APPENDIX.

Page 339. Compounds of Silicon.—This elementary body is placed by the author among the metalloids, immediately after Boron. We subjoin the following notice respecting its properties and those of its only oxygen compound, *Silicic Acid* :—

Order V.* COMPOUNDS OF SILICON.

Silicon (Si=15), also called Silicium, is the metallic base of the earth silica. It is found extensively distributed in both the organic and inorganic kingdoms. It was first obtained pure by Berzelius in the year 1824.

199. SILICA.—SILICIC ACID.

Formula SiO^3. *Equivalent Weight* 39.

History.—Silica constitutes a large portion of the globe. It has been known in its various forms from the remotest antiquity.

Natural History.—It occurs in both kingdoms of nature.

a. In the Inorganised Kingdom.—In the mineral kingdom silica exists in the form of flint, calcedony, sand, rock crystal or quartz, opal, and cornelian. It is also present in combination with various metals, forming silicates. It constitutes a large proportion of various volcanic rocks, lavas, &c., and is found dissolved in the waters of the fountains of Reikum, and in the Geysers of Iceland.

β. In the Organised Kingdom.—Silica is an important ingredient in many vegetable substances. It gives solidity to the stems of plants. The ashes of straw yield silica in large proportion, and the products of the combustion of nearly all woods, fruits, and seeds, are rich in silica. It is present in the blood, the urine, the bones, and various other animal matters.

Preparation.—For use in the arts silica is obtained from various sources and in various forms. It is reduced to the finest powder for use in the potteries; and for the rougher purposes of building is used in the native state as flint. In the form of sand it is an important ingredient of various glasses and of mortar. In order to obtain silica in the finest powder, the best quartz, or purest flint, is first heated red hot, and then suddenly cooled by being

projected into cold water. After this treatment it will crush easily; and when trituration has been carried to the furthest extent, the powder is carefully levigated. It is this form of silica which is now directed to be used by the London College, in order to prepare several of the distilled waters. For this purpose the silica is first rubbed up with the essential oil, and then with the water, so that an intimate admixture of oil and water is effected. This, on filtration, yields a perfectly flavoured aromatic preparation. The proportion of silica to oil and water, according to the *Ph. L.*, is ʒij. of silica to f℥ij. of oil, and one gallon of water.

Properties.—Silica (commonly recognised as sand or as flint), is, when pure, perfectly white, having a specific gravity of about 2·66. It can only be fused by the oxyhydrogen blowpipe. It is insoluble in water and in acids, excepting the hydrofluoric; but when recently precipitated, the stronger mineral acids dissolve small proportions of it. Silica must be regarded as an acid. When fused with bases it unites to them, forming true salts, some few only of which are soluble in water; as the alkaline silicates, for example.

Pages 231 and 345. *Allotropic or Amorphous Phosphorus* is shipped in the form of a reddish-brown powder, packed in cases of ten tins, each of 10 lbs. Commercially speaking, its application seems as yet to be a failure. There have, in the last two years, been many trials made in England in the manufacture of matches, and several hundred pounds have been exported with the same object; but the demand being still comparatively quite insignificant, it is evident that a suitable paste for amorphous matches is still a great desideratum, the superiority of amorphous over common phosphorus for safety being undoubted.

Page 375. *Acidum Hydrosulphuricum, recens præparatum,* has a place in the *Appendix to the London Pharmacopœia,* but no specific directions are given for its preparation.

Page 385. *Liquor Chlorinii, recens præparatus.*—Take of Hydrochloric Acid, f℥j.; Powdered Binoxide of Manganese, ʒij.; Distilled Water, Oss. Mix the acid and binoxide in a retort; then transmit the chlorine into the water until it nearly ceases to be produced. (*Appendix P. L.*)

Page 399. *Iodinium purum,* D.—The Dublin College gives the following directions for obtaining pure iodine:—Take of iodine of commerce, any convenient quantity. Introduce it into a deep porcelain capsule of a circular shape; and having covered this as accurately as possible with a glass matrass filled with cold water, apply to the capsule a water heat for the space of twenty minutes, and then, withdrawing the heat, permit the capsule to cool. Should the sublimate attached to the bottom of the matrass include acicular prisms of a white colour and pungent odour, let it be scraped off with a glass rod and rejected. The matrass being now returned to its previous position, a gentle and steady heat (that of a gas-lamp answers well) is to be applied, so as to sublime the entire of the iodine. Upon now lifting off the matrass,

the purified product will be found attached to its bottom. When separated, it should be immediately inclosed in a bottle furnished with an accurately ground stopper.

Page 400. *Iodine and its Impurities.*—We are indebted to a friend for the following commercial notice of iodine:—In English commerce we quote three qualities of iodine, namely—1st quality; 2d quality; and 3d, the re-sublimed:—

1. The first quality is dry, so as hardly to adhere to the inside of a bottle, and so as hardly to stain paper on which it may be placed for a short time. It is produced chiefly by one firm.
2. The second quality is more or less damp, and is produced by a great variety of makers. It fetches from 5 to 10 per cent. less than the first quality; and both are brought into the market in barrels of 112 lbs. nett.
3. The re-sublimed. This is in large flakes, and is prepared, not by the iodine manufacturers, but by refiners. Its value is about 3d. per ounce greater than that of the first quality, and it is packed in bottles to order.

To prove the extensive use of this article in medicine and in the arts, it may be stated that when the speculative demand in the London market took place in October 1852, which drove the price suddenly up from 7¼d. to 1s. 6d. per ounce, not less than 400 barrels of 112 lbs. was the stock on hand.

With the exception of *dampness*, no adulterations seem ever to be attempted by the English manufacturers and wholesale houses.

Page 414. *Sulphuris Iodidum*, L.; *Sulphur Iodatum*, D.—Take of Sulphur, ℥j. [Sublimed Sulphur, ʒij. *D.*]; Iodine, ℥iv. [Pure Iodine, ℥j. *D.*] Put the sulphur into a glass vessel, and place the iodine over it. Hold the vessel immersed in boiling water until they unite. When the iodide has become cold, break the vessel and beat the iodide into fragments, and keep it in another vessel well closed.

From a hundred grains of this, carefully boiled in water, about twenty grains of sulphur remain. The directions of the *Dublin* are much the same as those of the *London College*, with the exception that the *Dublin College* orders the iodine and sulphur to be triturated together, and does not direct that boiling water should be used to apply the heat necessary for effecting combination.

Page 594. *Cataplasma Sodæ Chlorinatæ.*—This preparation is given in the text, according to a formula by the author. We here subjoin the proportions of the ingredients as they are directed in the *London Pharmacopœia*:—Take of Boiling Water, f℥vj.; Linseed, in powder, ℥ivss.; Solution of Chloride of Soda, f℥ij. Add the linseed powder gradually to the water, frequently stirring; then mix with this, the chloride of soda.—Applied to foul and sloughing ulcers.

Page 642. *Collins's Chloride of Lime.*—The chloride of lime known under the name of Collins's Patent Chloride is prepared by mixing one part

of anhydrous sulphate of alumina with two parts chloride of lime. When moistened or mixed with water, chlorine is liberated. It is used as a disinfecting agent, but is more costly than the common chloride. The occasional addition of diluted sulphuric acid to the ordinary chloride answers the same purpose.[1]

Page 659. *Enema Catharticum*, D.—Take of Sulphate of Magnesia, ℥j.; Olive Oil, f℥j.; Mucilage of Barley, f℥xvj. Dissolve the sulphate of magnesia in the mucilage, add the oil, and mix.

[1] *Pharmaceutical Journal*, 1850, p. 39.

END OF VOL. I.

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