

oven bottom. The height and bore of these burners must be determined by the maximum temperature required and the insulation of the oven. A burner having a $\frac{1}{4}$ " bore at D suffices for an oven of 1 cubic foot internal capacity and operating at a temperature of 53° C.

A similar oven operating at a temperature of 38° C. would require a burner of $\frac{5}{32}$ " to $\frac{3}{16}$ " bore and somewhat shorter than the burner for higher temperatures. A burner of this type and of the proper capacity always burns a blue flame, and gives the greatest satisfaction.

The regulator here described is constructed entirely of steel and is designed for an oven of 1 cubic foot internal capacity. A larger oven requiring more gas would, of course, require a regulator having larger ports.

This regulator was designed to take the place of other thermo-regulators which have proven unsatisfactory and unsafe where gas is used for heating. It controls temperature within one-half of a degree regardless of gas pressure or room temperature.

Four of these regulators have been in successful operation in the laboratories of the Wistar Institute during the past season.

Embalming of Bodies for Teaching Purposes.

BY

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For some time past, I have been experimenting to improve the dissecting material at Tulane.

The first aim is, of course, thorough and complete preservation; second, the softness of the tissues, as they are found in the unembalmed subjects; third, the color of the muscles and organs, the securing at least of a *brown dark* color for the muscles; fourth, the distention and the coloring of the arteries, without coloring the adjacent tissues.

After many experiments, the following formulæ have been reached by me and give almost perfect satisfaction, meeting the four requirements mentioned above.

FORMULA FOR EMBALMING BODIES FOR THE DISSECTING ROOM.

A.

Water	one and a half gallons
Arsenious acid (saturated solution).....	one gallon
Formalin (formaldehyd 40%)	eight ounces

B.	
Alcohol	sixteen ounces
Carbolic acid (liquefied crystals).....	eight ounces
Glycerine	sixteen ounces
Creosote (Beechwood).....	two ounces

Dissolve the carbolic acid in the alcohol, etc., then mix B with A. Strain through a towel.

If the injection is made through the femorals, reserve about one half gallon for the two legs. After injecting, stand up the subject, or suspend for two or three days.

The longer the time before dissecting the subject, the better the color.

FORMULA FOR INJECTING THE ARTERIES.

Hot water (not boiling water)	one quart
Corn starch (q. s. to make a mixture like thick cream)	
	about two pounds
Crimson aniline solution (q. s. to give a satisfactory color)	
	about one and a half ounces.
Tartar emetic solution.....	about three drachms

REMARKS:—Do not use boiling water, lest it cook the starch.

Practice will teach if one quart is enough. I use Duryea's corn starch in one pound packages, sold by all grocers.

Sift the starch through a sifter. (I use Hunter's.)

Practice will teach the proper amount of starch to use to distend the arteries.

When the piston of the syringe feels a resistance, it is enough. More pressure may cause internal ruptures.

It sets in about one day.

Practice will teach the quantity of crimson aniline solution to use for a satisfactory color.

To prepare the solution of crimson aniline:

Water	one quart.
Alcohol	one ounce
Crimson aniline crystals	one ounce

Practice will teach the proper amount of tartar emetic solution to use. Too much will keep the walls of the arteries from being stained. Too little will allow the aniline to diffuse beyond the walls and color the veins, nerves and connective tissue around the arteries.

To prepare the tartar emetic solution:

Waterfour ounces.
Tartar emeticone drachm.

I am indebted to Dr. Philip Asher, of the College of Pharmacy of this city, for the most valuable suggestion of the use of tartar emetic, and for the foregoing formula.

FORMULA FOR EMBALMING BODIES FOR OPERATIVE SURGERY.

- A.
Arsenious acid (saturated solution) ..two and a half gallons.
Potassium nitratetwo pounds.
Formalinfour ounces.
- B.
Alcoholsixteen ounces.
Carbolic acid (liquefied crystals).....eight ounces.
Glycerinesixteen ounces.
Creosote (Beechwood).....two ounces.
- Mix B with A.

FORMULA FOR EMBALMING BODIES FOR MAKING MUSEUM PREPARATIONS.

- A.
Waterone and a quarter gallons.
Arsenious acid (saturated solution) one and a quarter gallons
Potassium nitrateone half pound.
Formalintwo ounces.
- B.
Alcoholsixteen ounces.
Carbolic acid (liquefied crystals).....six ounces.
Glycerinesixteen ounces.
Creosote (Beechwood).....two ounces.
- Mix B with A.

This is a weaker solution than the foregoing, and the subjects must be worked up without loss of time in warm weather.

FORMULA FOR MAKING PATHOLOGIC PREPARATIONS FOR MUSEUMS.

The formula written above for making anatomical preparations for museums often gives very good results also for making pathological specimens, but the solution must be injected into the arteries, etc. To immerse simply a pathologic specimen into the solution will seldom

give satisfactory results, whereas injected specimens seldom fail. Injection and immersion with the same solution are not the same thing at all. However, the formula recommended will often change the color of the stomach and intestines into a dull gray, and harden them.

The following will not do that.

- A.
- | | |
|-----------------------------------|-------------------------|
| Arsenic (saturated solution)..... | one and a half gallons. |
| Potassium nitrate | one-half pound. |
| Formalin | two ounces. |
- B.
- | | |
|-----------------------------------------|-----------------|
| Alcohol | sixteen ounces. |
| Carbolic acid (liquefied crystals)..... | four ounces. |
| Glycerine | sixteen ounces. |
| Creosote | two ounces. |
- Mix B with A.

This solution is very weak. The embalming will often escape notice. It will very material assist, though, in making good pathological preparations. It will often delay decomposition for a few days even in a warm climate. It is best to work up the subject at once in warm weather.

By saying that subject must be worked at once, we mean that the parts to be preserved must be cut out within twenty-four hours and placed at once in a weak solution of carbolic acid (one ounce to the gallon of water), or in alcohol (ten ounces) with carbolic acid (one-half ounce) to one gallon of water.

The solutions must be changed as soon, and as often, as they become cloudy or discolored. This is very important, lest the impurities in the solutions will affect the color of the tissues.