

eruption like that made by croton oil. Although some persons are not affected by it, it is not suited to general use.

A new series of dyestuffs, formed by the action of glycerin on phenol (carbolic acid) in the presence of sulphuric acid, has very recently been discovered by Reichl, of Prague, who is still at work on it. Both red and purple have been obtained in this way. He has also obtained dyestuffs by the action of glycerin on pyrogallic acid and on thymol, and purposes to study its action on cresol and other phenols. This opens a new field for study, and promises to prove the most important discovery of the year.

W. H. Perkin, the discoverer of the first aniline dye, is still finding new things in the color line. Among his recent papers is one on anthrapurpurin. Lauth has succeeded in preparing a new class of dyes by the introduction of sulphur into aromatic diamines, and then oxidizing the sulphur compound. It forms a beautiful purple. (See SCIENTIFIC AMERICAN, October 21, 1876.)

A natural dyestuff capable of forming lakes has been obtained by Mederstadt from the *musa fehi*, a plant of the banana family. Aniline black has attracted more attention than any other aniline color. Most of the experiments relate to the use of vanadium, which has almost entirely superseded copper, notwithstanding its price. One part only of vanadium salt is required for 50,000 parts of aniline oil.

In regard to the alkaloids, the principal work has been done by Drs. Wright and Beckett. Cahnberg gives some new reactions for codeine and atropine; Flueckiger, a new test for brucine; and De Vrij, a new reagent for quinine. Much has been done to aid the analyst in determining various alkaloids quantitatively too. The glucosides, the bitter principles, and the active constituents and essential oils of many plants have been sought and studied. Among the plants subjected to chemical investigation we have, first, the *eucalyptus globulus*, then *dulcamara solanum*, *vicia sativa*, and many others. Ergot has also been analyzed.

The subjects of food and drink have not been neglected, especially wine and milk. The adulterations of wine and the addition of artificial coloring matter is becoming so common abroad, where adulterations are not so tamely submitted to as here, that chemists are exhausting all their ingenuity to detect the falsifications, and with only partial success. Aniline colors are most easily detected by the power of dyeing silk or wool; but fruit and vegetable coloring matter is the most difficult of detection. The best paper on this subject is that of Gautier, who has constructed a series of tables of the reactions with various reagents. Dr. H. Vogel applies the spectroscope to them. Mellias has also written on the detection of colored red wines, and Bretet described a new method of detecting plastered wines.

The subject of the adulteration of milk is so often before the courts that the public are kept informed of all the latest investigations in that department; and it seems as if perfection had almost been attained in milk analysis. Not so with butter, however. The subject of artificial butter still agitates the public as well as the scientific mind. A pharmaceutical society in Leipzig offers a prize of 800 marks (about \$75) for a certain and practical method of testing cows' butter for adulteration with foreign fats. Competitors are required to send in their papers to B. Kohlmann, Leipzig-Rendnitz, before September 30, 1877. Water analysis is in an equally uncertain state, no satisfactory test for wholesome water having yet been devised; and the fight between Wanklyn and Frankland, about the albuminoid ammonia test, is still in progress.

#### DISINFECTANTS.

About disinfectants, a very great deal has been said and written. Carbon disulphide is one of the latest competitors in the field. Zöllner seems to have been the first to observe that mould never appeared in vessels containing a trace of carbon disulphide vapors. The poisonous nature of these vapors would lead us to expect that it would destroy germs of all sorts, and such seems to be the fact. Zöllner kept beef and veal for 82 days, at a temperature of 60° to 85° Fah., in an atmosphere containing this vapor. Hugo Schiff confirms these observations. Little that is new has been learned about salicylic acid, and doubts are entertained of its fulfilling the great expectations formed of it. Attention has been directed anew to borax and boracic acid as antiseptics. Thymol as an antiseptic has been described by Husemann.

#### ANALYSIS.

Analytical chemistry has not fallen behind in either the organic or inorganic branch. Gas analysis and volumetric analysis, or titration, have been subjects of thorough investigation. Many new substances have been introduced as indicators by acidimetry, in place of litmus, such as salicylate of iron, logwood, fluoresceine, eosine, and carmine. Grete proposes to use of xanthogenate of potassium for the quantitative determination of carbon disulphide, copper salts, and caustic alkalies in the presence of alkaline carbonates. Kopfer recommends the use of platinum for the ultimate analysis of organic substances. Other new methods of analysis, equally interesting to the analyst, are to be found in journals devoted to that branch of the science.

The above imperfect sketch of the doings of chemists in our Centennial year sustains the assertion with which we set out, that there is something new under the sun.

E. J. H.

CAST iron should be painted directly after leaving the mould, in order to preserve the hard skin which is formed upon the surface of the metal by the fusing of the sand in which it is cast.

[For the Scientific American.]

#### ŒDEMA GLOTTIDIS.

When a great or good man dies of an obscure disease, new incentives are added to the study of its nature and rational treatment. Previous to the year 1799, the clinical history of *œdema glottidis* had been loosely described by Morgagni and by Bichat; but of the pathological condition, giving rise so suddenly and insidiously to fatal results, but little if anything was known.

General Washington, with the exception of a slight cold for the day or two last past, was in the enjoyment of an ordinary degree of health. Suddenly, and without warning, he was seized with difficulty in breathing; and ere the danger was fully realized, the narrow slot in the respiratory track was closed up, and the nation was startled by the announcement: "Washington is dead!" An autopsy was had, which revealed an œdematous condition of the larynx and complete closure of the little space between the vocal chords; and since the 14th of December, 1799, the medical profession of the whole world has been more familiar with the pathology and rational treatment of *œdema glottidis*.

The immediate cause of death is suffocation from closure of the slit or space between the vocal chords (the *rima glottidis*); and the remote cause is œdematous thickening or enlargement of the parts nearly adjacent to this narrow passage. It will therefore be observed that the thickening may be in the mucous covering of the vocal chords, or in the ventricular bands or false vocal chords; it may be in the covering of the arytenoid cartilage or commissure; it may be in the lip, cushion or body of the *epiglottis*; or it may extend to all of these simultaneously. Strictly speaking, however, œdematous thickening can take place only in tissues like the ary-epiglottidean folds, where areolar tissue is interposed between the mucous membrane and the fibrous or cartilaginous structures beneath: the thickening of mucous membrane, or of the arytenoid muscle, when found, being more dependent upon an inflammatory process. Practically, this distinction is not made, the term being applied to thickening of all laryngeal structures which, in the main, partake of an œdematous character. And within the confines of a narrow and unyielding cartilaginous box like the larynx, an amount of swelling, which in other parts of the body would be of the most trivial consequence, is productive of grave and fatal results. In some instances the whole larynx is involved, but generally the condition is limited to one or more parts of it. The disease may be idiopathic, as in the illustration given, or it may occur as a sequence of other diseases, springing, as it were, from ambush upon a patient well advanced in convalescence from an attack of laryngitis, whooping cough, measles, scarlatina, small pox, erysipelas, pulmonary catarrh, Bright's disease, or any other disease of which dropsies are among the *sequelæ*. It may be also traumatic, from mechanical injuries to the larynx, or from an attempt to swallow corrosive liquids.

The rational signs consist of difficulty in swallowing and of articulation, with hoarseness and ineffectual cough, a sense of constriction as from the presence of a foreign body within the larynx, difficulty in breathing, with a whistling or stridulous sound, and finally death from suffocation. The physical signs are: More or less enlargement at and above the thyroid prominence, and tenderness upon pressure in proportion to the extent of inflammatory complication. The uvula and tonsils are generally more or less enlarged, and the mucous membrane of the pharynx more or less infiltrated, and of a dusky red color in proportion as the disease is high in the larynx. Generally, by wiping the tongue so as to grasp it with a napkin to draw it well out, or by pressing the base of it well down, the enlarged epiglottis may be seen rising above its natural position, often depressed in the middle by a crease from before backward, and having a semi-transparent appearance. If the enlarged parts are too low to be seen in this way, and there is no laryngoscope at hand, the finger may be passed well down into the larynx, when the condition may be made out with considerable accuracy by the touch. This, however, is a hazardous proceeding, as the irritation may result in spasm and complete closure of the glottis.

The rational differential diagnosis of *œdema glottidis* is comparatively easy. There is more regularity in the increase or decline of symptoms than in spasm of the *glottis*, less pain and enlargement than in acute laryngitis, and more rapid development of symptoms than from the presence of an intralaryngeal tumor or abscess. The laryngoscope reveals to ocular inspection the true condition; and physical differential diagnosis is clear and decisive.

The demand for relief is generally too urgent to justify the delay required for the operation of topical applications. Besides the irritability of the muscles of the larynx, and the liability of local applications to provoke spasm, is a serious obstacle to their use. Among the remedies that have been used as such may be mentioned a solution of nitrate of silver, a solution of alum, and also of tannin. Dilutions of carbolic acid and of the *liquor persul. ferri* have been recommended. But when it is remembered that danger results from mechanical occlusion, consequent upon a sero-plastic effusion beneath the mucous membrane, the insufficiency of mere local applications is apparent. If the œdematous enlargement can be reached, as is generally the case, the parts should be freely scarified or incised with a long curved bistoury or hernia knife, as recommended by Dr. Buck, who devised an instrument especially for such use. Relief follows almost instantaneously upon the evacuation of the effusion. Professor Strohmeier advises the forcible rupture of the distended

membrane with the end of the finger, when it can be done without too great risk of strangulation. When Dr. Buck's plan, which is generally employed, cannot be satisfactorily performed, the last resort is either to produce an artificial larynx through the creco-thyroid membrane, or tracheotomy; and the prompt relief which almost invariably follows is among the most satisfactory rewards of the surgeon, patients frequently falling asleep after the first few inspirations through the artificial opening. The opening of the trachea, however, is not curative, but affords refuge from the immediate danger of suffocation, while the disease is being controlled by such measures as remove dropsies in other parts of the body. They should be in the main constitutional; and the fact that these cases often occur in those with impaired or broken down constitutions should never be lost sight of in their treatment. A. G. F.

#### ASTRONOMICAL NOTES.

OBSERVATORY OF VASSAR COLLEGE.

The computations and some of the observations in the following notes are from students in the astronomical department. The times of risings and settings of planets are approximate, but sufficiently accurate to enable an ordinary observer to find the object mentioned. M. M.

#### Positions of Planets for February, 1877.

##### Mercury.

Mercury, which was so beautiful in the evening twilight of January, has now moved on to a position west of the sun, and should be looked for in the morning.

On February 1, Mercury rises at 6h. 22m. A. M., and sets at 4h. 19m. P. M. On the 28th, Mercury rises at 5h. 41m. A. M., and sets at 3h. 30m. P. M.

Mercury will be best seen on the 20th, when it attains its greatest elongation from the sun.

##### Venus.

Venus, although approaching the sun in position, is still very brilliant in the morning, and can be well seen during the first half of February.

On February 1, Venus rises at 6h. 1m. A. M., and sets at 3h. 12m. P. M. On the 28th, Venus rises at 6h. 3m. A. M., and sets at 4h. 14m. P. M.

##### Mars.

On February 1, Mars rises at 3h. 18m. A. M., and sets at 0h. 30m. P. M. On February 28, Mars rises at 2h. 54m. A. M., and sets at 11h. 52m. A. M.

Mars can easily be recognized on the 28th by its nearness to Jupiter. Both planets are in the constellation *Sagittarius*, Mars being a little south of Jupiter.

##### Jupiter.

Jupiter is conspicuous now in the morning, but is so far south and rises so late as to give scarcely any time for observations before daylight.

On the 1st, Jupiter rises at 4h. 21m. A. M., and sets at 1h. 24m. P. M. On the 28th, Jupiter rises at 2h. 55m. A. M., and sets at 11h. 56m. A. M.

##### Saturn.

Saturn rises so late in the morning and sets so early in the evening that it can be seen for only a very short time after sunset.

On February 1, Saturn rises at 8h. 28m. A. M., and sets at 7h. 13m. P. M. On February 28, Saturn rises at 6h. 49m. A. M., and sets at 5h. 44m. P. M.

##### Uranus.

Uranus is better situated for observations, during February, than any other planet. It is in good northern declination. It rises about 6 P. M. on the 1st, comes to the meridian a few minutes before 1 A. M. of the next morning, and sets at 7h. 46m. A. M.; it can, therefore, be seen for more than 12 hours. On the 28th, Uranus rises at 4h. 7m. P. M., comes to meridian at 11 P. M., and sets at 5h. 57m. the next morning. Uranus rises before the bright star Regulus, and, when on the meridian, is 2° above it. A small telescope will show its disc, looking like a very small full moon.

##### Neptune.

Neptune rises February 1 at 10h. 36m. A. M., and sets at 11h. 54m. P. M. On the 28th, Neptune rises at 8h. 51m. A. M., and sets at 10h. 11m. P. M. But Neptune can be seen only with the aid of good telescopes. It is among the stars of *Cetus*.

##### Sun Spots.

The report is from December 18 to January 15 inclusive. The large spot mentioned in the last report was observed until December 23, moving regularly across the disc on account of the sun's motion on its axis. Owing to cloudy weather, it was not seen after that date. On January 4, a very faint spot was discovered, already considerably advanced on the eastern limb. On January 9, when the next observation was made, a pair of very faint spots was visible on the eastern limb, while this faint spot, first noticed on January 4, was now on the western limb. On January 12, neither the single spot nor the pair could be found. The picture of January 12 shows a large spot on the eastern limb, followed by two very small ones. On January 13, another large spot appeared, irregular in shape and surrounded by faculæ. The photograph of January 14 shows a regular motion of these large spots; but one of the small ones, which were observed accompanying the spot first noticed on January 12, had disappeared.

These two remarkably large spots are still visible (January 17), and the one first seen on January 13 will remain on the disc for at least a week longer. It seems probable, from position and peculiarity of shape, that this is the same spot first seen on December 17.