The Original Fruit Canners.

We are indebted to Pompeii for the great industry of canned fruit. Years ago, when the excavations were just beginning, a party of Cincinnatians found in what had been the pantry of a house many jars of preserved figs. One was opened and they were found to be fresh and good. Investigation showed that the figs had been put into jars in a heated state, an aperture left for the steam to escape and then sealed with wax. The hint was taken, and the next year fruit canning was introduced into this country, the process being identical with that in vogue at Pompeii twenty centuries ago.

Boiled Glass.

Brittleness of glass is due to the quick cooling of the hot substance. It is known that constant motion tends to rearrange the molecule in any substance, and a similar effect is observed when glass is boiled in a weak solution of salt in water and allowed to cool gradually. The toughness of the glass is increased very much, and the effect of quick heating is less disastrous to it. This is easily applied to articles used in the laboratory and to glass globes for lighting purposes and prevents much breakage.

Not So Bad.

A young lawyer who has recently hung out his shingle here was retained by a criminal with $5 and a very poor defense.

"Well, you got a case, son?" said his proud father.

"Yes, dad."

"And what advice did you give your client?"

"After listening to his story I collected what money he had and advised him to retain a more experienced lawyer."

SYNTHETIC JEWELERY

SCIENTISTS ARE NOW IMITATING GEMS SUCCESSFULLY.

The Situation In Europe Where False Stones Are So Good as To Be Mistaken by Experts Is Growing Serious and Dealers Are Insisting on Legal Steps—Any Stone Can Now Be Counterfeited.

The deep flash of a blood-red ruby flares behind the plate glass of the jeweler's window. Fire burns in every facet. The lurid glow fascinates you. What is the figure?

The amount depends entirely upon the honesty of the dealer. If he knows you and you know him, he will be frank and tell you whether you are buying a real, nature-made gem, the product of untold centuries, the value of which is hundreds of pounds, or one of laboratory manufacture, which was made in an hour and which is valued at about two shillings a carat. You are at his mercy. Therefore, if you are a buyer of precious stones, make a friend of your jeweler and assure yourself of his honesty. For this is the hour of the unscrupulous dealer in man-made gems.

The sapphire and the ruby of human manufacture are everywhere. They are being "created" in the laboratories of the Paris chemists at the rate of about seven million carats a year. So nearly do they resemble the gems which nature requires centuries to produce that the expert alone can distinguish the real stone from that of laboratory origin. The average jeweler who has himself had little experience in handling these gems cannot tell the difference. He must take the expert's word that the stones he buys are genuine.

The trouble grows serious, especially in Europe. The buyer of a synthetic ruby or sapphire may go through life believing that he possesses a stone formed in the mighty workshop of nature, unless he happens to receive the opinion of an expert. In Germany and France, selling manufactured sapphires and rubies as genuine is so general that the jeweler's association of Paris and Berlin have asked their respective countries for stringent laws compelling the manufacturers to label their goods, and as there are more than five thousand cutters employed in turning out millions of carats of these scientifically made stones annually, there is a considerable output to be labelled.

There is no stone that cannot be imitated. By hardening glass to extraordinary strength, by studying out coloring schemes and by chemistry it is possible to imitate every stone almost perfectly. Of course, an examination of the glass product by a jeweler would show the difference, but there are few microscopes at the social gatherings where these gems are worn.

It is a costly business in a way. Sometimes as much as $5,000 is expended in experiments before the right coloring is obtained for some particular form of jewel which has become a fad. However, once the coloring is found the manufacture of the stones becomes cheaper and cheaper as the output grows. Sometimes glass jewels are turned out at a cost of less than sixpence a carat.

The instant a real gem of any particular charm appears in the market the chemists of all the artificial jewel makers begin to study it. And before the real jewel has approached the zenith of its popularity the artificial stone has been brought forth and is selling like the proverbial wildfire—at about one-fiftieth of the price of the real product.

But it is not in the really artificial stones that the jewelers see trouble. They know they can detect these where they cannot detect the synthetic gems. And in these synthetic gems lurk the danger. It would be possible, some jewelers say, to flood the market with scientifically made rubies and sapphires.

The cause of it all began about ten years ago in a crystal of purified alum, for from this material the synthetic stones are made. The inventor was M. Verneuil, of Paris, who followed the work of chemists whose combined efforts had extended over centuries. All of the experiments had been on the principle that since nature's gems were produced by heat the man-made stone could be produced in the same way. Crystals had been formed in this manner, but the process of coloring had formed the stumbling block. Verneuil solved the question by mixing oxides with the purified alum.

After this the alum and oxides were placed in an oxyhydrogen furnace so devised that the gem-making material would drop through an intense flame. Thus a base was formed of the half-melted powder as it fell before the range of the flame and piled steadily up. Higher and higher it went until the top was at the exact point of the flame. There it remained, and the gathering heat slowly caused it to form into crystals. Other powder was dropping from above. This, too, was formed into crystals, and M. Verneuil, after hundreds of experiments, opened his furnace to bring forth the first "boule" or rough bit of manufactured jewel.

This was sent to the cutters, and when their work was done it was announced to the world that the manufactured ruby was a reality. Work was then begun on the manufacture of sapphires. However, the coloring of this stone was more difficult, and it was two years before the work was completed.

M. Verneuil is now endeavoring to solve the coloring schemes of other stones in order to manufacture them also, but so far the sapphire, which is made in every color of the real gems, and the ruby, are the only stones that can be manufactured by the synthetic method.

Long Lived Lions.

Lions are comparatively long lived, instances having been recorded where they reached the age of seventy years.

AN AUTOMATIC DREDGE.

Russian Machine Dredges Rivers With Power From Current.

An interesting dredge which is automatic in its operation has been working on the river Volga, in Russia, for some time for the purpose of maintaining a level river bottom by moving the dirt from the high places and depositing it at the low spots. The dredge is the invention of a Russian nobleman.

Beneath the craft there is supported a screw by which the soil is gathered up. There seems to be almost no limit to the width of the channel that may be cut by this dredge. The screw's cutting surface may be increased as desired by the addition of sections, so that in some instances as much as 230 feet has been operated. The inventor sees no reason why the screw should not be made 600 feet long if found desirable.

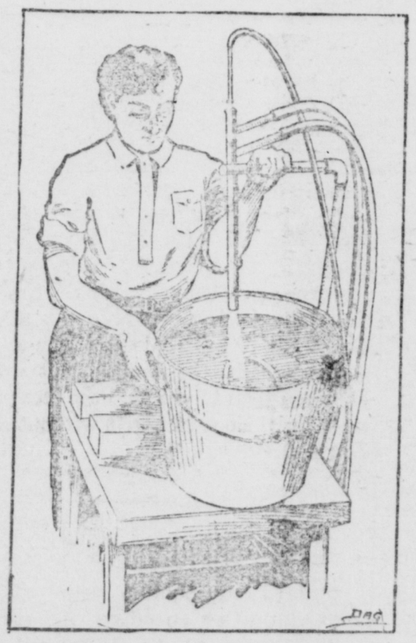
The power which drives this dredge is derived from the current of the stream on which it is at work. In operation these sections are secured together to the desired length on the shore and then launched into the stream, where the line of screws is secured beneath the dredge. When the craft is moved into a position where the full force of the current is encountered the machinery is automatically set in motion and the work proceeds.

By a recent improvement it is possible to deposit the soil on scows for removal to more distant points.

THE BLOWPIPE FLAME.

A Recent Invention That Melts Metal Submerged In Water.

The welding and melting of metals by the use of the blowpipe flame have opened up a new field for the manufacturer, says Popular Mechanics. An inventor has recently constructed a torch with which illuminating gas and air are used to practically duplicate the results obtained by the oxyhydrogen



MELTING METAL UNDER WATER.

or oxyacetylene flames. The blowpipe is made in numerous sizes for the various kinds of work.

The flame from the blowpipe made for jewelers does not produce a flame any larger than the size of a match, while any size may be used for larger work. One of the most remarkable features of this blowpipe is that it will melt metals while they are under water. The flame parts the water and will melt at that point only, the other surfaces being covered with water.

Vaccination For Typhoid.

The new preventive treatment for typhoid by inoculation with dead typhoid germs produces headache and malaise, sometimes even a bit of fever, but these symptoms soon pass and are followed by a feeling of unusual vigor and health.

The so called typhoid "vaccine" can be obtained now by any physician from the Army Medical school at Washington, where it is being put up in large quantities in tiny hermetically sealed vials, each representing one dose. The stuff is simply a "culture" of typhoid germs in beef soup, the microbes being killed by heat.

Two doses given with a hypodermic syringe are supposed to render anybody immune to the disease, putting him, that is to say, in exactly the condition for resisting attack that he would enjoy if he had really had typhoid fever and had recovered from it. —New York World.

Steam Collier of Stone.

The Italian engineer Gabellini is, according to the Debats, now engaged in constructing for the Italian government a steam collier entirely built of stone. Gabellini made experiments extending over several years with small stone skiffs and found them very buoyant and strong and easy to navigate. He is now building a steamer on an iron keel, forming a double framework first, into which cement is poured, thus forming the hull, which is extremely light and absolutely water tight. This hull, too, is smooth and can be polished like marble, and no shellfish or seaweed can become attached to it.

How to Kill Knots.

There is nothing better to apply on ordinary knots and pitchy places in boards than good grain alcohol shellac. Two thin coats of the shellac is much better than one heavy coat. Particularly bad knots are surely killed by covering them with some good outside varnish or gold size and letting it remain until "tacky," then laying on medium tin foil and burnishing. Let this dry thoroughly before applying the paint.—Popular Mechanics.

Improved Car Wheel.

For two years past the Pittsburg and Lake Erie railroad has been testing a car wheel that was designed by the chief engineer of the Carnegie Steel company. Although the Pittsburg and Lake Erie railroad carries an unusually heavy freight traffic, the wheel has stood up so well under the trying service that the company has announced that it will build a $3,000,000 plant at Homestead for the exclusive manufacture of the new wheel.

Hardness of Vanadium.

American saws of vanadium steel are claimed by J. M. Flannery to cut as many as 400 steel axles without attention, while the best imported saws needed grinding after cutting eighty axles. The best steel for metal cutting seems to be that containing vanadium, .32 per cent; tungsten, 17.81 per cent; chromium, 5.92 per cent; carbon, .682 per cent; manganese, .07 per cent; silicon, .049 per cent. In the tests made vanadium steel saws intended for wood cutting are reported to have cut a twenty penny nail and even to have sawed through an iron pipe an inch in diameter without injury to the teeth.

ESSENCE OF MUMMY.

Queer Medicine That Was Used Not So Long Ago In Persia.

In former times strange products were used as medicines. Among them was essence of mummy, which held a place in the pharmacopoeia even during the last century.

Two sorts of mummies were used for the production of the extract—the true and the artificial. True mummies were disinterred from the valley of the Nile and forwarded to Europe and Asia by the Arabs. Their therapeutic virtues were attributed to substances used by their embalmers. The saving or curative principles of those substances were supposed to have been preserved and held intact by the swathing bands used with secret and peculiar art to wrap the dead. Essence of mummy was recommended in cases of convulsions, as a cure for boils, in epilepsy, colds, etc.

In Persia embalming was once the rule. The shahs offered mummies, or portions of mummies, as gifts to the monarchs whose friendship they respected, and chroniclers record the fact as worthy of historical note that Louis XIV. and Catherine of Russia received, among numerous gifts of various sorts, golden chests containing mummified human members. In 1699, when Princess Charlotte of England was sick, her doctors administered "esence of mummy."

A manuscript recently found, the production of the Persian poet Nizam, gives the formula for producing the synthetic mummy. According to that prescription, the man selected was of tender flesh and fine, thin skin—a man whose chief nourishment had been fruit. At the age of thirty years his throat was cut and his body, while still warm with life, was placed in a stone urn filled, save for the space required for it, with honey and with balsamic substances. The full urn was sealed and set away to ripen. At the close of a period varying from fifty to a hundred years the body, completely mummified, was taken out and the extraction of the "essence" was made.

Raising Water With Air.

As all schoolboys know, a suction pump can theoretically elevate water only about thirty-three and one-third feet, a column of water of that height balancing the atmospheric pressure. A means has, however, been found of causing a suction pump to raise water to a height of even sixty feet. The invention was made by a workman in the French marine. M. Eyssera, the chief engineer of the marine, remarked that one particular pump showed extraordinary qualities in drawing water from ships' holds. Inquiry developed the fact that a workman had thought of the plan of introducing air into the water at the point where the suction was applied, thus producing an emulsion of air and water, which, because of its diminished density, was capable of being elevated to considerably greater heights than pure water.

Buying Fish In Copenhagen.

Copenhagen has a model fish market, built by the municipality. With the exception of the larger varieties, like cod and halibut, all the fish are kept alive in tessilated tanks filled with running water. There is no other town where all the fish, whether cheap or dear, are so beautifully fresh. In the harbor there are a large number of wooden boats pierced with holes and filled with fish. These boats just float on the surface of the water, and the living fish are taken out of them when wanted. But, as every one cannot go to the water's edge to buy fish, there are water tanks on wheels, and the live fish are brought to the doors of the people's houses.

A Chinese Ruse.

Over 2,000 years ago there was a war between China and Mongolia, and China was invaded by a Mongolian army under Mao-tun. The Chinese Emperor was besieged in the city of Ping, and when the situation seemed to be hopeless he ordered that a number of lay figures representing beautiful women be made and exposed on the city walls. He then caused a message to be sent to the wife of the Mongolian leader to the effect that these attractive maidens were intended as a present to her husband. The ruse was entirely successful. The siege was raised forthwith and Mao-tun was removed out of the temptation zone by his apprehensive spouse.

A Curious Custom.

In Scandinavia the wedding shirt is an important part of the husband's marriage outfit. It is usual for the groom, among other gifts, to bestow upon his bride a prayer book. In reciprocation she gives him a neatly embroidered shirt, and this he invariably wears on his wedding day. Afterward he puts it away and does not wear it again while alive, but he wears it in his grave. The Scandinavian widower must destroy, on the eve of his second marriage, the wedding shirt which his first wife gave him.

Mosquito Eggs.

The eggs of the mosquito are fastened together by a viscid secretion from the insect's body. From 250 to 300 eggs are laid at a time, and the little boat shaped mass is so constructed that it will not capsize. It cannot be sunk nor in any way injured by wind, rain or water. It is abandoned by the insect, and the eggs are hatched by the heat of the sun or atmosphere. A temperature below freezing is said not to destroy the vitality of the mosquito's eggs.