

similar substances, and is used to verify the results of analysis. Arraying or docimacy is the dry method of analysis.

Practical or applied chemistry comprises the application of chemical principles to the arts; for example, to the making and fixing of colours for paints and dyes; to the processes of tanning, distilling, and brewing; to the manufacture of glass, porcelain, and artificial stones; and to domestic and culinary purposes. It is more elegantly termed technological chemistry, and to this branch belongs also metallurgy, or the art of separating metals from their ores.

Pharmaceutical chemistry relates to the preparation of remedies employed in medicine.

Medical chemistry is allied to physiology, and treats of the application of chemical principles in the theory and practice of medicine.

Toxicological chemistry refers to poisons, their special action upon the system, and the means of detecting them.

The subdivisions of the science are still increasing, and the varied uses to which it is now applied are so great, that even subordinate branches are growing or taking place out of those that had previously existed.

It was said of Mercury, in the days of mythology, that he plundered Neptune of his trident, Venus of her girdle, Mars of his sword, Vulcan of his implements, and Jupiter of his sceptre. This is but an allegory referring to Chemistry, of which Mercury was the patron, and through the means of which he collected so much knowledge from unseen as well as visible sources; and now, Justice, acting upon her principle of retribution as to matters of this world, makes him return, with interest, to us, the prizes pillaged from the elements and the gods.

No one can tell to what extent the investigations in Chemistry may go; no one can define its limit. It enabled Daguerre to seize the fleeting shadows of the air and fix them immutable upon metal; and hereafter its discoveries may transfix the very sounds of human voices, and hold them quivering in the hand as echoes to the wind. Even thought itself may be reached, and the very breath that gives it silent aspiration be made to stand out upon tablets like recorded words of utterance.

It is a searching agent, which exposes the errors of those who blunder in the studies of Nature—a conformer of truths—a spirit that dives into the deep bosom of the earth and reveals her riches, that soars into the high region of the heavens and brings away its lightning—that, like light, penetrates everywhere, and, like light, clears away all obscurities.

It is true that Sir Francis Bacon was the first to teach us how to follow the genius of Nature through her many mansions. He began at the beginning in this particular; and yet wonderful as was his learning then, and as it still is, he had only reached the threshold of the great temple of science which succeeding generations have only partly built up. It is still an unfinished edifice; not because it is labouring under the ban of a supernatural power, but because it is a structure to be made of mind, not matter—whose materials are to be drawn from the profoundest intellects, the tests of whose strength must be submitted to

ages upon ages—whose increasing lights are beacons to guide its builders, and whose completion will be perfection.

#### How to Act when the Clothes take Fire.

Three persons out of four would rush right up to the burning individual, and begin to paw with their hands without any definite aim. It is useless to tell the victim to do this or that, or call for water. In fact, it is generally best to say not a word, but seize a blanket from a bed, or a cloak, or any woollen fabric—if none is at hand, take any woollen material—hold the corners as far apart as you can, stretch them out higher than your head, and, running boldly to the person, make a motion of clasping in the arms, most about the shoulders. This instantly smothers the fire and saves the face. The next instant throw the unfortunate person on the floor. This is an additional safety to the face and breath, and any remnant of flame can be put out more leisurely. The next instant, immerse the burnt part in cold water, and all pain will cease with the rapidity of lightning. Next, get some common flour, remove from the water, and cover the burnt parts with an inch thickness of flour, if possible; put the patient to bed, and do all that is possible to soothe until the physician arrives. Let the flour remain until it falls off itself, when a beautiful new skin will be found. Unless the burns are deep, no other application is needed. The dry flour for burns is the most admirable remedy ever proposed, and the information ought to be imparted to all. The principle of its action is that, like the water, it causes instant and perfect relief from pain, by totally excluding the air from the injured parts. Spanish whiting and cold water, of a mushy consistency, are preferred by some. Dredge on the flour until no more will stick, and cover with cotton batting.

#### Water Supply of London.

At the beginning of the present century the water mains of the City of London were wooden—the trunks of trees bored out—and in no case of more than one foot in diameter. How the metropolitan giant must have grown, the size of his present iron arteries is a proof. The mains of the eight water companies not only supply London proper, but push out far into the country, invading even the agricultural districts, and supplying its farms. They distribute in the aggregate upward of 100,000,000 gallons daily, through 3,000 and odd miles of main, and supply 375,000 houses and factories, through capillary pipes upward of 7,000 miles in length. If all the water daily used in this great city were collected in one great reservoir it would cover seventy acres in extent and six feet in depth. As the spectator watched this great expanse of water he would see it hour by hour draining to the bottom by the collective millions in the metropolis as calmly and noiselessly as a cup is drained by a dusty roadside traveller. The collective iron heart, the steam engines which propel this flood, possesses a force of not less than 9,000 horses.

#### Overwork.

Unwise above many is the man who considers every hour lost which is not spent in reading, writ-