SILVER IODIDE AS A BLOWPIPE REAGENT.

By P. Casamajor.

In the *Chemical News* of February 20th, 1885, is a paper by Messrs. Wheeler & Ludeking on reactions of various metals, obtained by heating their compounds with tincture of iodine. Coatings of various colors are deposited on the support, which in many cases are striking and characteristic. The support used by these investigators is a thin plate of plaster of Paris, on the white surface of which the colors of the deposits are brilliantly displayed. The compound to be examined is placed on this plate, near the edge; alcoholic tincture of iodine is poured over it, then the blowpipe flame touches it for a very short time, giving rise to the coatings, which deposit on the plate, beyond the point touched by the flame.

I have repeated the experiments of Messrs. Wheeler & Ludeking on lead, mercury, tin bismuth and molybdenum. The results were eminently satisfactory. As tincture of iodine may be found at any country apothecary's, it is interesting to know that it may be used to obtain characteristic reactions with the blowpipe, in case of need.

These experiments of Messrs. Wheeler & Ludeking suggested the idea of using silver iodide to obtain the same results. This reagent was found, on trial, to give the iodide coatings very beautifully and quickly. Silver iodide has the advantage over tincture of iodine that it is a dry powder, easily kept in bottles which need not close very perfectly.

The iodide coatings of mercury, bismuth and lead are familiar to all chemists who use a blowpipe. They are obtained by Von Kobel's mixture of equal parts of sulphur and of potassium iodide. Silver iodide has over this mixture the advantage that there is no sulphur to give deposits when operations are carried on in glass tubes, and no fumes of sulphur dioxide. It requires less time to obtain the coatings, and they have a more distinct appearance.

In experimenting with silver iodide mixed with various metallic compounds, I have deposited the iodide coatings in open glass tubes of about 4 inches in length and ¼ inch in diameter. The substance to be tested is mixed into a paste with the silver iodide. A small portion of this mixture is placed at one end of the open tube and the blowpipe flame is blown on it for a short time. The iodide coatings immediately appear and are seen through the glass. The glass tube may be held by a tongs or simply by a piece of paper, as the blowing is not sufficiently prolonged to heat the glass tube beyond what paper will stand.

A small quantity of powdered charcoal or lamp black, mixed with silver iodide and the substance to be tested, gives the characteristic coatings more quickly and distinctly.

The following metals have given iodide coatings in glass tubes :

Mercury.—In tubes, as on other supports, the yellow and red iodides are produced simultaneously, and streaks of bright red are seen on a yellow ground.

Bismuth.—Yellowish red near the end of the tube, and thick brown coating beyond.

Lead and Tin.—Both these metals give bright yellow deposits which retain their color when cold. These deposits cannot be distinguished one from the other, both being equally bright. In the case of tin a very strong smell of iodine is given off, which is possibly due to stannic iodide.

Arsenic.—Near the end of the tube to which the flame is applied, there is a yellow deposit ; beyond this a white coating of arsenious acid. The yellow portion turns white on cooling, but becomes yellow again when the tube is heated over a flame.

Antimony.—The orange red coating given by this metal becomes quite faint on cooling, but the color becomes bright again when the tube is heated.

Zinc.—The deposit is white both when cold and when hot. The fumes are not very abundant ; much less so than those due to lead or tin.

Iron makes a deposit which may be considered as characteristic, from the fact that the yellow coating in the tube is streaked with distinct dashes of brown. The yellow portion becomes white on cooling, but the brown streaks do not change.

Thallium.—A yellow coating is deposited, as with most metals. After this has taken place, if a reducing flame touches the deposit, this fades, leaving a gray tinge with an edge of purple. This seems to be characteristic of thallium.

Cæsium, Rubidum and Lithium have not given deposits which can be called characteristic. The deposit from cæsium differs from those of the other two metals in being less volatile. The cæsium deposit does not extend far beyond the heated end of the tube. By increasing the heat it melts, but does not move forward.

Chromium gives a white coating which remains at the hot end of the tube. The portion nearest to this end, by further heating, becomes of a pale, reddish brown.

Manganese.—Yellow hot, but white when cold, like deposits from many other metals.

Molybdenum.—Beyond the yellow coating, which turns white on cooling, are distinct blue streaks, which are very characteristic. I believe these were first observed by Messrs. Wheeler & Ludeking by treatment with tincture of iodine, on tablets of plaster of Paris. I was not able with these tablets to get anything but a narrow fringe of blue around the yellow coating (white, cold). With a glass tube, the blue streaks extend through the whole length of the tube.

Manganese and Uranium give deposits which are yellow when hot and white when cold. These are too common to be characteristic.

I have obtained deposits on charcoal and on thin sheets of iron, either on the metallic surface or on a coat of soot, by the use of silver iodide and metallic compounds. Some of these deposits are very good, but they are not so uniform for the same metal as deposits obtained in glass tubes.

ON THE EXAMINATION OF BUTTER.

By Morton Liebschütz.

Although it does not seem a matter of much importance, in the abstract, whether the fatty body used as food is derived from the fatty deposits of the animal, or from the emulsion called milk, the chemist is often compelled to decide whether a given sample is genuine butter or an imitation.

Dalican has given a method based on the percentage of *insoluble* fatty acids. He asserts that, as a nearly general rule, pure butter yields 86.5% of fatty acids while oleomargarine shows only 93.75%. His method which is excellent when time permits, and only a few samples are to be tested, is too tedious for general use. The washing of the fatty acids of pure butter requires at least two days, it being considered complete only when the water used for the operation remains perfectly neutral.