It is interesting to observe in these animals a condition so entirely analogous to what has been described in man as polyserositis, or a polyorrhomenitis by Italian investigators, of which Curschmann's Zuckergussleber and Pick's pericarditic pseudocirrhosis are only special manifestations. The relations of these conditions in man to chronic lead poisoning and to chronic anemia remains to be studied.

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Chronic lead poisoning in guinea pigs. Its relation to chronic nephritis.

By W. OPHÜLS.

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During the last years I have been repeating the experiments of Charcot and Gombault[1] on chronic lead poisoning in guinea pigs. Twenty-eight guinea pigs were given sublethal doses of carbonate of lead for periods ranging from one month to three years and ten months. Fourteen of these experiments lasted over one year.

The lesions in the kidneys were much less striking than one would expect from the report of Charcot and Gombault. In all cases there was a limited necrosis and desquamation of the epithelium with marked evidences of regeneration especially in the ascending limbs of the loops of Henle. In some cases the epithelium in places was heavily pigmented. Occasionally there were seen a few glomeruli with slightly thickened capsules. There were only two of the twenty-eight experiments in which more advanced lesions were discovered in the kidneys. In one case (69) in which the guinea pig had received over thirty grams of carbonate of lead in three years the kidneys were actually granular and the cortex distinctly narrow. The lesions in this case consisted in collapse of tubules over large areas with marked development of fibrous tissue between them. There were many casts. The glomeruli showed marked fibrous thickening of the capsules and cystic dilatation. The other guinea pig (51) which received about four grams of carbonate of lead in twenty months showed similar con-

[1] Charcot et Gombault, "Note relative à l'étude anatomique de la nephrite saturnine expérimentale," *Arch. de Phys.*, 1881, 2 s., VIII, 126.

ditions but they were not so well marked. Calcareous infarcts were not found in any of the kidneys. No vascular lesions were ever found in the aorta or in the branches of the renal arteries. On the whole the condition produced in these few animals does not resemble human nephritis, but is much more similar to the lesions observed in experimental uranium nephritis.

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Agglutination of encapsulated bacteria.

By J. G. FITZGERALD.

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During the past year a systematic study of the group of encapsulated bacteria (including *Bacterium pneumoniæ* Friedländer, *Bacterium rhinoscleromatis* v. Frisch, *Bacterium ozenæ* Abel-Löwenberg, and *Bacterium capsulatus mucosus* Fasching) has been carried on, employing for the purpose biometrical methods somewhat similar in character to those suggested by Winslow[1] in his work on the Coccaceæ.

During the course of the investigation, immunological methods have been used. At the outset, the reaction of agglutination was tried. Paltauf was the first (quoted by Beham[2]) to suggest that the agglutination of encapsulated micro-organisms is inhibited because the bacilli are surrounded by a slimy nucleo-protein capsule. Porges[3] was able to supply experimental proof of this. v. Eisler and Porges[4] then elaborated a method of removing the capsule, after the application of which these bacteria were agglutinable.

My own work done independently of Beham has given results in harmony with his. I have found that *Bacterium rhinoscleromatis* on injection into rabbits yields a potent agglutinating serum.

Using this serum, agglutination not only of the homologous microörganism has been obtained but a positive result was found

[1] Winslow, "Systematic Relationships of the Coccaceæ," John Wiley & Sons, New York, 1908.

[2] Beham, *Central. f. Bakt.*, Abt. 1, Orig., Bd. 66, Heft 1, p. 110.

[3] Porges, *Wiener klinische Wochenschrift*, 1905, No. 26.

[4] v. Eisler and Porges, *Central. f. Bakt.*, Abt. 1, Orig., Bd. 42, Heft 7, 660.