TABLE 1

WATER EXTRACTION OF ALKALI IN WOOD ASHES

Extract No.	Wood ashes, g	Water added, ml	Lime added, g	Filtrate obtained, ml	Rosin dissolved, g
6	10.0	100	4.0	73	2.7
11	30.0	300	12.0	240	10.0
12	30.0	300	12.0	230	9.8

Varnishes were prepared from these resins and raw linseed oil, using turpentine as the solvent. The varnishes were perfectly transparent and were identical in properties with similar varnishes previously described (*2*) that satisfied the criteria demanded for a re-creation of the old Italian varnish. A brown varnish was prepared as follows:

Preparation of resin: 65 ml alkali rosinate solution and 31 ml solution containing aluminum and iron sulfates.

Preparation of varnish: 2.0 g Al-Fe rosinate dissolved in 4.0 ml turpentine, to which 2.0 ml raw linseed oil was added.

Goldblatt (*1*) subjected the dried film from this varnish to a spectrographic analysis, and the results are reported in Table 2.

TABLE 2

ANALYSES OF A RE-CREATED ITALIAN VARNISH AND A STRADIVARIUS VARNISH

Element present	Re-created varnish, %	Stradivarius varnish, %
Al	0.1 –1.0	0.08 –0.8
Fe	.05 –0.5	.01 – .1
Si	.05 – .5	.08 – .8
Ca	.01 – .1	.03 – .3
Mg	.005 – .05	.01 – .1
Cu	0.0001–0.001	0.005–0.05

The spectrographic analysis of the Stradivarius varnish, also by Goldblatt, has been previously reported (*5*), and the elements common to both analyses are included in Table 2 for comparison purposes.

The two analyses are significant for several reasons. The cause of the presence of silicon in the old Italian varnish has been explained. A fairly pure grade of lime was used in the extraction of the alkali from the wood ashes; the silicon content in the re-created varnish would have been higher if lime produced from siliceous limestone had been used. The alum and copperas were pure chemicals; these materials as they were produced centuries ago no doubt contained impurities that would introduce other elements into the varnish. The explanation for the presence of silicon supplies information as to the method and the materials that might have been used by the old Italians in the preparation of their varnish.

Only the wet, or precipitation, method has been considered in this preparation of the resin for the brown varnish. Metal rosinates can also be prepared by the dry, or fusion, method. When rosin with or without linseed oil was heated with sienna, ochre, and umber (pigments containing aluminum, iron, and silicon), the resulting resins did not contain sufficient silicon, and the varnishes were usually turbid, even after prolonged standing. This, too, would indicate that the precipitation method was the one used for the preparation of the resins for the brown varnish. The possibility does exist, however, that the colorless varnish and some of the other colored varnishes were prepared by the fusion method (*4*).

The similarity of the analyses of the re-created varnish and the Stradivarius varnish in Table 2 is also noteworthy. A varnish has now been prepared that compares favorably in the composition of a group of its constituents with the varnish used by the celebrated master. The similarity of the re-created varnishes to the old Italian varnish with respect to color, permanence of color, transparency, and other properties has already been reported (*2*).

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Summer Growth of the American Oyster in Florida Waters[1]

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Various investigators (*3, 4, 5*) have found that the American oyster *Ostrea virginica* grows an average of 1 in. per year in water north of, and in, Chesapeake Bay. Usually the growth is greater than 1 in. the first year but declines in subsequent years. This growth takes place only during the summer months, and it has been shown by Loosanoff (*2*) that there is no increment during the winter months.

In the Apalachicola Bay area a study is being made of the growth of *O. virginica* in Florida waters. The object of this investigation is to provide data on the growth of all sizes of oysters at all seasons of the year. Results of studies made during the summer season (May–October, 1949) indicate that growth in Florida waters is considerably more rapid and more extended than that observed in northern waters. No other recorded data on growth rates of Florida oysters have previously been published.

Growth of oysters from time of setting to 6 weeks of age was observed on spat that adhered to shell contained in wire baskets of the type commonly used in the study of oyster spawning (*1*). Studies on growth of oysters 11–16 weeks of age were made on individuals that adhered to cultch. Oysters 16–31 weeks of age were studied by

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TABLE 1

SUMMARY OF MAXIMAL OYSTER GROWTH-RATE STUDIES APALACHICOLA BAY, FLORIDA

Experiment	Age, weeks	Date measured	Size, mm	Period in weeks	Increment	Weekly increment
Wire baskets planted May 26, 1949	1	6- 2-49	4.5	1	4.5	4.5
	2	6- 9-49	8.0	1	3.5	3.5
	3	6-16-49	11.7	1	3.7	3.7
	4	6-23-49	21.0	1	9.3	9.3
	5	6-30-49	29.9	1	8.9	8.9
	6	7- 7-49	34.1	1	4.2	4.2
Cultch planted June 6, 1949	11	8-21-49	47.1			
	15	9-18-49	62.4	4	15.3	3.8
	16	9-25-49	68.1	1	5.7	5.7
Gowth-rate trays*	16	7- 8-49	70.0			
	25	9- 9-49	88.0	9	18.0	2.0
	31	10-21-49	104.0	6	16.0	2.7

* Approximate age calculated from previous data.

placing them in trays. All readings were made upon well-rounded individuals. No crowded or elongated oysters were used. A summary of the maximum growth attained by the various age groups is given in Table 1.

It is shown in Table 1 that a length of 1 in. is achieved in Florida in 5 weeks. This is nearly a year's growth in northern waters. Moreover, a length of 4 in. is attained in Florida during 31 weeks of the warm season, whereas an equal growth in northern waters would require approximately 4 years.

During the period of this study, the salinity averaged 26.3 parts per thousand (range: 12.7–33.6). The mean temperature of the water was 28 °C (range: 26–30.5).

A more detailed account of these growth-rate studies will be published elsewhere.

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A Micromacerator

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This tissue macerator has proved itself very useful in the rapid reduction of embryonic or other tissues to a fine uniform emulsion prior to the preparation of tissue extracts. The particles so produced are small enough so that, when stained smears of the product are examined under the microscope, very few whole cells or nuclei can be found.

A 10-cc glass syringe is the main item required for the manufacture of this macerator. The cylinder, which is to act as the rotor, is set into a base receptacle cut to form from a No. 8 rubber stopper, as shown in cross section in Fig. 1. A hole 1/10 in. in diameter is drilled into the center of the stopper to a depth of ¾ in., and then enlarged to a depth of ¼ in., so that the base of the cylinder may be snugly fitted into it while the tip projects deeper into the smaller hole. It is preferable to use the smaller end of the stopper for this step. Another ¼-in. hole is drilled into the center on the other side to a depth of ¼ in.

[1] Acknowledgment is given to K. M. Richter, associate professor of histology and embryology, for his assistance and suggestions, and to the Department of Physiology for the use of equipment.

The stator is constructed from the piston portion of the syringe. By means of a glass-cutting saw or grinder, a shallow groove is cut around the outer circumference of the piston at a distance of about 2½ in. from the lower end. At two points in the groove, and located diametrically opposed one another, holes ⅛ in. in diameter are drilled through the wall and into the inner chamber of the hollow piston. Another hole, large enough to permit the entry of a No. 00 rubber stopper, is cut into the head end of the piston.

The receptacle for the head end of the stator is prepared as shown in Fig. 1. A hole is bored through the center of a No. 10 rubber stopper just large enough to hold the wide end of the No. 00 stopper. The hole at the narrow end of the No. 10 stopper is further enlarged to fit over the head end of the stator as illustrated. A piece of glass tubing, 2 in. long, is cemented into a hole bored through the No. 00 stopper.

To operate the instrument, about 2 cc of tissue is placed in the bottom of the cylinder, and the air is expelled by pushing down the plunger while the needle-holding tip is pointing upward. The tip and base are then firmly pushed into the rubber stopper receptacle, thus sealing off the tip. The glass tube is connected to a vacuum system by means of a rubber tube. The lower hole and the rubber base of the rotor are centered on the chuck plate of a medium-speed electric motor, in either vertical or horizontal position. The rubber headpiece of the stator is gripped in the hand and the motor is switched on. A gentle pressure is exerted on the stator