

the functions of secretion of antibodies and of scavenging are sharply differentiated,⁵ the most reasonable interpretation is that these destructive ionizing radiations have produced aberrant secretory cells, possibly analogous to the neoplastic cell in multiple myeloma.

The phenomenon of convergence of the oligodendroglia and of the microglia seen in these preparations is further evidence of the thesis supported by the senior author^{8,9} that the microglia and the oligodendroglia are functional states of the same cell type and that both contribute to the formation of inflammatory cells in encephalitic disease. The clarity with which this process can be seen in the transition zones of the beta ray lesions makes the demonstration of similar evolution of the two species of mesoglia more obvious than any other preparation. That it is not simply a particular response to this highly unusual stimulation is substantiated by the parallelism of the changes in herpetic virus disease.

Summary. 1. The application of small, high-energy, applicators of radium emanation

⁸ Campbell, B., *Anat. Rec.*, 1947, **97** (Suppl.), 7.

⁹ Campbell, B., *J. Neuropath. and Exp. Neurol.*, 1949, **8**, 347.

to the cerebral cortex of cats produces restricted lesions in which progressive changes of the cells of that tissue may be followed from normal appearing tissue to that showing complete necrosis over a distance of several millimeters.

2. Nerve cells so affected show two types of destruction. One involves lysis of the cytoplasmic structures and degeneration of the nucleus into a small aggregation of basophilic granules. The other consists of chromophilic alteration of the cells. The pyramidal cells of layers 2, 3, and 5 seem especially susceptible to this change. The cells become shrunken, extremely heavy staining, and show hypertrophy of the nucleolus.

3. The astrocytes are the most susceptible of the various cells of the cerebral cortex. They undergo lysis in the middle zones of the lesions.

4. The mesoglia cells, oligodendroglia and microglia, are highly resistant. They show progressive changes, from the edge to the center of the lesions, which by convergence, make the two types indistinguishable. The product of these changes is a plasma-cell like structure which shows no phagocytic activity.

Received June 28, 1949. P.S.E.B.M., 1949, **72**.

Lysozyme Content of Granulation Tissue.* (17324)

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The highest lysozyme concentrations in the mammalian body occur in tears and in the mucosa of the antrum, pylorus, and duodenum.¹ The origin of these high local concentrations presumably is epithelium, *i.e.*, the tear glands and as yet undetermined cell types in the gastrointestinal mucosa. In contrast, the lysozyme titer in mesodermal tissue is low;

for example, serum averages 1 unit/cc,¹ and human leucocytes (from the buffy coat of normal blood) contain only 1.8 units per 5,000,000 cells.² However, human cartilage averages about 40 units/g, although this value is without doubt too low because of the difficulty in extracting this tissue. Normal human skin (including a considerable quantity of fibrous tissue) was found to have less than 1 unit/g.

The finding of high lysozyme titres in gran-

* Supported in part by the Research Grants Division of the U. S. Public Health Service, and the Josiah Macy, Jr. Foundation.

¹ Meyer, K., Prudden, J. F., Lehman, W. L., and Steinberg, A., *Am. J. Med.*, 1948, **5**, 482.

² Meyer, K., in *Modern Trends in Ophthalmology*, 2:71, Paul B. Hoeber, New York, 1947.

TABLE I.

Granulation tissue	Titre in units/g
A. Tissue from experimental granulating canine wounds	
1. Dog. No. 1 Age of wound	
3 days	80
8 "	108
14 "	208
2. Dog No. 2	
a. from center of wound, 14 days	77
b. from periphery—mostly new epithelium, 14 days	10
B. Tissue from granulating human wounds	
1. Indolent ulcer from pyoderma gangrenosum in chronic ulcerative colitis; 2 occasions	23; 30
†2. Same wound after healing had begun (chemotherapy)	170
†3. Granulating dog bite in a human (1 week)	224
4. Indolent varicose ulcer	91
5. " " "	81
†6. Granulating thoracotomy wound	564
†7. Granulating laparotomy wound	161
8. Necrotic granulations from laparotomy wound	500
†9. Infected laparotomy wound	91
†10. " " "	118
†11. " " "	159
C. Rabbit callus determinations in fractured femur	
1. 5 days	84
2. 8 "	60
3. 14 "	16

† Healthy appearing granulating tissue.

ulation tissue was therefore unexpected. The lysozyme assays on granulation tissue of man

and dog are shown in the accompanying table.

The assays were done by a viscosimetric method⁴ on extracts prepared as previously described.⁵

As a result of these observations it is now apparent that high lysozyme concentrations are associated with some mesodermal cell types as well as with epithelium. Therefore, further study is warranted with regard to the role of this tissue in the production of lysozyme in ulcerative alimentary disease.

The deleterious effect of egg white lysozyme on the gastrointestinal mucosa^{1,3} has been confirmed in our own⁵ as well as other laboratories.^{6,7} Furthermore, high stool titres in the absence of occult blood in the feces and with sigmoidoscopically non-ulcerated mucosa are frequently observed in chronic ulcerative colitis. These two considerations render less likely the possibility that granulation tissue is the source of the major fraction of the lysozyme titre in ulcerative alimentary disease.

³ Meyer, K., Prudden, J. F., Lehman, W. L., and Steinberg, A., *Proc. Soc. Exp. Biol. and Med.*, 1947, **65**, 220.

⁴ Meyer, K., and Hahnel, E., *J. Biol. Chem.*, 1946, **163**, 723.

⁵ Prudden, J. F., Lane, N., and Meyer, K., to be published.

⁶ Grossman, M. I., personal communication.

⁷ Grace, W. J., Seton, D. H., Wolf, S., and Wolff, H. G., *Am. J. Med. Sci.*, 1949, **217**, 241.

Received July 1, 1949. P.S.E.B.M., 1949, **72**.

Occurrence of Conjugase in Egg Yolks.* (17325)

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Pteroylglutamic acid conjugases are enzymes that liberate microbiologically available PGA from more complex forms of the

vitamin and have been reported in hog kidney,¹ chicken pancreas,^{2,3} rat liver⁴ and blood.⁵ During the course of routine PGA determina-

* This work was supported in part by a grant from the Lederle Laboratories Division, American Cyanamid Company.

¹ Bird, O. D., Bressler, B., Brown, R. A., Campbell, C. J., and Emmett, A. D., *J. Biol. Chem.*, 1945, **159**, 631.