

picrate (385 mg.) and crystallised from light petroleum ether (b.p. 40-60°) in colourless leaflets, m.p. 160° (lit.⁶ m.p. 161-61.4°). (Calc. for C₁₉H₁₄: C, 94.18; H, 5.82. Found: C, 93.86; H, 5.75).

Microanalysis by Drs. Weiler and Strauss, Oxford.

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SOME SEROLOGICAL OBSERVATIONS ON THE BLOOD OF THE INDIAN COBRA (*NAIA TRIPUDIANS*)

SEROLOGICAL studies of snake blood have so far been confined to Europe and America.¹⁻⁵

As far as is known no similar studies of the blood of the Indian cobra, *Naia tripudians*, have been made. Blood from two Indian cobras having become available, it was decided to investigate their serological interactions with human blood.

Washed 2% suspensions of cobra erythrocytes were tested with the following human sera; B (anti-A), A (anti-B), O (anti-A + B), AB; at room temperature; anti-P at 4° C.; anti-D and anti-C, anti-E, anti-c, anti-e, at 37° C.; and also with rabbit anti-M and anti-N at 4° C. The interactions are recorded in Table I.

From the negative reactions with human AB sera, and rabbit anti-M and anti-N sera, it appears that human and rabbit sera do not contain species agglutinins for cobra erythrocytes. Cobra erythrocytes appear to contain human A- and B-like antigens as they are agglutinated by human anti-A and anti-B sera. These antigens, however, are weak and it is noteworthy that cobra red cells are more strongly agglutinated by O sera (anti-A + B) than by anti-A or anti-B. O sera (anti-A + B) than by anti- or anti-B. This is a well-known property of the weaker forms of the human A agglutinogen. A human P-like antigen also seems to be present.

TABLE I
Reactions of various human and rabbit antisera
with cobra erythrocytes

Serum (undiluted)	Agglutination reactions with cobra erythrocytes	
	Cobra I	Cobra II
anti-A	.. +	W
anti-B	.. W	W
anti-(A+B)	.. +++	++
AB	.. -	-
anti-P	.. W	W
anti-D	.. -	-
anti-C	.. -	-
anti-E	.. -	-
anti-c	.. -	-
anti-e	.. -	-
anti-M	.. -	-
anti-N	.. -	-

+++ = Fairly large agglutinates visible macroscopically; + = Weak agglutination seen macroscopically; W = Small agglutinates seen microscopically; - = No agglutination seen microscopically.

The sera of the cobras were inactivated and tested against a panel of human erythrocytes (2% washed cells suspended in isotonic saline) at 4° C., laboratory temperature, and 37° C. The serum of Cobra I when completely absorbed with O cells, failed to agglutinate A₁ and A₂ cells, but agglutinated B cells weakly in the cold. It appeared to contain a species agglutinin for human erythrocytes as well as anti-B agglutinin. The serum of Cobra II when similarly treated seemed to contain species agglutinins as well as agglutinins for human A and B cells. These could be separated by absorption with A or B cells, that is, the serum contained both anti-A- and anti-B-like antibodies. The presence of anti-B in the serum of Cobra I and anti-A and anti-B in the serum of Cobra II is not surprising in view of the weakness of the A- and B-like antigens in the cobra erythrocytes. The co-existence of A- and B-like antigens with cold anti-A and anti-B agglutinins (for human erythrocytes) in a cold-blooded creature possibly indicates that the A- and B-like antigens of the cobra are not identical with human A and B respectively.

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