Let Us Speak of a Man as We Find Him.

Let us speak of a man as we find him,
  And censure alone what we see,
And if a man blame, let's remind him,
  That from faults there are none of us free;
If the veil from the heart could be torn,
  And the mind could be read on the brow,
There are many we'd pass by with scorn,
  Who we're loading with high honors now.

CHORUS.

Let us speak of a man as we find him,
  And censure alone what we see,
And if a man blame, let's remind him,
  That from faults there are none of us free.

FULL CHORUS.

Let us speak of a man, let us speak of a man,
Let us speak of a man as we find him.

Let us speak of a man as we find him,
  And heed not what others may say,
If he's frail, then a kind word may bind him,
  When coldness would turn him away,
For the heart must be barren indeed,
  Where no bud of repentance doth bloom,
Then pause ere you cause it to bleed,
  When a smile or frown hangs it down.

CHORUS.

Let us speak of a man as we find him,
  And censure alone what we see,
And if a man blame, let's remind him,
  That from faults there are none of us free.

FULL CHORUS.

Let us speak of a man, let us speak of a man,
Let us speak of a man as we find him.

Electro-Plating at Home.

Many families among the middling classes of our countrymen are fully capable of appreciating the convenience and cleanliness of a silver fork or spoon; but the costliness of the article keeps it beyond their reach. The plated goods wear out and become exceedingly shabby in a few years; and the "substitutes for silver," although cheap, are objectionable on several grounds. They look, especially the superior kinds of them, that is called argentine, for instance, wonderfully well when cleaned up; but the impurity, or rather oxidability of the metals of which they are composed, renders them liable to the influence of the atmosphere, so that they soon tarnish, and cover themselves with a thin pellicle of metallic oxide, which both destroys their beauty and renders them unwholesome, if used without great precaution. They form, nevertheless, most excellent bases for plating upon; and it is our object in this paper to give such plain directions as will enable any one of the smallest intelligence to convert them, to all practical intents and purposes, into silver, at a very moderate cost, and with very little trouble.

Hitherto, the class of persons for whose special benefit we write, have looked upon the process of electro-plating and gilding as one of those subjects with which, except as a matter of admiring wonder, they had nothing whatever to do. It has been a mystery, in their eyes, only belonging to the laboratory of the chemist of the capitalist. But, as we can explain, the operation is so simple that a child or a handy servant may be easily taught how to perform it as well as the most eminent chemist.

Although it is not absolutely necessary to the performance of the operation, we shall allow ourselves to offer a brief explanation of its principle, as an interesting piece of information to those who may desire it.

If you take a piece of zinc, and plunge it into a solution of salt in water or acid, it is decomposed; that is, a new substance is formed gradually by the union of the salt with the zinc; this is chloride of zinc, and in the act of its formation electricity is evolved. If we contrive to pass this electric current through a solution of gold or silver, in such a way as that the object to be plated or gilt should act as a conductor for it—or what is called the positive side—the metal held in solution in the form of a soluble salt will be re-metallized, and precipitated upon that object in such a way as to cover it over with a perfectly even coat of silver or gold. The thickness of this coat depends entirely on the will of the operator. It is altogether without a theoretical limit, as the precipitation will go on, if allowed to do so, until all the metal contained in the bath is exhausted. This is the principle of the art; and we shall now proceed to show its application in the easy and economical mode at which we have ourselves arrived after much experience.

The processes which we recommend are different, according as they are applied to silver or to gold. We shall confine ourselves here to the silver, as by far the most important for domestic purposes.

There are few houses in which bits of old silver may not be found in some shape or other. When such can be had, it may be worth while converting them into the salt required. The process consists in dissolving the silver, first broken as small as can be done, in concentrated nitric acid. This should be done with precaution, as the fumes which arise are highly injurious. It is well to do it in the open air, and, by all means, in a glass vessel—a common water-glass, for instance—and to keep to the windy side. The acid should be strong, otherwise it may be necessary to boil it—a highly objectionable proceeding on sanitary grounds.

As soon as the silver is all dissolved, a strong solution of common salt must be poured into the vessel which contains it. There is no danger of putting in too much of this, and the best plan is to fill up the vessel with it at once. A white powder will immediately be formed, and fall to the bottom, when the liquor should be poured off into another vessel—say, a common decanter—and more salt and water added to it, for the purpose of ascertaining whether it has lost all its silver. If a second precipitation takes place, the liquid must be poured off as before, and thrown away. The white powder is then washed, by pouring fresh water on it five or six times, letting it settle each time after being agitated for a few seconds.

This white powder is the chloride of silver, which is a metallic salt, soluble in certain alkaline solutions. Supposing that two ounces of silver have been used, we shall require thirty-six ounces of yellow prussiate of potash, which should be in readiness, dissolved in four quarts of soft water. To this the powder of silver should be added without delay, as it suffers from light, and the whole gently boiled over a clear fire for about twenty minutes or half an hour.

The boiling may be done with perfect success and convenience, as well as safety, in any clean tin vessel, or copper newly tinned, which is large enough to hold the quantity; but as the liquid is poisonous, the greatest care must be taken that the vessel is thoroughly washed and scoured afterwards, and we recommend to finish that process by boiling in it a solution of soda.

When the boiling is completed, the liquid will present a muddy appearance; and it will be better to pour the boiled liquid into one or more jugs, or other vessels, and after letting it settle a few hours, to pour the clear liquor into clean bottles for use. The liquid thus obtained is the silver solution, or bath, which may be used for plating.

We shall now endeavor to explain the mode of using, as well as forming, the electric current. In practice, this may be done in many ways; but we shall point out two only, each of which is to be recommended under certain conditions. If the operator has time to spare, and is in haste to get the plating done, the "simple pill" is the best. If he can only attend to the process at long intervals, a modification of what is called "Damell's pile" is to be recommended. The simple pile is made by taking a tube of glass—say the neck of a bottle—tying strongly a piece of wet bladder on one end, and adjusting to the other a bit of tin or zinc, which will give it a hold on the edge of the vessel in which the plating is performed. This tube is filled with salt and water, and the bladder-end is plunged into the silver solution, contained in a new tin vessel made expressly for this use, and of a tall form, so as to allow of the complete immersion of spoons, forks, &c.; or in any other of glass or delft ware which may be found convenient: a small delft foot-bath is very good in the case of large objects. When all is done so far, a strip of sheet zinc must be put into the salt and water in the tube; but it should not touch the bladder. A hole may be made in it at the proper distance, and a bit of wire thurst through to sustain it on the edges of the tube. Any one can cut the zinc with a pair of old scissors, and it should have an over-length of three or four inches. The objects to be plated must be suspended in the liquid-bath by bits of copper wire, very thin; and these must be connected with the zinc in the tube. A good plan is, to make a hole through the zinc, and pass a bit of strong brass or copper wire through it in such a way as to over-hang the bath. The wires suspending the objects may be hooked on to this, so that a metallic connection may be established between the objects and the zinc which is in the salt water tube.

This pile usually acts quickly, and the objects frequently become dead white in a few minutes; and if left so, will take on a rough coat of silver instead of a smooth one. It is necessary, therefore, to watch closely, and when the dead appearance comes on, to remove the object, and rub it up with polish powder, very fine, and a bit of cloth or chamois leather. This done, it must be placed again in the bath, and the process repeated until it is judged to be sufficiently plated. The exact quantity laid on can only be known by weighing the objects before and after plating, and continuing until the desired weight is obtained. We should say, that for large spoons and forks the weight of a dime each should be laid on: each ounce of silver employed contains ten such quantities. A much smaller quantity of silver than this will last a long time, and it may perhaps be more convenient to renew it afterwards than to go on to the extent we have mentioned; but, as a rule, it may be recommended to plate alabata or argentine in that proportion. The latter metal, which is wonderfully cheap considering its beauty, answers admirably for our purpose; and we should never think of using any other.

We shall now briefly describe our very inexpensive substitute for Damell's pile. We take a vessel—say a jampot which holds a quart—and nearly fill it with a saturated solution of sulphate of copper. In this liquid we plunge the tube, with salt and water and zinc, just as described above for the silver bath. We suspend on the other side of the jam-pot, and in the solution, a piece of copper the size of a common penny-piece, by a soft copper or brass wire about a foot long. The wire may be bent in such a way as to hitch on the edge of the vessel, and keep the penny suspended. To the other end of this wire we attach a piece of silver, the size of a dollar piece, and suspend it in the silver solution, but so that the copper wire may not be immersed. The proper way is to pierce holes in each, and pass the wire through close to the edges. The next thing is to suspend the objects by wires, as before, in the silver solution, and connect them with the zinc of the pile which is in the other vessel: they will then plate.

The difference between this pile and the other is, that the operation goes on much more slowly, and, consequently, with far greater convenience for those whose time is precious, as the apparatus may be left all night, or all day, without removing and polishing the objects. It is sufficient to do this morning and evening. The plating is generally of a better color and quality in this way, although, where convenience dictates its use, the first plan described answers all practical purposes. The piece of silver plunged in the bath, as we have just described, is electrically dissolved, and the bath retains its strength at the expense of the "anode," as it is termed; its waste is also some guide to the quantity laid on, it being understood that what one loses is gained by the other.

Brass and copper lend themselves so easily to silvering, that all that is necessary is to take care that they are clean and bright by being rubbed up with tripoli or some such material. But with respect to those imitations of silver of which we have spoken as the best to operate on, they do not, especially when new, take the plating so readily. It is indispensable, if they are new, to remove altogether the "shop" surface, and we effect this by fine emery paper, and we then wash the object in a solution of potash, and quickly plunge it in the bath. After the object has been about a minute in the bath, it should be taken out and well wiped with a linen or calico rag—an abundant supply of which is indispensable—and then replaced. When it is quite white—that is, when it is fully but lightly plated, it may be put to use for ten days or a fortnight. In that case, if the metallic adhesion is not perfect, it will show itself by the silver scaling off, and the loss will be quite infinitesimal. If it stands a fortnight's wear and daily rubbing, it may be considered safe, and plated up to any desired weight.

[From the N. Y. Tribune, Oct. 17.]

Iron—New Modes of Manufacture.

Metallurgists have of late had their attention directed to several new methods in the manufacture of iron and steel, recently produced in Europe. Among these, the inventions of Messrs. Duchatrus, Bessemer and Avril hold the first rank, both as respects their simplicity and cheapness of operating, as well as from the quality of the article stated to be produced. In these methods the laborious and expensive process of puddling appears to be entirely done away with, and steel of the first quality produced directly from cast iron. Mr. Duchatrus, who is an officer in the service of the Austrian Government, employs cast iron in the form of grains varying in size from a pea to a grain of sand—the smaller the better. These are fused with metallic oxides. One of the characteristic features of this method, is not only to have introduced the atomic system by fusion, but also to have done this in the preparation of the material. Before fusion, the cast iron is mixed as much as possible with the metallic oxides, and the application of heat only terminates what the preparation has commenced. Among other advantages which appear to be derived from this new method, is economy in material; for, from numerous experiments made by the French Government, the loss is stated to be only 4 to 5 per cent. upon the cast iron submitted to the atomic treatment, and as the metallic oxides will part with what they have taken, the loss will even be less. The theory of the operation is of easy explanation, based as it is upon well-known chemical facts. On surrounding the cast iron with oxygenated bodies, and applying heat, the grains part with their carbon, and this element combines with the oxygen of the metallic oxides, and is liberated under the form of carbonic acid and carbonic oxide.

Another very important advantage attributed to this invention, is that Mr. Duchatrus is enabled to regulate his proportion of oxygen in such a manner that, by adding a certain quantity of forged iron, he can produce ten different kinds of steel. If this is so, it is a most essential point; for, to be able to undertake the manufacture of steel with a certainty as to the quality to be produced, would be of vast importance. All persons familiar with the business know that little dependence can in this respect, be placed upon the usual methods. Mr. Duchatrus's manner of tempering is the same as that employed in making English cast steel. It is said that the expense of producing 1,000 kilogrammes (about 2,187 lbs.) will not exceed $92, whereas to make that quantity of ordinary steel costs, in France, $200, and of the best quality $500. These prices would be materially diminished by establishing the works in the vicinity of coal mines, where a supply of fuel could be obtained cheaply. If the price of steel could thus be reduced it would undoubtedly replace iron in many cases; a great economy would also result from its employment in making pieces of artillery where cast steel would have the immense advantage of being lighter, less costly, and more solid than copper. Experiments are now being made at the arsenal of Vienna to determine this point. A Committee appointed by the French Government to examine the discovery of Mr. Duchatrus, report that the cast steel produced by his method is calculated to replace iron with great advantage in the manufacture of piston-rods, axle-trees and connecting rods; also that the process is simple, and can be employed without great outlay; and lastly, that cast steel of various degrees of hardness can be obtained by modifying the proportion of the materials first employed. These materials being cast iron, and other substances of no great cost, it follows that the cast steel produced by this method will cost less than any other. These are some of the advantages set forth as belonging to this invention; but until it has been tested thoroughly upon a large scale, it is impossible to assert anything concerning it with certainty.

Of Mr. Bessemer's process we have already published several accounts. He acts upon the supposition that crude iron contains about five per cent. of carbon, and that if this element at a white heat be brought in contact with oxygen, a combination must take place, and combustion be the result; and the rapidity of this combustion will be in exact proportion to the extent of surface exposed. He takes a cylindrical vessel of three feet diameter, and about five feet in height, lined with fire bricks; five tuyeres three-eighths of an inch diameter, the nozzles of which are formed of well-burned fire-clay, are inserted at about two inches from the bottom, and so adjusted as to admit of their being removed and replaced in a few minutes when worn out. A hole is made in the vessel, by which the metal is let in, and one on the opposite side, by which it is allowed to escape when finished. The capacity of this vessel should be such as not to hold less than one nor more than five tuns of fluid iron at each charge.

A blast cylinder capable of compressing air to about five pounds or ten pounds to the square inch is connected with the tuyeres. The converting vessel requires to be heated for the first operation by making a fire inside. After this is done and fire carefully raked out, no more fire will be necessary until a new brick lining is required. To prevent the fluid metal from entering the tuyere holes the blast should be turned on before it is allowed to run in. After this is done, the following results will take place within the converting vessel: the fluid metal will boil with great noise, being dashed against its sides, and flame will issue, accompanied by bright sparks; this will last for about twenty minutes, during which period an elevation of temperature has ensued from the combination of the oxygen of the air with the carbon of the iron; the sulphur of the iron also combines with the oxygen to form sulphurous acid gas, and is driven off in this state.—The operation is known to be terminated by the diminution of flame; the crude metal having been converted into pure malleable iron, free from cinder or other foreign matter. This result is attained with one-third the blast at present used in fining furnaces. Thus three to five tuns of crude iron pass in the space of thirty-five minutes into several piles of malleable iron. Among other advantages stated to result from this process are, that the manufacturer will be enabled to produce bars which by the ordinary plan he could not do, as he can employ larger masses; that the iron will be of the quality known as charcoal iron; and lastly, that various qualities of metal may be obtained by stopping the process at certain points of the operation.

In comparing this method with that of Mr. Duchatrus, it would seem that the facility of making various qualities of metal is more certain in Mr. Duchatrus's mode than in that of Mr. Bessemer; for the former would appear to be enabled, from the employment of metallic oxides, to regulate his supply of oxygen with more certainty than when common air is used. This invention is not, however, yet complete, as there are many points which experiment can alone determine—as whether air or a mixture of air and other gases is best; what length of time the process should continue, and the like. Among some objections made against it these appear to be the most important: The loss of heat in the passage of the cast iron into the converting vessel, and the rapid destruction of the lining of that vessel in consequence of the violent action of the metal upon its sides; as well as that the jets of air cannot penetrate the mass. All these points will no doubt be well tested in some experiments which Mr. Bessemer is preparing to make at Manchester in obedience to the request of a number of persons interested in the manufacture of iron; after which we shall expect to have a report upon the merit of this process considered in a practical point of view, when we shall be better able to form an opinion as to its real advantages. We hear that it is also to be tested in this country under the auspices of Mr. Peter Cooper and some others of the leading iron masters.

The third new method before the public is that of Mr. Avril, a Frenchman. This appears to have the advantage over the others of greater simplicity, as well as a remarkable saving of fuel.—Cast iron also serves as its point of departure.—The ore in the blast furnace will come out either malleable iron or steel, according to the desire of the operator. The means employed to effect this end are a modification of the crucibles at present in use; tuyeres of oxydation on the parabolic bottom of the crucible, and, lastly, what is entirely new in metallurgy, the employment of ozone. The blast furnace is here a definitive agent, whereas with Mr. Bessemer it is only preparatory; therefore Mr. Avril hopes to be enabled to deliver steel much below the price at which Mr. B. can produce it. In some experiments he has succeeded, and what now remains to be done is to test practically the value of his plan of constructing a blast furnace. By employing ozone he does not expose himself to any of the bad results that may follow from the introduction of nitrogen with oxygen, as is done by Mr. Bessemer, who employs atmospheric air.

As to which of these three methods will be found the best it is impossible to say at present, neither having been thoroughly tested. They are, however, a proof of the genius of the present epoch, which has accomplished so much for industry and science, and will, without doubt, in this, as in other cases, attain the desired end in spite of all obstacles.

Sketch of the Piedmontese Army in the Crimea.

BY ONE WHO WAS THERE.

During the period that elapsed from the fall of the southern side of Sebastopol to the spring of the present year (says a writer in Colburn's United Service Magazine) I happened to pass a considerable time on terms of close intimacy with our Allies, the Piedmontese, and so far profited by the opportunity as to be enabled to give some description of their most complete and admirably organized army.

I found, upon first making the acquaintance of the Piedmontese officers, that in each regiment, in spite of all the difficulties attendant on campaigning, there existed an excellent mess, at which all the officers, from the commandant of the battalion downwards, dined and breakfasted.

Anything more perfect than the gentlemanlike tone of the whole cannot be imagined. The most perfect freedom of intercourse existed between the superior and subaltern officers, but was never in any way taken advantage of by the juniors.

The fare was excellent, although the subscription to the mess only amounted to about £1 10s. a-month; while at our messes at the same time we got execrable dinners, and it generally cost us from £10 to £15 per month.