

invention; and it would even now be a simple matter to utilize their explosive recombination for the direct production of power as motion.

#### THERE WILL BE NO DIRT IN THE FUTURE.

Utilized apart, the constituent gases of water have many uses and possible uses. Hydrogen under suitable treatment yields the greatest obtainable cold, as oxygen and hydrogen together yield the greatest heat. If our flying machines need a sort of ballast to reinforce their mechanical lifting apparatus, hydrogen is the best possible assistant. And the probable uses of oxygen still more are numerous.

One of the greatest problems of our own day is the disposal of waste products of all sorts, the sources of inconveniences, disease, and dirt. Oxygen, if readily and copiously obtainable, is capable of destroying them all.

Medicine likely will find in oxygen the great propulsive force of its forward movement. Numerous diseases not only can be cured but ultimately abolished when we have once discovered how to use oxygen. The universal source of power likely will be in the decomposition and the recombination of water. But electricity probably will not until after several decades approach the limits of its realm.

#### KEEPING HOUSE WILL BE A DREAM.

The kitchen fire, of course, will be an electric furnace. Lighting will all be electric and no doubt wireless. The abolition of horse traffic in the cities and the use of vacuum apparatus which will be continually at work in all the streets, keeping them free and dry from mud, practically will remove the necessity for boot brushing, even supposing that we shall still wear boots. Every man and woman in dressing will pass a vacuum instrument over his or her clothes and get rid of the little dust existing, for we shall be more and more intolerant of dirt in any form, having by that time fully realized how dangerous dirt is.

A woman of the year 2000 who could be miraculously transported back to the present moment probably would faint at the intolerable disgustiveness of our cleanest cities of this age, even if the cruelty of employing horses for traction and the frightful recklessness of allowing them to soil the streets in which people walk did not overpower her sensibilities in another way.

#### LITTLE COOKING DONE AT HOME.

Cooking perhaps will not be done at all on any large scale at home. At any rate, it will be a much less disgusting process than it is to-day. In no case will the domestic servant of a hundred years hence be called upon to stand by a roaring fire laid by himself and to be cleaned up by herself when done with in order to cook the family dinner. Every measure of heat will be furnished in electrically fitted receptacles with or without water jackets or steam jackets; and unquestionably all cooking will be done in hermetically closed vessels. Animal food will have been wholly abandoned before the end of the century, the debris of the kitchen will be much more manageable than at present, and the kitchen sink will cease to be a place of unapproachable loathsomeness. Dishes and utensils will be dropped into an automatic receptacle for cleansing, swirled by clean water delivered with force and charged with nascent oxygen, dried by electric heat, and polished by electric force. And all that has come off the plates will drop through the scullery floor into the destructor beneath to be oxygenated and made away with.

#### PURE COUNTRY AIR IN THE CITY FLAT.

All apartments in city homes will contain an oxygenator, which will furnish purer air than the air of the fresh country-side. And in bedrooms at least there will be a chemical apparatus which will absorb carbon dioxide and at the same time slowly give off a certain amount of oxygen—just enough to raise the oxygenation of the air to the standard of the best country places. Similar appliances will be at work in the streets, so that town air will be just as wholesome, just as tonic and invigorating as country air.

Since the high buildings of the future will keep out the sunlight, electric light,

carrying on all the ray activity of the sunlight and just as capable of fostering life and vegetation, will serve the streets. Thus so far as hygiene goes, town life will be on a par with country life.

#### TRAINS WILL RUN 200 MILES AN HOUR.

A hundred years hence trains will be run one over top the other, perhaps to the height of several stories, not necessarily provided with supporting rails, for we may have discovered means by which vehicles can be propelled above the ground in some kind of guideways, doing away with the great loss of power caused by wheel friction; that is to say, the guides will direct but not support the cars. The clumsy device of locomotive engines will have been dispensed with. Whatever power is employed to drive the trains of the next century will certainly be conveyed to them from central power houses. The trains perhaps will not stop at all. They will only slacken speed a little, but the platform will begin to move as the train approaches and will run along beside it at the same speed as the train so that passengers can get in and out as if the train were standing still. When all are aboard the doors will be closed all together by the guard and the platform will reverse its motion and return to its original position.

With trains travelling at quite 200 miles an hour, and certainly nothing less would satisfy the remoter suburbanites of the next century, a passenger putting his head out of the window would be blinded and suffocated. So the windows will be glazed, the oxygenators and carbon dioxide absorbers in each carriage keeping the air sweet, and other suitable appliances adjusting its temperature.

There will be no such thing as grade crossings; wherever the road crosses the line there will be bridges provided with endless moving tracks to carry passengers and vehicles across. Of course horses will long have vanished from the land. Cities will be provided with moving streetways always at action at two or more speeds, and we shall have learned how to hop on and off the lowest speed from the stationary pavement and from the lower to the higher speeds without danger.

When streets cross one rolling roadway will rise in curve over the other.

#### HORSES AND WAGGONS FORGOTTEN.

There will be no vehicular traffic at all in cities of any size. All the transportation will be done by the road's own motion. In smaller towns and for getting from one town to another automatic motor cars will exist, coin worked. A man who wished to travel will step into a motor car, drop into the slot machine the coin which represents the fare for the distance he wants to travel, and assume control.

We may safely suppose that the ocean ships of a hundred years hence will be driven by energy of some kind transmitted from the shores on either side. The ships of a hundred years hence will not lie in the water. They will tower above the surface, merely skimming it with their keels and the only engines they will carry will be for receiving and utilizing the energy transmitted to them from the power houses ashore, perhaps worked by the force of the tides.

There ought to be societies formed for the encouragement of laughter. Goldsmith, who was always laughing, tells us of "the loud laugh that spoke the vacant mind," and the scornful Byron says, "And if I laugh at any mortal thing, 'tis that I may not weep." Many people are afraid to laugh, because they think it is not good form. They are wrong, and the writers just quoted are often wrong. Nature evidently intended us to laugh, or children would not know how Nature has evolved laughter in the race to develop and mature our children. Laughter is healthful, and provocative of good morals as well as good health. Hamlet says that "one may smile, and smile, and be a villain," and so one might; but no one could laugh and laugh and be a villain. To smirk, grin, guffaw, or smile, is not to laugh. A good, whole-souled, hearty laugh is a panacea for many ills, and worth a doctor's prescription.

## The Circle of Death

IT was a night in mid-August, and Texas was sweltering. The cowboys, eight in all, were sitting around their camp-fire, made of dry sticks and bleached driftwood, gathered from the banks of the Red River, some three hundred yards distant.

The sun-dried grass had been carefully burned away in a wide circle, and exactly in the center of the space of blackened stubble and earth the campfire had been built. That precaution was necessary in those days, some twenty years ago, for then the loathsome, deadly centipede and tarantula, and particularly the centipede, had not given way to the advance of civilisation. These dreaded things would not venture on newly burned ground, and where fire had passed the weary ranchman and cattleman could spread his blanket and sleep peacefully and without fear.

The eight cowboys on this mid-August night had finished their supper of dried beef, broiled over the coals, and cold corn cakes, and had lighted pipes for a smoke before turning in. They talked bawlingly of the incidents of the day, and swore great wicked, naked oaths, as was their way. They did not know, of course, that death, foul and horrible, was in their midst.

Dan Bowman, the big, sandy-haired cowboy who could take a two-year-old steer by the horns and make it bawl quita, unbent one of his sinewy knees and straightened out his leg flat in front of him, letting the light from the fire flare up on the lower part of his shirt front, which before had been in shadow.

Instantly, Bud Green, who sat directly across the fire from him, and who was his side-partner, started as if to spring to his feet, but checked himself. His face was blanched and strained, and his eyes were staring at the lower part of Dan's shirt front.

Almost simultaneously with Bud's terrified start, Dan, impelled by that keen, animal-like instinct which is a part of the nature of all men whose lives are associated with danger, glanced down—and saw a large centipede disappearing in an opening of his shirt.

He took breath with a catch, like a man strangling, and his hand moved convulsively, as if to clutch the venomous thing and crush it, but he caught himself in time and remained motionless.

It had all happened in an eye's wink, and the wretched cowboy had been aided in his warning to restrain himself by his partner admonishing him, hoarsely:

"For God's sake, Dan, don't move, don't breathe. Maybe it'll come out agen!"

Then, to the others, who had not seen

"Keep still, boys! A centipede's crawled inside o' Dan's shirt. Don't lift a hand or do nothin' that'll disturb it, an' maybe it'll come out agen without tetchin' him."

How the centipede had got on the cowboy was a question hard to answer. It may have crawled up on his leg while they were burning the grass on the campsite, or it may have clung to his clothing while they were picking up wood for the fire. In either case it must have secreted itself, with devilish cunning, in a seam or crease of his clothing, and kept quiet and hidden as long as he moved about; otherwise it would have been detected long before. Evidently it had started as soon as he sat down, and sprung the gap where the shirt was unbuttoned, had crawled in for safety.

Dan never moved a muscle, but all the colour left his face, and his lips became pallid, like a sick man's. The agony he endured could not be described. The things he thought could not be imagined. Every moment he expected to feel against his cringing skin the crawl of its feet, then the sting of its wicked bite, the swift and fatal rush of the filthy venom through his veins, the numbing paralysis, the hardening of the flesh, and the oozing of the little milk-like drops of sweat from the pores around the bite, and then—

He did not know which way the centipede was going. He only knew, from

pulse to pulse, that his life was being spared and his torture prolonged.

The others sat as motionless as if they were petrified, and as silent as if they lacked the power of speech. The injunction of the cowboy's partner was being obeyed to the letter. Some of them dreaded to look at Dan, whom they already considered doomed, and kept their eyes bent on the fire. Others, with bated breath, watched him, expecting every second to see him clutch madly at some part of his shirt and shriek in despair.

About three minutes had elapsed—it seemed hours to them—since the centipede had entered Dan's shirt, and it had not been felt. The tension and fearful suspense were telling on him. His eyes had become blood-shot and the veins stood out on his temples and hands.

His partner watched him closely, faithfully, across the fire, his soul wrung with desire to help him. But he was as powerless to help as if Dan already stood beyond death's dividing line. With a six-shooter in his hand, he would have had a good chance of rescuing him from a band of Comanche or Apache Indians, but even to touch him now might mean death. He caught Dan's eye for a fleeting moment and read its message.

"That's all O.K., Dan," he said, in low tones, fearing that even the sound of his voice might rouse the centipede. "If it happens that way I'll see that no harm comes to her an' the youngster. I'll look out fer 'em, Dan."

Another minute elapsed, then another, and then Bud suddenly leaped to his feet in an attitude ready to spring, his eyes strained with the intensity of action and his hat clutched in his hand, ready to strike.

Dan knew at once the cause of his partner's agitation, and dropped his eyes. He beheld the centipede emerging from the other side of his shirt. The shirt stood out in a loose fold from his body, and the centipede had obviously crawled entirely around him, clinging to the garment.

The hideous thing was slowly turning abruptly on the facing of the shirt, which was apparently a laborious feat for it, since its body must bend more than customary. Leg by leg it came out, and inch by inch Dan's partner drew within striking distance.

The centipede was about half out when it missed its footing. Its loathsome body twisted once or twice, as if about to topple backward against the bare bosom of its victim. Dan became nauseated, almost blind, and his partner's heart was thumping as though it were in his throat.

A few more squirms and the centipede steadied itself, and then dragged its full length out of the shirt.

On the instant Bud sprang across the fire, there was a sharp flick of his big hat-brim, and the centipede was writhing in the black dust, and just at the feet of the man around whom it had drawn a circle of death. From there it was kicked into the fire, to perish, as it should, a thing accursed.

Saved, Dan sank backward, limply, and a cold sweat broke out on his brow. His partner raised him gently, and held a flask of brandy to his lips. Being a strong man, he soon revived, but there was no sleep for him that night.

Through the long hours until dawn he sat and stared up the fire and watched furtively, his flesh crawling at every touch of his clothing.—By James Ravenscroft, in "The Metropolitan."

At a public dinner in an English city, the toast of "Army, Navy, and Reserve Forces" was proposed in rather unusual terms. In submitting the toast, the chairman said: "This is a toast which requires very little comment from me, as the subject is one with which you are all familiar. The Army and Navy have been drunk for many years, and the Reserve Forces have now been drunk for something over twenty years."