This stapedial artery is phylogenetically responsible for the characteristic stirrup-like ossicle in the mammals as opposed to the mushroom-like columella in birds. A clatter of the ossicles in the mouse may, therefore, be automatically damped out and careful investigation is demanded, employing pure tones of known intensity. The investigation under way may throw light not only on the causal factor of the degenerations of the organ of Corti, but may also solve the problem of the reactions of the intrinsic muscle as a damping mechanism to eliminate clatter, as well as to adjust the ossicles to the variable topography of the middle ear.

3624

Steam Distillation of Volatile Fatty Acids From a Saturated Salt Solution.

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During a study of the volatile fatty acids of stools, a method was sought for their rapid distillation. Duclaux[1] showed that each volatile fatty acid has a specific distillation rate. Fractional distillates collected from mixtures of these acids contained the acids in proportion to their concentration and their respective distillation rates. Direct distillation for the identification of volatile fatty acids is inaccurate. Dyers method of steam distillation provides a means for fairly accurate determination of the mixture of two or three acids.

Our problem was the distillation of fatty acids from filtrates of stools; the organic matter having been precipitated. The filtrates contained large amounts of inorganic salts which could be expected to disturb the distillation rates even when obtained by steam. Some advantage would be obtained by accelerating the rates of distillation of such acids as formic and acetic. Also added accuracy would be obtained in the identification of these acids if the differences in their distillation rates could be increased.

It has long been known that proprionic and butyric acids may be salted out of solution by adding sodium or calcium chloride to saturation. It was found that if steam is passed through a saturated salt solution containing a volatile acid, the rate of distillation of the acid is greatly accelerated. The method of procedure is as follows:

To 100 cc. of water containing from 5 to 20 cc. of a 0.1 N solution of formic, acetic or butyric acid, 70 grams of magnesium sulphate was added, 2 cc. of 50 per cent solution of sulphuric acid, to assure strong acidity. Steam was passed through the salt mixture at such a rate that ten to fifteen minutes were required to collect each 100 cc. fraction of distillate. Six 100 cc. samples of distillate were collected. The volume of the salt solution was kept rigidly constant. Phenolphthalein was used as an indicator in titrating distillates. The rates of distillation of formic, acetic and butyric acids are as follows:

TABLE I. *Distillation of Volatile Fatty Acids.*

	100 cc.	200 cc.	300 cc.	600 cc.
	Per cent.	Per cent.	Per cent.	Per cent.
Formic	29	52	66	90
Acetic	63	86	93	98
Butyric	92	96	97	98

Mixtures of these acids when distilled under the above conditions showed rates in proportion to their concentration and their specific rates of distillation.

The advantages of the method are, that the acids are more rapidly distilled; that the solutions of acids contaminated by inorganic salts may be distilled, and that the difference in rate of distillation between formic and acetic acids is greatly increased.

This is a preliminary report.

3625

Effect of Cyclic Changes in Female Guinea Pig on Cell Proliferation in Epidermis.

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It occurred to us that the epidermis may be a tissue in which cell proliferation can be readily determined in a quantitative manner and that in this way a method might be worked out which would allow us to determine the effect of various conditions and substances on cell growth in general. We have therefore determined quantitatively the number of mitoses occurring in the epidermis of several species of animals and also the number of cells in the lower and upper layers of the squamous epithelium.