The possibility of distributive volume changes of bengal rose is not likely to make itself felt to any extent in these results. This is due to the fact that distributive volume for bengal rose is practically equal to the plasma volume, and there is no literature known to us suggesting that considerable changes occur in the plasma volume in the early stages after the irradiation of the whole body.

We believe that the significant lowering of uptake maximum in the sixth hour after irradiation explains the early injury to the chromo-excretional function in rats after whole-body irradiation by lethal doses of 600 r. using bengal rose–iodine-131.

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BIOLOGY

Thermal Barrier to the Infectivity of *Entamœba invadens* in Snakes

THE optimum temperature for the *in vitro* growth of *Entamœba invadens* has been determined by several investigators to be between 20 and 30° C.[1,2]. I found that the maximum temperature at which *E. invadens* could be grown in developing chicken embryos was 30° C.[3]. The following account represents the results of a preliminary investigation on the ability of *E. invadens* to establish itself in snakes kept at temperatures above normal.

Three adult grass snakes, *Thamnophis sirtalis*, free of parasitic Amœbæ, were used in each of the two experiments. All the snakes were inoculated *per os* with equal doses of a heavy suspension of trophozoites and cysts of the *I.P.*2 strain of *E. invadens*[4], taken from polyxenic cultures.

In the first experiment snakes 1 and 2 were placed in individual jars in a hot room, in which the temperature fluctuated between 34° and 37° C. Snake 3 was kept in the laboratory, the room temperature varying from 20° to 23° C. During the course of the experiment the snakes' fæces were examined for the presence of Amœbæ and of blood, which is an indication of intestinal ulceration produced by the Amœbæ. The snakes' rectal temperature was recorded at the same time by means of a very fine thermometer. Table 1 represents the findings in Exp. 1.

Three other snakes were similarly inoculated in the second experiment; Nos. 1 and 2 were placed in separate jars in the hot room and No. 3 was left in the laboratory.

Snake 1 died two days after inoculation. Upon autopsy Amœbæ were not seen in its intestine or liver, but a culture made from the intestinal contents became positive for *E. invadens*.

Table 1

	Days after inoculation	Room temperature (deg. C.)	Rectal temperature (deg. C.)	Microscopical examination of fæces
Snake 1	1	35·5	34·5	Negative
	2	37	32	Negative
	4	34	34	R.B.C., no Amœbæ
	5	35·5	34·5	R.B.C., no Amœbæ
	6	35	33·5	No Amœbæ
	7	34·5	34	No Amœbæ
	8	Died. No pathological changes and no Amœbæ seen in internal organs.		
Snake 2	1	35·5	34·5	Negative
	2	37	32	Negative
	4	34	34	R.B.C., no Amœbæ
	5	35·5	34·5	R.B.C., Amœbæ present
	6	35	34·5	Few Amœbæ
	7	34·5	34·5	Few Amœbæ
	8	Died. No pathological changes and no Amœbæ seen in internal organs.		
Snake 3	1	21	20	Negative
	2	22	22	Negative
	4	20	20	Negative
	5	20·5	19·5	Blood and Amœbæ
	6	21·5	21	Blood and Amœbæ
	7	23	25	Blood, no Amœbæ
	8	Killed. Large intestine hæmorrhagic and ulcerated. Amœbæ recovered in cultures made from the intestine and liver.		

On the seventh day after inoculation the rectal temperature of snake 2 was 33° C., while that of the room was 34·5° C. There were no living Amœbæ in its fæces on that day, but many cells resembling dead Amœbæ were observed. A sample of fæces was taken from the same snake on the fifteenth day after inoculation, but no Amœbæ were seen in it, nor did the cultures made from the fæces become positive for Amœbæ. Snake 2 was found dead on the seventeenth day after inoculation. There were no pathological changes in its intestine or liver. Cultures made from these organs did not become positive for Amœbæ. It was also noted that the flagellates, which were very numerous in the intestine of this snake at the beginning of the experiment, were all gone when autopsy was performed.

Snake 3, which was kept in the laboratory, developed typical amœbiasis about a week after inoculation and was killed on the tenth day. Its large intestine was heavily ulcerated, and *E. invadens* were seen in the intestine and the liver.

These preliminary experiments have shown that *E. invadens* is unable to establish infections in snakes at high temperatures, although, as seen in snake 2 in Exp. 1 and in snake 1 in Exp. 2, the Amœbæ survived in the intestine for a few days. It is also interesting that the flagellates, often present in snakes' intestines, apparently could not survive at high temperatures. The snakes kept at high temperatures died within relatively short periods of time, although their death was not due to the amœbic infection.

It is planned to repeat these experiments, using strains of *E. invadens* which have been adapted to *in vitro* growth at 35° C.

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