

Sandiver or Glass-Gall.

The nature of the white porous scum which rises as the material in the glass pots approaches perfect fusion, has engaged much attention. It appears to be a confused mass, consisting of all those salts contained in common alkalies which readily melt at somewhat less than a glass-making heat, and are either naturally considerably volatile, or have little if any affinity for siliceous matter, and do not unite in the composition of glass, but, being superficially lighter, rise to the top. There is another heterogeneous substance also called sandiver, which sometimes is found at the bottom of the pots, and is taken out when the whole is worked off. The nature of this is very different from the others, and consists, apparently, of a vitrified mass of arsenic and earthy impurities. But the scum or proper glass-gall is almost entirely saline. When ladled out and cooled, it forms a white crumbly mass, sometimes quite white and at other times brown and fouled, and strongly saline, but not very uniform in its composition; being sometimes merely salt, often very bitter, probably as common salt or sulphate of potash predominates. Glass-gall is very volatile in a strong fire, so that it is constantly dispersing from off the surface of the glass in a dense vapor, at first thick and black, afterward whiter, which very powerfully corrodes the top of the crucible in its passage. If the fusion were continued long enough, the whole would be dispersed merely in this way; but it is generally scummed off with iron ladles, and sold to metal refiners as a powerful flux. As part of the alkali itself certainly is dissipated by the continuance of fire, partly before it can unite with siliceous matter, partly from the glass itself, much of the corrosion of the pots must be owing to this circumstance; probably it must also unite in part with the glass-gall, which renders it slightly deliquescent. An abundance of this glass-gall is one of the greatest inconveniences that the glass-maker can meet with; for it requires a considerable time of very strong heat before the whole can be dissipated; or, if the glass be wrought before it is thoroughly purged of this material, it is full of bubbles, unsound, and has a cloudy, gelatinous appearance. Glass made with potash is more likely to suffer from glass-galls than the soda glasses; for the potash glasses are harder and do not run so thin as the others, and the glass-gall arising from them does not so easily dissipate in the fire.

Diamonds.

A story comes from Parteall, India, where diamonds are usually found—Golconda being the place where they are merely cut and polished—that the largest diamond in the world has lately been discovered there. It is said to weigh 400 carats, 33 carats more than the famous stone belonging to the Rajah of Mattau. The story is, in all probability, much bigger than the diamond, and both will be likely to diminish under careful examination. Great diamonds are interesting, because they nearly always have curious and romantic histories. The Regent or Pitt diamond, 136 $\frac{3}{4}$ carats, cut, found in Hyderabad, was taken to England by Pitt, grandfather of the first Earl of Chatham, and sold by him to the Duc d'Orleans for a sum equivalent to \$650,000. It ornamented the sword-hilt of Napoleon; was taken by the Prussians at Waterloo, and is now among the crown jewels of the Emperor of Germany. The Sanci, another celebrated stone, once belonged to Charles the Bold, Duke of Burgundy, who wore it in his hat at the battle of Nancy, where he fell. It then passed to the hands of Anton, King of Portugal, and he, being embarrassed, disposed of it for \$20,000. Then it was purchased, after divers changes, by a Frenchman named Sanci, whence its designation. One of his descendants, having been sent as ambassador to Henry III., at Soleure, the king demanded the jewel as a pledge. The servant carrying it to the monarch, was waylaid by robbers and murdered, but not before he had swallowed the diamond. His master, confident of his fidelity, caused the body to be opened, and found the precious stone. After a while, it was secured by the government of Great Britain, and James II. carried it to France in 1688. After varied fortunes, Louis XV. got hold of it, and wore it at his coronation. Then it passed from him, and was bought, fifty odd years since, by a Russian nobleman, for \$400,000, and is said to belong now to one of his heirs. As it is too valuable for almost any body to keep, it will continue, no doubt, as the years go on, to add to its memorable history. Diamonds supply most of the romance of precious stones.

Soft Porcelain.

The manufacture of soft porcelain has always been limited, for it is the most difficult of all pottery. Its inventors, persuaded that Chinese porcelain was a kind of glass, persisted in composing a paste of the same ingredients. Sand, lime, and some alkaline materials were therefore vitrified, in the proportion considered desirable to give a white, half-translucent substance. But as, after being ground, it had not the least plasticity, and could not be worked, they added as small a quantity as possible of the calcareous earth found in the plaster quarries in the neighborhood of Paris, so as not to injure the whiteness or transparency.

Earthenware House Drains.

The annual report of Mr. E. C. Clarke to the Massachusetts Board of Health contains the following remarks as to the earthenware house drains:

“The materials most generally used for drains are brick, stone, slate, vitrified clay, cement, wood, and iron. Bricks made of good clay, thoroughly burnt all the way through, are among the most enduring of building materials. But all bricks are not so enduring. From some kinds of clay good bricks can not be made. In every kiln of bricks there are some which are not thoroughly burnt. A soft brick will rot and disintegrate in water. Glazed clay pipes are especially smooth. In these, however, it is very common to find the mortar uniting the several sections of pipe projecting into the interior, forming a series of little dams which obstruct the flow. This can be avoided by carefully cleaning the interior of each pipe, after laying it, with a swab or hoe. Such pipes are burnt in a kiln very much as bricks are. Before burning, they may be air-checked; like bricks, the pipes nearest the fire may be warped or fire-cracked; those higher up may be less thoroughly burnt, corresponding to ‘light-colored bricks.’ Others may be quite soft, and imperfectly glazed; or the glazing may scale off by ‘popping.’ Slip-glazed pottery pipes are still more liable to defects. They are made of a different kind of clay, and, being burnt at a lower temperature, are usually more porous and less hard. The glazing, which is formed by dipping them before burning into a thin mixture of argillaceous earth, forms a skin over the pipe, which at times peels off under the action of frost, acids, or hard usage.”