

LETTER FROM OUR WASHINGTON HOUSE.

WASHINGTON, April 30, 1861,

MESSES. EDITORS:—The mail now runs daily, *via* Annapolis, to the North, so that inventors may freely communicate with the Patent Office Department. Governor Sprague's regiment, of 1,200 men, are now temporarily quartered in the Patent Office. The three Examiners' rooms, next adjoining the vestibule, are occupied as hospitals and surgeries, the examiners being distributed around among other rooms. The officers occupy Chief Clerk Shugert's spacious office, the small room between that and the Commissioner's apartment, and also the Messenger's room, on the other side of the Commissioner's. The Chief Clerk, for the time being, has moved into the room opposite the head of the eastern stairway.

The soldiers occupy the three great model halls, and have come to the conclusion that to "dream that they dwell in marble halls" is far more agreeable than the reality, especially when it involves sleeping on that cold and hard material, without so much as a plank intervening. However, they are now fixing up bunks between the model cases, which, though a great convenience to them, will be otherwise to us. In the central model hall they have moved all the cabinets over to one side, setting them so close together that we can scarcely get between them, and the south side of the hall will be occupied with dining tables. A number of the recording rooms in the basement have been cleared of their occupants, and are being filled with stores for the troops.

The Examiners, though they are at work, are so much taken up with the excitement of the period and the bustle about the office that they cannot give the usual attention to business. I called on the Commissioner to-day to ascertain authoritatively how long this state of things may be expected to last. He says he consented to accommodate the troops in the Office for a little while, but that it would not last long, and, in the meantime, they should carry on the business of the Office with as little obstruction as possible.

I told him that we found all the officials as accommodating as could be expected, with 1,200 soldiers in the way. In fact, the only inconvenience we find is in being often called to give the countersign before we are allowed to pass through places much more familiar to us than to those who guard them; and if we want to examine the model of a plow, the first operation is to get our protectors to move a couple of dozen muskets which are leaning against the door of the cabinet.

For a large part of the time yesterday and to-day wagons were backed up to the sidewalk in front of the Patent Office about as closely as they could stand, from Seventh-street to Ninth-street, and laborers were occupied all night in taking the army stores into the Office.

Among other conveniences brought from home by the Rhode Islanders are three washerwomen, two portable forges, several four-horse baggage wagons, a full supply of horses for these and for the officers, and provender for the animals.

The New York Seventh regiment are in the south wing of the Capitol, and the Twenty-fifth (Albany) are, I think, somewhere in the same building. The Twelfth are at the Assembly Rooms; the Seventy-first at the Navy Yard. The Massachusetts Sixth are in the north wing of the Capitol, and the Pennsylvanians in the great Inauguration Ball Room back of the City Hall. There are 1,300 troops of some kind in the Arsenal, and I do not know how many in the Treasury. District of Columbia militia occupy the Post Office. Nearly all the public buildings and halls are filled with soldiers, and they do no little damage in defacing the buildings. In the Capitol they drive nails into the beautiful frescoed walls, to hang up their accoutrements, and the Rhode Islanders in the Patent Office are smashing the glass in the model cases by wholesale. One of them accidentally fired a pistol ball through two of the cases this morning.

There is a great dearth of news here just now, and as preparations progress, every one seems to be taking breath for the inevitable conflict. We continue to hear of prospects of an attack from the South; but I doubt much whether they will venture on the offensive, in view of the energetic preparations of the government.

The Rhode Islanders elicit warm praise here, and the President has acceded to Governor Sprague's wish to send for another regiment. They are very fine looking men, and are, generally speaking, men of refinement and education. Your Seventh regiment make a more soldierly appearance; but the free, easy dress of the Rhode Island troops look so like work.

A fine national flag is to be raised on the main portico of the Patent Office to-morrow with some ceremony, and Governor Sprague is expected to speak.

I hope and trust that our sad and uncalled-for national troubles will be brought to a rapid and happy termination, and that we may, through the blessings of Providence, soon find ourselves with a stronger government and a higher state of national prosperity than we have ever before known. If this be the case, our branch of science and industry will certainly prosper with the rest.

The Mines of Freiberg in the Olden Times—The Divining Rod—Its Use and Users—The Labyrinth under the Town—An Adventure.

(Letter from Germany to the Scientific American.)

The mines of Freiberg rank among the oldest and richest of Europe. They are worked for the ores of silver, lead, copper, zinc, cobalt and nickel; but the silver ores are the only ones which are of special importance. Even these do not yield a sum which can hope to attract attention in these days, when California and Australia have accustomed men to reckon treasure with six figures. A million and a half yearly is a trifle which scarcely deserves mention, in journals recording the last arrivals from the land of gold.

But the Freiberg mines are interesting in other aspects. They have now been worked for nearly seven hundred years; and their history is almost identical with the history of the art of mining. In their numberless shafts and galleries one may trace the progress which has been made, from the days when a pit, a pickax, and a bucket constituted a mine—when a vein was worked only so long as its dimensions could be measured in front, to the present time, when steam and hydraulics leave but little for man to do, and when a vein is followed up with relentless perseverance as long as it has either length, breadth or thickness. Here may be seen the places where inventions, long since superseded by other inventions, were first applied—where such novelties as blasting and boring were first introduced—where multitudes of rough models were gradually shaped into the finished machines which now find application all over the world. The chronicles of the mining office are little more than a catalogue of experiments, successful and unsuccessful, evidences of the slow but certain progress which has been made. "Good miners," says an old writer on this subject, "are made from bad miners;" and the history of Freiberg bears witness to the truth of the maxim. When a mine is earning money, bad processes and poor management may be tolerated; but when it has not only ceased to pay, but begun to cost, investigation and ingenuity are aroused.

There is an old legend that the mines were first discovered by a wagoner who was transporting salt into Bohemia. His road led him over a barren and uninhabited waste, where the city of Freiberg now stands. As he was passing the place now occupied by the Rathhaus, one of his wheels ran against a rock and broke off a piece, which, because it was shiny and glittering, he picked up to take home to his children. By some mysterious means this piece of rock came into the hands of an experienced miner from the Hartz mountains, who soon discovered it to be a lead-silver ore, much richer than those which he was accustomed to deal with. An emigration of miners from the Hartz followed; and from this beginning the city and mines of Freiberg arose.

The strangest stories are told of the singular means which the ancient miners made use of to discover where the precious minerals lay. It is almost impossible for us to conceive of the peculiar notions which men must have possessed, who hunted for ores where vapors were seen to rise—where mysterious flames appeared on the surface of the earth, "whereby the metal doth clean itself from the sulphur with which it lies"—where horses were uneasy and dogs were observed to crouch; and whose principal reliance in finding a rich vein was placed in conjurers, who, with *wünschel ruhe* (divining rod) in their hands, pointed

out to the workmen where the ores lay. The fullest confidence was placed in their ability to discover the precious minerals, and their services were believed to contribute as much to the welfare of the mine as those of the workmen themselves. Whole books were written on the subject, giving minute details as to the constellations under which the future diviner must be born, the manner in which he must live, and the time, place and method in which he must procure and prepare his rod. There are decrees still extant, in which it ordained that experienced diviners shall be well cared for, and their valuable lives exposed to no needless dangers—such as detention in damp passages, &c. In the Aula of the Mining Academy here, there is a portrait of the Baron von Schonberg, a former "Oberberghauptmann," or Miner General, and in his hands there is a divining rod of the kind which, in his day, was considered the best pattern.

The way in which the *wünschel ruhe* was used is another evidence that spiritual rappings is not a modern invention. The rod was generally of some wood like our hazel, split for one-half of its length, and then opened into the form of a fork. This was held with the fork ends in the hands, and the unsplit parts in the air. The rod could not be relied on unless it was of just the right size—neither too long nor too short, too large nor too small, too stiff nor too flexible. It must have been of the right material and the right age, and cut at the right time, by the right man, at the right place, the right way. Unless these preliminaries had been properly attended to, the best of rods and the best of diviners were liable to err. The rod was not considered as perfectly ready for use until it had been baptized. This ceremony was generally performed by proxy, the rod being placed under the baptismal font, or in the bed of a baptized child. Afterward it was always addressed by the name which the child had received. The following example is given in "Gaetzschmann's Bergbaukunde":

"In the name of the Holy Trinity, I command thee, Augusta Carolina, to tell me, &c., &c., how far it is to ore."

Several other forms, which were used by the ancient diviners, are given in the work above mentioned; but the oaths by which the rod is adjured to tell the truth, are almost too strong to make pleasant reading.

Unlike the impudent tables of our day, these rods only turned when they were told to; and they always waited patiently until they had heard what was desired of them, before they made any motion of their own. Then, they either pointed in the direction in which the ore lay, or indicated by strokes against the diviner's breast, the number of *lachter* between him and the mineral sought. When the vein was particularly valuable, the rod manifested it by behaving in an unusually energetic manner. The strokes came quicker and stronger—the rod turned and twisted in the diviner's hands, quite regardless of his efforts to hold it steady—strange tremors and chills came over him—his body was bent and shaken, as if by spasms, and he felt a singular bitterness at the roots of his tongue. Such extreme symptoms, however, appeared but seldom, and betokened great deposits of rich ore. There were not wanting, even in that day, wise philosophers, who explained all this without bringing in the agency of the devil, as foolish people were inclined to do. In the first place, they agreed it was not likely that Satan would willingly disclose so much treasure; and, beside, his agency was not at all necessary, for the same phenomena might be produced by the vapors of the ore, which were continually rising, and which might be supposed to exert this kind of influence over men who stood where they could be affected.

By the help of magic, or notwithstanding it, the mines of Freiberg increased and flourished, greatly to the satisfaction of the Electors of Saxony, in whose dominions they lay. In those days of wars and rumors of wars, the possession of a silver mine was of much more importance to a country than it is or could be now. For, while commerce and manufactures might be rendered unprofitable, and forced into idleness in a month, a silver mine was a constant and uninterrupted source of wealth as long as the war was kept away from the locality where it was worked. Not only were the Saxon princes made more independent in war, by the possession of Freiberg, but they were also enabled to collect the most beautiful and expensive cabinets of paintings and works of art in all Germany. The galleries and "green vaults" of

Dresden are lasting monuments of what mining and metallurgy have done for Saxony.

By the law, all precious minerals belonged to the king, and he alone had the power of granting privileges to work them. These ancient privileges were given in two ways. Either a man was allowed a certain space, within which he could dig down as far as he chose ("until the eternal depths,") or, he was granted a similar space on a hill-side, in which he could mine as far as he wished, in a horizontal direction. From such a vague system of mining-grants, all sorts of complications arose, as might have been expected. Places were known where three or four different mines had equally good titles of possession—the workmen on two different shafts found themselves face to face and working on the same ore—in short, the law grew to be so entangling that even the Saxon Circumlocution Office was glad to have it remodeled and simplified.

At first, the number of these shafts was almost infinite. Farmers sank shafts where their beams ought to have been; those who had commenced to dig cellars concluded to change them into mines, and as long as the *wünschel rute* flourished, there was always some hope of finding ore. The face of the country somewhat resembles that of our American "rolling prairie." The land lies in waves, and the crests of these build long lines of hills of nearly equal level. These ridges probably seemed to the early miners the marks of huge veins, and whenever ore was found on any one of them, straightway fifty other shafts were sunk on the same line. Long rows of little mounds still remain to mark the sites and tell the story of these early adventures. Many of these old passages are used at the present time; others have long since been walled up and forgotten. It sometimes happens that a workman, engaged in extending or widening a gallery, finds, when he returns to look at the effects of his blasting, that he has broken into some old passage which, perhaps, his ancestors two or three generations before had opened and deserted. In laying the foundations for houses, and in making excavations for railway bridges, it has several times been necessary to sink an exploring shaft before commencing with the masonry. Several of the miners have branches running under the city, and there are many stories current among the people as to the uses which these have been applied to in the days of yore. It is said, also, that when the Swedes besieged the city, in the seventeenth century, a constant communication was maintained between the garrison and their friends outside, by means of these passages, notwithstanding all precautions, and to the great mortification of the enemy. At this time, indeed, the miners proved of the greatest service to the city. The Swedes were harassed from all sides, and they found it almost impossible to get a chance of retaliation. To attempt to catch an old miner, when he is once inside of his shaft and going down his ladder, is about the same thing as attempting to catch a prairie dog on the plains. Follow him down the hole where you saw him last, and he barks at you from a neighboring one. Without experience, however, it is almost impossible to find one's way in such a net work of galleries and shafts as we have here. A friend, who had been making a survey in one of the more frequented parts of the Himmelfahrt mine, dismissed his attendants, at the completion of his work, and attempted to make his own way out. He wandered for several hours through the long passage ways, with the moisture dripping down upon him from above, and the boards yielding beneath his feet, without coming to any place which he recognized. Finally the oil in his lamp became exhausted, and his light went out and left him in the dark. He dared not move forward—it was of no use to move backward—there was nothing left for him but to remain where he was and hope that somebody would come to him. At last he caught a glimpse of a light in the further end of the gallery where he was. He hastened toward it and found that it was borne by a workman who had been sent to make some repairs in this part of the mine, which was much out of order and no longer in use. My friend had wandered out of the Himmelfahrt into the Red mine, and had been walking through passages which were considered unsafe and seldom visited.

J. H. B.

The best oil for guns is coal oil or petroleum.

General Scott's Mode of Life.

A Washington correspondent gives the following sketch of General Scott's mode of life and his untiring industry and vigilance:

General Scott has left his house, and taken up day and night quarters at his office. He is feeble in body, but very clear, comprehensive and active in mind. Visiting him at near midnight, he was sitting up in a plain, hard bed, in a very plain room, with but two candles on a center table near, and two of his aids near him in waiting. Dispatches arrive almost every hour, night and day, borne by videttes from every quarter of the district, and by officers beyond the lines. He demands the fullest information from everybody, and, before the New York troops arrived, declared that he was prepared for an attack from 10,000 men by Virginia or Maryland, if they invaded the capital. His great anxiety, grief and doubt have been the disaffected citizens in the District of Columbia, scores of whom have left, but many of whom, even now, remain; but all are known and watched with a lynx-eyed vigilance. Indeed, there has been an extensive secession feeling here, and there are troops of the personal friends of Jefferson Davis and A. H. Stephens, who, as Southern men, have been much respected. No secession flag, however, floats here; and from the heights of Georgetown to the Capitol, nothing is seen but the Stars and Stripes, with loyalty increasing every hour.

Trade Marks and Designs.

There is a very comprehensive bill now before the British Parliament, having for its object the better protection of new designs and the "trade marks" of manufacturers. The forging or imitating of a "trade mark," or any fraudulent addition or alteration of one, is constituted a misdemeanor. A "trade mark" is defined to be "any name, word, letter, mark, device, figure, sign, seal, stamp, label." Marking with a false indication of quantity (such as a piece marked 30 $\frac{1}{2}$ yards when it only measures 30 $\frac{1}{4}$), quality, or selling, with intent to defraud or imitating the names and marks of artists, are included in this bill.

Deputations from the Chambers of Commerce of London, Birmingham and Sheffield have waited upon the Lord Chancellor, and solicited amendments to the bill, substantially as follows:—A registration office for trade marks, and that the evidence of the Register be *prima facie* in relation to a disputed trade mark in court. Without a registration of trade marks, it would often be necessary to call a large number of witnesses. A complete distinction made between the marks on silver and electro-plated goods. The protection of the trade marks of foreigners on the same footing as foreign copyrights—that is, dependent on the same protection being extended to Englishmen.

IMPORTANT SUGGESTIONS TO ARMY SURGEONS.—In the course of a battle, the gunners, and in fact all engaged, are subjected to injuries of the ear, by the heavy and long sustained discharge of powerful artillery. Numerous cases of ruptured membrane, with more or less permanent deafness, will be found among the returning soldiers. In the artillery, the effect of position with reference to the gun is peculiar. Those men who stand nearest the muzzle *feel* the report most, but all who are to the leeward suffer more than those to the windward. Let the medical staff of each regiment keep prepared a quantity of glycerine, mixed with belladonna, say about in the proportion of forty grains of the latter to the ounce of glycerine oil. Let each gunner be provided, before an engagement, with wool or cotton (the former is preferable), saturated with the mixture, to place in his ears. It will not prevent his hearing the word of command or the drum, and will prevent a great deal of injury. The therapeutic of the preventive, medical men will perceive, as it forms a coating over the membrane, which can be easily cleansed by a little warm water, and will effectually prevent the vibration of the air striking injuriously upon it. It would also be useful to those exposed to dampness when camping out at night, the organ in question being extremely sensitive to the night air. By taking this precaution, that deafness to which gunners are now so liable, may be prevented.

FORT MONROE.—An officer from Fort Monroe says that there are now 1,300 men in the fort, that the guns are in good order, and everything is as desirable as it should be in order successfully to withstand six months' siege. The Navy Department has intelligence that the secession authorities at Norfolk have mounted several of the heavy guns dismounted by the United States. When the federal forces were about to leave, they spiked the guns and endeavored to break off the trunnions, but could not succeed.

THE CAPITAL SAFE.—The defense of Washington is amply provided for; a force of 24,300 men is now located in the capital and its vicinity, all within three hours march of the city. But a still further reinforcement is contemplated, and it is decided that within a few days there shall be an army of 40,000 men in and around Washington, to secure the control of the Potomac and the Chesapeake. At the same time a force of from 10,000 to 15,000 men will be concentrated at Cairo and the same number at St. Louis, to protect the Mississippi river, and repel any attacks which may be made upon exposed points in Southern Illinois, and suppress secession movements in Missouri and Arkansas. It is rumored that a force of 20,000 troops is to be shipped on transports, under the convoy of men-of-war, at the earliest possible moment, to harass the secession forces in the Gulf States, and exhaust their energies by compelling them to move from point to point, and thus prevent their advance to the North. It is designed also to further reinforce Fort Pickens from this fleet.

THE BLOCKADE OF SOUTHERN PORTS.—Most active preparations are being made for the further blockading of Southern ports. The entire fleet will consist of at least fifty war vessels of various descriptions, accompanied by sufficient steam transports for the accommodation of a land force of at least 20,000 strong. Thus it will prove sufficient to make an efficient blockade of every inlet on the Southern coast, into which any vessel drawing six feet water might otherwise enter. After this blockade is effectually completed, we do not see how the South can ship their cotton or supply themselves with the necessities of life, unless *via* some Northern city by inland transportation.

WORKMEN'S COURTS OF CONCILIATION.—A bill has been introduced into the British Parliament for establishing Councils of Conciliation to settle differences between employers and their workmen. It provides for councils which shall consist of an equal number of employers and the workmen, but the chairman of a council must neither be an employer nor operative mechanic. All trade disputes are to be brought before such councils who are to decide them; but they are not authorized to establish a rate of wages, or prices which shall be paid for work. In France, there are courts called *prud-hommes*, which are similar in their nature to the proposed Councils of Conciliation, but trades unions are not allowed in the empire.

SOME FACTS IN REGARD TO POPULATION.—By the census of 1860, the free population of all the slave States is 8,434,126. That of the three largest of the free States is:—New York, 3,851,563; Pennsylvania, 2,311,786; Ohio, 2,377,917. Total—8,541,266. If we deduct from the aggregate of the slave States the free population of Delaware, Maryland, Kentucky and Missouri, it leaves to the secessionists a total population of 5,671,723. The total population of the nineteen free States is 18,950,759.

THE PROPORTIONS OF THE AMERICAN FLAG.—The American flag properly should consist of thirteen stripes—seven red and six white—one for each of the original States. The flag should be one-half longer than wide, no matter what should be its size. The blue or Union should cover seven stripes—starting with and ending with a red stripe—should be one-third longer than wide, and contain one star for each State in the Union (thirty-four).

MAJOR ANDERSON said of the men he had with him in Fort Sumter:—"Until a man is half starved, half smothered, half poisoned, and on the voyage to eternity in this state, he never can know what men I had, or understand the measure of the valor that made surer the last thought with them."

JEFFERSON DAVIS WILL COMMAND THE SOUTHERN ARMY.—The Charleston *Courier* says: "We learn from the most reliable source that President Davis will take command in person as General-in-Chief of the forces gathering in Virginia."

THE VALUE OF COPPER.—The value of the copper and copper ore shipped from the Lake Superior regions last year was \$2,944,000; the value of the iron ore and pig iron shipped was \$488,550.