A COLD CROSS.

WRITTEN FOR THE STAR BY MARTHA McCULLOCK-WILLIAMS,
Author of "Next to the Ground," &c.

Tatnall watched the paraders for the Branksome, half smiling, half scowling, notwithstanding he wore habitually a face of a graven image. The smile was for his son Gray, who, being his dead mother's image, was the apple of his father's eye. It had surprised Tatnall as much as it pleased him to find the lad at his elbow as he came out of the paddock.

Tatnall had narrow shoulders, no less a narrow mind! He was also tall, and held himself very upright. Socially, he was a rabid conservative. Alike in men and horses, he swore by blood.

He kept a racing stable, because it had come into the family along with money. It was not a big stable, and hardly ever paid its way, but was hardly ever without notable performers. Thus there was some color of excuse for Tatnall's firm conviction that the Branksome was already as good as won.

He could see nothing in it but his own entry—Akbar, one of two pronounced favorites. Shrewder horsemen, with less conceit of their own omniscience, readily conceded to at least one other of the fairly big field almost an even chance.

There was no mistaking the favorites, who came prancing, one behind the other. Tatnall's colors—blue, sashed and slashed with white—accented the splendor of Akbar's golden-chestnut coat.

Akbar had lucky white marks—a star in his forehead, a ringed hind foot. He stood sixteen hands, full, was a rangy fellow, long-striding, free going, game as a bulldog, playful as a kitten. There were a dozen Derby winners in his blood lines, and he had come to the middle of his three-year-old season unbeaten. Therefore the crowd rose and cheered him till the volume of sound went up to the thin clouds mackerelling a hot blue sky.

In the Brangsome he was to carry Derby weight and run the Derby distance. Therefore those for whom he had never lost, at least half the multitude, openly worshipped him, and sat gasping, yet smiling, though they had given odds rather than taken them, secure that he would win again, in spite of the Childe and all his works.

Childe Rolande came at Akbar's heels, with a flaming red jacket in his saddle, and ears laid viciously back. A raking, slashing black, in whose veins there mingled about equally the blood of St. Simon and the incomparable Lexington, he stood an inch lower than Akbar, yet matched him evenly in reach and stride. If he had been three times beaten, he had won much oftener than his chestnut rival. Hence, said the wise ones, he was better seasoned, and, as a betting proposition, safer, also more tempting. With 2 to 1 about him, he had tempted many.

Akbar's following readily conceded him the place. He might even get up first, said a few of the more philosophic.

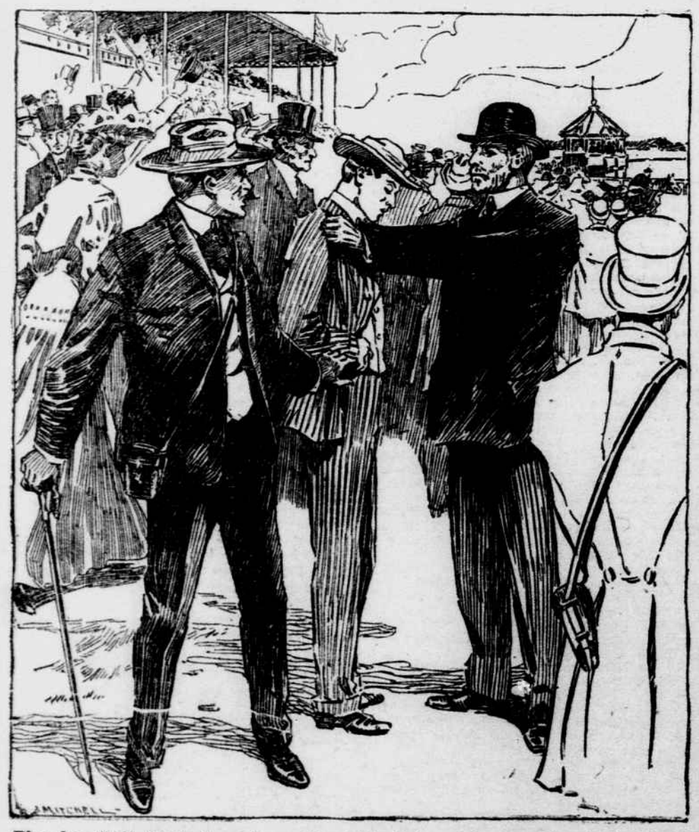
So there were plenty to shout him welcome—a welcome that rose and fell, and rose again, rippling all the quarter of a mile that eager-massed faces lined the course.

Three long shots came next—greeted with small, scattered, squeaky blurs of sound that hushed to dead silence as Corn Silk, last of the paraders, stepped out on the course. Then, all in a breath, a wild whooping broke out, undervoiced by faint hisses here and there. Stronger whoops quickly drowned the hisses. The crowd was for fair play—since Corn Silk was there of right, he must be assumed to have a chance.

Tatnall had smiled at the hissing, although, of course, not joining in it. The whooping made him scowl fully.

"Idiots! Double-distilled idiots!" he said to Gray. "They'll lose, of course; and they deserve to do it, twice over, for the folly of overlooking a cold cross."

Gray nodded, but gently, even anxiously. Through his glass he was watching Corn Silk, and changing color the least bit as he watched. No horse on the course was better worth a long look. Even the veiled sunshine brought dancing white lights out all over his dazzling red sorrel coat, and made each silken yellow-white hair of mane and tale glisten.



Plowden Still Held Gray in a Vice-Like Grip. The Boy Hung His Head.

Certainly the beast was as fit as fit could be. Certainly, also, he was race-like all over, from the lean head so well set on a flawless neck to the firm, finely grained hoofs that seemed to spurn the course they trod. The neck ran down into long, sloping shoulders, a perfect barrel and splendidly reaching forearm. Well coupled, with great length below, his quarters were too powerful for exact symmetry, but their massy muscle told how he would go through miry clay fetlock deep. Yet by one of nature's fine ironies, both in coat and in conformation, he threw back more nearly to his great-great-granddam, a nameless cart mare, than to any of the blue bloods in his later pedigree.

Possibly the cart mare was of the blood, but lacking certainty she gave the cold cross, which alone kept Corn Silk from being equal favorite with Akbar. He had run and won on the western tracks since he was two years old, carrying any weight, and though not always victorious, was only once unplaced.

But they had been dashes—those winning races—six furlongs, or seven, or the Futurity distance.

Therefore the easterners had nicknamed him contemptuously "the quarter horse." Therefore, also, they had resented his entry for the Branksome. A good enough horse, no doubt, they said, one who would answer admirably for a hunter, or ever a sire of hunters, but lacking class, not to be named with the real cracks. He could run, of course—anything must with those wonderful legs—but staying, lasting through the long, cruel, heart-breaking drive of the stretch, in a distance race—that was another story. There he would infallibly show himself a counterfeit, if not a cur and a quitter.

Amiably at first, with heat and railings later, they had tried to keep him out of it. Whether or no the horse was game, his owner would not be balked.

Nobody quite knew who was the owner—he masked himself as the Saxfield Stable. Hedden, a shrewd and shifty trainer, was the acting head of it. Since there were never arrears of either feed bills or forfeits, nor complaints of in-and-out running by Saxfield horses, the powers that were had not felt themselves called to look further than Hedden.

Tatnall had especially resented Corn Silk. Being what he was, it could but irk and gall him to pit the pride of his heart against what he held less than thoroughbred, just as years back it had irked and galled him to save his only sister, almost forcibly, from mesalliance.

He had snuffed out the affair with Asher Plowden, feeling only that he was doing his duty—and handsomely. How was he to guess the event—that it would be to keep Mary a bitter thorn in his side when she might easily have matched herself with men he fully approved? How was he to forecast, either, that Plowden, going west, would turn out a millionaire? Tatnall himself was not a millionaire—indeed, he held great wealth as somewhat beneath a man of his descent. But he had a dumb sense that millions might come handy in the family, now that Gray, still at college, had developed such a passion for spending. Possibly he had to do it—it was the sons of millionaires who set the college pace.

Tatnall had never grumbled at his son, nor stinted him. But a month back he had told him exactly what strain the family income would bear. He had felt that to be quite sufficient. A gentleman, much less a Tatnall, could not be spendthrift if he knew the spending spelled ruin.

"You think Akbar can't lose—eh, governor?" Gray said, momentarily dropping his glass.

Tatnall merely nodded. Gray looked again at the horses, moving in rhythm to the susurrus of the hushing multitude. As he looked a pencil of sunlight fell full on the white jacket, the emerald cap of Corn Silk's rider, making them a vivid fleck in the foreground of the diminishing parade. Shivering a little for all the heat, Gray let fall the glass, saying:

"I wish I'd laid a bit on that fellow—he's carrying my college colors—it—it might have brought me luck—other ways."

"What have you backed?" Tatnall asked slowly. Gray smiled uneasily.

"The yellow boy, of course," he said. "I came down for the Branksome on purpose to do it. Say, governor—you're not letting him run loose?"

"Not quite," Tatnall said, speaking almost humanly.

He had indeed laid much more money than common on his horse, notwithstanding the short price. It was like finding money, as he saw things—and ten thousand, even, pulled out of the fire, would help appreciably in getting Gray creditably through the next term. His horror of bills had forced him to trench a little on the scant accumulations of his sister's income. He had said nothing to her about it—there was no need; he had told himself. The boy was her natural heir—besides almost any day a streak of luck might enable him to make good.

"I hope they'll get off quickly," Gray said, mopping his forehead. It's turning sultry—turning mighty fast. And though, of course, it's our race, I want to be sure of it. I shall hardly dare draw a long breath till Akbar's first over the line."

"Storm's brewing I think—at least I'm afraid so," Maxwell, the Childe's owner, said, lumbering up to Tatnall's elbow. He was big, with a deep husky voice and ruminant eyes that, however, held a twinkle at bottom.

"If it should storm, Tatnall," he went on "we'd better begin to say our prayers—else call for police protection. I don't believe the Childe can run in mud, no matter what the hound who trains for me says about it—and have a strong suspicion that it's nearly the same with Akbar. Yet I hear from the ring there's been the plunge of ten years on the pair of them—straight and place. Who the plunger is—one body or several—no man knows. Its all cash, not a single marker, and put down by close-mouthed fellows who have apparently some sort of understanding. They've been at it ever since the first race—so somebody stands to win or lose a tidy fortune. I wish he didn't. Say what you will, luck counts—and it's nearly always on the side of the bookmakers."

"It won't be—this time," Tatnall said confidently. Gray turned away his face—a face suddenly white. At the post all was confusion; now one horse, now another, reared, plunged, lashed out with wicked heels at a fretting, sweating neighbor.

The thick air grew momently more lifeless, more stifling. Though the sunlight still filtered through midday's mottled veil, there were low, faint muttering booms of thunder, as yet underworld. Even the least weather-wise felt the storm in the air, but none heeded its portents. The horsemen and the wise bettors grew supremely anxious—they knew the electric atmosphere would make the mad things plunging and rearing half a mile away plunge and rear madlier still. They knew, too, how such air unstrings, or stimulates, the most mettled racer.

A fitful wind, blowing up-course, down, athwart, caught little ruffles of dust from the driest spots, made baby whirlwinds of them, then danced them away over the green velvet of the infield. Presently, with the horses still at the post, plunging madly, or breaking raggedly, only to be recalled, there fell a dead, hushed calm. The waning sunshine fell eerisly through it—then suddenly was blotted out. Up the southwest there climbed a cloud wall, blue-black, with fantastic white floating fringes for battlements, and vivid veinings of whiter electric fire.

Even the swiftly darkening heavens did not draw eyes from the start. The crowd had stood up to watch the paraders—now there was a noise as of many faint waters while the mass of it settled back to place. Here or there a man stood with eyes glued to the glass, letting fall now and then a muttered comment, or a groan of dismay. But for the most part the great throng was as hushed as the still air, too intent on the quicksilver creatures which carried its hopes of fortune for speech, or for note of the imminent storm.

The wind rose first in long, sighing, gusty sobs. Quickly the sobs swelled to a steady, rushing gale. From heavens but three parts black there pelted a sheeted fall of rain that drenched wherever it struck, and turned all the dust-brown of the course into foamy, yellow-brown mud. It was idle to think of, to hope for, shelter. The wind, still mounting, drove the rain sheets everywhere; the dash, the splashing, alike stunned and refreshed. The long slant lines built a silver wall between the watchers and the post—they could only hope and pray that all might be well there.

Suddenly there came an appalling flash—a veritable sword of light that shone through the darkness and cleft it in twain. Before the crashing thunder had ceased to grumble overhead the rain-squall had swept on, out to sea, leaving behind a course like a river, and a small, tricksy, dwindling shower to aggravate its own sultry wake. But the drenched watchers paid no heed to it, any more than they had done to the mad wind and rain. For down course, over its muddy river, all in clots and bunches, came nine mad horses, running as if each felt within himself the might, the strength, the speed of the storm.

Akbar led the rush, but the Childe was at his throat latch, and the two a length clear of all the rest. At the stand they alone showed colors—those behind had been splashed to a sodden uniformity. Even Corn Silk's rider—all the white he showed was the back of his jacket—as for the green cap, it was a mere clod. Corn Silk, indeed, ran next to last. Tatnall smiled grimly to see it, saying to Maxwell:

"That cock is done crowing for all time, I think."

But Maxwell shook a doubtful head as he replied: "Maybe so. But don't holler—yet. There's room for a heap of happening in the last mile of a race."

That first half mile had been run as through a rivulet—the course face was little more—a rivulet which, hindering slightly, did not hold and tire.

All through the next quarter and on to the backstretch Akbar and the Childe held their place of pride. Now one, now the other, had a nose in front, but neither as yet seriously challenged, and everything else seemed beaten off. There was still a remnant murk in the air, which, joined to the drizzle, made clear vision hard.

Gray could not take his eyes from the glass. He kept it fixed on the flying pair, his face dead white, his pose rigid.

Tatnall, watching his son as narrowly as he watched the horses, marveled greatly. The boy had always rather disdained sport—but, after all, blood told. He was coming to himself, and would be, as became a Tatnall, sport's devotee. Smiling at the thought, he laid his hand on Gray's shoulder, saying:

"So you're finding out it is worth while, after all?"

Gray started, and shook off his father's hand, saying almost impatiently: "I hope to God I may never see such a race again!" But almost instantly he added in an abashed voice, keeping his eyes to the glass: "You—you mustn't mind me, governor! I—I've got down my first swell bet—and thats rather upsetting you know."

Tatnall nodded, and put up his own glass—just in time to see the leaders sweep the turn around the mile post. He held his breath—from there home there were traps and pitfalls untold. Every hoofcup left the first time over had filled with water that had soaked and spread all about in a spot of mushy mire. To go through it, or over it, was the supreme test. Still, he did not fear for Akbar. The horse was no mudlark, but he had the stuff in him to make him hold his own in any sort of going.

Half a furlong over the cupped stretch and all was still well. Not a fleck of mud marked the leaders' faces, nor their colors, notwithstanding they were mud-coated from counter to tail. The ruck behind them was mud-coated all over. Suddenly something shot out of it—something indistinguishable as to coat, but there was no mistaking its mighty reaching stride.

Corn Silk was going up to the leaders, who still ran like a team. At the furlong pole he got his nose to their tails, but on beyond it fell back half a length. Then, over-voicing the pattering rain, the sobbing wind, the grumbling of the dying storm, mad men, madder women began calling to Akbar, to the Childe: "Come! Come on! Come, Akbar! Come, Childe! Come and win! Win! You must!" throbbed or shrilled in all keys through the tense air, the tenser seconds, as the fleet, game creatures swept into the stretch.

No man, no horse, may do more than he can. What avail the speed and stay of the desert, the proud fire of a long, victorious line against buffeting winds that scant the breath, against relaxing airs, against sucking, hindering mud, fetlock deep? Gamely, gallantly as became their blood and breed, Akbar and the Childe floundered through it, with hearts pumping madly, eyeballs almost bursting under the killing strain. They knew the ruck was out of it—even before it came to the cupped quarter. They had only Corn Silk and each other to beat. Corn Silk was still half a length to the bad. He must not come nearer if they died for it.

It was a cruel sight, yet gallant—the good creatures running on courage when they had come to the end of breath and stay. They ran stride for stride—the strides shortening by ever so little. Their riders easily might have clasped hands, but the hands had other uses. Both boys had sat down—whips were flying, spurs going home. Each meant to come first—was bound to, if he could, so dared not have a thought for the horse beneath him. Wary-eyed, with lined, grim faces, they fought on and on, never looking behind till a warning groan told them where lay the real danger.

At long and at last Corn Silk was coming—not whirlwind-wise, the track forbade—but going down almost flat, then coming away as if that near approach to earth had renewed him. With every stride he gained. Not for naught were those ragged quarters massy with knotted muscle. Honor to the cart mare who gave them, to the staminate cold cross whence came the might to go through mud and mire like a catapult. Driving power was needed—and driving power was there! Running well within himself, straight and true as a bullet to the mark, he went under the wire, majestically alone, with Akbar and Childe five lengths back, slipping, staggering, all but falling, making it a dead heat for the place.

A half minute the hush of the storm seemed to fall upon the crowd, then a cheer broke out, hearty, full-throated, with a keen, triumphant tang at the last. It came from the throats of exultant winners, of good and game losers—men who felt that they had got the run of a lifetime for their money. Although here or there a woman sobbed hysterically, or a man smothered an oath, in the main there was satisfaction keenly touched with regret at passing up a winner whose price had been six to one. Maxwell even began to say jocularly to Tatnall: "It's not a procession, but a funeral—our funeral," but stopped short. Tatnall was walking quickly to the course. Gray was at his elbow, staggering the least bit now and then, and steadying himself against his father's shoulder.

Maxwell did not follow them—the boy's face forbade. It had lost the mother likeness, grown suddenly aged and lined, till it showed as a weak likeness of Tatnall himself

Neither had spoken—neither, indeed, could speak, until they were across the muddy river and in the safe seclusion of a stranger crowd. Then Gray gripped the rail and said, in Tatnall's own voice:

"You didn't dream it—but we were the plungers, governor—you and I. Yesterday I cleaned out the strong box—sold everything to raise the money. You said Akbar couldn't lose—and I needed so to be rich, like the rest. Now we've lost. I'm wondering what to do—whether to blow my brains out—or live—and try to work."

His voice at first low, rose at the end almost to a shriek. Thus the man lingering back of him could not choose but hear. He was tall and burly, with iron gray whiskers fringing a square jaw, and above them a pair of compelling eyes looking out from a thatch of pent-house brows. He swung half about and caught Gray by both shoulders, shook him hard, and said, locking across him full in Tatnall's face:

"So you want to quit, eh? You, a thoroughbred! Perhaps you'd better. There isn't much use for—things which only look like men."

Tatnall knew the eyes, the voice—Asher Plowden's, the man he had scorned. Plowden still held Gray in a vice-like grip. The boy writhed a little under it, and hung his head. Plowden looked at him, his own face changing faintly, then flung at Tatnall:

"Perhaps, after all, I ought to thank you. Suppose Mary had borne me such a son! But I can hardly think it would have been so—I believe, you know, in the cold cross. I own the Saxfield stable, and everything in it. Corn Silk has been bred and trained to cut the comb of your pride. I knew he could do it—in the Branksome, or anywhere—and have been watching here to see how you would take it."

Tatnall bowed silently and made to take Plowden's hands from Gray's shoulders. When the lad was free Tatnall said, with grave courtesy:

"I congratulate Mr. Plowden, even though his victory has cost me so dearly. If the race had gone another way I should also apologize for what I now feel to have been harsh measures, though at the time they seemed to be imperatively necessary. It is, of course, out of the question to say such things—now. Let me ask you, however, to believe that my son was not in earnest. If we have lost all else we still have courage—and honor."

"And he has—a little look of Mary," Plowden said, half extending his hand.

Tatnall took it, ceremoniously, not eagerly. For himself he would have overlooked it, but there were the boy and Mary.

Plowden understood—his millions had not made him dense. "Tell Mary I am coming tomorrow," he said, half turning away.

Tatnall swallowed hard. His lips were dry and white, but his voice did not shake as he answered, holding fast the while to his son: "Let me say for her now—you will be very welcome."

STORY OF THE BUFFALO

HABITS OF THE ANIMALS WHEN THEY ROAMED THE PLAINS.

Their Migrations Not Believed to Have Been Extensive—Following Old Trails to Water.

Written for The Star.

As we have seen, the buffalo was gregarious in its habits, but at certain seasons the herds were larger and more compact than at others. Especially was this true of the breeding season, which came chiefly in July and August. Then vast hordes gathered on the plains, which were the scenes of the greatest activity for several weeks, during which the roaring of the bulls was continuous and could be heard for miles. There was also much fighting among the bulls, and, while these combats occasionally resulted fatally, usually they did not, and a few gashes in the tough hide or a broken horn were, as a rule, the worst injuries suffered by the vanquished monster. After the breeding season the herds became less densely massed. The compact herds dissolved into groups of from twenty to a hundred or two, and the usual peaceful life was resumed.

Sometimes, after the "running" season, herds were found which consisted entirely of bulls, and other herds or groups which contained only cows and young bulls. The animals were nomadic and wandered from place to place in search of the best food. Having found a fertile spot, they would stop to graze and might remain for several days or even longer, if there was water near at hand. It seems to have been their custom to lie down during the middle of the day.

Migrations Not Extensive.

There is no doubt that buffaloes were migratory, but their migrations were probably not nearly so extensive as many people have supposed. Although the animals were found in numbers at the northern limit of their range in summer and at the extreme southern limit of it in winter, it is not to be imagined that those which were seen in the far north were the same as those which appeared on the plains of Mexico. At all seasons there were some buffalo to be found at both the northern and southern limits of the range. There was probably a regular swinging north and south of practically the whole mass: a movement somewhat like that of crows and certain other birds—a journeying of possibly hundreds rather than of thousands of miles.

In their ordinary wanderings buffaloes frequently traveled far away from water, but as they became thirsty the herd would start in search of some spring or water course. The lead would be taken by a single individual, perhaps some experienced old cow, and the rest of the bunch, perhaps one or two hundred, would fall in behind. If they were in a part of the country regularly frequented by buffaloes they would probably soon find an old trail leading to the nearest water. This they would follow, cutting this well-defined path still deeper. These trails were sometimes worn to a depth of four feet below the surrounding country and varied in width from a foot or two to that of a great broad road.

The principal trails usually extended north and south, and connected the rivers, which in the main run east and west. Such trails also led to the great salt licks, such as the Big Bone lick in Kentucky, which was frequented by buffaloes in vast numbers up to the beginning of the last century, when of course the animal disappeared forever from the country east of the Mississippi. The usual gait of the buffalo, when on level ground, was a rather rapid, swinging walk, with the massive head swaying in unison with the stride, and with the long banners of dark hair streaming from the forelegs.

Gait of the Buffalo.

When alarmed, however, or when descending a steep hill or mountain, the whole herd would break into a gallop, and travel at great speed, causing the earth to tremble beneath the shock of their myriad hoofs. This gait of the buffalo has been described by some writers as "clumsy," but I cannot agree with this in the least. Considering the great weight of the animal, the gallop of a buffalo is to my mind a very easy, elastic movement. It suggests the bounding of a gigantic rubber ball.

In the wild state, the buffalo was a very sure-footed animal and a good climber. It not only ascended steep mountains, along narrow ledges, where it would have been quite impossible for a horse or even for a mule to have followed, but was able to leap downward in places where there was a sheer descent of several feet and alight in safety on the rocks below.

The buffaloes now in Corbin Park, N. H., where I have been studying them for the past two years, do not seem to have lost any of this old-time agility, as they seem to delight in journeying up steep ascents to some of the highest points of Croyden mountain, and I have seen them leaping nimbly down from points four and five feet above the ground where they landed safely. Their cleverness in this direction may be due in part to their ability to spread their toes apart while their feet are still in the air, thus giving them a better hold on the ground and at the same time distributing the shock. As a rule, however, in going from place to place with any particular object—water, for example—buffaloes now, as in former times, take the most direct route, and the best trails in Corbin Park today are the buffalo trails.

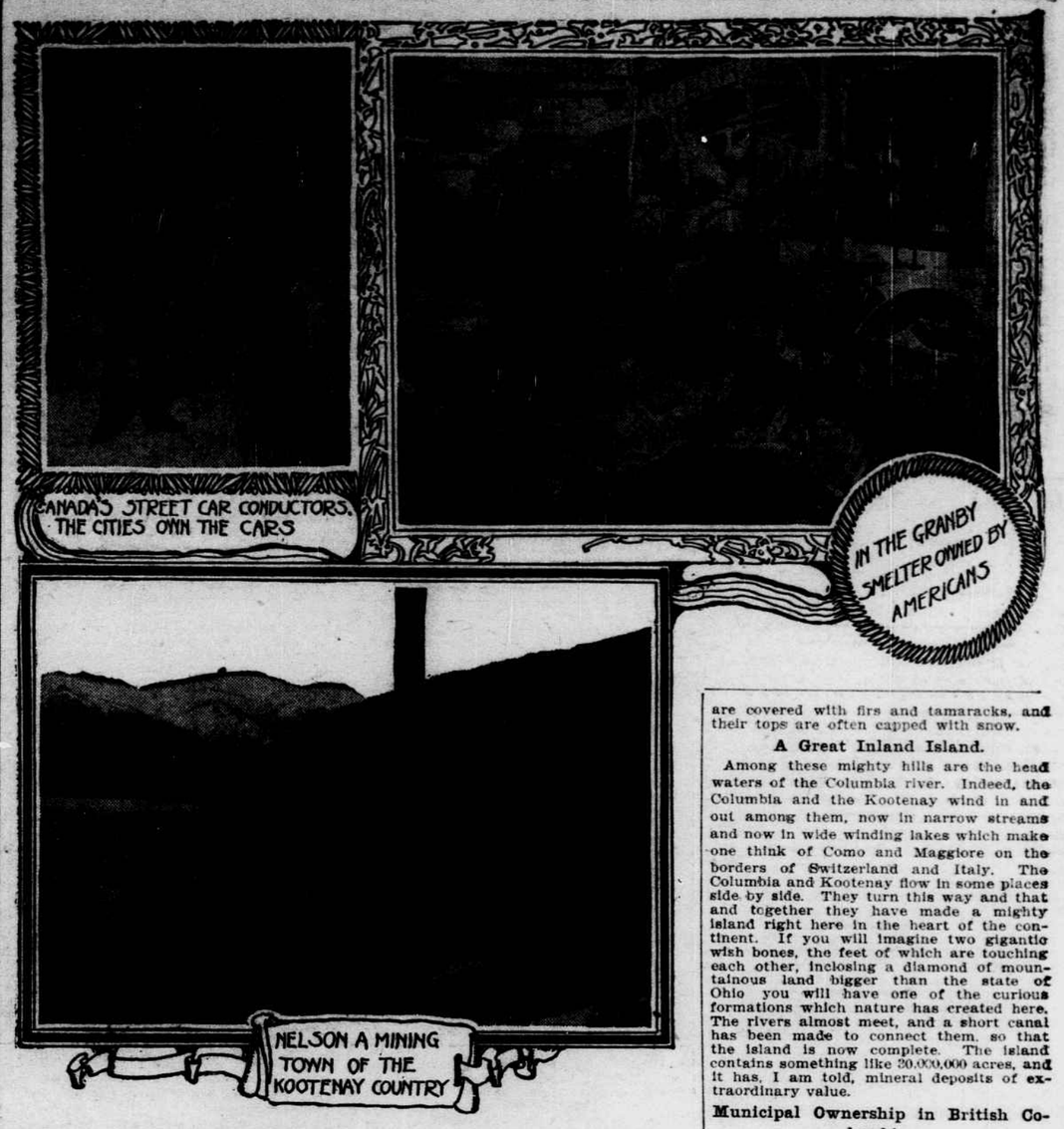
ERNEST HAROLD BAYNES.

NUMBERS OF HOUSES.

Great Difficulty Sometimes Experienced at Night in Deciphering Them.

"In view of the fact that so many houses have been renumbered, owing to the change of the names of streets," said a physician to a Star reporter, "it is timely to suggest that some effective way should be devised to require property owners to display conspicuously in all instances the street number of their houses.

"In visiting patients, especially at night, the physicians of this city experience a great deal of annoyance in this respect, and no doubt it is an inconvenience experienced by the general public as well. One would imagine that self-interest would cause house owners to number their premises plainly and to keep the figures in good condition by repainting whenever necessary, but such is not the case in a surprisingly large number of dwellings. Owners should be required to letter the numbers of their houses without exception on the glass transoms over the front door to the end that the numbers may be easily distinguished by night as well as by day. It is often difficult to locate a particular house on a block at night except by running the houses along, taking the one which displays its number on the glass over the door as a guide. In other cases the little square tin pieces bearing the house number tacked over the doorways are so weather worn that they cannot be distinguished even in the daytime. If there is an ordinance or police regulation covering this point it is now a good time to resurrect it and put it into force."



OWNED BY AMERICANS

Some of the Big Mines of British Columbia.

GREAT COPPER DEPOSITS

Phoenix Properties and the Granby Smelters.

THE KOOTENAY COUNTRY

Rich in Gold and Silver Ore—A Mighty Inland Island—Municipal Ownership in the West.

(Copyright, 1906, by Frank G. Carpenter.)

GRAND FORKS, British Columbia.

I am in British Columbia within a stone's throw of the international boundary. This town of Grand Forks is just over the way from the state of Washington, and about five hours by rail from Spokane. It lies here in the heart of the Rockies. Ragged brown hills rise high above it, and the Kettle river crosses its principal street. The place is only a few years old, but it has now about 2,000 people, with building lots sufficient for a city of twenty times that size. It is a mining town, supported by a smelter owned by Americans, which turns out more copper than any other in the dominion of Canada.

The Phoenix Copper Mines.

This whole region is a great treasure house with gold, silver, iron and coal scattered here and there through it. Only an hour's ride away are the Phoenix mines, which are said to be working in one of the biggest copper beds of the world. The ore is taken out with steam shovels. It lies in a great body two hundred feet wide and more than half a mile long. The deposit is, in fact, wider than Pennsylvania avenue; and if it could be planked down in Washington beginning at the Treasury Department it would reach just half way to the Capitol. No one knows how far down the ore extends. Diamond drills have been sunk into it for 1,000 feet, and one of the shafts is now taking up copper from levels 400 feet below the surface.

Mining With Steam Shovels.

The output of these mines is now 3,000 tons per day, and up to the beginning of last year something like 2,000,000 tons of ore had been shipped. The machinery is altogether modern. The copper is loaded with steam shovels, each of which will pick up a ton at a bite; and it comes to the surface in electric cars. The drills are worked by Westinghouse motors, and electricity moves the crushers. The economies are such that the ore is hardly touched by man from the time the dynamite blasts it out until it is ready for shipment in great bars about as thick as a loaf of bread and as long as a man's arm. These bars are almost pure, each containing 99 per cent of copper, silver and gold.

A Big Smelter Owned by Americans.

The biggest copper smelter in British America is situated here at Grand Forks. It is known as the Granby, and it is fed by these great Phoenix mines. It lies right on the banks of the Kettle river, shadowed by mighty mountains and washed by that stream. The smelting works are high above the river; and day and night, Sundays and week days, all the year round, the smoke rises from their mighty stacks and the golden slag of their furnaces rolls down into the waters.

These smelters have no superiors in size, anywhere except those at Butte City, Montana, and no superiors at all in their treatment of ore. They are now producing millions of pounds of copper per annum, and their smelting output last year amounted to about 40,000,000 pounds of copper, and in addition silver and gold to the value of a million and a quarter dollars.

From Rock to Copper.

I wish I could take you through this mighty establishment. It surpasses any I have seen in the elimination of human labor and the substitution therefor of economical machinery. The railroad runs high up on the sides of the mountain, and the ore is dropped from the cars into great bins through chutes so arranged that just the right proportion of ore can be dropped into other cars farther down before it goes to the smelters. Each car carries one charge to the furnace, and this charge, made of coke and coal, is filled automatically. It is carried to the furnace by an electric trolley, and it shoots in right over the fires and there drops its load.

The furnaces themselves are worth seeing. They are enormous steel reservoirs, with double walls, in which cold water is always flowing to keep the inner wall from melting. They are supplied with air by blasts from smokestacks so large that the average city parlor would be lost inside them and so high that their tops kiss the sky at the level of the taller Broadway roofs.

During my stay I looked into the furnaces. The air blows through like a rushing wind, turning the vast pits to a blazing hell of brimstone and molten gold, out of which roll the fumes of yellow sulphur. The sulphur was so strong that I wore a rubber mask containing a sponge over my nose and mouth to withstand it. My cheeks burned and I could hear the fire roaring with a fury greater than that of the furnace though which Shadrach, Meshach and Abednego walked in the days of the Scriptures.

The Granby has eight such furnaces, and the molten stream of copper, gold and silver flows through them day and night, year in and year out. The slag comes forth in a golden stream as big around as your waist. It falls into iron pots, each large enough to boil an ox without cutting off its legs or horns. Each pot is on wheels, and a little dummy engine takes it when full and dumps it in a blazing stream down the hill. The metals come forth in a smaller stream, flowing into tanks, each of which will hold five tons. As these tanks fill they are caught by a traveling crane and poured into converters. Air is introduced, the sulphur and iron are burnt out and within a few moments the metal has become an almost pure mixture of silver, copper and gold. It is now run off into molds or bricks, and it needs only to be refined and the gold and silver removed before it is ready for telegraph wires, electric conductors and the other things for which pure copper is used.

Where Our Copper Comes From.

The most of the copper now produced in Canada comes from the Phoenix mines. There are also mines above Lake Superior and elsewhere, and it is believed that other deposits will be found in British Columbia. The greater part of the copper of the world is mined in the United States. The total production in 1904 was 660,000 tons, of which 372,000 were produced in our country. Our chief copper states are Michigan, Montana, Arizona and Utah, although considerable is mined in California and a less amount in the eastern and southern states. Canada stands comparatively low among the world's copper producers. Her output is between 40,000,000 and 50,000,000 pounds annually, while Chile turns out 70,000,000 pounds, Germany about the same, and Australasia 64,000,000. Spain and Portugal produce 114,000,000 pounds and Mexico 107,000,000 pounds per annum. Our product in 1904 was considerably over 750,000,000 pounds.

The Kootenay Mines.

For the past week I have been traveling through the Kootenay country. This is in British Columbia far below the main line of the Canadian Pacific railway. It is reached by what is known as the Crow's Nest Pass branch of that road, and parts of it are now being surveyed by the engineers of the Great Northern, which evidently intends to fight for Canada and all that is in it. The Great Northern has a branch running from Spokane to Grand Forks, and it is already doing a large part of the hauling of the Phoenix mines.

This Kootenay country comprises some of the richest mineral deposits of the Rockies. It has gold, silver, copper, coal, iron and lead. In coming here I passed the coal mines of the Crow's Nest valley, which are said to have something like 22,000,000,000 tons of coal in sight, and near them, by the side of the track, I saw a thousand coke ovens blazing away. Not far from these coal deposits are mines of hematite iron, upon which the Canadians expect to build up a manufacturing industry, backed by a high tariff against our goods.

Coming further on into British Columbia, I stopped at the town of Nelson, which has 7,000 population, and also at Fernie, Slocan City and other places. There are about a dozen mining camps in this region and a large number of good properties. There are a number of fine gold properties near Rossland, a town of 6,000. One is the Le Roy, which produced a million and a half dollars' worth of ore in 1904, and another the Center Star, which did about two-thirds as well.

At Nelson I met Bruce White, an American miner, who opened up one of the biggest silver and lead deposits at Slocan. He told me how he happened to make the discovery. Said he:

"There had been a rush to that region, and I came in with five other prospectors. When we got to the camp I looked at a mountain across the way and suggested that our party go there to see what we could find. We did so, cutting our way across the valley and through the woods. We had only two days' provisions, and could not hope to stay long. Almost as soon as we started up the hill, however, we struck some float rock which showed signs of silver and lead, and on the following day we discovered a great mass of galena, which was from twenty-five to thirty feet wide. There were boulders of lead ore close to it, and we at once staked out our mine. It proved to be a very rich one, and was eventually sold for more than a million dollars. Since that time it has yielded about $2,500,000 worth of ore and $500,000 in dividends."

The Beauties of the Kootenay.

I am surprised at the scenery of this region. I have crossed the Rockies on every one of the great trunk lines, but none of the others passes through a region like this. The Kootenay is filled with long winding lakes walled in by peaks which rise almost upright upward for hundreds and thousands of feet. The water is so clear that one can stand 1,000 feet above it on the slopes and see the fish swimming in the streams far below. The sides of the hills are covered with firs and tamaracks, and their tops are often capped with snow.

A Great Inland Island.

Among these mighty hills are the head waters of the Columbia river. Indeed, the Columbia and the Kootenay wind in and out among them, now in narrow streams and now in wide winding lakes which make one think of Como and Maggiore on the borders of Switzerland and Italy. The Columbia and Kootenay flow in some places side by side. They turn this way and that and together they have made a mighty island right here in the heart of the continent. If you will imagine two gigantic wish bones, the feet of which are touching each other, inclosing a diamond of mountainous land bigger than the state of Ohio you will have one of the curious formations which nature has created here. The rivers almost meet, and a short canal has been made to connect them, so that the island is now complete. The island contains something like 20,000,000 acres, and it has, I am told, mineral deposits of extraordinary value.

Municipal Ownership in British Columbia.

These mining towns are up-to-date. Nelson has water works, electric lights and a street car line. It has seven churches, a public library, and gun, cricket, la crosse and lawn tennis clubs. Grand Forks is lighted by electricity and so are most of the larger mining camps. In some of the towns the lights and waterworks are owned by the municipalities, aand I find a strong sentiment almost everywhere in favor of municipal ownership.

Shortly after I arrived in Nelson I was told that the city owned its waterworks, electric lights and street cars. I thereupon remarked: "I think I will go and see the mayor." The reply came with some embarrassment:

"Stranger, we haven't got no mayor. Our d—n mayor has run off."

Upon inquiry I found that this statement was correct. There had been some trouble about taking over the power plant by the city and the mayor had grown disgusted and left. I suppose he has returned by now or that another has been chosen to take his place.

Grafting in Canada.

As to the matter of grafting, I find evidences that it is quite as much of a profession north of the boundary as south of it. Many of the older towns are steadily milked by public officials, and the only trouble with the new settlements is that they are too near the calf age to give milk. The accusations of grafting are by no means confined to the towns, and ex-officials of the dominion government are said to have made fortunes out of their positions. There is considerable talk about certain railroad interests controlling legislation. It used to be said that the Canadian Pacific ran the government, and it is now charged that the Grand Trunk railway, which, with the government, is now building the Grand Trunk Pacific at a cost of one hundred and twenty-five million dollars, has taken its place. As to these things, however, my information is based upon rumors and I do not give them as facts.

These Cities Do Their Own Business.

There is no doubt, however, but that municipal ownership is advancing in favor in all parts of British America. Edmonton has its own electric light plant, and it has taken possession of the telephones within the past year. It owns the waterworks and sewers and it charges a minimum cost for its various services. The telephone rates are $20 per year for dwellings and $30 per year for business, and the light rates are low.

Winnipeg is now managing its own waterworks, and it is giving at $24 a year a service for which in the past a householder paid $80. It paves its own streets and has a municipal asphalt plant. It now gets a part of the earnings of the street cars and, at certain hours of the day insists on a three-cent fare in order to benefit the workingmen and school children.

I am told that Toronto has made a contract as to the operation of its street railways which will give a three-cent rate at certain hours of the day and that a certain percentage of the street car earnings are to go into the city treasury. The contract is to run for twenty years, after which the plant goes back to the city at an appraised valuation of its stock and materials.

Cheap Municipal Telephones.

All of these city ownership institutions give cheap telephones. In Port Arthur the city rates $1 per month for residences and $2 a month for business houses, and on these terms the municipality makes money. Fort William expects eventually to cut its residence 'phones to 50 cents per month and business houses to $1, while radical reductions have been made in other quarters.

Regina has taken over its electric light plant, has cut the rates 20 per cent and is making money. Medicine Hat owns natural gas works and is furnishing light and heat to that town of four thousand at the lowest rates. The charge is 17 cents for lighting and heating, and all cooking is now done over gas. The town is also offering its gas at 5 cents per thousand for factories, and several woolen mills and brick-making plants have already been started. The city gas works are only a little more than a year old, and even at these low rates they have made a profit of $25,000.

FRANK G. CARPENTER.

Shook the Whole Earth.

From London Nature.

We have yet to await accurate details of the great earthquake that occurred in the northwest of South America on January 31. The seismographs in this and other countries had told their story of what happened within a few minutes of the catastrophe. All the world felt the earthquake more or less. In two hours the effects of the initial impulses had reached their antipodes, and in the interval between these times every inhabitant of the world had been moved for at least three or four hours on a true ground swell. All the instruments in the world designed to record teleseismic motion had written records, the bubble in every spirit level had been fitfully oscillating to and fro, many magnetic needles had been caused to swing, balances had oscillated, pendulums had been accelerated or retarded—the world globe, not only on its surface, but in its depths, had been shaken.

England's Great Wheat Crop.

From the London Mail.

The board of agriculture, in a return recently issued, states that the total production of wheat in Great Britain in 1903 amounted to 58,902,409 bushels, or over 22,000,000 bushels more than in 1904, and larger than in any previous year since 1899. The yield per acre was 32.78 bushels, which is 2¼ bushels above the mean of the previous ten years, and six bushels above the poor return of 1904.