# RUSSIA'S PETROLEUM.

## THE OIL FIELDS ON THE WEST COAST OF THE CASPIAN.

Brief Description of Baka-"Watering" the Streets with Naphtha Residuum. The System of Boring Wells-A Remarkable Eruption-A Profitable Well.

Baku, the great oil emporium, is on the west coast of the Caspian sea, about a third of the distance from its southern to its nothern extremity. It is at the foot of the abrupt easterp end of the Caucasus range, which occupies the entire isthmus, and is characterized at both extremities by striking volcanic developments. Those about Baku are most remarkable. The city had twenty years ago 10,000 inhabitants, and now contains 60,000. Though so much of it is modern, the streets and shops of the old Persian city remain, with its towers, markets, baths, shops and temples, giving an excellent idea of Persian architecture without the trouble of going into the realms of the shah to seek it.

The whole place is as redolent of the odors of kerosene as a town in the oil districts of western Pennsylvania. They penetrate with equal impartiality hotels, private residences and public parks and gardens. Though the soil of the entire region is impregnated with naphtha and coal oil, and the sea is often covered with a thick coating, the wells are at some little distance from the city. The refineries only are adjacent to the port. They occupy the middle of the city area, and the reservoirs of naphtha render by their smells the passage of the traveler from the steamer or the railroad station to his hotel almost intolerable. Water is not yet abundant, and is delivered by Tartar carriers. For "watering" the streets the residuum of naphtha is used, which, tolerably firm in cool weather, yields easily to the tread in summer, the foot sinking into it as if it were mud of a certain consistency. It costs only one-eighth of a cent a pound. The sidewalks are paved with a sort of bituminous concrete equally sensible to the sun's rays. This oil residuum is also employed for heating steamer and locomotive boilers. It is cheap and easily transported, and its use is likely to extend from the Transcaspian railroad and Caspian steamers into other ports of Russia where coal is dear and wood not plentiful.

The port is at the landward end of the little peninsula of Apcheron, where it joins the main const on the southern side. The center of volcanic activity is to the east or northeast of Baku on this peninsula, and but a few miles distant, and is characterized by little craters of mud in a constant state of ebullition. This surface changes constantly its form and level, and from its crevices issue currents of gas which the application of a lighted match may kindle into a general conflagration. This plain, seen on a quiet night from the Virgin's Tower, seems covered with phosphorescent flames. In 1885 one of these mud volcanoes burst, sending up to a height of 300 feet a jet of gas that took fire and menaced the whole country with ruin. Fortunately it subsided as suddenly as it had appeared.

A railroad eight miles in length connects Baku with the oil producing center, which is on a plateau 200 feet above the level of the sea. It is a sort of basin two miles in diameter, surrounded by low hills of limestone. At the bottom of this depression, which is composed of alternate strata of sand and marl, 400 walls have been sunk, most of which have given excellent results. They are owned by companies and private individuals. Being within so small a space they are necessarily crowded closely together, and the sheleton structures necessary for their operation give at a distance the appearance of a grove or small forest. The system of boring is borrowed from America. Instead of the shaft used by the French a heavy trepan with a steel point is employed, which is lifted by machinery and let fall with a rotary movement. In Pennsylvanja there are wells over 2,000 feet in depth. Those of laku have not gone so far, though some of them have exceeded half that distance. To sink one 1,000 feet a sts \$15,000 and a year's time, and it has as yet yielded nothing. Singular difficulty is experienced from the gas which so permeates the sand that the hole is often filled as fast as bored, and the sand even forced far up into the tubing already in place. The work has gone on for twenty years, and as no record has been kept showing thickness of strata, wells are still suck at hazard without reference to locality. At Baku the oil does not seem to exist in level sheets. The wells sunk give different results. Some prove abundant; others are at ouce exhausted. Of four continuous wells, the first gave out at 260 feet, the second at 560, the third at 282 and the fourth at 350. Land purchased at \$10 the sagene (about 175 square feet), next a profitable well, produces nothing. On the other hand it often happens that, as in the case of artesian wells in America, a new well sunk by the side of a valuable old one takes the supply and renders it worthless-at least without further boring. The deposits seem to be in small pockets, enabiing a well to be fed by two of them at different douths at the same time. It has been proved that there are subterraneau communications, for it often happens that the oil of several wells may be colored by coloring matter thrown into one of them at the surface. Flowing wells are rare. Pumps are usually necessary. When a spurt of oil is coming the workmen are made aware of it by the noise that procedes. They at once take flight, and not a moment too soon, for the force of the stream is sometimes sufficient to throw the structure and machinery at the top hundreds of feet into the air. The pockets are supposed to contain at the bottom a stratum of water, at the top gas, with the crude petroleum between them. When one well strikes the oil, the gas suddenly expands, forcing it up to the opening with violance. Sometimes there is an eruption of sand sufficient to bury the works about the mouth of the well. One eruption filled all the canals near by containing petroleum, created great lakes, and finally, finding no more receptacles, formed a channel to the Caspian and so carried off its surplus. Some of these flowing wells have not only been of no advantage to their proprietors, but have ruined them by having to pay for the damage caused to their neighbors. One of them produced 16,000,000 pounds a day, and its product was so carefully preserved that the daily profit from it was \$60,000. A flowing well does not usually last more than two months. It then becomes a pumping well and the oil is extracted as in America. The eruption of 1887 is the most remarkable on record. The oil mixed with sand was thrown to the height of over 400 feet, and as expanded by the wind and illuminated by the sun, resembled a golden geyser. The buildings were buried under a mountain of sand and earth. Streams of oil flowed in sand and earth. Streams of oil flowed in every direction. An army of workmen la-bored under a tempest of oil to check the flow. Iron rails laid across the opening were completely worn out by the friction of the jet of sand and oil, and it was only finally stopped by shoving over the orifice an im-mense framework make of thick oak planks and railroad iron. The oil is conveyed from the wells to the refineries at Baku by iron pipes as in America. These were introduced about thirteen years ago.-San Francisco Chronic's Chronic'e

# THE CHEMIST THE MAGICIAN OF THE PRESENT DAY.

OUR TRICKS OF TRADE.

Competition the Life of Trade, but Not Always Beneficial to the Public-The Business of Adulteration Systematically Carried On-The Results. @

In this era of universal enlightenment the training of the successful tradesman is much broader than that of his predecensor of fity years ago. The latter conablezed himself fully educated when he was able to distinguish the quality of the different grades of the various articles in which he dealt, and as very few methods of sophistication and adulteration were known, his task was a comparatively easy one. With the merchant of the present ey, however, everything is different. He can depend on his own judgment only very few instances. He must know to: only how to manipulate his wares so to undersell his competitors, but he must be continually on his guard to make sure that the articles which he kiniself buys shall be just as represented. He may be a dealer in woolens and buy his stock from the deacon who passes the plate in church, yet he never neglects to have his sample n-cessary. But the strangest phase of the whole matter is that, so universal has the custom become, he does not consider any reflection on his neighbor to take this course, and if he finds that the goods are not as represented, he thinks none the worse of him, after he has chimed and secured his rebate. No branch of trade is free from this sophistication, and as long as the resulting article is not injurious to the health of the people, we have come to accept it without a mormur, as an inevitable result of competition. With such a state of affairs, it will readily be seen that the merchant of "ye olden time" would new stand a slim chance of success unless he called in outside aid.

A NEW ADULTERATION.

The chemist is really the magician, who today is sought by one party to develop a new adulteration, and to morrow is called apon to analyze the article which he has distance ist succeeded in adulterating. His aboratory becomes the confessional for morchants of all degrees, and he must be as silent and secret as the clergyman. But his power is greater than the ecclesiastic, who cannot read our thoughts, and who may know only what we care to tell him. But to the chemist all facts within his province are accessible. If we are frank with him, we can render easier the work which we have for him to do. If, however, he has a suspicion that anything has been withheld, he has but to make an analysis and the whole secret is open to him. In his realm he is king. He says to the merchant, "Do thus," and the lossiness man, realizing that his only way to success is by following such injunctions, does so, and is relieved for a time. Soom, however, he learns that he is being undersold, and once more has recourse to the magician, who finds that some brother genius has stolen his charm, and it hocomes necessary for him to conjure wy a more powerful one, only to have it, is rain stolen. time, :

The following incident, related by a distinguished chemist, may be interesting, as showing how systematically this busi ness of adulteration is carried on. The gentleman mentioned was recently concuited by a firm of oil dealers, who were the man. naturally anxious to learn how it was that At a w their competitor was always able to under-On analysis, no foreign substance ap-peared, and the consulting chemist was coed to confers himself nonplused. In course of conversation he happened to ention, quite incidentally, that the only impurity he had been able to find was i ice of petroleum oil, which he had con lered accidental. The oil dealer inquired amount of this oil present, and ou aling that it was about 24 per cent., immediately said that the problem was solved. Two and a half per cent., he exlained, made in a barrel of forty gallous difference of one gallon, and, by extracting this quantity of an oil worth fifty nts, and substituting a gallon of an inferior kind worth, say, ten cents, his rival had been enabled to draw away aimost all ints trade.

A Wild, Weird Tale of Love and Adventure.

BY AMOS LEE.

CUBLISHED BY SPECIAL ARRANGEMENT WITH THE AUTHOR.

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"Fairfax," said Nebbitt, taxing him rishle, "those frame-vfeatures generally carry small crews. I suppose seven or eight of them may come ushore, leaving the other half-dozen to look after the vessel. Now, with these cannon, we five men ought to annikilate them, if need be. So I advise you not increase the number of your confidants. Your brother, Oxford and Roger and myself are quite enough to let into the secret of this vast wealth."

Near night-fall a faint line of smoke was seen curling upward some fifteen or sixteen miles to the northwest. Nebbitt, why had returned to the yacht, said to the Captain: " Suppose you steam out about six knots an hour, and meet that craft. If she is the Vampa, signal to me by passing her, with-out altering your course; and don't return till morning. If it is not the Vampa, come back at once.

Off steamed the "Namovia," the five men amined by an expert, and analyzed ito observing her from their hiding place. Nearer and nearer came the stranger. Finally, the two vessels met Ond passed close to each other, perhaps four and a half miles from the shore. With bated breath and straining eyes, the little party watched the "Namovna." She pursued an onward course, veeing neither to port nor starboard.

"It's the Vampa !" cried they together.

## CHAPTER XXXIII.

A FIGHT FOR LIFE. It was, k.ded, the Vampa. Clumsdy and slowly that huge, black, unwieldy craft forged ahead, cleaving her way through the glassy waters, and, when darkness fell, that they were willed, perforce, to obedicame to anchor about a quarter of a mile from land.

There was no moon; but the stars gave a feeble giimmer, enough to enable one faintly to distinguSh objects at moderate By and by lights were seen flashing over

the water and the dip of hasty oars grew louder. Then came the sound as of a boat's keel grating over the pebbles, and soon, in the darkness, a black mass, moving as one man, came tramping solidly up the slope with measured step toward the tower, which loomed up high and clear against the starlit dome of heaven.

Fairfax begon cousting the men as they approached nearer.

"Twenty, twenty-sne, twendy-twos, knewly-Norr, TWENTY-FOUR, TWENTY-FIVE! "Graat konvens! And, all pewerful fellews, armed to the toeth, tee. Beys, this is a fight for life, and the 'Namevaa's' srew

theirty miles away! Will you risk it?" "What I buges blug I finish !" quesh

Nelfwitt, grissly. As no other man said ampthong they all key quist, watching the teen of events. Up it mapsheel, that solid planlang of desparate men; shoulder to shoulder, four

russis doop; six men in a line; their caseknives and gues and phytels, gleaming and glisteriog in the star-light; silout and gaim used lad on by a man of gegantic statuse,

who strode in perissely before them. "That's Motteo!" whispared Factors, as he glanced mournfully at his swn broken arm and then at the termondees famese of

At a word from their loader, the mon, with one need, passed and stood meticaell them, in face of the fact that the less like statues in the night. Seepping chemist of their factory could not discover out before them, he remained silent a me any adulteration in their rival's product. | ment. Every voice was hushed, save that of the breece murmuring through the bewastronton househours Then he began. Nobbitt, Octored and Fais fax, with their excellent knowledge of Italian, were easily enabled to follow bios. "Mates, ye know hew I weald knee wea the Greek woman; but the peer, skily Seel escaped me. Ye know how we skew our stubborn captain and his skadew, Luigi, and that swart Nubian fiend, tee, whose know hit so viciously into my searce-heated side Ye know how we have all risked our lives like brave men. But, like brave men, new have we come to our reward! The Vampa is ours and so are the broad seas and all that sails them. For, with the riches of that Greek dog, we can make our ship a fortress impregnable.



HIGH IN AIR HE RAISED IT.

down through the earth and rebounded from the stone which hy beneath. Matteo's set face relaxed for an instant into a smile and his ovil eyes glittered with avarice. A tremendous shout burst forth from the

shore. Even Matteo's mighty will could not jured right hand, were fighting desperately restrain this outbreak. In the midst of the hubbub and confusion,

a calm, yet clearly-penetrating voice, speaking in the puest Italian, feil through the gloom like a keen knife.
\*Yeu are directly in the range of our can-

non and ziffes. In just ten seconds, if you do not turn and flee, you will all be dead men! At the first words an awful fear came

upon the murderers, and they shook as if it had been the voice of the avenging angel calling down from the clouds to them. But Matteo, who never yet lost his presence of mind nor knew fear, dropped the iron bar, picked up his fallen rifle, and thundered out a command to them in such terrible tones ence. A sharp rattle of musketry re-sounded through the air and twenty-five singing bullets flew high over the heads of the five men concealed in the bushes, and then the Italians did "turn and fly," but not to the shore; for, quick as a flash, they all disappeared within the tower, whence constant bursts of flame and sharp reports began speedily to issue.

Here was a turn in the tide of affairs Twenty-five armed men behind bullet-proof walls ready to pick off at their convenience five unprotected foes! In an instant both Nebbitt and Fairfax

sprang to their feet, amid that whizzing hail of lead, and, each sighting a cannon, pulled the strings. Two broad, blinding sheets of flame shot

out far into the darkness, lighting it far and wide, and, with a roar like thunder, each iron tube hurled out of its huge throat a mass of shot and grap iel that went screeching and tearing and plunging through the dilapi-dated arckes and windows of the crumbling tower bringing down stone and mortar sattling about the cars of the inmates.

Mattee called to them to quit the place. As quickly as they had entered, so quickly they issued forth-twenty-two in number. Only three laided by that hall of death or by the faking debris!

The power and dissipline exercised over his saviers by the man Mattee was almost minanthus.

Totally unassuaisted with the number and strongen of their adversaries, in the fuse of what might be sertain and instant death to the ontise band, they immediately fell into line, and presenting an array two leasing and encouraging them, the frant possic keepoog up a steady fine with newolvers.

Tweaty-two splondidly-dissiplened and ing his revolver. All at ones he stepped, morvalously-assessed men, all despessate mostening to himself:

down with such great force that it drove ; and his very life being crushed cut in that awful hug of death. Fortunately, his arms were outside. Putting both hands against the chin of the Italian, he suddenly and sharply jerked the man's head upward and backward. Taken at unawares, Matteo, to save his neck from being broken, relaxed his grip for a moment.

Quick as a flash of lightning his antagonist, who was beneath, rolled the giant over, leaped to his feet, and, grasping the knife lying close by, plunged it into the heart of Haydee's murderer, who was struggling to his feet, but so awful was the force of the blow that the blade drove clear through the man's lungs and passed out be tweep his shoulders, and, without so much as a groan, Matteo fell back, stone dear

All this happened in far less time than it takes to read about it, but not a moment too quickly. For when Nebbitt, breathless and aching from the crushing grip of his foe, but quite "game" yes was enabled to turn his attention to the others, he saw Oxford engaged in deadly conject with three more whom he was holding at bay with his rife which he grasped by the muzzle as he would a club, and was whiring about him with such lightning-like rapidity that it looked like the figing spokes of a swiftly-revolving wheel. He had already brained two of his assailants.

Dana and Arthur Fairfax, back to back. excited Italians and went ochoing and re, the one awinging his rifle lustily and the ochoing about the tower and far along the other wielding a keen sword in his uninwith four of the Italians, while a huge ruffian was decidedly worsting peer Roger. who was bravely trying to defend himself Ere Nebbitt could reach him, Roger groaned deeply, and, suddenly relaxing his hold on the other, fell backward as if dead. The Italon raised his knife to strike the prostrate man, but Nebbitt had already picked up the valet's rifle, with which he dealt the ellain such a terrific blow on the head that the seaman dropped to the cash like a log.

The victor then sprang to the side of Oxford, splendidly holding his own against those three swarthy opponents, who did not dare come within range of that lightning swinging rifle, but hung aloof, watching for a chance to spring upon the Englishman. None too soon was this timely aid; for, despairing of tiring their adversary, one of the men stepped backward and, stooping quickly down, picked up a pistob which he was just about to fire at Oxford, when Nebbitt, with a most awful, blood-curdling yell that pieceed far into the night and must have greatly terrifled those who remained on the Vampa, bounded forward with a tremendous leap and brought down the riflebutt squarely upon top of the man's head with such resistless impetus that it crashed through bone and brain and literally split open his skuil from top to bottom, driving the vertebrae of his neck down into his body, so that, completely collapsed, he was crushed to the earth as if by the mighty hammer of a pile-driver, while Nebbitt felt the rapid bullet from his discharging pistol burn his own check like a hot iron.

Although he could have done so more than once, Arthur Fairfax refrained from transfixing either of his two men, as he would, then, lose his sword and thus be weaponless ngainst the other. However, nerved to desperation by that frightful yell of Nebbitt. he made a hasty lunge forward and passed the blade completely through the larger fellow; then, quick as a flash, struck outward with his left foot, suddenly tripping up the other, who fell sprawling to the ground. Before the man could spring to his feet Fairfax whipped out his revolver and shot him through the head.

The remaining four Italians, finding them selves now outnumbered, turned and fied towards their boats. Just as Fairfax was crying out: "Let them go! Don't follow them !" one of the despesadees unexpectedranks deck, on they same at full run, Matteo Iy worned and fixed his pistol. With a sharp cry, Dasa dropped to the ground.

The eye of Fairfax flashed five and he dashed forward after the fleeing man, danay-

"To thee, Haydee, my daughter, bequeath my own wealth, increased by that of Mulev Al Halef, the last and greatest astrologer, who was buried with his treasures; every slave who took part in the burial, being at once put to death by his mistress, with whom the secret died. Accident revealed to me his tomb. Thy riches will make thee a Princess."

Casting the corpses of the dead sailors down the well, they sealed the top with stone over which was again spread the turf.

Nebbitt had a private room on the "Namoyna" in which he sometimes kept his valuables. He alone possessed the key and never allowed any one to enter. This was exactly suited for receiving the treasures of the well. And there they packed them high and close, and lashed them securely down, to keep the cashs and boxes from rolling about in a storm; and, having made all fast, they shut the door and Nebbitt turned the lock again and put the key in his

When the seamen came aboard once more from the streets of Tangiers they exhibited great curiosity over the last strange freak of their master and his guests. Who ever heard of giving a holiday to all your crow and running off with your own steam yach O Their sharp eyes sought evidence for its cause, but found none (and it was many a long day ere the Tangiers trip ceased to be their favorite topic of conversation, so they all fell to work, and, at nightfall, Tangiers was

far behind.

In an upper chamber of Cragie Castle sit Lydia and Natalie, busied with their needles. Both have been silent for some time, as both are deep in thought. A maid enters quietly and hands a note to Lydia. In O an instant the hot blood mounts to ker face, and in an instant, too, it goes. She looks up at the girl with a nod and goes on with her work. By and by she glances hastily and furtively at Natalie, who appears to be still deeply absorbed in her fancy-work. Then she rises and steal softly out of the room on tiptor, unnoticed by the Princess; returning soon to the foot of



RETURNING SOON TO THE FOOT OF THE STAIRS.

the stairs, her face a triffe pale and her lips nervously working. With a strong effort she controls herself and calls out, in ordinary tones:

"O Natalie, just step down into the conservatory a moment, will youd I have something I want to show you."

A rustle of robes is heard on the stairway; a light step echoes down the long hall, the custains are pulled upart and a slight, hasty cry sings momentaidly through the considons and quickly dies away. What is itd

Lydia has passed out into the gardens where she and leans Faisfax walls leisurely up and down between the autumn flowers. golden bright, and she listens to the wonslendul take of the seasch for Haydee's Hidden treasure and that last dreadful fight on the sands of Mozocco. And, while she listens; mose and more she sees the resemplance between the two brothers-only that Dana is darker and more quiet, almost shy in manner; for he has not that cager, nervous look of his brother, that look that suggests a restless, almost unhappy spirit -and more and more she grows to like his gentle, low-toned voice and mild, yet intelligent eye. And deeper and deeper in love with his beautiful companion falls the hitherto unimpressionable Dana. Just as they near the conservatory door, it opens and down the steps come Natalie and Arthur, and on the Princess' finger shines the signet-ring of Haydee and around. her-neck gleams the necklace of pearls and the soft light of love is in her eyes. Thus they stroll up the long, broad walk, those happy four, two by two, arm in arm, and where yonder noble oak spreads its gnarled and leafy branches, they slowly turn and so pass out of sight.

#### POISONOUS DYES.

People have become so accustomed to finding the discussion of the subject of edultivation confined to articles of food and drink that they are apt to consider that this is the only part of it of any importance. Physicians, however, can tell a different story. For instance, they are frequently consulted for disorders which can be directly traced to cheaply dy articles of dress, and many of the nice obstinute cases of skin disease are due to oisonous coloring matters.

Before the art of dyeing had progressed much most of they dyeing colors in use were prepared from simple vegetable exgreater than the supply, and the chemis was called upon for substitutes. Step by step he followed nature back to her labor atory, and finally was able to announce that he could produce at will in unlim ited quantities a dye stuff which could not be distinguished by any tast, either chemical or physical, from the natural product. The substance which he had made was alizarine, the coloring matter of madder, and the article from which he made it was common coal tar. This dis covery worked a revolution in the indus trial world. The path, once it had been pointed out, was easy to follow, and in quick succession came the announcements of new colors made from this same waste product-coal tar-until at the present day any color or tint can be supplied from it.

But here, too, the practice of sophistication soon became a prominent factor, until the question was, not how well can dyes be made, but how cheaply. The process of manufacture is a long one, and great caro is required at every step to thoroughly remove the powerful chemical agents by which the necessary changes are brought about. Here was the opportunity for cheapening the final product An incomplete removal of these chemicals means less labor and less exponse; hence the indifferently finished product can be sold cheaper. Unfortunately, however, these impurities thus left in the dye are in most instances highly irritating to the shin, and when an article dyed with such substances is worn it is very liable to cause trouble, especially if the skin is chafed or scratched.—Boston Herald.

#### The Numerods Shad.

A single shad produces 100,000 eggs, and only about 5,000 are hatched natur-ally. By the artificial method 98,000 are successfully hatched. No wonder this fine fish gots cheaper every year.

"Will you follow me and live the life I speak off

"We will!" came back the deep-toned answer. "Then will I read the writing."

Amidst the most breathless silence, broken only by the coll of the swell on the shore and the distant sound of steam es caping from the Vampa's safety-valve, Matteo, translating the English into Italian read in a harsh, hard voice that penetrated far and neur into the quiet night air.

"Ten miles to the southwest of Tangiers stands the raised tower, El Baba, Twenty steps due northward from its essiera doorway is a stone, Twenty steps due turj'-covered. This stone encloses the month of 24 old nell, long since dried. Down this well, after my father's death, Ali and I east all his usalth-jewels of unloid value, brass-baund casks and boxes bursting with gold and silver toin, diamonus of matchiesesplendor, pearls far outshining three of Ind, a thousand flashing precious ctones and unmelted ingots-riches mough for the muldest dreams of avarice." A wild cheer broke forth at the conclusion

of his words. But it was hushed into immediate silence by the sharply-uttered command and threatening gesture of the Italian.

"Now, mates, I scanned the shore with keenest eye for signs of life when we approached, but saw none, save that stranger craft which we left behind us, steaming far out to sea. But I like not her looks, nor do I know what hidden dangers lurk before us. Therefore, rest on your arms and be ready at a moment's warning to follow me to the death.

"Ay! that will we!" answered they all with one accord, as they clashed their weapons together.

Then, suddenly, the leader drew himself to his full height, and, looming gigantically up in the darkness, put his hand upon one of the pistols in his belt, and in slow, measured tones that implied but one answer to his question, neked;

'Shall Matteo's share be one-third for all his noise and sink on loadest

An unbroken silence prevailed, which be tokened the unwillingness of the band to assent to any such unequal division.

Once again, sharp and clear, piercing the calm air like the hard, cold ring of steel, rang out the resistless question, while the sudden flash of a pistol-barrel, drawn from his belt, shot through the gloom. Cowed to obedience by the tremendous power which that fearless man wielded over them, they

promptly responded as one man: "It shall be!

"Then, hold the lantern, Tito. Now, one, two, three, four !" and he counted off twenty steps, with the compass in hand, and stood

erect and still. "Give me the iron bar, Tito."

High in air he raised it and brought

as, account five! Est blosse five-bher cas no there for leading the same againlying fat, kept up a malling, density fice, while the bullets of the Italians speel by koestessly, whiching ever blair hands bid

sa soav evil demens. One by one they fell-twenty-ene, twenty. soneicen! Only eighteen new feft!

"Five low and des't lose your head!" posted Newsmit, as he "dropped" unether IDGIL.

Four more fell. And now they were but fourteen, but all men of unusual physical strength, led on by a man of iron nerve and muscle, himself equal to any five of themfourteen desperadoes, liable at any moment

E



FLINGING HIMSELF FULL AND STRAIGHT AT MATTEO'S THROAT.

to be reinforced from the Vampa or by wounded comrades who might, also, at any moment, recover strength sufficient to rejoin the fray

Suddenly Matteo shouted:

Se-

"Come on, my men! They are only two or three; and the fewer we are, in the end, the larger each man's share of that treasure.

Drop bullets and take to your knives!" "One more volley!" cried Nebbitt, as he fired his last cartridge, and down fell another of the assailants. "Then grip for your

lives !!! With that he made a flying leap over th little sand barricade which they had raised and flung himself full and straight at Matteo's thront, which he seized like a vice in the grip of his steely fingers. The giant

stumbled backward and raised his shart knife to drive it up to the handle in the back of the American; but the latter, by a sudden, strong, upward movement of his arm, cleverly turned the blow aside and it fell harmlessly in air. Concentrating all his nerve-born strength in one superhuman effort, Nebbitt actually dashed this Goliath to the ground, where the two rolled over and over and over again in their awful struggles; now one above, now the other. But his enor mous physical strongth and will throw th odds fearfully on the side of Matteo; fo

when he fell he had dropped his knife, and was now gripping the American in his long. powerful arms, whose muscles of iron slow and relentlessly closed about the chest of his adversary, until it seemed to Nobbitt

as if his ribs were crunching and cracking

"Why should If It is not in solf-defense leane may not be dead."

As it was, his busher was only stunned Ret peer Roger had received a steep stub Sussa which it took hien many a long day to recover. Fairfax himself essaped without so much as a sear. Nebbitt and Oxford discovered about their body several little slashes and abrasures of the skin-suspiciously like build-cuts and bullet-grazes-showing narrow escapes from death.

CHAPTER XXXIV.

"AND SO THEY WERE MARRIED !"

Tragic was the fate of Haydee, but more awful yet was the end of her murderers! Fifteen men, all stone dead! Lying scattered, helter-skelter, here and there, gashed and bloody, and not one of them with his back to the foo-brave, if bad!

Ah! that was a dreadful fight, a fearful slaughter! And all through greed of gold. But thus was the cruel death of Haydee avongod.

What should be done with their bodies? Should they leave them to rot there on Afric's burning sands for the foul birds hovering high in air to gorge themselves upon! Or cast them on the ebbing tide, food for the carrion fish of the seaf

"They fought like brave men. Give them a brave man's burial!" quoth Fairfax. "Where!" queried Nebbitt.

"Didn't they come to find the well?"this with grin humor. "Then show it to

Why should we prolong the tale of Queir African adventures by telling how they deared away almost every vestige of that frightful scene of carnage; how they tem-porarily heaped the hideous pile of corpses behind the walls of the tower; how they left the treasure still hiding in the well; how, when morning and the "Namovna" came they lay lolling about on the sands, smoking and chatting as unconcernedly as if they had not passed a night of horror; how they satisfied the captain's questionings with the remark that their universal condition arose from a little tussle with some wandering vagabonds on shore; and then 'ferociously "sat down" on all further queries on his part-"by the way, we seared 'em well with those cannon"; how Nebbitt and Fairfax cleverly improvised a holiday at Tangiers for the entire crew, captain and all, much to their amazement; how, when the men were well ashore, the five heroes, all alone steamed back to the tower, and how there they completed the work begun by the dead Matteo and his associates, and, too, with the tools of the latter!

Haydee's description of her father's wealth fell far short of the truth. Casks and packed and literally bursting with thousands and thousands of orisp silver and gold coins, long bars of yellow bullion of the purest of virgin gold, great slabs of rich, white, shining silver, box after box loaded and groaning with diamonds before whose brilliance those of Solomon's mines were as colorless glass, pearls, whose opa luster would have dimmed and made pale those of Cleopatra, rubies, amethysts, garnets, onyx-stones, opals, a thousand, yea! ten times a thousand priceless flashing gems of purest water ! --- wealth that days of ceaseless counting could scarcely enumer

Lastly, they found a golden, jeweled cask et in which was a scroll whereon were written these words:

### [THE END.]

### He Wanted to Talk.

" Nice day," exclaimed the little redheaded man who entered the street-car, and took a seat beside a fat, morose, Teuton

The fat man scowls at the little red-haaded man, but remains silent.

"Cooler than it was," remarks the little man, presently.

This sentiment the fat man decided to resent, and taking out his handkerchief, removes his hat, disclosing a bald head, mops the perspiration from his brow, while he says

"I hef my 'pinions oof a veller vot dolds a great big lie like dot."

"What is the matter with your head ?" continues the red-headed man, "haven't you any hair down your way?"

"Yah, blenty red hair," said the fat Teuton," but dey use him all oop mit some little plame vools before I don't got any." The red-headed man subsided.

" Letthur-Go, Gallager." Court-What is your name?

Prisoner-William Gallager, sorr. Court-You are accused with killing a nan. What have you to say for yourself, Prisoner-Suah, 'twas an onintintional case av slif-definse, yer honor, so ut was.

Court-How can that be!

Prisoner-Well, ye see, sorr, tha corpe-Hivin bliss him! he struk me foirst, sorr, so 'e did, an' Oi'd tha goon 'n my hand, just fer ter intimidate him, sorr. An' may Oi niver step off tha stand av soom blackguard in the crowd didn't yell: "Letthur-go, Gal-lager." an'-an'-an' Oi letthur go, sorr, bad scran ter me.

#### Economizing Locomotive Fuel.

The Railroad Gazette estimates that there were about 600,000,000 train miles of railway in the United States in 1887, and by taking 25 train miles as accounting for the burning of the railways of the country consumed about 24,000,000 tons of work of the country consumed about 24,000,000 tons of coal in 1887. As but 3 per cent. or thereabout of the power stored in the coal is utilized in hauling a train, the opportunity for economy may be noted at a glance. This field promises to be an import-ant one in the matter of study on the part of heads of motive power departments of railways of the country.-Bradstreet's.

