firms the observation of Toeniessen and Fisher and indicates that the substance is actually methyl glyoxal; but conclusion is withheld until a larger quantity of the substance is prepared and submitted for further analysis. The importance of this observation makes very desirable a detailed investigation of the reactions involved. Hexose phosphate alone, liver (or muscle) extract alone, or heated extract plus hexose phosphate does not yield the glyoxal-like substance.

The formation of methylglyoxal under the conditions stated perhaps indicates that the conversion of hexose phosphate to lactic acid takes place in steps, hexose phosphate → methyl glyoxal → lactic acid. The glyoxalase, responsible for the second step is largely destroyed during the first day of autolysis, while the ferment presumably responsible for the first step (phosphatase) is apparently still active.

[1] Toenniessen and Fischer, *Z. f. physiol. Chem.*, 1926, clxi, 254.

3623

Protective Mechanism Against Acoustic Insult in the Mouse.

A. G. POHLMAN.

From the St. Louis University School of Medicine.

Practically all experimental animals except the small rodents show evidence of cochlear degeneration when exposed to prolonged acoustic insult. Experimental degenerations of the cochlea have been employed as a method of determining specific pitch areas in the organ of Corti. There is, however, a difference in opinion on the causal factor of the lesion. The majority hold it is due to an excessive stimulation dependent on the pitch and intensity and is, therefore, a criterion of a specific area of reception. The minority holds the degeneration does not appear until the intrinsic muscles have been fatigued and that it may represent a result of clatter in the ossicular apparatus. This would mean the lesion is not dependent on the pitch. If the mouse really escapes intact under conditions which cause lesions in other experimental animals, then an additional protective mechanism in the middle ear must be sought. Small rodents show a rather remarkable departure from the usual middle ear picture. The stapes is traversed by a large artery which must certainly act as an efficient and tireless damping mechanism.

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.

W. H. OLMSTED AND W. M. WHITAKER. (Introduced by D. Barr.)

From the Department of Internal Medicine, Washington University School of Medicine.

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: