

Take out the slips of zinc, and wash well the remaining black powder; now pour upon it a little quicksilver, and agitate by means of a glass rod; the quicksilver will be found to have united with every portion of the silver powder, and form a soft pasty mass, which can easily be removed.

Take this mass, and, having dried it by means of blotting paper, put it into the tobacco pipe, which answers in this instance as a crucible; put the bowl of the pipe into a clear fire, and urge the heat to whiteness by means of the bellows. The mercury will escape in vapour, leaving the silver as a spongy mass, which, undergoing fusion, will melt into a bright button. Another method of obtaining silver out of the chloride is as follows:

Mix the chloride when dry, on a piece of paper, with about twice its bulk of sesqui-carbonate of soda, by means of an ivory paper knife, and, having put the whole into the tobacco pipe, apply heat as before, when the silver in the form of a button will result.

The operation of smelting may be very elegantly performed in most cases by means of a little instrument called a blowpipe, by which means the flame of a lamp or candle may be directed against any minute portion of substance to be operated upon; but its use requires some practice, involving as it does the necessity of maintaining a continuous jet of air without stopping to take breath. No description can teach the method of this art, but a little well-directed practice will generally confer the power.

If the young chemist can manage to use the blowpipe, results may be obtained similar to those already obtained by the tobacco pipe smelting operations, if a small quantity (not larger than a grain of wheat) of the mixture to be operated on were placed on a piece of charcoal, and a jet of flame from the spirit lamp were directed upon it by means of the blowpipe.

The process of amalgamation, which has been just described, is commonly had recourse to in practice on the large scale for separating gold and silver from the impurities with which they may be associated. Various are the mechanical means employed in different parts of the world for bringing the precious metals in contact with the quicksilver. In some places it is effected by the feet of mules and horses treading the mixture. In other places, mills of various construction are employed; or barrels revolving on their axes: in all cases however the result is the same. A large portion of the quicksilver is separated from the compound by straining the amalgam in porous leather bags and exposing to pressure.

Distillation however must in all cases be had recourse to for separating the last portion of quicksilver; the smelter on the large scale being unable to afford the process so wasteful as regards the quicksilver, as detailed in the tobacco-pipe and blowpipe operations.

In the Uralian mountains five tons of gold ore on the average merely contain half an ounce of gold; yet from this seemingly poor mixture, gold is profitably extracted by means of washing and amalgamation, such is the searching power of quicksilver.

J. W. F.

A GRASS-FIRE ADVENTURE.

THREE different fires, from as many quarters, were reddening the evening sky, as I and my two brother-officers, and the detachment of soldiers under our command, looked forth from our solitary little outpost on the banks of the Great Fish River.

Within the last few days, the Caffres had burst in force upon the colony, marking their track by fire and assagai; the company of Cape Mounted Rifles, who completed our slender garrison, had been sent to the colonists' aid, while we, infantry, as being unfitted for such duty, were left to hold the post. But our hearts were with our suffering countrymen; and it was not until those war-lit flames had died away, and the patrol had returned from his midnight round, that we committed our little citadel to its sentinel's charge, and retired to our barracks, which, built in a hollow square, formed also the post's outer wall, its only additional defence being a row of palisades.

Yet no apprehension for our own safety troubled even the faintest-hearted woman within the gates,

and we could scarcely believe our senses when, shortly after, we were awakened by the harsh shriek of the Caffro war-cry, and rushing out, found ourselves beset by a horde of skin-clad warriors, who, concealed by the darkness, had crept, snake-like, along the ground, until, when close at hand, they had bounded to their feet, and with quivering assagais, and discordant yells, thrown themselves against our defences, hoping to carry them by surprise.

Failing in this design, they fled, though only, as it proved, beyond rifle-range; for day-light revealed us girt round by a belt of foes outnumbering us by twenty to one. At once we divined the truth, that our assailant was some border-chief, who during friendly visits to the post, had detected its weak points, especially that worst and greatest, the want of water, all we used being brought from a neighbouring ravine, between which and us the Caffres clustered thickest. It was soon evident they had decided not again to attack the post, but resting on their arms, to await the time when we should either perish of thirst within our walls, or fall by their assagais without.

There was indeed but little hope it would be otherwise. There was none among those lonely hills to bear to Graham's Tower the tidings of the siege, and days would elapse ere our next mail was due. Our only chance, and that a faint one, was, that some inadvertence of the Caffres might enable one man to steal through their lines, and hasten in quest of aid. As senior subaltern, I claimed this duty; but so closely were we invested, that I almost despaired of ever executing it.

With unspeakable anxiety, we watched, while our small stock of water waxed hourly lower. Despite our most care, it was all but gone, when, on the third night, a brilliant meteor, darting across the sky, was overtaken by a second, which appeared to the eye to shatter it into atoms. A shout of triumph from the besiegers greeted this infallible omen of success; and in further demonstration of joy, dancing and music soon filled the Caffre camp, hundreds of feet beating time vehemently to their owner's guttural strains, while the winding of buffalo-horns and booming of calabash-drums swelled the whole into a deafening din.

Here was the long sought opportunity; and followed by the good wishes of my companions, I started on my hazardous enterprise; bending almost double as I crept cautiously on from the cover of one hillock to another, when some fire flashed brighter across my way, or group drew unusually near, sinking to the earth with bated breath, yet ever seeking for some unguarded spot by which I might pass out. But it was not until many a danger had been narrowly escaped that a break was found in the living cordon, and still gliding on between the ridges, I left the Caffro circle behind, and rejoiced to find myself free to seek for my comrades' help and rescue.

Our stables and horses were in the Caffres' possession; but a few miles distant was a spot where the spare cape corps horses pastured, and thither I hastened in quest of one. Catching the most powerful among them, I speedily equipped him with a bridle and rug-saddle, brought wrapped round me from the post on purpose; then mounting, I took the way to Graham's Town, as a measure of prudence, avoiding the path across the hills, and travelling through labyrinths of intersecting ravines and valleys.

This route considerably increased the distance, but well my new steed served me, threading devious breaks in the thorny jungle, fording rushing water-courses, and pushing through steep rocky defiles, where a single false step would have cost our lives, until, ere four hours were elapsed, nearly half our journey was accomplished. My hopes of success were assuming certainty, when some indistinct sound seemed to mingle with the echo of my horse's footfall, and in dread of lurking Caffres, I spurred on faster. But the sound soon swelled into a dreary howl, and then a loud burst of hysteric laughter, and looking round, I beheld through the darkness, two fiery orbs, and at once knew that a hyena, that dangerous and wily brigand of the woods, was on our track.

There was no longer need of spur or rein,

for, conscious of his danger, my steed bounded fleetly on, but, fresh from his lair, the wild beast's pace was swifter, and each minute he seemed to gain upon us. I did my uttermost to scare him off by shouts and yells, and, at the risk of arousing the Caffres, I fired my pistols, but all in vain; unhurt, undismayed, and resolute, our pursuer still held his way.

Suddenly a second voice joined in chorus, and two more flaming eyes glared on the night. Another hyena had joined the chase, and to my consternation, I perceived that our peril was more than doubled, for the presence of each other seemed to animate the fierce creatures to yet stronger efforts. I knew that lonely travellers had often been similarly beset; and the remembrance of their adventures was far from cheering. Meanwhile, shrill neighs of terror burst from my horse's lips, as he still plunged madly on; momentarily more audible grew the headlong rush of the hyenas through the tangled grass, while their reiterated cries rang in our ears like peals of mocking laughter.

It was a race for life or death, and the odds were evidently against us. Nearer and nearer drew our fell followers, as they strove to outstrip each other; nearer and nearer, yelling, howling, laughing at our heels, as if we had been demon-chased.

At length, with a longer bound, and a higher leap, the foremost sprang to my horse's haunches, holding on by his enormous claws, and, quick as thought, his companion followed. A loud, wild shriek, quivering through the woods, told the poor creature's agony, as wayspent, wounded, and overpowered, he fell heavily to the ground, his inexorable foes still clinging to their prey, and rolling in fierce struggles over him, while, with a thrill of inexplicable horror, I found myself sharing the general downfall.

For a moment I lay stunned and half-insensible, helplessly awaiting my expected doom; but in another, to my infinite amazement, I discovered that I had been thrown to some distance by the shock; and rising, found myself not only unhurt, but in no immediate danger, the hyenas having neither eyes nor ears save for the victim whose blood they had tasted. It was a horrible scene, and I hastened to terminate it by a brace of bullets. My hapless steed's last breath ebb'd as I released him; and with sincere regret for his fate, yet duly and truly thankful for my own unhelped-for escape, I turned away to hasten on my important journey.

But travelling on foot, I made dishearteningly little progress. The valleys, too, generally lay at angles with my route; and wherever I was compelled to cross the shoulder of a hill, or corner of a plateau, some blackened ruin or abandoned weapon was sure to meet my view, impressing the continued necessity of caution. Thus it was past midday, and I was still some miles from Graham's Town, when, rounding a rocky ledge, I came suddenly in sight of a large body of Caffres, encamped in the valley below. Some expedition was apparently at hand, for each man was sharpening his assagai, or looking to the flint-lock of his rifle; while in the midst, clad in a leopard-skin karosse, and vehemently haranguing his countrymen, was the well-known chief Tynlie, whilom the frequenter of mess and ball-room, but now the colonists' most bitter enemy.

In all haste, I retreated, but unfortunately not unseen; for instantly the whole force rose in hot pursuit, while a hue-and-cry rolled up the hill, which awakened a hundred echoes. But it was nothing to the outburst of baffled rage with which, on reaching the summit, the Caffres found that, comparatively fleet of foot, I had escaped to the hill beyond. Rifles and assagais were freely discharged across the intervening ravine, but the bullet fell wide, the flying spears short; ponderous knobkerries whirled and whistled through the air, yet with a like ill-success; and then, as if exasperated by failure, rose a deep fiendish howl, heralding a second flight of assagais, and no words can express the extent of my dismay to perceive that each shaft was tipped with fire, an unerring indication that the most fearful device of Caffro warfare was about to be put into execution against me.

Fanned by their swift passage through the air, the spears came quivering down like fiery ser-