

surface and using them for printing. One of the earliest of the engravings bears date of 1423, and is of folio size. It is preserved at a convent at Buxheim, near Memmingen.

From these early beginnings it was but a short step to movable types. Copper was early used for this work. A German copperplate print is in existence which bears date of 1461, and it is likely this was the oldest specimen. Vasari, however, gives the credit for first using copper for engraving to Finiguere, a native of Florence, who was a goldsmith and engraved figures for churches. This form of engraving was early brought to a high state of perfection by the great artists.

Aqua tinta engraving is much admired today because of its similarity to water color or India ink drawing. It is of French origin, and dates from 1662. Mezzotinto or half-painted style was introduced into England by Prince Rupert, who may have invented it, but who probably learned it from an officer named Ludwig von Slegan.

Steel-engraving may be regarded as an American process. Invented by Mr. Jacob Perkins, of Newburyport, Mass., in 1805; though the metal had previously been used in England for this purpose. Mr. Perkins' invention was in the line of bank note printing, and was pursued with a view of preventing the imitation of bank notes. His invention was approved by the state of Massachusetts in 1808, when it was decreed by law that all banks should use Mr. Perkins's plates in the printing of their bank notes. For over a hundred years previous to this time, England had been trying to perfect bank notes, and in 1818 offered such inducements that Mr. Perkins went to London with the intention of entering competition for furnishing a design for Bank of England notes. The superiority of his plates was at once perceived but not as readily acknowledged, and he failed to secure the work. Later he furnished the Bank of Ireland with plates, voluntarily agreeing that if the plates were forged he would furnish a new design free of cost. In 1857 there were half a dozen principal firms making a business of bank note printing, and each of these had many branch establishments. In 1858, however, they were all combined into the American Bank Note company.

Printing from plates made directly from daguerreotypes was developed to a great extent by George Mathiot, of the United States Coast Survey, between the years 1850 and 1858. He did not claim to be the inventor, but did more than any other person to develop it. The subject is treated in detail in "The Report of the U. S. Coast Survey for 1854." This was practically the origin of the photo-engraving of today, and really the first successful usage of preparing plates to print from direct from photographs. It was used for printing maps of the work of the coast survey, and was successfully done.—The Advertising World.

DON MUSSER IN MANILA.

Manila, Sept. 1.—We are at Manila at last. Our stomachs are full, and hearts are full; 'tis our pockets alone that are empty. It has been said that all journeys end in welcome to the weary, and in the case of the Utah artillery recruits, this has been verified to the fullest.

The voyage from America to this fallen and out of the way place, was for us all one series of outrages commencing before we broke camp in San Francisco and letting up only upon our uniting with the main batteries at this place. We are sick and tired of kicking and finding fault, but after our

past experience we would not be able to enjoy life as we should, did we not make one more objection. We sang doxologies and hymns, had divine service on Sundays, talked of home and mother and listened to the strains of the Star Spangled Banner every evening at retreat. Still from America's Golden Gate to Manila, blazes a blue path of blood curdling profanity, a monument to the mulish ignorance and unpardonable brutality of those in charge. The only break in this 8,000 mile chain of hair-splitting curses, was at Honolulu where Uncle's soldiers were treated as men who could feel and love and appreciate, by people from whom they had no reason to expect so much. It was at Honolulu that for a brief time the patriotism and love of principle that inspired husbands and sweethearts to sign away their liberties and place their very lives on the altar of their country until the insolent foe had been punished, rekindled and gave forth a generous blaze until men forgot the indignities heaped upon them by officers whose swords and stripes were as gold hinges on barn doors.

Of course, some of the commissioned officers on the Rio de Janeiro were happy exceptions to the rule, and they have the full gratitude of us all for doing what was in their power to make our extremely tiresome and monotonous passage as pleasant as possible. But unfortunately for the enlisted men the rank of such officers was lower than that of Colonel Frost of South Dakota, who was directly responsible for more misery than was ever before contained on a United States transport.

To many of us the subject of America, fast fading in the distance was a sad enough experience, for it was unreasonable to expect that all would return. It was felt that for some of us that was the last sight we would ever have of a land above all others dear; the birth place and cradle of sweet liberty, and we watched it sink below the horizon with strange feelings and an empty stomach. In a word we were sad. But when it was afterwards discovered that we were doomed to live on half rations, and even less, and that nothing but the coarsest, vilest and most poorly cooked food was to be given us, we felt that we were being outraged. And as the days rolled on and the fare got worse, the beef became putrid and the potatoes rotten and owing to a lack of facilities for cooking the bread was half dough; and when we fully realized that all the fresh water allowed us had to be drank from two, and at times one tin cup, and that most of the time that water was hot just from the condenser, our patriotism began to cool off. And when the fourteen wash basins that were furnished a thousand men to wash in, rusted away till but three and then two remained, when we fully awakened to the utterly senseless proposition of making closets for fourteen answer the needs of a thousand men, and of placing closets and kitchen within the hand-shaking distance of each other, of reserving more space for fifty officers than for a thousand soldiers, and then when Lieutenant Foster, a South Dakota lunatic asylum keeper, took from us our American right to kick, and threatened those who offered any complaint with a term in the guard-house. I for one, and there were others, wished those in charge in hell ten thousand fathoms deep.

The picture cannot be overdrawn. Men, volunteers in the hour of their country's need, treated as were animals until they become such, ready to

eagerly eat the leavings from the mess of the Chinese crew. Half decayed vegetables in the swill from the officer's kitchen were ravenously seized and eaten by half starved soldiers who stood about the officers kitchen in swarms; and it is naught but unexaggerated truth to say that from the time we were feasted on Honolulu charity until our arrival in Manila three weeks later, four-fifths of the enlisted men were hungry and utterly unable to get half the amount of food their systems required. At no time did we get more than half rations, and as a general thing they were so poorly cooked, so coarse and untempting in quality as to be uneatable.

Yes, they who had money could buy food on board ship, but fancy paying a Chinaman twenty-five cents to steal a five-cent pie for you. Many did this, but many more went without. Some did their own stealing and I am sorry to say from the Red Cross society's supplies. Had they been apprehended they would have been made examples of, for notwithstanding the hungry condition of the enlisted animals, the Red Cross stuff was sacred to most of them, and they were as anxious to protect the dear old Red Cross as any one could be.

But we are at Manila now, and the long sea journey is at an end. We have joined the boys that preceded us, and are commanded by the officers of our own State. We are with friends. We see familiar faces all around us, and we listen in rapt attention to familiar voices as they relate the story of Manila's fall. Our only regret now is that we came too late to take part in that work wherein the Utah boys so bravely distinguished themselves. It was a glorious victory for all, but for Utah it was immense.

"Halt! who goes there?"

"A Utah artilleryman."

"Pass on, Utah is all right."

Sentries are everywhere here and no pass-word is so effective as the simple statement that you belong to the Utah battery, and though we recruits were unable to take part in winning this fame for our loved State, it is nevertheless gratifying to know the fame has been won, and to be able to enjoy its fruits. The boys are all well with one or two exceptions. The sick and wounded, I am told, of the American army in the Philippines, does not exceed two per cent. This of course is most remarkable, all things considered. Poor Chris. Wagner of the newly arrived recruits is down with rheumatism and has been, thanks to the wooden doctors on the Rio de Janeiro, ever since leaving San Francisco. He is now in the hospital and it is understood he will be sent home the first opportunity. Among our Utah boys there has been some slight cases of dysentery and fever, but none have thus far proven fatal, nor are they apt to.

Before sailing for Paris, General Greene sent the following self-explanatory letter, to be read before the Utah light artillery:

Headquarters, 2-Brigade, 2-Division, 8-Corps. Calle Gral de Salono 16, Aug. 2, 1898.—In compliance with orders from the war department, the undersigned hereby relinquishes command of this brigade.

In taking leave of the troops who manned the trenches in front of the Spanish defenses, and who led the advance into Manila, the undersigned desires to thank them for the hearty and uncomplaining response which they made to every demand upon them, and to express his appreciation of the high soldierly qualities which they have displayed during the siege, in the attack, and in maintaining order in Manila since the occupation. The difficulties.