$BaN_6 + H_2O$, *triclinic.*—The brilliant little crystals of the barium salt have a six-sided prismatic habitus, with terminating faces usually at only one end. The other end is frequently attached to another individual in twinning position, the long axes of the two making an angle of about 65°. The small size and irregular surface of the crystals prevented measurements of sufficient accuracy to determine the axial ratios. The angle which would be naturally chosen as that of the prism measures 66° 12′. Since the extinction angle is 22° when the obtuse interior angles of this prism are placed in a vertical plane one above the other, and 10½° when the crystal is turned 90° about its long axis, the crystal system must be triclinic. The double refraction is extremely high, above 0.200, and the mean index of refraction is about 1.7.

CORNELL UNIVERSITY,
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INTRODUCTORY NOTE ON THE REDUCTION OF METALLIC OXIDES, AT HIGH TEMPERATURES.

By FANNY R. M. HITCHCOCK.

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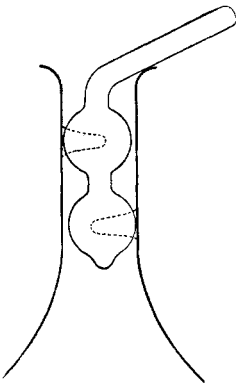
A consideration of the results obtained by Dr. Friedheim and the author, when working on the atomic mass of tungsten in 1895, and 1896, led me to the conclusion that the loss in weight of the metallic oxides on reduction in hydrogen was not due solely to oxygen. Experiments made at high temperatures showed nitrogen was given off steadily though very slowly from tungstic oxide and from molybdic oxide, when reduced in a current of hydrogen. On decreasing the temperature the amount of nitrogen decreased ; on raising the temperature again, nitrogen was given off in greater quantities. While the spectrum of the gas gave only the appearance of nitrogen, and no trace of argon or helium could be found on sparking with oxygen, yet the densities were abnormal, and indicated the presence of gases both lighter and heavier than nitrogen. The nitrogen obtained on reduction in porcelain tubes at the temperature obtainable with a Glaser furnace gave densities varying from two to eight (H = 1). The gas obtained when a Lorenz furnace was used gave densities of from twenty-two to twenty-six.

In this latter gas argon may be present. The results obtained by an examination of the gas from different metallic oxides indicate that nitrogen is generally present in greater or less amounts; and the low results for atomic weights obtained by the reduction method might be thus easily accounted for. Ferric oxide, prepared from ferrous oxalate, which was made from pianoforte wire, showed a noticeable amount of nitrogen. The results obtained with other oxides will soon be ready to communicate; as the experiments are not completed and the examination of the gases is still under way, the author desires for the present to reserve this field of research.

NOTES.

Device to Prevent Loss from Spattering.—To prevent loss from spattering or bumping when boiling liquids in flasks, the writer



has devised the arrangement herein described, and found it to work very satisfactorily,—much more so than a watch-glass cover. The accompanying diagram is almost self-explanatory. Two bulbs are blown on the end of a piece of glass tubing which is then bent and finished as shown. The bulbs should fit quite loosely in the neck of the flask and the exterior handle should incline downward into the flask so as to return anything condensed thereon. It will be found that the escaping vapors will condense on the bulbs and form liquid joints at the points indicated by the dotted lines. As these joints are always on opposite sides of their respective bulbs, they form a complete obstruc-