pneumotoxicity of Newcastle disease virus (*10*) and by the neurotoxicity of influenza virus (*11*).

To the extent that the Rous sarcoma is typical of other virus-induced tumors, it is important that tumor response to at least one chemotherapeutic agent is greatly influenced by the amount of virus used to initiate the tumor.

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On the Intimate Composition of Membranes of the Inner Ear

In 1953 (*1*), autoradiographic studies of radiosulfate incorporation by the inner ear were conducted in our laboratory. This work revealed a relatively high uptake by the membrana tectoria and also by the gelatinous mass of the cupula, while the otolithic membrane of the macula recorded a lower concentration. Radiosulfate ($S^{35}O_4$) was also detected in all three membranes by Ringertz (*2*), who used a similar approach. Furthermore, our ethanol-formalin fixed, undecalcified tissues stained metachromatically with toluidine blue in all the areas that have revealed an uptake of radiosulfate (*3*) including the inner-ear membranes (*1*). These results seemed to indicate that the radiosulfate was retained as newly synthetized sulfomucopolysaccharides.

Recently, Wislocki and Ladman (*4*) have challenged this hypothesis on the basis of studies of decalcified newborn-mouse tissue fixed in lead acetate or Zenker's acetic acid fluid which revealed no metachromasia. On the other hand, those authors have obtained a positive result with the Barrnett and Seligman test for SH_2 and S—S groups and conclude that the uptake of S^{35} which we had observed might be explained by the formation of disulfide groups associated with cystine.

If there was a concentration of sulfur-containing amino acids in the inner ear membranes, such as is encountered in keratinized tissues, S^{35}-labeled cystine or methionine (*5*) would be expected to produce a more intense autoradiographic reaction in these sites than $S^{35}O_4$, for the amount of cystine and methionine biosynthesized from sulfate in mammalian tissue is known to be very small (*6*).

While currently conducting a general survey of uptake of S^{35}-labeled methionine and cystine (*7*), we have had the opportunity to observe several specimens of the inner ear in rats labeled at 8 days of age and sacrificed at intervals of 1, 2, and 6 hours and 1, 2, and 4 days thereafter (*8*). The histoautoradiographic processing has been the same as previously reported for the radiosulfate series (*1, 3*). The tissues that are known to contain keratin—the epidermis, hair, and tooth enamel—revealed a high uptake of labeled amino acids.

Although cystine is the most important sulfur-containing amino acid of the keratins, it has been shown by Tarver and Schmidt (*9*) that when labeled methionine is introduced into an experimental animal, a large proportion of the radioactive sulfur appears in crystallized cystine from hair and skin. This is an indication that there is conversion from methionine to cystine at the level of the tissues. The other structures, synthetizing proteins with a low concentration of sulfur-containing amino acids, showed a much lower graded uptake, which was assumed to be proportional to the local rate of synthesis (*7*).

The inner ear, by comparison with other regions of nonspecific uptake such as the bone (Fig. 1), is definitely an area of low concentration, producing an autoradiographic record only after exposures of several months. Within this structure, certain features such as the area vasculosa and the spiral lamina appear to be more active than the general tissue background. On the other hand, the tectorial membrane (Fig. 1, arrows), the cupula, and the otolithic membrane were constantly negative.

These results must be compared with the large concentration of $S^{35}O_4$ previously reported (*1*) and presumably bound to large polysaccharide molecules. Furthermore, it has been possible to reproduce on the present material, with or without demineralization, the strong periodic acid-Schiff staining of the membranes that was described by Wislocki and Ladman (*4*).

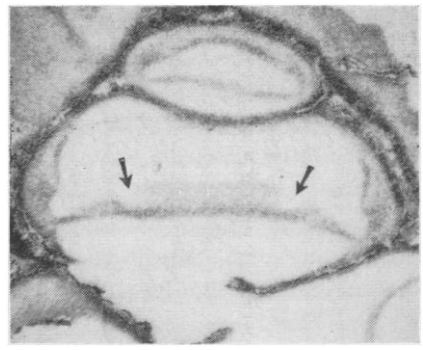

Fig. 1. Integrated autoradiogram of the cochlea of a 9-day-old rat, 24 hr after an injection of S^{35}-methionine (× 29). The organ of Corti shows a general low uptake. The tectorial membrane (arrows) is negative.

It seems evident that the inner-ear membranes contain a large amount of polysaccharides and that these are at least partly sulfated. On the other hand, as compared with the skin, hair, and enamel, the inner-ear membranes synthetize virtually no protein from S^{35}-methionine.

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Effect of Sensory Deprivation on Learning Rate in Human Beings

Recent theoretical considerations (*1*) concerning brain functioning have so emphasized the necessity for constant sensory bombardment in order to maintain normal, intelligent, adaptive behavior that it is only natural to speculate about the effects of reduced sensory stimulation. As interesting as it might prove to be, it is obviously not possible to stop completely all sensory input and still maintain a responsible observer. It is possible, however, by rigid conditions of confinement, to minimize not only the amount of sensory input but also to bring about a drastic reduction in its variability. Such a condition of confinement, to be