The Craters of the Moon.

Not less than three-fifths of the surface of our satellite are studded with vast caverns or rather circular pits, penetrating into its mass, and usually engirt at the top with a high wall of rock, which is sometimes serrated and crowned by peaks. These craters vary in diameter from fifty or sixty miles to the smallest place visible—probably 500 feet; and the numbers increase as the diameter diminishes, so that the multitude of the smaller ones becomes so great that we cannot reckon it. The ridge which environs the crater is always sloping on its external side, and steep or rather precipitous within, although it seldom descends to the cavern's base, by a single cliff or leap. Within it, there are generally concentric ridges, assuming the form of terraces, and making the descent to the bottom of the central chasm appear more gradual. The bottom of the crater is sometimes convex, low ridges of mountains being also found running through it, while at its centre conical peaks frequently rise, and smaller craters, whose height, however, seldom reaches the base of the exterior wall. These curious objects are so crowded in some parts of the Moon, that they seem to have pressed on each other, and disturbed, and even broken down each other's edges, so that through their mutual interference, the most odd-shaped caverns have arisen.

The crater Tycho is that brilliant spot near the top of the Moon, which, when the Moon is full, appears the centre of a system of shining streams or rays. The country around it is peculiarly distributed; there is no plain there larger than a common field. Now, if passing across that rugged district, one were gradually approaching Tycho, its first and distant aspect would seem like an immense well or ridge of rock in the horizon, with a stretch of nearly fifty miles, and reflecting the Sun's rays with a peculiar lustre. On approaching the ridge its character would change; we should then discern that it is part of an immense circle, but perhaps neither so lofty nor so steep, that a practiced mountaineer of the earth need shrink from its ascent. Suppose the ascent accomplished, and that with terrestial ideas one stood on the summit. Trusting to the analogy of every disturbed region of our own planet, we must have thought of the opposite side, while it was unseen only as a a corresponding slope, or at least as a descent, which, if differing in steepness, would correspond in extent; but the eye is now in presence of an appalling contrast! On the edge of a dizzy cliff, passing down by one unbroken leap for 13,000 feet, the traveller gazes below him in terror and bewilderment. At the base of the cliff several low parallel terraces creep along; but a little onwards the depth of the chasm is revealed, and it descends from the top of the ridge no less than 17,000 feet, or 2,000 feet more than the summit of Mount Blanc rises above the level of the sea! It is quickly perceived, too, that this huge barrier encloses a vast circular area fifty-five miles in diameter; so that, if the spectator were at the chasm's centre, he would find around him on every side, at the distance of twenty-seven miles, a gigantic and unbroken wall—unbroken by gap, or ravine, or pass of any description—rising into the air 17,000 feet, and forbidding his return to the external world!

How frightful that seclusion in the Moon, a chasm utterly impassable, its walls bare, rugged, hopeless as a prison's bars! It is a solitude, too, which nothing alleviates; verdure is never there, nor the song of a bird; rain never refreshes, nor cloud shelters it; it is relieved from a scorching sun and flaming sky only by night with its stars. Nor among those countless pits is Tycho the most appalling. There are some of nearly equal depth, whose diameter may not exceed 3,000 feet, nay, towards the polar regions of the Moon, caverns probably exist, whose depths have never yet been illumined by one beam of the solar light.—[Nichol.

Razors.

Barbers often tell us that razors get tired of shaving, but if laid by for twenty days they will then shave well. By microscopic examination it is found that the tired razor, from long stropping by the same hand and in the same directions, has the ultimate particles or fibres of its surface or edge all arranged in one direction, like the edge of a piece of cut velvet; but after a month's rest, these fibres re-arrange themselves heterogenously, crossing each other and presenting a saw-like edge each fibre supporting its fellow, and hence cutting the beard, instead of being forced down flat without cutting, as when laid by. These and many other instances are offered to prove that the ultimate particles of matter are always in motion, and they say that in the process of welding, the absolute momentum of the hammer causes an entanglement of orbits of motion and hence a re-arrangement, as in one piece; indeed, in the cold state, a leaf of gold laid on a polished surface of steel, and stricken smartly with a hammer, will have its particles forced into the steel so as to permanently gild it at the point of contact.

Recent Foreign Inventions.

Metals and Alloys.—The following is a condensed description of some improvements made in the treatment of some metals, and secured by patent in London by John D. Morries Stirling, of Black Grange, Scotland. The description is selected from the London Mechanics' Magazine:—

An improvement consists in combining with hardened lead a covering of tin, or alloy of tin, so as to produce a metal suitable for use as a substitute for Queen's metal, Britannia metal, British silver, or pewter. For this purpose the patentee takes a slab of hardened lead, which he rolls to any required thickness and quite smooth; he then places a sheet of tin or alloy thereof on the surface of the lead, and passes them through the rolls, using at first a pressure just sufficient to bring them into close contact, and applying what is technically called "a severe pinch," so as to complete the union of the metals. The compound sheet may then be rolled to any required thickness. For the purpose of hardening the lead used as above, the patentee prepares an alloy of equal parts of tin and zinc melted together, and adds five parts thereof to every ninety five parts of lead, stirring the metals well to produce perfect incorporation of the alloy. Or the hardening may be effected by the use of antimony in the proportion of from one part in fifteen to one part in nine of the lead. Or arsenic may be used with the lead for the same purpose, in the proportion of from one to two parts per cent.

Another improvement consists in coating zinc with lead, or the ductile alloys of lead, by pressure. Lead, hardened as first described, may be also used.

Another improvement is the combining of zinc or tin, or the ductile alloys of either of these metals with cadimum. The metals are rolled into sheets, and passed through the rolls in contact with each other, by which their union is effected.

Another improvement consists in coating copper and its ductile alloys with tin or the ductile alloys of that metal. This is also effected by pressure.

Another improvement consists in applying a coating of silver to tin, Britannia metal and other ductile alloys of tin by pressure; and in employing gold or platinum in like manner as a coating by combining the same with tin or the ductile alloys thereof. And here the patentee remarks with regard to the use of pressure for combining metals together, that the harder the metals are, the greater care is requisite in passing them through the rolls. In all cases the surfaces of the metals to be united should be perfectly smooth and clean.

Another mode of coating the more fusible metals, such as zinc, tin, or alloys thereof, with silver or platinum, consists in employing the process of casting the more fusible metals on to the less fusible, and consequently using pressure to bring the slabs to sheets of any required thickness.

Another improvement consists in soldering, or otherwise uniting by heat, German silver to copper and its alloys, and then extending the mass into sheets by rolling.

The last branch of the invention has relation to the manufacture of iron. The first of the improvements here specified consists in adding chromium to iron, in order to improve its quality. The chromium is used in the ore, that is as chrome iron, or chromate of iron, in the proportion of from 1-800 to 1-400th part of each puddling charge. It may be added, however, at an earlier stage of manufacture. When the iron is cold or red-short, the patentee adds from 1lb. to 3lbs. of a chloride (by preference chloride of sodium). The chromium is added to the iron when nearly or quite melted, in proportions which vary with the character of the metal operated on, soft iron requiring more than that which is of a harder nature. The chloride may be added at the same time, or when the metal is beginning to boil, and before coming to nature.

Another of the improvements consists in adding baryta, or its salts or compound, to iron. For this purpose the carbonate of baryta is preferred, which is used in the same manner as chromium, in the proportion of about 1lb. to every puddling charge.

Another improvement is the addition to iron of carbonate of lime and muriate of soda. These materials are mixed together in about equal parts, and two or three pounds of the mixture are introduced into the iron when in a melted state.

Another improvement consists in using an alloy of tin with arsenic, or of lead with arsenic, as coating for iron. The alloy being applied to the iron when hot, in the same manner as soldering or tinning is performed. The latter of these combinations will be found serviceable for shipbuilding purposes, and other similar uses. The iron may be previously coated with copper.

The last improvement consists in applying lead or lead ore in the manufacture of iron in blast furnaces; also in combining with lead, lead ore, or oxide of lead for such uses, chlorides, by preference chloride of sodium (common salt). The lead is added when charging the blast furnace in the proportion of 1lb. to 2lbs. to the charge, and the chloride (when used) is introduced at the same time, in the proportion of 15lbs. to 25lbs. to the charge. The iron thus made is free from impurities, and will be found very suitable for making wrought iron.

The Flower Garden.

We have frequently seen flower gardens laid out with the greatest care, and the utmost regularity; we have seen them garnished with the choicest flowers, but at the same time we have often lamented the want of taste or want of culture, call it what we may, in the arranging of flowers of different colors. Skill in laying out grounds, and great experience in taking care of and cultivating flowers are not the only qualities required in a florist, he should have an eye to the beautiful in color, the grouping and blending of all the hues which adorn the parterre. We are created to derive pleasure from colors equally with music; the charm of the former reaches the heart through the eye, that of the latter through the ear. There is no enjoyment of a simple nature, more pleasing and elevating, than that derived from the culture of flowers.—Surely when Solomon in all his glory was never arrayed like the flowers of the field, they should derive importance from their very nature; and the art of blending them—arranging them in the garden according to the laws of harmony in color—should be more assiduously cultivated by every one who has a square yard of garden plot.

Amongst the pleasures presented to us by the culture of flowering plants, there are few that exceed what we experience from the sight of a multitude of flowers varying in their color, form, and size, and in their arrangement upon the stem that supports them. It is probably owing to the admiration bestowed individually upon each, and to the attachment bestowed upon them in consequence of the great care they have required, that care has hitherto not been taken to arrange them in such a manner as not to produce the best possible effect upon the eye, not only separately but collectively. Nothing, therefore, is more common, than a defect of proportion observed in the manner in which flowers of the same color are made to recur in a garden. At one time the eye sees nothing but blue or white, at another it is dazzled by yellow scattered around in profusion; the evil effect of a predominating color may be further augmented, when the flowers are of approximating but still different shades of color. For instance, in the spring we meet with the jonquil of a brilliant yellow, side by side with the pale yellow of the narcissus; in the autumn the Indian pink may be seen next to the China rose and the astor, and dahlias of different red grouped togethor, &c. Approximations like these produce upon the eye of a person accustomed to judge of the effects of a contrast of colors, sensations that are quite as disagreeable as those experienced by the ear of a musician when struck by discordant sounds. The principal rule to be observed in the arrangement of flowers is to place the blue next to the orange, and the violet next to the yellow, whilst red and pink flowers are never seen to greater advantage than when surrounded by verdure, and by white flowers; the latter may also be advantageously dispersed among groups formed of blue and orange, and of violet and yellow flowers.—For although a clump of white flowers may produce but little effect when seen apart, it cannot be denied that the same flowers must be considered as indispensable to the adornment of a garden when they are seen suitably distributed amongst groups of flowers whose colors have been assorted according to the law of contrast. Plants, whose flowers are to produce a contrast should be of the same size, and in many cases the color of the sand or gravel composing the ground of the walks or beds of a garden, may be made to conduce to the general effect. In laying down the preceding rules, an arrangement of colors, different from that mentioned, may please the eye; but in adhering to them, we may always be certain of producing assemblages of color conformable to good taste, whilst we should not be equally sure of success in making other arrangements.

French Varnished Leather.

This process consists of two operations: first, the preparation of the skin; and second, the varnishing of the leather thus dressed.

In the preparation of the leather, linseed oil, made readily drying, by means of metallic oxides and salts, is employed as the basis; for each 22 gallons of linseed oil, 22 pounds of white lead and 22 pounds of litharge are employed, and the oil boiled with these ingredients until it has attained the consistence of a syrup. This preparation, mixed either with chalk or ochres, is applied to the leather, by means of appropriate tools, and well worked into the pores; three or four layers is applied in succession, taking care to dry each layer thoroughly before the application of the next coating. Four or five coatings of the dried linseed oil, without the admixture of the earthy substances, are then given; the addition of very fine ivory black, and some oil of turpentine, is usually made to the oil. These coatings are put on very thin, and when carefully dried, the leather is rubbed over with fine pumice stone powder, to render the surface perfectly smooth and even, for the reception of the varnish. The varnish is composed as follows:—10 pounds of the oil prepared as above, half a pound of asphalt or Jewish bitumen, five pounds of copal varnish, and ten pounds of turpentine. The oil and asphalt are first boiled together, and the copal varnish and bitumen added afterwards, and the mixture well stirred. Instead of asphalt, Prussian blue or ivory black may be employed. This varnish must be kept in a warm place for two or three weeks before it is fit for use.

The greatest possible care must be taken both before and during the application of the varnish, to prevent the adherence of any dust to the leather. The leather, when varnished, must be put into drying rooms, heated to about 90° or more according to the nature of the leather, and the varnish employed.

There has been for a week past a most tremendous discussion going on in the daily papers of this city, about a Railroad in Broadway, by one named "Anti-Monopoly," and another named "Pro Bono Publico." Of each combatant we can say—

"Thrice he routed all his foes,
And thrice he slew the slain."

We do not know what will be the result of this great conflict—it will, we believe, have to be settled on that momentous field, the Alderman's Tea Room.