

SCIENTIFIC AMERICAN

A WEEKLY JOURNAL OF PRACTICAL INFORMATION, ART, SCIENCE, MECHANICS, CHEMISTRY, AND MANUFACTURES.

Vol. XLII.—No. 4.
[NEW SERIES.]

NEW YORK, JULY 26, 1879.

[\$3.20 per Annum.
[POSTAGE PREPAID.]

THE ELECTRIC LIGHT IN PHOTOGRAPHY.

The idea of photographing by the electric light has long been entertained, but the light emanating from a single point renders the shadows too abrupt, and the contrasts too great, to admit of using it in making photographic portraits. Recently, however, the invention of our countryman, Mr. Vander Weyde, for some time in practical use in London, has been introduced in Paris by Mr. Liébert, which diffuses the light, renders it soft and mellow, and imparts to it the particular quality required in making photographic portraits. Not long since we alluded to the fact that it had become quite the fashion in Paris, for parties of ladies and gentlemen to resort to photographic studios, after dinner or before the opera, for the purpose of sitting for photographs, and we now present an engraving of the apparatus employed.

The light used for the purpose is that of the voltaic arc, the lamp being placed in the huge concave reflector suspended by a system of pulleys, levers, and counter-weights, so that it may be readily adjusted or moved about. The reflector is made of opaque porcelain, lined with paper stucco, which is tinted blue. The carbon pencils between which the voltaic arc is formed are placed almost at a right angle to each other. The light has normally a power equal to about 300 to 400 Carcel lamps, but it can be made more powerful by increasing the speed of the Gramme machine.

The light of the voltaic arc is twice reflected. A small reflector placed in front of the lamp throws the light upon the interior surface of the large reflector, whence it is thrown in any required direction according to the will of the operator. The carbons are adjusted by means of screws, so that the maximum effect of the current may be realized, and flickering and variations in the light avoided. The Gramme ma-

chine used in connection with this apparatus is driven by a five horse-power gas motor.

A photographer provided with this apparatus is not at the mercy of the weather, neither is he controlled by the time of day, as he has the absolute management of the light. This arrangement of the electric light might be used to advantage in illuminating public places, railway stations, theaters, etc., as the light is very powerful, and yet so diffused that it does not pain the eye.

We give in another column an interesting account of a suit brought by the patentee of this apparatus against infringers in Paris.

Distinguishing Butter from Lard, Beef Fats, etc.

Mr. William Gustavus Crook, public analyst for Norwich, England, describes a method which will in a few minutes distinguish butter from the fat of beef, mutton, or pork, or mixtures of them.

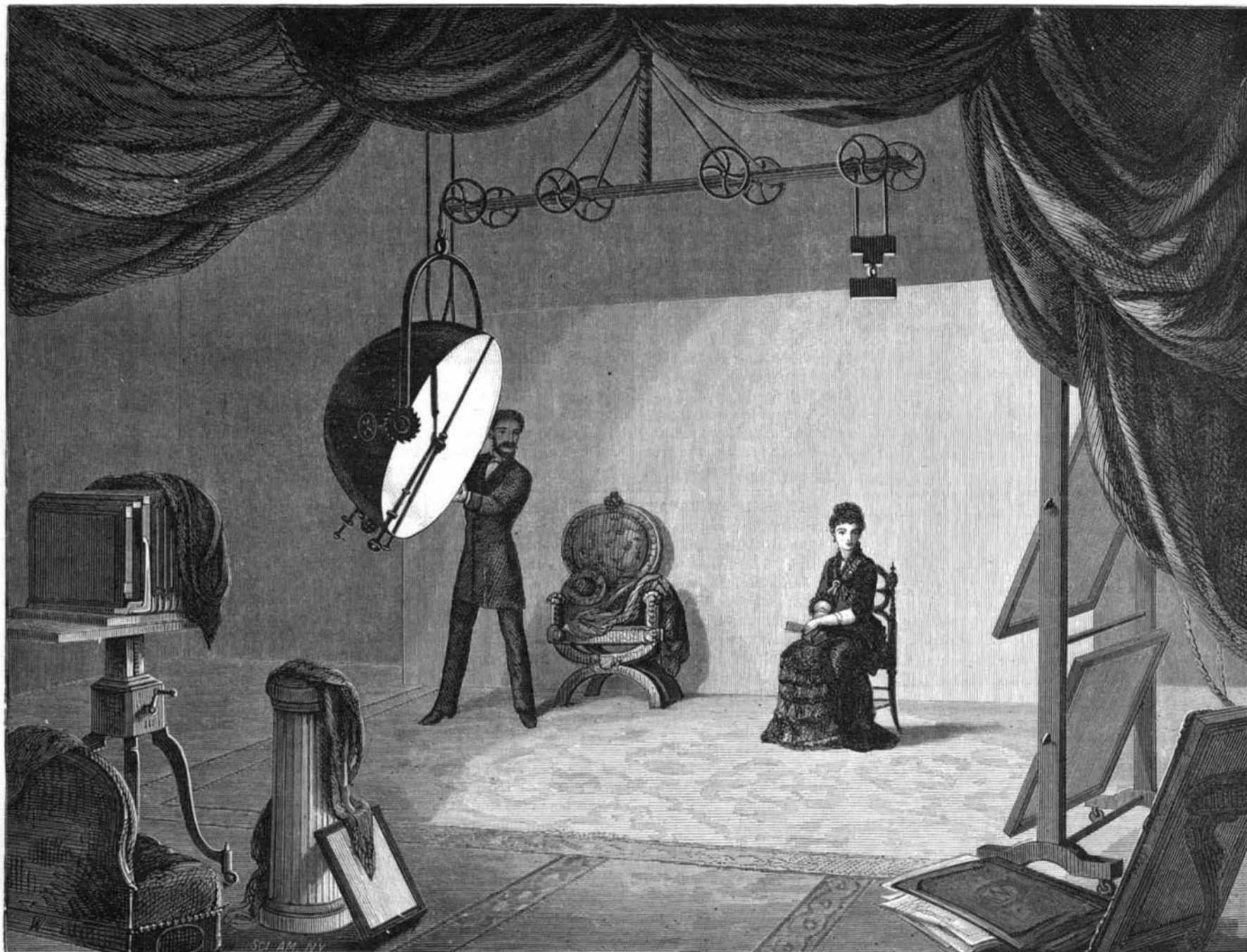
The sample to be examined (if in the form of butter) must be first melted and rendered pretty free from water and salt, by filtration if necessary; ten grains are then to be put into a test tube and liquefied by placing the tube in hot water at about 150° Fah.; remove the tube when ready, and add thirty minims of carbolic acid (Calvert's No. 2 acid, in crystals, one pound; distilled water, two fluid ounces). Shake the mixture, and again place it in the water bath until it is transparent. Set the tube aside for a time. If the sample thus treated be pure butter, a perfect solution will be the result; if beef, mutton, or pork fat, the mixture will resolve itself into two solutions of different densities, with a clear line of demarkation; the denser of the two solutions, if beef fat, will occupy about 49.7; lard, 49.6; mutton, 44 per cent

of the entire volume; when sufficiently cooled, more or less deposit will be observed in the uppermost solution. If olive oil be thus tested, the substratum will occupy about 50 per cent; with castor oil, there is no separation. With some solid fats (not likely to be used fraudulently) no separation whatever takes place; the addition of a minute portion of alkanet root will render the reading of the scale extremely distinct by artificial light. The author states that the above method (although not intended to surpass other processes) is capable of wide application, the saving of a large amount of time, and the reliability of its results will at once recommend it as a "first step" in butter analysis.

The Science of Life.

How few of us acquire this science until we are old enough for life to have lost half its charms! The science of life consists in knowing how to take care of your health, how to make use of people, how to make the most of yourself, and how to push your way in the world. These are the things which, the *Herald of Health* thinks, everybody ought to know and which very few people do know. How never to get sick, how to develop your health and strength to the utmost, how to make every man you meet your friend—all these and many other things are to be included in the science of living, and the pity is that we only appreciate it at its true value when the bloom of life is gone.

A BILL, reducing the rate of interest in the State of New York from seven to six per cent, passed the Legislature last winter, and has recently received the Governor's signature. The new act takes effect on the first day of January, 1880.



PHOTOGRAPHS BY ELECTRIC LIGHT.