

SCIENCE AND MECHANICS.

THE ATMOSPHERIC CHURN.

This article, in reference to which the public are cautioned in the following remarks from the Ohio Cultivator, has been introduced into Canada. A great deal of humbug is a broad now-a-days, and we feel it a part of our duty to protect our readers from imposition. Although this Churn has been exhibited in Toronto, and extraordinary stories told in its behalf, yet we have not seen it tried, and shall therefore say nothing in its favour. We are determined to puff nothing of the kind, unless we have ocular demonstration of its merits. In the meantime, the following statements, from two respectable American papers, may induce the public to be a little on their guard:—

THE ATMOSPHERIC CHURN—CAUTION

As great efforts are being made at the present time to effect sales of these churns throughout Ohio and other States, we deem it our duty to advise our readers not to be too hasty in purchasing them, but to wait until they have had the test of further experience. We have been told that this churn is liable to one very serious objection; namely that the quantity of butter obtained by it from a given amount of milk or cream is considerably less than by ordinary churns. This may be a mistake; or possibly the deficiency was owing to the churning being done too rapidly; but still we think there is reason to apprehend that the objection is a real one.

Since writing the above we find a notice of the atmospheric churn in the Albany Cultivator, in which the following experiment is detailed:—

In the trial which we witnessed, butter was produced from cream in seven minutes, and from milk in nine.—Mr. Emery was present with one of Kendall's churns, and produced butter from cream in ten minutes. An equal quantity of cream was used by both churns—the Atmospheric produced one pound of butter, and Kendall's one pound seven and a half ounces. Such was the result on this trial—how it would be on other trials we cannot say; neither can we say positively, what was the occasion of so great a difference in the amount of butter produced by the two churns. The Atmospheric churn appears to operate on a correct principle—that of mingling the air with the cream; but we are not in favor of such rapid churning. Having formerly had some experience in making butter, we should prefer that the churning, for a quantity of ten to twenty pounds of butter or more, should be prolonged to thirty minutes, at least. According to our experience, the best butter is not produced by a very short nor a very long period in churning. If it is churned too quick the separation is not complete, and the butter, besides being less rich, is deficient in quantity; if the process is continued too long, the butter is likely to be oily. We think our best butter makers would decide that churning for ordinary quantities, should occupy from thirty to fifty minutes.

THE DAGUERRETYPE.

Of the many benefits which science has conferred upon the world, since the birth of the present generation, the discovery of Daguerre is by no means the least, though it is far from being the greatest. A correct likeness of the "human face divine" was a rare and difficult, as well as an expensive achievement. Few artists attained to perfection; and the success of those who did was always variable. A failure to hit off a single feature would often spoil the whole. And a bad likeness is as bad as no likeness at all. The only, or chief value of such a work of art, except as a mere fancy picture, is the pleasure which it imparts to the beholder, in the absence of the original. This pleasure will be proportioned to the closeness of the resemblance; and unless it come up to a certain point, it will rather excite displeasure.

Likenesses taken by the daguerreotype process, although deficient in several of those points that are often the subject of praise in a "good painting," have this great and almost peculiar merit, that they give us an exact shadow or copy of the original. If

taken with any care, it is impossible to be mistaken in the identity of the person who sat for the picture; and yet the word "exact" is hardly correct when applied to the resemblance of even a daguerreotype likeness to the living original. For illustration, we may recollect that the likeness of ourselves, which we see in the looking-glass, is not by any means perfect. Aside from any distortion produced by unevenness in the surface of the glass, there is this grand defect, that the features are all reversed. The hair, if worn brushed to the right, will appear on the left side: a mole, or scar on the right cheek, is transferred to the left; and so of other peculiarities. So that, if the shadow of our face could be fixed on the surface of a looking-glass, and remain as distinct after we had gone away as while we stood before it, the likeness would, even in that case, be imperfect. The same thing happens, to a considerable extent, in the daguerreotype process; but in some countenances, especially where the features are regular, the resemblance is so perfect that the eye does not detect any discrepancy. The next thing of importance is the lasting qualities of these pictures. If they should be found to grow indistinct, at the same time that the cherished object begins to fade from our memories (and what will not time efface?), their value as a memento must be regarded as trifling. Whether time will cause them to fade is a question that experience, at all events, has not yet decided. It is but a few years since the discovery was made. But, arguing from experience as far as it goes, and from the nature and principles of the process, especially with the improvements lately made in it, we are led to the conclusion that such likenesses will remain as clear and distinct, for a hundred years as for one year.

The picture of the external object is received on a thin silver plate. By the previous application of certain chemical substances, the surface of this plate is rendered highly sensitive to the influence of light. The person or object to be represented is placed before a small contrivance, which is merely a Camera Obscura, in which the plate is fixed at the proper focal distance from the lens; all light being excluded after the application of the chemicals till the likeness is ready to be taken. When the slide is removed which shuts the light from the plate, the rays from the objects immediately before the machine, fall upon the plate, and produce an impression. This impression is made by the chemical action of the rays (emanating from the object) upon the surface, and in the very substance of the silver. A chloridization of the minute particles, which have been previously rendered susceptible to the influence of light, takes place. This chrysalization varies in character and degree, according to the color of the object, and the intensity of the light. The consequence is, that changes corresponding with the appearance presented by the external objects are made on the surface of the plate, which are ingrained in the very metal. By a late improvement, a solution of gold is poured over the surface, after the picture is taken, which forms a thin, transparent covering, and protects the picture from the action of light or air, or anything else that would alter its appearance.

We have thus given the reader a general idea of the nature of this new process, by which he may either obtain a correct likeness of himself, or of a friend, in a cheap and durable form. The price varies from one to five dollars, according to the size of the picture and the quality of the case, &c.

We would recommend our friends, in this vicinity, who desire to see or obtain the best specimens of the art, to call at the rooms of Messrs. Carlton & Mace. Their pictures are as clear and life-like as any we have ever seen.

CARBON AND DIAMOND.—A Chemist calculates that all the carbon contained in the limestones of the earth, would make a Diamond large enough to crust the Globe five hundred feet thick.