

THE MADERA FLUME

By DENISON HALLEY CLIFT.

Fate, from the very outset of his brief college career, seemed disposed not to favor Neilson. He registered for serious work in the department of civil engineering; but shortly after the fall semester had opened, he yielded to the demands of his college mates and appeared on the football field to try for the eleven.

He came from Madera, a small town in the sunny San Joaquin Valley, where he had been flume-climber for his father's lumber company. But to the enthusiasts of the university world he was transformed from the commonplace Clay Neilson, flume-climber, to the great and more significant "Bull" Neilson, "varsity" half-back.

His name became associated with the veteran squad, and his line-backing made the coaches secretly jubilant, until there came a day, shortly before the big California game, when his ankle snapped in the last practice, and his meteoric career was over.

He took his disappointment with a stoicism for which no one could account. In the hospital after the game he spent his days absorbing principles of hydrostatics and studying critically designs of arch ribs, while his ankle slowly knitted.

One day his nurse handed him a letter from his father, asking him to come home. The flume "boss" of the Madera company had deserted, and Neilson alone could fill his place, for the timber harvest was at its full.

So when his ankle was strong enough again he returned to the mountains, and the mountains welcomed him. The hills and valleys were freshing into green once more under the soft petting of the first rains. The snows upon the mountains were resolving themselves into myriads of tiny streams that rippled over stones and gravel, wandering through hedges of witch-hazel and manzanita until they joined one another at the openings of the gullies and raced down through the valleys and the canons.

Among these valleys and mountains the Madera lumber flume, which is the longest in the world, threads its way. Far up among the redwood forests it begins, and winds down among dense groves of spruce and yellow pine, crossing chasms and cataracts on trestles of steel, and resuming again the wooden skids when it crosses through the canons and shallow ravines, skirting sheer cliffs and boring through the tunnels of the hills, till it falls at last into the San Joaquin River.

As climber, Neilson kept the flume in repair. Often he had to climb among the maze of beams and girders, high in mid-air, calking leaks in the great V-shaped wooden chute, down which redwood logs and railway ties were shot from the mountains to the river.

Along the flume were two tunnels, one, the long tunnel, just beyond the Brinkhead, a towering bluff skirted by the flume. In this tunnel a leak sprung one day, until the loss of water interfered with the traffic. The tender at Geyser Peak, close to the river end, first noticed the falling off of the current.

"The flow is dropping!" he called through the telephone to the head of the flume.

The head logger called to Neilson. At once the climber ordered the drive stopped, and seizing his kit, he lifted the narrow flume boat into the chute and drifted down toward the tunnel, four miles away.

"We'll cut off the feeders for an hour, so watch your time!" the head logger called after him. "Another thousand feet must go down before 6."

It was then 3 o'clock. The short boat carried Neilson rapidly along the great lumber-flume, now close along the ground, now bridging canons and basins of granite, past the Brinkhead, until at last the blackness of the long tunnel enveloped him. The grade lessens here to an angle of fifteen degrees.

Neilson hooked the boat to the side, and climbed over the edge to the flume-step. Here the great V is built up from three feet to seven from its centre, that the logs may not leap out in their mad race through the tunnel.

Lighting the candle in his miner's pick, he began crawling along the edge of the flume. Darkness closed in tight about him, close and appalling. He crept on deeper and deeper, listening for dripping water above the lick, lick, of the current in the flume. The candle threw a wavering circle of light about him. Far behind him he could see the entrance of the tunnel.

After searching a long time he found the leak. The licking of the water in the immense groove was lost in the drone of the tiny cataracts leaping forth between the sprang planks. Neilson stuck his candle-pick into the wooden chute, and began hammering with his calking-iron, forcing the oakum threads into the seams, and tightening the bolts. He hurried, for he knew the drift would soon be resumed above.

Still the water escaped. He threw off most of his clothes and dropped over the edge into the running water

of the flume, to work the better from within.

The candle sputtered overhead, flickering fantastically, and the water, dark green in its steady flow, each moment running swifter, tore about his legs. Swift and certain were his strokes, and soon the leaks were closed.

Then, as he stood silent, shivering violently, listening for trickling sounds, a faraway rumble came to his ears. It began hollow and low and ghostly, and increased to the thunder of rapid firing. Instantly Neilson knew what it was. The hour has passed, and the logs were rushing down upon him!

Like a flash he dropped the calking-iron and sprang for the top of the gigantic V. His one thought was to leap over the side. But although he had done it hundreds of times, he bungled that once—the once that involved his safety, perhaps his life. He excitedly threw one leg toward the ridge—and struck the candle! Instantly he was in total darkness, his grip torn loose.

The approaching roar increased to the crash of thunder as the great redwood trunks swept down toward him. Again and again he struggled for the top, and each time he fell back in the face of the renewed force of the stream. His brain became dizzy, his agonized voice returned to mock him.

Then he thought of the flume-boat, fastened to the flume not far from him. He struggled ahead and reached for it blindly. His hands closed upon the hook that held it. While his brain echoed to the roar of the logs, he crawled upon it, released the fastenings and shot down the flume.

The drive came on, scraping and rending and crashing. He lay flat, doubled up, gasping and wheezing. He was conscious only of a dynamic rush and throb in his head. Half-dazed, his senses returned just as the drive struck the flume-boat. Neilson was shot along the tunnel with terrific speed. The air whished past him and the water cut into his face, blinding and stinging him like drippings of molten lead.

Still clinging to the boat, he was hurled out of the tunnel into the brilliant sunlight. Ahead he saw, as through a veil, a white, frothing sea, dashing always into his eyes. Then, as in a dream, he realized that death awaited him at the jump-off, when he should be hurled out among the logs into the river! There was but one chance. If the tender at Geyser Peak should see him he could stop the flow. But would there be time enough to allow the water to cease and the logs to settle in the chute?

Meanwhile, with a swiftness he had never before thought possible, the lumber forced the boat down the flume. Behind him the logs boomed and thundered in headlong, inexorable pursuit.

He was carried through the gloom of the short tunnel and over the high steel trestles as one dropped from a precipice. The flume sides became lower and lower. The speed decreased in the lower canon, and as Neilson looked ahead, the converging blurs took shape in faraway mountains, snow-capped in the pale radiance of the early twilight, and in thick forests of redwood and yellow pines, shaggy and gaunt upon the mountain slopes.

Over the spans that bridged the boiling streams sped the drift, on and on and on, hurtling and tumbling and booming, winding now through the lower canon toward the river. The jump-off was only four miles away. Could he throw himself over the edge before he reached it? He tried to lift his legs, but he was too weak. Neilson prayed that the tender at Geyser Peak would be at his post. It was his one chance of life.

The timber rushed on, more swiftly now, close upon Geyser Peak. Neilson was alert again. As he was hurled past, he cried out in a voice tense with agony, the love of life strong upon him. Had the tender seen him? Had he heard? The climber's face was stung with the rush of water, and his eyes were blinded.

The drift reached the last grade. The hills and cliffs gave way once more to confused blurs, the swish of air flung back his hair from his face. Mountain and hill and bluff whirled past him, unseen and uncared for. Neilson still clung to the boat, huddled up, helpless with terror. Miles behind in the mountains lay the long tunnel; three miles ahead was the jump-off!

Then suddenly, as Neilson gripped the flume-boat and prayed desperately for life, he felt the rush of the craft slacken, and the terrific force behind him lost its vitality. New life sprang into his veins; he thrilled with the sense of his hopes come true. Gradually the drift slackened, the water ceased in its flow. Still the impetus of the logs hurled the boat on, now scraping against the wooden sides of the flume, until at last the friction brought it to a standstill.

As Neilson lay upon the boat, weak and exhausted, the river-drivers came running up the trail from the river, and found him. And listening, Neilson heard how the tender at Geyser Peak had seen him whirling by, and had signaled to the head of the flume for the flow to be shut off.

To-day a new climber swings among the girders and beams, and Neilson, who assists at the head of the flume, is always careful when the drifts are resumed after a delay and the climber is at work. The caution has become part of the man.—Youth's Companion.

With the Financiers.
Sometimes we send a thief to catch a thief that robbed a thief.—Life.

Indians as Farmers.

As a farmer the Indian is making headway—the Crows in particular, since they have the stimulus of an annual fair, says a correspondent of the New Orleans Times-Democrat. It was hard work to prod them into taking care of their farms each season, until the agent, S. G. Reynolds, thought of getting up a show on the plan of the old-fashioned country fair. The fair has been held three years now, and great rivalry has developed among the Indians of each district to carry away the prizes for the best crops. A few more years and the raising of good crops will be a habit. That is the secret of dealing with the Indian—you must interest him as you would a child, and then the rest is easy. In which the Indian is not so different from the white man, who works much better when his work becomes a game.

There are "boss farmers" appointed by the Government to supply the Indian farmer with seed, to teach him the rudiments of plowing, seeding, harrowing and threshing, and to instruct him in the science of irrigation of and "dry farming."

These "boss farmers" are persuasive chaps. It takes a rare gift of eloquence to convince an Indian buck he should work on a lazy day in summer, when the meadow larks are making liquid music, and when the trout streams are babbling and the game in the hills is fairly begging to be shot. But the "boss farmer" pleads and threatens and cajoles and bullies, and eventually he gets the laziest Indian started at the work of raising a crop, and the results at the end of the season would astonish the man who thinks all poor Lo is good for is to eat Government rations and emulate the American tramp in dogging anything that looks like work.

Then, too, the Indian is doing wonders as a stock raiser. The Crows have always had more horses than any other nation of Indians. Their reservation consists of many square miles of ideal grazing ground. But the scrub mustangs are being sold off at \$5 and \$6 a head, and their places are being taken by a bigger and finer kind of stock. There are cattle on a thousand hills—and prime cattle at that—every steer and cow and calf bearing the big brand "I. D.," which means Interior Department.

There is hard work each spring and fall rounding up the colts and mavericks and calves. There are several Indian round-up outfits on the reservation, and the red-skinned cowboys work hard and faithfully. In fact, the Crow Indian takes as naturally to saddle work as a duck takes to water, as every member of the tribe is a born horseman. Even the squaws are good riders, though they see them bobbing along on their thickly padded "squaw saddles" one would never imagine they could stay on anything less mild than a sawhorse.

Like all the rest of his red-skinned brethren, the Crow Indian dearly loves the dance. An Indian will drop his haying in the face of a thunderstorm to go to a dance, and a squaw will forget all her highfalutin college education at the prospect of keeping step to the magic beating of those tom-toms. The music of the dance represents the summons of the ages—it is the call of the wild which the Indian cannot resist. The best and most industrious succumb to its wiles. Old Plenty C'Yuse, the big chief of the Crows, whose pride is his farm, "all same white man," cannot understand why the Government will not allow the Indians to dance more. He has gone to Washington several times to voice the call of his tribesmen for more dances. But his requests, with similar requests from many other tribes, have been turned down. The Government is trying to stop Indian dancing on all the reservations, for the reason that an Indian will do nothing but dance when he is given free rein. Crops and blooded stock and all the higher ideals of civilization would soon go to smash on the reservation if the Indians were allowed to dance when and where they pleased. So, beyond a few dances, given at stated intervals, and a big "dance fest" at the time of the annual fair, the Crows have very little of their favorite enjoyment, unless one counts the dances that are held "on the sly."

After his harvest is in, there is little for the Indian to do. He may work a little on a house, or build a few fences, or ride out on the range to look after some stock, but in the main the long, golden days of autumn and the bright, crisp days of winter are spent in an idyllic, nomadic fashion. A little group of Indians will ride along the road that skirts the solemn hill that is capped by the Custer monument, and soon there will be a magic city of tepees in a bend of the Little Big Horn. Campfires glow through the dusk, and there is the barking of Indian dogs and the happy shouting of care-free Indian children. Blanketed squaws stroll to the river side and dip water for the evening "bahroosh," or eat; a buck in garb half wild, half civilized, leads a bunch of ponies down that the animals may drink. In the camp the old squaws are getting out the jerked, or sun-dried, meat, and the young squaws are making biscuits in Dutch ovens. All is peace and contentment. There are no harsh voices—no notes of pessimism. In the morning the magic camp is gone. Its smoke-browned tepee tops have vanished, but farther down the river you will find them, and the note of a great happiness always accompanies them.

There are squaw men on the reservation—white men who have married Indians. They, too, prefer to live in tepees and put their horses in the frame houses. They fit into the life, half-civilized, half-barbarian, and they seem to enjoy it as though the blood of the Absarokes pulsed in their veins. And nobody can blame them, for there is a charm about reservation life in this land of the tepee—a charm that would soon prove nothing less than a magic spell to the man who let himself yield to its influence.

BUILDING ALIGHTHOUSE ON ICE.

Saving Money and Labor by Work in Winter.

For a year or more the United States Government has been planning to rebuild a little lighthouse in Lake Memphragnog, near Newport, Vt., and about two miles off shore. The original intention was to do the work in summer. The most important part of the task was constructing a large crib for a foundation and filling it with stone. To get this material to the water's edge with wagons would prove a hard job, it was perceived. The loads would be too small and the labor of putting it into the vehicles costly. The banks were steep, and there was no good road to the level of the lake. Besides, no scows or other boats had been provided for finishing the journey. Accordingly, the execution of the plan was postponed until winter.

The rock which was to be used was then loaded on to rude stone boats, hauled to the top of the nearest bank and rolled off. As the ice was then five feet thick the stone stayed on its surface, and could be drawn on other sleds to the spot where it was wanted. Many of the pieces weighed from half a ton to a ton, and were to be piled up outside the crib, but the filling consisted of pieces of stone weighing from twenty to 200 pounds. The material having been conveyed to the proper place it was put together on the ice. In summer the water is only about seven feet deep there, and when the work was actually undertaken very little was left under its frozen covering. The crib was twenty feet square, and after it was finished the ice around it was cut through, and the crib allowed to settle. The ice immediately under it was then pushed to one side so that the crib could rest directly on the bed of the lake.

Operations were started late in January, and finished in about two months. There were interruptions due to high wind, but no interference resulted from the cold, though the mercury sometimes dropped to thirty degrees below zero. The total cost (\$1400), according to government officials was about one-third or one-half as great as it would have been if the work had been done in warm weather, and yet it was performed in a thoroughly satisfactory manner.

The Ancestral Tree.

"Speaking of heterogenetics and the homogeneity of the same, if one may say it, the American, say 500 years from now, may have some trouble in tracing the lines of his family tree," said a thoughtful man. "At any rate, judging from the progress the United States is making there is a chance for a few difficulties along this line. In the erstwhile, and even now, the job was comparatively simple. It was and is simply a question of going back to the days of the Revolution, colonial days, the days of the white-haired grand dames. But the American of the future will have no such simple task. One's family tree must branch out and expand with the country. For instance, the men and women of the future will have to trace their lines through an ancestry thus geographically given: Indian, Mexican, American, Hawaiian, Porto Rican, Cuban, Philippinian, Panamanian and Alaska. And yet these are only a few of the possibilities which might be mentioned in the same connection and for the same reason. Uncle Sam is an expansive sort of fellow, and just where he will quit one may not guess even in the wild recklessness of one's fancy. The American of the future may be put to the dire extremity of showing some sort of remote ancestry association with even the lynx-eyed Easterners."—New Orleans Times-Democrat.

Both Were Collectors.

A local newspaper artist got a letter one day from a man over in Indiana, who said he was making a collection of sketches. "I have drawings from well known newspaper artists in nearly every State in the Union," the Indiana man wrote, "but I have none from Ohio. I have seen some of your work and I think it is good. If you will send me some little sketch for my collection I shall have it framed."

The artist noticed from the letter-head that the Indiana man was connected with a bank in one of the small towns over in the State of literature. That gave him a hunch, and he wrote back as follows:

"I am making a collection of ten-dollar bills. I haven't secured specimens from every State in the Union, but I have several tens and a few twenties, and I am particularly anxious to have a ten-dollar bill from Indiana. I notice that you are employed in a place where ten-dollar bills are kept, and if you send me one for my collection I shall be glad to have it framed."—Cleveland Plain Dealer.

California's prune crop in 1906 was 185,000,000 pounds, against 62,500,000 pounds in 1905. This has only been exceeded once in seventeen years. That was in 1902, when the crop was 197,000,000 pounds.

What Must Be Done For Farmers

By PRESIDENT ROOSEVELT.

We hear a great deal of the need of protecting our workmen from competition with pauper labor. I have very little fear of the competition of pauper labor. The nations with pauper labor are not the formidable industrial competitors of this country. What the American workman has to fear is the competition of the highly skilled workman of the countries of greatest industrial efficiency. The people of our farming regions must be able to combine among themselves, as the most efficient means of protecting their industry from the highly organized interests which now surround them on every side. A vast field is open for work by co-operative societies of farmers in dealing with the relation of the farm to transportation and to distribution and manufacture of raw materials. It is only through such combination that American farmers can develop to the full their economic and social power. Combination of this kind has, in Denmark, for instance, resulted in bringing the people back to the land, and has enabled the Danish peasant to compete in extraordinary fashion, not only at home but in foreign countries with all rivals.

It is true that agriculture in the United States has reached a very high level of prosperity, but we cannot afford to disregard the signs which teach us that there are influences operating against the establishment or retention of our country life upon a really sound basis. The over-expensive and wasteful cultivation of pioneer days must stop and give place to a more economical system. Not only the physical but the ethical needs of the people of the country districts must be considered. In our country life there must be social and intellectual advantages as well as a fair standard of physical comfort. There must be in the country, as in the town, a multiplication of movements for intellectual advancement and social betterment.

Ambitious, native-born young men and women who now tend away from the farm must be brought back to it, and therefore we must have social as well as economic conditions—libraries, assembly halls, social organizations of all kinds. All over the country there is a constant complaint of paucity of farm labor. Without attempting to go into all the features of this question I would like to point out that you can never get the right kind, the best kind of labor if you offer employment only for a few months, for no man worth anything will permanently accept a system which leaves him in idleness for half the year.

There is plenty that is hard and rough and disagreeable in the necessary work of actual life; and under the best circumstances, and no matter how tender and considerate the husband, the wife will have at least her full share of work and worry and anxiety; but if the man is worth his salt he will try to take as much as possible of the burden of the shoulders of his helpmate.

Do not misunderstand me. I have not the slightest sympathy with those hysterical and foolish creatures who wish women to attain to easy lives by shirking their duties. I have as hearty a contempt for the woman who shirks her duty of bearing and rearing the children, of doing her full housewife's work, as I have for the man who is an idler, who shirks his duty of earning a living for himself and for his household, or who is selfish or brutal toward his wife and children.

The best crop is the crop of children; the best products of the farm are the men and women raised thereon.

Secret Writing.

H. T. M. (Norfolk, N. Y.): Can you give me a recipe for simple secret writing?

Answer: Take a sheet of good writing paper, moisten it well with clear water and place it upon a hard, smooth surface, such as glass, tin, stone, etc. After removing carefully all air bubbles from the sheet place upon it a dry sheet of equal size, and upon this do the writing with a sharp pointed pencil. Then destroy the dry paper written upon, and allow the wet sheet to dry in the air (not at the heat of a stove or lamp). When dry not a trace of the writing will be visible. But on moistening the sheet again with clear water and holding it against the light the writing can be read in a clear transparency. It disappears again after being dried in the air, and may be reproduced a number of times by moistening. Should, however, the sheet be too much heated, at the stove or lamp, for instance, the writing will disappear, never to reappear again.—New York Tribune.

Those Westerners.

"Eastern visitors to the West are generally prepared for any phenomenal showing in the line of agriculture, stock raising and the like," says a Colorado man, "but once in a while they are taken by surprise.

"A New Hampshire man, who was spending his vacation on the ranch of a relative in Colorado, went out one morning to inspect a large incubator in which the young chicks were hatching. In one corner of the incubator a neglected peach seed, encouraged by the warmth of the atmosphere, had burst, and a tiny sprout several inches long was growing out of it.

"Suffering Caesar!" exclaimed the New Hampshire man, as this caught his eye, "do you hatch out your peaches in this country?"

Popular Science

To see an object on the earth's surface 100 miles away the observer must be 6667 feet above the level of the sea.

The sand of Sahara averages thirty feet in depth, but in some places it has been found 300 feet below the surface.

Some forms of animal life are so tiny that 2,800,000,000 could be put in a space of one-thousandth part of a cubic inch.

Taking the statistics for the entire world, four and a half persons to the thousand are either deaf, dumb, blind or mentally deficient.

Among men fifty-one per cent. are stronger in the right arm than in the left. In thirty-three cases the left arm is the stronger; in the rest the two arms are equal.

The jaw of the snake is supplied with what might be termed a double hinge, which permits the reptile when occasion demands to greatly increase its capacity, and permits of its swallowing astonishingly large bodies.

A new office has been created in Berlin by the British Government to provide for a regular scientific investigation of the conditions of the Berlin working classes, with a view of obtaining ideas for the improvement of similar classes in England.

A scientist has invented an automatic mechanism for preventing collisions at sea, based upon the use of Hertzian waves. Miniature wireless telegraph plants are to be installed on vessels, effective within 1000 yards radius. Two vessels fitted with this apparatus approaching each other in a fog and with the mechanism set would at 1000 yards give mutual and automatic warning by acting upon each other's signal, which would in its turn automatically stop the engines.

Leaves do not fall from the tree because they are "dead"—which we may take as equivalent to saying because they are no longer receiving the constituents of their being from the sap and from the air—but as a consequence of a process of growth just at the junction of the leaf with the more permanent portion of the tree. Certain corklike cells develop which have very little adhesion, so that the leaf is very liable to be broken away by influences of wind and changes of temperature and of moisture.

Until recently phosphorus for commercial purposes was made only from bones and other organic substances. Now it is produced also from minerals. For two or three years past hundreds of tons of phosphorus have been turned out near Mount Holly Springs, some ten miles from Harrisburg, Pa., where a deposit of wavelite in nodules has been discovered. Wavelite is a somewhat rare mineral, a form of aluminum phosphate. A mill is required to extract the phosphorus. Phosphorus from minerals is also produced at Niagara Falls.

FIGURES THAT ASTONISH.

Physicists Delving Into Things That Are Infinitely Minute.

What is the food value of a thought? Dr. John Alfred Bradshair, the famous lens maker, says the day will come when such figures as we now deem large or small shall seem crude, says the Chicago Tribune. We learn from the physicist that an atom of hydrogen can be broken up into nearly 1200 corpuscles, an atom of mercury into 200,000 corpuscles; that the atom of radium has stored within it an energy of which our older science did not dream. Furthermore, our advanced physicists—or at least some of them—have relegated matter to a new field and tell us that negative electricity is matter—that electrons and matter are incontrovertible terms. Lord Kelvin says of the atom: "If we raise a drop of water to the size of the earth and raise the atom in the same proportion, then will it be some place between the size of a marble and a cricket ball. If you fill a tiny vessel one centimeter tube, about three-quarters of an inch, with hydrogen corpuscles you can place therein in round numbers 525 octillions of them. If these corpuscles are allowed to run out of the vessel at the rate of 1100 per second it will require 17,000,000,000,000 years to empty. Such a computation seems almost like trifling with the human intellect, but it is with these subtle theories that our physicists are delving into the innermost chamber of the infinitely minute. It may be some day we shall be able to construct a living organism by the combination of the proper elements. Some day we may know the food value of a thought."

Has Filed 50,000 Saws.

T. J. Goodwin, of Ohio avenue, declares that in the last twenty years he has filed 50,000 saws and walked 65,000 miles. While accomplishing this, he says, he has carried with him the burden of a saw vise with a seat attachment, a contrivance which weighs sixty-nine pounds.

From the accounts he has kept the old man estimates that he has filed an average of ten saws a day for the last twenty years and has walked an average of about twelve miles a day for that period.—Kansas City Star.