge of engineering we are unable to improve upon the work accomplished by this ancient people. In one or two cases the old lines have been deviated from and new ways opened; but the grade is from five to six feet to the mile, and the great body of water passing through has, in the short time they have been in use, inflicted much injury on the bottoms and embankments.

In their preparation for work the old-time engineers figured accurately on the grade or fall of the river-bed in connection with that of the valley sloping from the foothills on either side, and by that means saved much labor in the way of excavation. The river meanders more or less across the valley, but its average distance from the mountains is about eight miles; the mean fall is seven and one-half feet, while the fall of the river (I am now speaking of the Salt) from the mouth of the Verde to its junction with the Gila is something less. In every case, except that which I will hereafter mention, the engineers went far enough above the land upon which they wished to place the water, to get the advantage of the rainfall; then, taking their conduits out at some bend, they ran them diagonally across the territory thus cut off, skirting as nearly as possible the foothills, at the same time keeping a natural grade of about two feet. When they found that, owing to a rise of the ground, the grade was lessening, thus placing the water too low for distribution through the canals, they bore in more toward the river. In many instances while running these diagonal lines they came in contact with broad "draws" called "sand-washes" which come in from the hills and bear away the floods of the rainy season though for the greater part of the year they are dry. These washes to some extent modify the slope toward the river; and, taking advantage of it, the builders when on the overlooking eminence very often changed their line and ran directly at right angles with the original direction, thus carrying the water far away and sometimes among the hills themselves, utilizing for cultivation every acre of tillable land. Sometimes, by the modifying grade of these washes they were enabled to parallel the river for miles, running the water in either direction as far as the slope would allow.

NATURAL GRADE.
CANAL BED
FALL
CANAL BED
FALL
CANAL BED

PLALE NO. I, ILLUSTRATING THE METHOD OF THE EARLY CANAL-BUILDERS FOR OVERCOMING THE DIFFICULTIES OF STEEP DESCENTS.

The instance I shall mention in which this advantage was not taken, was where the canal was intended to irrigate only the land lying adjacent to the river and no remarkably uneven surface was to be contended with. These ditches were only slight modifications of the natural grade, and always ran parallel with the source of supply, raising the water above the actual level of the land and obtaining ease in distribution. They were usually only a few miles in length and must have been opened only on stated occasions when the water was needed; for at the terminations the bottoms of several are fully ten feet above the surrounding level, doubtless having been graded above the river fall to prevent the washing of the banks by the rapidly running water. Besides, a constant flow would have caused flood. In one case that I know of, the canal ran several miles parallel to the river and only half a mile from it, finally discharging its excess back into tho source from which it origin-

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Retake of Preceding Frame

ally came, amounting, after all, to nothing more than a change of channel in part of the flow with the advantage of raising it to a height where it might be of use.

It does not appear to have been their custom to store water for future use, and it is probable that at that time the flow of the river was continual and of such volume as to make it unnecessary. The only exception to the rule that I have yet discovered is the case of the reservoir south of the Salt, near the Pima reservation, and illustrated by Plate No. 2. It is now dry and the surface of the surrounding country has changed to some extent; but the height to which the water came upon the rocks and gravel-beds that formed the margin is easily traced by the aid of the silt and alkaline deposits. On the north side there is a ledge of porphyry, a detached portion of the Maricopa Mountains, that crops out the entire length and upon which the watermark is unmistakable. The reservoir was about six miles in length by four in width, a Lake Meoris in minature; and, like Meoris, it was a natural depression filled by what I may term the "flood-tide" of the river. There is no evidence of excavation except in the channel by which it was filled, and in all probability it was caused by the earthquake that detached the portion of the neighboring mountain. It lay about three miles from the river as it anciently ran, measuring by the canal that filled it—though a less distance across the porphyry ledge, at a point where much more labor would have been necessary to make the channel. High-water on the river was about eighteen feet above the bottom of the lake. Apparently the canal was opened, the depression allowed to fill, and the impounded water taken out as needed through three canals opening on the south. These can only be traced a little way, because of repeated overflows in modern times; but the entire valley and a part of the mountain-side are dotted with the mound-like ruins of buildings, proving the past existence of a city which must have been supplied with water stored in the great reservoir.

At that time the river ran about two miles north of its present channel and well into the limits of what is now the city of Phœnix; but, owing to some volcanic action or mighty flood, it shifted south and found a lower level even than the bottom of the lake. Notwithstanding the change, however, there is still a noticeable depression, quick to overflow in time of high water, and supporting numerous clumps of reeds and willows.

While in most cases the engineers took advantage of natural grades and avoided deep "cuts" through ledges and mesas, there is one notable exception in a canal that was built from the Salt River near the mouth of the Rio Verde. At that point an upward grade from the Gila, forty miles south,

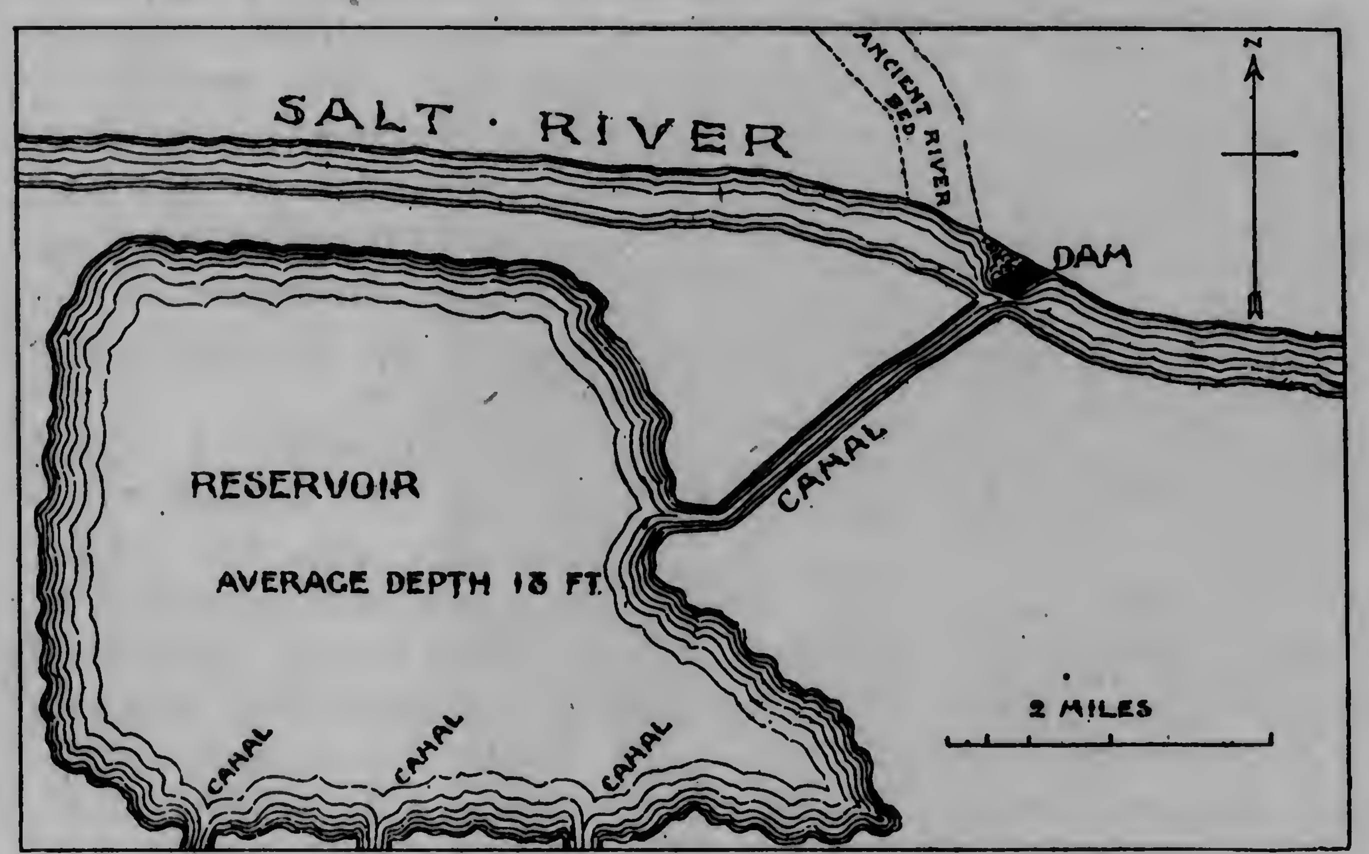
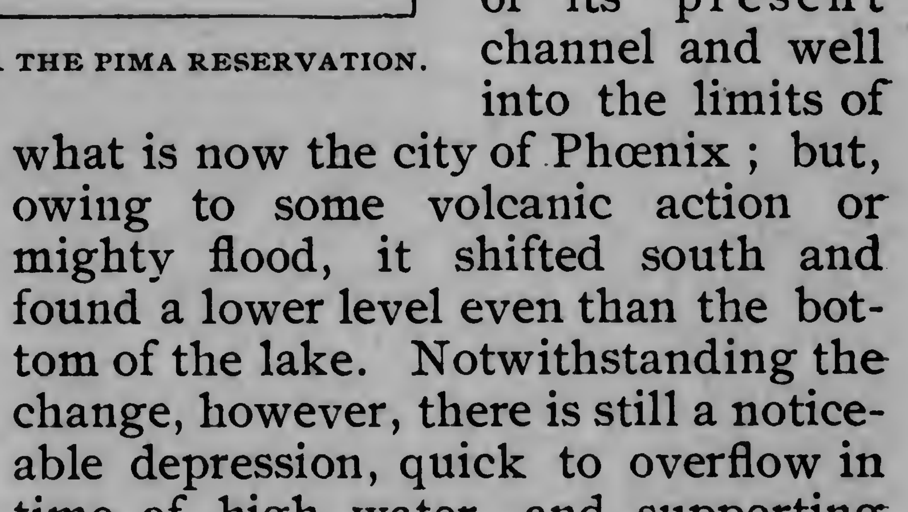


PLATE NO. 2, SHOWING THE ANCIENT RESERVOIR NEAR THE PIMA RESERVATION.



terminates in an abrupt cliff, 300 feet in height. In one place there is a gorge or cañon which reduces the altitude to about 100 feet, and through this gorge they cut the canal that was the acme of their engineering skill.

The cliff is the southern extremity of a range of low mountains which at the point alluded to is only about three and one-half miles in width. By cutting down in the bottom of the cañon to the necessary depth the builders were able to take the water upon the mesa that overlooked the Gila and fell with a gradual slope toward it; thus the canal from the Salt irrigated what is properly the Gila Valley. It extended to within a mile of the Gila River, fertilizing 1,600 square miles of land now given over to desert. In all its branches this canal was more than 120 miles in length, and the grade was so regular that, in depressions made by the running of the water, the winter rains still stand for some time, furnishing a supply for the cattle that consume the scant herbage in that region. There is no evidence of what they did with the stone thrown out in making this enormous "cut"; if there were we might form some accurate idea of the tools used in the work. In all probability it was thrown upon the embankment and the storms of centuries have scattered it over the surrounding country.

In the construction of dams these people displayed considerable ingenuity, and evidently in their day there was no such thing as the "bursting of reservoirs." Such works were not made to impound water, and in no case did one of them reach entirely across the river; yet they filled the purpose for which they were intended, and possessed to a remarkable degree the quality of durability. In the language of engineers they were "goose-wings" made of boulders between which the sand and sediment naturally drifted, in the course of time becoming so hardened that the whole practically constituted a wall upon which the rushing of the current had no effect. They were always begun on the oppo-

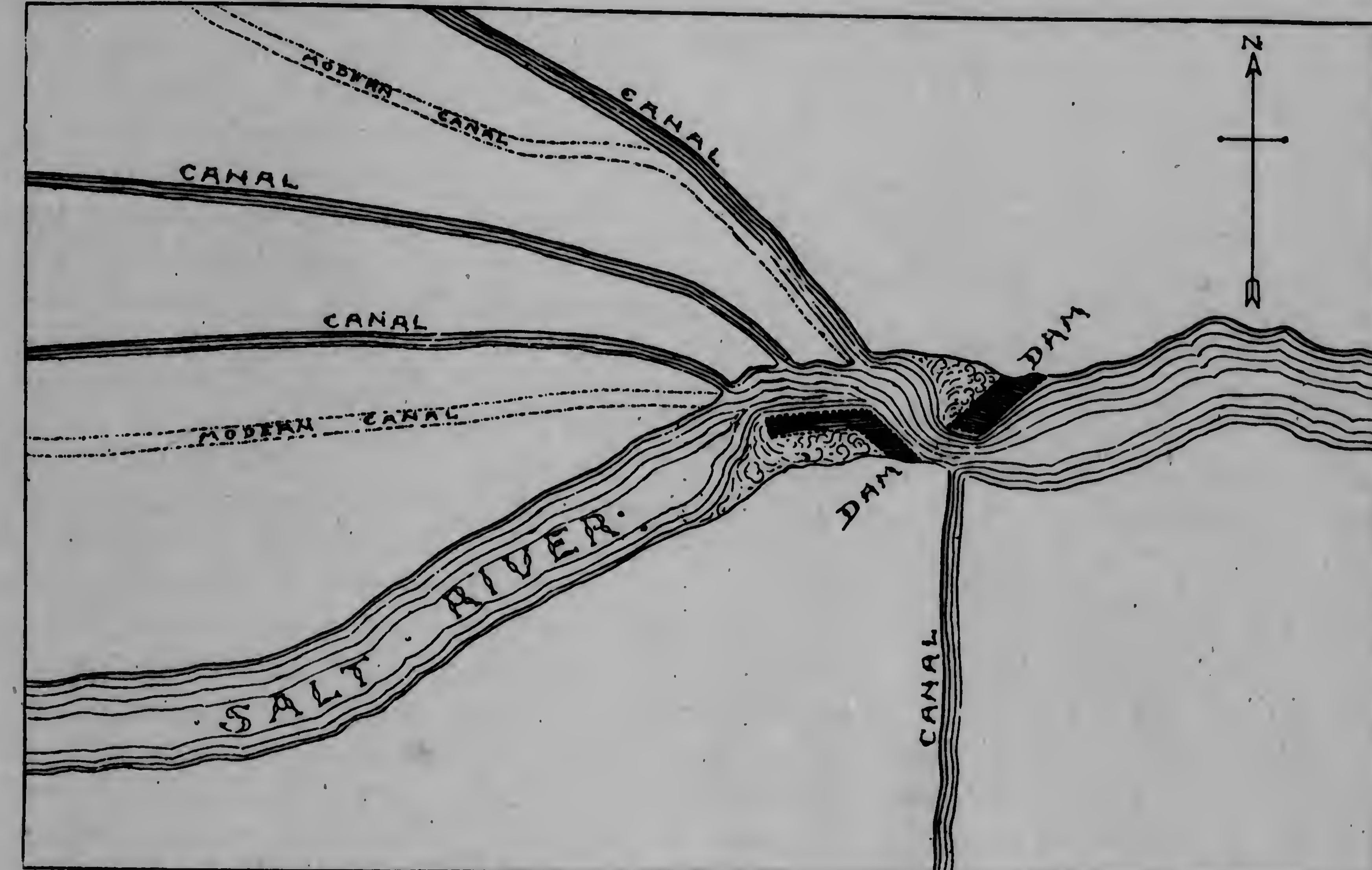


PLATE NO. 3, SUGGESTING THE LOCATION OF THE DAMS NEAR PHŒNIX BY WHICH THE ANCIENT ENGINEERS DEFLECTED THE WATERS OF THE SALT RIVER, TO SUIT THE REQUIREMENTS OF THEIR CANALS.

site side and above the mouth of the canal they were intended to supply; and, instead of pointing directly across, they ran at an angle of forty-five degrees with the current, striking a short distance below the heads, and deflecting the river into the artificial channels.

Near Phœnix, where four canals were opened as illustrated by Plate 3, there were two dams within a few feet of each other, the lower one being of extra length and deflecting the current into the three heads on the north side. This lower dam was built in the usual way about three-fourths of the distance across the river and then turned directly down stream; while the upper one, on the opposite side of the river, assisted by giving a rebounding action to the current as it was forced against the bank.

As feats of engineering, there was nothing extraordinary in the construction of these dams; and in fact everything done by the Pre-Columbians has been done, or can be done by us. When we look at the work it appears simple, and we understand every principle employed. But it cannot be doubted that the knowledge by which they were enabled to utilize every natural advantage, turning it into a practical benefit, was certainly far above that likely to have been possessed by a barbarous or nomadic race to which class some students have assigned them. At any rate, they were far superior to the tribes that betrayed only the instinct of self-preservation in erecting their dwellings on mountain-summits and in the almost inaccessible recesses of the cliffs.

In this paper it is unnecessary for me to state my opinion of the remoteness of the time in which these canal-builders flourished. I may be pardoned for suggesting, however, that if they used any other than stone implements similar to those manufactured in the Neolithic period those other implements have never been discovered. Learned geologists, basing their computation upon European discoveries, have agreed in placing that age fully 100,000 years ago; still, it seems impossible to reconcile such antiquity with the conditions characteristic of the Arizona mound-builders and with the hieroglyphics on the cliffs.

Through the kindness of its author I am in receipt of a paper recently read by the noted scientist, Samuel Laing before the Brighton-Sussex Philosophical Society of England. Predicating his conclusion on some stone axes taken from various parts of the United States and Mexico he places the date as far back as 210,000 years and says: "It is an incontestable fact that savages, manufacturing the same type of rude stone implements, were then living in the Old World from Spain and Britain to China and Japan * * ; in like manner in the New World from Ohio and California down to the pampas in Buenos Ayres and the plains of Patagonia." The eminent author was doubtless not aware of the fact, that in the comparatively unexplored (I am speaking scientifically) regions of Arizona and Northern Mexico the cliffs are covered with hieroglyphs and picture-writing as perfect as those found in Egypt and dating little before the dawn of history; also, that the stone implements are found on top of the ground and in the silt deposits where they were left by their owners.

At the same time the utmost respect must be given to the conclusions drawn by Mr. Laing from his own research and observation. In this regard it would be interesting to have more light upon a problem as to which I have often thought: Was the Stone Age of Europe contemporaneous with the Stone Age of America?

Am. Anthropologist, Vol. 29, No. 2.
April 1927.

THE ASSOCIATION TEST AS A METHOD OF DEFINING RELIGIOUS CONCEPTS

By LESLIE SPIER

HALF a dozen years ago I recorded a word-association list among the Havasupai of Arizona. Dr. Robert H. Lowie has briefly commented on this list in his *Primitive Religion* (p. 280). He points out that it shows the usual characteristics of such lists among ourselves; coördination, contrast, predication, etc. His interest in these associations lies in showing how the substitution of concepts and the building up of religious ideas may occur through association. My reason for obtaining the list was different: to attempt to define the vague religious concepts of the Havasupai.

Religious concepts are always necessarily vague, and this is especially true of the Havasupai. Here are a people poor in culture, with the barest of ceremonial life, shamanism of an unspecialized sort, few magical practices and tabus, and no localized spirits nor deities of any importance. In short, although they are neighbors of the religiously rich Hopi, they share the lack of cultural development of the Basin tribes.

They also show the same inability to formulate their culture, the same apathy and reticence in describing it, which Dr. Lowie is convinced is characteristic of all the typical Basin people. This is especially obvious when we contrast them with the Plains or Pueblo Indians. There is none of the sharp characterization of mythical beings, none of the stereotyped forms of vision experiences or of rituals, none of the purposefulness of Plains and Pueblo religious life. To be sure, a poor culture does not readily lend itself to precise formulation, but the Havasupai leave their religious concepts at exceptionally loose ends.

It is usual to record the religion of a people in terms of a formulated norm. But it is obvious that no two individuals among them hold precisely the same series of beliefs. How com-

monly shall we get the same answer on the meaning of the resurrection or the sin against the Holy Ghost among ourselves? It seems rather that there is a whole cluster of special forms of each of these beliefs. It is therefore legitimate only to describe the religion of a people as the sum of all the beliefs held by every one of them. It is equally true of the individual, that he has a fringe of ideas associated with the central notions. Their totality constitutes the concept for him.

I had thought to obtain the associations for a series of such ideas among the Havasupai and in this way to define the range and character of their beliefs more closely than their statements and my incidental observations would permit. If Kent and Rosanoff's experience with the reactions of normal subjects holds here, we might well expect the response words to be drawn from surprisingly small group of common reactions.[1] This inquiry was not carried out systematically, but the method may be of interest.

A list was drawn up in which the words referring to things religious were scattered among a larger number of indifferent words. I tried this only with my interpreter, Jess Checkapanyega, who had a fair command of English, had had some schooling, but who lived in the old style and had implicit faith in the native religion. He caught the idea of what was wanted readily enough. The list and his response words follow. The words for which I especially wanted associates are marked with an asterisk.

Cue[2]		*Response*[3]	
tacpĕ´'	six	—	
gȧθŏ´k	burden basket	—	
djĭtai´ĭgȧ	father	ȧpa´^{a}	man
natȧk^{r}e´pĭgȧ	night	nak^{r}ŭmk^{r}ŭ´mkĭ	lot of darkness, very dark
ȧtcu´dĭgȧ	winter	mu´nĭgȧ	cold, freeze

[1] G. H. Kent and A. J. Rosanoff: A Study of Association in Insanity (American Journal of Insanity, 67, 1910).

[2] The phonetic system is that of the Phonetic Transcription of Indian Languages (Smithson. Misc. Coll., 66, 1916, no. 6) with the breve indicating the close vowels.

[3] These responses are almost solely of the synonymous, defining, or qualifying type. There are only a half dozen possible cases of contrast and as many homonyms.

n$_y$ĭmsă´vȧ	white	ĭnya´gȧ	black
sŏl	finger	mi´'i	foot
dŭtvua´djĭgȧ	quipu	gwesi´vĭgȧ	the counting of something
tc'aukȧ	cedar tree	gwewa´djȧ	something growing
pahamĭ´lĭgȧ	brother-in-law	ȧpa´^{a}	man
huga´θȧ	cup and pin game	gwehu´^{u}	the head of something[4]
xuwa´gȧ	two	—	
ȧkwa´gȧ	deer	ȧmu´^{u}	mountain sheep
*gȧθiyĕ´'ĕ	shaman	gwegĭsȧpŏ´'	they know how to do everything
kwaiyă´l	knife	kwaĭnyădja	piece of black obsidian
su´ĭdjĭgȧ	older brother's son	teyu´ĭdjȧ	a relative
mȧsi	girl	hama´n	child
*mȧta´vĭgȧ	north[5]	n$_y$ȧhamĭ´dĭgȧ	hunting
djĭka´vĭgȧ	mother's brother's son (man speaking)	dĭtka´tĭgȧ	cut into two or more pieces
*k^{r}e´djĭmpi´k	unconscious	n$_y$ihamă´djĭgȧ	little bit dead[6]
no´hovĭgȧ	the hiding game	dȧsmȧlai´ĭvĭg	playing
*ĭnya´^{a}	sun	ĭnya´djpa´gȧ	sun shining
mȧsma´	sinew	sȧvȧma´^{a}	roots
*sȧma´^{a}	spirit	gĭθiye´	shaman
kua´go	chicken	kwa´loyau´ȧ	(any) chicken
gĭ´nĭgȧ	younger sibling	howa´giȧ	partner
*teya´dj	corn	ma´gȧ	eat it
*iyuwai´ȧ	heart, soul	kŏdȧu´dĭgȧ	spherical
kȧwe´vĭgȧ	south	midȧmi´dĭmȧ	pretty straight[7]
gweȧo´nia	a trap	gweoi´ȧ	something to catch with
o'oga´djiȧ	fire drill	o'ogwi´diȧ	slow match
hŏmtĕ´'ĕ	squash	gwegȧo´lȧ	pumpkin or squash
kȧmwĭ´dĭmȧ	old woman	pȧk^{r}i´	woman
*kwimă´djĭgȧ	rain[8]	ȧhȧ	water
mȧdi´gȧ	beans	ma´gȧ	eat it
*ămi´yĕ	ghost	kwĭ´djȧdi´ȧ	ghost
mȧpŭ´k	knee	sukŭmwĭ´d	ankle bones which protrude
qȧqω´t	fox	djipai´yȧ	all sorts of animals

[4] The "cup" of this game is a rodent skull.

[5] The land of the dead is in the north.

[6] This is the literal meaning of k^{r}e´djĭmpi´k.

[7] That is, in the middle of the heavens.

[8] Rain is prayed for.

ahua´djĕ	Apache	ĭtcahua´	Yavapai, enemy
halĕθu´ia	nine	vua´vĭgå	ten
*Pagio´vå	God (?)	Pagio´gå	Dead Man Puller[9]
mukwa´	dipper	gwepe´yå	something to dip with
tcĭpa´vå	twine or coil basket stitch	gwetovådju´dĭvå	something to make a ring or spiral
*våta´vĭg	lightning	våu´ĭg	thundering
midåmi´dĭgå	straight	—	

I think this is a failure so far as my objective was concerned. Most of the responses seem purely verbal. I know too little of Havasupai to say how frequently these are common verbal couples (as Adam and Eve, etc.). Yet, if tried on a larger scale it might give results. It would be certain to indicate what the common associates of these significant words are. Obviously it should only be used with unsophisticated natives and there the linguistic difficulty presents a barrier.

I am well aware that associated words are not the same as associated ideas, but they do give some clue. The difficulty is in distinguishing the more significant responses from the verbal ones. This presupposes a greater familiarity with the culture than we usually have. But this is only a degree more difficult than in the use of such test among ourselves, where the observer must assume that he can distinguish the significant among his subject's varied responses.

University of Washington,
Seattle, Washington.

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[9] Literally.

John Wetherill and wife of Kayenta, Arizona, have lived & labored many years ~~spent most of their lives~~ among the Navaho and Piute ~~in~~ of a region abounding in archaeological ~~wealth~~ treasures. ~~From whose~~ the cliffs and canyons of this wonderland they have ~~they~~ gathered vast treasures.

To them I am indebted for information concerning the present status of the Piute of the Kayenta region — whose remnants, because of mergence with the far more abundant Navaho, are rapidly vanishing.

Arizona "Ancient Dwellings of the Verde Valley" Reprint 1890

by Edgar A. Mearns

C. Hart Merriam
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Dr. C. Hart Merriam
With the regards of Edgar A. Mearns.

ANCIENT DWELLINGS OF THE RIO VERDE VALLEY.

By EDGAR A. MEARNS,

Assistant Surgeon, U. S. A.

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ANCIENT DWELLINGS OF THE RIO VERDE VALLEY.

BY

EDGAR A. MEARNS,

ASSISTANT SURGEON, U. S. A.

AS an officer of the medical department of the United States Army, the writer was assigned to the military department of Arizona in 1884, and took station at Fort Verde, in the central part of that territory, in March. Strange were the sensations that we experienced on the morning succeeding our arrival, as we looked for the first time upon the broad valley of the Rio Verde, hemmed in by rugged mountains on the west, and terraced limestone cliffs with intervening *mesas* on the east. To the northward Beaver Creek poured its turbid flood into the Verde, whose banks were filled to overflowing by the waters sent down by the melting snow upon the distant Mogollon Mountains. Eighty miles to the north, beyond the ruddy cliffs of the "Red Rock Country," San Francisco Peak, the highest point and most prominent landmark in the territory, gleamed in snowy white-

ness. Indeed, it retained its snow-cap far into the hot summer months. The general course of the river at this point is a little east of south. The eye vainly followed its winding course for miles in either direction in quest of village or solitary dwelling. Not a human habitation could be seen. The handful of soldiers mounting guard upon the parade, to the music of trumpet, fife, and drum, but emphasized the solitude of the place. Trees marked the sinuous course of the stream, but the rest of the valley was bare of vegetation save patches of mesquite-bushes in the alluvial river-bottom, the ever present cactus, aloe, and yucca, and a low growth of intermingled weeds and grasses, whose blended hues imparted to the valley a yellowish color. Dwarfed cedars and piñons barely existed upon the arid slopes of the Black Hills range, bounding the valley upon the west, and tall pines crowned their level summits.

I said there were no human habitations in sight; but closer scrutiny revealed stone edifices, erected by the hand of man, occupying commanding points upon the opposite side of the valley; huge piles of masonry, whose ruined walls still stand to a considerable height. Below these, emerging upon narrow ledges, in the face of the nearest cliffs, were lines of black holes, which I was told were entrances to the cave-dwellings of an extinct race of men. From the hospital piazza a view was obtained of a still more wonderful structure. In the vertical side of the cañon, through which Beaver Creek flows, a large building four or five stories high had been built by this people, whose only history is written in monumental ruins.

Before our departure from Fort Verde in 1888 three railroads had penetrated toward the heart of the wilderness by which we were surrounded. Settlers were thronging in to engage in lumbering, mining, or stock-grazing in the mountainous portions, or to cultivate the soil of the irrigable valleys. Already the valley of the Verde begins to assume somewhat of the appearance that it presented centuries ago, when irrigated and cultivated by the populous cliff-dwellers. Again the Indian corn rustles in the broad fields in autumn, and golden pumpkins and squashes cluster beneath the stalks. Childish voices are borne on the breeze: a new cycle begins.

Curiosity concerning the people whose stone buildings challenge attention from most of the prominent points along the Verde River and its tributary streams led me to pay some attention to the study of archæology, and to form a collection of such relics as might shed light upon the history and habits of the builders.*

* This collection, comprising several thousand specimens, has been donated to the American Museum of Natural History, New York. The human skeletons and crania will be sent to the Army Medical Museum at Washington.

On turning to the fourth volume of Hubert H. Bancroft's Native Races of the Pacific States, which is devoted to the study of antiquities, I was surprised to find that the extensive ruins of the Verde were at that time (1875) undescribed and unknown, save through vague accounts received from Mr. Leroux and other guides and trappers. On page 636 we read: "These ruins are not very far from Prescott in the north and Fort McDowell in the south; and I regret not having been able to obtain from officers in the Arizona service the information which they must have acquired respecting those remains, if they actually exist, during the past ten or fifteen years." Some of these ruins have since been examined by archæologists accompanying Government surveying parties, and models of several of them are to be seen in eastern museums; but no exhaustive account of them has ever been written, nor have any been more than superficially explored.

The writer has availed himself of the opportunity afforded by numerous tours of field-service and authorized hunting expeditions, amounting in the aggregate to several thousand miles of travel, to examine most of the principal ruins in the territory, from the famous Casa Grande of the Gila itself to the smaller *casas* and caves on the head-waters of its tributaries. Although highly diverse in form, style, material, and location, it is evident that these buildings belonged to a single race. This is shown by the similarity of products and identity of habits, as well as by the relation of the dwellings to each other. The implements and pottery found in the rude caves of the Upper Verde are identical with those which Mr. Cushing has recently obtained from the immense *casas grandes* of Salt River. In all, the food substances and mode of agriculture are essentially the same. Again, the proudest *casas grandes* are built on the summits of cliffs whose sides are honeycombed with cave-dwellings, thus combining in a single community the most diverse styles of habitations.

Only the aboriginal monuments of the Verde region will here receive attention. They are uniform with those of the rest of the Gila Basin. In fact, little violence would be done by uniting all of our southwestern ruins with those of the northern tier of Mexican States into a single group. They were the work of substantially the same people.

The accompanying map indicates the location of only such remains as are personally known to the writer. Detailed descriptions of all of them would prove tedious to the reader and exceed our present limits.

The walled buildings are of two kinds—those occupying natural hollows or cavities in the faces of cliffs, and those built in exposed situations. The former, whose walls are protected by sheltering cliffs, are sometimes found in almost as perfect a state of preserva-

Map of the Verde Valley, showing its Ancient Dwellings.

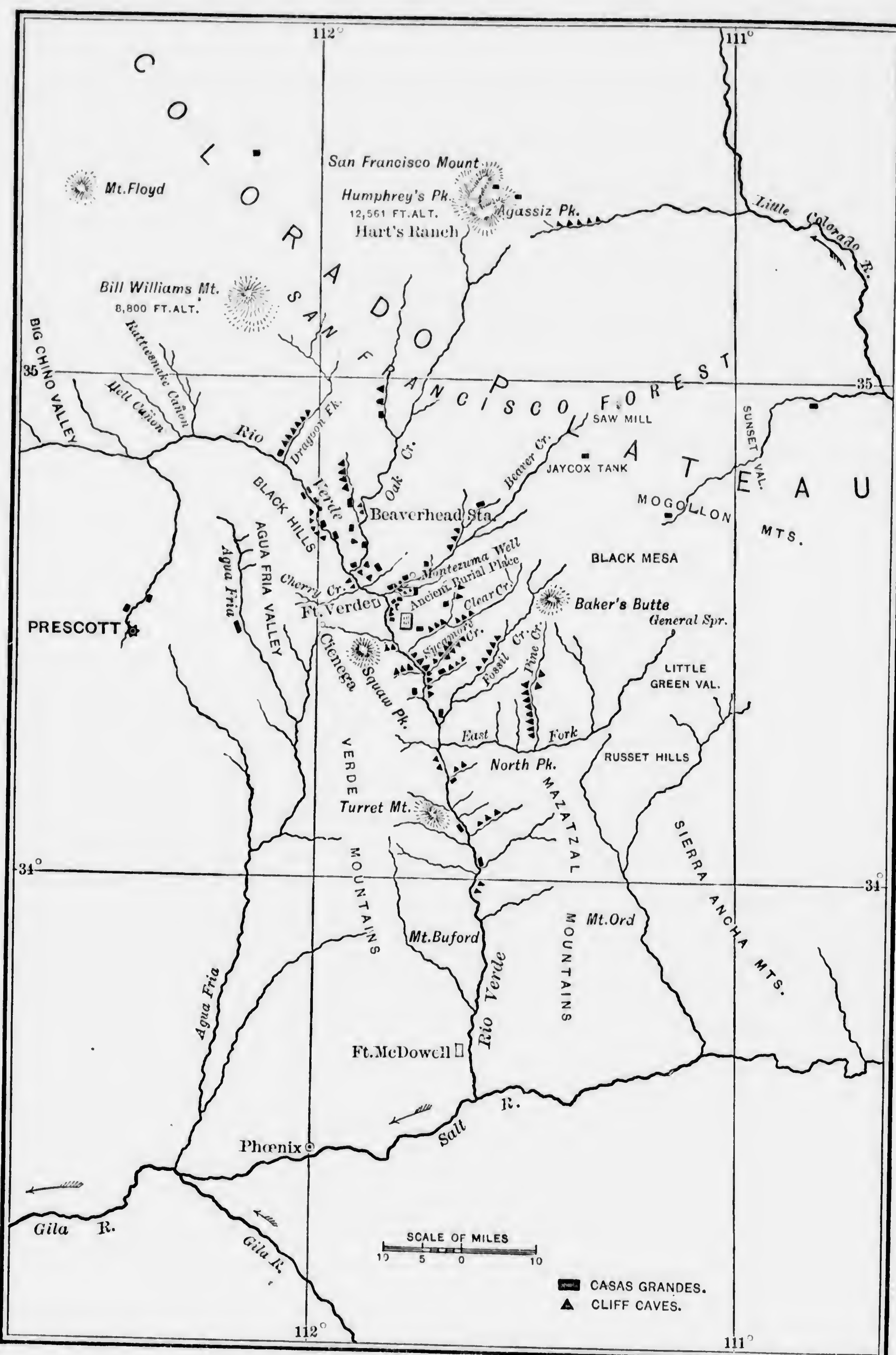
tion as when deserted by the builders, unless the torch has been applied. The latter, or Pueblo style of architecture, usually occupying high points and commanding a wide extent of country, are in a ruined state, although walls are commonly standing to the height of one or more stories, with some of the timbers intact.

Another and very common form of dwellings is the caves, which are excavated in the cliffs by means of stone picks or other implements. They are found in all suitable localities that are contiguous to water and good agricultural land, but are most numerous in the vicinity of large *casas grandes*. Most of them are in limestone cliffs, as the substratum of sandstone is not as commonly exposed in the cañons and cliffs, but many cavate dwellings are in sandstone.

The additional remains observed by me are mounds in the vicinity of ancient dwellings, extensive walls of stone and mortar, large quantities of stone implements and fragments of broken pottery, *acequias* or irrigating ditches, ancient burial grounds, and hieroglyphic inscriptions on stones and cliffs—the last two to be doubtfully referred to the cliff-dwellers.

Fig. 1.—Casa Grande in Right Bluff of a Cañon entering the Verde River from the East, about twelve miles southeast of Fort Verde.

Of the cliff-houses, as contradistinguished from those of Pueblo pattern, many excellent examples are found in the Verde region. One, into which I was probably the first white man to set foot, is built in the right wall of a deep cañon, between Hackberry Flat and the Rio Verde. It was found when searching for a still larger



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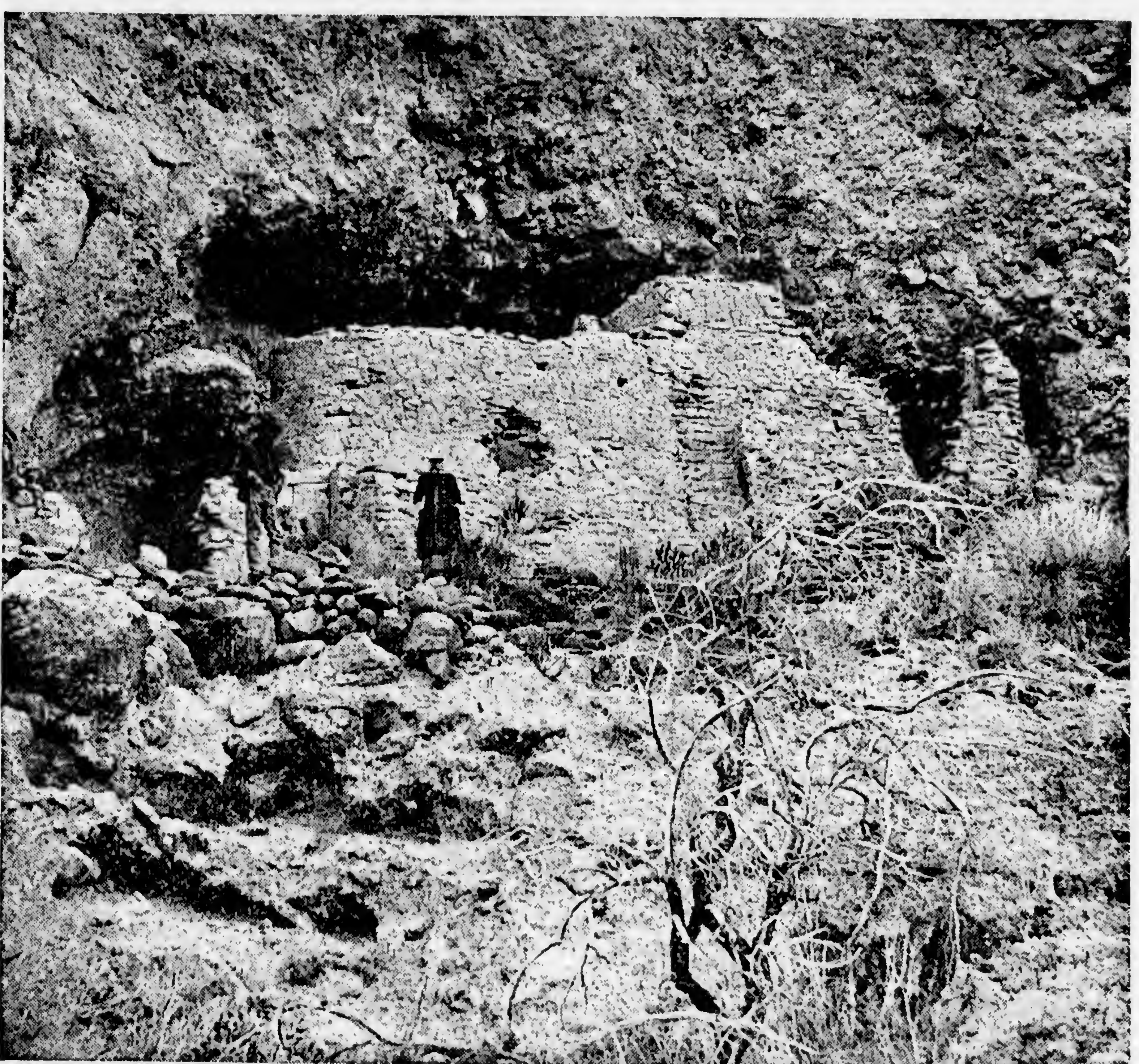

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Retake of Preceding Frame

FIG. 2.—"MONTEZUMA'S CASTLE."

and more nearly perfect building near the same locality, which an old settler had found many years ago. There are many others on Beaver Creek, and in the "box cañons" of the Upper and Lower Verde.

The building known as "Montezuma's Castle," on the right bank of Beaver Creek, in sight of and three miles from Fort Verde, is (perhaps excepting a building near Salt River) the finest that I have seen, and typical of this class of structures. This *casa*, doubtless a fortress, is fitted into a natural depression, high up in a vertical limestone cliff, the base of which is distant three hundred and forty-eight feet from the edge of the stream and about forty feet above it. The *casa* is accessible only by means of ladders, its lowest foundations being forty-two feet above the bottom of the cliff. The post quartermaster of Fort Verde has provided four substantial wooden ones, which make the ascent easy from one narrow ledge to the next. After ascending three ladders a ledge is reached upon which six cave-rooms open (Fig. 3).

On a ledge eight feet below this one, and eighty feet to the northeast, are two cave-dwellings, neatly walled up in front, with a well-made window in each for entrance. There are many other cave-dwellings in the cliff, at either side of the *casa*, long lines of them extending toward the southwest. One or two isolated chambers, walled in front and windowed, may be seen far up the side of the cliff, where they are altogether inaccessible. These, together, constituted the settlement.

Ascending the fourth ladder (Fig. 6, *z*), the *casa* is reached. The foundation rests upon cedar timbers laid longitudinally upon flat stones on the ledge. The projecting ends of these timbers show plainly the marks of stone axes used in cutting them. The front wall (Fig. 4, *a b*) is a little over two feet wide at the bottom and thirteen inches wide at the top. It leans slightly in toward the cliff. One part of this wall (Fig. 5) rests on what appears to be a very precarious footing, although it has stood for centuries. The timbers are so placed that in the middle they project beyond the edge of the ledge.

The *casa* is entered at a projecting angle (Fig. 6, *c*), through a window of sub-Gothic form (Fig. 7), measuring three feet and three inches in height by two feet and four inches in width at the bottom. This small apartment (Fig. 6, *a*) is smoothly plastered within, and blackened by fire. The plastering bears finger-marks and impressions of the thumb and hand, showing that it was laid on and smoothed by the hands. The roof is formed by willows laid horizontally across eleven rafters of ash and black alder; upon this a thick layer of reeds is placed transversely, and the whole plastered on top with mortar, forming a floor to the chamber above it. The rafters are peeled, except one or two that

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Retake of Preceding Frame

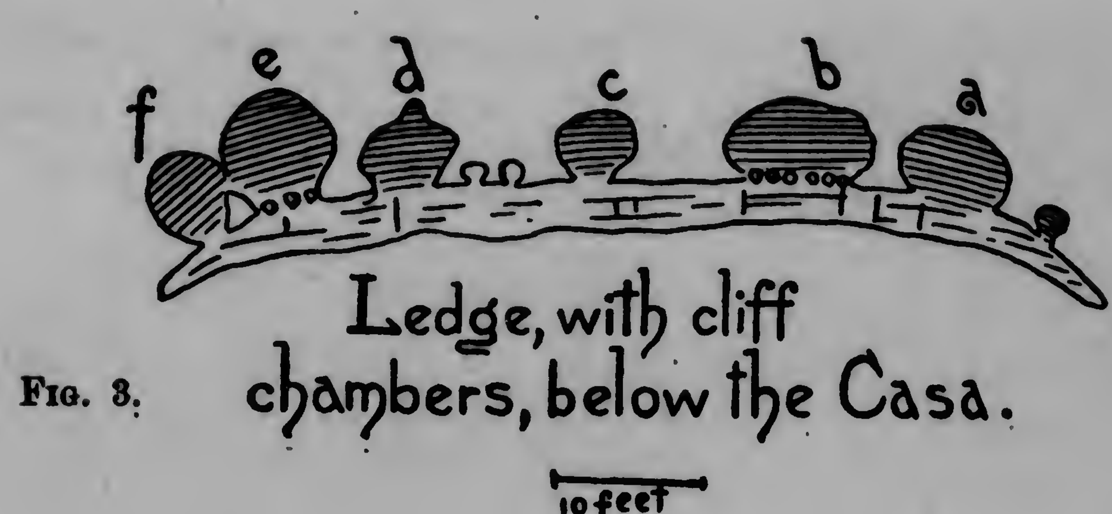


Fig. 3.

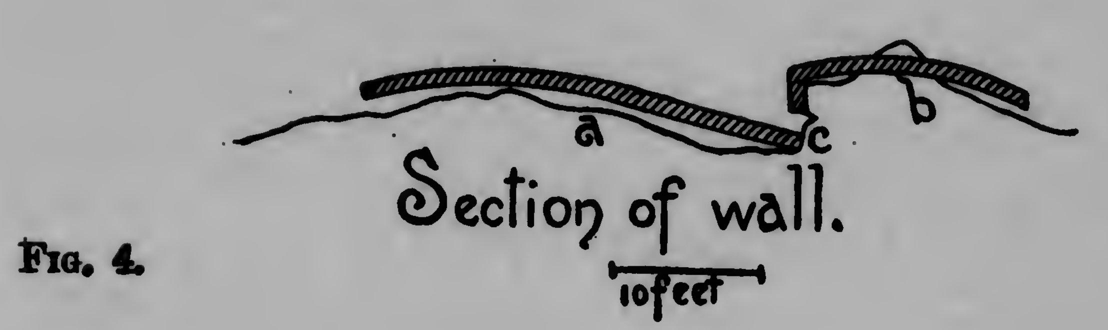


Fig. 4.

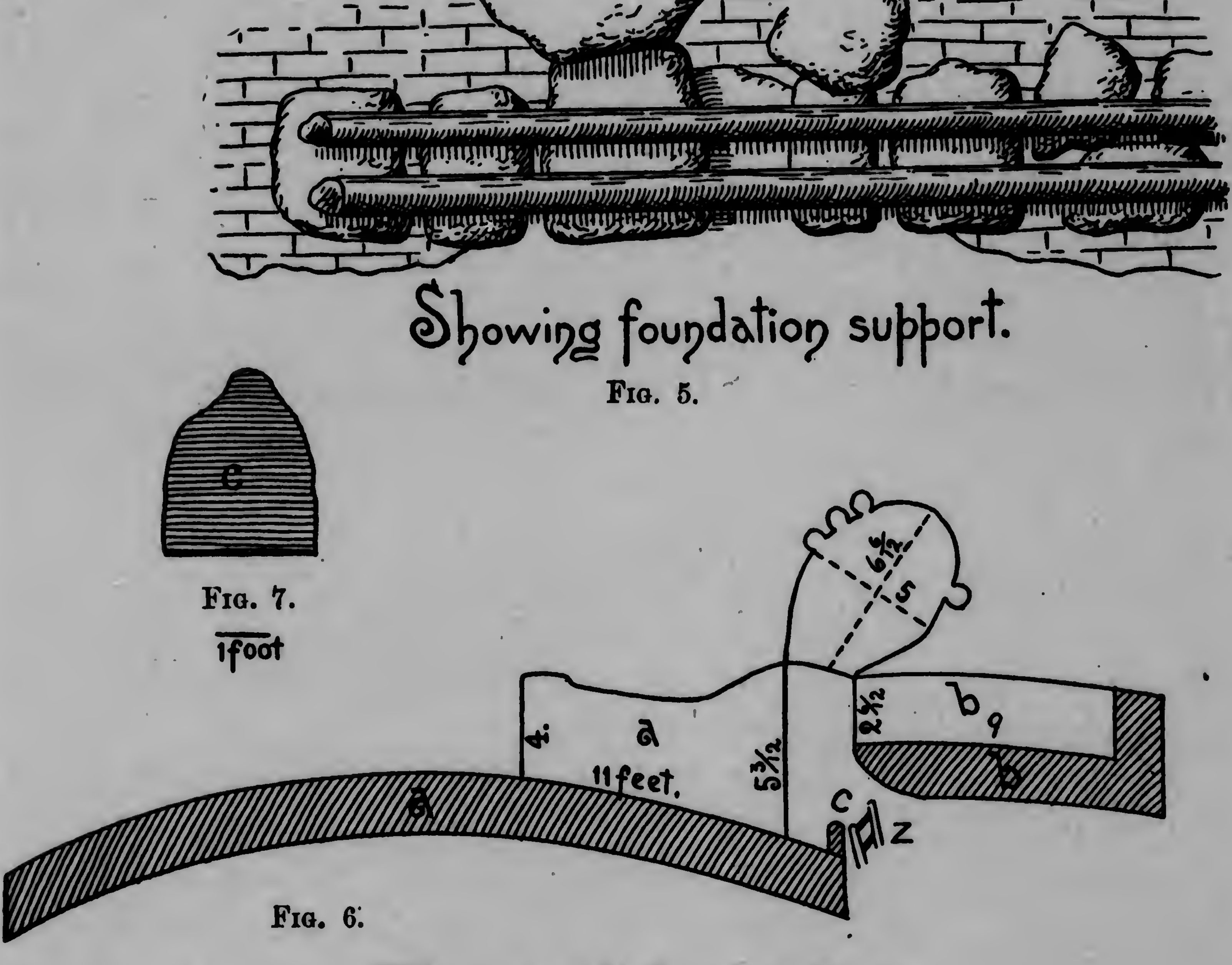


Fig. 5.

Fig. 7.

Fig. 6.

were evidently taken dry. They average about fifteen inches in circumference, and were set into the walls at the time the latter were built. They were burned off flush with the wall outside.

Some of them show hatchet-marks, where branches were lopped off. From this room the only means of exit, except the window by which it was entered, is a small hole in the ceiling, just within the entrance (Fig. 8, *x*), measuring thirteen by eighteen inches, and bordered by flat stones laid upon the reed layer of the roof. These stones are smoothly polished by the hands of the dwellers in passing back and forth, as this was apparently the only means of entering the seventeen apartments above it. The traveler in this region is quite certain of being entertained by exaggerated stories about gigantic human skeletons having been discovered in the ruined *casas grandes;* but if he be a good-sized man, and possessed of the usual amount of adipose tissue appertaining to the age of threescore years, he will become skeptical thereof when he comes to squeeze himself through the narrow portals of the ancient halls of Montezuma's Castle.

Except a store-room, another small room (Fig. 6, *b*), separate from the one just described, is all that remains on the first floor. It can only be entered through a small scuttle in the floor of the room over it (Fig. 8, *t*).

The first and second stories occupy an outer ledge, lower than the rest of the *casa*. The great outer wall of the upper stories (Fig. 8, *c*) is founded upon a ledge in the rear of the second floor, forming its back wall.

The second story is much more spacious than the first. The roof of the latter brings the building to the level of another ledge, which, extending laterally in each direction, serves as a floor for additional rooms. This story is composed of a tier of four rooms, bounded behind by the most massive wall of masonry in the whole *casa*, which, as previously stated, rests on a ledge even with the floor of the second story. This arrangement, besides giving more room to the stories above, secured the greatest amount of stability to this wall, which is the most important in the structure. It is twenty-eight feet in height, rising to the fifth story, around the front of which it forms a battlement four and a half feet high. It leans slightly toward the cliff, and is strongly curved inward, though not symmetrically. The chord of the arc described by the top of the wall measures forty-three feet, and the greatest distance from chord to circumference eight feet. As the wall is built against the cliff, there is no way of ascertaining its thickness at the bottom. It is fourteen inches wide on top.

The third floor (Fig. 9) comprises the most extensive tier of rooms in the structure, extending across the entire alcove in the cliff in which the *casa* is built.

The balcony above rooms C and D of the second story, as stated, had a battlement around it, which is still intact where supported by the wall of room G. A portion of the flooring has

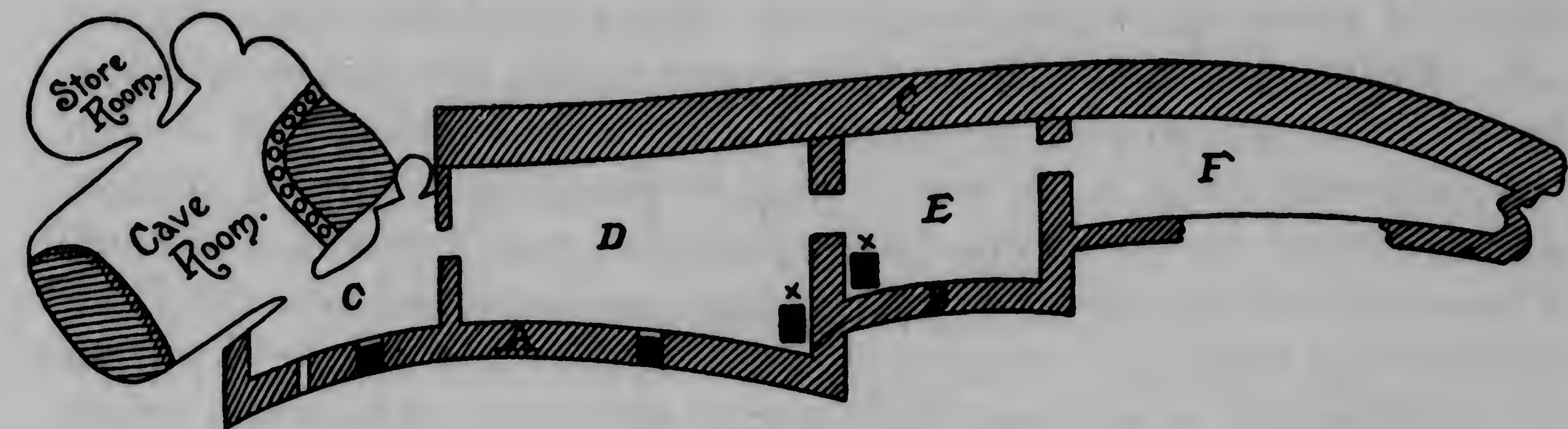


Fig. 8. Plan of 2nd Floor.

10 feet.

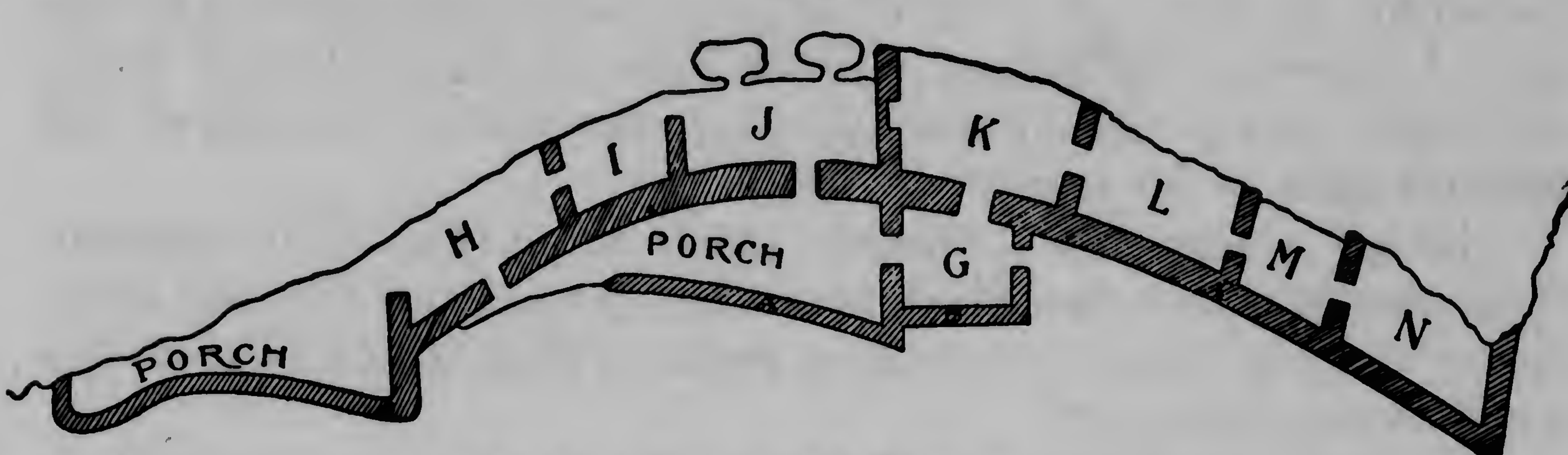


Fig. 9. Plan of 3rd Floor

10 feet

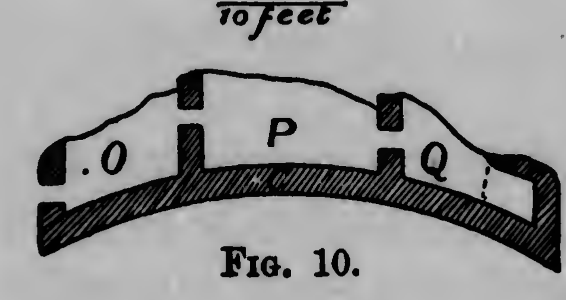
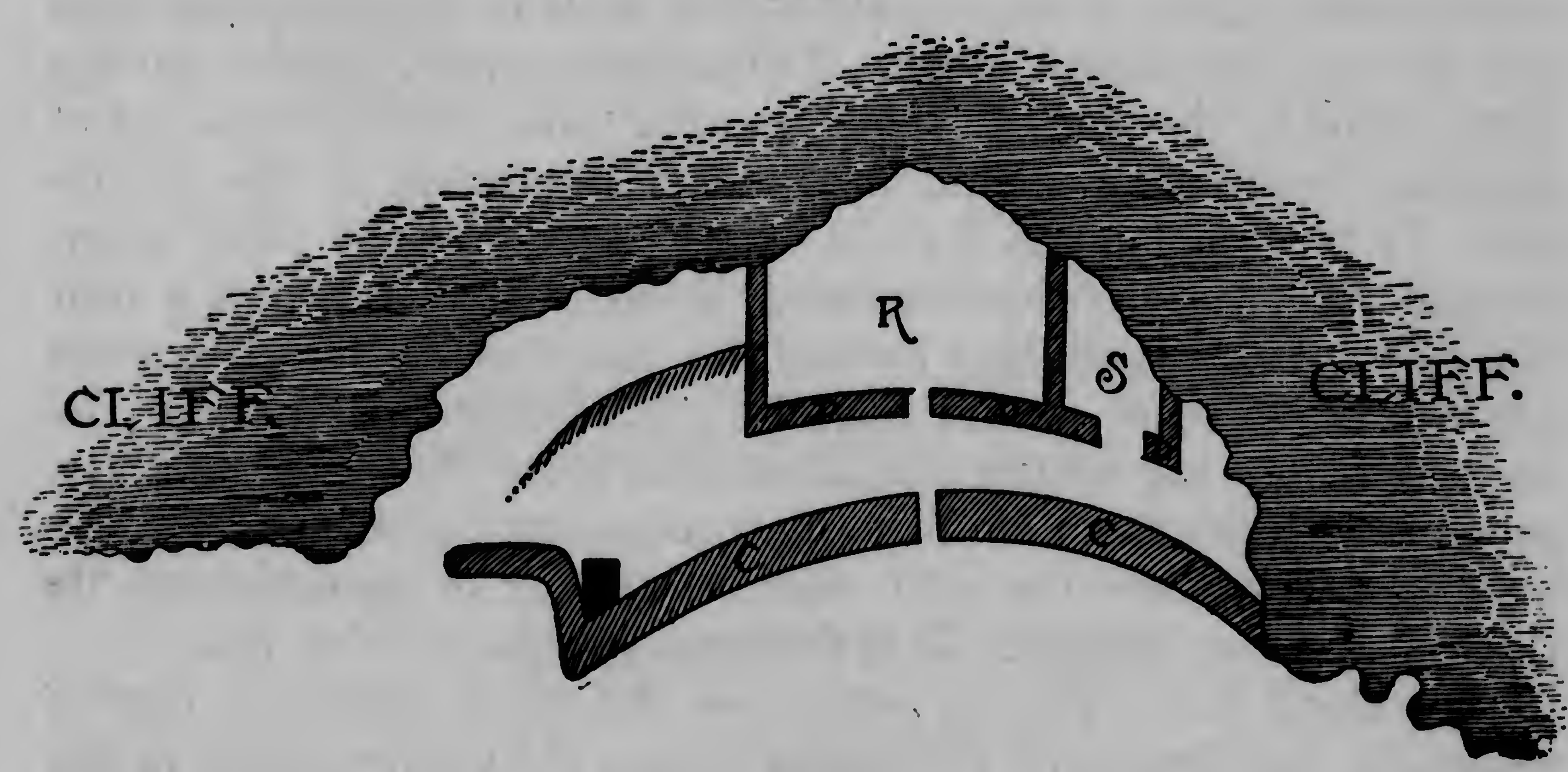


Fig. 10.

Plan of 4th Floor

10 feet



10 feet.

Fig. 11. Plan of 5th Floor.

broken down into room D of the second story. *Metates* and grinding-stones were of frequent use in its construction; this and other appearances lead us to the conclusion that this remarkable structure was not built at one time, but grew up gradually from successive building. The caves in the cliff were probably first inhabited and the *casas* subsequently erected.

When taking the dimensions of room G on this floor a singular incident occurred. Mr. Daniels, my assistant, discovered a stone axe lying between the two timbers which formed the lintel of the window, the latter having been splintered by a bullet, which also struck the axe and loosened it in its position. Thus a careless shot, aimed at the building by some passing hunter, put us in possession of an interesting relic.

The apartments of the fourth floor (Fig. 10) are rather neater in construction than the rooms below, but they are otherwise so nearly alike that a detailed description would involve a needless and tiresome repetition of details. The door-ways are neatly executed, each having four good-sized lintel-pieces.

The fifth story can only be reached by climbing up through a small hole in the ceiling of room O, similar to that in room A of the first floor. This, the uppermost story (Fig. 11), consists of a long porch or gallery, having a battlement in front and an elevated backward extension on the right, with two rooms (R and S) filling the corresponding space on the left. The two rooms on this floor are roofed by the rocky arch of the cliff, and are loftier than the lower chambers.

It is said that only a few axes, *metates*, and other stone implements, with broken vessels of pottery, were found in this building when first explored by the whites. Upon my first visit, in 1884, it was evident that nothing more than a superficial examination had ever been made. In 1886 I caused the *débris* on the floors to be shoveled over. This material consisted of a quantity of dust and broken fragments of pottery and stone implements, together with an enormous accumulation of guano from bats that inhabited the building. This accumulation, in the largest room of the top floor, was four feet in depth. As no one had ever disturbed it, the floor was found in exactly the same condition in which it was left by the latest occupants. In front of the entrance the remains of a fire was found, and a goodly bundle of fagots lay against the wall at a convenient distance. An earthen vessel contained food, and a small basket of mesquite-seeds stood hard by. On further search, a large spoon of sycamore wood and some gourd cups were found. A large *metate* and grinder, weighing upward of a hundred pounds, proved to be a troublesome acquisition to our collection; but the labor expended in getting it safely down to the ground served to increase our respect

for those who carried it up. Shells and shell ornaments were secured, as well as paints of various colors. Some oven-shaped cupboards were built along the wall, containing remains of mescal, Spanish bayonet, nuts of the piñon-pine, and other food substances; and corn-cobs were found in abundance.

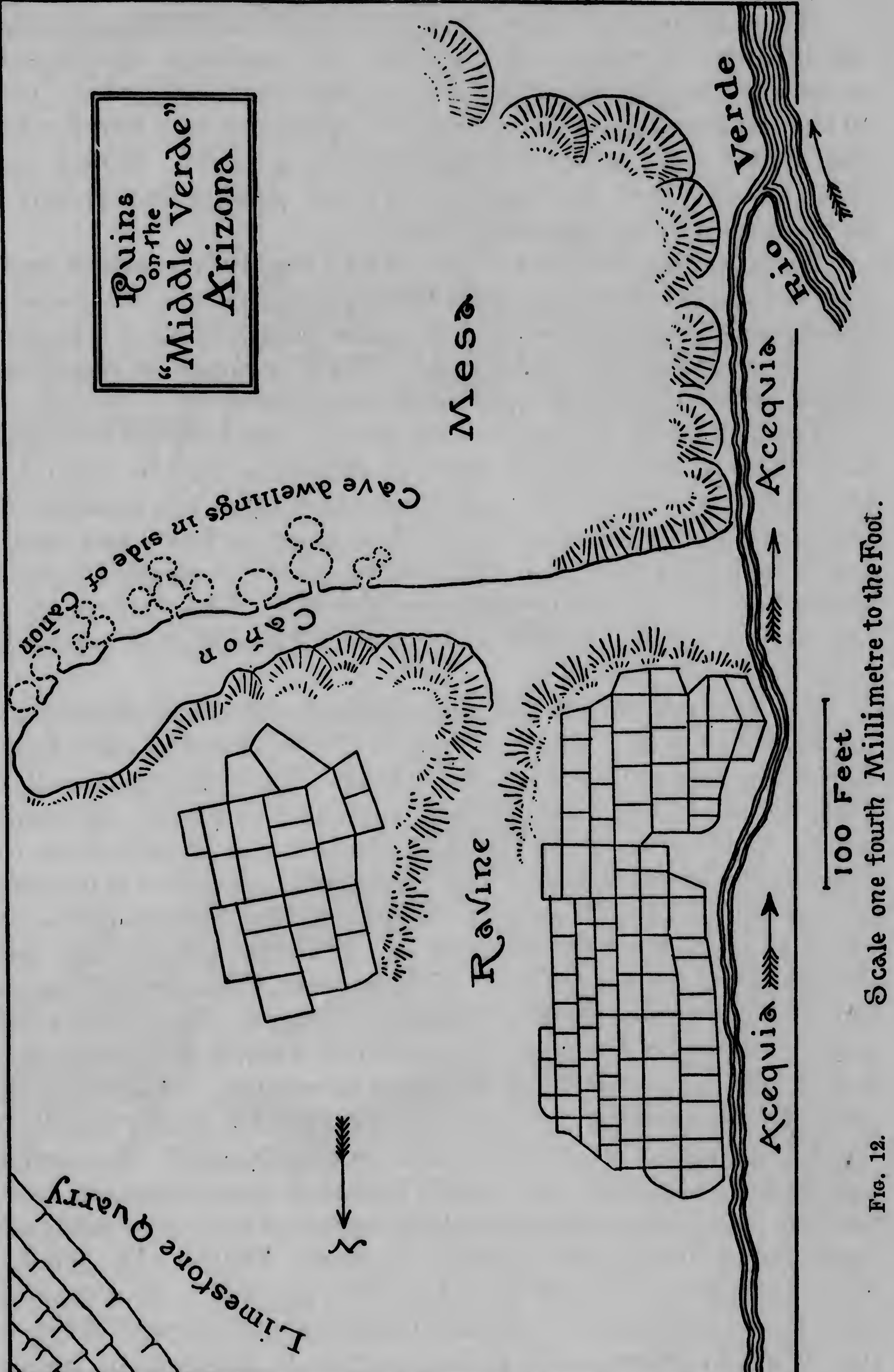


Fig. 12. Scale one fourth Millimetre to the Foot.

In other parts of the building several bone implements, including a corn-shucker and a handsomely wrought marlin-spike, fashioned from the leg-bone of deer, were obtained. Scalps or head-dresses were also unearthed. Indeed, the materials here found formed quite an extensive collection, including numerous food articles, bones of various animals, pieces of cloth, matting and basket-work, ropes and cords of cotton and yucca, sticks for fire-making, knitting or weaving, and many other uses.

None of the ancient buildings of this region exceed this one in picturesque grandeur, although many are more extensive. Its very location excites admiration and inspires respect for those who built it, whatever may have been the motive which prompted to the selection of such a site; nor is it lacking in architectural beauty. Its existence proves its great strength.

Of the ruined pueblos, an extensive group of buildings on the left bank of the Verde River, six miles northwest of Fort Verde, Arizona, may be fairly considered a representative example. This pueblo consisted of two terraced buildings surmounting a limestone cliff. The larger one, in which I have made some exploration, faces the Verde, the other fronting on a side cañon to the south; the walls of the latter, as well as the face of the cliff, contain numerous cave-dwellings, in which sundry articles of pottery and basket-work, as well as stone tools, were exhumed. The accompanying plan (Fig. 12) exhibits the relations of these structures. This ruin, which does not differ materially from many others in the Verde region, is quite similar to the inhabited villages of the Moquis of Eastern Arizona and the modern pueblos of New Mexico. As it was conveniently accessible from the fort, I made it the subject of some research, and caused considerable excavations to be made in parts of the larger building, and also in the caves of the adjacent cañon.

The larger edifice had been three stories in height in front, where it rested upon the level rock, thence terraced down the slope of a ravine behind it, the lower tiers of rooms having apparently been but a single story in height. Previous to my first visit the front of the building had been thrown down over the cliff by the white settlers to supply material for repairing an old *acequia*, which has since served the whites, as it did the cliff-dwellers of old, with water for irrigating purposes. Several of the ranchmen in the vicinity called my attention to articles made of pottery, and a varied assortment of interesting relics, which they had secured when tearing down the ruin, in which they claimed to have discovered dozens of human skeletons, one of gigantic stature (the usual story), and a quantity of burial urns and other vessels of pottery and stone. These accounts were in some measure substantiated by the abundance of broken pottery,

rough mortars, *metates*, and stone implements to be seen in the walls of the new *acequia*. The writer, whose appetite for discovery had been whetted by his surprising success when excavating in the high tier of cave-dwellings in the frowning cliffs of Clear Creek, eleven miles to the southeast, immediately commenced an examination of this majestic pile of ruined walls, forming a mound two hundred and eighty feet in length by one hundred feet in width, having an average depth of seven or eight feet. The walls are now standing to that height, the lower rooms being filled with the *débris* of the fallen upper stories. The building had been destroyed by fire, three layers of charcoal in the rub-

Fig. 13.—Metate and Grinding-Stone from Casa Grande of the Middle Verde, five miles north of Fort Verde.

bish corresponding to the roof and ceilings, which were evidently constructed of wood, reeds, and grass. Nearly all the inflammable materials had been destroyed, while many bone implements, and even some of stone, had been cracked and charred by the fire; and the greater part of the pottery, of which a large quantity was unearthed, had been broken by the fallen walls.

The labor of removing the *débris* from the rooms proved rather slow and difficult. As most of the pottery and implements

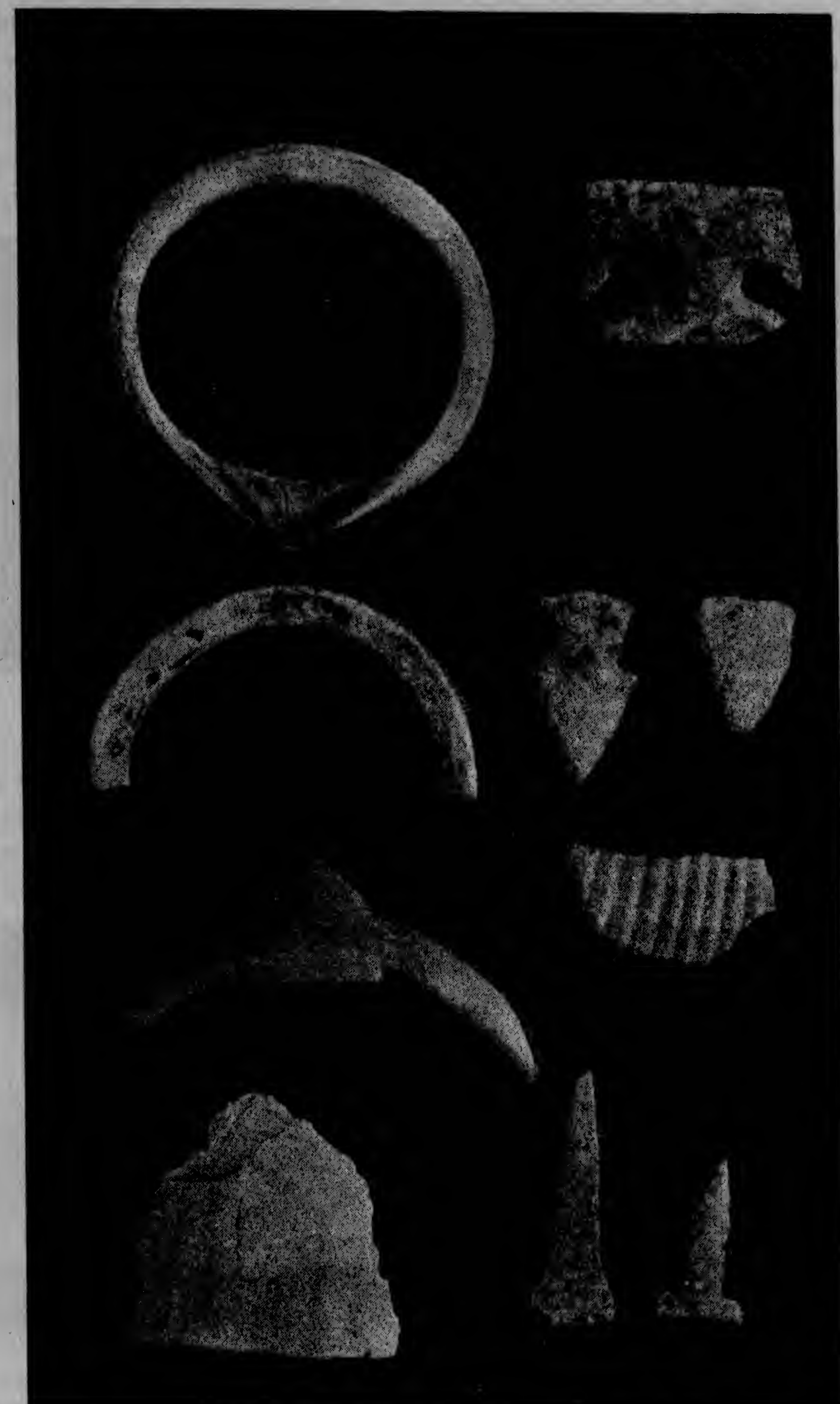


Fig. 14.—Shell Ornaments, Arrow-Points, and Stone from a War-Club, from various parts of the Verde Valley.

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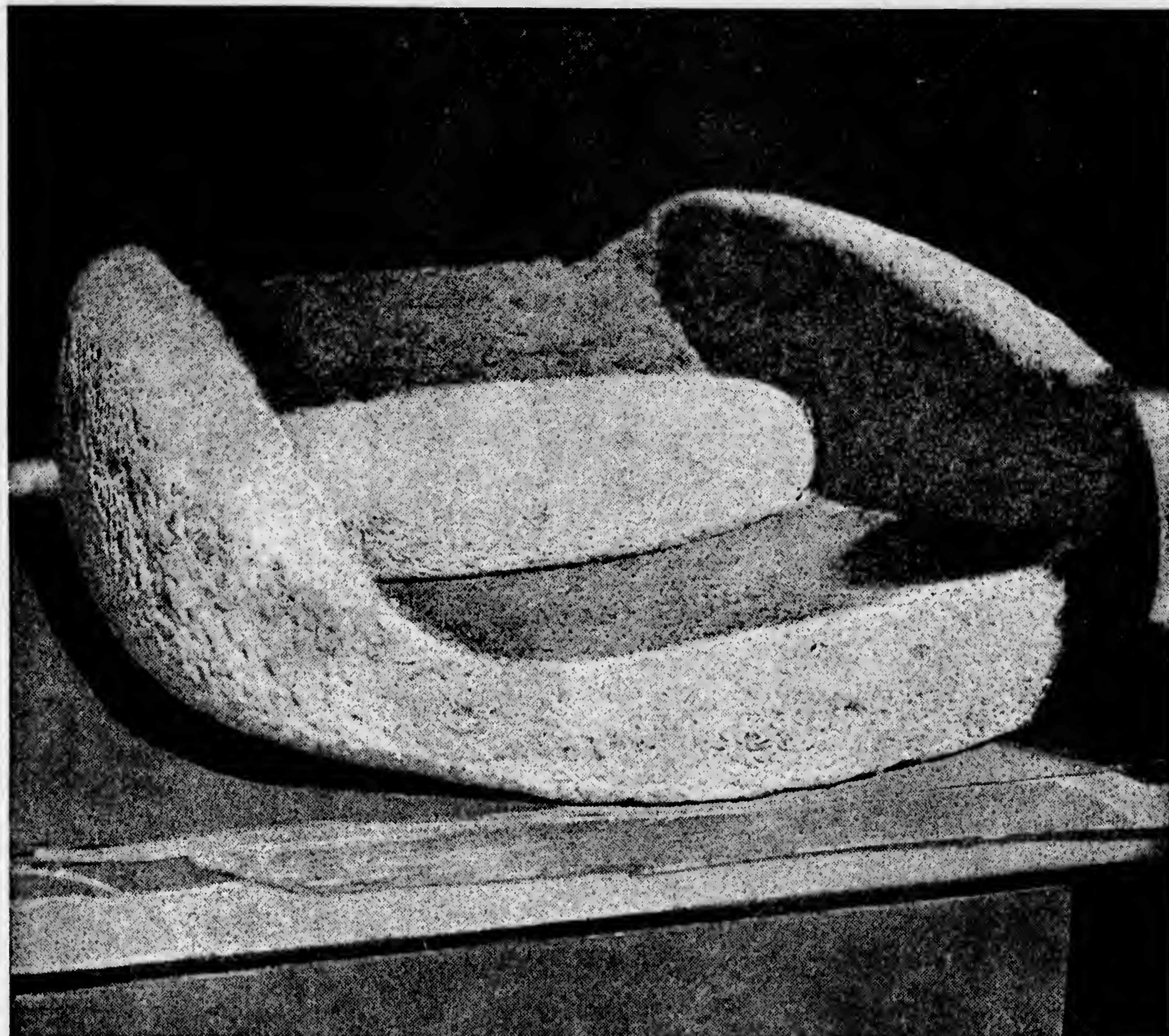

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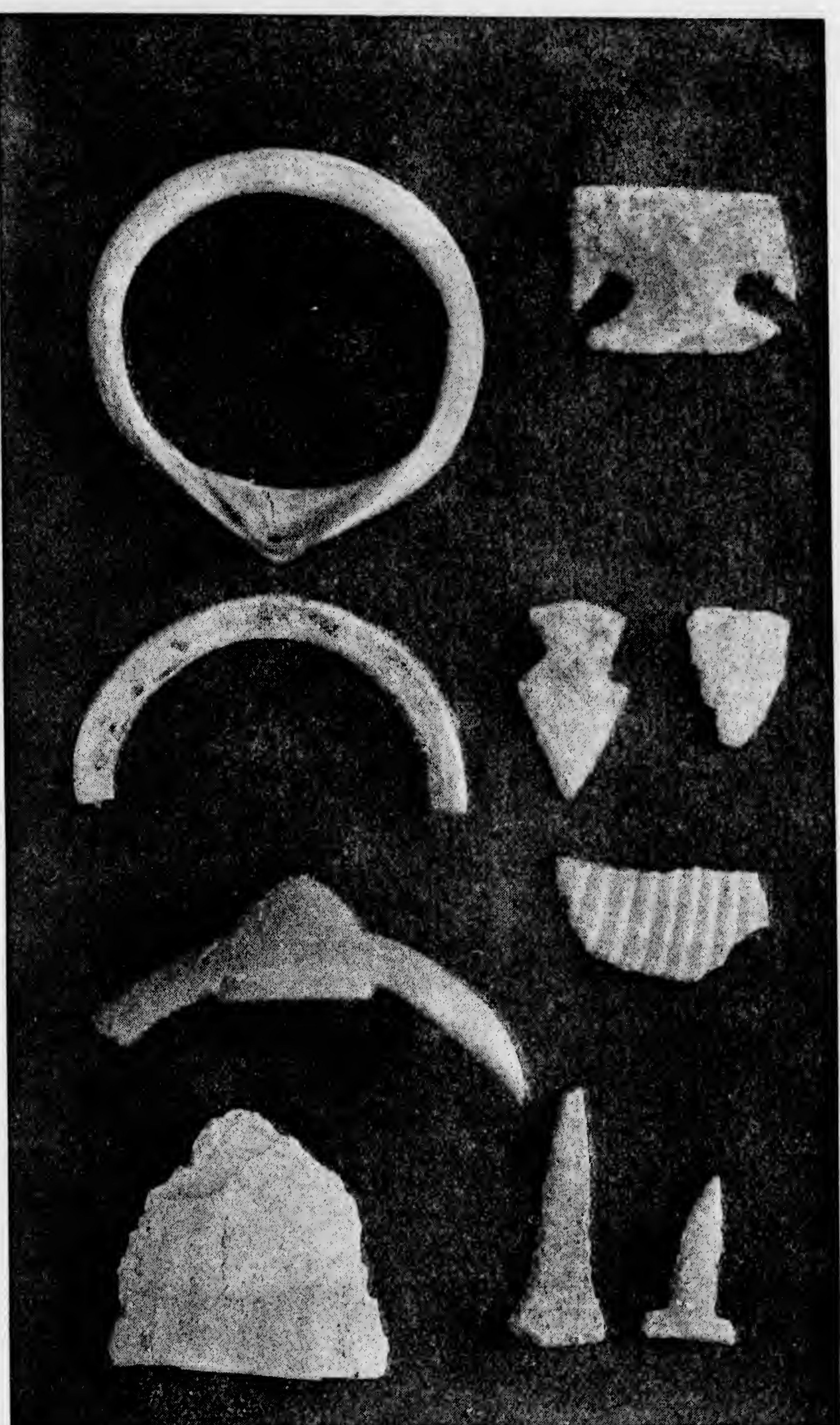

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Retake of Preceding Frame

and a half feet in thickness, sometimes plastered on the inside. The upper walls were doubtless of adobe, as the ruined pile contains a large quantity of that material. There is a natural stone-quarry in the rear of the buildings.

The rooms were spacious and the floors smoothly plastered. Beneath them were found vaults, plastered within, containing

Fig. 15.—Ladle from Ruins near the Verde River.

human skeletons. In one room, ranged along two sides, close to the substantial partition walls, were tombs devoted exclusively to the sepulture of infants and children. The vaults were covered with large, flat stones, some of which were painted red. In one of them an *olla* was found, with the skeleton of an infant. The

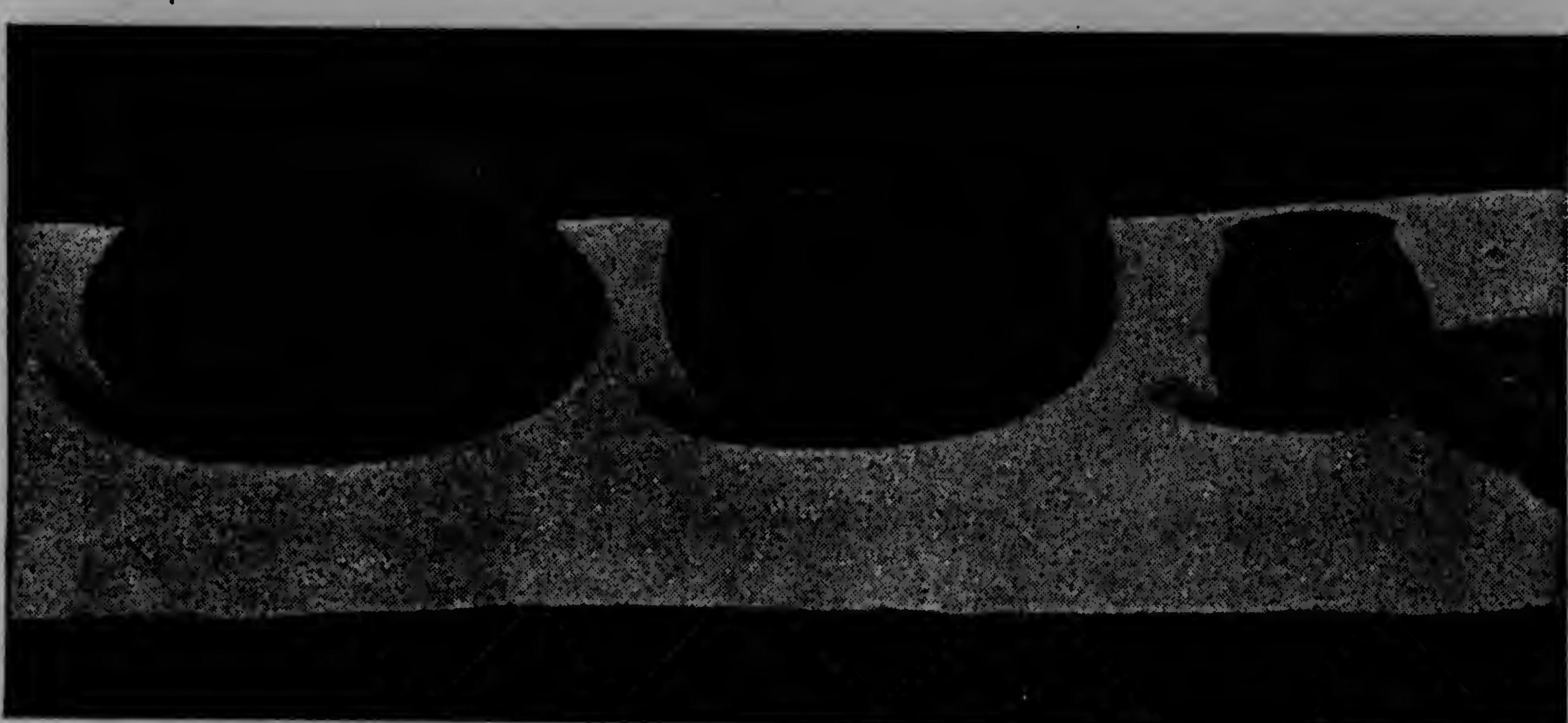

Fig. 16.—Ancient Pottery from the Verde Valley.

bodies apparently had not been incased in burial clothes, as was the case with those found in the burial caves of Clear Creek, as well as some of the adult skeletons exhumed from other parts of this building.

This *casa* proved quite productive in mineral and bone material, but most of the more perishable articles had been destroyed.

Of stone implements, the *metates*, used for grinding maize, form an exceedingly interesting set of specimens, exhibiting considerable variation in size and form. The greater number were of the hard, porous, gray scoria known as *malpais*, a material well adapted for grinding. Others were hewn out of sandstone, varying in color from red to creamy white. The manner in which they are fashioned with no better tool than another stone speaks in eloquent praise of the skill and indefatigable patience of these aboriginal workmen. A series of these primitive stone mills may be seen in the writer's collection at the American Museum. Grooved stone axes and hatchets were numerous, and likewise exhibit an unusually wide range of variation in size, shape, material, and workmanship. Several of them are, in form and finish, scarcely inferior to the modern articles. Some of the picks and hammers were also models of the handicraft of the stone age. Not the least interesting were stone wedges (doubtless intended for splitting timbers) and agricultural tools. There was also a large assortment of stone knives, resembling in shape the chopping-knife of modern housewives. Heavy malls, pipes of lava, whetstones, polishing-stones, and other implements whose use is not apparent, were obtained, besides mortars and pestles, stone vessels, and plates or platters of volcanic rock. Besides such articles of domestic use, there were the implements of warfare and the chase, including rounded stone hammers, mostly of sandstone and scoria, grooved for attachment to a handle by means of a hide thong; also grooved stones used in arrow-making, spear-heads and arrow-points of obsidian or agate, and flints from the war-club (*maquahuitl*).

Pigments—red, blue, gray, and black—were found; also a heavy, black powder, and the usual chipped pieces of obsidian (volcanic glass) and agate, together with ornamental pebbles, etc. Nor were ornaments lacking, such as amulets of shells and rings of bone and shell. Several heavy pieces of obsidian, which were probably transported from New Mexico, were doubtless kept in stock for the manufacture of knives and weapons. A heavy block of red catlinite, or "pipe-stone," of which small fetiches found in several localities were made, extends the commerce of this people to the region of the Upper Missouri, where the only known quarries of this material exist; and sea-shells, doubtless from the Pacific, are of equal interest, as showing the extent of traffic to the westward.

In several rooms large earthenware vessels were uncovered, which, although broken, were still held in position by the pressure of their contents and the earth surrounding them; fine rootlets also penetrated the cracks and formed a meshwork serving to hold them together. The largest were of coarse material and

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Retake of Preceding Frame

had a capacity of about thirty gallons. Some of the smaller pieces were unbroken, and, although unglazed, were smoothly finished and decorated in colored patterns with rare taste. There were ladles or dippers, shallow saucers, graceful *ollas*, and vases displaying much artistic feeling in their conception and execution. One room appeared to have served as a store-room for earthenware utensils, some of which were found in nests, contained one within another, the smaller specimen measuring but one and one fourth inches in diameter. A few perforated discs of pottery, resembling wooden ones from cliff and cave dwellings, were noted.

Numerous tools of bone, chiefly such as were employed in the manufacture of ropes, neatly carved from the bones of deer or antelope, were among the relics found. Various food substances were examined, including bones, teeth, or horns (usually charred by fire) of elk, mule-deer, antelope, beaver, spermophile, pouched gopher, wood-rat, muskrat, mice, cotton-tail and jack-rabbit, turkey, serpent, turtle, and fish. A sandal of yucca, differing in design from that taken from the wall of Montezuma's Castle, and several pieces of human scalps, complete the list of relics from this *casa*.

There are many ruins of the class just described in the Verde region, as indicated on the accompanying map. Among them are several conspicuously perched on the summits of high, isolated, flat-topped buttes on the Rio Verde and on Oak, Beaver, and other tributary creeks; others are built on the precipitous edges of table-lands bordering cañons in which streams flow; while some occupy lower positions in the valleys. It would appear, from the location of some of these *casas grandes*, that the water supply has diminished or otherwise greatly altered since they were occupied, as there is now no water to be found within several miles of them. Cisterns were doubtless utilized, but must have proved inadequate to supply the needs of so large a population.

These pueblos frequently inclosed an open square or court. There is such a one on Oak Creek, built on a bluff butte, level on the top, which is one hundred and twenty-five feet above the surrounding *mesa*. The building is subrectangular in shape, conforming to that of the summit of the butte, the sides of which are precipitous. Other villages, perhaps less prosperous on account of their inferior advantages for agriculture, are to be seen in many localities, which were evidently but one story high. Such is the case with a pueblo built on the point of a *mesa* east of the Lower Verde settlement.

Furnaces, probably used for firing pottery, were discovered in some of these ruins. There is a very perfectly preserved one in a ruin on the right bank of Oak Creek, close to its junction with the Verde River, having walls standing to the height of fifteen to twenty feet.

Large pits are often seen in the vicinity of *casas*, whence the material used in making mortar was taken. The mortar used is of excellent quality, resembling fire-brick.

In concluding this brief sketch of the ancient remains of the Verde Valley, I would remark that they still present the most inviting field for the researches of the student of American anthropology and the included sciences of archæology and ethnology. From a merely superficial examination of their works much information has been derived concerning these remarkable cultures of our southwestern territory. In order that our knowledge of them may become as comprehensive as the material procurable for study will permit, it is desirable that a systematic exploration of these ruins be undertaken at once, either through private enterprise or by some one of the educational institutions of our country, before the treasures contained in them become scattered through the curiosity of unscientific relic-seekers. The writer's experience proves that an enormous mass of information and a large collection of valuable specimens would result from such an examination. Once possessed of these collected facts, it remains but to construct them by synthesis into a positive knowledge of much that relates to these people, than whom none are more interesting to the American anthropologist.

California Indians

Folder 1

C. Hart Merriam
Papers
BANC MSS
80/18 c

Addresses

Johnny Gibbs Ahwahnee PO
Photos to send

~~4 each of the good ones~~

Frank Curry, Geysers, Sonoma Co.
carpet (alive or dead) Urocyon, wild
cats (2 sp.), Bassariscus, Fisher (!!?),
Sciurus fossor &c

John Wiggins, Tehachapi
(Driver & liveryman.)
Knows much about Tehachapi Indians

Old man Jerry Morgan at Clayton may know
about Karquines & Diablo Indians.

J. L. Dinwiddie of Petaluma (Ex sheriff)
knows about Sonoma Indians & if
one still lives on Sonoma Mt.

Miranda family at Petaluma may
know much of interest — old
Spanish family.

~~Umbellularia~~ ~~Nos.~~
~~[illegible]~~ ~~Chalk Mt~~

~~Herney. Middletown P.O.~~
~~Photos of Hoo-Doe outfit~~
~~4 Each of the good ones~~

Frank Curry, Geysers, Sonoma Co.
Panther (alive or dead), Bassariscus (?), Wild cats (2 sp.), Bassariscus, Fisher (!!?), Sciurus fossor &c

---

John Wiggins, Tehachapi
(Driver & lineman.)
Knows much about Tehachapi Indians

Old man Jerry Morgan at Clayton may know about Karquinas & Diablo Indians.

J. L. Dinwiddie of Petaluma (Ex-sheriff) knows about Sonoma Indians & if one still lives on Sonoma Mt.

Miranda family at Petaluma may know much of interest — old Spanish family.

Old Indian Antonia
at San Rafael, or Nicasio, or Olema.

Old man Marsalina at Pleasanton
is a San Rafael Indian (Don't know anything)

Miss Franklin Kidder 2750-21st S.F.

Watsonville – Mootsoon
Josepha (old full blood woman)
S side Lake Ave. 1¼ mile from Watsonville
& just beyond water tank.

Mrs Mary Santos, Jenner Sonoma Co.

Better look over 'Sixty Years in California'
by Wm Heath Davis, 1889.

Paul De T. 560 - 9 St. Oakland
Tel. Oakland 7715.

Judge Ralph C. Harrison
~~2067 [illegible] St.~~ Cor Laguna & Vallejo

F.J. Hunt 3258 Briggs Ave. Alameda
Tel. Alameda 599 (thru) Mrs. Hancock

W. B. Whitaker, Lime (F.M.C.)

Santa Barbara:
Rooms Hotel Neal (1.50 with bath) } F.M.C.
meals Hotel Raffour

Lower Klamath Lake:
Ray Talford, Klamath Falls. (F.M.C.)
Has gasoline launch & chgs $4.00 per day + oil.
for launch & personal services (good man)

Canal from Klamath to Tule Lake

E. Pollard Indian hunter at Canelo.

Mrs Kent, Kentfield (+ Parsons)
San Rafael, Main 165.

Chittenden.
Ascension Cervantes Hoomantimeh.

Philip - works for Ed. Steger 5 miles North of Lanona. Talks Poo'-e-win

---

Sears (formerly of El Verano near Lanona). works for Newcomb 3 miles SW of Sebastopol. Is a great liar. Speaks Too-loos'-too-e + some Poo'-e-win.

Jim works for O'Brien about a mile west of Verano.
Talks Too-loos'-too-e + some Poo-e-win.

Juana at Tomales died June 1906.

Fresno. Mrs. Bool (or Bale) of Fresno has feather dress from Sanger

---

Archie Leonard (Ranger) Wawona knows Chowchilla Mewumah

Santa Barbara:
Mrs Ruiz on Rose St close to Healy Ave knew old Cecilia. McL.

Newhall:
Old Camulue woman near Schoolhouse.
Man at Piru her son (on De Lia property).

Watsonville:
Vallesca (old ♀)
Josepha (old ♀)

Grant White, Lilloet, B.C. (Dr Foster)
Chilkooten baskets

Mr P Barr, Stockton –
Large local archeological coll.

Dr. Charley Jackson (Me-wuk Indian Dr.)
at Jackson, Amador Co. Has root
med. for cuts. (He drinks)

Olive Fisher (wife of Geo. Fisher) & baby
West Point, Calaveras Co.

Mokoz-umne tribe | Poo-soo-ne (~~Blind~~ Tom)
Sacramento "Che-boom" St. (Jib-boom St.)
above Flour mill. Emma, mother Mokoz-umne ♀

Pleasanton: Miley McGill talks Poo-e-win (clam) ~~Tel-loo-mah~~
(tribe between Concord & Pacheco)
Tony P– (wife from Mendocino Co.) Usually works at Sonoma.

Rafhaela – old woman Sunol – Alameda Canyon – 5 miles up

~~SUTTER TO JACKSON VALLEY~~

~~BUENA VISTA~~ ~~CASUS~~

September 30,1905.--In early evening had my driver leave me at the Indian home of old 'Casus Oliver' at the foot of Buena Vista Peak on the south side of Jackson Valley, with instructions to call for me early Monday morning to take me to the morning train at Ione.

Old 'Casus' is one of the few living Mokalumme Indians. His wife is a good type of Nesenon, originally from Gold Hill on American River--only a few miles north of Placerville. The old home of Casus was the old Mokalumme Rancheria on the bottomland on south side of Mokalumme River about 1 1/4 mile west of the present town of Lockeford.

The wife formerly lived with a white man named Jameson, by whom she had six children. She has also had 6 by Casus, making 12 in all. Her youngest, a girl of 9, died a few weeks ago and the poor mother's heart is broken. She has "thrown away"(doubtless burned) a lot of Indian beads and other articles, and has the little girl's doll sitting up on a box where it harrows her feelings constantly.

Sunday October 1. Spent the entire day and night at the Indian Camp talking with old 'Casus'and his wife. Got a good vocabulary

from the old man and a fine list of names of animals and plants--in the Mokalumne language.

In evening got him to tell me the story of the origin of the Indians in this country. By a very dim firelight and by writing as fast as I possibly could I got the whole thing down, and find it fills 21 pages. It is a good story and a new one to me. We were both mighty tired when he got through.

3 He has one of the old type of earth covered partly sunken-in the ground ceremonial houses close to his house. He gave me the name of the different parts today and told me about some of the exercises. But the day and evening were both too short. I'd like to spend a week with them. He gave me also the names of some of the stars and constellations.

His real name is Lan-na-wis'-tah. His wife's name is Ho-wuk-me in Nesenon. Her English name is Amanda. ~~She is an excellent cook and I am faring well.~~

October 2. Before leaving Casus and his ~~good~~ wife I gave them some presents. ~~plenty of tobacco for the old man and older boys, and beads~~

October 2,1905

for the old woman(good kinds), and some old clothes for the boys. She gave me a good breakfast with good coffee and as good yeast bread as a baker can make. There is always a stew at each meal, and always fresh string beans.

As usual at old Indian Rancherias, a good deal of wild tobacco grows about the place (Nicotiana attenuata).

Why the Dove mourns

As told me by the Nek-kan-ni' Indians of Cape Mendocino:

The Dove (Et-choo'-ah-se) is fond of te'-mah the red berries of the coast Elder (Sambucus callicarpa).

A long time ago the Dove's grandmother ate too many of these berries and died. That made the Dove feel very badly and she still cries every day for her grandmother.

Nererner (S. Coast Yurok) (1)

Ner-er-ner

The Young Fellow (Chē-nes") whose name is unknown lived at Big Lagoon & had 2 dogs, ♂ & ♀. The whole world was water — nothing but water. He went hunting on Rogers Peak & killed 6 Deer & 1 Elk. (The place [rancheria?] at Big Lagoon is called Bē-pă'). The world was dark & foggy. By & by suddenly cleared up & he saw the ocean all round. The ocean was hot. It swelled up & came in [surf?] & swelled higher & higher. There was no grass or anything — only water. Dogs moved round & round him. He said he better climb up. He climbed up Rogers Peak & climbed tree on top. Water came & swirled around. The male dog was drowned but Young Fellow took the she dog in his lap & climbed higher in the tree with her — climbed up to top of tree & held her in his lap. About midnight he felt the water sweep the tree. Then he cried, but still held the dog. Then the water went down. Then he [copulated] mated with the she dog & she had a litter of 5 pups. They had no hair but still looked something like dogs. All 5 were drowned. Then he mated with her again & she had a second litter. There were 2, like people, a boy & a girl. These he saved. Then Young Fellow killed their mother, the she dog.

The boy & girl (born of the she dog) went together & had children — lots of children, & all over & were the people. This was the beginning of Indian people.

When Young Fellow was in the tree he had nothing to eat but had 30 sacks of tobacco. He smoked all of that tobacco while still in the tree. He made fire to light his pipe by rubbing dry leaves from a plant that grows on Bald Hills.

Ner'-er'-ner

Coyote was mischief maker + never did anything toward making the world or people.

Sā-gup the Coyote came from way off in the north to come Island to speak to Young Fellow. Coyote ~~took~~ his Elk horn ~~box~~ + took out something. He said to Young Fellow: "Here is money. Did you ever see this kind? Everybody going to have money."

Young Fellow replied, "No, this is not money, only little bones. I'll show you real money. He went into his house + got his box of real shell money [Dentalium] + showed it to Coyote, + said he got it ten miles up the coast. He said to Coyote: "If you can run ten miles to the beach I will show you, but first you must run 4 miles + back so I can see how fast you can run."

Coyote spat on hot ashes + ran 4 miles + back so quickly the spit on the hot ashes was still wet. So Young Fellow said he could go.

Next morning Young Fellow took Coyote + went north for the ancient money. He ~~told~~ Coyote the money was in small baskets - every basket full - but that they must take only one piece from each basket. But Coyote took the first basket he came to + took it all + ran away. But Coyote didn't get half way [back?]. Everybody went to sleep.

They went in sweat house.

Young Fellow took Coyote down the beach at low tide + swung his arms + bent down + ~~jumped~~ plunged down [apparently sank into the sand + came up far away in the forest]. - - - -

Nor-er-ner.

Young Fellow "went after" his own sister - didn't want to marry. She wanted to go away. He told her she could go for a few days. She went a long way & stayed a very long time. After a while she came back & he saw her coming in the forest. He was angry, she had stayed so long. He said he was going to the lagoon. She said she was going too, & followed. But he walked fast & she was far behind. He kept going & she kept following, but was always far behind.

Dance called Tau'-te [All given me by Wiley at Kah'chil July 1930

[Crown cap of fine white down of white goose on a head-cap net.

Rump piece of Eagle, Hawk, Turkey Buzzard or Heron wings

{Cho'-le / Chaw'-le} Rump piece

Taw-e'-te Headpiece, occiput, magpie tails rosette behind

Flicker band Terr'-pah

Dance last Sunday at Cortina

Steve Lewis " " (good dancer)

Elderberry tree Naht'; berries Yow.

Over

Send photos to
Wiley Box 275 Colusa (Koroo)
Wahl-lak-lah-ki Butterfly

Distinctive words:

To like: Soo-kah in Koroo
" " O'-yā-ah " Patwin (Grimes)

Smoke: Mah'-kah in Koroo
" Mō'-ko in Patwin (Grimes)

Linnet: Nik'-ke in Ko'roo
" Kok'-ko-doi in Patwin (Grimes)

Name of coyote — Sed'-deū
Nickname " To'-chi

The Big Head Dance is Hes'-se in both Ko'roo & Patwin — not called Kuksiyu by any of Eastern tribes

[illegible]

Is tribe next N. of Princeton same as at Jacinto + mouth Stony Cr.?

Other names for Nomlite kéwil?

Is " same as Mem-pōmi-mays?

Meanings of latter names.

Does Sonān-muk reach to Orland? Yes — line E of Orland.

Inquire at Kah'chil, Sites, + Paskenta.

Name of tribe East of Orland? — —
(Cortena prob. too far away)

Ask at Kah'chil if anyone still alive from River north of Princeton

" same at Cortena + Paskenta

Also, try Cottonwood + Redding + Ono for anyone knowing River tribes.

And find line between Ono Wintu and N. Wintoon proper.

Over

Over

~~Sacramento Val.~~

Mitchopdo in #1 extends farther N & S than on #2

Ko-mel'-te-kö'-wes #1 extends " E " #2
& less far so, - not so far w

Ko'-roo - #1 farther E than in II

Patwin #1 " E " "

To be mapped

Pooewin N & E + N W boundary dif. in 1 & 2

Nissim pawenan NW " not same 1 & 2

1 — 3

~~Tehama - SW Corner~~ 2

~~Ka'-pa-Khtum~~ - central & so. 1 ? wh correct

Hawk - Nissenan boundary - not distinct in #3

Nissenan - Mewan boundary in #1 & + #3

~~upper~~ ~~$ 1.00~~

lemiting car 1.50; Extra oil .25;
ls gas 2.20 3.95

ff, toll (self & car).35; meals 2.00 2.35

Hotel Land, room 2.50

1.00

.50; 7 gals gas 1.54 2.04

Stanfield Hill 3.00; meals 3.00 6.00

Bo'-yah geographic names (C9)

✓ Navarro Rio — No-bah'-dah
✓ Greenwood cr — Di'-dool (dal)
✓ Elk cr — Yah'-ko-dah
✓ Stewart cr — Shah'-dah (former ranch)
✓ {Mill / Mill} Pass cr — Dok'-mah-le (Gulch or miller)
✓ Irish Gulch — Chat'-hahm
✓ Alder cr — Silch-mah'-dah
✓ Brush cr — She-o'-pah-dah
✓ Garcia River — Pd-Dah'-how
Pt Arena cr. —
✓ Schooner Gulch — Bo'-yo
✓ Gualala River — Wah-lah'-le pd'dah

Our country to divide so of NFK Gualala

Bo'-yah Geog. names (C9)

✓ Cuffey's Cove — Kup'-pish-ko
✓ Greenwood — Di'-dül (dool)
✓ Miller's — Do'-bah-te
New Haven — family [illegible] had tree
Manchester —
✓ Pt. arena (the Pt) — Mah'-tah-lah-kōl
= Rollerville (Flumeville of map) —
✓ arena cove — Kah-bim'-mo
✓ Point arena (village) — Shah'-dah-how
✓ Iverson — Kahtch-pe'-kl.
✓ Signal Port — Sah'-lah'-dah
✓ Fish Rock — Kah'-dah'-lah
✓ Bowens Ldg — Kah-de'-dah (Ldg for Gualala co.) (redwood)
✓ Gualala Town — We'-chah! (all year town) (rancheria of our people —

BO-YAH GEOGRAPHICAL NAMES

Guppeys Cow - Kup-pish-ko

Greenwood - Di-dul

Miller's - Bo-bah-te

New Haven - Chute load ties.

Manchester

Pt. Arena (trinkt) - Mah-tah-lah-kol

Rollervilli Flumervilli of Mah

Arena Cow - Kahpbim'mo

Point Arena (village) - Shah-dah-how

Guerson - Kahtch-pe-kl

Signal Port - Sah-lah-dah

Fish Rock - Kah-dah-lah

Bowmens ldg - Kah de-dah (lodge for Gualala Co., redwood)

Gualala Town - We-chak (rancheria of our people)
all year town

Navarro Rio - No bah-dah

Greenwood Creek - Di-dool
(dul)

Elk Creek - Yah-ko-dah

Stewart Creek - Shah-dah (fou___ fcho)
(just St. Miller)

~~Para Creek~~ - Dok mahcle
Mall Pass Creek

Irish Gulch- Um'Chat-hahm

Alder Creek - Silch-mah-dah

Brush Creek - She-o-pah-dah

Gracia River - P'd-Dah-how

Pt. Arena Creek -

Schooner Gulch - Po-yo

Gualala River - Wah-lah-le pd'dah'

Our country to divide so of NFK Gualalo

BLACKHEADED GROSSBEAK A FAVORITE WITH INDIANS.

- - -

The Black headed Grossbeak (Zamelodia melanocephala) is a familiar bird in most parts of its range and is often common about Indian rancherias, where its pleasant ~~little~~ whistling song is enjoyed by the people. I once found one in a cage at the home of a family of En'-ne-sen Indians at the base of Santa Lucia Peak, and I was told by a woman of the lower Klamath tribe (Helth'-kik'-la or Po'-lik-la) that she used to have a tame one about the house and when she went away to visit or to gather pine nuts she used to take the Grossbeak in a basket with her.

In Yosemite Valley I have seen Grossbeaks sitting on the low roofs of the Indian houses and moving about among the Indians almost as freely as tame chickens.

Tuleyome:

Reached SW to Cobb Mt

Also included Mt Siegler & Mt Hanna.

E to hill about 3½ miles E of Middletown

Tuleyome (Olayome) Round house, called Lah'-mah

Drum Te'-len ✓

The 8 Posts -- Te'-ah ✓

Painted with dance marks, Too'-zah [Same mark on cheeks of women] ✓

Outer space (for audience) - Wā-ah ✓

Inner space (for performers) -- Hoo'-ke wā-ah. ✓

Doorway Kah - always faces East. ✓

fire

Door East

Kah

O-lā'-yo-me

Olayome round house or Lah'-mah
Lah'-mah

N

El-lew'-we-ah or Wā'-ah } — outer circle, for onlookers.

Lah-ke'-whe-ah (or Hoo'-ke-wā-ah) space for the dancers

fire

Hoi'-put too'-yah (center post)

Kwā'-ok-kan-tal-tah'-ne space for the singers

Drum Tel'-len

West rear doorway

Front doorway Kah' East.

[Later: - an O'lāyome man tells me that there were 8 posts, called Te'-ah, and that they were all painted with the dance marks, Too'-sah, the same as those painted on the cheeks of the women.]

The flag erected outside is Wahn-tā'-rah.

The smoke hole (over the fire) is Tah'-look.
The drum is Tel'-len or Te-len.

Ground plan of Lah'-mah on Putah Creek

The posts separating the outer circle (for audience) from the inner circle (for the dancers) are not shown in the diagram for the reason that I was not able to ascertain their number & relations. The Lah'-mah in Coyote Valley on Putah Creek in July 1907 was of canvas & had only the centerpole. — Cam

On Mad River

Johnson's place 2 miles below (north of) Ruth.

Bushnell place Eleven miles above (south of) Ruth.

See also Mace's map with locs. mapped.

Mammal names obtained at Taos Pueblos-- Calif. Journ., p. 9, July 4, 1928. — CHM —

Grizzly Bear	Kŭ-an'-nă	Plural,	Kŭ-an-nam'-mah
Buffalo	Kah-nen'-nă		Kah-nen-nem'-mah
Elk	Tŭ-en'-nă		Tŭ-in-nam'-mah
Mule Deer	Pan'-nam-mah		Pan-nen-nam'-mah

1879

"Pavió-tso or 'Athlets,' in Western Nevada (on Pyramid Lake Reservation), faultily called Payutes." p. 410 ok

Gatschet in Wheeler (4°) Rept.
U.S. Geographical Surveys West of 100th Meridian. Vol VII Archaeology.
1879. Appendix. Linguistics.
By Albert S. Gatschet.

Klickitats + Cowlitz

H. D. Langille tells me that the Klickitats inhabit the country East + south of Mt. Adams, + that the western limit of their range south of Adams is the crest of the Cascade Mts. which runs southwest from Adams to Steamboat Mt. + thence southerly.

Every summer they visit what is known as the 'Indian Race track' (north of Red Mt.) and the 'Berry Patch'. The Berry patches stretches for miles along + near the summit of the divide SW west of Mt Adams. They go there for huckleberries which form an important part of their food. The berries are prepared + stored for winter use.

West of the Klickitat country is the country of the Cowlitz. The Cowlitz have a permanent village on Cowlitz River a little below Vance.

Hualapais

In 1874 500 Hualpai Indians, led by one white man, came into the Colorado River reservation, where they joined the Mojaves & Chemehuevis. — J. A. Tonner, gt., in 6th Ann. Rept. Board Ind. Commrs. (for 1874), 106-107, 1875.

Early distribution of Klikitats.

Never lived south of the Columbia although they used to visit the upper Willamette Valley & invade the country of the Calapooias.

The old trail used on their invasions may still be seen on the Rickreall in Polk Co., Oregon, 9 miles west of Salem.
(Mrs. Harriet K. McArthur in letter to Prof. Otis T. Mason, dated Portland, Dec. 11, 1901.)

Ann. Mess. & Acc. Docs. 1851, pt. 3, p. 447+

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do. 1854, p. 224+
do " 223-
do " 240

Rept. Comr. Ind. affrs. 1858, 225+
do p. 275

do, 1855-1856.

200 miles N of Sonoma –
Chas Brown's story for Bancroft

Tarol – kind of amole

[look up for tribe]

Pipe ["Kind of Cigar called Torepa" } Hijar Recollection 1824 MS]

Chowchilla – To-é-sah

Wipa – To-rā-pah

– Tah-bo

Patwin

Poconum – To'-poo

Hiddaling – To-po [illegible]-chah-kā-he

Names for Grindstone-Fruto Tribes or Subtribes:

No-mel'-mem sel (West water people)
Grindstone of Stony country

Dow'-wi-im sel (NE people)
N of sites—
but under Dah'-chin-chin'-ne

Tel-tōk (Elk Cr tel-law'-ke)
[illegible] from Elk Cr into Stony Cr.

Dah'-chin-chin'-ne
Fruto Hills

Harry Snyder, Cleveland Ohio

Grey Killed Second Middleweight

Baldwin's article October Sept 1924
big p. 13

Savage's ~~stores~~ stores in Sierra foothills

1 Lower Fresno

2 Little Mariposada. 20 mi (25) S Mariposa
Established about end October 1850 – Daily Alta Calif 4 Jan 29, 1851. Burnett & Charles killed Jan. 1851.

"Burns" – about 6 mi So of Merced Riv

Depredations in Val – lower Fresno, lower Chowchilla, lower Merced
" & San Joaquin

Rehas attacked:

1 fight up on Fresno Cr.
Battle but ~~near the branches~~ San Joaquin – 23 killed.

Then Mariposa Battalion under Maj Savage.

Went to S Fk Merced & got Reha no shooting
2 chief brothers Vowchitchee & Cowachittee
Next sent for Tenaya, who came
Passed into Yos. – Inds disappeared.
Later (May) another trip to Yos. 2 Tenaya's sons got

Tribes involved:

Chukchansi	Yok
Potoancy	Yok
Nootchoo	So. Miwok
Pohoneche ?	
Honache	? [Monache?]
Chowchilla	Miwok & Yokut
Kahweah	Yokut

Monthly horsethief raids 1835

1834 missions had 420 000 cattle
60 000 horses & mules
320 000 sheep goats & hogs
Annual crop grain over 200000 bushels

In 1834 slaughtered 100,000 cattle — hides & tallow over million dollars

---

Francis Drake 1579

1772 — San Diego & mission starving & Indians gathered food for 'em.

1772 San Luis Obispo — thankful for slaughter of grizzlies

1786 La Perouse visit — abject slavery &c

1793-7 &c Flogging & pursuit of fugitives

Neophyte population 1815 22,000
" " 1834 30,000 +

Cost wars 1850-51 — over 920,000 dollars!

Is this true?

"Cortez landed at Santa Cruz, then known as Jimenez Bay, May 3, 1535, but, owing to the hostility of the Indians, he was compelled a year later to abandon his possessions." — Memorial & Biographical History of the Counties of Fresno, Tulare, & Kern, California. Chicago: The Lewis Pub. Co. p. 9. [no author or date].

Is it Santa Cruz, Lower Calif.?

1812 - Spanish Govt. circular of inquiry about Calif. Indians - Report rendered in 1815. - Bancroft, Hist. Calif. II, 326-327, 1885.

See also, Bancroft, Native Races,

Indios, Contestacion al Interrogatorio de 1812, sobre costumbres de California, 1815, MS, 104 p. Dated at San Buenaventura, Aug. 11, 1815. The San Diego report is omitted, but is found in Arch. Sta. B., MS, iii, 27-37.

Over

Mule Deer Head. Sm ("200 or lbs")

Ears ~~[illegible]~~ ; Black crown tapering [illegible] ~~not out~~

~~[illegible]~~ to point (med) abt 2½ in
~~to~~ Eyes, ~~[illegible]~~ to plane of ant orbit

throat & under chin white with

sm black lip mark each side chin &

1 median black chin line abt 2 in

& cheek. buffy creamy under chin

~~[illegible]~~ under angle of mouth

Cheeks buffy | white ring round eyle
& extends abt [illegible]. [over]

pale narrow strip upper lip to
nostril, with black nose pad ex-
panding below it antering.

Ears moderate

Inner side Ears

Adult Ear apically blackish for
abt 2 in from tip;
Post margin broadly apical 1/2 +

Edson; Nev, 1932.

Scenes among the Ind[s] of Calif.
H[s]' Calif Mag. Vol 3, no 10. April 1859.
433 – 446 illustrated (some worth copying)

Newtown Ind[s] (near Placerville region
435, 436, 437.

(Important article, but didn't
(catch any tribal names)

Hutchings' Calif Mag. to be
read carefully

Report of Indian Historiographer, Thomas Foster

(In Rept Comm. Ind. Affrs for 1875, 377, 1875.)

States that 1st vol. of his "full, complete, and comprehensive history" of the Indians of the United States is about ready for publication & before Jan 1, 1876, will be ready for the printer!

San Francisco (Mission Dolores)
Tribes in early days:

Ahwashtes
Ohlones ("Costanos")
Altahmos
Romanons
Tuolomos

} Taylor, Calif. Farmer
May 31, 1861.
(after Adam Johnston
1852 / Schoolcraft
II, 506, 1852)

Kit Carson said that in 1829 the valleys of California were full of Indians — bole up original.

Dr Coulter's Calif. linguistic material published by Dr John Scouler, in Royal Geographical Journal for 1841 – "Observations on the Indigenous Tribes of the N.W. Coast of America."

Includes short vocabs. (50 words or less each) from Missions San Diego, San Gabriel, Santa Barbara, San Juan Capistrano, San Luis Obispo, + San Antonio.

Don't forget Whipple, in Whipple Ewbank + Turner

After the secularization of the missions in 1834 the Indians, who ~~were~~ in contemplation of law were the beneficiaries of secularization, were left "a shivering crowd of naked and semi-starved homeless wanderers upon the face of the earth" — Hittell, Hist. Calif. II, 207.

Quindaro Sept 11, 1857. – Belongs to Wyandotte Inds
"on a side hill too rugged for a village of any size."

~~Sept 12, 1857:~~

Quindaro is an Indian name. A halfbreed, who is wife of a white man who is a chief of the wyandotte tribe gave her name to the place, or someone gave it for her. In maps of the plan of the town her likeness is engraved."

Sept 12, 1837 – Quindaro to Lawrence," a distance of 32 miles over lands belonging to the Wyandotte and Delaware Indians".

Indians in San Francisco in June 1847: males 26; females 8; total 34.
"Some of the Indians are very expert in ~~the~~ manufacture of sun-dried bricks [adobes] & in the erection of houses from them"
From article in *California Star* quoted by J. Quinn Thornton, Oregon & California in 1848, II, 76, 78, 1849.

In 1847 or 1848, according to Thornton there were 8,000 to 9,000 Indians in Sacramento Valley. - Ibid 94.

At intervals during the past 33 years my field work among the deep canyons and rugged mountain ridges of northwestern California--particularly along the Salmon, New, and Trinity Rivers --has brought to light unsuspected and rather startling facts concerning the Indian tribes of that remote and little known region. Nevertheless the information obtained is so fragmentary that year after year I have delayed publication in the hope that more might be learned.

Indians of several adjacent linguistic stocks have told me of a tribe formerly inhabiting the middle and upper reaches, of South Fork Salmon River north of the high crest of the Salmon Alps, by which their territory appears to have been separated from that of the New River tribe on the south. The name given me for this tribe by the Chemareko is Hoo-nuḿ-ne-choo; that given me by the Hoopa, Konomého, and Tlo-hōm-tah'-hoi is Kah-hoó-tin-e'-ruk.[1]

[1] The fact that this name was given me by Indians of three different tribes would naturally indicate that it was the name used by that tribe for themselves. Here however this line of argument is not convincing for the reason that the Tlo-hōm-tah́-hoi informant was raised by the Hoopa, and the Konomeho also were more or less subjugated by the Hoopa.

Ko-ma-cho. . .Name used by Powers for Anderson Valley and Rancheria Valley tribes.--Powers, Tribes of Calif., p. 172, 1877.
Written Kematco by Barrett and restricted to Anderson Valley, Barrett, Ethno-Geog. Pomo, 187 footnote, 1908.

Having learned of the possible existence of one or two members of this tribe, Mrs Zenaida Merriam Talbot and I set out for Salmon River in Sept 1929, accompanied by my daughter. Circumstances prevented our reaching the Cecilville region, but at Sawyer Bar on the main Salmon we had the good fortune to meet Mr + Mrs T. A. Bigelow, who kindly agreed to (investigate and endeavor to obtain the desired vocabulary.)

I supplied them with the necessary blanks and they succeeded in locating the only survivor of the tribe — a full blood Indian woman named Mrs George.

After driving from Lagunitas to Yreka & thence to Scott Valley, (we climbed) the high divide to the headwaters of Salmon River and followed the river down to its junction with the Klamath — most of the way over a road that follows the old trail Vernon Bailey + I traversed on horseback thirty two years ago.

From her they obtained an excellent vocabulary, which is here published.

Che-mar'-re-ko

Treatment of dead:

Well to do people were tied on a flat board reamed to length + buried, with belongings put on top of corpse.

Poor people were simply doubled up + buried –

They say they did <u>not</u> cremate.

Sally Noble's mother + Mrs Montgomery's mother were half sisters

Mrs Montgomery's father was a leader in the "Indian War". He was living at Hyampom –

THE BITE OF THE TARANTULA

The Me-tum'-mah of Little Lake Valley tell me that Tarantulas occur in the Valley and sometimes bite persons. Informant's sister had a 3-months old baby which was bitten on one side by a Tarantula and died. The Tarantula was found in the baby's blanket. -

Kōm-le. . Tribe and rancheria formerly on ground now covered by northern part of city of Ukiah. Stephen Knight, a trustworthy Yokiah Indian, was told by an old Yokiah woman (Mother-in-law of Dan Scott, a Lah-tā of Yorkville) that many years ago [several hundred years ago Knight thinks] the Kōm-le occupied the northern part of Yokiah Valley, including present site of Ukiah and the asylum at Talmage. They quarreled with the Yokiah and were driven out of the valley, crossing the mountains to the east and settling in Scott Valley. Some of the old people say the Kōm-le established themselves on the narrow flat between Blue Lakes and Cold Creek [but this was in the territory of the Ki-yow´-bah ch tribe, but Knight does not believe this.] Where the Kōm-le came from "no one knows."

Stephen Knight adds, "They spoke a language half Yokiah and half Calpella [=Mah-soo´-tah-ki´-ah]." —C.H.M.

Stony Ford Salt

The Stony Ford Sho-te'-ah used to trade with the Dah-chin-chin' of Elk Creek.

The Yuke came to Stony Creek for salt. They were friends of the Sho-te'-ah, but enemies of the Elk Creek and Grindstone people.

The place where they used to go for salt is called Salt Spring Valley. It is on the Bickmore ranch about two miles northwest of Stony Ford.

BACCHARIS CONSANGUINEA.

This brittle bush, which, except when flowering in the late fall or early winter, is rather inconspicuous, grows abundantly in the coast region of Northern California. The Kah'tawe chum'mi Indians of the Healdsburg region on Russian River call it De'nah, and state that the Tomales Bay Indians (Hoo'kooe'ko) use it as fuel for cooking.

Kulanapo
Ho'-hlă-nap'-po – Kelseyville mission

1906.
I examined all these – cam

Bead belt of clam shell wampum disks – belt 5 in. broad. valued $50.00

Chain of white shell bead disks (with glass) + red cylinders of red rock with white markings – the rock "Indian gold".
Saw one cylinder 4 in. long + 1 in.+ in diam.: worth $20.00
Chain valued at $100.00

Saw wampum drill + ~~several~~ fish nets – 1 very fine of Apocynum.

Saw begining of a basket 100 stitches to inch + a superb small long-oval beaded basket

Mishawal:

North to 4 or 5 miles north of Geysers.--[Told me by Old Geyserville Joe.]

The Mishawal name for the Geysers is Tek'-kā-nan, (from Tek-kā, a salty clay which is eaten. This clay was much prized and was traded with the Olāyome of Middletown and Putah Creek. [Told me by both tribes.] The Olāyome call it Tek-kā, using the Mishawal name.--cmm

Pine Mt. belonged to Mishawal or Mootistool, and was not claimed by the Olayome (Tuleyome).-cmm

INVITATION STRING OF THE BO'-YAH

The Bo'-yah of the coast strip from Navarro Ridge south to the mouth of Gualala River tell me that their Invitation string consists of a series of small sticks, usually 8 or 10 in number, each about 2 inches long, strung together. The number of sticks corresponds with the number of days between the sending of the invitation and the date of the coming ceremony. The messenger breaks off one stick each day until the string is delivered, after which the recipient does the same until the date of the ceremony arrives.

K U M - M Ó - W I N

MISCELLANEOUS NOTES FROM THE KUM-MO-WIN OF
ENTERPRISE, BUTTE COUNTY. July 14-15, 1930.

Information from George Martin, a fullblood Kum-mo-win born and always lived at Enterprise.

The KUM-MÓ-WIN territory centering along North Fork Feather River extended westerly to Berry Creek, Mountain House, Merrimac, and Pea Vine Rancheria (two miles north of Merrimac), but not quite to Stanwood. The southern boundary lay south of South Fork Feather River, from Bangor to Challenge. South of this were the TAHŃ-KUM. Bidwell Bar, Buffalo Ranch, Enterprise, Swedes Flat, Bangor, Challenge, New York Flat, Byckeye House, North Star House, Sunset Hill, Stringtown, Forbestown, and Winthrop House all belonged to the KUM-MÓ-WIN. The northern boundary ran from a little south of Bucks Ranch easterly to the northern loop of Middle Fork Feather River near Nelson Point; the eastern boundary appears to have been the divide between Nelson Creek on the west and the valley of

Middle Fork Feather River between Sloat and Clio --leaving Mohawk in the territory of the NOTOKOIYO.

The KUM-MÓ-WIN reached west to or nearly to Oroville, but not quite to Stanwood or Grizzly Hill; northerly not quite to Bucks Ranch; easterly to Strawberry Valley and Bluenose, but not quite to Mohawk; southeasterly to Buckeye.

Informant states that Morristown, Downieville, Camptonville, and Poker Flat were not theirs.

From Oroville westerly were the SÁ-WIN.

Downieville and Camptonville belonged to the TAHŃ-KUM.

The line between the KUM-MÓ-WIN and TAHŃ-KUM passed just south of Wyandotte and Bangor.

The salt springs at Wheatland belonged to the Auburn-Colfax tribe, called TAN-KU by the KUM-MÓ-WIN, who used to go there to get the salt-mud--which had to be cooked to get the salt. If caught, there was war.

The KUM-MÓ-WIN say they don't understand the talk of the Colfax and Auburn people.

California Indians

Folder 2

C. Hart Merriam
Papers
BANC MSS
80/18 c

Wemilche

Fresno Museum – Baskets

" Dr Pendergrass & Nurse Mrs Hayes.

Trimmer: Ranger Snyder (native)

Auberry: Mrs Jack Youngquist – Baskets {knows Inds.

Toll House: Ivan McMurty (Monache)

O'Neals: Taylor Teaford (S 1907)

Lulu Pearl Morris (S 1910)

Drum Valley: Claude Osborn & wife Minnie

Yokuts to ask about:

Bankalache – Frank Manuel 66

Josie Alonzo – Chunut 65+

"Hometwole" – Big Jim Alto 75+

Lanum anhydrous
1 lb. can
put 2 oz. to quart Benzine
& immerse goods.

Formosa oolong

Sketch Book
By Menifee
contains data on
Indians of Napa Co.

Billy McKay, Pendleton

E. S. Morse wants photo
Panamint arm

Prof Bremer says that in
1864 great & protracted drought
killed off last of the
Joaquin Valley Mustangs.

~~Look up Skeleton bedis~~ ~~Nelson says~~ N.G.

Monterey - P.G.

~~Pipilo crissalis~~
~~Pipilo oregon~~
~~Aphelocoma~~
~~Zonotrichia nutt~~
~~Melospiza~~
~~Sitta pygmaea~~
~~Psaltriparus~~
~~Junco~~

1 Nak^ts
2 Lă pĕt
3 Me-taht
4 Pe-lept
5 Pah-hut
6 O We-lah'ks
7 O We-nept'
8 O We-mot'tut
9 'Koo-e'ts
10 Poo-timpt

1

Te-its'kan
= people

Hungry
...chafi Cuddybacke

...ing

Mill Kleft

...fossil

1.35

S.F. - Meeker 2.10
S.F. - Occidental 2.00

S.F. - Vacation - 2.50

Celestia Cuddyback Honey
Los Angeles
belongs to Tehachapi Cuddyback
family.

S.F. - Marshall 1.35
S.F. - Meeker 2.10
S.F. - Occidental 2.00

S.F. - Vacation - 2.50

Washoo - Sturnella Tales
Piute - Mono Lake
Hoó Koó - eko - Creation -
Wintoon - Marysville Buttes
Soshoe - Lester - Yi-yil -
To win ché-bah (Holkoma) 2 Louse + tick
Hoó-koo-eko - Clam shell armor
" Bloom death own Hill
Yugotumme - spirit Pt. Reyes.
Hoi hai mus

Joaquin Nut-men - Ché-kar-tet 2 others
Tah-kah'-te Sambuvia

Celestia Cuddyback Hanzy
Los Angeles
belongs to Tehachapi Cuddyback
family.

Mrs. Vä-re-al Tejon

E. Pollard (Indian Hunter)
Covelo.

Herman Durrow Hunter etc
Tomales Pt. opposite Hamlet

Main 165 San Rafael
Mrs Kent

Ko-re-ak'-kä

1906 Exp. a/c	Amt	Sent	Recd
1. June 30	$51.50	July 2	July 17
2. July 1-15.	90.83	July 18	Aug. 1
3. July 16-31	68.95	July 31	Aug. 27
4. Aug. 1-14	76.27	Aug. 14	Aug. 28
5. Aug. 15-31	138.57	Aug 31	Sept 15
6. Sept. 1-15	74.90	Sept. 15	Oct. 4
7. Sept. 16-30	94.80	Oct.	Oct. 24
8 Oct. 1-15	108.20	Oct 15	Oct 29
9 Oct. 15-31	110.60	Oct 31	Nov. 19
Nov. 1-10	60.91	Nov 19	Nov. 23

1 Ken-nut-tah
2 Oi-yuk'-kah
3 Tel-luk-kah
4 Oi-e-sok-kah
5 Kas-so-kah
6 Tem-mā'-bo
7 Ken'-ne-kok'
8 Kow-wen-dă
9 Wah-eh'
10 Ek-koo-gă

NUMERALS OF THE INDIAN TRIBES OF CALIFORNIA

Handy to keep — cm. 1936+

ACHOMAWAN	Atsookáe
1 Ham´-mis	Choo´
2 Hahk´	Ho-ke´
3 Chas´-te	Kis´-ke
4 Hah-tah´-mah	Hahk-kow´

ATHABASKAN
1 'Klah´-hah or Hlah´
2 Nah´-kah
3 Tah´-kah
4 Tin´-che

CHEMAREKO
1 Poon´
2 Ko´-koo
3 Ho-ti´-e
4 Koo-e-goo

CHUMASH
1 Pah-kahs
2 Ish-kōm
3 Mah-soo ch
4 Shoo´-moo

ENNESEN
1 Toi´
2 Kōk´-sho
3 Lă´-pi
4 Ge´-shah

ESSELEN no vocab

KAHROK
1 Ye´-thah
2 Ah ch-kuk
3 Kwe-dahk´
4 Pē's

LUTUAMEAN
1 Nahs´
2 Lahp´
3 n'Dahn´
4 Wo-neep´

• **MEWAN**
1 Keng-e
2 Ō´-te-go
3 To-lō´-go-so
4 Oi-e-kă ·sa

• **MIDOO**
1 We´-te
2 Pen´
3 Sō´-pwe
4 Choo´-e

OLHONEAN
1 Him´-men
2 Oo-chin
3 Kahp´-hahn
4 Kah´-too-as

POLIKLA
1 Kor´
2 Nĕ´-ĕ
3 Nahk´-sĕ
4 Chah-ahn-nĕ´

POMO [4]	[4] + + +
1 Chah´	Chah-chah´
2 Kaw´	Ahk-ko
3 Se´-bo	Mis-se´-bo
4 Tahk´	Me´-chah

SHASTAN
1 Tsā-ah´
2 Ho´-kah
3 Hahtch´-ke
4 E´-dah-hi´-ah

• **SHOSHONEAN** (Piute)
1 Sim´-mah
2 Wah´-hi
3 Pah´-he
4 Wahts´-sa-he

SOOLAHTELUK
1 Kōts´
2 Ed-de´-tah
3 Ed-de´-kah
4 Ed-de-yah´-o-wer

TLOHOMTAH
No numerals given

TONGVA
1 Po-koo
2 Wĕh-hā
3 Pah´-hā
4 Wah-chah´

TUBOTELOBELA
1 Cheech´
2 Wah´
3 Pi´
4 Nah-now

• **WASHOO**
1 Lah-kah´
2 Hes-kah´
3 Hel-mah
4 Hah-wah´

• **WINTOON**
1 Et-tā´-tah
2 Pom-pā´-tah
3 Po-nōa´-tah
4 Em-mōs-tă

YAHNAH
1 Pi´-e-koo´-mah-nak
2 Hook-mitch-ē's
3 Pul-mitch´-e-mah
4 Tow-me-mow

• **YOKUT**
1 Yet´
2 Po´-noi
3 So´-ă-pin
4 Hot´-pon-ni

YUKEAN	Miyahkmah
1 Po´-wuk	Pow´-wah
2 O´-puk	Ho´-pe
3 Mōl´-muk	Po´-kah
4 Hēl-kil-o´-buk	O´-lah

YUMAN
1 K'sin´
2 Ho-wuk´
3 Hă-mōk´
4 S'pop´

TULAREÑOS INDIANS

The following note on the Tulareños Indians is a page of MS in the Pinart Collection of the Bancroft Library, and is apparently in Pinart's writing.-- [no date]

"Tulareños.-- The Tulareños live in the mountain wilderness of the Four Creeks, Porsiuncula (or Kern or Current) River and the Tejon, and wander thence towards the headwaters of the Mojave and the neighborhood of the Cahuillas. Their present common name belongs to the Spanish and Mexican times and is derived from the word tulare (a swamp with flags). They were formerly attached to the missions of Sta. Ynez, Sta. Barbara, La Purisima and San Buenaventura in Sta. Barbara Cy and San Fernando in Los Angeles County. They are all of one family; there is very little difference in the language spoken by the several rancherias.

According to the state census just completed, there remain 606 Indians domesticated in Sta. Barbara Cy; male 324, female 282; males and females over 21 years of age, 364; all probably claiming affiliation with the Tulareños. From the same source we learn that in Tulare county there are 5800 domesticated Indians (male) and female 2600 -- over 21 years of age 3,787, under 21 years 4,613, the white inhabitants of the country numbering only 174.

They speak the Santa Ynez tongue."

CERIS INDIANS

Alex. S. Taylor in his 'Indianology of California' published in the California Farmer, 1860-1863, gives the following notes on the Ceris Indians written by Clement A. Pajaken, the substance of which, Taylor says, had been previously published in the Calif. Chronicle in 1854 or 1855.

"Ceris.— This is a small nation, perhaps at present not exceeding 400 souls. For more than 20 years back, this little band of robbers, murderers and cowards, has been suffered to continue its atrocities and assassinations on the road lying between Guaymas and Hermosillo, two of the most populous towns of Sonora. This is so inexplicable a fact, that in future times it will not be believed to have been possible. The present impotent state of the Government and the apathy of the Sonorian people cannot be better shown than by the above fact alone.

Before the great rebellion of the Ceris, Pimos and some Apaches, in 1779, the Ceris lived in a village called El Populo near Hercasitos. In 1789 they were transferred to the Mission now called Pueblo de Ceris, or with its entire name: Pueblo de San Pedro de la Conquista de Ceris. This is near Hermosillo. The Ceris, besides being the most stupid and laziest of all the Indians of Sonora, are also the most inconstant and treacherous. They have revolted more than 40 times since the attempt was first made to induce them to lead a social life. A few families have only remained at the above mentioned villages, where they live in the outskirts of the place, maintaining themselves by making earthen vessels, and collecting the tripes and other offal from the

butchers'. The original home of the tribe is the island of Tiburon, where a portion of them still reside. From thence they landed from time to time on the coast and killed travelers and muleteers on the road and stole cattle from the ranches. They use only the bow and arrow, but the latter is poisoned, so that nearly every wound made by it is fatal or at least dangerous. They mostly live on sea-fowl, fish, oysters, clams, lobsters, and other produce of the gulf, which they devour nearly raw. In consequence they are said to exhale a very offensive respiration, which however may partly be attributed to their entire want of cleanliness, as the procedure of washing is unknown to them. Their dress consists only of an apron of pelican skins or a piece of woolen cloth tied round the middle. They tattoo their faces, and some perforate the nose and adorn it with a green stone resembling bottle glass (probably obsidian). They are of a dark copper color and rather stout. The women are by no means ugly. The small feet and delicately molded bust of the latter excite the envy even of the Castilian ladies at Hermosillo. The hair of the females is black, thick and hard, and is never cleaned or combed. This circumstance gives their head a very uncouth appearance. The only religion these people have consists in the adoration of the moon; they celebrate the appearance of the new moon with rejoicings and many ridiculous formalities. This nation is fast dwindling away and will soon cease to exist."

A. S. Taylor, Calif. Farmer, Vol. 16, June 13, 1862.

Land occupancy by Indians

The Indian view of land ownership was clearly explained by George Bird Grinnell some years ago and has been recently restated by Mrs. Flora Warren Seymour as follows:

"Individual ownership of land was a difficult concept for the Indian mind. He has readily made treaties to give away vast territories, because he had never appreciated them as an exclusive possession, nor fancied that the purchaser would take any such view. The right of occupancy was all he knew; and that a tribal rather than a personal perquisite."

Flora Warren Seymour, Our Indian Problem, Forum, Vol.71, No.3, p.276, March 1924.

HAMMERMILL BOND

Chowchilla Mew-wah (in Yosemite) southernmost
div. of Mew-wah stock reach down westerly
to a point 5 miles below Grub Gulch (8 or 10
mi above (E) Raymond.

Indian mounds in Sacramento Tules.

A Sacramento fisherman named Glatz knows the location of a number of Indian mounds in the tules west of Sacramento – between Sacramento + Davis but much nearer Sacramento. They are situated close to deep pools.

CHM

Mar'-ring-i-yum' – Macario Marcos, Highlands P.O.
Full blood

June 22, 1933.
mailed

Worked with him June 1933 (and previous year also)
Talks too fast & not very distinctly –

INDIAN CEREMONIAL AT HOCK FARM

A.S.Taylor in Calif. Farmer, Vol. 14, No. 11, Nov, 9, 1860 reprints an account of an Indian ceremonial at Hock Farm in 1857, which was published, apparently in the Marysville Herald, 1857.

"Indian Dances in Northern Californaa" by Lucy Sargent.

In The Californian, Vol.I,No.5,464-468, May 1880.

LAND ALLOTMENTS WANTED BY PASKENTA INDIANS

Andrew Freeman of the Paskenta Rancheria on upper Thoms Creek is well to do. He formerly owned 147 acres in Thoms Creek basin of which he sold 80 acres to Mrs. Jordan, still retaining 67. He wants an allotment or patent in the Forest Reserve about 10 or 12 miles west of Paskenta and north of Bears Den in Henderson Canyon (Sections 5 & 6).

Two or three other Indians, including Joe Brown of Tehama, are anxious to secure holdings in the same place in order to operate sheep-herding together.

Andrew Freeman wants to know if the Indian Office is going to issue patents to Indians in Round Valley near Covelo.

Nov. 1919.
CHM

June 22, 1862

"The old Giants of California:--There were giants once on this coast, all the arguments of Savans and doubters notwithstanding. Not less than four well known cases have been noted of the discoveries of remains of the giant Californians of the Sierra Nevada--to wit: 1st--a skull bone was found in Trinity County in 1856; 2nd--There were found in Tuolumne County, in 1860, a thigh bone and skull of a man 12 feet high; 3rd--there were discovered near Jacksville, in southern Oregon, in May 1862, a pair of human jaw bones of the immense breadth of 7 inches; and 4th--there were discovered in 1762 near the Mission of Ignacio de Kadakaman, in Lat.28 N on the Pacific coast of Lower California the vertebrae, skull, + ribs of a man 11 feet in height, which were found by one of the old Jesuit priests."

???

Marysville Daily Appeal, June 22, 1862

The Sun the Mother of the Yuchis

Gatschet tells us that: "The Yuchis believe themselves to be the offspring of the Sun, which they consider to be a female."

Am. Anthropologist, Vol. 6, no. 3. July 1893.

The Sherman Bulletin

Published weekly as a regular part of the school work of Sherman Institute

Volume XVII | Riverside, California, Mar. 14, 1924. | Number 26

WEEKLY CALENDAR

Chaperons for Saturday Afternoon

Mar. 15--Miss Genoway and Mrs. Smith

Chaperons to Religious Services

Mar. 19--Protestant, Mr. Vaughan
Catholic, Miss Stevens

Inspection of Buildings and Departments

Mar. 20--Miss Ryan

Our Poor Eyes

My thoughts today ran in this wise:
How strangely people treat their eyes!
They RAISE them to the heavens then
They let them FALL to earth again.
Then, like as not, they ROLL them 'round
Before they GLUE them to the ground
Or RIVET them on objects near;
Some even BAT their eyes, I fear!

These phrases, too, one often hears
Of eyes that have been DROWNED in tears;
Of eyes that BURN with hatred's fire
Or TENDER are with love's desire.
Of STEELY eyes; of eyes that SMILE;
Eyes that are LOVING all the while;
Of eyes that SPARKLE, eyes that SHINE.
I wonder, do I so treat mine!

—MRS. D. RAY CAMPBELL

Indians With Whistling Jargon Reported Able to Talk to Birds

A tribe of Indians whose members communicate among themselves only by whistling and who can talk to birds in the same manner has been found in the Siskiyou mountains in northern California. The discovery was reported to A.L. Kroeber, curator of the anthropological museum of the University of California by J.R. Saxon of the United States forestry service.

Mr. Saxon said that for weeks forest rangers in a remote part of the Siskiyous had heard uncanny whistling over the service wires that stretch from station through the mountains. He went to investigate and after nightfall was caught in a mountain storm. He found a small cabin of Indian construction. It was empty and he prepared to spend the night there.

The ranger recalled that he left the shack to stable his horse in a lean-to near by. When he returned, he said, he found steaming food laid on the floor, and beside it a bed of deer and bear skins provided for him. But no one was in sight.

For two days, related Mr. Saxon, he lived there in this way. When he left the cabin food would be spread for him, but with no amount of agility could he discover the unseen dispenser of hospitality.

Finally, on the third day, several Indian men appeared at the cabin, and in sign language informed him that he had been their guest.

"To my amazement," he said, "I learned that they did not speak to one another in any language of words or in the ordinary articulate sounds of human beings, but that they conversed only with staccato whistlings."

At a whistled command bird would flutter from the trees to a clearing to eat food scattered there by the women, according to Mr. Saxon's narrative.

He described the men as shy, adding that the women were like deer.

"At the sound of my voice," he explained, "the women fled into the canyons,"

He said the Indians led him to the nearest forest service telephone station and by signs conveyed to him that they had seen forest rangers using this instriment and had themselves experimented with it in their whistling tongue. This explained the mysterious sounds.

Mr. Saxon believes that the isolated clan of "whistling people" is an obscure offshoot of the Karok tribe of Klamath Fall Indians.

Professor Kroeber said the Karoks were an unusually intelligent and industrious tribe, numbering today about 2000. He is investigating the report of the whistling Indians.

—*The Christian Science Monitor*

How about your dues for THE SHERMAN BULLETIN.

M T. B U C H O N CALIFORNIA

Duflot de Mofras, 1840-1842, in speaking of San Luis Obispo says: "In approaching from the open sea one recognizes the Mt.del Buchon, thus named because the chief of the tribe which lived near the shore had an enormous goitre."

--Duflot de Mofras, Exploration du Territoire de l'Oregon, I, 381, 1844. (Free translation.)

In his Diary of the Portola Expedition, 1769-1770, Miguel Costanso states that after passing the "Punta de Ano Nueva" about 2 leagues they camped near an Indian village situated in a pleasant and attractive spot at the foot of a mountain range[probably the Santa Cruz mountains] "The Indians . . . received us with great affability and kindness, and, furthermore, presented us with seeds kneaded into thick paste. They also offered us some cakes of a certain sweet paste, which some of our men said was the honey of wasps; they brought it carefully wrapped up in the leaves of the carrizo cane, and its taste was not at all bad.

In the middle of the village there was a large house, spherical in form and very roomy; the other small houses, built in the form of a pyramid, had very little room, and were built of split pine wood. As the large house so much surpassed the others, the village was named after it. . . . the Rancheria de la Casa Grande."

Miguel Costanso.- Diary, Portola Exped. 1769-1770; Pubs. Acad. Pacif. Coast Hist., Vol. 2, No. 4, 97, August, 1911.

Mention of another village 2 leagues further. Ibid, 99.

San Luis Obispo Co. Indians

In the History of San Luis Obispo Co. is the following statement:

"The tribes occupying the coast from San Francisco to this place were called Olchones and Mutsers. They spoke different languages and in their rancherias a variety of dialects. Their numerals extended only to 4. To express 5 they extended a hand; 6 , one hand and 1; 7, one hand and 2; 8, one hand and 3; 9, one hand and 4; 10, both hands, 20 being the extent of their arithmetical knowledge. They divided the year into 6 seasons, commencing in midsummer."

[(mutsun?)]

—History of San Luis Obispo County, by Myron Angel, 21, Oakland, 1883. Thompson & West, Pubrs.

"The Olchones and Mutseer languages, spoken by tribes of the same names, occupying the country between San Francisco and the mission of San Juan, were studied and understood by the missionaries." —Ibid, 47.

"The aim of the present paper is to [present] suggest a classification for Indian tribes . . . . and to record certain original observations on the distribution . . .. Published material is neither repeated nor discussed; controversial matters are avoided, and in the lists of villages of the various tribes none are included save those given me by the Indians themselves.

"Indian words are written in simple phonetic English, and diacritical marks have the phonetic values ordinarily given them". . . [in English Dictionaries].

--C. Hart Merriam, Distribution and Classification of the Mewan Stock of California. Am. Anthrop., Vol.9, No.2, April-June, 1907.

Yreka 7
Ft. Jones 1
Cleveland Dist. 6
Meamber 5
Hamburg 3
Lowden 1
Quartz Val 2

Etna 9
Gr. Dist. 60
Sawyers Bar 4
Forks Salmon 6
Mill Cr. Dist 3

Brazil famil at Etna are
^Lower Salmon River tribe of Karok?
or Konomeho?

Wi-e

Nor-rah

Poo'-e

Nōm

Po-lik'-lah

Kah'-ruk

Shas'te (Ke'-kahts)

Ko-no-me'-ho

Hah-to-ke'-he-wuk

Tlo-hōm-tah'-hoi

Che-mar'-re-ko

Tin'-nung-hen-nā-o

Tsā-nung-wha

Olamentke –
Under Uchium
Hdbk (2) 862 NW Cal

Pahvant – W-cent Utah
Corn Cr.
Language Ute

The Mewah called ~~tribes East of themselves~~
Mó-nok & He'sah-duh ~~informants~~
~~Bryant~~ 1846

Kernville

See old Mrs Hamp Williams for vocab & history Tubotelobela –

Lemore & Tahcha land

{Jessie Alonzo
{worked her 1935

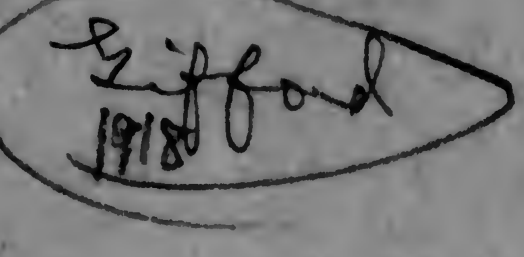
Mrs W.F. Nichols – aids local info.

Yokut Stock (old)

10. Yowel-man-ne
11. Tah-che
12. Na-too-nā-tā
13. Tā-dum-ne
14 Tal-lin-che
14. Wik-tchum-ne
15. {Cho-e-nim-ne
{Cho-ki-min-ah
16. Chukchancy
17. Kosh-sho-o
18. Pit-kah-te

10 Yow-wel-man-ne

{Mohineyam
{~~Mohiyanim~~ Gifford. 1918. "Tody at Banning"
"Lived with Morongo" early days.



2

♀ Pahmeller
aged Poosoone at Yolo

Charley Maxcimo at Ione
said to speak Pleasanton-San-
Joaquin language –

Try Niles.

Try Yolo (Poosoone ♀)

Schn-Frey - Film th Krafelder + Blatter

Aleck Blue – old man, Nissenan

July 26, 1931

Aleck Blue
SW
XRR
Dillard
S
N
P.O.
Wilton Rch.

Pleasanton: Mrs Phoebe Alanez
ask her about Sunol & Mission San Jose

Also, abt Charley Maxcimo of Ione
" Guzman

Orr Bros (Fred & Geo) + Billy, Joe –

Niles, Sunol, Pleasanton

Niles: Am Garage

Joe Benoko ask tribe names + rchs Pleasanton
"Jose Banico" at Rch. Peter Araundom (90 yrs)

Pleasanton: Mrs Phoebe Alanez (1930)
Knows Ind. Sunol region + Miss. San Jose
Henry Guzeman ? – Olhone of Alameda Co.
old Joe Guzman

Ione: Charley Maxcimo

San Jose: many enrolled, Co. Clerks Office
(1930) Tony Amador

Redwood City – Lipio Felixe (53 in 1923)

City:

Dr Bunnell

Disinfectants (ask)

Chinatown – cups

Paste brush (for bottle)

Delco washer (iron) thin.

Schnabel Frey: Krafelder flipfolder

Ish'-shah = go away – Yah'nah [talk like Bannock

{Seen by Yahnah in Round Valley at Solder Quarters

Lemhi {Chf Tendoi's band Shoshone} {Sheepeaters Too kia'-re-kah Tookoo'-re kahs close to Shoshone

all moved to Ft Hall

Achyrachenia mollis chookil-mem-al

Chemarako

W at 8½ or 9 m above Willow Cr

E 3 m above mouth for FK Sally Noble

Me ah' Mine kē'

You mah' Yours m'kā

Him mool His mool-kā'

We {Yah' Yokiah ah'-kā mah'-ka B} Ours {Yah-kē Yok Bahl-kā B}

Sacramento Valley.

Sutter & Dana

Bur. Eth. Vol 7, p. 99

" " 20, x

California Indians : Clippings

C. Hart Merriam
Papers
BANC MSS
80/18 c

WATSONVILLE CALIF.
PAJARONIAN
JANUARY 14, 1935

fil - Mutsum

Last Nootsum Tribe Warrior On Happy Hunt

367

The last original inhabitant of the Pajaro valley—the sole survivor of the ancient Nootsum Indian tribe—is dead.

Shock incurred from a fall down eight stairs proved fatal early Sunday to the hardy, 95-year-old Indian, Gabino Oliveras, who until two brief weeks ago had never known a sick day in his long life.

Oliveras, a woodchopper of wide fame, who even at 95 years felled a huge oak tree the day after Christmas, went to the Happy Hunting Ground, taking with him the last pure strain of his proud Nootsum blood.

While the aged buck had become reconciled to the modern era with all its hustle and bustle, he never forgot his love for nature and wild life. Oliveras had advanced with civilization to the point where he had no scruples about riding in an automobile, but he could never be coaxed to venture to ride on a train or in an airplane.

Oliveras had resided with Lorenz Gonzales, Freedom rancher, for several weeks. Until the day after Christmas, he had worked side by side in the fields and forests with men not a fourth his age, never tiring, always with a spirit that was undaunted and willing.

December 26, Oliveras took his mighty axe and chopped a huge oak down. His accomplishment was regarded as phenomenal by his fellow workers who felt his 95 years would weigh too heavily on his old shoulders for such a task. He accomplished the feat, however, and refused to regard it as anything but commonplace.

Then came a severe cold. He went to bed for a few days, and asthma began to affect his breathing. He fought off the illness, claiming it was "nothing much." However, three days ago he became quite ill, and Dr. L. M. Liles was sent to examine him. The medical man offered to send the aged Indian to Santa Cruz for treatment, but he pleaded that he was all right, and declared that he wished to remain at "home."

REFUSED ATTENTION

The doctor consented, even though Harry Mozingo, the constable, was ready and willing to transport him to the county hospital.

It was recalled that Oliveras spent a few months in the hospital several years ago, even though at that time he claimed he was "not sick." He left the hospital on the slightest excuse, and finally officials decided to permit him to remain away.

GLAMOROUS LIFE

According to intimate friends of the old warrior, his life had been full of color and adventure.

When a small boy he left the Pajaro valley briefly, going to Texas. He engaged with his fellow-redmen in many skirmishes with the whites and it was not until the west had been won that he became friendly with the whites. He is said to have joined the U. S. Army at one time, and fought for his country through one war. (None of his friends remember which war he soldiered through.)

In recounting tales of his early youth and young manhood, Oliveras never boasted, but those who heard him narrate, declare his early experiences would have been of great historical value. He was courageous, crafty and honest, and once he made a friend, he never lost him. His deeds of valor against the whites and side by side with them during the war, were not mere exploits of the imagination, but were actual experiences rich in romance and life. He was an early day scout, and spent much time in the saddle and in the open where he kept his tribesmen informed of the approach and the advances of the whites.

That Gabino Oliveras was an honest man is attested to by all who know him. He, despite his age, would go to work in the fields early, leave them late. He was never in want of work, for his ability, his energy and his willingness was known throughout the valley.

Gabino never asked for easier work as he became old; he asked for work with the younger men, and when he went into the fields he took in just as much "territory" as any. He was jolly and goodnatured, but was not prone to converse with those whom he did not know well; to his friends, he was always ready to "spin a yarn," and almost invariably, his "yarns" were of historical foundation.

MIND ACTIVE, TOO

His remarkable mind was well preserved to the end. He kept himself well, and was regarded as fine company by all who knew him.

According to Gonzales, Oliveras awakened early Sunday. He got out of bed and went down stairs. He ambled about the yard for a bit, and then apparently decided to return to his room. He reached the eighth step when he fell. He rolled to the bottom of the little stairway and never regained consciousness.

Medical aid was called, but the victim of the fall had passed on, apparently from the shock, it was said.

His friends tenderly removed the old body to Mehl's funeral home. Funeral arrangements which have not been completed, will be announced later.

Novel Map Will Represent California of Indian Days

Boundaries of Present State Held 200 Tribes, Speaking 129 Languages, Research Students Assert

SAN FRANCISCO, Feb. 22 (Special Correspondence)—Refashioning the map of California as it might have been drawn by an Indian cartographist in the days before the Spaniard and the American came, is the task which Dr. Arthur L. Kroeber, Professor of Anthropology, University of California, Dr. C. Hart Merriam, Washington, D. C., and others have set for themselves.

Dr. Merriam, who was formerly head of the United States Biological Survey, and is now chairman of the National Board of Geographic Names, has gathered maps and data during 19 years of travel and research which, when completed, are expected to write a new chapter on American history relative to the American Indian.

He has traced 24 linguistic stocks of 200 Indian tribes speaking 129 different languages. He has discovered eight unknown tribes and abundant evidence of a civilization well developed politically and socially with a religion articulated to nature, to the birds and flowers.

Dr. Merriam has located the sites of several thousand villages or rancherios. In some instances the remains of the red man's brick houses and conical bark tepees have assisted and corroborated the testimony of the Indians. The tools used in building were the stone mallet and chisels fashioned of elk horn, with which to hew the huge redwood planks four inches thick for doors.

In the Sacramento Valley country a different "architecture" prevailed. The houses were of brush and earth, dome shaped, with smoke holes at the top. In the Klamath Basin alone, 309 villages have been definitely located.

Entirely unrelated to the work of Dr. Merriam is the work carried on by the university. Customs and institutions of Indian tribes in California have been the subject of 25 years' research. Dr. Kroeber is in charge of the investigation. In addition to study of the tribes, the languages, which were all unwritten, have been recorded as far back as possible. The degree or lack of relationship which they show has proved to be a valuable means of classifying tribes and reconstructing their ancient migrations and history.

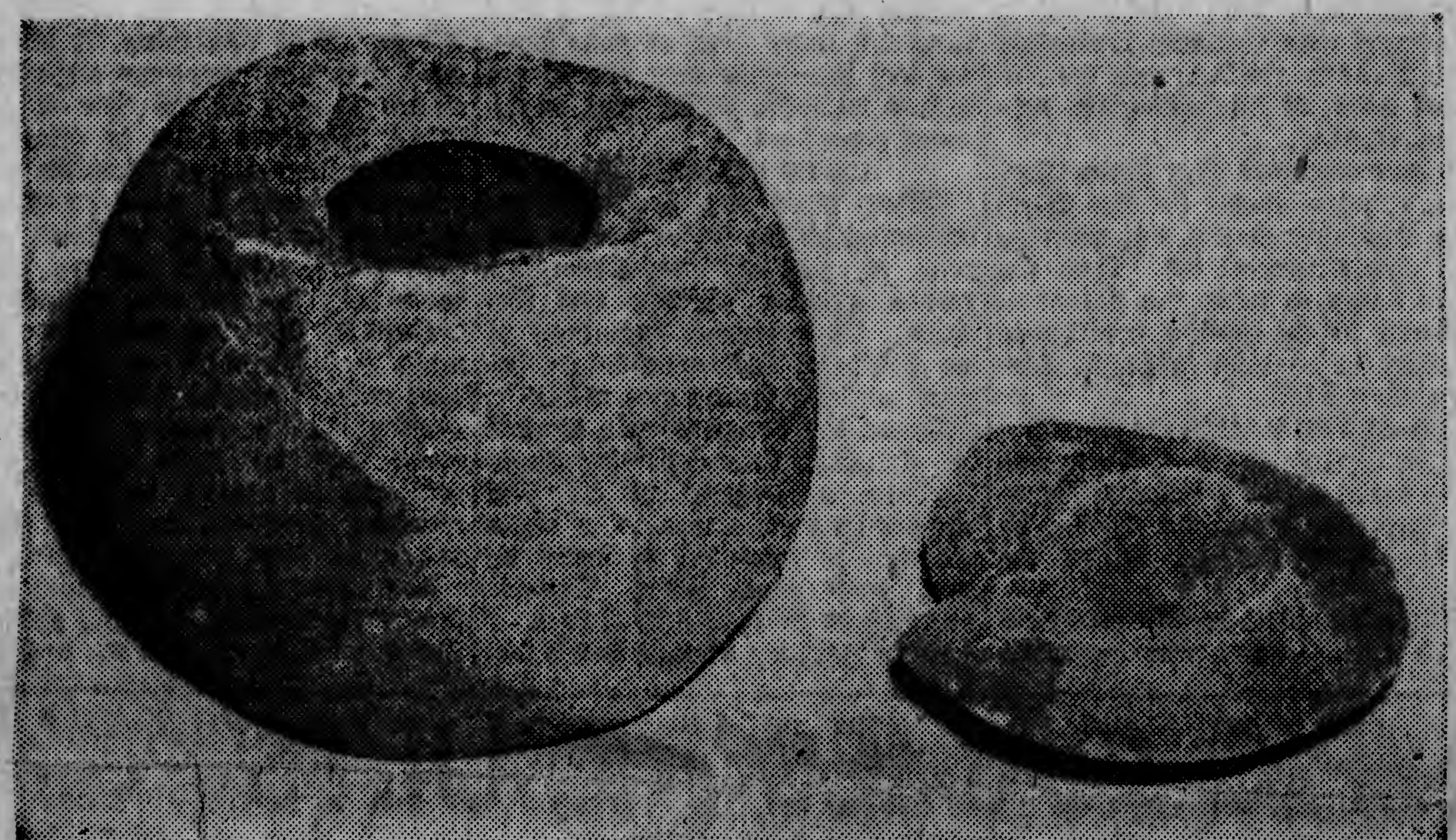
"It is clear from the evidence of speech that the Indians whom the Spaniards found in and about Los Angeles County came originally from the intermountain region," says Dr. Kroeber. "They penetrated, perhaps 1000 or more years ago to the Pacific coast, dispossessing other tribes, who were pushed to the north and south. At a still more remote period the invaders must have been connected with a series of tribes in Mexico, including ancestors of the historic Aztecs, as indicated by resemblances in their respective dialects."

Investigations carried on during the past year included studies of the social and educational institutions and customs of the Indians of southern California, of the Waweah River area, of the west side of the Sacramento Valley and of the coast districts of Mendocino and Lake Counties, as well as exploration of the shell-mounds of San Francisco Bay and the earth-mounds of the San Joaquin delta. Studies projected for the coming months will extend to the Indians of the Tahoe region and the Klamath lakes in the extreme north.

Christian Science Monitor, Feb. 25, 1926.

J Barbara

Goleta's Early History Revealed by Scientist



Archaeological excavations at the Bishop Ranch in Goleta produced this small sandstone bowl, proof of an old Indian belief that if the spirit is to have tools in the hereafter, the implements must not only be buried with the body, but also "killed." Thus the spirit of the tool is released to accompany the spirit of the dead. Both the bowl and the "kill" plug were found in a small depression at the end of a grave by William M. Harrison, Berkeley, who was here throughout the spring and summer studying Indian culture in the Goleta Valley.

Searching for clues to the pattern of life of Goleta Valley dwellers who inhabited the area more than 2,000 years ago, Harrison is shown at left above, working with Nick Katem, a geologist, on the slow, painstaking job of digging into a village site atop a high mound on the Bishop Ranch.

Diggings Show Indians Wrested Meager Existence from Area 2,000 Years Ago

By STEVE SULLIVAN

Guided missiles for warfare and rockets that will carry the earth's first satellite into outer space will soon be developed in the Goleta Valley on the very site where a community of Indians more than 2,000 years ago was using crude stone spear points to harvest a meager existence from the sea.

Excavations this year for new Aerophysics Development Corp. buildings on Hollister Avenue west of Municipal Airport, and subsequent research by a young archeologist from Berkeley, have shed new light on the sequence of occupation of the area.

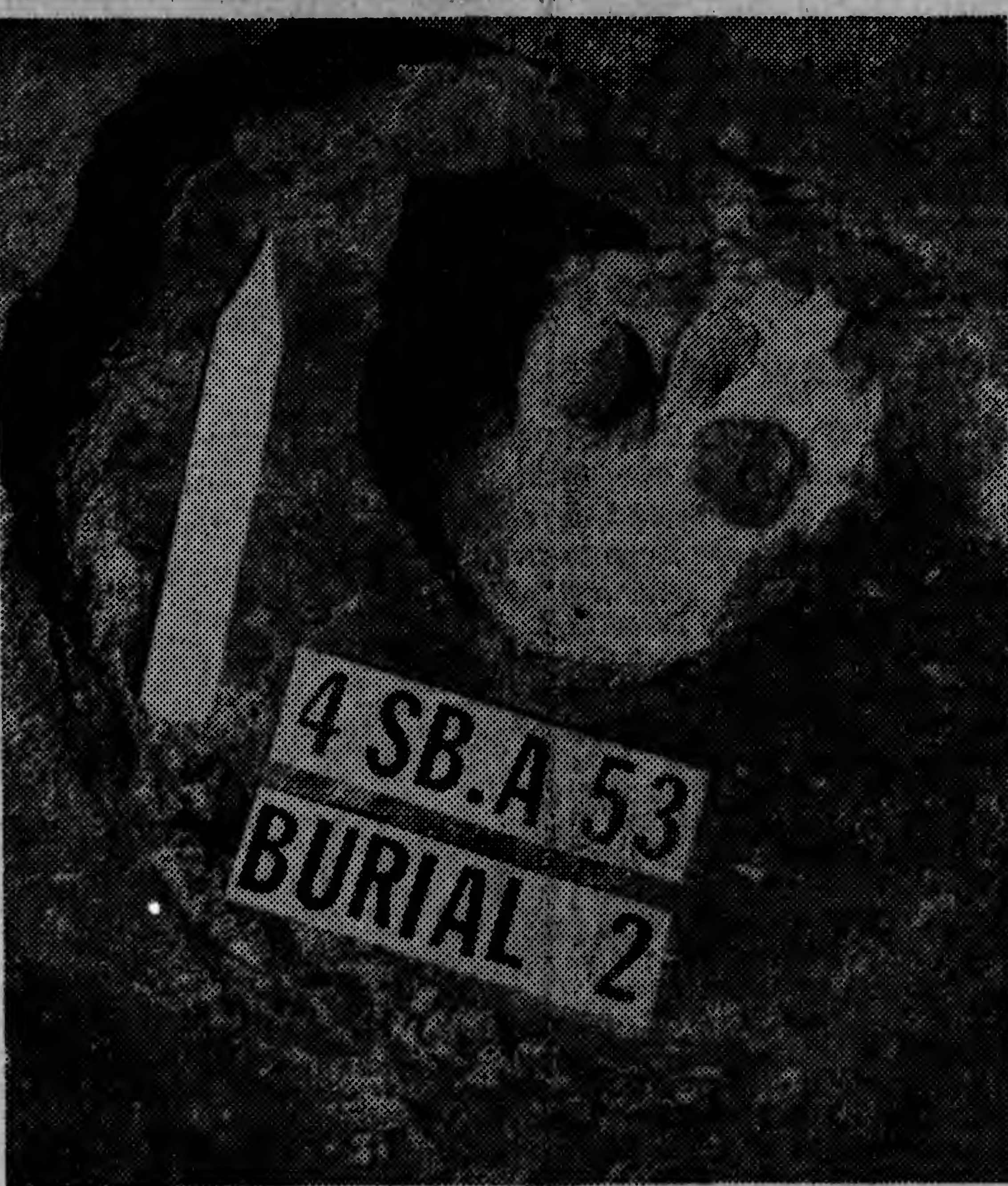
By careful examination of burials uncovered there, and close study of tools, implements and other artifacts, William M. Harrison came up with preliminary findings of the cultural patterns of the early inhabitants before he returned to Berkeley in September to resume work on his doctorate at the University of California.

Several weeks were also spent opening and investigating another site on the Bishop Ranch in Goleta, between Hollister Avenue and the Southern Pacific Railroad tracks, in an effort to learn more about the people who lived there before the days of the Canalino culture.

NO AGRICULTURE

Though they lived in the heart of an area where agriculture now flourishes as a major industry, Harrison has determined that the inhabitants of the village at the Aerophysics site subsisted primarily on the meat of sea mammals and shell fish, with no indication of any type of farming. They likely ground acorns into meal, he believes, and made use of such available "crops" as grass seed, pinon nuts, pine nuts, and berries.

Shells found at the ADC site, an area measuring about 600x900 feet, were predominantly of the giant Pismo clam, which no longer exists on the Santa Barbara County



When Harrison uncovered this Indian skull 24 inches below the surface of the ground, he carefully dug around it in a wide circle, searching for the skeleton, which was never found. Skull rests on a pedestal of earth about 12 inches high, as a result of the tedious quest for bones and other burial accompaniments. Nearby burials indicated the bodies had been tightly bound in a knee-chest position before burial.

lieves, "seems to indicate that the earlier interpretation could be erroneous. It is more probable that the mano-metate combination was the first grinding tool known to man in the Santa Barbara region, but at some later date, the mortar-pestle combination was introduced, probably by diffusion from another area. Gradually, through time, the mortar and pestle became more prominent, but the mano-metate was not wholly discarded."

LITTLE CHANGE

The fact that there is evidence of little cultural change throughout the site points to the conclusion that there was a large group of people there for a relatively short period of time. Harrison estimates about 300 people lived at the site for about 100 years.

One of the objectives of Harrison's work, under the direction of Dr. Norman Gable, associate professor of anthropology at UCSBC, was to establish a date for site occupation. So far, Carbon-14 tests which will establish this have not been made, although Harrison says it can be relatively dated as pre-Canalino—at least 2,000 years old, and quite possibly older.

A total of 15 burials was uncovered at the Aerophysics site, with all of the skeletons found in a tight-flex position, with the knees up under the chin. An important variations in the burial pattern was discovered, Harrison reported. Thirteen of the burials were discovered lying on their backs and oriented north, while two older skeletons buried 18 inches deeper were on their sides with one pointing east, the other west.

lationship to the antiquity of these materials.

"At one section of the ADC site, all stone artifacts and all bone, including a human burial, were heavily encrusted with this deposit, which results from disintegrating shells being leached downward by rain and the resulting mixture coming to rest on the artifacts or bone.

"Artifacts and bone from the rest of the site showed no calcareous deposit, or only a very slight deposit. As this site is of a short time duration, as seen by the lack of much cultural change during the entire period of occupation, the difference in the degree of deposit all within this site indicates that factors other than antiquity determine the amount, or thickness, of the deposit.

OTHER FACTORS

"Some of these factors could be the amount of acid in the soil causing the shells to break down, and the quantity of phosphorous present. Since we know that all soils do not have the same properties, it is only natural that during the same period of time, materials in different soil types would acquire deposits at a different rate of build-up."

Harrison, whose major field of study is man's adjustment to his physical environment, believes that Santa Barbara county offers one of the best areas in the United States for such a study. He points out the environmental differences between the Channel Islands, the coastal area and the interior valleys and mountains, as well as the climatic changes that have occurred here in the past.

"Against the background of these great environmental differences", says Harrison, "one can study the various cultural changes that man has made through a very long occupation in this area. The study of archaeology in Santa Barbara county can reveal how the physical environment can mold man's culture and, conversely, how man can use his culture to mold the environment through technological advances, and thus derive a higher standard of living for himself. At present, the inter-relationships between culture and the physical environment are poorly understood."

Harrison spent the summers of 1954 and 1955 at Paragonah, Utah, where he studied Pueblo Indian excavations. He also excavated a site in San Diego county that was in existence shortly before the Spanish came to California, and that was abandoned just afterwards. His work on publications includes "Archeological Excavations in Iron County, Utah," and he expects to complete within a year work on reports about the San Diego and Goleta excavations.

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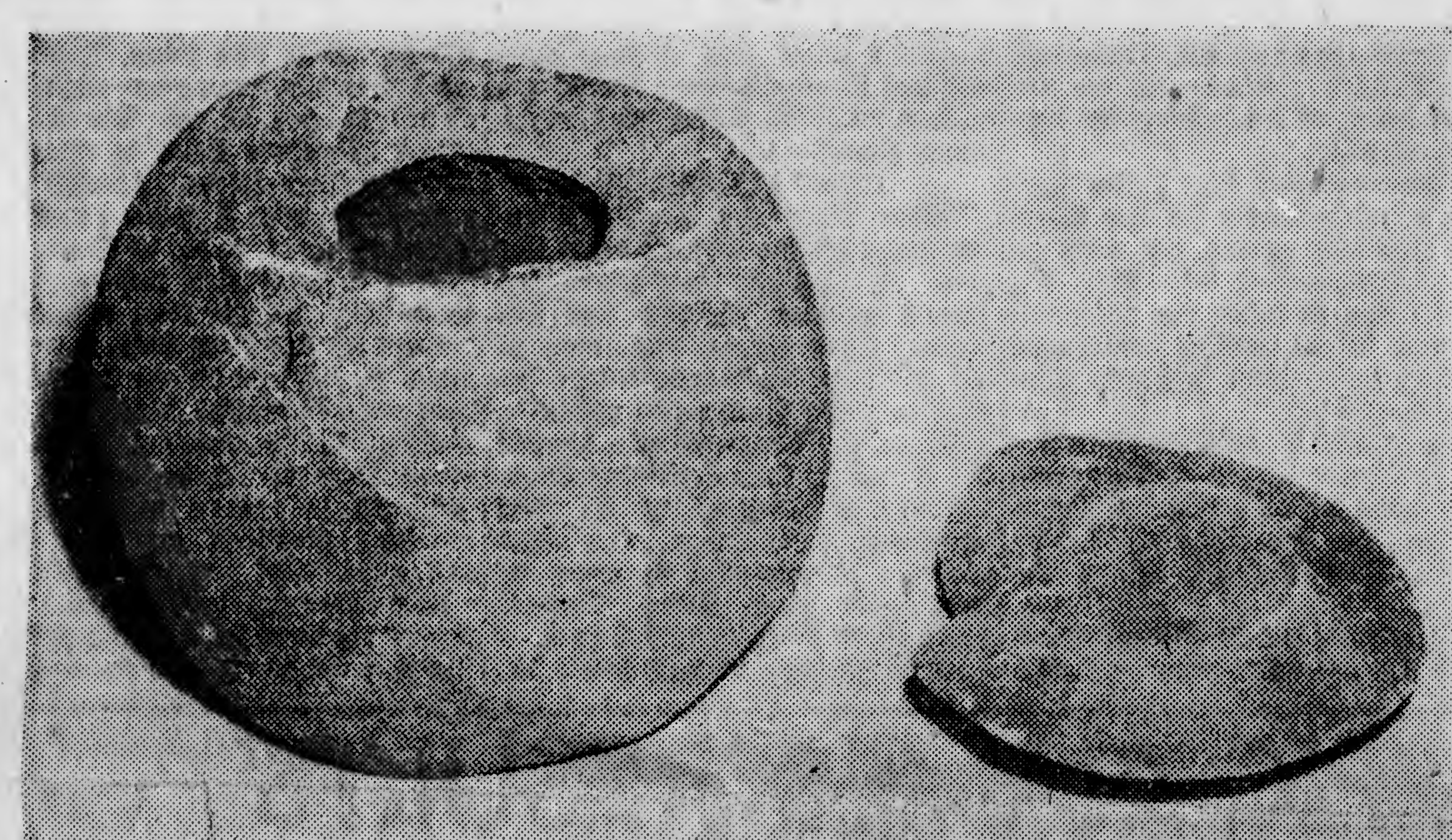
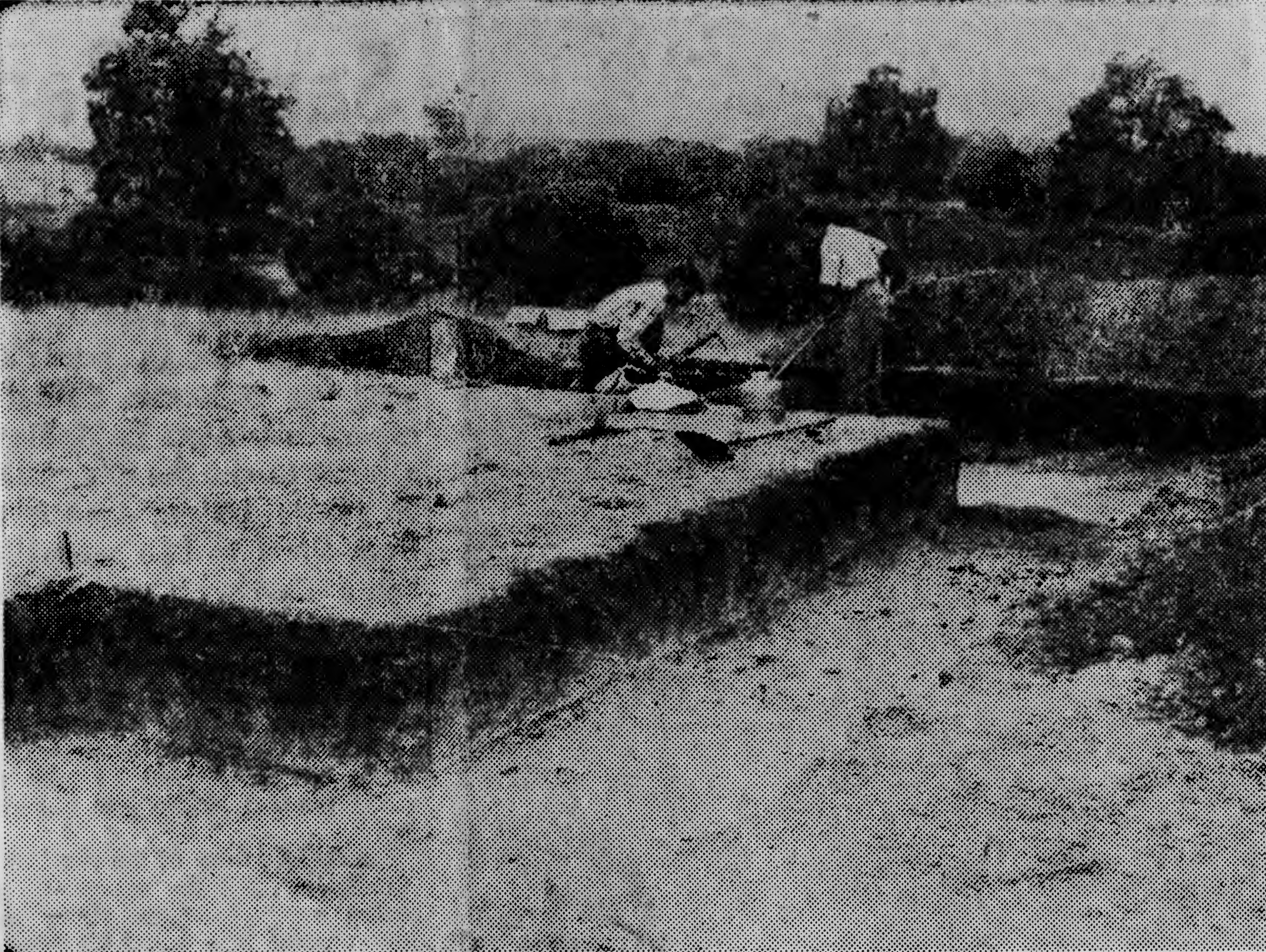
Goleta's Early History Revealed by Scientist



Archaeological excavations at the Bishop Ranch in Goleta produced this small sandstone bowl, proof of an old Indian belief that if the spirit is to have tools in the hereafter, the implements must not only be buried with the body, but also "killed." Thus the spirit of the tool is released to accompany the spirit of the dead. Both the bowl and the "kill" plug were found in a small depression at the end of a grave by William M. Harrison, Berkeley, who was here throughout the spring and summer studying Indian culture in the Goleta Valley.



Searching for clues to the pattern of life of Goleta Valley dwellers who inhabited the area more than 2,000 years ago, Harrison is shown at left above, working with Nick Katem, a geologist, on the slow, painstaking job of digging into a village site atop a high mound on the Bishop Ranch.

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lieves, "seems to indicate that the earlier interpretation could be erroneous. It is more probable that the mano-metate combination was the first grinding tool known to man in the Santa Barbara region, but at some later date, the mortar-pestle combination was introduced, probably by diffusion from another area. Gradually, through time, the mortar and pestle became more prominent, but the mano-metate was not wholly discarded."

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The fact that there is evidence of little cultural change throughout the site points to the conclusion that there was a large group of people there for a relatively short period of time. Harrison estimates about 300 people lived at the site for about 100 years.

One of the objectives of Harrison's work, under the direction of Dr. Norman Gable, associate professor of anthropology at UCSBC, was to establish a date for site occupation. So far, Carbon-14 tests which will establish this have not been made, although Harrison says it can be relatively dated as pre-Canalino—at least 2,000 years old, and quite possibly older.

A total of 15 burials was uncovered at the Aerophysics site, with all of the skeletons found in a tight-flex position, with the knees up under the chin. An important variations in the burial pattern was discovered, Harrison reported. Thirteen of the burials were discovered lying on their backs and oriented north, while two older skeletons buried 18 inches deeper were on their sides with one pointing east, the other west.

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"At one section of the ADC site, all stone artifacts and all bone, including a human burial, were heavily encrusted with this deposit, which results from disintegrating shells being leached downward by rain and the resulting mixture coming to rest on the artifacts or bone.

"Artifacts and bone from the rest of the site showed no calcareous deposit, or only a very slight deposit. As this site is of a short time duration, as seen by the lack of much cultural change during the entire period of occupation, the difference in the degree of deposit all within this site indicates that factors other than antiquity determine the amount, or thickness, of the deposit.

OTHER FACTORS

"Some of these factors could be the amount of acid in the soil causing the shells to break down, and the quantity of phosphorous present. Since we know that all soils do not have the same properties, it is only natural that during the same period of time, materials in different soil types would acquire deposits at a different rate of build-up."

Harrison, whose major field of study is man's adjustment to his physical environment, believes that Santa Barbara county offers one of the best areas in the United States for such a study. He points out the environmental differences between the Channel Islands, the coastal area and the interior valleys and mountains, as well as the climatic changes that have occurred here in the past.

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Retake of Preceding Frame

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LOOKED TO LAND

After working at both sites, Harrison reported that the people at the ADC site were more oriented toward the ocean for their livelihood, where the Corona del Mar village looked toward the land for survival.

Though he has not completed work at the Bishop Ranch, Harrison has found evidence that the dwellers who once made the mound their home found a plentiful supply of badger, rabbit, gophers and other rodents to round out their diet of smaller Pismo clams, acorns and berries. Fishing was on a smaller scale here than at the lower ADC site, and no evidence of sea mammals was found during the summer's work. Implements used for grinding grain were found at both locations, but more reliance was placed on the mano and metate at the ADC site, Harrison believes.

Shell beads, common and plentiful around Canalino sites, are noticeably absent from the two Goleta Valley locations, Harrison emphasizes, and implements made of bone were scarce. Although these inhabitants appear to have been poor culturally, Harrison found one

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But the middens will always be there, he said, as he packed his gear and returned to Berkeley, and he hopes to come back next summer to renew his research at Goleta, and at Cachuma reservoir sites that will be lost forever as the water rises behind the dam.

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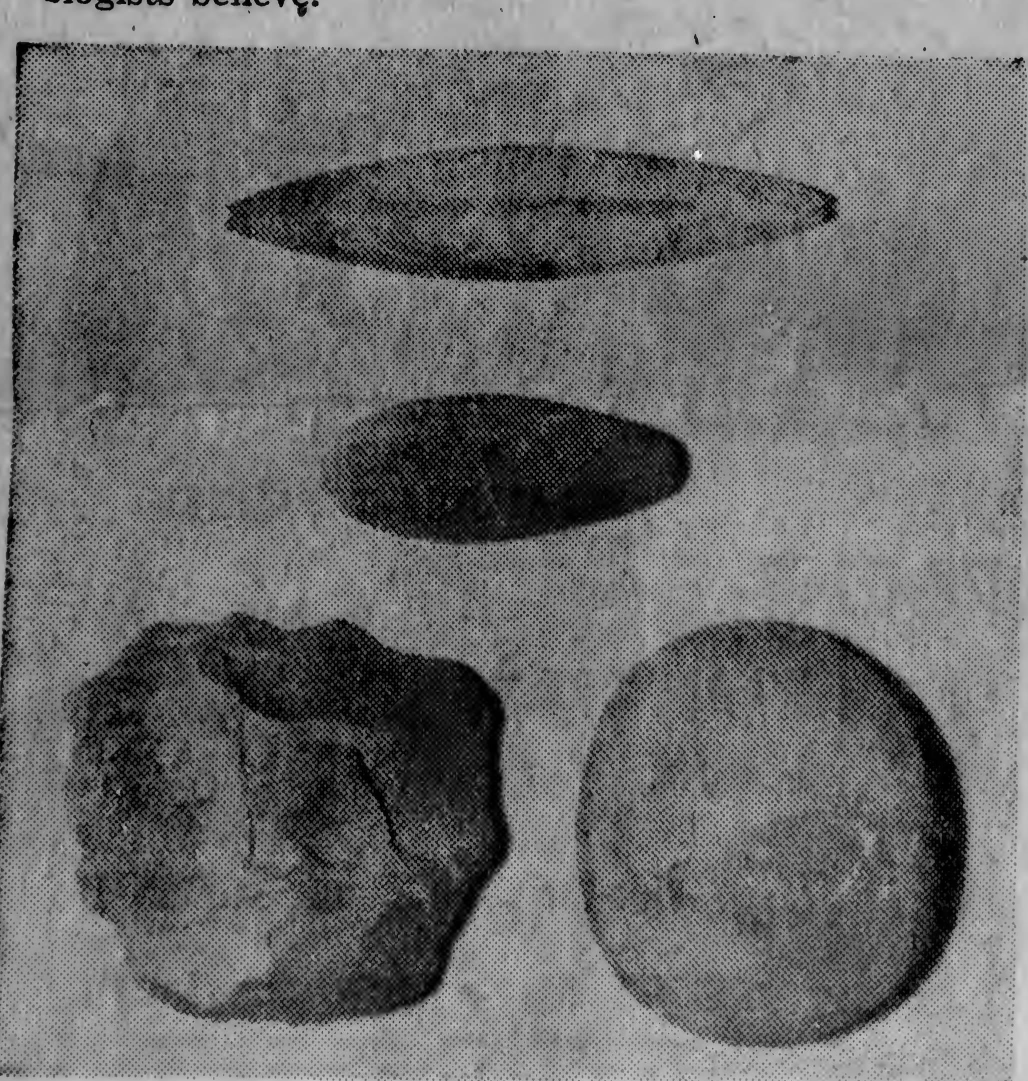
Discovery of a curve-bladed knife apparently unique to the Indians who lived at the present site of Aerophysics in Goleta, was made by Harrison, who believes these early dwellers developed an art that was lost to succeeding cultures for hundreds of years. Two smaller blades at left are probably functional, according to Harrison, who thinks the large blade may be ceremonial, due to the particular circumstances under which it was found. Large blade is only one of its type in existence, California archaeologists believe.

Projectile points found at the Aerophysics site (left) all had same characteristic side-notching, unusual in such a large location and indicating that the village use was of relatively short duration. Size of points suggests they were not used as arrow points but for darts or spears thrown with an atlatle or spear-thrower. Four small stones in bottom row are stone drills used for drilling holes in wood and stone. Two at right probably were hafted to a handle. Hand pick, extreme right, was used to dig into the ground, but not for farming.



Two top stones above are "charmstones" found at

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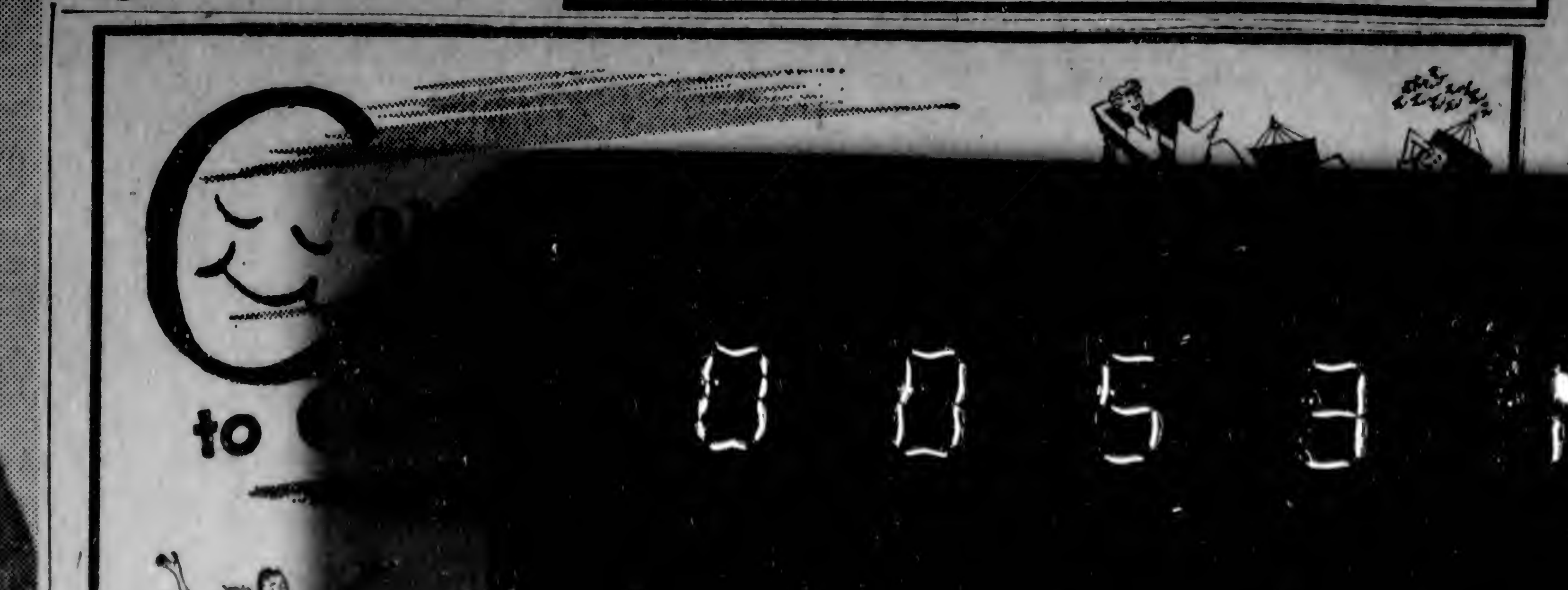

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"... various cultural changes that man has made through a very long occupation in this area. The study of archaeology in Santa Barbara county can reveal how the physical environment can mold man's culture and, conversely, how man can use his culture to mold the environment through technological advances, and thus derive a higher standard of living for himself. At present, the inter-relationships between culture and the physical environment are poorly understood."

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Through the co-operation of James Hall Bishop, Harrison further investigated the life of early occupants of the Goleta Valley by moving several hundred yards north and west of the ADC site to a 50-foot hill on the Corona del Mar Ranch. Here the young archeologist found evidence of a small village, inhabited by a group of about 25 Indians who lived in an area about 100 by 250 feet. Shell midden digging at an 18-inch depth indicated to Harrison that this site is of a more recent date than the Aerophysics location, but both correlate with the hunting culture phase of land occupancy in the area.

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"A curved blade," Harrison pointed out, "is much more efficient than a straight one, and these early Goleta inhabitants developed it. This concept of a curved knife, however, did not continue into the later cultures, and was a "lost art" for a long time.

"To my knowledge, this is the only example of this type of knife in existence, and I have shown it to many archeologists in California who concur."

The Indians also made use of the asphaltum that occurs naturally in the area as an adhesive for mending broken bowls and for making baskets water-tight, but no evidence was found that the sticky material was used in the shafting of projectile points or implements to arrows or handles.

Charm stones, not uncommon to Santa Barbara diggings, where they have been considered as having a ceremonial use, were also found at Goleta. These, however, had been given an unusual series of notches and grooves, suggesting a functional or ornamental use. One found at the ADC site by Harrison was made of chromite, a metal occurring naturally behind Figueroa Mountain, about 15 miles from the place where it was found.

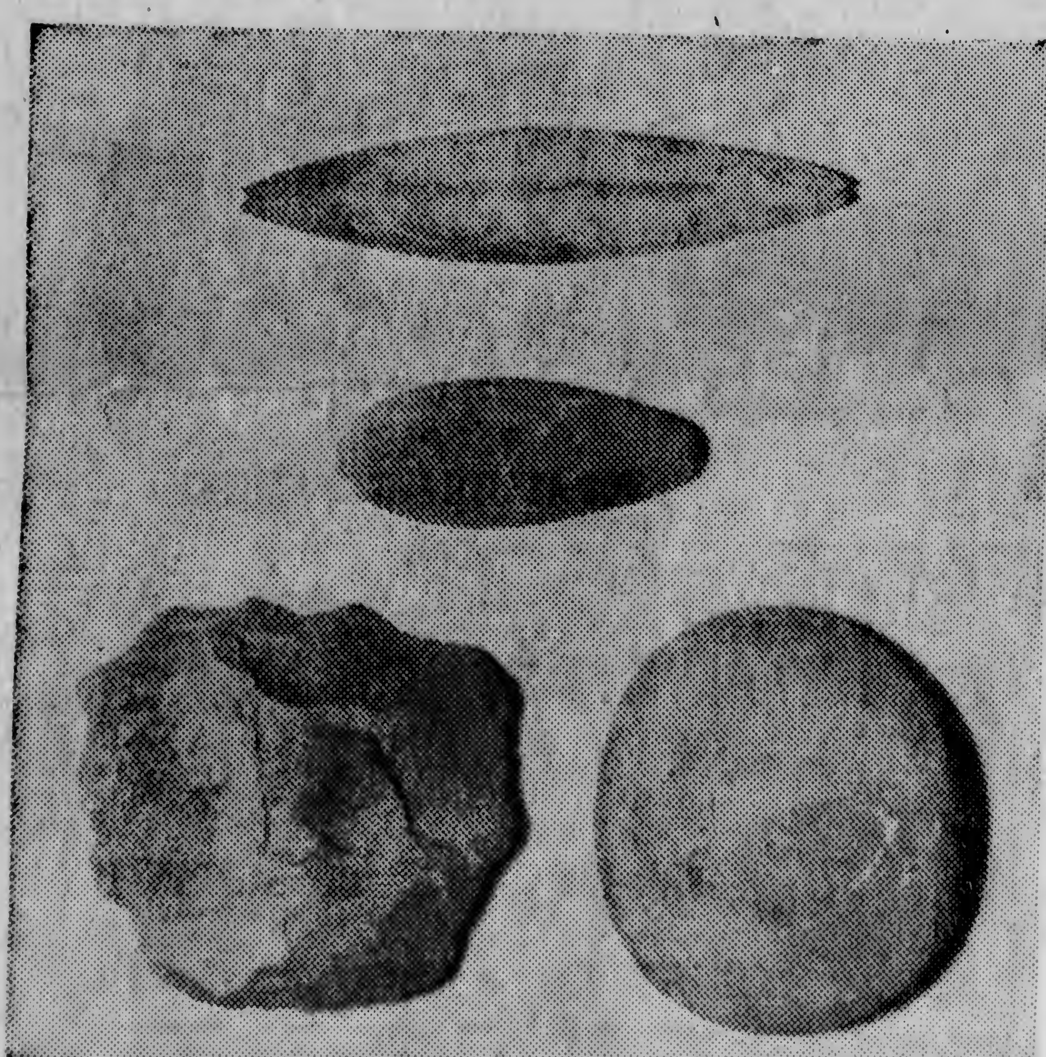
Hard at work on shedding still further light along the dark corridors of the past, Harrison had to halt his work here early in the fall to return to college. This meant covering up and back-filling all the summer's diggings at a time when he was just beginning to establish some of the investigations that brought him here.

But the middens will always be there, he said, as he packed his gear and returned to Berkeley, and he hopes to come back next summer to renew his research at Goleta, and at Cachuma reservoir sites that will be lost forever as the water rises behind the dam.

When Harrison uncovered this Indian skull 24 inches below the surface of the ground, he carefully dug around it in a wide circle, searching for the skeleton, which was never found. Skull rests on a pedestal of earth about 12 inches high, as a result of the tedious quest for bones and other burial accompaniments. Nearby burials indicated the bodies had been tightly bound in a knee-chest position before burial.

Discovery of a curve-bladed knife apparently unique to the Indians who lived at the present site of Aerophysics in Goleta, was made by Harrison, who believes these early dwellers developed an art that was lost to succeeding cultures for hundreds of years. Two smaller blades at left are probably functional, according to Harrison, who thinks the large blade may be ceremonial, due to the particular circumstances under which it was found. Large blade is only one of its type in existence, California archaeologists believe.

Projectile points found at the Aerophysics site (left) all had same characteristic side-notching, unusual in such a large location and indicating that the village use was of relatively short duration. Size of points suggests they were not used as arrow points but for darts or spears thrown with an atlatle or spear-thrower. Four small stones in bottom row are stone drills used for drilling holes in wood and stone. Two at right probably were hafted to a handle. Hand pick, extreme right, was used to dig into the ground, but not for farming.



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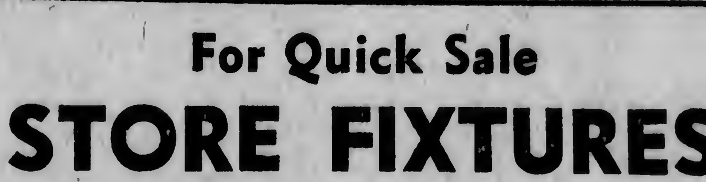

7-foot high wall cases and partition cases with adjustable shelving, both sides. Wrapping counters, gondolas, plate glass show cases, 5, 6 and 8 feet. 2 cash registers, safe, Hugh Toledo, weight free, scale.

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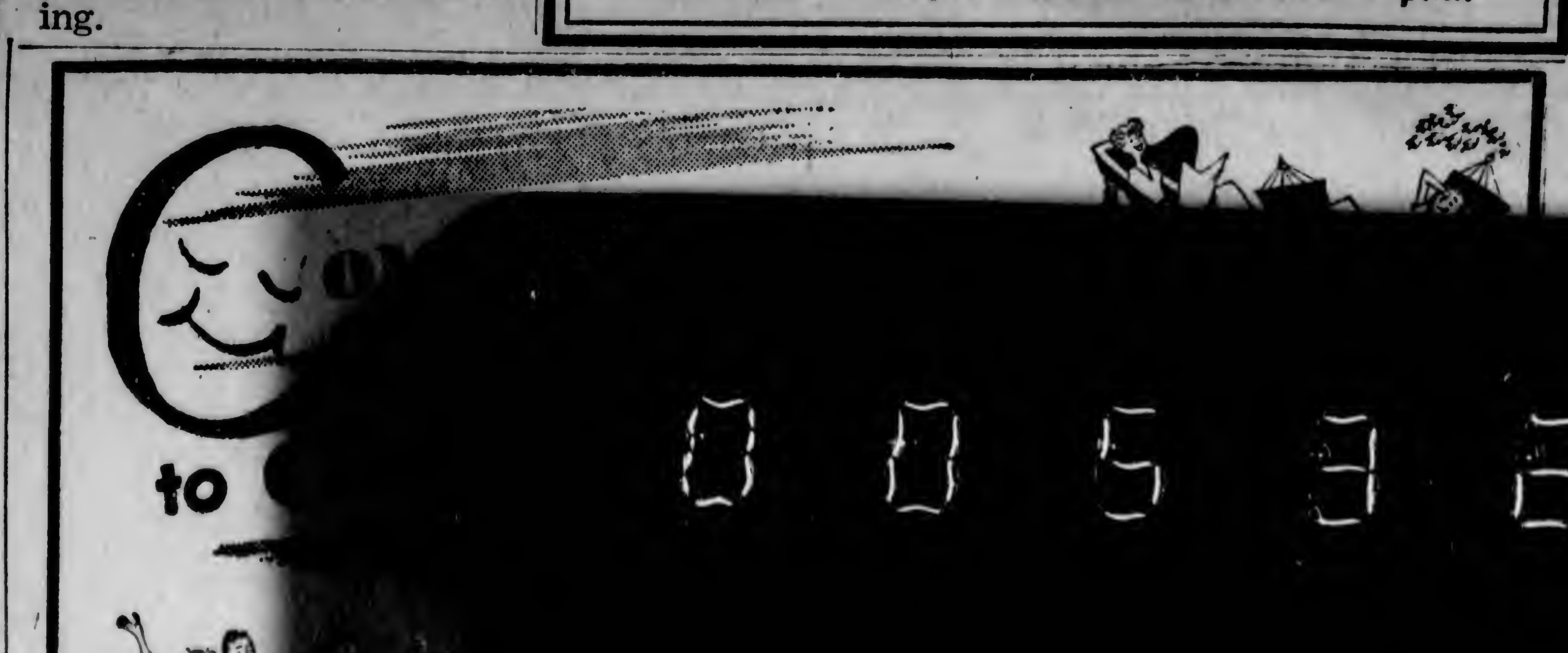

Retake of Preceding Frame

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No fish hooks of any kind were found at the ADC site, though there was evidence that the people also had fish to eat. The finding of perforated stones which could be used as fishnet sinkers probably explains how these fish were usually caught.

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Digging at an average depth of about 33 inches, and only steps ahead of bulldozers preparing the ground for the new ADC buildings, Harrison found artifacts that are at variance with theories originally established by the late D. B. Rogers of the Santa Barbara Museum of Natural History.

Rogers believed that the Santa Barbara area was inhabited by three different racial or sub-racial groups of Indians, with each of these groups succeeding each other in time throughout the Santa Barbara coastal area. Rogers had two lines of evidence to uphold his theory.

First he found a physical difference between the groups by comparing the skulls of each group. Second, he found a cultural difference between the groups by comparing the artifacts made and used by each group. He believed that each group made a distinctive type of tool which was never used by any of the other groups, or if so, only to a very limited degree.

As a result of excavations last spring and summer, Harrison found evidence to invalidate Rogers's cultural evidence for his theory.

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Harrison bases his belief for this departure from theories held since it was first known that the Goleta area was the site of ancient Indian burials, on the discovery of two distinct types of grinding implements in the same village. The tools are the mano and metate, and the mortar and pestle.

"In California," Harrison explains, "it is pretty clear that the mano-metate combination came before the mortar and pestle as sets used for grinding grains into flour.

"For a time, it was believed that the mano-metate complex was confined to the 'Oak Grove' culture, or the earliest culture in Santa Barbara, and that the mortar and pestle were introduced by a new people who never used the mano-metate.

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Harrison said that as far as he knows, the 13 are the only ones found in Santa Barbara oriented in such unexplainable fashion. He said all of the bodies were so tight in their flexed position that he believes they were bound up and wrapped before burial, although all evidence of any such wrapping has long since disappeared.

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Accompaniments buried with these early valley dwellers include mortars, pestles, manos, metates, blades and projectile points.

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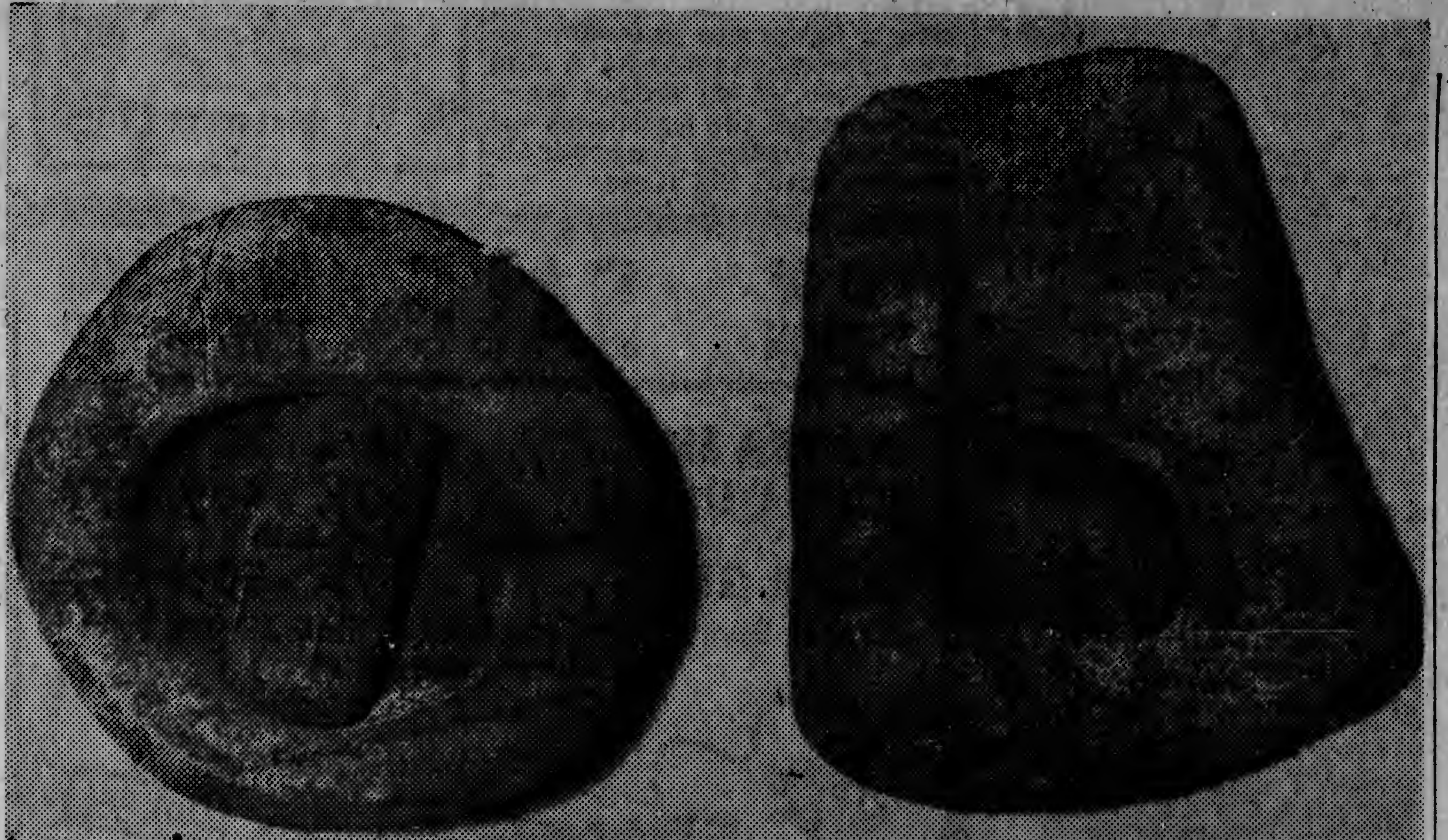

Discovery by Harrison of the more recent mortar and pestle, right, along with the older mono and metate in the same site at Aerophysics formed the basis for his belief that early land occupants were not of three separate cultures, but a single, steadily advancing Indian group. Both are used for grinding, and Harrison believes it likely that the mono-metate was first grinding tool known to man in the Santa Barbara region.—News-Press photos

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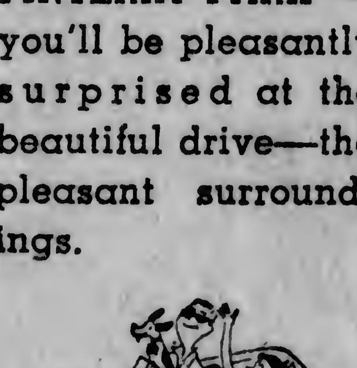

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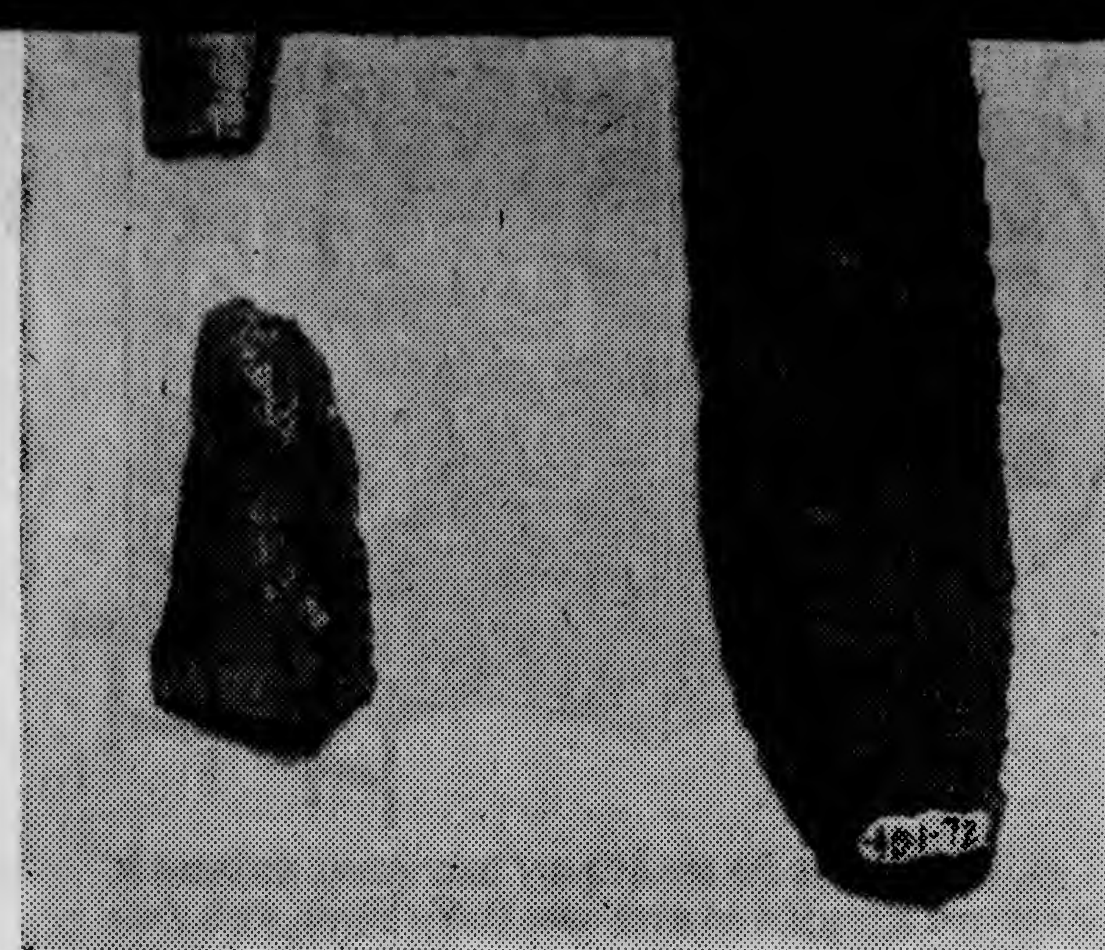

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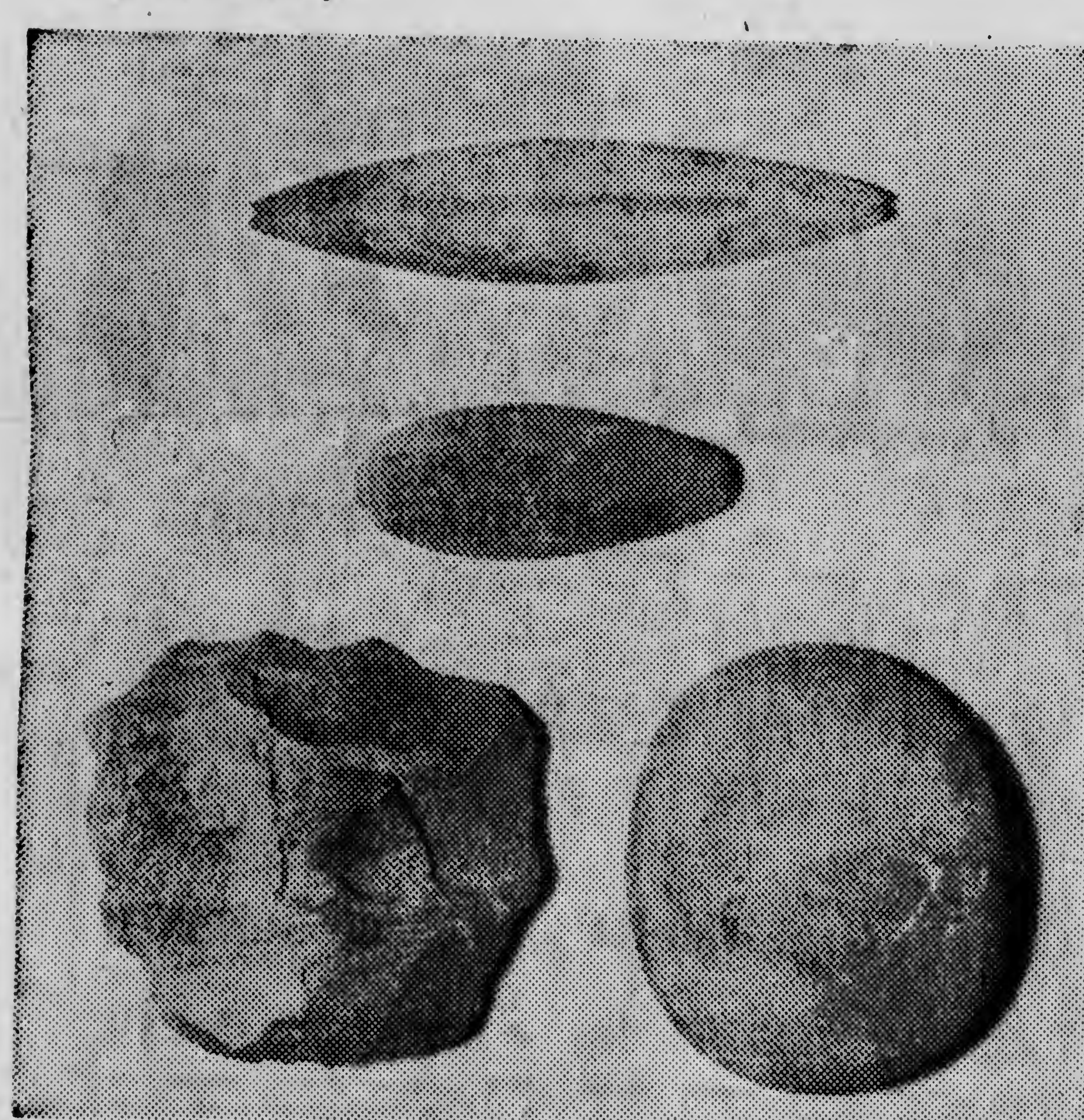

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Retake of Preceding Frame

HAYWARD, CALIF. REVIEW

SEPTEMBER 18, 1934

Niles Indian, 102, Called to Fathers

Many in the community of Niles today mourn the death of Joseph Guzman, 102 years old, yesterday afternoon at his home. He was a member of the Digger tribe of Indians and for 10 years had made his home in Niles. He is a native of Pleasanton and most of his life was spent near that city.

He is survived by four children, Tony, Fred and Jack Guzman and Mrs. Mary Mennus.

Funeral services are in charge of the Pratt mortuary and will be conducted at 8 o'clock tomorrow morning from the home, thence to Niles Catholic church, with interment to follow at the Holy Ghost cemetery at Centerville.

SAN DIEGO, CAL. SUN

JUNE 7, 1935

PALA INDIAN FETE PLANNED

The beautiful and picturesque celebration that yearly attracts thousands to the ancient Indian village of Pala, is to take place on June 23. Indians from all the surrounding reservations gather at Pala on that day.

Solemn high mass will be sung in the park directly in front of the Old Mission, San Antonio de Pala, at 10:30 a. m. The Indian choir will render music. The Reverend Brendan Mitchell, professor of the College at Santa Barbara, will be the celebrant of the mass, and give the sermon.

After the service in the park, a procession will be formed, the little children leading, and Indian girls dressed in white scattering flowers as they march along. Following them will be the clergy carrying the blessed sacrament under a canopy carried by the men. The procession will march through the village to three different altars, where benediction is given. The procession finally will end in the Old Mission itself, where benediction will be given for the last time.

The Corpus Christi celebration at Pala is most unique. It takes one back in spirit to the days gone by when the early Padres walked among and taught, and celebrated with the great-grandparents of many of the Indians.

After the service, a barbecue will be served at the rear of the Mission.

april 1935

The Black Widow Spider

(By IMOGENE C. ROBERTSON)

Reprinted from "Hobbies"
Buffalo Museum of Science

(Editor's Note: This article is of particular interest to residents of the Yosemite region, as several specimens of Black Widow Spider have been taken at El Portal and will possibly be found within the park boundaries at some future date.)

For pure, unadulterated venom, the black widow, or hourglass spider, Latrodectus mactans, carries off the honors. This dapper little ebony-hued arachnid, whose native home is in the southern states, has earned a reputation for the virulence of its bite equal to that of the tarantula. It deserves the reputation far more than the tarantula, since investigation shows that almost all fatalities from spider bites may be traced to the black widow and its near relatives in the genus Latrodectus.

While the serious effect of the bite of a black widow long has been known, it has aroused little concern among dwellers in the north and east of the United States. However, within the past few years, this area has been invaded by the venomous creatures which have been brought here with fruit and vegetables from the warmer sections of the country. There are on exhibition in the entrance lobby of the museum some specimens which were found with grapes imported from California.

The black widow is not a large spider. With outstretched legs it rarely measures more than an inch and a half from tip to tip, and the entire body is barely half an inch long. The shiny black abdomen is like a round shoe button and is marked on the underside by a characteristic red hourglass design, the most constant feature of its markings, which otherwise vary greatly. The mature female often possesses a series of red dots on the back, with one or more over the spinnerets, but these are not constant in number or occurrence and

BLACK WIDOW SPIDER
Inset shows characteristic hour-glass marking on underside of abdomen

they are sometimes entirely wanting. The male is more elaborately decorated than the female, having in addition to her markings, four pairs of stripes along the sides of the abdomen. He is much smaller than the female, which has earned

the name of black widow through her custom of devouring her mate.

Since immature females frequently are marked like the males, the presence of red spots on a round black body may be considered a warning.

The web which this spider spins is characteristic too, being of very coarse silk in an irregular mass. The female lays about 1,200 eggs in a season, so that when conditions are favorable these spiders multiply rapidly. Undoubtedly the extreme cold of our winters will aid in destroying the invaders of this territory.

The Indians of California rank the black widow with the rattlesnake as a source of poison for their arrows. This poison is used alone or as an ingredient with other poisons for a particularly virulent concoction. Since the bite of this spider may be fatal, it is gratifying to know that a serum for the treatment of victims, believed to be the first, has been developed by Dr. Fred D'Amour, professor at the University of Denver.

NEW EXHIBITS FOR THE YOSEMITE MUSEUM

By C. A. Wagner
Junior Park Naturalist

New exhibits are being prepared for the Geology Room, and the Glacier Point Lookout. The former consists of a large relief map showing the Sierra from the foothills to the crest and from Lake Tahoe south to Mt. Whitney. The map is in three sections, each measuring 10 by 12 feet. The first one shows the Tahoe region, the second the Yosemite region and the third the Sequoia-Mt. Whitney section. The scale is 2" to the mile and the maps occupy the entire north wall of the geology room.

This map will be used in our geology talks and as an orientation guide for the whole southern Sierra. It shows every stream, lake, trail and highway, and we believe it will be an active and efficient salesman for the High Sierra.

The maps were made in the CCC laboratories of the Berkeley office of the National Park Service. They were cast in sixteen separate sections, and these were later joined in units of four for shipment. Upon arrival the four units were joined and the whole installation of three large sections completed. The maps are being given the final touches, that is, painted and labeled, by the museum staff.

The new exhibit for the Glacier Point Lookout is to consist of three 32in.x38in. relief models showing the Yosemite region during the period of maximum glaciation, the Yosemite region during the last ice invasion, and the Yosemite region today. These models will be fastened to the west wall of the Lookout and immediately in front of them will be a narrow table with seats. Fixed to the table will be four books of identical drawings and text, telling the complete geological story based on Matthes studies of the formation of Yosemite Valley.

Editor's Table.

IT is our purpose to make this Magazine a vehicle of communication between the intelligent minds of the State, as well as to convey instruction, and make a pleasant companion. The field of Californian science may be said to be just opening. Here and there a worker is delving among the hidden ... and bringing up to light facts of scholars of the State to aid and assist us. We know that many of them will do so; and in a few months we are confident that the monthly appearance of the Magazine will be looked for with the most lively expectation in all parts of the State as well as in all parts of the world, where a real and genuine interest is felt in our glorious country.

At the same time the history of Califor-

"times, times and a half" before that line will be built.

Asbestos is said to be found in large quantities in the neighborhood of Iowa Hill.

There are two pear trees at Placerville bearing two distinct crops of fruit this season.

A small party of Digger Indians are endeavoring to become civilized by cultivating a four-acre lot near Campo Seco. They have erected a rude frame house and have a fine crop of corn, besides melons and pumpkins. They imagine that they belong to the honest yeomanry of the country and assume great airs of consequence and importance.

The Mechanics' Institute opened their Fair at the new Pavilion on the corner of Montgomery and Sutter streets, on the 4th of September. John W. Cherry made the inaugural address on the evening previous. The Fair was a very fine one, and attracted much attention.

The steamer *John L. Stephens*, which arrived on Sept. 2d, brought out a steam fire engine intended for Monumental Engine Company No. 6. It formed a part of the procession of the Monumentals on their Tenth Anniversary Celebration on Sept. 13th, and was then placed in the Mechanics' Fair.

The corner stone of St. Mary's new Hospital of the Catholic Sisters of M[illegible]

With the author's compliments

Reprinted from JOURNAL OF MAMMALOGY
Vol. 7, No. 1, February, 1926, pp. 59-60

INDIAN RECORDS OF CALIFORNIA CARNIVORES

In an earlier issue of this Journal (Vol. 1, 1919-1920, pp. 38-40) C. Hart Merriam records the fact that the Diegueño Indians of southern California were familiar with the jaguar (*Felis onca*). Similar information was given the present writer by northern neighbors of the Diegueño, the Cahuilla Indians of the Coachella Valley and San Jacinto and Santo Rosa Mountains; which in the light of the scant data extant seems worth putting on record. Francisco Nombre, an old clan chief of the Desert Cahuilla near Coachella, stated that in his youth an animal called tu'kwut, described as a large cat with a yellow brown skin marked with spots and having a long tail, was well known in the mountains bordering the desert. He said that the male's tracks were larger than the female's, while the latter track was the same size as that of tu'kwit, the mountain lion. This assumed sex difference may have been pure rationalization, but he was firm in his belief that most of the tracks attributed to the jaguar were very large. The old people made a practice of following jaguar and mountain lion trails in order to uncover and eat the deer remains the animals buried. Jaguar skins as described above, were quite often brought as gifts by mountain Indians to their fathers' "fiestas" on the desert. The last animal of this species he remembers, was killed back of Palm Springs about 1860, by an Indian stalking deer with a deer head disguise. The jaguar attacked the man and was killed by a musket ball. Francisco saw the fresh spotted hide and the long curved claws which were used as a dog collar. Aside from this case, perhaps one of mistaken identity on the part of the jaguar, no case of a jaguar or a mountain lion attacking anyone was secured. As the informant in question had never heard the term jaguar, nor of the more familiar "el tigre" of the Mexicans, it is highly improbable that he invented the foregoing data. The Mountain Cahuilla use the term tu'kwut in a vague way for any strange animal, for example a lion or a tiger in a circus, but no informant questioned knew the exact derivation of the term. One old man, Cornelio Lubo, said, however, that he believed it meant a cat larger than a mountain lion, but he had never seen one.

(his)

Another term in the Cahuilla language that has a doubtful zoölogical derivation is the word iswit, which is used at present as a synonym for tu'kwit or mountain lion. The older Cahuillas say that it means wolf, but no informant questioned had ever seen this animal in the flesh. The Spanish equivalent for iswit is lobo, a corruption of which, lubo, is now employed as a clan and family name in the San Jacinto Mountains. Dr. Joseph Grinnell tells me that so far as he knows no wolf has ever been taken west of the valley of the Colorado River or south of the Tehachapi. Either the term iswit was employed by the ancestors of the present Indians in a previously occupied territory, acquired through contact with other tribes, or else the former range of the wolf extended into the San Jacinto and Santa Rosa Mountains. One of the former explanations seems most reasonable.

The California grizzly bear (*Ursus magister* Merriam), called hu'nwit by the Cahuilla, was regarded as a very dangerous animal by all the southern California Indians, and when a man-killing individual came into the neighborhood the clans affected grouped together and either drove him out of the neighborhood or killed him. The former course was considered the more desirable, but whenever possible the bear was unmolested. A case where a grizzly killed two Indian women on Cahuilla peak about fifty years ago, led to its being hunted down and killed near Palm Springs. The last bear of this species remembered by Alejo Potencio was killed by white men back of Indian Wells about thirty years ago.—WILLIAM DUNCAN STRONG, *University of California, Berkeley, California.*

HAVE YOU SUBSCRIBED for the California Indian Herald

Each month, beginning with the January issue, the California Indian Herald will contain the story of the California Indians' case told by Colonel Jennings C. Wise, chief legal counselor at Washington, D. C., for the Indian Board of Co-operation. Colonel Wise will write on the following subjects:

ORIGIN OF CALIFORNIA AS A STATE.

INDIAN TITLE IN CALIFORNIA LANDS UNDER SPANISH AND MEXICAN LAW.

EXPRESS PROVISIONS OF TREATY OF GUADALUPE HIDALGO WITH RESPECT TO PROPERTY AND TITLES.

TREATY OF GUADALUPE HIDALGO AS A CONTRACT.

TREATY OF GUADALUPE HIDALGO CONSTRUED.

INDIAN TITLE AND ESTATE UNDER LAWS OF THE UNITED STATES.

INDIANS HELD LANDS UNDER COMMUNAL SYSTEM, RIGHTS OF TRIBAL MEMBERS BEING THOSE OF COMMONERS.

CALIFORNIA INDIANS OUSTED BY THE UNITED STATES.

UNITED STATES DID NOT EXTINGUISH INDIAN TITLE BY EXERCISE OF RIGHT OF EMINENT DOMAIN. WHAT WAS JUST COMPENSATION IN THIS CASE?

TRIBAL MEMBER MAY RECOVER POSSESSION AND DAMAGES IN EJECTMENT.

Each new subscriber will receive a copy of the December, 1923,

RAMONA IS DEAD

Note: Shortly before the death of Dr. George Wharton James, he wrote the following story for the Herald. Dr. James was a great admirer of Ramona. When lecturing he often told his audiences of the skill of Ramona and of the mythology which she wove into her wonderful baskets.—Editor.

On the 16th of September, 1923, there died at the San Bernardino County General Hospital one of the best known Indians that ever lived. Every Indian in the state should be familiar with her history. In brief, it is as follows: She was a full-blooded Indian, born in Mexico, and came to this country when she was ten years old. She and her parents lived on the old Spanish grant of the proud Castilian family, the Lugos, until the grant was opened to public settlement. They identified themselves with the Cahuilla tribe, which afterwards settled in the reservation known by their name, on the shoulders of a tributary mountain to the majestic Mount San Jacinto. In due time she married and she and her husband moved away to a small patch of land in a Canyon, some six miles away from Cahuilla Village. There they built a small adobe cottage and a child was born to them. Ramona's husband's name was Juan Diego. He was of a somewhat melancholy temperament owing to temporary fits of aberration that seized him, and made him do strange and unaccountable things. The Indians and Mexicans of the country used to say when he was thus afflicted, that Juan "had a fit of loco," or was "locoed." The whites all knew him, and though his actions were often very queer, they trusted him and knew that he was reliable, when well, and intended no wrong.

One day their little one fell ill and in terror Ramona begged her husband to go to the Indian agency physician at San Bernardino and secure medicine for her treasured baby. Saddling his poor, scraggly Indian pony, Juan hastened down over the fifty miles or so to San Bernardino, secured the needed medicine and started back home. But by the time he had reached Old San Jacinto, both his pony and himself were too wearied to travel further, so turning his animal loose in the great corral, where many fine horses were being held for the night, he threw himself down on the ground and almost immediately fell asleep. Waking before sunrise in the morning it is thought a fit of loco had come over him. Leaving his own pony (which everyone about the place knew perfectly well), he placed his saddle on one of the fine horses standing in the corral and hastened off to his sick child and agonized wife. When Ramona saw him and the strange horse, she begged him to return with it immediately. She knew how horse-thieves were regarded, and while most of the whites of the valley would have absolved Juan from any thought of horse-stealing, she was aware that his action looked like a theft and might be regarded as one. But poor Juan was so wearied with his long ride and the illness that had come over his own clouded brain that he refused to leave until he had gone to bed and had a refreshing sleep.

In the meantime the very thing that Ramona feared came to pass. At the hotel corral the owner of the horse (Sam Temple) that Juan had taken, early discovered his loss. Rushing into the house he complained to the landlady (Mrs. Jordan) that someone had stolen one of his horses. Going out into the corral, Mrs. Jordan saw Juan's pony and at once jumped to the conclusion (which afterwards proved to be the truth) that Juan in a fit of loco had taken the wrong horse. This she told to Temple, assuring him that his horse was quite safe and shortly would be returned. In a fury of anger, Temple refused to believe this and, declaring that his horse had been stolen and that he would "get" the thief, he went and borrowed a shot gun and a revolver, and hurriedly tracked his horse up the mountain trail. After several hours of riding he mounted a crest, on the other side of which was Juan's and Ramona's adobe hut, and there, tied to a tree, was his lost horse. Dismounting and tying the animal he had ridden by the side of the other, he advanced towards the cottage shouting "Juan Diego!" The Indian hearing the call rose and, sick and sleepy, came to the door. And her testimony differs as to what took place. Ramona tells her story and Temple his.

CALIFORNIA INDIAN CHRONICLES,

A New Feature for Touring Topics, Etc., by the Editor

IT IS rather too bad that Sir James G. Frazier was not familiar with Carl Meyer's *Nach dem Sacramento* when he prepared his magnificent and monumental treatise on the life, customs and religions of the world's primitive peoples, and published it as *The Golden Bough.* Frazier did know Father Gerónimo Boscana's *Chinigchinich*, and other manuscripts and books relating to the California Indians. But *Nach dem Sacramento* escaped him. Valuable it would have been, too, for it contained an extensive description (the first one, I believe) of the Allequa or Yurok (John P. Harrington corrects Alfred Kroeber and insists it should be spelled Yuruk) Indians, the most cultured tribe of primitive Californians with which the whites ever came into contact.

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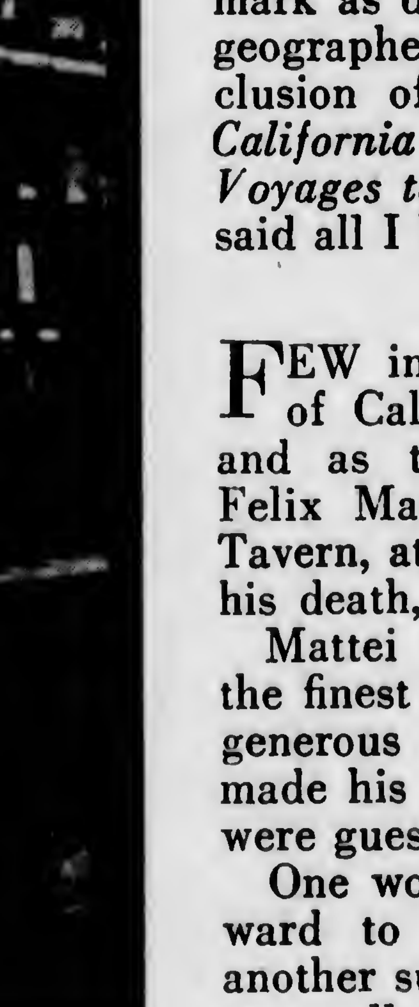

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Moquelumnan Family (adapted from Moquelumne, a corruption of the Miwok *Wakalumitoh*, the name of a river in Calaveras co., Cal.). A linguistic family, established by Powell (7th Rep. B. A. E., 92, 1891), consisting of three divisions, the Miwok, the so-called Olamentke, and the Northern or Lake County Moquelumnan. The territory originally occupied was in three sections, one lying between Cosumnes and Fresno rs.; another in Marin, Sonoma, and Napa cos., the territory extending along the coast from the Golden Gate to Salmon cr., N. of Bodega bay and E. as far as the vicinity of Sonoma; and the third a comparatively small area in the S. end of Lake co., extending from Mt St Helena northward to the E. extremity of Clear lake (see Kroeber in Am. Anthrop., VIII, no. 4, 1906). The Miwok division, which constituted the great body of the family, was described as late as 1876 as the largest Indian group of California, both in population and in extent of territory.

Their houses were very rude, those of the Miwok having been simply frameworks of poles and brush, which in winter were covered with earth. In the mountains cone-shaped summer lodges of puncheons were made. Acorns, which formed their principal food, were gathered in large quantities when the harvest was abundant and stored for winter use in granaries raised above the ground. It has been asserted that the Miwok ate every variety of living creature indigenous to their territory except the skunk. They were especially fond of jackrabbits, the skins of which were rudely woven into robes. From lack of cedar they purchased bows and sometimes arrows from the mountain Indians, the medium of barter being shell money.

With the Miwok, chiefship was hereditary when the successor was of commanding influence, but this was seldom the case. As with most of the tribes of California, marriage among the Miwok tribes was practically by purchase, but in return for the presents given by the groom the father of the bride gave the new couple various substantial articles, and gifts of food were often continued by the parents for years after the marriage. The father, in old age, was ill treated, however, being little else than a slave to his daughter and her husband. When twins were born one of the children was killed. Shamanistic rites were performed by both men and women, and scarification and suction were the principal remedial agents. California balm of gilead (*Picea grandis*), and plasters of hot ashes and moist earth were also used in certain cases. Payment for treatment was made by the patient, and in case of non-recovery the life of the practitioner was demanded. The acorn dance, as well as a number of other ceremonies, principally for feasting or amusement, were formerly celebrated by the Miwok. They had no puberty dance, nor did they hold a dance for the dead, but an annual mourning and sometimes a special mourning were observed. All the possessions of the dead were burned with them, their names were never afterward mentioned, and those who bore the same name changed it for others. Formerly widows generally covered their faces with pitch and the younger women singed their hair short as signs of widowhood. Cremation generally prevailed among the Miwok tribes, but was never universal.

Comparatively few of the natives of the Miwok division of this stock survive, and these are scattered in the mountains, so that no accurate census has been taken. Six individuals of the so-called Olamentke division lived on Tomales bay in 1888.

The Moquelumnan tribes or rancherias that have been recognized are as follows:

Miwok.—Awani, Chowchilla, Chumidok, Chumtiya, Chumuch, Chumwit, Hittoya, Howeches, Koni, Lopotatimni, Machemni, Mokelumne, Newichumni, Nuchu, Olowit, Olowiya, Pohonichi, Sakaikumne, Servushamne, Talatui, Tamoleka, Tumidok, Tumun, Walakumni, Yuloni.

Olamentke.—Bolinas, Chokuyem, Guimen, Jukiusme, Likatuit, Nicassias, Numpali, Olumpali, Sonomi, Tamal, Tulares, Tumalehnias, Utchium.

Tribes or rancherias not classified according to the chief divisions are Apangasi, Aplache, Chupumni, Cosumni, Cotoplanemis, Hokokwito, Keeches, Kumaini, Lapapu, Lesamaiti, Macheto, Merced, Mikechuses, Nelcelchumnee, Notomidula, Numaltachi(?), Okechumne, Pahkanu, Petaluma, Potawackati, Potoyanti, Sakaya, Seantre, Siyante, Succaah, Suscols, Threse, Tiposies, Wahaka, and Wiskala. (H. W. H. A. L. K.)

=**Meewoc.**—Powers in Overland Month., 322, Apr. 1873 (general account of family with allusions to language); Gatschet in Mag. Am. Hist., 159, 1877 (gives habitat and bands of family); Gatschet in Beach, Ind. Miscel., 433, 1877. =**Mí-wok.**—Powers in Cont. N. A. Ethnol., III, 346, 1877 (nearly as above). =**Moquelumnan.**—Powell in 7th Rep. B. A. E., 92, 1891. >**Moquelumne.**—Latham in Trans. Philol. Soc. Lond., 81, 1856 (includes Hale's Talatui, Tuolumne from Schoolcraft, Mumaltachi, Mullateco, Apangasi, Lapappu, Siyante or Typoxi, Hawhaw's band of Aplaches, San Rafael vocabulary, Tshokoyem vocabulary, Cocouyem and Yonkiousme Paternosters, Olamentke of Kostromitonov, Pater-

[over

nosters for Mission de Santa Clara and the Vallee de los Tulares of Mofras, Paternoster of the Langue Guiloco de la Mission de San Francisco); Latham, Opuscula, 347, 1860; Latham, Elem. Comp. Philol., 414, 1862 (same as above). >**Mutsun.**—Powell in Cont. N. A. Ethnol., III, 535, 1877 (vocabs. of Mi'-wok, Tuolumne, Costano, Tcho-ko-yem, Mŭtsŭn, Santa Clara, Santa Cruz, Chum-te'-ya, Kawéya, San Raphael Mission, Talatui, Olamentke); Gatschet in Mag. Am. Hist., 157, 1877 (gives habitat and members of family); Gatschet in Beach, Ind. Miscel., 430, 1877. ×**Runsiens.**—Keane in Stanford, Compend., Cent. and So. Am., app., 476, 1878 (includes Olhones, Eslenes, Santa Cruz, San Miguel, Lopillamillos, Mipacmacs, Kulanapos, Yolos, Suisunes, Talluches, Chowclas, Waches, Talches, Poowells). <**Tcho-ko-yem.**—Gibbs in Schoolcraft, Ind. Tribes, III, 421, 1853 (mentioned as a band and dialect).

Moquino (said to have been named from a Mexican family that occupied the site). Formerly a small pueblo inhabited during the summer season by the Laguna Indians, but now entirely Mexicanized. Situated on Paguate r., Valencia co., N. Mex., about 9 m. N. of Laguna.

Mogino.—Powell in Am. Nat., XIV, 604, Aug. 1880. **Moguino.**—Loew (1875) in Wheeler Survey Rep., VII, 345, 1879. **Moquino.**—Emory, Recon., 133, 1848.

Moquoso. A former tribe and village in W. Florida. The map of De Bry (1591) places it W. of the headwaters of St Johns r.; according to the Gentleman of Elvas it lay 2 leagues from the gulf and 2 days' journey from Bahia de Espíritu Santo, which is thought to be Tampa bay.

Mocoço.—Barcia, Ensayo, 48, 1723. **Mocosa.**—Mercator map (1569) cited in Maine Hist. Soc. Coll., 2d s., I, 392, 1869. **Mocoso.**—Drake, Tragedies, 15, 1841. **Mocosson.**—De Bry, Brev. Narr., II, map, 1591. **Mogoso.**—Fontaneda (1575) in Ternaux-Compans, Voy., XX, 24, 1841. **Mogozo.**—Ibid., 21. **Moquoso.**—Laudonnière (1564) in French, Hist. Coll. La., n. s., 243, 1869. **Mucoço.**—Garcilasso de la Vega, Fla., 28, 1723.

Moqwaio ('wolf'). A phratry and also a subphratry or gens of the Menominee.

Ma'hwawa.—Wm. Jones, inf'n, 1906. **Moqwaio.**—Hoffman in 14th Rep. B. A. E., pt. 1, 42, 1896.

Mora. A rancheria near the presidio of La Bahía and the mission of Espíritu Santo de Zúñiga on the lower Rio San Antonio, Tex., in 1785, at which date it had 26 inhabitants (Bancroft, No. Mexican States, I, 659, 1886). The people were probably of Karankawan affinity.

Moratiggon. The village where Samoset lived in 1621. It was distant "one day from Plymouth by water with great wind, and five days by land." Probably in S. Maine, in Abnaki or Pennacook territory.

Moratiggon.—Harris, Voy. and Trav., I, 853, 1705. **Morattiggon.**—Mourt (1621) in Mass. Hist. Soc. Coll., 1st s., VIII, 226, 1802.

Moratoc. A tribe described in 1586 as living 160 m. up Roanoke r., perhaps near the S. Virginia line. A map of that period places their village on the N. side of the river, which then bore their name. They are said to have been an important tribe which refused to hold intercourse with the English.

Moratico.—Simons in Smith (1629), Va., I, 176, repr. 1819. **Moratoocks.**—Lane (1586), ibid., 87. **Moratoks.**—Ibid. **Moratuck.**—Smith (1629), ibid., map, **Moranghtaouna.**—Smith (1629), Va., I, map, repr. 1819 (the village; evidently a misprint for Moraughtacund). **Morattico.**—Purchas, Pilgrimes, IV, 1713, 1626. **Moraughtacud.**—Ibid., 1715. **Moraughtacunds.**—Strachey (ca. 1612), Va., 37, 1849.

Moravians. Mahican, Munsee, and Delawares who followed the teachings of the Moravian brethren and were by them gathered into villages apart from their tribes. The majority were Munsee. In 1740 the Moravian missionaries began their work at the Mahican village of Shekomeko in New York. Meeting with many obstacles there, they removed with their converts in 1746 to Pennsylvania, where they built the new mission village of Friedenshuetten on the Susquehanna. Here they were more successful and were largely recruited from the Munsee and Delawares, almost all of the former tribe not absorbed by the Delawares finally joining them. They made another settlement at Wyalusing, but on the advance of the white population removed to Beaver r. in W. Pennsylvania, where they built the village of Friedensstadt. They remained here about a year, and in 1773 removed to Muskingum r. in Ohio, in the neighborhood of the others of their tribes, and occupied the three villages of Gnadenhuetten, Salem, and Schoenbrunn. In 1781, during the border troubles of the Revolution, the Hurons removed them to the region of the Sandusky and Scioto, in N. Ohio, either to prevent their giving information to the colonists or to protect them from the hostility of the frontiersmen. The next spring a party of about 140 were allowed to return to their abandoned villages to gather their corn, when they were treacherously attacked by a party of border ruffians and the greater part massacred in the most cold-blooded manner, after which their villages were burned. The remaining Moravians moved to Canada in 1791, under the leadership of Zeisberger, and built the village of Fairfield on Retrenche r. Here a number were massacred by the whites in 1812. They finally settled on the Thames in Orford tp., Kent co., Ontario. The number in 1884 was 275, but had increased in 1906, according to the Canadian official report, to 348. There were until recently a few in Franklin co., Kans. See *Missions*. (J. M. C. T.)

Big Beavers.—Rupp, W. Pa., 47, 1846 ("Christian Indians or Big Beavers," because of their residence about 1770 on (Big) Beaver cr. in W. Pa.), **Christian Indians.**—Schoolcraft, Ind. Tribes, V, 495, 1855 (frequently used as synonymous with

SAN JOAQUIN VALLEY INDIANS CLING TO PICTURESQUE CUSTOMS

Hidden in a mountain valley just a short distance from Auberry is an Indian mission that preserves many of the customs and traditions of the aboriginal inhabitants of California.

Of interest to an ethnologist would be the primitive methods of drying and preparing meal in use in this quaint Indian community. The natives prepare their staple food, acorn flour, in much the same way that their forefathers did when Cortez turned the tide of affairs for the natives of the Western coast.

In a cache that is called in Indian "soonan" and looks like a gigantic wasp's nest, the Indians dry their acorns for a year before they are ready to be made into meal. It might be noted that it takes a provident people to keep a year's supply of food in advance. These Indians are certainly not the nomadic hunting type that the name Indian suggests to many white people.

After the acorns have dried for the required period, they are broken open, the hull and shell removed, and the meat ground into meal by the ancient method of the mortar and pestle. The meal is then placed in an Indian basket, water is added and a red hot stone placed within the mixture. This food, which is cooked for some time in this primitive fireless cooker, is said to be both appetizing and nutritious.

The Indian cradle which the mother straps to her back is much in evidence in this settlement. The baby may be placed in a reclining position or hung against the wall while his mother works. In either case his sparkling eyes and cheerful smile show that he is quite content with his little nest.

The Indian mission settlement covers a tract of forty acres, Indians having allotments from five acres up. They farm their little plots most painstakingly, raising vegetables and small fruits. Many Indians, both men and women, work in the orchards of the San Joaquin valley during the fruit season and thus add to an income that would be somewhat meagre if they depended entirely upon their small allotments.

The Indian mission in its sheltered mountain valley, is a busy, happy and contented community that might serve as an example to many that boast of a much higher state of civilization.

Transmigration in California. — Among the Indians of California, belief in transmigration is widespread. Most of the tribes say that the mythological beings whom they call "The First People" became animals or other natural objects before real people were created. The belief that existing people, after death, enter, or are transformed into animals, is less common. At the same time most of the Sierra tribes and some of those in Southern California hold that a large owl (usually the Great Horned Owl) makes a practice of capturing ghosts of the departed. This belief I have encountered from the Noto'koiyo or Northeastern Maidu southward to the Tejon and even to the To'ngvā of San Gabriel.

I was once asked by a Northern Mewuk if I had ever seen the broad belt of bony plates which surrounds the eyeball of the Great Horned Owl (see accompanying figure). On replying that I had, I was assured that these closely imbricating plates are the "finger-nails all jammed tight together of the ghosts caught by the owl."

The Northern Mewuk believe that the ghosts of good Indians turn at once into the Great Horned Owl (Too-koo-le) and remain this bird forever after; but that bad Indians turn into the Barn Owl (Et-tā'-le), the Meadow-Lark (Yu'-kal-loo), the Coyote (O'-lā-choo), or the Gray Fox (Choo'-mooyah). Whatever mammal or bird an Indian becomes after death he continues to be forever — there is no change after that.

The Pā'-we-nan or Southwestern Maidu say that when a person dies his spirit (*oos*) goes out and may go into any one of a number of animals or things. It may turn into an owl or a coyote, a snake or a lizard; it may become a whirlwind,[1] or it may go into the ground and become earth; sometimes, but rarely, it goes off to a good place.

Among the Southern Mewuk the old people say that if a person dies without a hole in the septum of the nose, he will turn into a fish. In this tribe it was formerly the practice of both men and women to perforate the nose for the insertion of a rod of white stone or shell called *kun-no'-wah*.

C. Hart Merriam.

[1] The Northern Mewuk also say that whirlwinds and dust whirls are ghosts dancing swiftly round and round, and warn people to keep out of their way.

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COMMENCEMENT SCHEDULE

Sunday, May Twenty

3:30 P.M. Band Concert
8:00 P.M. Baccalaureate Sermon

Monday, May Twenty-First

Registration of Alumni and Former Students
1:00 to 4:00 P.M. Inspection of Buildings and Departments
8:00 P.M. School Play

Tuesday, May Twenty-Second

9:30 A.M. Field Sports
1:30 P.M. Basketball and Baseball
8:00 P.M. Social Party for Alumni and Former Students

Wednesday, May Twenty-Third

9:30 A.M. Competitive Drills
2:30 P.M. Meeting of Alumni and Former Students
8:00 P.M. Commencement Exercises

Thursday, May Twenty-Fourth

8:30 A.M. School Rally

A great many of our ex-students having changed their addresses, it is impossible for us to reach all of them. If there are any whom you know who have not received invitations, will you please notify them that we wish them if possible to attend, our Commencement Exercises.

Superintendent Conser is in San Francisco today. He left yesterday afternoon as escort for Walter Wilson.

The initial appearance of the Mandolin Club was made at Sunday evening chapel services. The girls and their teacher are to be congratulated on the excellence of their number. Judging from the expression of their faces the Superintendent and some of the older employees were put in a rather reminescent mood.

The Woman's Club of Elsinore motored over to Riverside Thursday evening. Sherman Institute was the objective point of the party. On their arrival at the big school they were met by Superintendent and Mrs. Conser who escorted them through the institution on a tour of inspection. Luncheon was served by the domestic class. Mrs. Long and Mrs. Smith assisted Mrs. Childs with supervision of the girls' work.

FROM INDIAN LEGENDS BY HASKELL STUDENTS

Many, many summers ago before the white men came there used to be a good man; the people did not know where he came from. He was always hunting and fishing, and liked to be alone.

One day while he was a long ways from home, a little bear started out of the brush in front of him. He chased the bear for a long time, finally it ran into a cave by a spring. The man whose name was Loneliness followed it, but just as he passed the spring a huge monster caught him and pulled him into the spring. He stayed there a long time. After the people had mourned him as dead, and had forgotton him, he came back to camp and told them what happened to him. The people only laughed at him and called him a liar, and they said: "You are telling to much to believe." After they had done him this way, he told them he would pay them back sometime, not with wickedness but with goodness.

He then went away and was not seen again. He was in the monster's control and so he had to go back and study magic.

Many summers afterwards a great famine came. There was nothing to eat. The Indians began to die off and fade for the want of food.

This man saw this and he wondered how he could save the people he loved. He thought he would ask the monster, who was a magician, if he would help him. He at least made up his mind that he would steal the magician's rolls of bark and find out how his friends could be saved.

At night when the magician was sound asleep, the Indian crept out of his lodge and into the magician's camp. When he got there he took some roots and laid it across the magicians mouth which would make it impossible for him to wake up.

The Indian then got the rolls of bark and began to study. At last he found out that the magician had planned out all of this and that it was he whom he had to outwit in saving his friends. He looked closer and found in a corner of a small piece of bark some writing which said: "In my belt there is an arrow which when you shoot into the air will bring a lot of little animals." The Indian then laid some more roots over the magicians mouth and then took off his belt. He found a little arrow about a foot long. He seized this and ran out into the world.

He shot the arrow a good many times, then broke it in little pieces so that another spell could not be laid over him.

He then killed plenty of the little animals which he called the prairie dogs, because they sounded like real dogs. He took the dogs to the dying Indians and so saved them. After the Indian men got stronger, he took them to the place where the prairie dogs were and showed them how to kill them and keep them from going into the holes in the ground.

So the men killed plenty for there were many, many of them. When they got home the man Loneliness told them his history. The Indians all were glad and begged forgiveness for the wickedness they had done him.

So the Indians now have the prairie dogs to eat and are not in much danger of starving. The Indians still remember that Loneliness created the prairie dogs.

Ernest de Massey – Sept. 1850.

Near the ranch-house was a forest and, not far away, a small lake. The lake was covered with hundreds of wild duck. The sea lay only about four leagues away, while San Juan was some nine leagues from the property.

By noon we were on our way; so far our trip had been tiresome and fruitless. We tramped in the heat of the day which at this time of the year is never less than 25° to 30° centigrade. Here and there across the plains a solitary ranch-house loomed up in the distance. These dwellings, as a usual thing, were ten or fifteen kilometers apart. To visit them would have meant detours and, so far at least, such visits have not been altogether a pleasure.

Between each *rancho*, marking the boundaries, stood a hut occupied by a shrewd speculator who had planted a little garden and was living there in a simple, frugal manner. When the surveyor finally arrives and settles the boundary disputes — most of these are still in question — there will probably be considerable unclaimed land between ranches which squatters can claim up to the amount of one hundred and sixty acres.

This explains the isolation, the patience, and the simple life of these modern hermits. Had I not known this I should never have understood why they lived as they did unless some catastrophe had given them a distaste for society, although they did not seem like misanthropes.

All this flat country is covered with half-wild steers, cows, and horses that roam the ranges in herds of hundreds and even thousands. As soon as these creatures saw us in the distance they would lift their heads high in the air, bellow and neigh, then turn and scamper off. Then they would stop abruptly some hundred meters farther on, turn around with a menacing air as if hesitating between flight and attack, and then go on again.

What would be left of two poor travellers like us if we were trampled on by these thousands of hoofs and attacked by all these horns in case the herd declared war in the councils they held at those particular moments? Even to think of it makes me shiver. After a moment's hesitation — it seemed like hours — the enemy would go on, but they kept up these tactics until they vanished in the distance.

Half an hour later another herd duplicated this performance and went through exactly the same manœuvers. We were just beginning to get used to it when one of them, stronger and braver than the rest, charged toward us, stopping only a hundred feet off. It was not a moment too soon. Fortunately courage and ferocity do not always go hand in hand or we might have quickly passed on to another and better world.

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Shortly after this experience we came to a large *rancho* which we decided to visit. Although several of the buildings were in ruins they were inhabited by all the skunks in the neighborhood, who had forced everyone else to move out. This is probably why the proprietor and his family have departed.

Ground-squirrels — little gnawing animals resembling gray water-rats — are always under foot wherever one steps. With bushy tails held high these drab creatures sit by their holes ready to disappear at the slightest disturbance. They are fairly good eating but the large gray forest squirrel is more delicate. These creatures, together with grasshoppers and frequent droughts, are the bane of agriculture in this part of the country.

Finally we reached *Rancho del Padre,* owned by the curé at Santa Cruz, and reputed to be one of the most valuable in California. It is ably and intelligently managed. We felt certain of a warm and cordial welcome since we had a letter of introduction from the Franciscan father to his brother who manages the property. Others had received us without credentials so why should we not expect the same here?

Confident of such a reception we passed through several entrances and finally found ourselves in an enclosed court. On one side was the main building; on the other three sides were sheds. In this patio, surrounded by Indian servants, was a large man well along in years, with a wrinkled countenance, who seemed like a man of the lower classes. He was busy melting tallow in an immense kettle.

This was the master of the house, so we bowed and presented our letter. He read it, placed it in his pocket, and returned to his tallow, merely making a slight motion with his head as much as to say "Well, *au revoir,* God bless you!"

We lost no time in leaving this gross, ugly man — who had not so much as offered to let us rest under his roof or given us a drink — more indignant than surprised at finding a manager who acted as superciliously as a rightful owner.

In going out of the gates the doctor and I looked with famished eye at an enormous piece of fresh meat hanging there to dry in the sun before it was sold or fed to the Indians. We asked permission to buy some, saying we would pay for it. They had the generosity to decline our offer, so we threw some small change to the Indians, not caring to be under obligations to the inmates.

Then we stopped a short distance up the road and prepared dinner under the shade of a convenient tree, bitterly regretting the loss of the ten ducks we had so generously given the Franciscan father at Santa Cruz and which had been repaid in so inadequate a manner.

Life is full of the unexpected. On the same day inhospitably treated in the morning by one from whom we might have had a right to expect different treatment, at five that same afternoon we were most courteously assisted by a stranger to whom we had no letter of introduction. What a hideous thing wealth wedded to avarice is! By way of retaliation we made all sorts of puns about him and wished his establishment ill-luck, while we ate our meager lunch.

But before going on we inspected the exterior of this Franciscan domain, a kind of petty kingdom on United States territory, with its hundreds of Indian vassals working at various kinds of labor. Some were drying skins in the sun; others were cutting meat into strips. A few were tanning leather and making harnesses. In another place was a forge and blacksmith.

Farther on we saw the kitchen-gardens where young Indians, cracking whips, were scaring off hungry birds that ruin the seed and fruits. I was not able to estimate how much was under cultivation as the hour was late, but the amount must be enormous.

Workmen cost next to nothing; the Indians, being devout Catholics are happy with scant rations, a few clothes, little money, and many indulgences. The same system is used — only on a much smaller scale — that was in vogue at the old Missions.

The hides, meat, tallow, and horns of the animal all are utilized. The soil is made to yield ten-fold but the work falls on the shoulders of a few as the mines absorb most of the labor and all the free capital. But the day will come when the miner, satisfied or disillusioned, will turn to agriculture for his livelihood. Moreover, the squatter-occupants will file claims on these fertile fields, and the titles of the owners — and very few are legal — will pass on to them. While this is happening the ranches will suffer severely and this vast land, now so sparsely populated, will take on quite a different character.

Of this the Franciscan and his brother-manager are fully cognizant. This may be why the people around here are so bitter toward the curé. In one way or another, with his vast herds and his intelligent method of ranching, he may easily have amassed another fortune in addition to what he already has, if we are to believe local gossip.

In the afternoon, having eaten and rested, we were feeling more energetic and so pressed on hoping to find at San Juan shelter which would be furnished us ungrudgingly. We had only a two-mile trip ahead of us and we made fast time as the road was level and neither rough nor dusty. This, toward the close of a beautiful day, was nothing for two such seasoned pedestrians.

Soon Mission San Juan [Bautista] loomed up in the distance. Low

and rambling in appearance it spreads over a wide area like an old chateau or convent. Situated on a little knoll it overlooks the surrounding plains. Near it trickles a brook of pure, clear water.

Monterey, a small port and formerly the capital of Upper California, is about a two days' trip from here. San José is about the same distance. The former lies toward the west; the latter is north of here. We travelled the sixteen leagues separating us from Santa Cruz in two days and reached our destination more in need of rest than food.

On September 14, 1850, we rested at the Mission. Its buildings are in a fair state of preservation and are occupied by Americans, Spanish, Mexicans, and even Frenchmen. I do not know by what right they were there and whether they are the proprietors, tenants, interlopers, or merely sharpers. The servants' quarters, however, are in ruins. While the church is still standing the exterior is dilapidated. I am unable to say what condition the interior is in as the curé was away with the key in his pocket.

The most remarkable thing I found — something I had not seen since leaving France — were the orchards planted with apple and pear trees. These were in full bearing and were enclosed in a space measuring three or four hectares. There were several hundred trees all told which were heavy with ripe fruit. It was a sight to rejoice the eyes and make our mouths water — poor travellers like ourselves, who had not seen fruit for eighteen months. The Mexican tenant of this earthly paradise in California allowed us to inspect his domain and gave us permission to eat as much fruit as we wanted — adding that there was no forbidden fruit in his garden.

The doctor and I accepted this offer without hesitation, for there was such an abundance that a hundred famished gourmands might pass an entire day here regaling themselves and the loss would never be noticed. As much for hygienic reasons as for good manners we indulged only moderately and spent the time mainly in chatting with the Mexican, who understood only a few words of the French language.

From this conversation I gathered that the Mission property is in litigation and that several claims are now being contested by the Mexican government and the United States. Those now holding Mission lands have only provisional titles.

The fruit crop this year has been sold to a speculator who has also contracted to pick and transport it. He is leaving any spoiled or defective fruit behind, and is taking only what is perfect. The price received was eight thousand dollars. It is a happy arrangement for it gives the owner only the trouble of counting his profits.

What astonished us was the amount of waste fruit littering the

from the John Ross expedition of 1818, and the Epilogue from Robert E. Peary, 1894 and 1896. The story between, complete with love interest, is written in a style often used in adventure books for adolescents, which is not in itself reprehensible, but the book is not of college level or caliber.

Notes on the Bella Bella Kwakiutl. RONALD L. OLSON. ("University of California Anthropolotical Records," Vol. 14, No. 5) Berkeley: University of California Press, 1955. Pp. 319–348. $.50.

Reviewed by HELEN CODERE, *Vassar College*

Olson's *Notes on the Bella Bella Kwakiutl,* like his *Social Life of the Owikeno Kwakiutl,* (1954), are what he himself has termed "social archeology." He has excavated the memories of a few surviving old people for what was there of the pre-white culture. Since, as he points out, pre-white Bella Bella culture probably could not have been fully reconstructed by informants much after 1880, this method yielded little for Boas in 1923 and even less for this work, based on interviews in 1935 and 1949.

Although these *Notes* are thin and fragmentary, they are interesting and useful. For instance, the two-page "Life Story of a Bella Bella Woman" contains no personal history of detail or depth but does have some data on a woman's progress through various ceremonials, including a fragment on a nominal "potlatch" marriage made in her eighth year and terminated at her puberty. The *Notes* are largely organized according to various aspects of social organization (tribe and village; septs; names and titles; succession; legends of origin of septs, crests, and names; marriage; the kinship system; house names and totem poles; dancing societies; shamanism; miscellaneous tales; the life story of a Bella Bella woman; notes on the xaixais). There are but a few pages on each topic. However, the material is of value when added to the existing ethnography of the area. Olson might have facilitated its use by giving full cross-references to other publications, since it is clear that every fragment of data on the Bella Bella must be used in order to get even a hazy picture of the culture.

Observations on California, 1772–1790. FATHER LUIS SALES. (Early California Travel Series, Vol. XXXVII.) (Translated and edited by Charles N. Rudkin.) LosAngeles: Glen Dawson, 1956. xiii, 218 pp., appendix, notes. $10.00.

Reviewed by ROBERT F. HEIZER, *University of California, Berkeley*

Sales was a member of the first contingent of Dominican missionaries which established itself in Lower California after the decision of 1772 that the Franciscans should limit their activities to the area noth of 32½ degrees and the Dominicans should take responsibility for the territories south of that line. Sales' *Observations* are valuable, since this is the only book by a Dominican on the Dominican occupation of Lower California. The work was originally in the form of three long letters sent to a friend, which were printed separately at Valencia in 1794. The first edition (1794) is extremely rare, and a 1799 reprint is full of inaccuracies and omissions.

The reviewer's acquaintance with similar accounts by Franciscan missionaries inclines him to the opinion that the Dominicans were less energetic and less successful in mission work, perhaps through inexperience, but that they (or at least Sales) were rather better observers of Indian customs. Special items such as the method of hunting sea otter (pp. 19–20), the prohibition on a fisherman partaking of his catch (p. 27), the levirate (p. 32), the couvade (p. 33) and suicide (p. 27) leaven the mass of pedestrian ethnographic data which adds up to a picture of extreme cultural simplicity and ex-

traordinarily meager subsistence conditions. Sales bemoans the shamans' hold over the people, and it is clear that missionization was in no small part a battle between the padres and the native curanderos.

The author tells us little of tribes and their locations, but those interested can find this information in W. Massey's article (Southwestern Journal of Anthropology 5:272–307, 1949) which utilizes all available data.

The second and third letters are full of the Franciscan-Dominican controversy, and the reader can find further background in Peverill Meigs' monograph (Univ. Calif. Publs. in Geography, Vol. 7, 1935); another handy reference to missionaries, mission names, founding dates, and locations in Mexico and the Californias is the article by A. L. Celay in Anales del Instituto Nacional de Antropología e Historia, Vol. 5, 1951. Some information on epidemics of smallpox and venereal disease in the Lower California missions are of value; for a general review of this subject, see S. F. Cook in Ibero-Americana No. 12, 1937. The second letter contains an account of the Nootka Affair which involved the seizure of Colnett's *Argonaut*.

Of particular interest is a straightforward and unvarnished description of the problems of the missionary, who "cannot be in anything less than continuous activity." Sales' admission that the natives were worked "constantly in order to keep them at least a little well-behaved, and even this result is obtained only with whips, for the men as well as the women" is strikingly similar to Lapérouse's unflattering description of the Franciscan system at Carmel in Upper California, which Engelhardt attempted to show in a more favorable light.

The translator's notes, though helpful, are few, and a fuller annotation with reference to additional sources would have increased the book's value to nonspecialists. A fuller bibliography on Lower California history and ethnography would also have added to the usefulness of this unique document.

The Utes: A Forgotten People. WILSON ROCKWELL. Denver: Sage Books, 1956. 307 pp., illustrations. $5.00.

Reviewed by OMER C. STEWART, *University of Colorado*

Rockwell, a western Colorado rancher, will certainly win the acclaim of his neighbors for writing an account of the relationship between Ute Indians and whites in western Colorado. Those who get copies of the book to read an "overall history of the tribe," as the dust jacket proclaims, will be sorely disappointed. Possibly the publisher is responsible for this misrepresentation of *The Utes* as a book about all Ute Indians.

A history of all the Ute would require more space for the Ute of Utah than the half dozen pages Rockwell assigns them under the chapter heading "The Uintah and Ouray Reservation." Rockwell makes the strange assertion that: "This [Utah Uintah] band, . . . were not Utes . . . ." Inasmuch as the U. S. Indian Claims Commission has recently decided in favor of paying the Uintah Ute for their aboriginal lands in central Utah, extending from Lake Sevier to Utah Lake, even the Government might be surprised at this statement. Rockwell should have known about Walkara or Walker, the famous Ute Chief and horse thief from San Pete Valley in central Utah, who was known in the 1840's and 1850's from Los Angeles to Fort Bridger and from Salt Lake City to Santa Fe, and whose name was the title of a popular biography by Paul Bailey in 1954.

The Utes offers little new material and does not give a very good summary of what was previously known. The errors the book contains are such that it will serve no useful purpose for anyone.

Journ. Mammalogy Vol. 13, No. 1 Feb. 1932.

In September, 1926, while my wife and I were voyaging down the Rio Araguaya, in central Brazil, a small round object was noticed bobbing about in midstream some distance away. Drawing nearer we were astonished to find that the object was the head of a swimming jaguar making straight for the western bank. One of our Indians dispatched the animal with a shotgun, when it was found to be an adult female. The river here was very wide, certainly more than a mile across. As this was in the wildest stretch of the Araguaya, uninhabited except by the Carajá Indians, who are strictly fluvial people, it seems hardly possible that the jaguar could have been pursued by dogs or any other enemy capable of driving it into the river. It must be concluded, therefore, that the animal succumbed to the universal appeal of the greener grass on the other side of the fence and deliberately set out to see about it.

The other instance occurred when we were returning last year from the Alto Orinoco. In late February, 1930, the governor's launch, returning from Ciudad Bolívar to the territorial capital, Puerto Ayacucho, encountered a puma in midstream in the neighborhood of the Parguaza Hills. The Orinoco here is at least a mile wide. This animal too was swimming from east to west, and when intercepted by the launch it became confused and tried to climb aboard—to the utter consternation of the crew. So great was the excitement that although a number of shots were fired at the poor beast from a distance of only a few feet, not one took effect! I did not actually see this occurrence, but had the facts from the motorist of the launch while they were still fresh. Although there are a few scattered settlements along this part of the Orinco, it seems unlikely in this case also that the puma could have been cornered and driven into the river.—Ernest G. Holt, *312 Bell Building, Montgomery, Alabama.*

GROUND SQUIRRELS INVADING NEW TERRITORY IN THE SAN FRANCISCO BAY REGION

Having lived in Marin County, California, for a large part of the time since the year 1868, and still spending a good deal of time there, I am rather familiar with its faunal conditions. This county, just across the Golden Gate from San Francisco, is small, containing only 529 square miles of territory, and hilly. The southern half has a large proportion of brush and some timber land, but there are also extensive pasture lands that seem to be well adapted to the needs of the Douglas ground squirrel, *Otospermophilus grammurus douglasii* (Richardson), which has long been resident in the large county of Sonoma adjoining on the north.

During all of my dwelling and sojourning in Marin County, up to this summer (1931) only two or three ground squirrels have come to my notice there, and those promptly vanished. As set forth by Grinnell and Dixon, in a paper entitled "California Ground Squirrels" (Monthly Bull. State Comm. Hort. Calif., Vol. 7, 1918, p. 646), "Marin County seems to be devoid of any ground squirrels whatever except for a few *douglasii* along the Sonoma County border." This hiatus has existed in spite of the fact that ecologic conditions seem to be generally similar to those of Sonoma County, with the possible exception of a somewhat heavier rainfall in Marin and a greater frequency of the fog that so often rolls in from the ocean on summer evenings and that usually requires several hours of morning sun to dissipate.

At the present time certain conditions have changed; for many years past, a large part of the Pacific Coast of North America has been going through a period of diminishing rainfall, with the rainy season (November to April) of 1931 the lowest on record; springs and streams are sadly diminished, some entirely dried up, and the so-called water table is now far below the depth of normal fluctuation.

Coincident with this condition of drouth, the Douglas ground squirrel has this summer appeared in the southern part of Marin County and has spread to the very shore of San Francisco Bay. On August 24, 1931, from a point of vantage in the front end of a motor coach, I counted ten individuals along less than half a mile of track about four miles west of San Rafael. Three days later I saw four others, very recently run over by automobiles, on a short stretch of highway along the shore of Richardson's Bay (an arm of San Francisco Bay). In both instances the adjoining lands were open hillside pastures well adapted to the needs of ground squirrels.

Reports of reliable observers cover many other localities in central and southern Marin County, one of these observers being my brother, who frequently drives over the highways of the county, always on the lookout for anything of interest in the way of birds and mammals. So far, these reports do not show a heavy colonization, but such a wide distribution is certainly a serious menace, for natural enemies of this rodent are so scarce in this territory as to make possible a rapid and startling increase in population, provided other conditions are favorable. It will be a matter of interest for future observers to note whether return to normal rainfall will drive this squirrel back across its former borders, or whether it will adjust itself to conditions in the invaded territory.—JOSEPH MAILLIARD, *California Academy of Sciences, San Francisco, California.*

BATTLE BETWEEN PRAIRIE DOG AND RATTLESNAKE

Although many believe that prairie dogs and rattlesnakes live together in peace and harmony the fact is that in prairie dog country one of the chief foods of the rattlesnake is young prairie dog.

To witness a battle between these two creatures is unusual. Mr. W. F. Hardin of Phillips County, Montana, an employee of the U. S. Biological Survey, was fortunate enough to witness such an encounter. Mr. Hardin is the foreman of a crew of men engaged in eradicating prairie dogs which had become exceedingly destructive to the range grasses in Phillips County.

Mr. Hardin came upon the battling pair while engaged in the distribution of the poisoned oats. He stated that apparently the battle had been in progress for some time as the prairie dog's breast and entire front was covered with blood as a result of having been struck repeatedly by the rattlesnake. When first noticed the snake was coiled in typical rattlesnake fashion in the entrance of a rather high prairie dog mound. Mr. Hardin's attention was first attracted by the peculiar action of the prairie dog. The prairie dog would cautiously approach the burrow, advancing up the side of the mound until near the opening. Then it would suddenly dart forward, spring upward and back. Closer observation revealed that the upward and backward spring was caused by the snake striking. This attack by the prairie dog and defense by the snake was repeated several times while Mr. Hardin and one of his men were watching. As near as they could observe, the snake's fangs reached their mark each time. The movements of

do than in a country like the United States, because Mexico's government has always been paternal, and central authority the rule, and harder, because the government will have more primitive communities and individuals to deal with.

A national Agricultural Advisory Council, made up of representatives of rural organizations of various classes, of state and federal representatives and of technicians, will direct major agricultural policies, directly under a cabinet member. Four scientific bureaus will divide up the work aside from administrative bureaus to carry out the results of their investigations.

A Bureau of Geography, Meteorology and Hydrology will study physical outlines of the country with a view to agricultural application, and map and explore inaccurately known parts. A Bureau of Agricultural Improvement will study the application of vegetable and animal genetics, pest fighting and the like with a view to improving quality and quantity of products, and other factors tending to that purpose. A Bureau of National Lands and Colonization will administer the parceling out and exploitation of lands reclaimed in recent irrigation works; the better distribution of rural population, utilization of desirable regions now abandoned, and the like. In this bureau ethnological surveys and studies of rural sociology will be made. A Bureau of Agricultural Economy will compile statistics, plan programs of agricultural betterment, distribution, consumption and control of production.

THE SOUTHERN CALIFORNIA RIFT CLUB

THE twenty-second meeting of the Southern California Rift Club, an informal organization intended to familiarize southern Californians with the innumerable rifts which divide and subdivide their part of the Golden State into deep blocks of earth-crust, involved a two-day excursion going to and returning from a point on the northern slope of the San Bernardino Mountains overlooking the Mohave Desert. The outward trip was made northward through the Cajon Pass between the San Gabriel and the San Bernardino mountains; and then eastward near the base of the latter range and across the aggraded Lucerne intermont basin, which centers in an extensive playa; finally up a side road on the mountain flanks to a deserted mine, the bare buildings of which the party was allowed to occupy for the night.

Some sixty-three members gathered there in twenty-six automobiles, under the leadership of A. O. Woodford, professor of geology at Pomona College, who in the evening gave an informal account of the huge landslide which is outspread at the mountain base, where it covers an area of six or eight square miles. The next morning the great scar on the mountain side left by the slide was examined. Then, descending over the slide, the longer return trip was begun; first continuing eastward near the mountain base, where Professor W. M. Davis described the greatly degraded surfaces which there characterize the desert; then turning southward to the deep Morongo Valley at the east end of the range, where heavy "Louderbacks" were seen high on its slopes; and thus was reached the heavily aggraded pass between the San Bernardino and the San Jacinto mountains which opened a westward and homeward route. The distance covered by most of the members of the excursion was about two hundred miles. An autumn excursion is planned for September 24 to the Charlton Flats, an uplifted lowland of subdued relief which now, deeply dissected, makes part of the San Gabriel Mountains north of Pasadena.

THE EXHIBIT OF THE BUREAU OF FISHERIES AT THE CENTURY OF PROGRESS EXPOSITION

THE Bureau of Fisheries has an exhibit in the south wing of the United States Government Building at "A Century of Progress" in Chicago. The display cases are made in the modern style of architecture designated for all bureaus of the Department of Commerce, to conform with the general architectural scheme of the fair. These cases are painted with natural pearl essence paint, which is made from fish scales.

At the front of the space allotted to the bureau and on each side are two aquaria containing species of fish propagated at the hatcheries; and in the center is a display of packaged quick-frozen fish and shellfish. The latter display was made possible through the cooperation of several firms which prepare these products.

In the center of the exhibit are four cases which have displays on two sides. In three of them are dioramas; one showing a typical trout hatchery, another modern oyster culture and the third the nutritive value of marine products. On the other side of the cases which contain the dioramas are illustrated the fresh-water mussel fishery and industry, oyster propagation and seed collection, and a display of packaged fish with charts showing the vitamin content of various fish oils and the amount of iodine in certain fish. The fourth case exhibits on one side a model of a Great Lakes pound net and gill net with pictures showing the method of fishing these nets, and the method of determining the age of different species of fish from their scales. On the other side of this case is graphically displayed the bureau's research on the preservation of fish nets.

At the back of the exhibit space are three large

fundamental work has heretofore been available. Fray Francisco Palóu has until now been best known as the biographer of Fray Junípero Serra. Now we may learn something of Palóu himself, and of his devoted colleague Fray Juan Crespi. In following the footsteps of these truly heroic explorers and pioneer settlers we are sure to receive many a thrill as we read of scenes familiar enough to us today, then for the first time beheld by white men.

For instance, under date of August 5, 1769, we find this passage on page 137 of volume II of Palóu: "This day we set out about two in the afternoon, going north, as the explorers said that at the beach the mountains were steep and did not permit passage, so we veered somewhat to the northwest, where we saw that there was a pass in the mountains." This appears to be Sepulveda Cañon in the Santa Monica Mountains. On the other side they "found a large village of heathen, very friendly and docile." One wonders if they are still there.

Dwellers in Alameda County will perhaps relish the following from Crespi's journal of the Fages expedition of 1772 (page 288): "At the end of four leagues we halted not very far from an arm of the estuary, which forms with another something like a peninsula, where there is a grove of live oaks, which one can enter only from the mainland side. The camping-place is about four leagues from the principal estuary or arm of the sea, which we made out from this place very well, as it looks like a sea to us. This camp is situated about three leagues before coming to the parallel of the mouth of the Gulf of the Farallones. . . . Bears, many deer, and the tracks of other animals whose footprints resemble beasts of the mule kind have been seen here. The site is very suitable for a good settlement; for on account of the proximity of the forest they could provide themselves with timber and firewood."

Californians, both north and south, will find many such passages, frequently describing their very hearth-sites; while the general reader will gather from the narratives the story of the founding of civilization on these shores, told with vigor and enthusiasm by some of the leading participants. The five volumes make a handsome ornament to any library. FRANCIS P. FARQUHAR

* * *

SEASHORE ANIMALS OF THE PACIFIC COAST*

Many times in the past years on Sierra Club beach trips the query has come, "What book is the best to tell us about these crabs or these sea-anemones?" And always the response has been, "There is nothing available for the Pacific Coast except a few technical papers." Some of us who have known Miss Johnson on "high trips," and elsewhere, could say, "But there will be a book some day." We have lived in hope and our hope has been rewarded. *Seashore Animals of the Pacific Coast* amply fills our needs. It justifies itself as the result of years of honest and capable work.

For the general biologist, not specializing in marine forms, the book is most

* *Seashore Animals of the Pacific Coast.* By MYRTLE JOHNSON and HARRY SNOOK. The Macmillan Company, New York. 1927. 659 pages, 700 illustrations, and 12 color plates. Price, $7.50.

THE PRESENT SITUATION IN CALIFORNIA

The committee of nine college presidents appointed by the State Board of Public Instruction to give a report on the status of the science text-books used in our schools and colleges have rendered their decision. They found nothing objectionable in the books in question.

Many persons, upon reading this report in the daily press, immediately jumped to the conclusion that the question of fundamentalism versus evolution insofar as our California educational institutions are concerned, was thereby settled. Such however, is by no means the case. The fight for freedom of teaching in our schools and colleges has just begun.

Several months ago it was stated editorially in a sectarian religious journal—justly claiming "the largest circulation of any denominational journal in the world"—that the fundamentalists anticipated an adverse report on their demands that all textbooks advocating or implying the validity of the theory of evolution should be eliminated from our public schools and state-supported colleges. This demand was intended only as a preliminary gesture.

"Though it may appear on the surface logical to ask educational leaders to decide the question", says an editorial writer in the religious journal previously referred to, "yet, on second thought, it will be evident that they are not the group who should decide

the matter. . . . For that committee to render judgment that evolution as now taught is undermining religion and fostering atheism, would be equivalent to an indictment of their own teaching profession. . . . . . There are going to be many who will see something incongruous in the idea of such a committee's rendering a decision *on a question of religion.* [Italics present writer's.] Finally, even if we admit, for the sake of argument, that every member of this committee is free from any tincture of irreligion, the question still arises, why call upon a group of educational scientific men to solve a religious problem? . . . . We feel justified in taking serious exception to the competency of this committee to deal with the problem placed in its hands. . . . . *It is not for a group of educators to decide what they wish to teach the youth,* but for the [often, if not *usually*, uninstructed] fathers and mothers to say what they wish to have taught to their children. In various states, movements are now under way to *solve this problem by legislation.* Will this be the next step in California?" (This question was asked previous to the rendering of the report of the college presidents.)

On the same page of this journal of thought-fossilogy we read: "There is never any doubt about any great problem when people look to God's Word [meaning *all* of the 66 books comprising the King James version of what is now known as The Bible] for the solution, *and not to history or science.*"

Here we have an unequivocal demand for the establishment in the United States of a Theocracy, based upon the writings of—for the most part—unknown ancients, plus the more modern theological writings of the Jews and Gentiles of the first two or three centuries of the Christian Era. No more un-American proposal has ever been made since the founding of this great republic on the basis of complete separation of Church and State: "Congress shall make no laws in support of religion nor prohibit the free exercise thereof or abridge the freedom of speech or of the press" (First Amendment to the Constitution).

"No religious test shall ever be required as a qualification for any public trust under the United States" (*Constitution*). "The government of the United States is not in any sense founded on the Christian religion." *(Treaty with Tripoli)*

"United with the government, religion never rises above the merest superstition; united with religion, government never rises above the merest despotism; and all history shows that the more widely and completely they are separated, the better it is for both."—Supreme Court of Ohio (See Ohio Reports, vol. 23, pp. 221-254).

Besides the extreme probability that an initiative petition aimed at outlawing the theory of evolution (which is tantamount to saying modern science) from the public schools and state-supported colleges of California will be on the ballot at the next state election in 1926, the fundamentalists have already qualified for a measure at this election which will compel the reading of the King James version of the Bible in all public schools. This is all part of the fundamentalist move to substitute the creation-stories of Genesis for the explanations (based on thousands of verified

evidences) given by evolutionary science of the origin of the earth and of man.

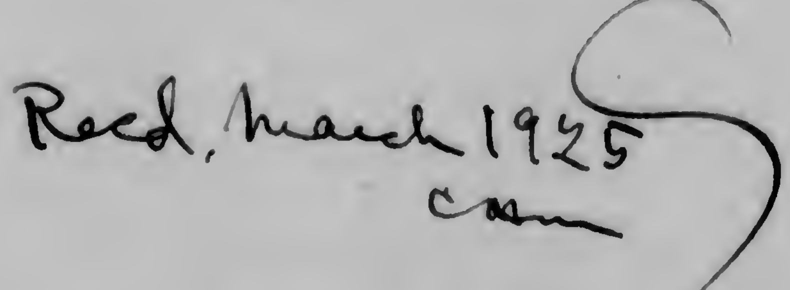
If the reader of this leaflet feels that he would enjoy life under a Fundamentalist Theocracy, he has every prospect of living under one in the not distant future. If, on the other hand, he is shocked by the thought, he should at once apply for membership in The Science League of America and do his bit toward making America safe for freedom of thought and *freedom of teaching.*

"Inasmuch as its [evolution's] explanation of the beginnings of life are contrary to the doctrines of Christianity, *and therefore anti-religious, it should be excluded from the schools."*—Rev. Francis D. Nichol, of Mountain View, California.

This is "fundamentalism": Are you for it, or against it?

MAYNARD SHIPLEY, President,
The Science League of America.
Office 618 Liberty Bank Building,
San Francisco, Calif.

(Membership dues $3.00 a year. Payable at least six months in advance)



Founded in 1797, Mission San Jose was one of the most flourishing missions.—*Pictorial History of California.*

SAN JOSE, *California's First City*

Early History Colored by Gay and Stirring Life of a Frontier Community

By NELLIE VAN DE GRIFT SANCHEZ

Author of "Spanish and Indian Place Names of California"

SAN JOSE, metropolis of the Santa Clara Valley, was named in honor of St. Joseph. Its full title was San Jose de Guadalupe, which was given in reference to the fact that it was first founded, on November 29, 1777, on the east bank of the Guadalupe River, by Governor Felipe de Neve. As time passed it was found that an unfortunate selection had been made of the site, for it was on low ground, so by order of the Governor the pueblo was moved to higher ground.

San Jose was California's first real municipality, one of the three civic towns that were established for the express purpose of encouraging agriculture and stock raising. The others, the mission and military towns, just naturally grew up around the missions and presidios. The first settlers of San Jose were soldiers from the presidios of Monterey and San Francisco and their families, with a few others. Each settler received a town lot and a plot of ground for planting, besides two each of horses, oxen, cows, sheep, and goats. Rough houses made of stakes driven in the ground, plastered and roofed with clay, were hastily erected. Such were the humble beginnings of the beautiful, rose-embowered modern city of San Jose.

The growth of the pueblo was very slow at first, and for many years it consisted of but a few scattered houses of settlers. San Jose, however, has had a somewhat different history from any other town in the state. It lay in the direct route followed by the hunters and trappers of the plains, and soon the place became a wild frontier town, noticeable in the manners of the people, especially in their fiestas and diversions.

Merrymakings sometimes took on the boisterous quality of the frontier camp. Men would ride their horses up the steps of dancing pavilions. Women threw their rich, embroidered China shawls under the feet of the dancers to serve as a carpet, while the men did the same with their expensive *serapes*. Solo dances were frequent, and when these were done by women, men stood on the side lines and cheered them on, sometimes showering gold and silver coins at the feet of the dancers.

The better families kept aloof from such affairs, however, and small home dances were given among exclusive circles, often at the *casas* of Don Antonio Sunol, Don Antonio Pico, and Senor Bernal. These dances sometimes lasted several days and nights, with the dancers snatching a few moments now and then to eat and sleep.

At the marriage of the son of Don Salvio Pacheco the dancing went on for three days and nights, with unlimited consumption of food and wine.

But, notwithstanding their addiction to gaieties, the people of San Jose were strictly attentive to their religious duties, and traveled three miles every Sunday to the Mission of Santa Clara to attend mass. In order to make the journey more agreeable in that sunny climate, Father Maguin de Catala laid out an *alameda,* lined with fine willow trees.

On Sundays and feast days all the townspeople, gaily attired in silks and satins, might be seen, mounted on their finest horses, proceeding in a leisurely way up the road. There were few vehicles, and though there was less pomp and splendor than in the larger cities of the Mexican Republic, we have a contemporary's word for it that "No part of Mexico could show so large a share of bright eyes, fine teeth, fair proportions, and beautiful complexions."

The old *alameda,* with its shady willows, has long since vanished, and its place has been taken by a handsome, wide boulevard between San Jose and Santa Clara.

So distrustful were the padres of the evil influence upon the Indians by the lower class of white men that they insisted on founding Mission San Jose on a site some fourteen miles distant from the pueblo. There it was founded on Trinity Sunday, June 11, 1797. It became one of the richest missions in the state, and by 1835 it owned 62,000 head of cattle, besides thousands of horses, mules, and sheep. It was one of the first missions to raise wheat, and although the methods of sowing and reaping were extremely primitive, the yield was enormous.

Five thousand neophytes were fed there, requiring the killing of a hundred head of cattle every Saturday. There were looms for weaving blankets and *serapes,* and an Indian band of thirty musicians who furnished the music for all the dances and fiestas of the neighborhood.

San Jose was the first capital of the state under American occupation. The first legislature met in the pueblo of San Jose, but dissatisfaction with the geographical location

(Continued on page 15)

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(Continued on page 15)

SAN JOSE, *California's First City*

(*Continued from page* 10)

led to the removal of the capital from that place and its eventual location at Sacramento.

Other interesting place names in Central California are:

San Mateo was named for St. Matthew, author of the book of Scriptures which bears his name.

Santa Clara wears the name of Clara de Asis, founder of the Order of Franciscan nuns known as the "Poor Clares." The special symbol of this saint is the lily, peculiarly appropriate for the patroness of the ever-blooming Santa Clara Valley.

Santa Cruz (Holy Cross) was first applied to a creek in that region by the Spanish explorers, afterwards to the mission established on the spot in 1791, and finally to the charming seaside resort which lies in the northern hook of the great curve of Monterey Bay.

San Benito (St. Benedict) was named in honor of the founder of the great Order of Benedictines. The creek was named in 1772 by Father Crespi of the Portola party, and the name was eventually applied to the county.

Alviso, in Santa Clara County, was named for Ignacio Alviso, a noted Spanish pioneer.

Aptos, in Santa Cruz County, is said to be an Indian name meaning "the meeting of two streams," in reference to Valencia and Aptos Creeks.

Loma Prieta (dark hill) is the name of a peak in the Santa Cruz Mountains. Its dark form, shaped like a truncated cone, is visible from a long distance standing out against the sky.

Los Gatos (the cats), in Santa Clara County, was named for the wild cats which even at this day are found on the ridge bearing the name.

Llano (a flat, level field) is a common name throughout the state.

Laguna (lake or lagoon) is the name of many *lagunas* in the state.

Milpitas (little gardens) was probably so called in reference to mission gardens, which were generally placed at a considerable distance from the missions to avoid damage by cattle.

Pescadero (fishing place) is the name of a valley in San Mateo County on the coast some miles south of San Francisco. There are a number of *pescaderos* in the state.

San Juan Bautista (St. John the Baptist) is in San Benito County. At this place the mission of San Juan Bautista was founded on June 24, 1797. An interesting circumstance connected with this mission is the presence in the floor tiles of the nave of the church of hardened footprints of wild animals, which were left in the soft clay by the prowling beasts at the time of its building, silent evidence of conditions in that day.

Soquel, in Santa Cruz County, is an Indian word supposed to be derived from the name of a tribe in that vicinity.

A WARNING

You who are certain you never will rue it,
You who are confident that you'll survive,
List to the warning of one who's been through it,
Don't let your husband teach you to drive.

If you feel lucky, try sassing a cop,
Bet on the races, sure you'll contrive
Through some good fortune to come out on top,
But don't let your husband teach you to drive.

Lady, I speak from experience dire,
Harken to one who came through it alive,
Jump from the frying pan into the fire,
But DON'T *let your husband teach you to drive.*

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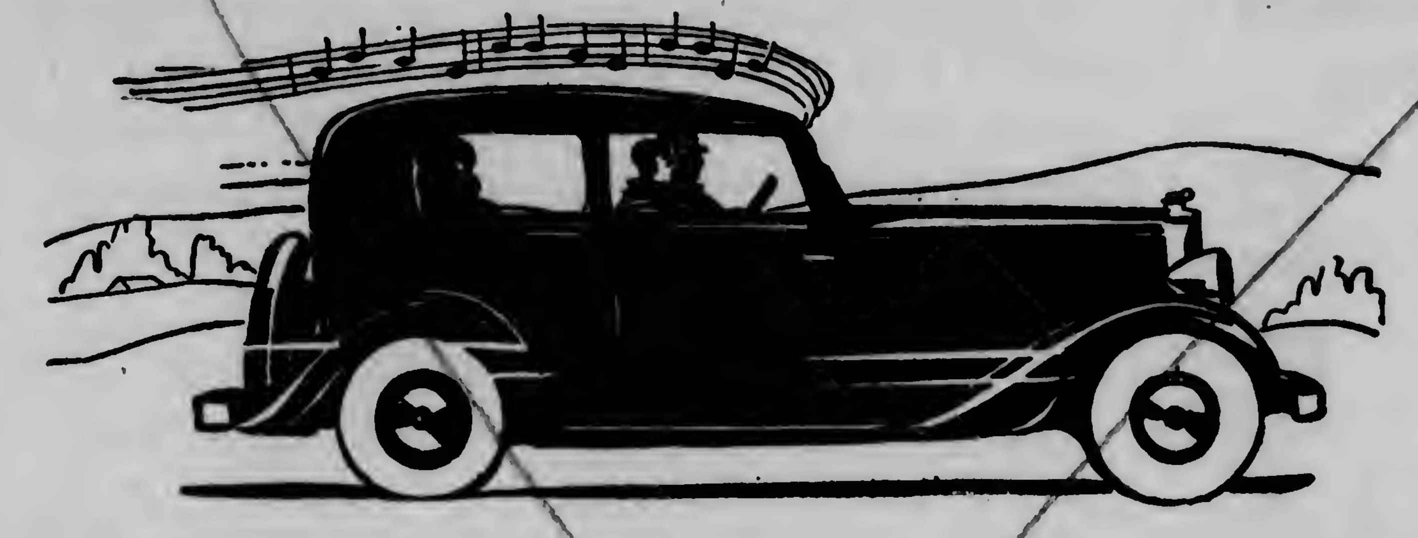

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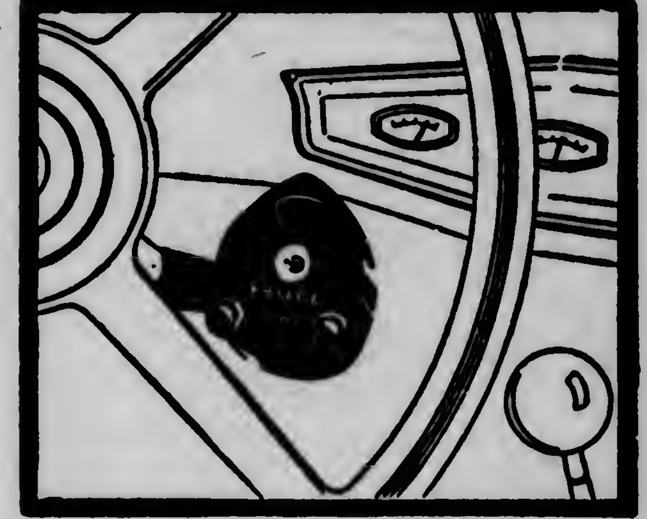

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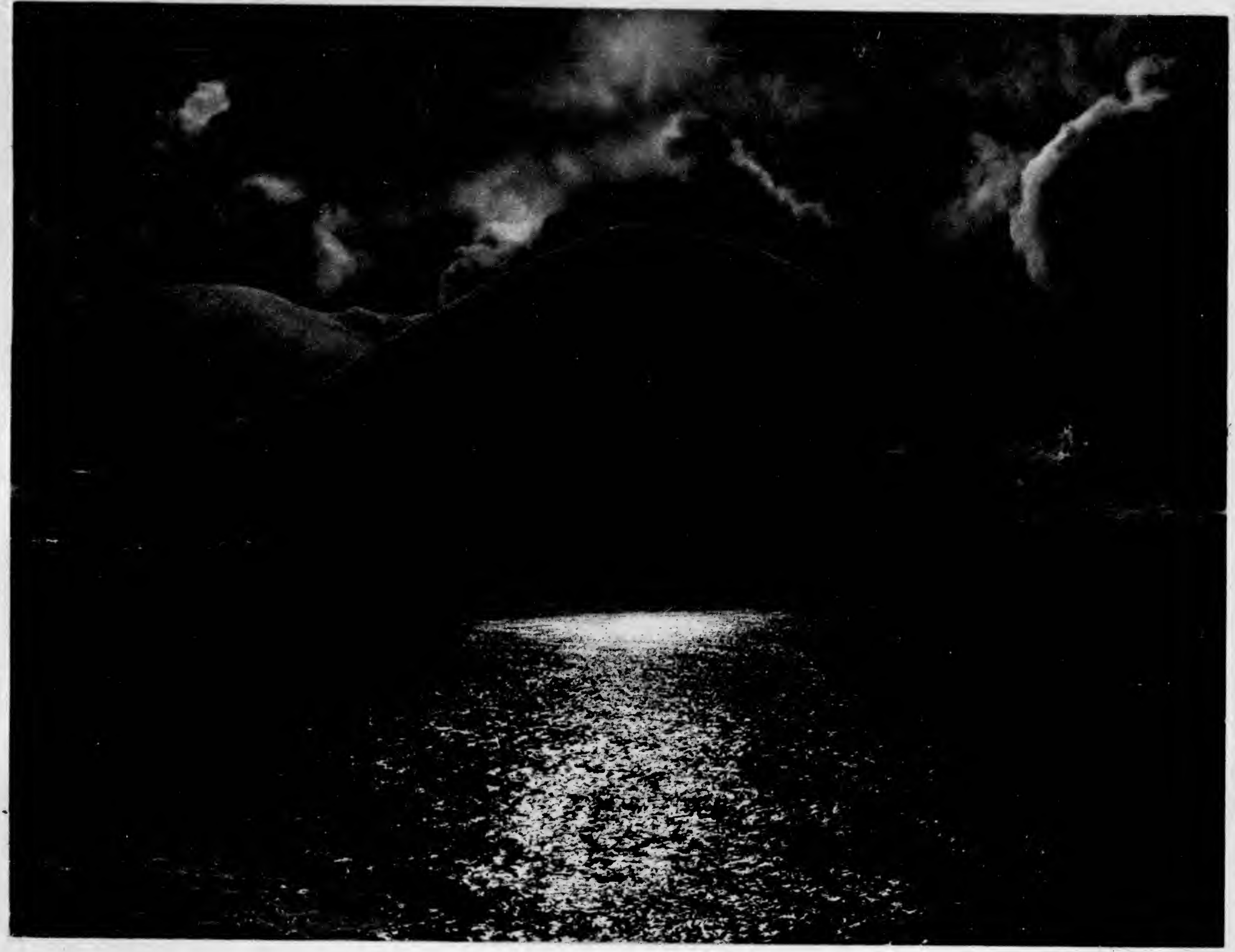

THE LAKE THAT WAS CLEAR

by CRISTEL HASTINGS

NATURE must have been weary
When she made the endless plains
Without a tree or mountain peak
Or shady winding lanes.
Perhaps her anger must have flared
Until the heavens flamed
When Lassen poured out fiery wrath
Before the peak was named.

AND when she made the waterfalls
They were her tears, I know,
That coursed their trembling saddened way
To granite blocks below.
But when she moulded mountains
She must have been quite proud,
For the storm kings voiced approval
As their thunder rumbled loud.

AT dusk when she grew weary
And knew not what to make
She laid her treasures one by one
Around a tranquil lake.
The sun smiled down upon them
And stilled the thunder's wrath—
At night a white and vagrant moon
Traced out her wandering path.

ACROSS the lake the Indians loved
Before the white man came.
They called it Lupoyoma—
Their legendary name
For the lake that shone like silver
At the foot of Konocti!
But the pale-face named it Clear Lake,
For it mirrored hill and sky.

Retake of Preceding Frame

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Around Tamalpais Crest

By J. E. KING

Where the highway ends in a broad parking area near the mountain top. Hikers' trails criss-cross the foreground. An airplane photo, looking northward.

(Below). In the sun-flecked depths of Muir Woods.

Southerly view from the summit of Tamalpais, looking toward the bay and city of San Francisco.

AMONG short motor trips in the San Francisco bay region, one that is becoming steadily more popular, is the circle tour to Muir Woods and the summit of Mount Tamalpais over the new Ridgecrest Boulevard. This is a toll road, comfortably wide, with gentle grades and few sharp turns. One may leave Sausalito and drive to the top of Tamalpais in forty-five minutes. The return may be made the same way, or, as many prefer, by following along the ridge of the mountain and gradually descending past Alpine Lake, then through Fairfax, San Anselmo and San Rafael, and back to Sausalito. The circuit is some fifty-three miles, filled with scenic variety.

The Ridgecrest Boulevard is reached by turning onto the Bolinas Highway about four miles north of Sausalito, a short distance beyond Manzanita. Gradually ascending, the motorist is greeted by a constantly changing panorama. At one turn the hills of San Francisco beckon from across the Golden Gate; then the broad blue sweep of the Pacific, with the Farallone Islands standing guard on the horizon; or Mount Diablo rising beyond the East Bay cities. From the summit of Tamalpais the view embraces hundreds of square miles. The visit to Muir Woods discloses lofty redwoods of such beauty that the grove has been dedicated as a National Monument.

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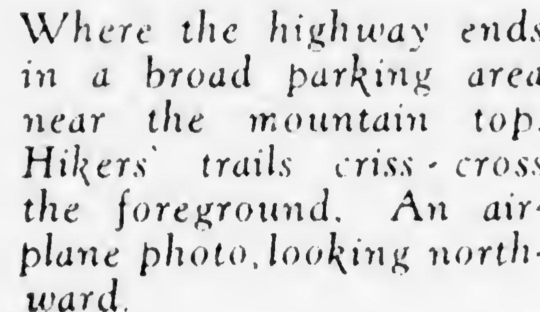

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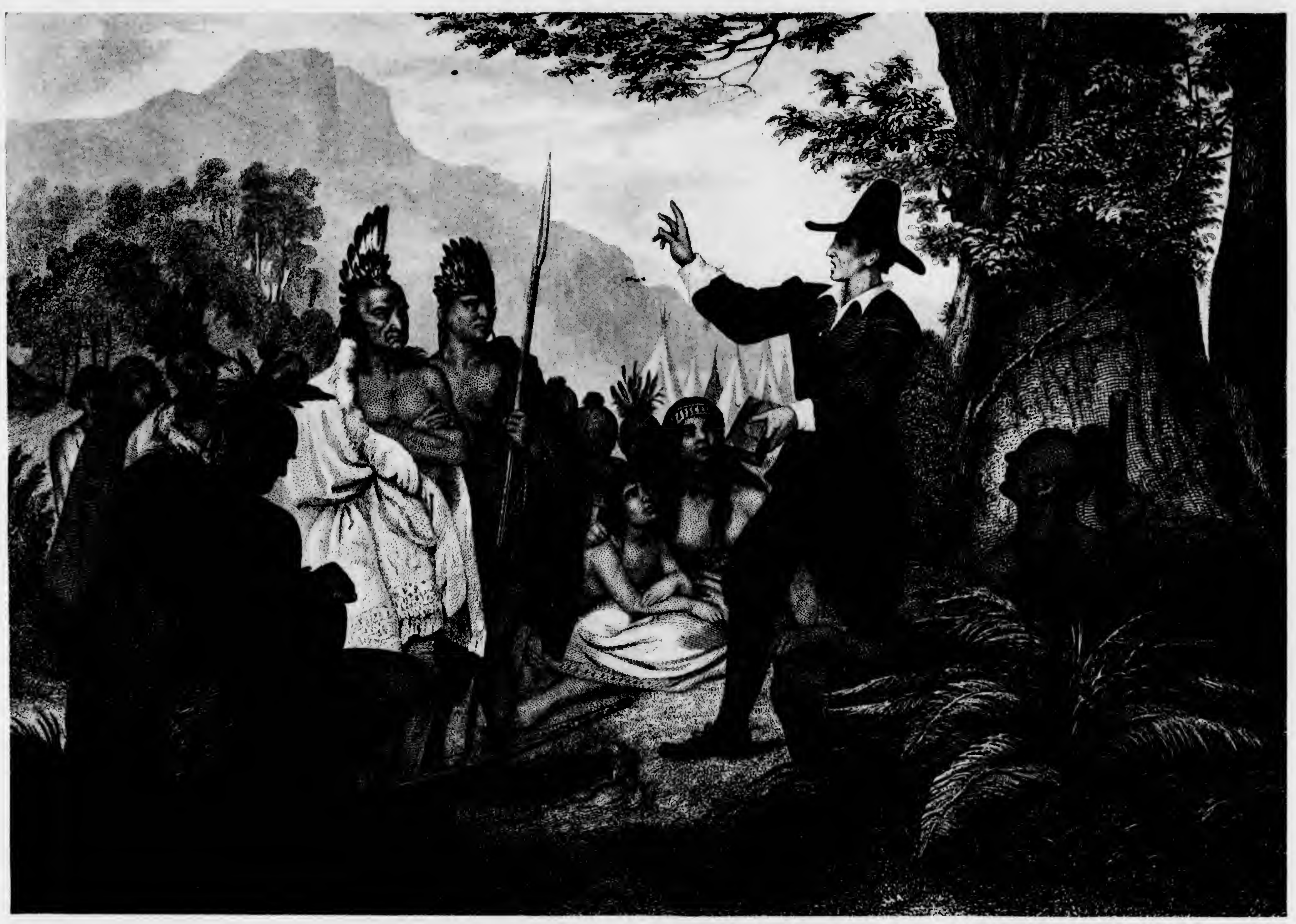

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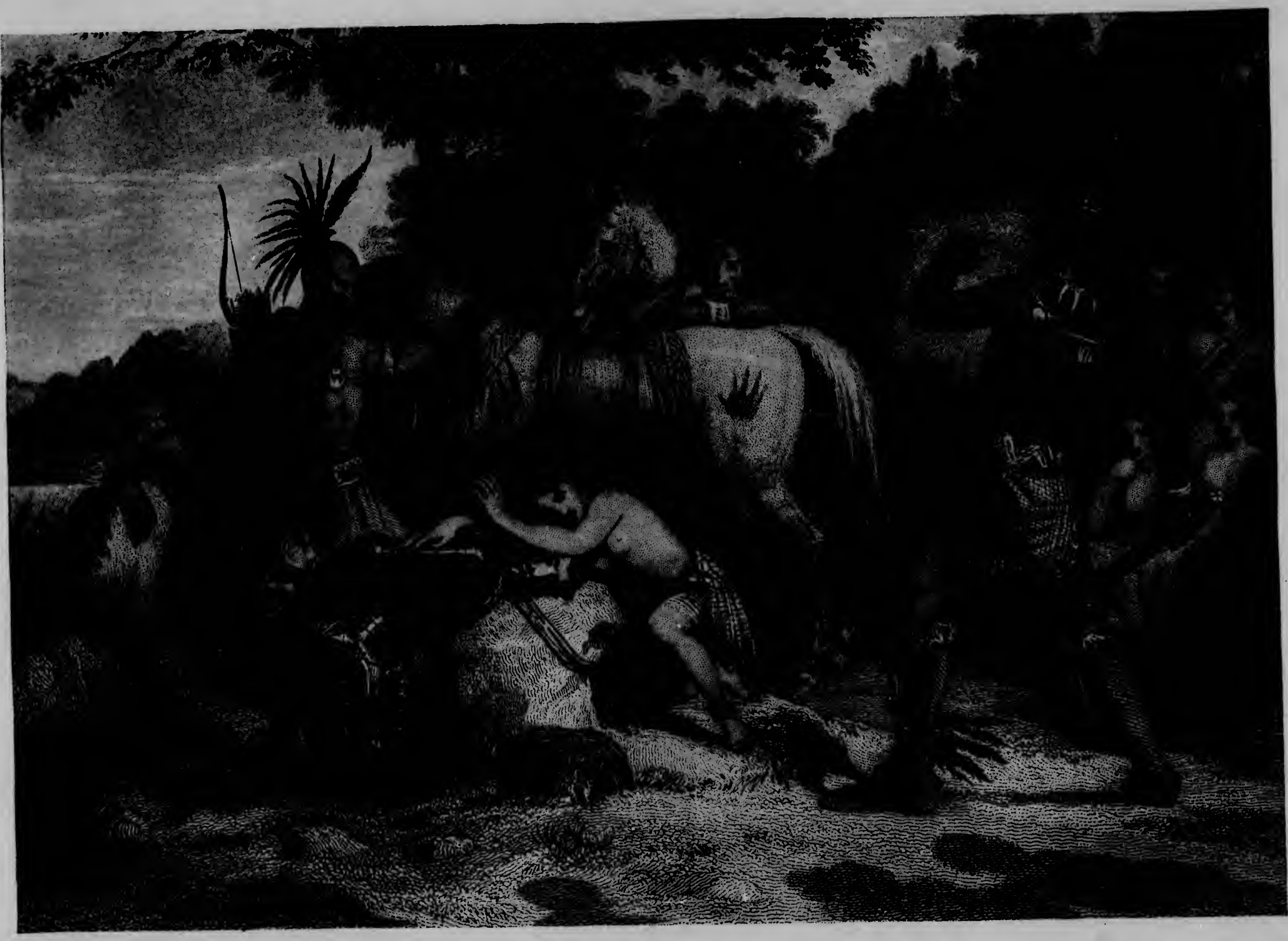

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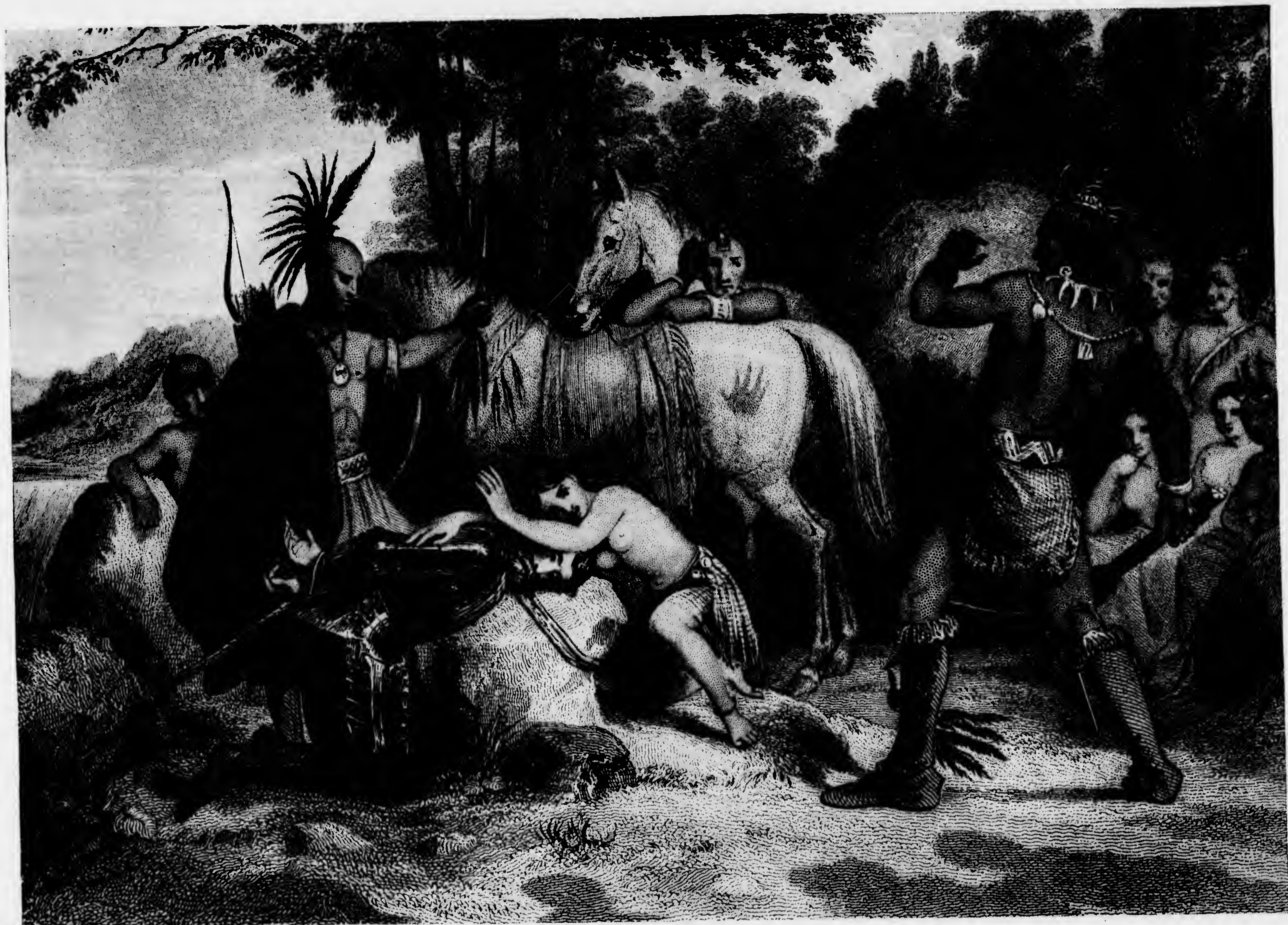

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Kuloskap, *the* Master

And Other Algonkin Legends and Poems

By CHARLES GODFREY LELAND, F.R.S.L.
And JOHN DYNELEY PRINCE, Ph.D.

A reduction from the frontispiece. Illustrating the legend of "How Kuloskap Was Conquered by The Babe."

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Profusely illustrated with half-tones by F. BERKELEY SMITH, *ten birch-bark tracings by* MR. LELAND *after Indian designs, and a frontispiece in color by* EDWIN WILLARD DEMING, *the celebrated Indian artist.*

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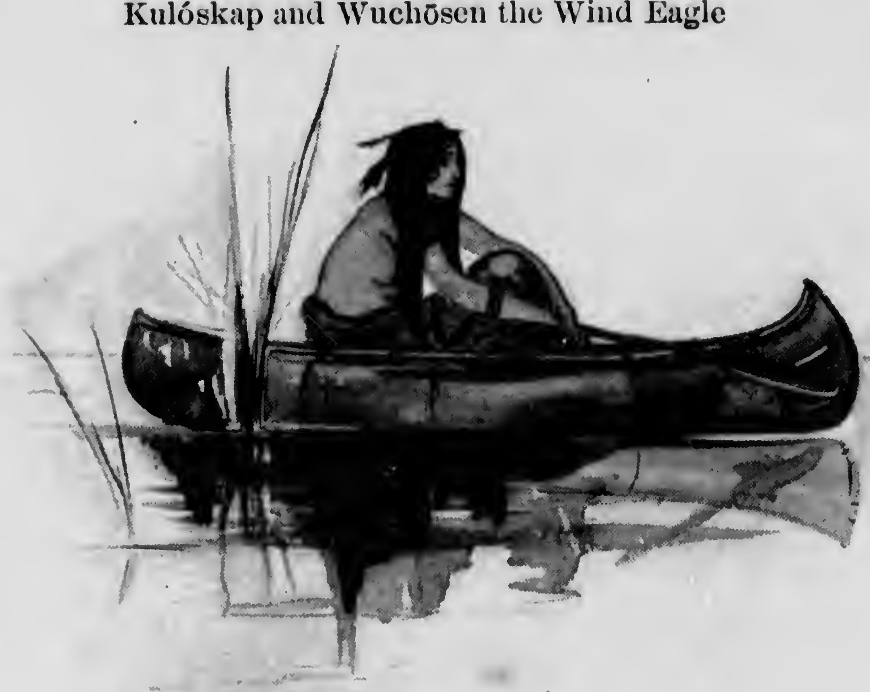

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And the dark demons of the forest shade.
And now he paused, and, thinking o'er his deeds,
Long wondered if his work was at an end.

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A clever woman with a ready tongue—
And she replied: "O Master—not so fast!
For One there still remains whom no man yet
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Sucking a piece of maple sugar sweet;
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Retake of Preceding Frame

This was a she-bear, shaggy, great and strong as oxen twain,
She seized the lad and bore him off.
From the legend of "The Little Boy Kidnapped by the Bear."

A FEW LINES FROM "THE SCARLET TANAGER AND THE LEAF"

"In the earliest time on the greatest mountain
Lived merry Mipis, the Little Leaf;
When spring is coming and sunlight is shining
He climbs a tree, and there, all summer,
Dressed in green he rocks in the branches,
Listens all day to the birds and the breezes,
And goes to sleep to the song of the owl.

"When fall is coming and days are shorter
Mipis dresses himself in scarlet;
Glad and gay in the Indian Summer;
But as the nights grow cold and longer,
He puts on a coat of brown or yellow,
Curls himself up like a bear for winter,
Lets go his hold and falls to the ground;
There he sleeps all under the snowdrift
Till he hears in the spring the blue-bird calling,
And the stream fighting its enemy ice—
Carrying proudly in pieces as prisoners
The foe which kept it a frozen captive,
All the winter under its wigwam.
Then little Mipis, the Leaf, awaking,
Dresses in green and climbs in the sunshine,
Up through a tree, and upon the branches,
Lives as he did the summer before."

The American Indian's "King Arthur's Round Table," "Robin Hood," and "The Arabian Nights"

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"The story of the attack of the squirrels on Lappilatwan, the tree fungus, and its defense by the united army of wasps, flies, mosquitoes, and midges, is really dainty in its woodsy freshness; and we may say the same of the fellowship of the scarlet tanager and the red autumn leaf. These treasures, just saved from utter loss, perishing among the Indians of Maine and the Canadian coasts, indicate what a wealth of story and legend once gathered about our Eastern hills and rivers. It has the same beauty as the Norse myths, only it belongs to a vanishing people, whose tenderer and more poetic genius our scholars have even hardly suspected."—***The Independent,*** New York.

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Then they brought an enormous pipe
Full of the strongest tobacco;
Illustrating the legend of "How Kulóskap Fought the Giant Sorcerers at Saco."

This was a she-bear, shaggy, great and strong as oxen twain,
She seized the lad and bore him off.
From the legend of "The Little Boy Kidnapped by the Bear."

A FEW LINES FROM "THE SCARLET TANAGER AND THE LEAF"

"In the earliest time on the greatest mountain
Lived merry Mĭpis, the Little Leaf;
When spring is coming and sunlight is shining
He climbs a tree, and there, all summer,
Dressed in green he rocks in the branches,
Listens all day to the birds and the breezes,
And goes to sleep to the song of the owl.

"When fall is coming and days are shorter
Mĭpis dresses himself in scarlet;
Glad and gay in the Indian Summer;
But as the nights grow cold and longer,
He puts on a coat of brown or yellow,
Curls himself up like a bear for winter,
Lets go his hold and falls to the ground;
There he sleeps all under the snowdrift
Till he hears in the spring the blue-bird calling,
And the stream fighting its enemy ice—
Carrying proudly in pieces as prisoners
The foe which kept it a frozen captive,
All the winter under its wigwam.
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Up through a tree, and upon the branches,
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Full of the strongest tobacco;
Illustrating the legend of "How Kulóskap Fought the Giant Sorcerers at Saco."

Retake of Preceding Frame

The beaver seized his friend
And drew him 'neath the stream.
Illustrating the legend entitled "Wizard Warfare."

A Verse from the Legend of "How Kuloskap Named the Animals and Discovered that Man was the Lord of Them All"

Now at that time, Mi'ko,
The squirrel, was as great,
Or, some say, far more great
Than even the Northern Bear;
So the Lord Kulóskap
Took Mi'ko 'neath his hands,
And softly smoothed him down;
And as he felt the touch
Mi'ko grew less and less,
And dwindled until he
Was what we see him now.
Howbeit in later days,
Mi'ko was Kulóskap's dog,
And, when the master willed,
He oft grew large again
Touched by the Master's hand,
And slew his fiercest foes.
But, being asked what he
Would do if chased by man,
Mi'ko at once exclaimed:
"I would climb up a tree
As fast as legs could run."
"Well answered," said the Lord,
"And therefore, I ordain
That from this day henceforth
Thou and thy kind at large
Shall ever dwell in trees."

Reproduces the Real Indian Rhythm

"'Kulóskap, the Master' is charming. The measures, adopted by the authors, enable the reader to give as nearly as may be each line the lilt or trip that characterizes Indian recitals." —*David Boyle,* curator, Provincial Museum, Toronto, Canada.

More Words of High Praise

Of Great Historical Value

"It is the effort of Mr. Leland and his coadjutor to give us translations which shall give as nearly as possible the language, the meter, and the spirit of the epics. It is a work of great scientific and historical value as well as a literary monument."—*The Philadelphia Inquirer.*

Wonder Tales of the Red Men

"It is authoritative, and reflects the childhood dreams, myths, and wonder tales of the various Algonkin tribes with photographic verity."—*The Arena.*

Adds Human Charms to Nature

"Not in vain does he claim for these legends, which he has saved from Lethe, that they add the charm of human associations to scenes else but empty land and sky."—*The Book News,* Phila.

Attractive to the General Reader

"The name of Charles Godfrey Leland and John Dyneley Prince, as joint authors, guarantee the importance of the collection to the student of folk-lore, but it has qualities, too, which make it of rare attractiveness to the general reader."—*The Living Age,* Boston.

The Most Subtle Poetic Touches

"There are strange and quaint conceits, a grim kind of humor, and a philosophy not seldom fatalistic in these transcriptions of the aboriginal mind. Occasionally, in these folk songs and lyrics, there are subtle poetic touches that would not shame the highest civilization. It must take its place upon the shelf of every student of ethnology and of American antiquities."—*Northern Advocate.*

Full of Beautiful Imagination

"These legends are full of beautiful imagination, quaint philosophy, and simple and charming descriptions."—*The Presbyterian,* Philadelphia.

A Veritable Indian Bible

"It is an Indian Bible, so far as the legends of creation and a great flood are concerned. . . . There is a great deal in the volume that must interest religious students, as well as lovers of poetry and history. In fact, it is one of the marked books of the season."—*Unity,* Chicago.

Gives Insight into Algonkin Tribes

"They treat of love, war, and animate and inanimate nature, thus giving much insight into the ideas and traditions of the Algonkin tribes."—*The San Francisco Chronicle.*

A GRAND INDIAN POEM EMBODYING THE RELIGIOUS SYSTEM *of the* ALGONKINS

"The legends collectively may be regarded as an epic, a grand Indian poem, embodying the religious system of the Algonkins, their ideas of the Deity, of the creation of the world and its inhabitants, both men and beasts, of the cosmic struggle between light and darkness, between good and evil, between the gods and the devils, between Kulóskap, the Master, and Masulum, the spirit of evil."—*The Philadelphia Evening Telegraph.*

RICH IN ENTERTAINMENT FOR THOSE WHO APPRECIATE SPONTANEOUSLY BUBBLING HUMOR

"There is certainly none that compare in intrinsic interest and value, or in aptness of literary form with this work. . . . It is rich in suggestion for the student of early religions, in entertainment for those who appreciate spontaneously bubbling humor, and of stimulus to the student of psychological phenomena and their implications"—**The Watchman,** Boston.

An Instructive Book

"A very instructive collection of Algonkin folk tales." —*The American Hebrew.*

Includes a Wide Circle of Interests

"The subjects include the whole circuit of savage interests."—*The Boston Evening Transcript.*

A Fascinating and Important Work

"It is a fascinating book and a work of real importance."—*The Chicago Daily News.*

Useful and Entertaining

"To the student of legend and primeval rime, the book will be, in all ways, useful. To the reader for pleasure, look it over; it's a departure from the ordinary and the quaintness of the verse will appeal to you."—*American Illustrator and Home Education,* Scranton, Pa.

Its Authors Men of Foremost Ability

"The translators are men of foremost ability in the world of letters, and their work in this field is worthy of the most serious consideration. Charles Godfrey Leland, as editor, author, and scholar, has an acknowledged place among the foremost American writers, and John Dyneley Prince is a professor of languages in Columbia University, and author of various articles on Algonkin dialects."—*The Herald and Presbyter,* Cincinnati.

Many Interesting Animal Stories

"Many of the stories deal with animals, the loon, the beaver, the sable, the whale, the mythical wind eagle, Mikchik, the turtle, and Aklibîmo, the giant bull frog figuring in most interesting advehtures."—*The Detroit Evening News.*

Its Double Claim to Popularity

"It is both an 'Indian' and an 'animal book,' and accordingly has a double claim to popularity."—*The Pittsburg Gazette.*

Author's Name, Sufficient Indorsement

"To say that Charles Godfrey Leland is the principal author is to commend the book unreservedly." —*The Bookseller, Newsdealer and Stationer.*

Important Folk-Lore Information

"The book is an acceptable presentation of important folk-lore matter."—*The Booklover,* New York.

She seized and drank it dry
All without giving heed
As to what hand had held
The cool, refreshing draught.
Illustrating the legend "The Dance of Old Age."

"So raising up a heavy stone, he laid them safe beneath.
And there they lie unto this day all full of mystic power."
Illustrating the legend of "P'múla or Air-Demon."

Valuable and Scholarly Annotations

"I have been much pleased, not only with the form given to the legends, but especially with the thorough and scholarly annotations which add so greatly to its interest and value." — ***William Francis Ganong, Ph.D.,*** Prof. of Botany, Smith College.

Typographical and Artistic Merits of the Book

Great care has been exercised to bring out these beautiful stories in tasteful and appropriate form.

The book is ***Profusely Illustrated*** with text illustrations, initials, etc., by F. Berkeley Smith, ten tracings by Mr. Leland after Indian birch-bark designs, specially printed on paper closely simulating actual birch-bark, and a striking frontispiece in colors by Edwin Willard Deming, the celebrated Indian artist.

The ***Cover Design*** in gold, brown, and black is handsome, and the ***Paper*** is of extra heavy quality with wide margins, rubricated title page, etc.

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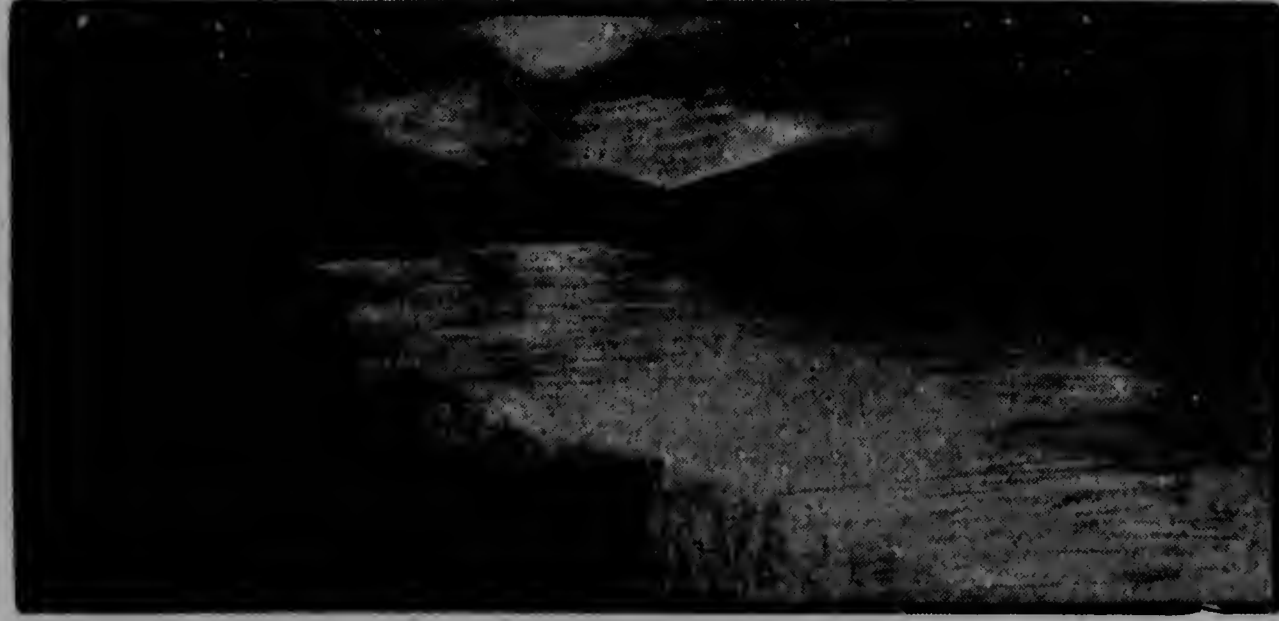

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Funk & Wagnalls Company, Publishers, New York and London

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Retake of Preceding Frame

RANGER FINDS RELICS OF PREHISTROIC RACE

Relics of huge settlements of a prehistoric race of highly-civilized Indians who built great dams and irrigated desert land in the southwestern corner of New Mexico were found by Ranger Don S. Sullvin of the Peloncillo and Animas district of the Chiricahua forest, who reported his discovery to the forestry headquarters here today. His report has been forwarded to the American Archaeological Association.

Picture writing which showed the Dinoceros and the four toed horse were found written on a crude paper made of reeds and on walls of caves.

Ranger Sullivan reported he believed the settlements were the original dwellings of the Aztec tribe.

Sherman Bull. Feb. 7, 1917.

WOODLAKE, CAL. ECHO
OCTOBER 23, 1931

LITTLE STORIES OF EARLY DAYS IN WOODLAKE LAND

The Wuksaches returned to their beloved Chahadu where they lived in peace for many years. The mysterious chiefton with his beautiful girl dissapeared as suddenly as he had come. The Indians still believe their benefactor never died, but somewhere in a secret cave on Pow-dow Lumtaw (Cactus Mountain) he is sleeping in a half slumber and is watching over the prosperity and happiness of his chosen people. And when a boy I knew an old Indian named Kilmatchet who had an ugly scar on his left shoulder which he said came from a wound received in this war, and which he used to exhibit with much pride, but as his knowledge of English was very limited little information could be obtained from him.

In the year 1866 a calamity came into the peaceful lives of the Indians thru no fault of theirs. J. H. Harrel of Visalia had secured a hold in the valley and had driven cattle there to pasture for the summer. He had worked with a man named J. B. Breckenridge. With Harrel's family lived a sister-in-law, Elizabeth Bacon, a coquettish young lady somewhat inclined to flirtation, and it was probably a careless remark of this young lady that cost Breckenridge his life. As the family were leaving in the fall Miss Bacon remarked to Breckenridge, " I am afaid of these Indians. If you don't drive them away I won't come back here next year."

A few days later Breckenridge came upon the old Chief, Cho-o-poe peacefully picking up acorns under an oak tree in the south end of the valley on what is now known as the Pelton field. He fell upon the old Chief and beat him unmercifully and ordered him to get out of the valley and stay out.

That evening about dusk there appeared at the door of Breckenridge's cabin which was located in the north end of the valley known as the Hart Ranch, the old Chief with three stalwart sons and a few other Indians. John, the eldest son, stepped in the door way and demanded to know of Breckenridge why he had beaten his old father. Breckenridge then saw Cho-o-poe behind his son, and thinking to scare the Indians away, grabbd his gun and shot the old chief dead. John then shot Breckenridge with his six shooter wounding him in the side. The Indians then all fell upon him and beat him to death with clubs. Another man named Childers was in the cabin with Breckenridge when the Indians came but had made his escape and hid in some gooseberry bushes east of the cabin.

The Indians sought out the trembling Childers, who thought his time had come too, and assured him they meant to do him no harm but wanted him to help them carry the dead chief down to the ranchera which was located on what is known as the Hunt Ranch on the knoll where the barn stands. This Childer gladly did, and I am told the Indians offered to pay him 20.00 for his services, which he refused, but the next morning Childers was gone. Word of the tragedy came to Slick rock (now Auckland) and my father, his brother Orlando, and two other sons came up to Chadadu and buried the deceased Breckenridge on the little knoll back of his cabin and he was the first to be buried in the little cemetery where now sleep so many of the pioneers of the mountain district.

After this incident, the Chieftainship fell to John, the eldest son of Cho-o-poe, but he soon died, and it fell to the third son, Eshom Bill. An Indian of more than ordinary intelligence with wonderful executive ability and a splendid physique, Bill was the Chief of Chieftons. None dared question his authority and in justice to the memory of the departed Wuksache let it be said that they were ever loyal to their beloved Chief

I have seen the whole village in turmoil from over-drinking when one stern order from Bill and all would be silent as the tomb.

After the Breckenridge incident, the valley fell into the hands of aman namd Eshom who seems to have done little except to inflict it with his name. How much better 'twould have been if the valley had retained its original pleasant sounding name of Chahadu.

ORIGINAL SETTLERS

The Original settlers of Eshom Valley were Harts, Osborns, Loverns, the Hills, Mores and Guthreys. These people were kind to the Indians and Bill took his little band and moved to the West side of the valley on the little hill opposite the Hunt Lane. During this tim Bill worked a great deal for my father at Cedar Spring Mill and the two became fast friends from which souce came most of this information.

After a few years Bill saw fit to disperse his little band and moved a mile or so West into the wilderness to hew out a new home. Here, Eshom Bill, th last reigning Chief of the Wuksaches, lived a long and useful life, was honest and truthful, and he died honored and respected by Red and White men alike about 1905.

WOODLAKE, CAL. ECHO
OCTOBER 16, 1931

LITTLE STORIES OF EARLY DAYS IN WOODLAKE LAND

This is the first of our new series which this time is to be articles on the early history of our valley and our state. This article is written for your benefit by Bert Barton, one of the early settlers in the Woodlake section who will from time to time contribute other stores for your information and pleasure.

LEGENDS OF WUKSACHE, OR .... THE STORY OF CHAHADU ....

Eshom is a pretty little vale in the Tulare ....Sierras ....where ....wild flowers bloom in endless ..profusion on its bosom and tall stately pines cast their shadows on its rim. ....

....Chahadu is the Indian name ..for Eshom Valley and means Land .. of Clover or where Clover ..grows ..the year round. ....Chahadu was ..headquarters for the once powerful tribe of Wuksache Indians whose domain extended over the mountain district from the north bank of the Kaweah River to the South bank of the big Kings river. .. It was also the place where was held their regular 52 year orgies for all of the central California Indians from Tehachipi to the Stockton county. This was an occasiona of great festivals that lasted for a week and the Indians in dulged in all manner of sports and wierd dancing, a detailed description of which would be too long to be inserted here. The last of these orgies was held at Chahadu in 1890. The next date would have been 1922 but so few Indians were left that it was not thought worth while. So Chahadu was a far-famed and much coveted prize of the Aboriganees of the West. Here resided the high Chief, Cho-o-poe, chief of the Wusaches. Each village or tribe had its separate tribal name and sub-chief, but all were subordinate to the High Chief, Cho-o-poe. As for instance, to the south the alled tribes were the Witchchumnes and the Wukchumnes; to the West the Too-Shawahs (Too-Shawahs means Ash Spring), and the North, the Koshwills.

Named For Sounds

A custom of the Indians was to name their home, a river or their tribe by sound made by some animal or bird that was most numerous in that particular locality, as, for instance, Kaweah River means Crow river, and was named from a specie of crow that was very numerous in the swamps along the river forty years ago. As these birds flew from tree to tree they were continually screeching Ka-wee-ah! Ka-wee-ah! The bird is now extinct

A recent survey by the writer along the banks of Dry Creek and in and around Eshom Valley located ancient villages and burying ground indicates that the Wuksaches at one time must have numbered at countless thousands. The granite rocks along the banks of streams an around the springs are literally peppered with mortars in which the Indians ground their acorns which they used for food. Occasionally a pestle will be found placed upright in the mortar where it had been last used by the Indian—a sad commentary to the departed Wuksache. Their villages are to be found from a quarter to a half but never more than a mile apart from the mouth of Dry Creek to its source.

Were Powerful Tribe

The Monaches were a powerful tribe living over the mountains to the east and north of Kings river.

About the year 1830, the Monache crossed over the mountains and but on a war against the Wuksaches in an effort to capture Chahadu. A fierce battle was fought on the east side of the valley that lasted several days, but the Monaches were victorious and succeeded in driving the Wuksaches from the valley. They retreated down Dry Creek and enlisted the support of the neighboring tribes to the South.

About this time, so the story goes a mysterious stranger appeared. He was not an Indian but talked the Wuksache language perfectly. He was dressed in buckskin and leading by the hand his beautiful young daughter, Cloverblossom. He called a council of the chiefs, and told them that if they would give him command and their warriors were brave men and fought well, he lead them in triumph over the Monaches and recapture Chadadu. This was agreed to and the hated Monaches were driven from the valley. The Wuksache pursued and the last decision battle was fought a few miles north and east of the Big Meadows where the Monaches were well nigh exterminated.

Continued Next Week

CHICO, CALIF. ENTERPRISE

JANUARY 8, 1935

Judge to Decide Status of Chico Indian Village

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Following a hearing yesterday afternoon in superior court at Oroville, disposition of the Chico Indian village property was placed in the hands of Superior Judge Harry Deirup today.

Appearing in behalf of the Indians, Attorney Liking from United States Attorney H. H. McPike's office in San Francisco contended the property was in trust and should go to some trustee.

He argued that deeds executed by Mrs. Annie E. K. Bidwell to the Board of Home Missions of the Presbyterian church and later returned to the estate executor, the Wells Fargo Union Bank & Trust company, constitute the trust.

J. D. Peters of Chico and Attorney Falconer of San Francisco, appearing in behalf of the executor, explained that while the executor did not dispute the Indians' right to the village, they felt the bank should get some return for thousands of dollars paid out in taxes on the property. They told of a compromise made by the executor, wherein it was suggested that the government pay approximately $4000 for the village and the 43 acres lying just south of the Rancheria.

Liking expressed the belief that the compromise appeared to be the best solution for disposing of the property.

Frederick J. Rose appeared in behalf of the Presbyterian Board of Home Missions.

The matter was submitted and an early ruling was anticipated from Judge Deirup on the validity of the trust.

SANTA PAULA, CAL., CHRONICLE
AUGUST 4, 1927

Basket

Indian Relics Are Given To Museum

United States district ranger Earl Branson of the Ojai district is to complete the presentation of two Indian relics found in a cave back of Wheeler Springs, to the museum in Ventura.

While working on a fire break back of Wheeler Hot Springs some months ago, Branson, with a crew of men discovered an old cave. In the cave, which was heavy with dust of time were found an Indian basket and a board four feet long, an inch thick and six inches wide. On one side of the cone pine wood board groves had been cut, the other was rounded, like the old Indian fleshing tools.

The basket, two feet high, lined with natural asphaltum, has already been presented to the museum.

BISHOP, CALIF., REGISTER

DECEMBER 10, 1936

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SUPERVISORS

Bid of H. P. Beatty for furnishing an 85-horsepower Ford pickup for $403.45, net after allowance for old pickup, was accepted by the Supervisors Monday.

Old age pensions were allowed to sixteen aged Indians, reported for the purpose by Miss McAfee, special agent.

Valentine F. Gorman was appointed by the Supervisors this week as Justice of the Peace to succeed Harry Piercy, deceased.

SAN FRANCISCO, CAL.
DAILY HERALD (S. F.
August 5, 1924

Apparently Washoe

—Camp Curry Photo

"INDIAN ALICE" AND HER BABY BASKET—The baby and the basket are two entries made by "Indian Alice" in the field day competition held at Camp Curry last Friday and Saturday. In accordance with a mystic Indian law it is the belief that if one will set about making a basket for a baby, by the time the basket is completed, a task which takes about a year, there will be a baby to fill it. However this may be, here is a baby basket made by "Indian Alice," here is the baby and inset is the baby in the basket.

SAN FRANCISCO, CAL
DAILY HERALD (S. F.)
[illegible] 1924

—Camp Curry Photo

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Retake of Preceding Frame

GRASS VALLEY CAL. UNION
JULY 10, 1931

THE GOLDEN FIFTIES

As Sketched by the Pen of TALLMAN HATHAWAY ROLFE

EDITED BY BELLE ROLFE DOUGLASS
(Installment Number Sixteen)

..(Installment Number Seventeen)..

NEVADA, CALIFORNIA,
October 21, 1857.

To H. C. Rolfe,
San Bernardino, California.

Dear Brother:

I hear that a furious war is raging among the Indians of this county. Three were killed at San Juan Saturday and six or seven at Penn Valley on Friday. Indians all over the West seem to be on a rampage. In your district the Yuas and Maricopas have declared war against each other. Emigrant trains arriving at Placerville report a horrible massacre on the Plains. Six men and three women were murdered a few miles East of Carson Valley. A woman was shot through the body and left for dead. She rallied but is not expected to live. Most every man in Carson Valley is willing to join an expedition to exterminate the Indians.

Unscrupulous white people are responsible many times for the trouble. Recently an ox belonging to Indians was poisoned and this enraged the tribesmen so that they attacked a band of immigrants, slaughtering every one they could get hold of. Many times innocent Indians are punished for the depredations of others and it is no wonder that they are vicious and revengeful.

Late intelligence from Honey Lake Valley represents that the settlers on that section are in imminent danger of being overpowered. A request has been esnt in to our Governor asking for one hundred stand of arms and a call on the citizens of California generally for assistance. The Governor will send the arms and there is no doubt that volunteers will offer service, but meanwhile the settlers may be cut off before assistance can reach them.

New Territory Proposed

You may have noticed that measures have been taken to induce Congress to divide the Territory of Utah and organize a Territorial Government East of the Sierras. Commissioners have been appointed to Procure through our Legislature the cession of all this State's real or supposed claims to the proposed section. The white population of that district is from eight to twelve thousand. The fertile valleys along the Eastern slope is filling up with an agricultural group and likely their interest will be materially advanced if set off from Utah. I hope they will succeed. There are about ten thousand Washoe Indians ranging about the mountains there who are warlike and dangerous.

For many years the Pah Utes possessed the Carson Valley, but after a fierce struggle were ousted by the Washoes who still claim part of the Territory as their own.

Early Nomenclature

A recent reference in one of our papers to "Fly-Blow Flat" down on the Yuba suggests a check-up on the names of the old '49 mining camps. There is nothing left of Liar's Flat, Moonshine Creek, Murphy's Luck or Lousy Level. Jackass Ravine is still considered a place of interest to miners.

At Empire Ranch

Do you remember the Sundays at Empire Ranch? That old hotel and trading post? It was there the first chickens brought across the plains landed. The first brood of 16 little chicks and the owner sold four of the roosters at $25 each. They also had two cows and each Sunday made five pails of milk punch. As many as fifty or a hundred sat at the tables, mostly French people. The tables under the trees were made by placing two 16 foot boards on claret boxes. There was also a shooting gallery, the sportsman using their own revolvers. 'Tis said that about twenty baskets of champagne, one hundred fifty boxes of claret and many gallons of milk were consumed weekly.

Our finances will soon be in good form. Two rondo tables have been installed in town and seem to be doing a thriving business. Rondo does not come under the ban of the law as a banking game, although there is a doubt in the minds of some. Be that as it may, Seeley sent me a hand bill last week announcing that a game of rondo would be opened at the San Juan Exchange Friday evening, the entire proceeds to be used toward improving the streets of their town and the following 'classic' stanza by the town "pote" was the main feature of the announcement.

"Roll the ball, the game is made!
Let Rondo be the cry.
For every time a bank is won,
Assists the streets to dry."

Seeley says he wouldn't be surprised if they got a game of Rondo for a church benefit next.

Good night.
TALLMAN.

Some local Indian customs and traditions are described in the next installment of the "Letters." The growth of Blaize's saloon as a social center is also mentioned.

White Father of the Church and His Indian Children.

Bishop Cantwell, in Full Pontifical Robes, with Cahuilla Indians.
This photograph was made yesterday by John S. McGroarty at San Jacinto.

BISHOP CANTWELL BACK FROM HISTORIC JOURNEY

Los Angeles Times, Nov. 12, 1919.

Makes First Trip to Far-Flung Indian Camps; Confirms Old Yellow Sky, Centenarian, Last Wild Man.

BY JOHN S. McGROARTY.

Bishop John Cantwell returned to Los Angeles late last night, after an epoch-making journey through the Indian country of Southern California which forms an important and picturesque part of the historic diocese of Monterey and Los Angeles.

The Bishop's travels carried him over the trails blazed by Fray Junipero Serra and the first Franciscan missionary fathers, and he was greeted there by the lineal descendants of the aborigines who were brought into the fold of the faith out of heathen darkness a century and a half ago. He also wrote a chapter in history by administering the sacrament of confirmation to old Yellow Sky, the last wild man of the Indian race in California, and in doing so the bishop may be said to have completed the work begun by his predecessors in the fateful year of 1769 when California took its first steps on the highroad to civilization.

I had the honor to accompany the bishop on his remarkable trip, acting as his guide as well as being his companion. For, as it happens, I know both that country and its people well. It is a beautiful country, and its people are a wonderful people. They are the only whole community of pure-blooded Indians left in America. Everywhere else the race shows white blood, but by some strange fortune the Indians of the great mountain fastnesses that rise between the desert and the sea in our California of the South are still free from the alien strain that is in all other Americans aboriginal or imported.

FAR-FLUNG CAMP FIRES.

The Indians gathered in three great camps of rendezvous to meet Bishop Cantwell, and as a consequence he came face to face with practically all of them who are under his spiritual care. Besides this, he passed through the country where his dusky charges live when they are at home. Children with the

(Continued on Twelfth Page.)

[Over]

BISHOP ON WONDER TOUR.

Cantwell Greets Dusky Clans at Three Great Rendezvous in Mountains.

(Continued from First Page.)

waters of baptism still wet upon their little raven heads were held in their mothers' arms to receive his blessing and scores of men and women long past the century mark of life knelt before him and bent their heads to kiss the Fisherman's ring on his hand.

The places of rendezvous were at El Cajon, Pala and San Jacinto, around the camp fires of which were spoken almost as many tongues as were heard at the building of Babel Tower. It is said that twenty-four of the thirty-nine Indian languages spoken in North America are spoken in California.

To these rendezvous came the dusky clans from many a far canyon deep in the heart of giant hills into which they have been hunted b the ever-encroaching progress of the white man. There were at El Cajon Indians from El Capitan Grande, from the lonely Cannecbas, the wild, primitive huts of Campo, from La Posta and the sunny silences of Laguna in the clefts of the Cuyamacas where the feet of the stranger have never been. They came to Pala from the secret places of the great Volcan Mountain, from Rincon, the "hidden corner," and from the vast, star-crowned heights of La Jolla. At San Jacinto were the Sobobas and the ancient septs of San Ignacio; there were the few that are left at Warner's after the exile; and came also then the Ka-wee-nas, the Big People, whose herds still crowd the mountain pastures that hang above the desert.

Long and difficult were the trails that many of these people traveled to greet the bishop. They journeyed patiently by day and lighted many an evening fire in the hills to reach the appointed meeting-places in response to the mysteriously-wrougt summons of runners and signals that still leap from one mountain-peak to another, as in olden times, and quite as efficiently as our modern "wireless" can do it now.

THE INDIAN METROPOLIS.

Pala is the metropolis of the Indian country. It has regular streets lighted by gas lamps on dark nights, and, to make it more like a town, you will hear the click of a typewriter there in the office of the agent. It is the official residence of Domingo Moro, chief of all the Indian police, who has a uniform on the order of a Mexican general.

The old mission at Pala was thronged, and as the bishop entered its gates the women threw their serapes and shawls on the ground before him to make a pathway for his feet. The bells of the campanile rang out a musical welcome with the same sweet clamor thta was theirs 100 years ago when they were brought from Spain and hung in the tiled tower b Fray Antonio Peyri of San Luis Rey. And from that same San Luis Re came now Fray Dominio, the father superior of the mission, and five other brown-robed padres with him, to greet their new spiritual chief.

It made one dream of what the old times must have been to hear Fray Antonio's bells and to see the brown Franciscan friars and all those dusky tribes crowding the ancient corridors and chanting the deep music of the "Santo" under gray rafters that the Indians had borne on their backs from the far summits of Palomar more than a century ago.

It was a confirmation ceremony, and the old altar was brilliant with lighted candles that set the quaint statues carved by long-dead Indian artists outstanding in a very striking panoply. And the tall, dark young bishop, in his gorgeous vestments of white and gold and purple, and his golden shepherd's staff in his hands, made a memorable figure as he conducted the stately ritual and spoke his affectionate greetings to the people in that place where the tiles of the floor were worn deep by the feet of dusky generations of neophytes long passed away from earth.

THE TAMING OF YELLOW SKY.

The largest concourse to greet the bishop was assembled at El Cajon, where a new church was dedicated and a large number of Indians, old and young, were confirmed. And it was there that the final touch was put upon the historic Christianizing of old "Yellow Sky," the last of the wild men.

According to the judgment of many Indians, Yellow Sky is now near the one hundred and thirtieth year of his life. A few years ago he was still a primitive man, living alone in the mountains. Until then he had never worn clothing, and he has never yet worn shoes. He was confirmed barefoot in the church at El Cajon, his only garb, an ulster overcoat reaching to his knees, which someone presented to him His hat, the only hat he has ever worn, he made himself out of platted grasses many a year ago.

When Padre Lapointe, the beloved missionary to the Indians, baptized Yellow Sky two years ago, it was necessary to delegate an Indian whose name is Ambrosio to learn his tongue, for it was a tongue no man could speak or understand. And this remarkable feat was accomplished by Ambrosio, who instructed Yellow Sky later in the elemental doctrines of Christianity, and who stood as his sponsor at the confirmation. Thus, the long arm of the church reached out for the last of the gentiles and drew him into the fold.

I had the honor to present Yellow Sky with a tin of tobacco and a corncob pipe with an amber stem after the ceremony, and the people threw enough silver into his grass hat to buy him a new overcoat, even at present prices.

As at the other places, the church at San Jacinto was totally inadequate to accommodate the crowds. The Sobobas, whose pasture lands once reached to San Luis Rey, and who boast that they were the first Indians detached from a mission to accept Christianity, were there, and a fine representation from the far-away Cahuilla also.

Bishop Cantwell was profoundly impressed with his experiences and returned filled with admiration for his Indian charges. He is planning many benefits for them and will prove a strong friend to them in the future. I look for better days for them now, and they have long had need of better days.

The bishop supports three missionary priests in the Indian country, as well as a school at Banning, where there are at present 150 children, receiving a free Christian education. The school will be enlarged soon, and several new chapels will be erected on the reservations.

BISHOP, CALIF., REGISTER
NOVEMBER 12, 1931

WHEN INDIAN WAR RULED IN VALLEY

(By Belle Dormer)

Owens river and valley was named after Owens and the mountain pass for Walker, of Fremont's party. W. P. Bailey and W. A. Greenly brought large herds of cattle to Round Valley.

Bishop, for whom the town and creek were named, came in '61 He and Col. Beale were from Fort Tejon, and brought horses and cattle from their ranges in Tulare.

An enterprising chap by tee name of Charley Putman kept a little store at Independence, and furnished the few prospectors and cattlemen with scanty supplies.

The winter of '61-'62 found the McGee boys with other stockmen wintering at Lone Pine. On the 6th of April, '62, occurred the first general fight with the Indians. Previous to that time in February '62 a man by the name of Taylor was killed by Indians at Benton, to the north. Some Indians were shot when caught killing the white men's cattle which brought on the trouble at Lone Pine which resulted in the wounding of Scott Broder, Tommy Hubbard, Jim Harness and A. Van Fleet, and the killing of many Indians, men women and children by the whites. Knowing full well that this slaughter would bring about serious trouble, Jess Summers, brother-in-law to the McGee boys and two other men, made a record run across the Sierras, and brought back with them citizens from Tulare and soldiers from Fort Tejon. The Indians were then followed up Owens River to where the town of Bishop now stands; from there a running fight was kept up into the mountains west of Round Valley, a distance of about fifteen or twenty miles, the Indian retreating, the whites following. Not until the Indians were safely barricaded behind rocks and trees did the whites realize that they had been led into ambush. In their hasty retreat, Capt. Mayfield (citizen) and one soldier were killed, and several wounded. The valley of Bishop creek is to-day a valley of homes and schools and happy children, a peaceful prosperous valley. In '61-'62-'63, it was a veritable battle ground.

The bit of creek and mountain side long accupied by the old gristmill, built by Joel H. Smith and Andy Cashbaugh nearly sixty years ago, formerly a dainty bit of Switzerland scenery, was at one time the scene of a hide and see scurry through brush and bramble hand to hand fight, where the snapping of a twig caused men's hearts to jump, then stand still while they waited for the sting of the arrow they felt sure would follow.

Alfalfa and grain and blossoming orchards later covered the battlegrounds with a mantle of forgetfulness. There were trenches not far from Bishop Creek where brave men fought their last fight. One of these, N. F. Ccott, Sheriff of Esmeralda County, was killed while lighting his pipe. It is handed down of him that he said, "if the hathen Injin wouldn't give a man toime to ate, slape, or drink nuthin but the muddy wather they washed their hathen fate in, be the powers, he'd smoke." And he did. This occurred the night of the Bishop creek fight; the lighted match held to his pipe was a target not overlooked by the "hathen Injin," in ambush.

In the various fights through the valley many men were more or less seriously wounded. Among them were Cage Pleasant, for whom Pleasant Valley was named; Al Groves, Harrison, Talbot, Hanson and many others. The-wounded were all taken to Big Pine where Col. Evans, U. S. A., was stationed with a company of soldiers.

"You picked a man up from the ground in a running fight, and carried him away on your horse, did you not?" I asked of Allie McGee. "Well—yes—I carried him till they shot my horse under me." "What then?" "Well, I caught an-

(Continued on next page.)

with Charley, and feeling that he

dians soon gave up the chase nd hastened back to divide the ch spoils of the day.

On reaching Fort Independence Allie McGee made every effort in his power to induce the officers to furnish him with an escort of soldiers, that he might go back up the river and ascertain if possible the fate of the brave boy who had sacrificed his own life that he might save that of Pap McGee, the man who had raised him from a little child; and to recover if possible their horses, wagon, outit and money. The escort was reused him, and to the end Allie elived it was for political reasons. nd that had he been a northerner nstead of a southerner, the escort vould have been furnished intanter.

After remaining at the fort a hort time, they continued on to heir home in Tulare county.

"But," said I to Allie, having eard the story many times from thers, "did they not take Charley ip on the Butte and burn him to stake where his cries and the dor of his burning flesh was borne o you on the winds as you were aaking your run to the Fort?" No, I never heard him speak after e gave his horse to Pap, and I ever saw him after he went down ghting; but years after I found n Indian carrying his gun; I took home with me, and I've got it et."

I never asked him what he did vith the Indian. That story, like he burning of Nigger Charley, had ecome history, and I wasn't going o give him a chance to dispel any nore illusions.

About this time a woman and er son were killed at Haiwee eadows. Many believed the crime have been committed by white en, but the Indians being in bad vor it was charged to them, and they were now outnumbered by diers and citizens, they were ded together like frightened ep, men, women and children, e driven into Owens Lake. en they swam or were thrown ore by the waves, strangling h the brackish water, their ies were riddled with bullets, make sure they would always nain good Indians. Allie McGee hed to go on record as having en no part in this massacre.

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... first page.)

... her horse whose rider had been shot, and carried the man into camp, and when the boys got tired of fighting and came in, I had supper ready for them. You see a man gets just as hungry shooting Indians as he does driving cattle."

It takes the friends of Allie McGee to tell of his coolness and courage. He saw nothing remarkable in a man frying bacon and boiling coffee with arrows flying about his head, and bullets disarranging his campfire.

July '63, the Indians were taken to the Tule River Reservation. But being human, though Indians, they longed for the home of their forefathers and returned after a few months to the valley of Owens river.

Allie McGee, his father, mother, sister, her husband Jesse Summers and "Nigger" Charley, a boy Pap McGee had raised, and brought with him from Texas. left Aurora for their home in Visalia. On their arrival at Big Pine March 7, '63, they found the body of a victim of the Indians. But Pap and his boys had lived too long on the Texas frontier to know the meaning of the word fear, so making light of the warning they continued on their way.

Their first warning of danger came when they were preparing a noon-day lunch at the foot of what is now known as Charley's Butte.

All of a sudden, as if touched off by wire, from all about them in the Black Rocks, and low hills of Fish Springs, there shot into the air more than a hundred thin gray wreaths of curling smoke. They are the redmen's signal fires the world over, and it would be hard to find a frontiersman in his right mind who would disregard them.

Before their hasty preparations were more than begun, the war-cry of the Piute was in their ears, and his bullets and arrows were scattering to the four winds their frightened horses. Allie McGee, Jesse Summers and Nigger Charley were on horseback. They immediately headed the loose horses, eighteen of them, toward the river. Then the heavy horses drawing the wagon with Pap and Grandma McGee, Mrs. Jesse Summers, and their outfit was driven into what seemed a shallow ford. The horses dropped into swimming water and were carried by the swift current some distance down river where they came ashore in mud and tules so thinck they could not be gotten out. The river and banks and hills were aswarm with Indians. There was no time to lose. Allie rode up to the wagon and lifted his mother to the saddle in front of him; Jesse Summers did the same for his wife. Then it was that Nigger Charley proved himself a hero. Loosing the lariat from the horn of his saddle he slipped to the ground and assisted Pap McGee to mount his horse, "Take him Pap, and I'll catch another." They were his last words. When the frightened horses came swinging past him the great loop of the lariat shot out swift as the bullet from a Winchester. For the space of a second it swung big and round over the frightened horses, then rested for a second on the head and shoulders of his favorite cow-pony. The little horse ducked his head and swung to the right, the big loop fell in the dust at his feet. Charley gave it a quick jerk, hoping to catch him by the feet as he had done in the past, times without number, but the loop tightened, and came back to him with a sagebrush torn from the earth, pungent and full of dust from the scurrying feet of the terrified horses.

It was a throw for life, and he had missed, though considered one of the most expert "ropers" on the Texas plains. Allie, with empty smoking six-shooter in hand, headed the horses back his way to give him another chance. Before they reached him, he went to his knees fighting. Then face down in the dust. Knowing it was all over with Charley, and feeling that he ...

... Indians soon gave up the chase and hastened back to divide the rich spoils of the day.

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I never asked him what he did with the Indian. That story, like the burning of Nigger Charley, had become history, and I wasn't going to give him a chance to dispel any more illusions.

About this time a woman and her son were killed at Haiwee Meadows. Many believed the crime to have been committed by white men, but the Indians being in bad favor it was charged to them, and as they were now outnumbered by soldiers and citizens, they were headed together like frightened sheep, men, women and children, were driven into Owens Lake. When they swam or were thrown ashore by the waves, strangling with the brackish water, their bodies were riddled with bullets, to make sure they would always remain good Indians. Allie McGee wished to go on record as having taken no part in this massacre.

The notes from which this story has been pieced together, were given me by Allie McGee, at Bishop, California, October, 1908. They have traveled far since then. Any discrepancies that may have crept in can be checked up by reading W. A. Chalfant's book "The Story of Inyo." Mr. Chalfant writes history as is. He also was given the story "first hand" by Allie McGee.

BISHOP, CALIF., REGISTER
JANUARY 30, 1936

INDIANS

Plans for Their Industrial Welfare

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Miss Alida Bowler, superintendent of the Carson Indian agency and in charge of all Indian affairs in the Nevada-eastern California district, was guest speaker at the Rotary Club last Friday. Miss Bowler reminded her hearers of the numerous plants first cultivated by Indians and now standard in the list of vegetable foods. Some common drugs were also first used by the Indians in the form of plants yielding such remedies, and it might be that white men's medicine has still something to learn from study of Indian doctoring.

Miss Bowler was almost the only one in authority to question an official report favoring removal of the Piute from their ancestral valley, and ultimately Commissioner Collier gave a positive decision against any such removal. What is now proposed is to locate the Indians on good lands from which they can make at least a part of their subsistence. This will still maintain their status as a factor in valley labor. It is further intended to foster special industries among them and establish trading posts which will be markets for their products, interesting to tourist travel and profitable to the makers of the products offered. It may be possible to build up an important industry in this way. It is proposed to set aside, to be held in perpetual government ownership, 470 acres near Bishop, 120 acres near Big Pine, 240 acres at Camp Independence and 240 acres near Lone Pine.

The Rotary Club had its second 100 per cent attendance for the month. Dave Bromley, the only absentee at the previous meeting, had journeyed to Tonopah to make up.

INDEPENDENCE, CALIF.
INDEPENDENT
JANUARY 31, 1936

Board Considers Indian Problem

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Water & Power Group Study Report

According to Los Angeles press reports, the Los Angeles water and power commission spent part of last week considering the placement of Indians in Owens Valley and Mono Basin.

A report was submitted to the commission by H. A. VanNorman, chief engineer of the water bureau, and Clarence S. Hill, right of way and land agent, discussing possibilities for aiding the Indians to become self-supporting.

The report recommends an exchange of land and water rights owned by the city for certain national lands and water rights.

The object would be removal of scattered groups of Indians to four segregated areas near Bishop, Big Pine, Independence and Lone Pine, according to the Los Angeles press comments.

It is understood that sufficient arable lands would be provided the Indians to support them.

BISHOP, CALIF., REGISTER
JANUARY 30, 1936

INDIAN WOMEN'S CLUB

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The Inyo Indian women's club held its regular meeting Monday afternoon at the Bishop Indian agency. The meeting was presided over by the president, Edith Dewey, and the minutes of the previous meeting were read by the secretary, Esther Watterson. They were interpreted by the president and approved.

The president read a draft of the proposed constitution. As the things set forth in this draft as interpreted by the president met with the approval of those present it was decided to draw up a complete set of constitution and by laws to present at the next meeting. Miss Bowler, superintendent of the Carson agency, was present and also Mrs. Lucy Houghton, county chairman of club extension. Mrs. Houghton made a brief talk, inviting the club into the federation if it should be the wish of the members. Her remarks were interpreted by the president. Miss Bowler offered for exhibition a beautiful assortment of Indian handicraft, dolls and baskets. The question of a club name was left for a future meeting.

The club members are asking contributions of rags for rug making. Any one wishing to contribute may notify the Indian welfare chairman, 438 Grove street.

Refreshments of coffee, wafers and ice cream were served, the latter being a contribution made by Miss Bowler.

The club has 23 charter members. The next meeting will be held at the agency, Feb. 10 at 2 p. m.

Owens Valley

INDEPENDENCE, CALIF.
INDEPENDENT
AUGUST 8, 1931

TRIBE JOINS TRIBE IN OLD TIME POW-WOW

With over a thousand Indians in attendance the Pava:Nawani:Wai held at Whitmore Hot Springs, July 31 and August 1 and 2 was a "howling" success. The celebraton was the Indian's big effort to brng back the "good old days" and they succeeded beyond their fondest hopes. Pava:Nawani:Wai is Piute for Big Doings and is the name chosen for this gathering of Indians in Long Valley. This Indian conclave was sponsored by resort owners of the Long Valley and Mammoth Lakes districts as a means of increasing the tourist trade into this district and they hope to make the Pava:Nawani:-Wai an annual affair. A great deal of credit should be given to Mrs. Helen Eaton Armstrong, Mr. Fred Armstrong and the staff at Whitmore's for their unselfish labor in helping to make the affair a success. According to the old Indians this Pava:Nawani:Wai was the largest gathering of Indians ever held in this part of the country; Indians attended from as far distant points as Mariposa, California, Pyramid Lake, Nevada and Darwin, California. Because of the exodus of the white people from Eastern California, the Indians feel that their only salvation is to develop the arts and crafts of their ancestors. The Indians saw in the Pava:Nawani:Wai a chance to advertise themselves to the white public and also a chance to sell some of their art work such as baskets and beads. The theme of the entire gathering was "old time ways." One of the reasons for chosing Whitmore Hot Springs for the "Big Doings" was because that section of Long Valley is a traditional meeting ground for the Indians. Every night representives from one of the many tribes in attendance gave their old time dances and every day Indian games were played. Some of these games had not been played before for over fifty years. Prizes donated by the summer resorts were given for the best art work and for the winners in the different games. There was a very large and fine display of baskets whose owners were contending for prizes and there was a very good showing of bead and leather work. The Pava:Nawani:Wai was managed by Harry Cornwell and Billy Williams, Billy Williams being in charge of the rodeo which was held in connection with the gathering.

BISHOP, CALIF., REGISTER
AUGUST 6, 1931

INDIAN BIG TIME

A brief stop at Whitmore Hot Springs, in Long Valley, Saturday showed that the "big time" of Indian marketing, games and so on, arranged by Mrs. F. V. Armstrong, had attracted a large attendance of white people as well as of Indians. It appeared that most of the Piute inhabitants of the two counties had congregated to share in the events gotten up for their particular advantage. It has since been learned that the Indians present numbered about 800, some coming from as far as Yosemite. They are all "pepped up" over the success of the occasion, and have already begun to plan what they will do the next time—though it will probably be more directly under white management than it was on the recent occasion. Some of the results are given as follows:

Relay race, Billy Williams first, Wilfred Cline second.

Roman riding, Billy Williams.

The riders and their picturesquely named mounts on the first day included Howard Meredith on Gravedigger, Wilfred Cline on Upside Down, Davis Gregory on Pop Again, Bud Burkhart on Mississippi, Harry Tom on Steamboat, Loren Kane on Black Devil, Harold Watson on Block Stranger, Lester Cline on Hotfoot, Chester Squires on Double Action, Albert Meredith on Jesse James, Jim Daniel on Hell to Set, Howard Garrison on Fandango Annie, Harold Frazer on Speedball, Donald Stone on Lindenbergh, Red Stewart on Rocket, Montana Kid on Double Wheel.

Finals of bronco riding, Lester Cline first money, Harry Tom second, Wilfred Cline third.

Wild horse race—Albert Meredith first, Davis Gregory second.

Roping contest, Charley Scott and Jess Chance first, Wilfred Cline and Harry Tom second.

Free for all horse race, Jess Chance first on Inyo Lad, Roy Albrie on Kid second.

Trick riding, Harry Tom.

Trick roping, Lester Cline.

Yukian Family (adapted from Wintun *Yuki*, 'enemy'.—Kroeber). A linguistic family in N. California, comprising only the Yuki, divided into several tribes or groups speaking several dialects. Apparently they had no common name of their own. Though the territory of the Yuki was very small, it was divided into three detached areas—one about the present Round Valley res. and s. thereof; another w. of this, along the coast, and a third some distance to the s. in the mountains dividing Sonoma from Napa and Lake cos.

The greater part of the family was comprised within the area first mentioned, which ran along Eel r. from a short distance above the confluence of the North fork, along both sides of the river to the junction of South Eel and Middle fork, extending on the w. to the ridge E. of Long valley. From the junction of the two streams up, the Yuki possessed the entire drainage of Middle fork E. to the watershed of the Coast range, which formed the boundary between them and the Wintun. They appear to have lived also on Hull cr., which drains into the North fork of Eel r. Some of the chief divisions of the Yuki proper were the Ukomnom in and about Round valley, the Sukshultatanom on North fork of Middle fork, the Huititnom on South fork of Middle fork, the Sukanom on Middle fork, the Utinom about the junction of Middle fork and South Eel r., and the Lilshiknom and Tanom on main Eel r. South of this group of tribes, between the Middle fork and the South Eel, in Eden valley and the adjacent country, were the Witukomnom, whose dialect was somewhat different from that of the Yuki proper. South of the Witukomnom again, on both sides of South Eel r., certainly near the mouth of Tomki cr., and probably to the headwaters of the South Eel itself; also on the upper waters of Russian r., at the head of Potter valley, were the Huchnom, who spoke a third dialect, which differed considerably from the Yuki proper. They are known by the Pomo, who are their neighbors on the s., as Tatu, and by the whites as Redwoods.

The second territory held by Yukian tribes extended along the coast from Ten Mile r. to Rockport or Usal, and inland as far as Jackson Valley cr., or more probably the range between this stream and the sea. These people call themselves *Ukohtontilka*, 'Ocean tribe.' They have probably been separated from the main body of the Yuki by Athapascan migration, as the Kato of Cahto and Laytonville occupy a strip of Athapascan territory between the two divisions. The dialect of the coast Yuki does not differ more from that of the Yuki proper than does that of the Huchnom.

The third territory occupied by the Yuki is mainly in the hills between Geysers and Calistoga, but includes a small portion of Russian r. valley, about Healdsburg. These people are called Ashochimi by Powers, and are generally known as Wappo. They are separated from their northern relatives by Pomo tribes, and their language diverges greatly from all other Yuki dialects.

The Yuki are said to have been somewhat more warlike than most of the Californians. The Yuki proper, or portions of them, were at war at times with the Kato and Wailaki, the Wintun, the Huchnom, and certain Pomo tribes. Excepting the Wappo, who fought with the Spaniards in the second quarter of the 19th century, the Yuki were barely beginning to be known at the time when the discovery of gold flooded the state with Americans. They came in conflict with the whites on different occasions, suffering considerably in numbers as a consequence. Round Valley res. was established in the heart of their territory in 1864, and the greater part of the stock, as well as various Athapascan, Wintun, Pomo, and other tribes, were brought to it, where they still reside. The Yuki proper in 1902 numbered about a hundred, the Huchnom barely a dozen. The coast Yuki amount probably to 15 or 20 individuals, and the number of Wappo, though not accurately known, is undoubtedly also small.

The Yuki much resemble the Pomo in appearance. They are short, broad, and sometimes fat. Measurements give an average height for men of 162 cm., which is a rather low stature. The Yuki show a considerably longer headform than any of their northern, eastern, or southern neighbors, as the Yurok, Hupa, Wintun, Maidu, and Pomo. This deviation is unexplained. The women tattoo their faces, especially across the cheeks and on the chin.

In their mode of life, habits, and beliefs the Yuki generally resemble the better-known Pomo, though the Yuki proper show the closest specific cultural resemblances to the neighboring Athapascan Wailaki. The Huchnom affiliated with the Pomo, and resembled these more nearly in their habits and practices than they did the Yuki proper. They fished and hunted, but most of their food was vegetal. They performed a ceremony conducted by a secret society whose members represented the spirits of the dead. They believed that the world was created by a being, human in shape, called Taikomol, 'He who travels alone,' assisted by the coyote. This deity was represented in a ceremony. (A. L. K.)

Chu-mai-a.—Powers in Cont. N. A. Ethnol., III, 136, 1877 (Pomo name). **Eukas.**—Ind. Aff. Rep. 1864, 119, 1865. **Noam-kekhl.**—Powers in Cont. N. A. Ethnol., III, 230, 1877 ('west dwelling' or 'western tribe': Wintun name). **Noam'-kult.**—Ibid. **Nomee Cults.**—Taylor in Cal. Farmer, June 8, 1860. **Shumeia.**—Powers in Overland Mo., IX, 306, 1872. **Uca.**—Gibbs in Hist. Mag., 1st s., VII, 123, 1863. **Uka.**—Taylor in Cal. Farmer, June 22, 1860. **Ukies.**—Ind. Aff. Rep., 112, 1865. **Ulkies.**—Ind. Aff. Rep., 75, 1870. **Yuca's.**—Russell (1853) in H. R. Ex. Doc. 76, 34th Cong., 3d sess., 74, 1857. **Yucas.**—Ind. Aff. Rep., 26, 1866. **Yuka.**—Gibbs, op. cit. **Yukeh.**—Ibid. **Yu-ki.**—Powers in Cont. N. A. Ethnol., III, 23, 1877. **Yuques.**—Gibbs, op. cit.

Yukean

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Handbook Am. Indians
Pt. 2, p. 1008-9, 1910

Retake of Preceding Frame

Pomo Indians In Sonoma Begin Annual Feast

STEWARTS POINT, Sonoma Co.—An 85 year old feast ceremony of the Kashia band of the Pomo Indians begins today on the reservation and will continue through Sunday.

Tribal history says the Kashia people were commanded to make cross bead necklaces and bracelets, belts and anklets and wear them on the Fourth of July, a day of feasting.

For four days before the holiday there must be no quarreling among the families or with neighbors. The tribe also must pray at every meal and follow other rules.

Dreamed Of Feast

The observance started after Big Jose, a shaman or tribal leader of a group of Pomo Indiens in the Annapolis, Sonoma County, area, dreamed of the feast ceremony in 1880. The leader said the event must be continued as long as there are Indians. Big Jose died in 1914. The ceremony remained.

The custom has been carried on by three tribe members through the years with Mrs. Sidney Parrish in charge of the event this year. Her husband is chief of the reservation.

Through tomorrow, the Indians will gather for instruction and to practice dancing. Friday and Saturday will feature formal Indian dances, open to the public.

Barbecue Planned

Sunday the tribe will hold a beef barbecue starting at 2 PM. A charge of $1.50 for adults and 75 cents for children under 12 will be made. In addition, potluck items will be furnished free by tribe members.

Barbecue proceeds go toward putting on the event next year.

NEW YORK, N. Y., SUN
FEBRUARY 13, 1936

NAVAJO EPIDEMIC

Strange Illness Is Sweeping Over Reservation.

GALLUP, N. M., Feb. 13 (A. P.).—A strange epidemic, mild in its nature, swept across the vast Navajo Reservation today, overtaking hospitals as hundreds of Indians took to their sick beds.

The illness was variously diagnosed as grip, bronchitis and influenza, with here and there an outcropping of tonsillitis. It spread over most of the fifteen-million reservation in Arizona and New Mexico.

The wave of sickness first appeared about two weeks ago at Keams Canyon, Tohatchi and Fort Wingate, widely separated communities of Navajoland. Since schools have been closed and emergency hospitals set up.

Only one death was reported.

Dr. W. H. Whitted, Indian Service physician at Fort Wingate, said 100 cases were on record there. Overflow patients in the hospitals were bedded in the corridors.

Tohatchi Hospital physicians said their beds were filled with patients, and others were being accommodated in makeshift quarters.

At Keams Canyon 120 cases were reported and schools were closed to check the rapid spread of the illness among children.

SAN JOSE DAILY MERCURY: FRIDAY MORNING, MARCH 16, 1906.

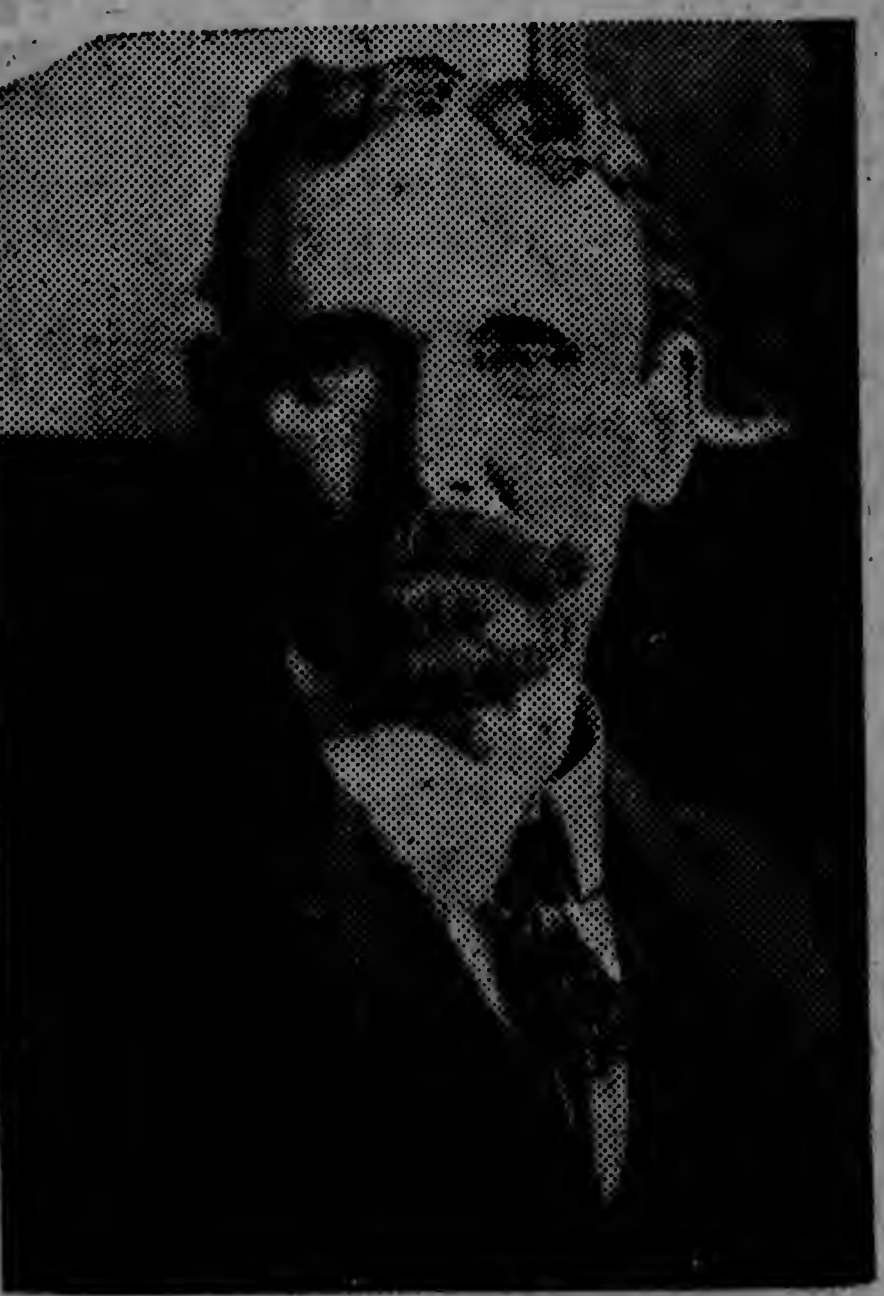
NORTHERN CALIFORNIA INDIAN ASSOCIATION.

C. E. Kelsey Ordered to Washington—Friends of Indians Asked to Write to Members of Congress, Requesting Them to Lend Their Aid in This Matter.

C. E. KELSEY, Secretary of the Northern California Indian Association, who was appointed by the Commissioner of Indian Affairs Special Government Agent for California Indians, has been ordered by the department to appear before the Senate Committee on Indians, and left last Sunday for Washington. He will present his report and endeavor to obtain a redress of the grievances under which California Indians are suffering. In order to induce Congress to act, the association is scattering broadcast the following appeal:

"The investigation into the condition of the Indians of California, both north and south, authorized by Congress last year, in response to the petition of the Northern California Indian Association, has revealed even greater destitution than was originally claimed. Our Secretary has been called to Washington to testify before the Indian Committees of Congress. Legislation for relief in the form of an appropriation for the purchase of land for small allotments is imperatively needed to save the remnant of our landless Indians, approximately 10,000 in number. Some of these are literally dying of starvation at the present time.

"The Indians of Southern California are suffering for arable land, with water, their present reservations being sterile and inadequate, and suitable provision for them must be made at once. Personal letters to your Senators and Congressmen will be of great value, if sent in promptly. The California delegation is: Senators—Hon. George C. Perkins and Hon. Frank P. Flint; Congressmen—Hon. J. N. Gillette, Hon. Duncan McKinley, Hon. J. R. Knowland, Hon. Julius Kahn, Hon. E. A. Hayes, Hon. J. C. Needham, Hon. James McLachlan, Hon. S. C. Smith. Address for Senators, U. S. Senate, Washington, D. C.; for Congressmen, House of Representatives, Washington, D. C."



C. E. KELSEY.

Dr. C. Hart Merriam, Chief of the Biological Survey, Washington, D. C., said in a recent address:

"The principal cause of the appallingly great and rapid decrease in the Indians of California is not, in my judgment, the number directly slain by the whites, or the number directly killed by whiskey or disease, but a much more subtle and dreadful thing. It is the gradual but progressive and relentless confiscation of their lands and homes, in consequence of which they are forced to seek refuge in remote and barren localities, often far from water, usually with an impoverished supply of food, and not infrequently in places where the winter climate is too severe for their enfeebled constitutions. Victims of the aggressive selfishness of the whites, outcasts in the land of their fathers, outraged in their most sacred institutions, weakened in body, broken in spirit, and fully conscious of the hopelessness of their condition, must we wonder that the wail for the dead is often heard in their camps and that the survivors are passing swiftly away?"

Friends of Indians are urgently requested to use all their influence in favor of just legislation on behalf of our Indians.

MRS. T. C. EDWARDS,
President.

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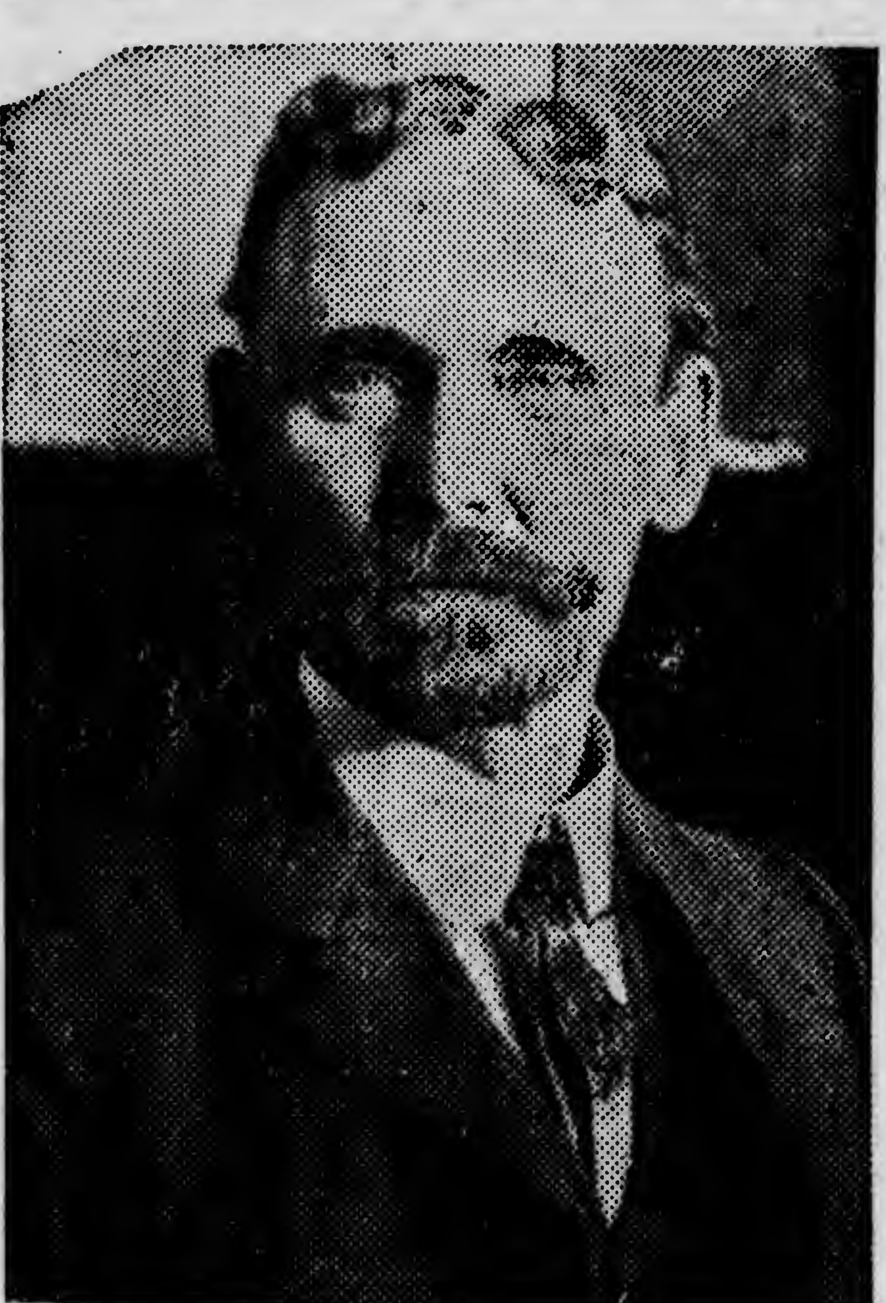

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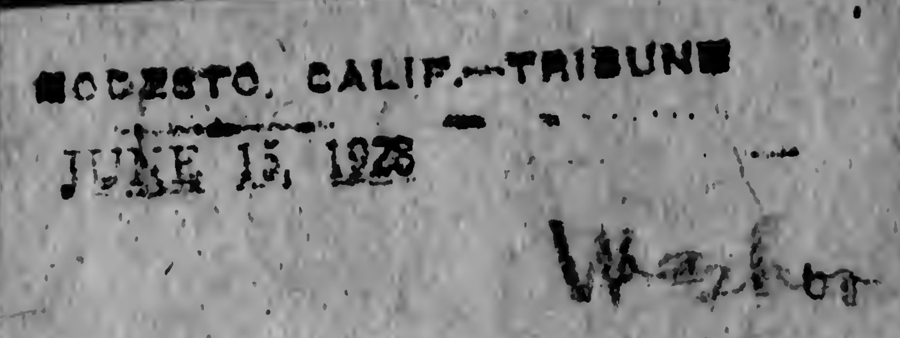

MODESTO, CALIF.—TRIBUNE
JUNE 15, 1928
Washo

THE INDIAN AND MODERN LIFE

364

The startling contrast t otheroving life of their ancesters, the 250 inhabitants of Reno's Indian village have settled down to enjoy every modern convenience of the city dwllr. Telephones are being installed and electric li hts have replaced the old tallow dips and the streets are being gravled. Garages, in some cases more pretentions than the homes, appear to be almost standard equipment.

The ready adoption of the telephone by the Indians emphasizes their traditional liking for the quickest means of communication, dating from the old days, when smoke signals and couriers served the purpose of their forefathers.

The Indian village situated on the Mill street road, east of Reno, will soon have a water supply mains and sewer conections. It already ic provided wit ha church, school house and medical service troug te auspices of te Indian service, a government agency.

INDIANS TO RENEW TRIBE FEDERATION

Star - March 19, 1923.

Powhatan's Famous Band of 300 Years Ago Is to Be Reorganized.

Special Dispatch to The Star.

FREDERICKSBURG, Va., March 19.—Powhatan's Confederacy, famous Indian association which went out of existence at the death of its belligerent old chief more than 300 years ago, is to be revived by the Indian peoples of the middle Atlantic seaboard, who will meet in national council March 22 on the Pamunkey reservation in Virginia for the purpose. Much preliminary work has been concluded.

Every tribe and many of the scattered Indian communities of Maryland, Delaware and Virginia will have representatives at the meeeting which will again unite all the remnant peoples. All these tribes and groups are descendent of those which composed the confederacy ruled by the stern old warrior who gave Pocahontas to the world and spared the life of Capt. John Smith. All now operate under some kind of tribal organization, with regularly chosen chiefs, councils and other officials, and keep up many of their old customs and practices. While they have to a large extent preserved their racial integrity since the days of Powhatan, they have not maintained any kind of intertribal connection or affiliation such as existed under his leadership.

The new association will reunite the tribes for mutual benefit and protection. Education is to be substituted for the tomahawk and an earnest attempt made to arouse the Indian people to a sense of responsibility, awake ambition and inspire confidence. The first physical step in the program is the building of a school at which the Indians will be trained for useful occupations and fitted to cope properly with life under modern conditions.

INDIANS FACE LYNCH LAW

Crowds Gather at Jail Where Men Who Shot Deputies Are Held.

Sheriff and Large Force of Men on Guard. One of Wounded Officials Fatally Hurt.

Susanville, Cal., April 27.—Six Indians who were placed in the Lassen county jail late tonight, charged with the shooting of two officers at Tule Lake yesterday, are in danger of being lynched. A crowd surrounded the jail tonight, and Sheriff Huntsinger and a large force of deputies are on guard.

Deputy Game Warden Frank Cady and United States Deputy Marshal Joseph Mellinger, the Indians' victims, have been brought here for treatment. Mellinger is probably fatally wounded.

The two officers had arrested eleven Indians at the lake for illicit fishing. Several of the Indians leaped from their ponies and attacked Cady, who was overpowered.

Mellinger shot and fatally wounded one of the band before he was hurled from his horse. As the two white men lay in the road the Indians trampled them under the hoofs of their mounts.

Four of the Indians who were captured today without trouble by posses proved to be schoolboys, and were released. The dying Indian was left in their care

Wash'n Post - Apr. 28, 1913.

SAN BERNARDINO, CAL.
TELEGRAM—35
JULY 21 1925

INDIAN POLICE POWERS TO BE TEST SUBJECT

Court Case To Determine If Federation Men Are Recognized By U. S.

'POLICE CHIEF' ON TRIAL

Local Attorney Defending Indian Who Refused To Fight Forest Fire

Promising to become of nationwide interest before completed and a test of whether the Indian Federation has the right to appoint its own police and have them recognized by the Federal and State government, Conrado Chaparosa, represented by Attorney Albert Trujillo, will go to trial at Oceanside on July 27 on the charge of refusing to fight a forest fire.

According to Attorney Trujillo the future of the Indian police, appointed by the Indian Federation, will hinge on the outcome of the trial. Already interest has been taken in the case by other Indian interests in California and other western states.

Charge Made During Fiesta

The charge grew out of an Indian fiesta near Oceanside on June 24. Hundreds of Indians were gathered at the fiesta. A forest fire broke out some distance from the scene of the celebration and a forest ranger ordered Chaparosa, who was appointed chief of police of the Mission tribe, to accompany him and fight the forest fire.

According to Trujillo, Chaparosa refused to go to the scene of the fire, declaring he was needed where he was, as bootleggers were furnishing the Indians with whiskey and it was necessary that he remain at the fiesta to carry out his duties as a police officer. The fact that he was police chief exempted him from fighting the forest fire, he said.

Would Not Fight Fire

The ultimate result was that Chaparosa did not go and fight the fire and later a charge of refusing to fight the blaze was placed against him.

The case was originally set to be tried last week but was postponed until July 27. Attorney Trujillo plans to have a score of Indians, representing the various tribes in Southern California, as witnesses when the case comes to trial.

"The case will determine the right of the Indian Federation to appoint its own police", Attorney Trujillo said today. "The issue has never come to a test before that I know of and whether the Indain police will be recognized by the Federal and State authorities is something that is of interest throughout the country where Indian reservations exist. The case is liable to be carried far before it is settled."

SANTA ROSA CALIF.
REPUBLICAN
DECEMBER 30, 1930

COUNTY INDIANS NEED CLOTHES, FOOD, BEDDING

Relief Committee Finds Families in Deplorable Condition

Indians of Sonoma county on two reservations in Alexander valley are in a deplorable condition, needing immediate aid in the form of food, medical attention, clothes and bedclothing.

This was the report brought to the newspaper relief headquarters yesterday by a committee sent from Santa Rosa to investigate conditions on the Geyserville and Wapo reservations.

Seven families were visited by the group in company with Rev. F. G. Collett, for many years a worker among the native Americans.

In one place seventeen persons were found huddled in a single room, trying to keep warm around a small fire. Lacking sufficient bedclothes at night they all mass together on the filth of the floor to keep from freezing.

In another place a family of seven is being slowly wiped out by tuberculosis. Two or three have already died and the others, without medical attention, are awaiting the end. There is no food in the house and no one is well enough to go in search of any.

Nearby is the home of an Indian woman, 94 years old. She is cared for by nearby members of her own race as best they can in their own impoverished condition.

And thus down the list.

But today those in immediate need will receive aid from the relief store of The Republican. Blankets, food and clothing will be sent to the reservations.

Meanwhile a conference has been called in The Republican social hall to make further plans for more permanent relief of the Indians. Interested relief workers will gather at 10 a. m. and arrange a plan whereby the needy can be provided for.

Those on the committee yesterday besides Rev. Collett were Mrs. Frank Grace, Charles Lee, Mrs. R. M. Seaton and C. W. Jessup. They were accompanied by Mrs. George Gratto, an Indian of Sebastopol.

S.F. Chronicle, Dec. 3 1919

Indians Charge U. S. Laxity in Treaty Pledges

RIVERSIDE, December 2.—Nearly 100 chiefs and headmen, representing 2000 Indians on Southern California reservations, have completed a four-day meeting here, at which they discussed their relations with the Federal Government and organized for the presentation of their wishes to those in authority. The Indians met to make common cause on behalf of the isolated groups living on small reservations, so that a sufficient number could be heard to make their word of weight in Washington. Lack of water, shortage of pumping equipment and delay generally by the Government toward its wards was claimed by the speakers, who said the Government had disregarded their treaty rights.

S.F. Chronicle - August 4, 1915

"No Can Fool 'Em," Says Red Indian Chief to Uncle Sam

Forty California Indians, representing 250 homeless bands of their countrymen, came to the exposition yesterday to prepare an appeal to the "White Father" in Washington, D. C., and find out why "Uncle Sam" ignores his treaties so that to live they must eat angleworms.

The Indian Board of Co-operation is caring for the men and women, who are here to attend a conference at the exposition, by which it hopes to touch the heart and the pocket book of the United States Government.

"For fifty-two years white man make promise to care for Indian. No keep 'em. Lost hope—almost," says aged Quinisdo Shidan, chief of a band of roving Cortina Indians that live in the Sacramento valley, sixteen miles from Williams.

"White father's men make eighten treaties to beaten Indian sixty years ago, then backslide. White man find he not know where land with gold was. Then treaties were lost. Indian understand. No can fool 'em," he said.

The venerable old chief from Northern California said that his band of forty men, women and children at times had to live on worms and stagnant water on the eighty acres which the Government furnished them. The only means the men have, he said, was work in the fields, and this, he asserted, was hard to get.

Chief Toney Me-Tock of a homeless Mendocino band, told a similar story of the terrible conditions under which his people lived.

"We want an appropriation of $200,000 for the starving and homeless Indians—20,000 of them in thirty-six California counties—and the assurance that the Government hereafter will care for them," said the Rev. Frederick G. Collett, field secretary of the board.

"An appeal will be drafted to Secretary of the Interior Franklin Lane as a result of this conference, and later we will send someone to Washington, D. C., to place the matter before the Government."

Your Lazy Liver Needs This Fin[e]
Constipation Re[medy]
To subdue a stubborn l[iver] constipation, quickly b[anish] dizziness, billio[us]ness, indigestion, headache and th[e] blues there [is] nothing [on] earth so [good] as Cart[er's] Little L[iver Pills]
GENU[INE]

INDIANS IN 'UPRISING'

Post — Feb 16, 1911

Moving Pictures, Not White Man, Now Their Foe.

WILL PROTEST TO MR. TAFT

Delegation Now in Washington Also May Seek, by Congressional Legislation, to Prevent the Showing of Films Which Falsely Depict Tribal Life—Termed Demoralizing and Unjust.

Objecting to the manner in which they are portrayed in motion pictures, shown in the various theaters in Washington, a delegation of Indians now in Washington on business for their respective tribes may call the matter to the attention of the President.

The Indians probably will be at the White House tomorrow, and after laying the matter before Mr. Taft, they say they will endeavor to get Congress to enact legislation prohibiting motion pictures in which the Indian is portrayed as a cannibal, &c. The following Indians have signed a petition condemning the present characterization of the red man in the motion pictures: James Irving, Magoosh, Saucy Calf, Tennyson Berry, William Ahdasy, Ned E. Brace, John Harrison, the Rev. John Eastman, Eves Tall Chief, Benjamin Casswell, George Walters, Ah-bow-e-shig, John Ottoby, Red Bird, Scott Big Buck, John Washee, Bird Chief, jr., Big Billy, John W. Carl, B. L. Fairbanks, Joe Critt, Thomas Swan, William Kucherbocker, Parso, Sal Pur, D. R. Lonewolf, Joseph Saunkah, William Sanpatty, Late Rave, Philip Long, Harry Kohpay, Thomas Mosier, sr., the Rev. Charles T. Wright, James Bassett, Kay-dug-e-gwon-ay-oush, Bird Chief, Thomas Bell, Walton, Arnold Woodworth, Sage, Jesse Rouledge, Gus H. Beaulieu, Julius Brown, William Potter, Big Ben, Capt. Joseph

Indian Editor's Protest.

Here is what Un A. Sud. a halfbreed editor, has to say on the matter:

"The Indian department, and in fact the Christian people, as well as all others having the welfare of the Indian at heart, should rise up with one accord and pronounce a curse upon the present-day so-called Indian productions that are being presented to the public by means of being thrown upon screens at all the little, old 5-cent moving-picture theaters throughout our broad land. I, as editor of the Indian Observer, a paper that is championing the cause of the Indian, hereby vigorously protest against the Indian scenes as representing actual incidents in the lives of the American Indian. If the greater per cent were not absolutely false, demoralizing in character, and acted by white actors, painted up and bedecked with feathers, but were good scenes, acted by real Indians, I would have no objection; but the pictures grossly exaggerate true Indian life, portraying to the youth of our country that which is entirely false.

Condemns Picture.

"The other afternoon I saw an Indian sign in front of a picture house, so I thought that I would step in and see what 'The Curse of the Red Man' was like. The first scene represented Indians on an Apache reservation, living in all their glory of primitive life. Then a government agent from some Indian school came in, and one of the young men goes off to school, at Sherman Institute, in California. He graduates with honor, carries off a medal in athletics. He returns to his home, to his people, dressed in his citizen's clothes; but his people will have nothing to do with him and his educated methods. He is rejected by his people, and, in this distracted condition, alone, the 'curse' comes in the form of a white man and a bottle of whisky.

"At first I was somewhat at a loss to know which was the 'curse,' but took it to be the bottle of whisky. The young Indian gets a craving for whisky, steals, and finally murders a saloonkeeper; flees, but is pursued by a posse, and killed. The closing scene shows the white men holding up the bottle of whisky, and pointing to it as the Indian's downfall. These characters were all acted by white actors painted up a little to look like Indians. Is this a true representation of Indian life? No!"

Antioch Daily Ledger
June 17, 1966

BONES TELL TALE OF INDIAN LIFE

REMAINS OF ADULT INDIAN, as they were uncovered at burial grounds on Bethel Island by University of California students, lie before Hazel Wald, 23, UC senior, one of 17 students doing archeological research at the site. Note how leg bones of Indian were tightly drawn up against chest.

NEAR BETHEL ISLAND

Excavations Reveal Indians' Way of Life

Archeological excavations are again underway at "Hotchkiss Mound," an ancient Indian burial ground near Bethel Island.

Seventeen University of California students—five in the graduate school and 12 undergraduates—so far have uncovered 18 skeletons, the remains of California's aboriginal tribes believed to have inhabited the area between 2000 B.C. to the California pre-white period, about 1750.

Since 1936, the university has been compiling information about these Indians from remains found in the burial grounds. So far, more than 200 skeletons have been removed since the site was discovered in 1936.

"Hotchkiss Mound" is located on private property at the eastern end of Cypress Road.

Jim O'Connell, 22, one of the graduate students, said, "We can learn a lot about the daily life as well as the changing patterns of the times by just digging through burial spots."

In addition to uncovering skeletons, the budding archeologists also are finding artifacts, arrows and other indications of the way of life of tribes of that era.

Most of the skeletons, the diggers say, are of Indians who died of natural causes. Infant mortality was high and some deaths of older Indians apparently were the result of fights.

One skeleton, for instance, indicates that the victim died of arrow wounds, since four "projection points," caused by arrows or spears, have been found.

One small area, approximately 25 square feet, yielded four skeletons. As in most cases, the Indians had been buried in a "tight flex" position, with the knees close to the chest. The Indians believed, researchers say, that this position would keep the spirit from leaving the body. On a practical basis, these positions took up less grave space, also.

Studies reveal that during the time the Indians lived there the land was quite different from that of today.

The entire area was marshy and the Indians lived on mounds of sand, or small islands. They hunted elk and deer, and fished for species that still may be

Turn To INDIANS
Page 6

INDIANS . . .

Continued From Page One

found in the waterways of the Delta.

Although present excavation work is not expected to bring any startling new facets of Indian life to light, it will give the students practical experience and knowledge in the field of archeology. Remains that are painstakingly uncovered will be taken to the University of California at Berkeley for further study.

Information gathered from the digging is expected to be published in several years.

Students spend the entire day digging carefully—it takes several days to uncover an entire skeleton — taking notes, photographing finds and making sketches. The field trip is under direction of two members of the UC anthropology staff, Robert F. Heizer and Albert E. Elsasser.

One of the things of interest to the general public is the trade life of the Indians, which has been revealed by articles that obviously came from other distant tribes and marine shells from areas along the Pacific Ocean.

The "diggin's" will be worked for another three weeks by the students. The public is asked to stay away from the area so that nothing will be disturbed. A single misplaced bone or artifact could ruin a study, researchers say.

Retake of Preceding Frame

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Study of Indian Villages

Archeologists at Work Exploring Canyon of Feather River

The clock will be turned back in Butte, Glenn, and Tehama counties this summer by a team of men and women archeologists representing Chico State College, UC Los Angeles, and the California State Department of Beaches and Parks. They are already at work.

One of their important jobs will be to explore the canyons soon to be engulfed by the waters of the Feather River, and upstream from the great dam discover and record sites of abandoned Indian villages which should be mapped, thus carrying on the work begun by the state archeologist.

Cooperating directly in the explorations will be Keith Johnson of the division of social sciences, Chico State, and Donald S. Miller, chief archeologist of the UCLA Archeological Survey, of the department of anthropology, and the largest such organization in the west.

Miller will be project director, assisted by Johnson.

One field camp will be established east of the Oroville Dam, and others at various strategic points in the three counties near sites which have already been marked as promising.

They will probe into mounds representing village sites of the Midu, Wintun, and Yana Indians, and in some instances thoroughly excavate one or more houses, to discover what the houses might have been used for, make comparisons of structures and artifacts, and attempt to explain differences in living habits between the tribes, how their cultures might have developed.

It will be a thorough job in each instance, say Miller and Johnson, with a time - span interest of 300, perhaps even 600, years in scientific terms, an "environmental and space" study.

"Ours will be the first stage, in this project, of 'pushing back in time'," said Miller. "Such work can be done the other way — trying to find aboriginal beginnings, and starting there. Our method of working backwards is simpler, and in these instances appears to make more sense."

Students who have signed up for the project, which is for credit of four units in the UCLA summer program, each in two courses, will be divided into three teams of eleven men

(Continued on Page 5D)

THE CHICO ENTERPRISE-RECORD—CHICO, CALIFORNIA

June 26, 1965

and women each. Women are in the majority.

Directing them will be staff members from the UCLA Archeology Survey, such as Neboru Nakamura and Karen Craig, laboratory technicians; and teaching assistants, who will be team captains, Tom Durbin, Phil Burnham, and Gordon Pollard; with Joe Chartkoff as director of the Oroville project, assisted by two young Chico men — Eric Ridder, student at the University of Arizona, and his brother Hal, student at Chico Senior High, both sons of Dr. Dale Ridder of Chico.

Tract Builders Help to Save Indian Burials

August 6, 1957

SBa

A book-reading firm of contractors was receiving high praise today from the Santa Barbara Museum of Natural History.

The Los Angeles firm of Davies, Keusder and Brown, about to start bulldozing the Holiday Park subdivision a quarter of a mile beyond the Goletta turnoff, took the precaution to telephone the museum and promise not to disturb any bones.

As Gene Latour explained in a telephone message to Dr. Arthur S. Coggeshall, director of the museum, the firm had read "Prehistoric Man of the Santa Barbara Coast" by the late David Banks Rogers, for many years the museum's anthropologist, and realized that the ground was full of Indian burials.

The museum sent John Tyler, assistant to Phil C. Orr, the present anthropologist, and Buck Davis, who is affiliated with the Western Speleological Assn., of which Orr is director, out to Holiday Park. The two men removed two burials intact and observed that there were at least three others.

Meanwhile, the bulldozing had begun. One or two of the burials were demolished before they had been detected.

Santa Barbara

DENTAL SURGERY PRACTICED BY PRIMITIVE AMERICANS

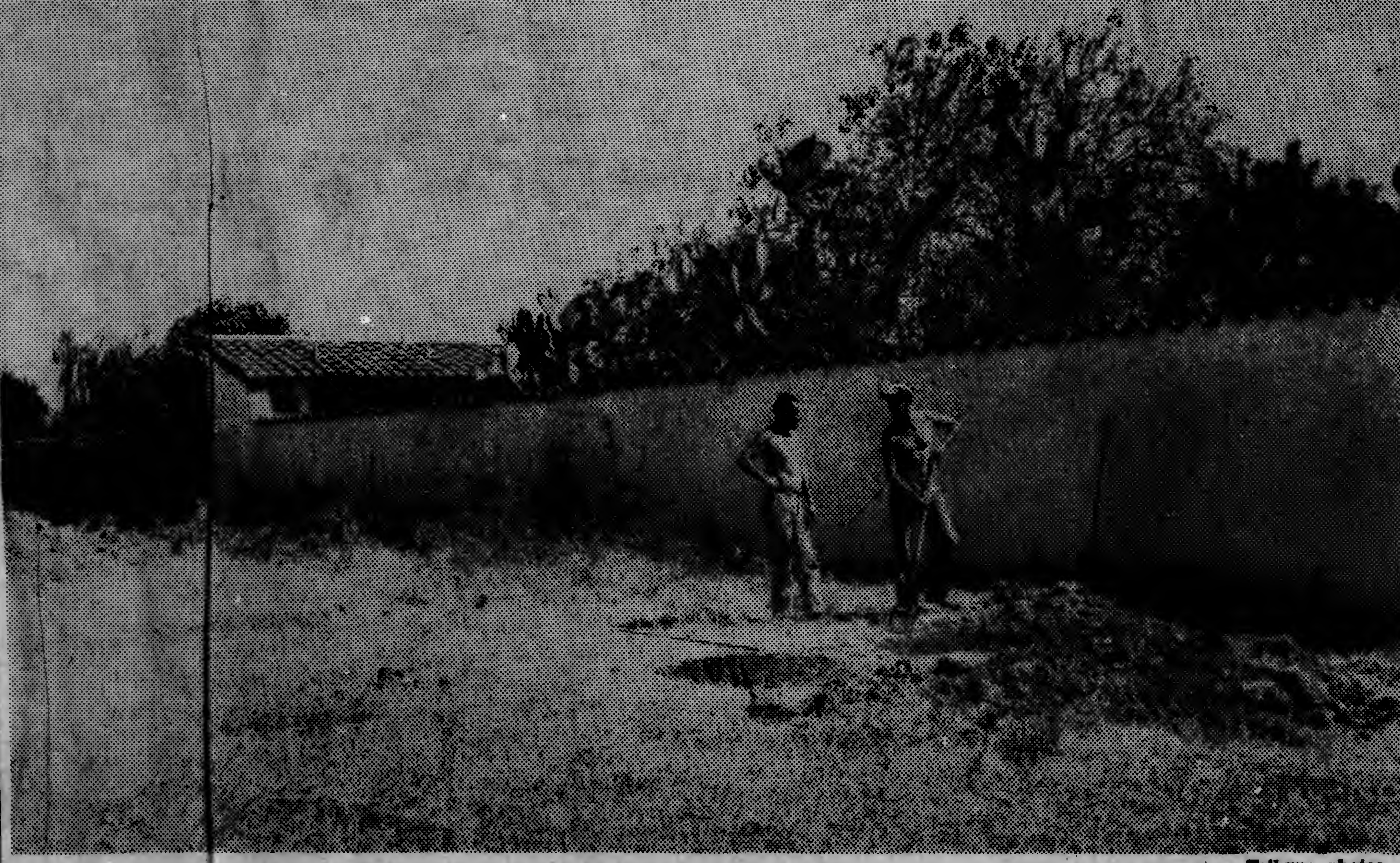
Evidence to support the theory that the aborigines who at one time inhabited southern California practiced dentistry in a crude way, has been brought to light as a result of excavations recently made at Ocean Park by a western archeologist. Many skulls have been exhumed and the teeth preserved in the jaws of some of these form an interesting study. Arches from which molars were extracted before the demise of the individuals have been found, as have also teeth having cavities filled with a composition material consisting of pulverized stone and asphaltum. Rough implements of bone, shell, and stone, some of them bearing a certain resemblance in form to tools used by dental practitioners today, have also been disinterred. We know that the ancient Egyptians, Greeks, and Hindus enjoyed the benefits of dental treatment but the discovery that some of the earliest inhabitants of this country likewise repaired their ailing teeth is an important revelation. Moreover, it indicates that Josiah Flagg, of revolutionary times, after all was not the first American dentist. Some of the implements uncovered on the coast are said to be almost identical in appearance to some excavated at Mycenæ, Greece, and estimated to be 2,500 years old.

The Crude Dental Tools at the Top were Recovered from This and Other Excavations at Ocean Park. The Molar Missing from the Arch at the Right was Apparently Extracted Artificially before Owner's Demise

Popular Mechanics, p 379, Sept. 1916.

Oakland Tribune
ESTABLISHED FEBRUARY 21, 1874
ASSOCIATED PRESS...WIREPHOTO...WIDE WORLD...UNITED PRESS...CHICAGO DAILY NEWS FOREIGN SERVICE
OAKLAND'S LOCALLY OWNED AND LOCALLY CONTROLLED DAILY NEWSPAPER
VOL. CLXI OAKLAND, CALIFORNIA, THURSDAY, AUGUST 26, 1954 27 E NO. 57

'NEW' SONOMA MISSION RUINS UNCOVERED



Tribune photos

Members of the University of California Archaeological Survey start "fined" digging on private lands along northern wall of the colorful Sonoma Mission. Their research may lead to rewriting of Sonoma County history.

Dr. A. E. Treganza and a fellow archaeologist examine the well-preserved ruins of an adobe wall and a baked tile floor of what appears to be a once important building at historic Sonoma Mission. The building, heretofore unknown, measured 90 by 25 feet and is on private property.

Unknown Units of Mission Discovered by U.C. Team

New discoveries by a University of California archeological survey team at the colorful Sonoma Mission may lead to a complete revision of Sonoma County history.

The latest findings, completed this week under the direction of Dr. A. E. Treganza, associate professor of anthropology at San Francisco State College, indicate that the original mission, founded on July 4, 1823, actually occupied property far beyond that depicted in early sketches and written accounts.

Ruins at the Sonoma site have been periodically uncovered since early 1953 through a contract agreement between the California State Division of Beaches and Parks and the U.C. Archeological Survey.

IMPORTANT DISCOVERY

Treganza reported that the major body of this week's discoveries was the foundation and portions of the original adobe walls to a previously unknown building measuring 25 by 90 feet.

The new structure, coming near to the size of the existing Mission Chapel was discovered on adjacent private property, the archeologist said.

Noting that the floor to the newly found structure was made of well-preserved 10 inch square baked tile, Treganza surmised that the building must have had some important use.

"The tile floor in this building," he added, "is perhaps one of the best preserved levels I've ever seen."

TWO OTHER FINDS

Against the priest house, on the eastern side of the main mission building, Treganza said his team had uncovered foundation structures which lead out beyond the present park property onto neighboring private home lands.

"This foundation, so far uncovered, measures 10 by 17 feet," the scientist said.

This coincides with the average room size of the historic monk's quarters at the mission, he added.

And finally, the surveyor reported, a third foundation ruins has been discovered running out from the north end of the Mission Chapel, possibly even connecting with the newly discovered 90 by 25 foot structure.

"The new diggings suggest that the original mission was far larger than had previously been supposed and most certainly larger than early day sketches would indicate," Treganza said.

The San Francisco scientist revealed a new method — certainly a revolutionary one in the camel-hair brush and tweezer business of archeological rooting—that had been employed during the Sonoma excavations.

"We have been using a bulldozer in uncovering top debris," Tregana proudly stated.

The bulldozer enabled the scientists to plow through six weeks hard digging in one week.

LEGEND SUPPORTED

Shades of the famed General Mariano Vallejo, who during the 1849 Bear Flag revolt fell captive of the handful of Yankee settlers that took control of the settlement of Sonoma, were drawn from the mission soil, Treganza revealed.

Along with numerous Indian artifacts, the archeologists uncovered an eight pound cannon ball near the new building site.

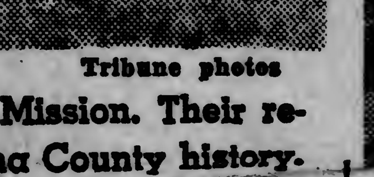
The find lends credence to the legend of the missing cannon, which, according to historical accounts, Vallejo dumped down one of the mission's wells to avoid capture by the "three dozen gringoes," the Yankee trappers and settlers who stormed the fort and captured arms and ammunition.

WORK NEARS END

The survey team is expected to complete their digging by this weekend and move on to other projects in the state.

Meanwhile, it has been suggested that the State Division of Beaches and Parks may construct a roof over the newly discovered building area in back of the chapel, providing permission can be obtained from the owners of the adjacent property.

Excavations at the mission were started early in 1953 when traces of the structure were first discovered as workmen prepared to plant a garden area in the mission court.



Dr. Treganza, leader of the U.C. archaeological survey at the Sonoma Mission, displays an eight pound cannon ball like the one Gen. Vallejo may have used in the cannon that legend says was hidden in a mission well in 1849.

Oakland Tribune
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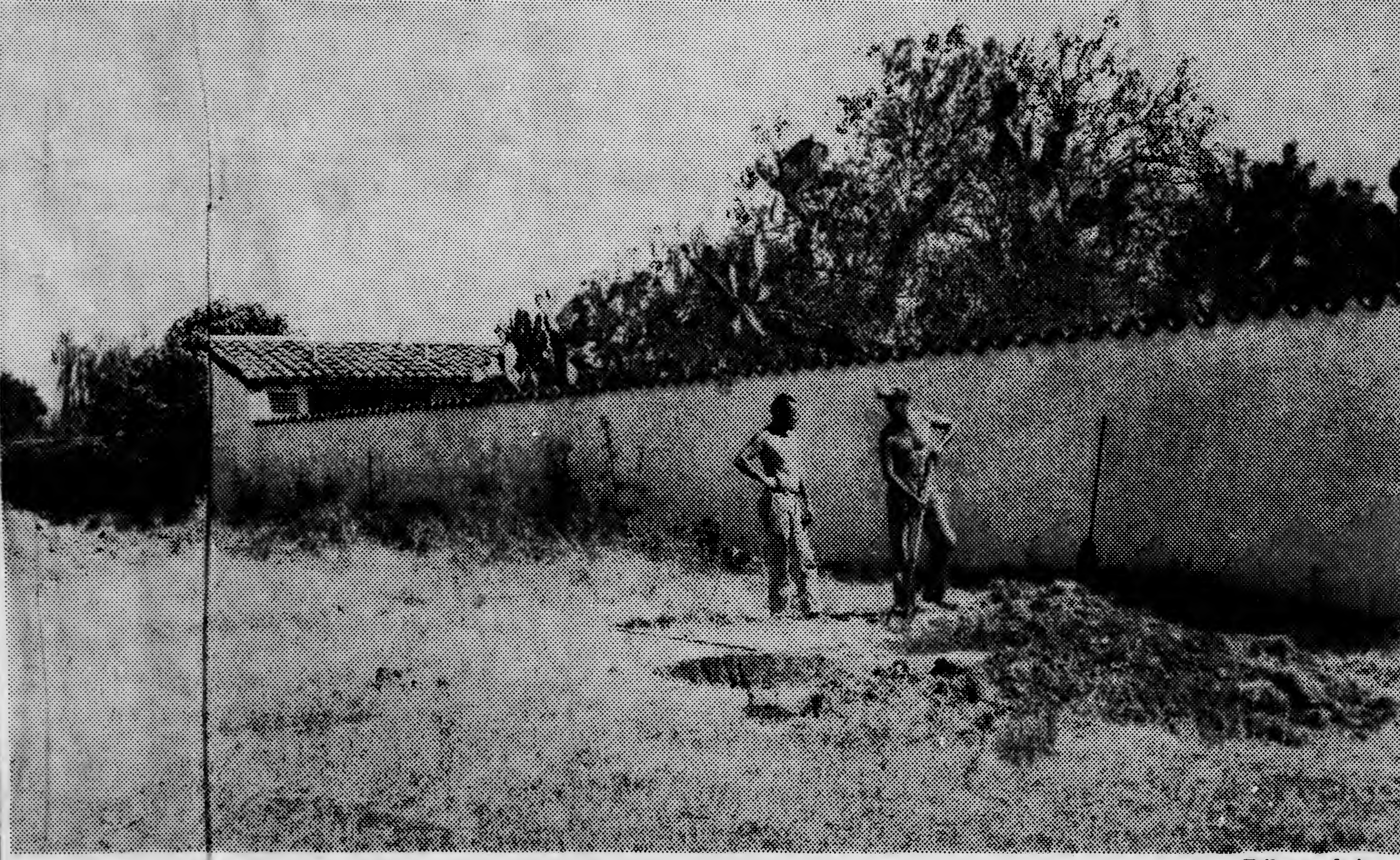

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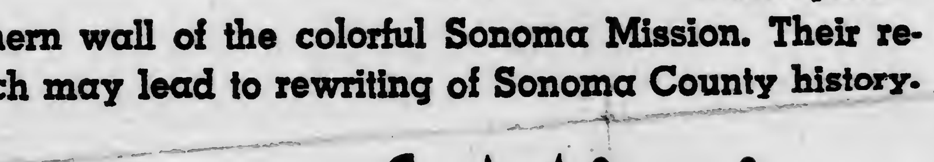

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Shades of the famed General Mariano Vallejo, who during the 1849 Bear Flag revolt fell captive of the handful of Yankee settlers that took control of the settlement of Sonoma, were drawn from the mission soil, Treganza revealed.

Along with numerous Indian artifacts, the archeologists uncovered an eight pound cannon ball near the new building site.

The find lends credence to the legend of the missing cannon, which, according to historical accounts, Vallejo dumped down one of the mission's wells to avoid capture by the "three dozen gringoes," the Yankee trappers and settlers who stormed the fort and captured arms and ammunition.

WORK NEARS END

The survey team is expected to complete their digging by this weekend and move on to other projects in the state.

Meanwhile, it has been suggested that the State Division of Beaches and Parks may construct a roof over the newly discovered building area in back of the chapel, providing permission can be obtained from the owners of the adjacent property.

Excavations at the mission were started early in 1953 when traces of the structure were first discovered as workmen prepared to plant a garden area in the mission court.

Dr. Treganza, leader of the U.C. archaeological survey at the Sonoma Mission, displays an eight pound cannon ball like the one Gen. Vallejo may have used in the cannon that legend says was hidden in a mission well in 1849.

Retake of Preceding Frame

SACRAMENTO CALIF. UNION
JAN. 31, 193[illegible]

Origin of Names Is Revealed in Study Of State's History

Romance of Early Days Carried in Terms Applied to Villages, Rivers, Districts By Spanish Explorers and Soldiers

By MARGARET WHALLEY

That the name of the Golden Gate was not inspired by the sight of a dying sun on rippling waters, and that Los Gatos is truly "the cats," is brought out by study of one of the most interesting phases of California history—the origin and romance surrounding the Spanish names for which the state is famous.

The Golden Gate originally was named Yuluna by the Indians. The word meant "the place where the sun plunges into the sea." Later the real originator of the name, John C. Fremont, saw in the form of the harbor advantages for commerce and suggested the name of Chrysoplae, or Golden Gate.

It is improbable that the Indians had a clear conception of the modern Tia Juana when they named it "Aunt Jane," which is the English translation. However, it is said that the word was originally Tiwana, which was the Indian word for "by the sea," and was, by popular use, gradually changed to the present version.

Small Chapel

The original and true name of Los Angeles is "Neustra Senora de la Los Angeles de Porcinuncula (Our Lady the Queen of the Angeles of Porcuincula). Porcuincula was the name of a small chapel and a tract, through which a river, also of that name, flowed.

Spanish and Indian names of California towns are especially of interest to people of the state. Many of the names, however, are of American origin, and also of Anglo-Saxon parentage. Militarism and religion were the principal factors in the naming of the state, and used as their mediums, the Jesuits and soldiers from the south who explored and developed the country.

Why California is filled with "Sans" and "Santas" like San Francisco, Santa Barbara, and others, is explained by the customs of the missionaries and priests. As they trekked up and down the state, camping at various spots, they named these locations after the saint upon whose "day" they arrived at the designated place. When they stopped at a certain location in the southern part of the state, they realized that it was St. Bernard's day, and consequently called the spot St. Bernardino. The same was applied to other locations bearing similar names.

Soldiers Less Serious

The soldiers, however, took a less serious view and named settlements at random. There was Los Molinos (mill stones); and Yosemite (grizzly bear) and others.

Some of the names were given by Americans to preserve the Spanish flavor. They were made with good intent, but nevertheless turned out to be somewhat ludicrous, as the combinations were put together in the worst form of Spanish grammar, and grated on the ears of the fluent speaker of the language. Some of these were: Monte Vista, Rio Vista and Loma Vista. In these cases, two nouns are used together, instead of the correct manner, such as Vista del Monte, Vista del Loma, or Vista del Rio.

Between the two classes—those given by the "Spaniards from Kansas" and the real old Spanish names which carry with them the romance of the early days, is a decided gulf—to the grief of historians.

Agua Caliente has as its literal translation, "hot water," but generally is accepted as "hot springs." It was originally a land grant.

Monterey was named in honor of Gaspar De Zuniga, the Count of Monterey, at that time viceroy of Mexico. It means literally "the king's wood," or "the king's mountain." It formerly was spelled Monterrey or Monte Rey.

Park Name Traced

The story surrounding the name of Yosemite (grizzly bear) is one of the most interesting ones. It formerly was called Yohamite by the Indians, and at that greatly corrupted from the original form, which was u-zu-mai-ti or o-so-mai-ti, according to the tribe. Yo Semite was the most popular of any of the forms. It is said to have been named by a band of Indians composed of outlaws and refugees, who boasted that they were more feared than the grizzly bear.

It was the Ahwahnee tribe, and the story is told by its chief, Ten-ei-ya, after which Tenaya peak was named.

Hetch Hetchy originally was spelled Hatchatchie, an Indian name of the valley lying north of Yosemite. It was a specie of grass which the Tuolumne Indians used for food.

El Camino Real is popularly and correctly known as the King's highway.

San Luis Rey de Francia (St. Louis King of France) is the name of the valley mission situated 40 miles north of San Diego, which formed the setting for the bridge story. Then there was San Juan Capistrano, the mission of which St. John Capistrano is the patron saint.

Tahoe Derivation

The correct meaning and derivation of Tahoe, the lake, cannot be ascertained with any degree of certainty. The usual definition, "big water," is doubted by ethnologists. It is gratifying to know, however, that the "pearl among lakes" isn't called "Lake Bigler" after the governor, as it first was named. It was changed in 1859, as the story goes, by Dr. Henry de Groot, who learned that tah-oo-ee means "a great deal of water"; but wasn't christened until the Civil war, when Thomas Starr King, the famous "war" clergyman of San Francisco, visited the spot and definitely named the lake Tahoe, having regarded Bigler as a secessionist and therefore not meriting the honor.

In spite of the fact that Spanish language students say Vacaville is named for the literal translation of its first two syllables, "vaca," which means "cow," the place was named for Manuel Vaca of New Mexico, who came to California in 1841. Oroville (gold town) is another hybrid word made up of the Spanish "oro" (gold) and the French "ville" (town).

The origin of the name Modesto is interesting. It first was named in 1870 in honor of a man named Ralston, prominent San Franciscan, who came to live in the spot with a quiet retired life in mind. Ralston, however, was of a modest nature and disliked the publicity incurred by having the town named for him. The ingenious populace, therefore, named it the Spanish equal of "modest."

Sacramento Named

Sacramento, the town, was first named after the river, which was an old Spanish custom. The river, in the first place was named Jesus Maria, and the branch was called Sacramento in honor of the holy sacrament. Later the main branch became Sacramento and the tributary El Rio De Las Plumas (river of the feathers), which was afterward changed to Feather river.

The name Cosumnes, that of a village 22 miles east of Sacramento, was taken from the Indian word meaning salmon. It was also the name of a tribe living up the Cosumnes river. Many similar names, ending in "anni" or "umne," were supposed to have meant "river." According to A. L. Krober, professor of anthropology of the University of California, the ending means "people of." Thus the people of the village of Coso, or in the finished form, Cosumnes.

Yolo, or Yoloy, is the name of a Patwin tribe, said by the bureau of anthropology to mean "a place abounding in rushes." In 1884 there were still 45 members of the tribe living in the vicinity.

Little Ranch

Chico (little) is derived from the Rancho Chico (the little ranch), of which Gen. John Bidwell was the original grantee. Suisun was the name of an Indian village on the bay of that name, meaning "big expanse."

Tamalpais is a compound of the Indian words tamal (bay) and pais (mountain). The original is said to have been called Temel-pa (near the sea).

The Farallones, the name of a small group of islands at the outer Golden Gate, is derived from the Spanish word farallon (a small pointed island in the sea).

The Sierra Nevada mountains make up the two words sierra (saw) and nevada (snowy). The term "Sierra Madre, incorrectly translated as "Mother of Christ," means the mother range—the largest range, and is personified as the mother of the others.

The translation of El Dorado, is not, as popularly thought, the "land of gold," but it is said by ethnologists to be "the gilded man." The story goes that the Indians of Peru, Venezuela, and New Granada, in hopes of getting rid of their oppressors, pointed in all directions, shouting that the regions were filled with gold, and that the lands were said to have a king who caused his body to be covered every morning with gold dust by means of odorous resin. Every night the dust was washed off so as to make sleep comfortable and each morning the gilding process was repeated. The Indians led the white men to believe that before them lay a land of riches and that they should pursue the phantom of "El Dorado."

Named After Butterfly

The diary of Padre Munz who accompanied the Gabriel Moraga expedition of 1806 into the Sierra Nevada reveals that Mariposa was named after the butterfly, its literal translation, as the insects infested the country.

The history of the naming of the state itself is one of the most interesting. Until 1862 the name is said to have been the subject of confusion and controversy, when Edward Everett Hale accidently hit upon the explanation. Hale, in his study of Spanish literature, obtained a novel published about 1510 in which California was said to have been the Utopian home of a tribe of Amazons. The book was a novel by Garcia Ordonez de Montalvo, called "Las Sergas de Esplandran."

One story goes that a band of soldiers upon arriving at the supposed "promised land" were dismayed at the barren stretch they found and in sarcasm named it California, after the mythological isle of beauty and riches. Other historians maintain that the name was derived from the Greek root "kali" (beautiful); and the Latin "fornix" (vaulted arch)—both of which went to make up beautiful sky.

Sir Francis Drake named the state "New Albion," under which name it appeared on several English maps of early date, but it was later changed back to its original name of California.

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OUR FIRST FACTORY.

ANCIENT OLLA INDUSTRY OF CALIFORNIA.

Santa Catalina Island.

SF Chronicle.
Dec. 6, 1894

Santa Catalina at what is known to-day as Potts' valley or Empire landing, on the north coast of the island, about eleven miles from Avalon. The find was made by Paul Schumacher of Los Angeles, who was at the time collecting for the Smithsonian and other institutions of science.

Little attention was paid to the locality until lately, when from new discoveries in the vicinity it has been visited by scores of people. Trails have been made to it from above, and a wharf has been erected for the convenience of those who make the trip by sea.

Here, then, was the first California manufactory. It was in full blast hundreds of years ago, and by the records at the Nipomo rancho of San Luis Obispo it is shown that between this locality there was an extensive trade carried on in the canoes that Viscaino saw, in fact the first and earliest commerce of California, showing that the Golden State had its shipping and trade years in the misty past.

The locality has recently been visited by archæologists from the East and pronounced one of the most interesting aboriginal workshops in America.

The trip by sea to the ancient olla manufactory is a most delightful one, passing along eight or ten miles of the northern coast of the island that is extremely picturesque. Rounding a big headland a valley is seen reaching up to the summit of the range in a gradual slope. About a mile away peculiar heaps of glistening earth are visible—the veritable heaps that were thrown up by the ancients.

The trip up to the quarry is an easy one, and here hours may be profitably spent by any one interested in the subject of prehistoric California, as here is a manufactory as valuable to the natives of Southern California as any of the great Eastern manufactories are to-day to the people of that section.

Climbing the hill evidences of ancient work are at once apparent in the excavations and piles of debris, and here are the ledges from which the cooking utensils or pots of all the Southern California aborigines were made. The stone is the

same that was used in the time of Pliny and Theophrastus—the magnesium stone—identical with that found at Siphnus and Comun, better known as lapis ollaris. It is known to Americans as steatite, and has a greenish gray tint and is easily cut. In almost every old burying-ground on the island and mainland the writer has found pieces of it. The stone is soft, while other ledges are hard, and takes a beautiful polish and is valuable as a building stone. When burnt it changes to a leaden color.

The ledges, mounds and pits all tell the story of the ancient works. Here is a mound covered with circular marks where the pots have been cut out, the work being done entirely by hand and with rude flint knives. How long it must have taken to work out such a pot with such tools is difficult to determine. When the place was first discovered it was exactly as the native workers had left it. The tools of slate and flint were lying about, broken pots were scattered over the ground, and among the bushes or cactus many good ones more or less finished, were evidently waiting for the canoe that was to bear them to the mainland. To-day in the piles of debris that are seen on all sides are broken bits and various objects showing that the natives used the soft stone for a variety of purposes. Some of the objects found were gauges of steatite, pointed scrapers a stone perforated in the center (perhaps used in some game), a flat stone, slightly rounded and presumably used in case of sickness being heated and placed on the afflicted member or portion of the body, slabs bearing rude representations of fishes showing that the ancient Santa Catalinans were to some extent artistic, sinkers for fishing lines and nets—one of the former being beautifully polished—small beads of steatite, dishes for paint, sculpture representing whales, seals and other animals, spoons, etc., showing that the soft stone was employed for various purposes and took the place of metal, which they were wholly without. The writer has seen these Santa Catalina ollas down in the

mountains of San Diego county, where they must have been carried by the Indians.

Potts valley is a most interesting place. It is a wide valley, and everywhere the peculiar stone is visible. A conspicuous rock marks the best locality, standing in the middle of the valley. Not far above is a deposit of slate, also showing markings, this being the material from which many of the tools were made with which the stone was cut. About 1200 feet below the spring is a pit partly filled in, and near by is a ledge of the lapis ollaris or pot stone. There are seven or eight marks on this, and some show that others have been cut over them by the patient workers. Some of these markings are sixteen inches in diameter, about the average size of the complete pots. The writer has seen large mortars of steatite in San Diego county that were two feet in height and a foot across.

There are two ledges that tell their own stories—that of the steatite from which the pots were cut, and that of the slate from which the tools were made. Standing in this ancient workshop one can imagine the early natives, dressed in skins, some fashioning the knives from flint and slate, others at work on the pots, cutting and shaping them, bit by bit, finally breaking them out like a big cannon ball, that is then laboriously dug out to form the perfect vessel. Some of the vessels that were used to heat water or hold seed are marvels of symmetry, when it is understood that the work is that of savages. When the ollas were completed they were packed in the large canoes, that would hold twenty men, and taken to the main land, some, perhaps, going to San Luis Obispo, some to Santa Barbara, and others to San Pedro, Redondo, San Juan and all along the shore.

The old manufactory, the pioneer in California, is now simply a curiosity, but it has a deeper value as an object lesson in ancient history, to the youth of today, illustrating the possibilities of life on an island, where metal was unknown up to 1542, and where all the utensils were of shell, wood or bone.

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