cumbed to hemolytic streptococcal infection. The fibrinolysin from washings dissolved clotted plasma; it was effective in high dilutions on human, but not rabbit or guinea pig plasmas; it was heat-labile, and could be neutralized by specific streptococcal antisera. The washings also contained hemolysin in high titer. Further experiments are necessary to determine whether the abdominal washings from mice infected with microörganisms other than hemolytic streptococci may contain fibrinolysin. Thus far, the washings from mice killed by various types of pneumococci did not display any fibrinolytic activity.

8775 P

Toxic Effect of Various Concentrations of Bile on Dog's Gall Bladder.*

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Experimental increase in gall bladder bile of one or several bile salts causes a reaction on the gall bladder wall. This increase can be produced in different ways: 1. By the addition of bile salts to whole gall bladder bile. 2. By concentrating the dog's own bile in the gall bladder. 3. By replacing the gall bladder bile with bile from another animal, concentrated previous to the introduction.

The first method has been applied in an experimental study,[1, 2] revealing the high toxicity of desoxycholic acid as compared with the weaker action of other bile salts.

Attempts have been made by us to concentrate gall bladder bile experimentally without removal from the gall bladder, thus producing changes in the gall bladder wall by means of the animal's own bile. These attempts, however, have met with great difficulties. Since all of the water-absorbing chemicals cause severe damage to the gall bladder wall, we tried to accomplish this concentration by washing the gall bladder bile with dry warm air for a certain length of time. This procedure resulted in some instances in an increase in the solid substances of bile, accompanied by a slight reaction on

* Work done in part under a grant from the Douglas Smith Foundation for Medical Research of the University of Chicago.

1 Aronsohn, H. G. and Andrews, E., PROC. SOC. EXP. BIOL. AND MED., 1935, **33**, 87.

2 Andrews, E., and Aronsohn, H. G., *loc. cit.*

the wall of the gall bladder. However, the number of positive results is still too small to draw any conclusions.

The third method mentioned, namely, the replacement of gall bladder bile by bile concentrated previous to the introduction, proved to be more satisfactory. In fact, the results are sufficiently convincing to be used for quantitative study.

The concentrating procedure was as follows: Dishes, each containing 200 cc. of fresh ox bile, were exposed to an electrical fan for different periods of time, allowing evaporation and concentration down to 150, 110, 88 and 60 cc. These different biles were injected by the catheter method into the dog's gall bladder. The results are given in Table I.

TABLE I.

	No. of Expts.	Results
Ox bile plain	3	Gall bladder practically normal in all instances.
" " conc. 150	5	Gall bladder normal in 2 cases, slight reaction in 3 cases.
" " " 110	6	Moderate degree of cholecystitis 2 cases, moderate degree of cholecystitis plus bile peritonitis 2 cases, severe cholecystitis 2 cases.
" " " 88	6	Severe cholecystitis 1 case, severe cholecystitis plus bile peritonitis 1 case, death and severe reaction 4 cases.
" " " 60	4	Severe cholecystitis 1 case, severe cholecystitis plus bile peritonitis 1 case, death plus severe reaction 2 cases.

Since bacterial culture revealed bacteria to be present in a great number in these concentrated biles, the following procedure was performed, to eliminate infection as the possible cause of the gall bladder reaction: The different bile concentrations were rediluted to the original volume (200 cc.) and this rediluted bile, serving as a control, was injected into the dog's gall bladder. No reaction was obtained, as seen from Table II, which proves that bacterial infection was not the cause of the changes in the gall bladder.

TABLE II.

	No. of Expts.	Results
Ox bile conc. 150, rediluted	2	Gall bladder normal
" " " 110, "	2	" " "
" " " 88, "	2	Normal 1 case, slight reaction 1 case.
" " " 60, "	2	Gall bladder normal.

Summary. 1. Concentration of ox bile more than half, has a marked toxic effect on the dog's gall bladder, causing death and bile peritonitis in many instances. 2. The foreign matter in bile is not the cause of these changes since the gall bladder is not affected by bile

which is not concentrated. 3. Redilution of concentrated bile makes the bile ineffective, proving that infection is not responsible for the change.

8776 P

Sickle Cell Anemia In Deer.*

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Although the presence of the "sickling" phenomenon has been described in man, presumably limited to the negro group, its presence in animals has been noted but rarely. Langeron[1] reported "demilune" forms of red blood cells of white rats and guinea pigs with rickets, and he reproduced these forms by the injection of lead acetate into healthy animals. It is not known, however, what relation these cells had to the phenomenon of sickling.

During the course of the study of 178 deer in the past 8 years, 14 were found in which the phenomenon of sickling was clearly demonstrated. One animal was found in Marin County, California, but all of the others were from 2 regions in the lower peninsula of Michigan, one near Alpena and the other near Bitely. All of the animals in these regions did not show sicklemia, however. The localization of the groups of affected animals suggests a hereditary possibility as is noted in human cases. In 100 autopsies on animals shot in the Edwin S. George Reserve of the University of Michigan, no animals showed sickling of the red blood cells. This herd is closely inbred.

This phenomenon was noted in animals shot for specimens, as well as in those found dead in the snow or otherwise well preserved. The cells in fixed films showed elongated, crescent shapes, with pointed ends, and relatively wider bodies (Fig. 1). The phenomenon was observed in fresh mounts sealed with petrolatum and allowed to stand. They resembled in every respect similar cells noted in human cases.

A rather striking similarity of symptomology was also noted. In those individuals in which field conditions permitted a thorough

*Specimens for autopsy, courtesy Michigan Department of Conservation.

1 Langeron, M., *Compt. rend. Soc. de biol.*, 1911, **70**, 434.