and used it in his practice. He said it was much stronger than the opium he purchased at the drug stores.

Three feet is wide enough between the rows, with the plants six to ten inches apart. When the blooms drop, the capsules, or seed pods are cut with a sharp knife, the incisions shallow and perpendicular, and nearly the whole length of the capsules. This operation must be performed near sunset, and while there is enough light to see, to prevent evaporation and desiccation of the opium, and it must be scraped off as early as practicable the next morning, for the same reason. A spoon with sharp edges is a good implement for that purpose. Three or four incisions in each pod is sufficient at one time, equi-distant apart; they may be cut again between the first incisions with like success the second time. Cutting the capsules perpendicularly facilitates the gathering of the opium. The tediousness of slitting and scraping the seed pods will limit the quantity of opium made.

Here is a fine field for the chemist to extract opium, or morphia, at least, from the leaves, stalks, and capsules, as they all contain opium. After the juice that exudes from the pods is scraped off, it is placed in plates in the sunshine to dry, and is worked by hand, before it becomes dry and hard; that is all that is necessary. When dry, it is pure opium. No flower garden can excel a field of poppies in bloom.

Indian Springs, Ga. W.

New Method for preparing Pure Hydrochloric Acid.

Mr. Hofmann, chemist at Dieuze, has improved the usual method for preparing muriatic acid in the following particulars:

The receivers, which hold about 200 litres, and of which there are 60 attached to each furnace, are Woulfe's flasks, connected together by a pipe on top, in order to allow the circulation of the vapor, and one near the middle height, for that of the liquid. Hoping that the first 50 flasks were those that contained all the impurities, he disconnected the lower communication between the first ten receivers, filling them to one-third with distilled water; but was greatly surprised on noticing that it was the last bottles that contained the largest proportion of sulphuric acid. Experiments proved afterwards that sulphuric acid, when conducted over water in the form of gas, is absorbed only with difficulty.

To find a better method, Hofmann used a vessel with double tubulus, which he filled with crude muriatic acid, to which he added by means of a funnel oil of vitriol of 1·848 specific gravity. Hydrochloric acid was immediately disengaged, was passed through a Woulfe's washer, and conducted into a vessel with distilled water. The disengagement of acid gas proceeds quite regularly and does not bring about much rise of temperature; it ceases only when the specific gravity of the oil of vitriol has sunk to 1·566. The cost of this purification of muriatic acid then is very small; the dilute sulphuric acid is at once used in preparing sulphate, hence, calculating the cost of evaporation to 1·848 as amounting to 1 franc for 100 kilogrammes, and since 100 kilo. furnish 40 of muriatic acid, the increase of cost over the crude acid will be only 2½ francs above that of the crude acid.—(*Berichte der deutschen Chemischen Gesellschaft zu Berlin*, 1868.)

Assay of Gold Quartz.

First let the rock containing gold be roasted at a red heat, as is practised in regard to flints intended for pottery-ware manufacture; this roasting renders it easy to break the rock afterwards into small pieces. In this state the rock should be placed in a large earthenware (fire clay) tube, fixed in a furnace in a manner similar to the large fire clay retorts used in the manufacture of gas (double retorts), open at both ends and projecting beyond the furnace at each end; the heat in the interior of the tube should be bright cherry-red. If, under these circumstances, a current of chlorine gas be passed through the retort, the gold contained in the rock will combine at the high temperature with the chlorine, and become volatile therewith, whereas at the place were the heat of the tube or retort is less high, the chloride of gold will become again decomposed and gold deposited.—*Chemical News.*

Paraffin.

Dr. Bolley has found that paraffin (a pure sample of which having its melting point at 53° C., and which on analysis was found to contain in 100 parts—C, 85·61; H, 14·69), after having been kept for eight days at a temperature of 150° C., had become a brownish pasty mass. A portion thereof was soluble in alcohol, and was unaltered paraffin, but the dark colored residue yielded on analysis C, 70·04; H, 10·25; O, 19·72. A sample of paraffin which had been kept for some time at 300°, gave off vapors on being afterwards again heated up to 150. Paraffin if, in all probability, a mixture of various hydrocarbons, all of which have various melting and boiling points.

Purification of Bisulphide of Carbon.

According to M. Millon, the disagreeable odor of bisulphide of carbon can be got rid of by distilling it with quicklime, the two having been in contact twenty-four hours. The distillate is received in a flask partially filled with clean copper turnings. The lime remaining in the retort is strongly colored. By means of the deodorized bisulphide, MM. Millon and Commaille have separated the perfume of milk to the extent of recognizing certain plants eaten by the cow—the *Smyrnium olusatrum* among others.

Welding Copper.

The great obstacle hitherto experienced in welding copper has been that the oxide formed is not fusible. Mr. P. Rust, starting from the well known fact, that libethenite and pseudomalachite (both native compounds of copper and phosphorus acid) are very readily fusible below the blow pipe, concluded that any salt containing free phosphorus acid, or capable of yielding it at red heat, would make the weld easy by removing the oxide as a fusible slag. A first trial was made with microcosmic salt (phosphate of soda and ammonia) and succeeded perfectly; as that salt, however, is rather expensive, he substituted for it a mixture of one part of phosphate of soda, and two parts of borax, which answers the purpose, although the slag formed is not so fusible.—*Abbreviated from Dingl. Jour. in Chemical News.*

Mosquitoes.

The eggs of the mosquito are laid in a bowl-shaped mass upon the surface of stagnant water by the mother fly. After hatching out they finally become the "wiggle-tails" or wriggling worms that may be seen in the summer in any barrel of water that is exposed to the atmosphere for any length of time. Finally, the "wiggle-tails" come to the surface, and the full-fledged mosquito bursts out of them, at first with very short limp wings, which in a short time grow both in length and in stiffness. The sexes then couple, and the above process is repeated again and again, probably several times in the course of one season. It is a curious fact that the male mosquito, which may be known by its feathered antennæ, is physically incapable of sucking blood. The mosquito is not an unmitigated pest. Although in the winged state the female sucks our blood and disturbs our rest, in the larva state the insect is decidedly beneficial, by purifying stagnant water, that would otherwise breed malarial diseases. Linnæus long ago showed that if you place two barrels of stagnant water side by side, neither of them containing any "wiggle-tails" or other living animals, and cover one of them over with gauze, leaving the other one uncovered, so that it will soon become full of "wiggle-tails" hatched out from the eggs deposited by the female mosquito; then the covered barrel will in a few weeks become very offensive, and the uncovered barrel will emit no impure and unsavory vapors.—*Entomologist.*

Use of Phenate of Potash to Detect Water in Ether.

As dry phenate of potash is almost insoluble in anhydrous ether, while hydrated ether partially dissolves it, and the undissolved part, after some time, becomes reddish-brown, the author applies those characters to detect water in ether. By this means he has recognized the presence of so small a quantity as 2·5 parts of water in 1000 of ether.

Preservation of Hydriodic Acid.

This acid is kept and properly preserved in a white state in the presence of turnings of copper; the iodide of copper which is slowly formed is not dissolved by the acid; hydriodic acid which has become brown colored will be restored to its pure color when shaken up with copper turnings.—*Deutsche Industrie Zeitung.*

Cement for Leather.

This is not the cement hawked about the streets in wagons with hay, which is certainly never fed to the horses. We find it in the *Polytechnische Notizblatt*, a very excellent publication in German, and to be had of E. Steigher, 17 North William Street, New York. In a mixture of ten parts of bisulphide of carbon and one of oil of turpentine enough of gutta-percha is dissolved to form a mass of dense consistence. For the purpose of uniting the surfaces of two pieces of leather, they must all be free from fatty substances, which is accomplished by placing upon each some blotting paper and heating them with a flat iron. After putting on the cement, pressure is applied until it is quite dry.—*Druggists' Circular.*