

surface could then be taken, applying forces which would cause rotations through acute angles only.

For recording the scatter plots before removing the coins, a device could be arranged to fit over the tray in such a way as to register automatically the number of coins in each cell. For researches in which the scatters are needed, something will have been gained in a standard machine method of recording scatters. When not needed, little will have been lost in making the scatters, because plotting often requires little more time than does organizing the material for use in other correlation methods.

In so far as the tray's weight would be uniform, correction of the moments for this factor should be possible as part of the calibration of the machine. Coefficients higher than .90 might require special attention because, while their smaller probable errors would require the greater precision, their  $\Sigma_{\min}^2$ 's would be small and probably difficult to measure. With  $\sigma_1 = \sigma_2 = 1$ , an  $r$  of .96, for example, has  $\Sigma_{\max}^2$  and  $\Sigma_{\min}^2$  equal to  $(1+r)$  and  $(1-r)$  or 1.96 and .04, respectively. However,  $\Sigma_{\min}^2$  need not be measured, since, having obtained  $\sigma_1^2$ ,  $\sigma_2^2$  and  $\Sigma_{\max}^2$  in the machine, it is determined by Yule's first equation above. This relation should also be useful in checking and in calibrating the machine.

The method appears to warrant experimental work because, given a device adapted to these problems, the determination of a coefficient would require only that a few measurements be taken from the correlation surface. Presumably an operator provided with tables appropriate to the method should be able to report a plotted coefficient, together with means and standard deviations, in less time and with greater likelihood of accuracy than seems possible by methods of standardizing correlational arithmetic.

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### DENATURIZING FORMALDEHYDE

MANY of us who work in anatomy and pathology laboratories and others who work with material preserved in formaldehyde solutions have often wished that the irritating properties of the formaldehyde could be overcome. Recently there appeared in SCIENCE (Vol. 73: 495-496; 675) two discussions covering the disagreeable effects of formalin and a method which in a measure would reduce some of these effects.

In our laboratories we have been able to counteract to a very satisfactory degree some of the objectionable effects of formaldehyde. Museum specimens preserved in formaldehyde solution (4 per cent. to 10 per cent. formalin in water) and dissection material so

preserved have been removed from the preservative, washed in water, then submerged for 15 to 30 minutes in an aqueous solution containing 5 per cent urea and 1 per cent. ammonium phosphate. Before returning to the original formaldehyde preservative the specimens were again rinsed in water to remove any free urea. Many repetitions of the method have failed to show any bad effects on the tissues so treated. During a period of 3 to 4 hours dissection or demonstration subsequent to the treatment no irritating effects from formaldehyde were evident.

In applying this process to our embalming procedure, we have used as our regular embalming solution: Formalin, 12 to 20 per cent.; glycerol, 10 per cent.; potassium nitrite, 0.1 per cent.

The embalmed cadavers have been kept for various periods previous to dissection. One or two days before the cadavers are turned over to the students a cold cornstarch-red-lead mass containing 5 per cent. urea has been injected into the arterial system. One difficulty with the method is that mold growth appears to be enhanced and greater vigilance in mold control is necessary. To combat the mold growth, we have had success only with topical applications of known fungicides.

The atmosphere of the dissecting room has been remarkably free from formaldehyde following the application of the method described, and the irritating effects of formalin on the skin and mucous membranes of the students and instructors have been almost nil.

The experiments upon which these observations were based were largely financed by a grant from the Graduate College.

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