Miscellaneous.

BLASTING ROCK UNDER WATER.

A few days ago, in a long railway ride, I had for a companion in the same seat a very intelligent man, whose profession was that of a contractor for the removal of submarine rock in rivers, harbors and along shore; anywhere in fact.

I did not understand very clearly the process by which this work is done, and my fellow traveller very kindly explained the whole thing most satisfactorily. Many persons may like to know about it as I did.

'I have done a great deal of work,' said he, 'under General Thom. If all United States officers were like him, the government, I think, would be much better served than I hear it now is. I find as the General grows older he becomes more and more particular, and wants the work *sand papered* off more than he did.'

'But I should like to know exactly how you go to work to remove living rock from the bottom of a river or harbor so as to deepen the channel.'

'Exceptional cases require exceptional processes, but generally, this is the way of doing it. We procure, to begin with, a lighter or scow or two, according to our needs; sometimes a steam tug, if necessary, also. These scows we moor over the rock or about it, according to circumstances, so as to be in the most convenient position. We have a diving suit and all the necessary apparatus for remaining under water. We have a tripod for our drill, made generally of iron, gas or water pipe, which may be made longer or shorter, according to the depth of water; the change from shorter to longer is very easily and speedily done.'

'The drill, of larger or smaller diameter, according to our needs, is so fixed upon this tripod, that it may be worked with equal facility at any required angle with the horizon. We have a heavy cylinder of cast iron, 18 inches in diameter and 24 inches high, with a hole through the centre for the drill to work in. This cylinder is placed upon the rock to be operated upon, and stands on three sharp pointed iron legs.'

'What is the use of this piece of iron?'

'It is to direct the point of the drill and keep it steadily at one spot when it begins to act upon the surface of the rock. Without this, the drill could not act upon the same point, until it had made for itself a hole so deep that the end would play always within it.'

'Where is the steam engine that actuates the drill?.'

'That is upon the tripod, and is so arranged in a very simple way, that it always acts in a line with the drill, whatever the angle may be, at which this is fixed.

'Is the steam generator upon a tripod also?'

'No, that is in the scow or lightener, and the steam is conveyed to the engine through a strong rubber tube, longer or shorter according to the necessities of the case.'

'Now, being already, how do you fix the tripod in place so as to begin operations?'

'We go down to the surface of the rock and explore it carefully in every part, so as to determine at what point to commence; for a good deal depends upon this, as to making good blasts. We want to know the character of the rock; and if stratified or in seams, we want to know the dip of the strata or the angle of the seams, if we can ascertain that. Having determined the point at which the first bore shall be made we place over it the cast iron cylinder, standing upon its three iron legs, each of which can be adjusted easily to the inequalities of the rock. Then the tripod is put in place, so that the drill shall be exactly in line with the bore in the iron block. This being done, steam is let on and the drill begins its work with a slower or quicker motion according to the particular case.'

'How large are these bores which you make?'

'The size varies according to the circumference of each case. We employ drills of one and a half inch diameter and of different sizes above that to three inches which is the largest.

'How long an operation is it, the drilling of these holes?'

'The depth of them varies, of course, according to the circumstances of the case, and the time required per foot of bore depends upon the character of the rock and the size of the drill. The smaller drill makes more rapid way than the larger. We always make the bore a foot deeper than the new surface is to be after the rock shall be removed. A three inch drill may be driven one foot in ten minutes according to circumstances.'

'Now the bore is completed, what is the next thing to be done?'

'The tripod is removed and the scows are moved away so far as to be out of danger. Our cartridge case is of tin, fitting easily into the bore, and is longer or shorter, according to the need of a larger or smaller charge. The case is half filled with dynamite or whatever other explosive is employed, then a powerful explosive cap is fitted into it, and the case is filled with dynamite. Connected with this cap are two wires about a foot long, by which it is exploded. In the top of the case is fitted a wooden cap with a hole through which the wires pass, then this cap is carefully covered with pitch to make the whole water-tight. To these short wires are then connected the longer wires—all perfectly insulated — which lead to the battery in the scow. Now, all being ready, the driver goes down with the cartridge, and with a wooden rod thrusts it carefully down to the bottom of the bore. This done he comes up; the electric circuit is completed and the cartridge exploded.'

'Is there much commotion in the water at the explosion?'

'Generally, not much, about as much as upon the surface of a pot that boils freely, but this will depend upon the shallowness or depth of the water, of course, and upon the depth of the bore, and the magnitude of the charge. In shallow water we are careful to keep at a very respectful distance.'

'Now you have loose rock below, and how do you remove it?'

'In our scow or scows we have a crane properly rigged, actuated by steam or not (it will work by steam or hand as we wish). We take these scows over the spot of the explosion, and the divers fix chains or grapplings, as the case may be, to the large fragments of rock, which are then raised from their bed sufficiently to clear all obstructions; and then the scows move away and drop the rock at the nearest point that will be out of the channel we are forming. We have an iron cage also, suspended to the cranes, and into these we put the smaller fragments, which are removed in the same manner.'

'But sometimes rock may be broken up by exploding dynamite on the surface.'

'Yes, we do that often when the quantity of rock is not great.'

'How do you proceed in a case of that kind?'

'We examine the surface of the rock carefully with reference to its form and as to its stratification and seams, if any as in the former case, and determine the point at which we will commence, which is generally upon one side or edge of the surface to be operated on. We place a cartridge upon the rock and explode it. This will shatter the rock to the depth of about six inches under the cartridge, and after the loose rock is removed we repeat the explosion upon the same point until our depth is sufficient. We have now a wall or shoulder of rock upon the side where the rock is to be removed, and we place our charges by the side of this and on the new surface we have made. The explosion of these charges shatters this surface as before, and at the same time knocks away great quantities from the wall or shoulder, and we follow up until we have knocked off the entire surface of the rock to be removed and to the required depth.'

'Where do you find your divers?'

'I do that work myself. I used to hire divers at $15 a day, but I found my jobs prolonged indefinitely. These men instead of putting the cartridges into boxes prepared for them at a great cost of time and machinery, sometimes placed them on the surface of the rock, so as to 'spin out' their job at fifteen dollars a day. By doing the work myself I make an enormous saving in many ways.'

'Then there are unfaithful servants in your business, as well as unfaithful administrators of trust funds?'

'Yes, everywhere, some such are to be found, I'm sorry to say—everywhere; but there are also very many honest ones.'

'The power of these explosives is enormous, immeasurable in fact, and the danger in dealing with them is great, especially with nitro-glycerine. I went to San Francisco some time ago, being employed by the Government to remove a formidable obstruction from the waters of the Golden Gate. On examination I found this obstruction to be an enormous rock, rising somewhat like a sugar-loaf from the bottom of the sea in deep water, and extending twenty feet above its surface. The operation upon this rock was not easy, because it was exposed to the Pacific ocean, on which there is almost always a swell, and I could not work except in smooth water.

'I had everything ready, after forming my plan, and after many days there was smooth water. In a steam-tug I went to the rock and put around its top, like a necklace, an iron chain. To this I suspended a strong iron bound cask, charged with eight hundred pounds of nitro-glycerine. The cask was sunk twenty-two feet below the surface, hanging against the rock. The charge was exploded with a tremendous concussion and a report as of the simultaneous discharge of a park of artillery. The waters flowed smoothly over the spot; there was no rock there. I did not trouble myself to see what had become of it — nobody knows.

A DEAD SEA RAILWAY.

It is reported that French capitalists have secured a grant for a railway line from Java to the interior of Palestine, which will open up the Jordan valley and the whole region north of the Suez Canal. In certain contingencies this road might become of great military usefulness, but it appears further that the productive resources of this country are considerable, and what is more surprising, that the Dead Sea itself can be turned to commercial account. Chief of these at present are the stores of natural combustibles for which that region is noted. Hitherto the main object to the development of steam traffic in the Levant has been the total absence of combustible material. Not only Egypt, but the shores of Syria and the Red Sea are completly stripped of wood, and the coal imported from the West commands a price ranging from $10 to $24 a ton. Now the masses of asphalt continually thrown up by the Dead Sea attest the presence of vast subterranean layers of fossil vegetable matter, and these signs were not long overlooked by the enterprising men attracted to Suez by the opening of the canal and the movement of commerce in that direction. Recently numerous soundings have been made between Java and the Dead Sea, which, so far, have not disclosed any deposits of coal proper, but, on the other hand, have laid bare inexhaustible beds of lignite. Of itself this store of lignite is likely to prove an inestimable gain to the industries and commerce of the Levant; but we should add that the juxtaposition of asphalt in great quantities furnishes the elements of a mixture of lignite and asphaltum in the form of bricks, which is equal in heating capacity to the richest bituminous coal, while its cost on the ground is only $2,50 a ton. It is known that similar bricks, made up of coal dust and bituminous debris from gas works, are much sought after by French railways since, besides their heating power, they greatly facilitate stowage, owing to their regular shape. Of course the bitumen of lower Palestine has been known from immemorial times, and was used to impart solidity to the structures of unbaked clay in Assyria and Egypt; but it may be said that the discovery of the subterranean combustible has lifted once for all the curse which has so long rested upon Sodom and Gomorrah, and will transform the wasted shores of the Dead Sea into a focus of industry and a magazine of wealth.—*Scientific American.*

—The Assembly Chamber of the new Capitol at Albany is an acoustic failure, and the use of sounding-boards over the seats of members is recommended. Another terrible mistake is the banishment of lady visitors to the galleries, where they cannot hear or see what is going on, and, what is worse, cannot be seen.

—There is a curious creek in West Texas which enters a rocky gorge and runs under ground for 40 miles. In some places natural wells 250 feet deep are found, through which the roaring of this subterranean creek can be heard plainly.

PRESIDENT HAYE'S FAMILY LIFE.

Not for many a year, probably not since John Adam's time, has there been so domestic a family in the White House. It is essentially a home.

'I want you to see what kind of a house-keeper my wife is,' said the President the other day to a company of Quakers whom he was showing through the mansion. Their evenings, when the exigencies of public and social life permit, are spent in that best of all places, the family circle. Old friends — and new friends, too—are given to understand that they will be welcome if they 'drop' in for a neighborly evening call; and on these occasions the children's happiness is an essential matter. The family is pleased to have their friends bring their children with them at these evening visits.

And, speaking of the children, I am told that Mrs. Hayes, with a motherly thoughtfulness, has provided one of the nicest little schools in the White House for her two younger children, of 8 and 11 years old; and, not content to have them brought up alone by a governess, without the companionship of other children, has arranged a little school of six, her own children and the younger children of Secretary McCrary and her old friends the Shellabargers. The children have a pleasant, sunny room for their schoolroom, with desks and blackboards, and all conveniences, where they assemble daily from 9 till 1, and have a charming and most refined young woman, Miss Peyton, for their teacher. Mr. Hayes often visits the school, taking the greatest interest in the little company.

The characteristics of the President's wife as a hostess, her grace and heartiness and excellent tact at the receptions, have already had public mention, but not half the praise which they deserve. I remember how, at one of the President's receptions, when Mrs. Hayes took my hand and spoke to me as I moved along with the throng, she made me feel somehow as if I was doing her the greatest possible favor by presenting myself for introduction. She shakes your hand so heartily, as if you were the one she especially desired to meet. Her plump arm and her whole graceful body are alive and alert with eloquent action. Her various remarks to the passing hundreds, as I stood aside and observed her for a moment, were marvels of aptness and politeness. One gentleman who presented himself with a lady on each arm; introduced the ladies to Mrs. Hayes himself — the crowd being so great and the usher having more than he could do — and then, introducing himself, was about to pass on, when Mrs. Hayes said: 'I am very much obliged to you, Mr. ——, for introducing the ladies.' I could but think the other day, as I looked at the beautiful life-size portrait of Martha Washington, which Mrs. Hayes has had painted, and which has recently been tastefully hung in the red room of the White House, that hereafter our President's wife would divide the honors with the wife of the first President; and indeed Mrs. Hayes had this advantage, that she will receive the praise to which she is entitled, not only as a woman, and as the wife of the President, but as a mother.—*Letter to Springfield Republican.*

TRACES OF AN EARLY RACE IN JAPAN.

Prof., Edward S. Morse has written an interesting paper on the "Times of an Early Race in Japan," which throws light on a subject hitherto wholly obscure. A race of men called Ainos are believed to have come down from Kamtchatka, and to have taken possession of Japan, which they held until displaced in their turn by the Japanese from the south. Of the two races, the Ainos and the Japanese, authentic records exist, but nothing has been known concerning the ancient people whose territory was appropriated by the Ainos. The only knowledge obtained of them has been ingeniously acquired by Mr. Morse by a careful study of "shell-heaps" in all respects similar to those found along the shores of Denmark, New England, and Florida. The deposit discovered by Mr. Morse near Tokio contained pottery and human bones, many of which were broken. It is generally admitted by ethnologists that a people that has once acquired the art of pottery will always retain it; but, as neither the Esquimaux, the Kamchadales, nor the Ainos are essentially earthenpot-makers, these remains naturally point to the former existence of a race in Japan who preceded the Ainos. Again, both the human and deer bones found in this shell-heap were broken in a manner to facilitate the extraction of the marrow or to enable them to be placed in a cooking-pot, — a circumstance which points to the existence of cannibalism among the people by whom the shell-heaps were made. On consulting Japanese scholars and archæologists, Mr. Morse learned that the Ainos were not only not cannibals, but were of an especially gentle disposition. The existence of an ancient race of cannibals in Japan, before the occupation of that country by the Ainos, is therefore made very probable.

A FOUR THOUSAND MILE DRUNK.

Mr. John Wrop, Cleveland, has just recovered from a 4,000-mile drunk. He went to London, England, some months ago to visit a son, got very drunk at a wine-party and vanished. When next heard of it was at the depot in Cleveland, where he was found under the influence of liquor, and armed with two big bottles of whiskey. They took him to the hospital, where after some days delirium he recovered his senses, abused his English friends for deserting him in a strange place, and asked for paper to write home to Cleveland for money with which to return to America. 'My God! have I crossed the Atlantic ocean drunk!' he exclaimed, when at last they convinced him that he was in Ohio, not in England.

—In 1870 there were in the United States 18,992,561 acres under wheat, in 1877 the area had increased to 26,198,406 acres.

—Ohio owns $100,000,000 worth of live stock, according to the State Auditor's report.

☞ The disagreement of sects seems only the surface of Christendom. The harmony and union are wide and deep below.

☞ Pride requires very costly food—its keeper's happiness.

Joker's Corner.

A FUTURE RAILROAD MAN.

A few nights since, when the Kansas Pacific train was making lightning time across the plains in the direction of Denver, the emigrant car was occupied by a solitary woman and three little tow-headed children. In occasionally passing through, the conductor had observed that the passenger was apparently very uneasy, and frequently inquired how long it would be before they reached their destination, but he gave the matter little attention, naturally supposed it was merely the outgrowth of female impatience. What was his surprise, when, on going back a few hours afterward, to have his ears assailed with the loud cries of a newborn infant, and to see the mother evidently equal to the situation, and giving to this addition to her family the attention which the circumstances required.

'Why, great heavens!' exclaimed the conductor, 'what's the matter here?'

'Nothing at all — the matter's all over,' replied the woman, a wintry smile playing around her lips.

'You don't mean to tell me that child has just been born?'

'Well, no; not exactly. It's something like an hour old,' and the happy mother dexterously invested it in a bit of ragged calico, which she had been smoothing out for the purpose.

'But don't you need some help—some attention—the presence of some female?' stammered the bewildered official. 'I never heard of anything like this before.'

'Oh, no; it's all right now. I'm getting along splendidly.'

The conductor beat a hasty retreat, and, having fished up an old woman in some part of the train, sent her in to attend to his self-reliant passenger. An hour or two afterward he gave her another call, and found the lady serene and happy.

'How's that youngster getting along?' he asked.

'First-rate,' replied the smiling mother. 'I say, conductor, this is rather a fast boy, ain't he?'

'I should say he was—he came into the world at the rate of fifty miles an hour.'

'I'm going to make a railroad man of him.'

'It's a good idea.'

The conductor looked a little embarrassed for a moment, and then felt nervously in his pocket and produced a $10 bill.

'Madam, just take that and buy this boy an outfit, and, when he gets big enough, dispatch him by express to my train. I'll make a railroad man of him if there is anything in birth,' and, with his politest bow, the conductor took his leave. In a few minutes the train reached its destination, and the woman with her baby, disappeared in the throbbing and bustle of the city.—*Denver (Col.) News.*

POOR BUT RESPECTABLE.

This is the way it is played:—A man past the prime of life, poorly dressed, and having a mournful quiver in his voice, takes two old oyster cans, partly fills them with sand, does them up in a neat shape, and selecting a house he calls the lady to the door and says:—

'Madame, I'm old and poor, but not a thief. I found these oyster cans on the street, and won't you be good enough to keep them till the owner calls?'

'Why the owner may never call,' replies the lady.

'That's so; but I'm not able to buy milk and crackers even if I had oysters; you'd better keep them a while anyhow. If no one comes the cans are yours.'

Sometimes the old man makes a quarter, and sometimes only a bite to eat. The owner does not arrive, and the family prepare for fried oysters for supper. When the paper is torn off some folks laugh and some don't. Some say they'll hunt over every rod of ground in the United States, but that they'll find the old man and make him eat the last grain of sand, and the can to boot.—*Detroit Free Press.*

A party met at a public table when the conversation turned on the subject of transmigration. Mr. K., was a firm believer in the doctrine, and was expatiating largely upon its points when he was interrupted by a gentleman who was present with,

'K., what do you suppose yourself to have been before you were K?'

'I do not know,' replied K., 'I might have been a pig for aught I know.'

'Well,' rejoined his friend, 'you have not altered much—only got upon your hind legs.'

TOO HEAVY FOR HIM.

This comes from Waterford, London County, Virginia:

A colored meeting was lately held in this place, at which the attendance was large and the converts numerous. The stove pipe happening to fall, the minister asked one of the brethren to put it in position again. Brother Johnson essayed to do it, but being rather slow, the minister said:

'Pick it up, brudder, pick it up; de Lord wont' let it burn you.'

Brother Johnson, with faith in the assurance, seized the hot pipe, and of course had his hands blistered. He dropped it with the inappropriate remark:

'*De debbil he won't!*'

It was just a little heavy for him.

The father of a St. Louis bride presented his son-in-law with 80,000 head of cattle. 'Papa, dear,' exclaimed his daughter when she heard it, 'that was so kind of you; Charley's awfully fond of ox-tail soup.'

A man never feels so happy as when some one tells him he could be selected from the common herd in an instant. He even forgets that he could be selected by his red nose.

'These spank-aches are not so good as the buckwheat,' said a West Boy as he crawled off his mother's knee and rubbed himself where fell the maternal slipper.