Effect of Indian Ink on *Plasmodium berghei* Infections in Mice

INJECTIONS of indian ink, causing so-called 'blockade' of the reticulo-endothelial system, have, in the past, been classified with splenectomy and cortisone as agents calculated to lower the resistance of host animals to plasmodial infections. For example, Trager[1], working with chickens infected with *Plasmodium lophurae*, found that indian ink usually caused the development of heavy parasitæmias in the birds receiving it.

Recently, I have found[2] that cortisone does not produce higher parasitæmias in mice or hamsters infected with *P. berghei*, and this has been confirmed by Singer, who has also shown that this is equally true of splenectomy[3]. I have now found that indian ink has a strongly inhibitory effect on infections with this *Plasmodium*.

Mice were injected intraperitoneally with 0·2 ml. of a commercial indian ink, diluted with the same amount of physiological saline. This large dose was well tolerated, and was followed next day by intraperitoneal inoculation with infected citrated hamster blood. A similar number of control mice received saline followed by infected blood. Blood films were made daily and were stained with Giemsa.

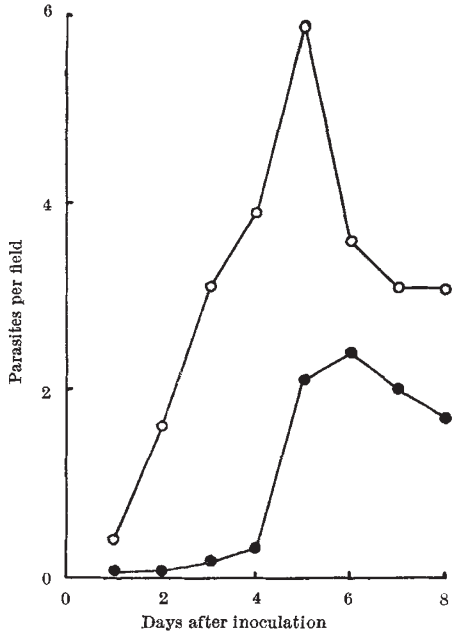

Fig. 1. Parasitæmia in mice treated with indian ink and infected with *P. berghei*. O—O—, Average of five control mice; ●—●—, infection in one mouse, *M* 35, treated with indian ink

Of five mice treated with indian ink, one died on the day following infection, and of the others, three showed only occasional parasites throughout the eight days that the experiment lasted, while the fifth mouse had a very low parasitæmia. The infection proceeded normally in the control mice. For two or three days after the ink injections there were many polymorphonuclear leucocytes in the peripheral blood, but these soon fell to a normal level. Seven or eight days after infection, the experimental animals showed a considerable degree of anæmia, with greatly increased numbers of reticulocytes in the peripheral blood, but parasites were very rare.

Indian ink greatly stimulated the production of immature red cells, apart from its effect on the macrophages. In this experiment, the one mouse that had a low-grade parasitæmia had many reticulocytes in the peripheral blood—supposedly the preferred substrate for parasite growth—after several days, yet no great increase in parasitæmia occurred. Further investigations are needed before any definite conclusions can be drawn.

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[1] Trager, W., *Amer. J. Hyg.*, **34**, 141 (1941).
[2] Roberts, O. J., *Parasit.*, **44**, 58 (1954).
[3] Singer, I., *J. Inf. Dis.*, **94**, 159 and 164 (1954).

An Uncollected Record of the Great Sea-serpent

COMPILATIONS and bibliographies are double-edged weapons; though they facilitate access to some sources of information, they usually tend to intensify the concealment of others. Some two hundred reports of the sea-serpent have been collected and analysed in the works of Oudemans[1] and of Gould[2]; but the record which follows has so far escaped scientific notice. Though trivial by itself, it corroborates a number of more detailed accounts of a similar monster in the North Atlantic towards the end of the eighteenth century.

Thomas Holcroft[3] (1745–1809), in a letter written in 1799, describes an interview on board the *Kennet* (Captain Thompson). After recounting two second-hand stories of the Kraken and comparing these with Pontoppidan's versions, Holcroft continues:

"Finding this Leviathan so familiar to their belief, I next inquired if they had heard, or knew any thing of the sea-snake, by some called the sea-worm? To this question I received a still more direct answer. The Mate, Mr. Baird, who certainly was not a liar by habit, whatever mistake or credulity might make him, assured me that, about midway in a voyage to America, in the Atlantic, he had himself seen a fish, comparatively small in the body, of from forty to fifty fathoms in length; and that it had excited great terror in the Captain, who was well acquainted with those latitudes, lest it should sink the ship.

". . . and I think it a duty to collect evidence, and to remain on this question, as on many another, in a certain degree of scepticism."

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[1] Oudemans, A. C., "The Great Sea-Serpent" (Leyden and London, 1892).
[2] Gould, R. T., "The Case for the Sea-Serpent" (London, 1930); "The Loch Ness Monster" (London, 1934).
[3] Hazlitt, W., "Memoirs of the late Thomas Holcroft" (London, 1816). (The present extract taken from "The Complete Works of William Hazlitt", edit. P. P. Howe, **3**, 252 (Dent, London, 1932).)