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PLASMODIUM OVALE INFECTIONS IN THE PHILIPPINES

by

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Introduction

Garcia (1941) described and illustrated a parasite which he took to be Plasmodium ovale, in the blood of a Filipino boy, aged 11, living in Manila. While it is not clearly stated, it is implied that the infection was contracted in the Philippines. In 1949, a malaria parasite was isolated from Dr Alan W. Donaldson, United States Public Health Service on his return to America. He had served in World War II in the West Pacific Area, in the Admiralty Islands and in the Philippines, and Jeffery, et al. (1954) believed that the infection was most probably contracted on the island of Luzon in the Philippines. After further studies it was finally concluded (Jeffery and Young, 1954) that this "Donaldson Strain" was indeed P. ovale. It is apposite to note also Craig's claim regarding a parasite seen in 1900, from a soldier who had served in the Philippines, which he called P. vivax var., and which he later named as P. vivax minutum. He was later convinced that the parasite was identical with P. ovale, (Craig and Faust, 1951). Other references to this parasite in the Philippines have not been found, and this brief note places on record the finding of two indigenous cases.

In February, 1967, a request for assistance was received by the Malaria Eradication Service, from the Government Bureau of Prisons. It was stated that there were some 1000 malaria cases in a penal colony on the island of Palawan (see map). Two of the authors (W. Alves and F. Aniceto) immediately proceeded to Palawan where it soon became clear that the report was based on a misunderstanding. Nevertheless, it was also clear that there were many cases of malaria in the colony and a mass blood survey, accompanied by a mass drug administration, was carried out.

Each man seen was given three tablets of "Camoprim" i.e. 450 mg (base) amodiaquine and 45 mg primaquine, at the time blood was taken, and a sufficient quantity of the drug was left with the Prisons Medical Officer to treat all inmates with the same regime. As the whole island of Palawan was, and is, in the attack phase, of the Malaria Eradication Programme, it was not considered practicable to attempt any more thorough treatment at the time.

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As facilities were limited at the local laboratory of the Malaria Eradication Service only 91 blood slides were examined there and the remaining 253 slides were taken back to Manila for examination. The results are shown in Table 1.

TABLE 1. RESULTS OF MASS BLOOD SURVEY FEBRUARY 1967

Total examined	Positive		Negative		<u>P. falciparum</u>		<u>P. vivax</u>		<u>P. ovale</u>	Mixed <u>P. vivax</u> & <u>P. falciparum</u>		
344	192	55.9%	152	44.1%	110	57.3%	74	38.5%	2	1.0%	6	3.1%

It is not intended to discuss the epidemiology of the infections at any length, but it should be noted that 75 of the 344 smears were taken from "fever cases". They yielded 40 positives, which is slightly below the total average.

The ovale cases

After the two cases of P. ovale infection shown in Table 1 were diagnosed, a request was made to the Malaria unit at Puerto Princesa to obtain personal histories of the two patients, and to take blood films from them at monthly intervals, to be sent to Manila.

The histories were: (April 1967)

1. M. T. - Born September 18, 1908 in Uday, Bohol Island. No history of ever having left the Philippines. Has been in Iwahig Penal Colony Palawan for the past five consecutive years. Had an attack of fever in September, 1966. (Had no complaint of fever at time of February 1967 survey.)
2. K. A. - Born January, 1932, in Manang, Hindahan, Sulu. No history of ever having left the Philippines. Has been in Penal Colony for more than two years. Was one of the fever cases seen in the February survey, no fever since. (No more treatment was given.)

Blood slides from both patients were sent to Professor P. C. C. Garnham, F.R.S., London School of Hygiene and Tropical Medicine who was kind enough to confirm the diagnosis of P. ovale (personal communication).

Only three sets of follow-up films were received from Palawan, in April, May, and June, and apart from a light infection with P. falciparum in one of the April films, nothing of note was found. In October, one of us (F. Aniceto) made another visit to Palawan, and another mass blood survey was made, which included re-examination of the two P. ovale cases. They were both negative, and no other cases of P. ovale were found. The results are shown in Table 2.

TABLE 2. RESULTS OF MASS BLOOD SURVEY OCTOBER 1967

Total examined	Positive		Negative		<u>P. falciparum</u>		<u>P. vivax</u>		Mixed <u>P. vivax</u> & <u>P. falciparum</u>	
339	155	45.7%	184	54.3%	144	73.6%	27	17.4%	14	9.0%

It is perhaps of passing interest to note (a) the change in the falciparum/vivax ratio, and (b) that many of the vivax infections were light in the second survey. Further surveys are being made in an attempt to find more cases, so that a study could be instituted of the epidemiology of P. ovale in the Philippines.

Discussion

These two ovale infections were found in Filipino adult males and it seems certain that their infections were contracted in the Philippines, quite possibly in Palawan. M. T. has been in the colony for five years, and his native province, Bohol, has been considered as non-malarious for many years. K. A. comes from Sulu, where malaria imported from Indonesia or East Malaysia might well be seen, but he had been in Palawan for more than two years. Neither of the patients had been outside the Philippine Islands.

The infection reported by Garcia (1941) was also in a native born Filipino, aged 11, from Leyte, and it seems reasonable to assume that he also had not left the Philippines.

The "Donaldson" P. ovale is not in the same category. P. ovale has been reported from New Guinea (Jackson 1946), and the Admiralty Islands (Manus) are relatively near to the New Guinea mainland. Since Donaldson stayed in both the Admiralty Islands and the Philippines in the course of his duties, under heavy suppressive doses of mepacrine, the origin of his infection, (which was undoubtedly P. ovale) may be open to question.

Craig, (in Craig & Faust 1951) says his case was a soldier returning from the Philippines who exhibited tertian malaria symptoms. But Jeffery and Young (1954) state that this patient was a sailor who had just come from the Philippines. However, this case may properly be considered to be a P. ovale infection wherever it was contracted.

Lysenko and Beljaev (1966) speculate that race may play a part in susceptibility to P. ovale. It may be of interest to note that one of the cases now presented, K. A., is a Muslim, and possibly of a purer Malay stock than the other, who is the typical Filipino from the Visayan region and a probable mixture of Malay, Chinese, and other stock, although it is to be noted that his family name is reminiscent of Northern Luzon (Ilocano), where the Negrito peoples live.

SUMMARY

P. ovale infections are recorded in two patients who had never left the Philippines. One has been on the island of Palawan for more than five years, while the other has lived there for more than two years.

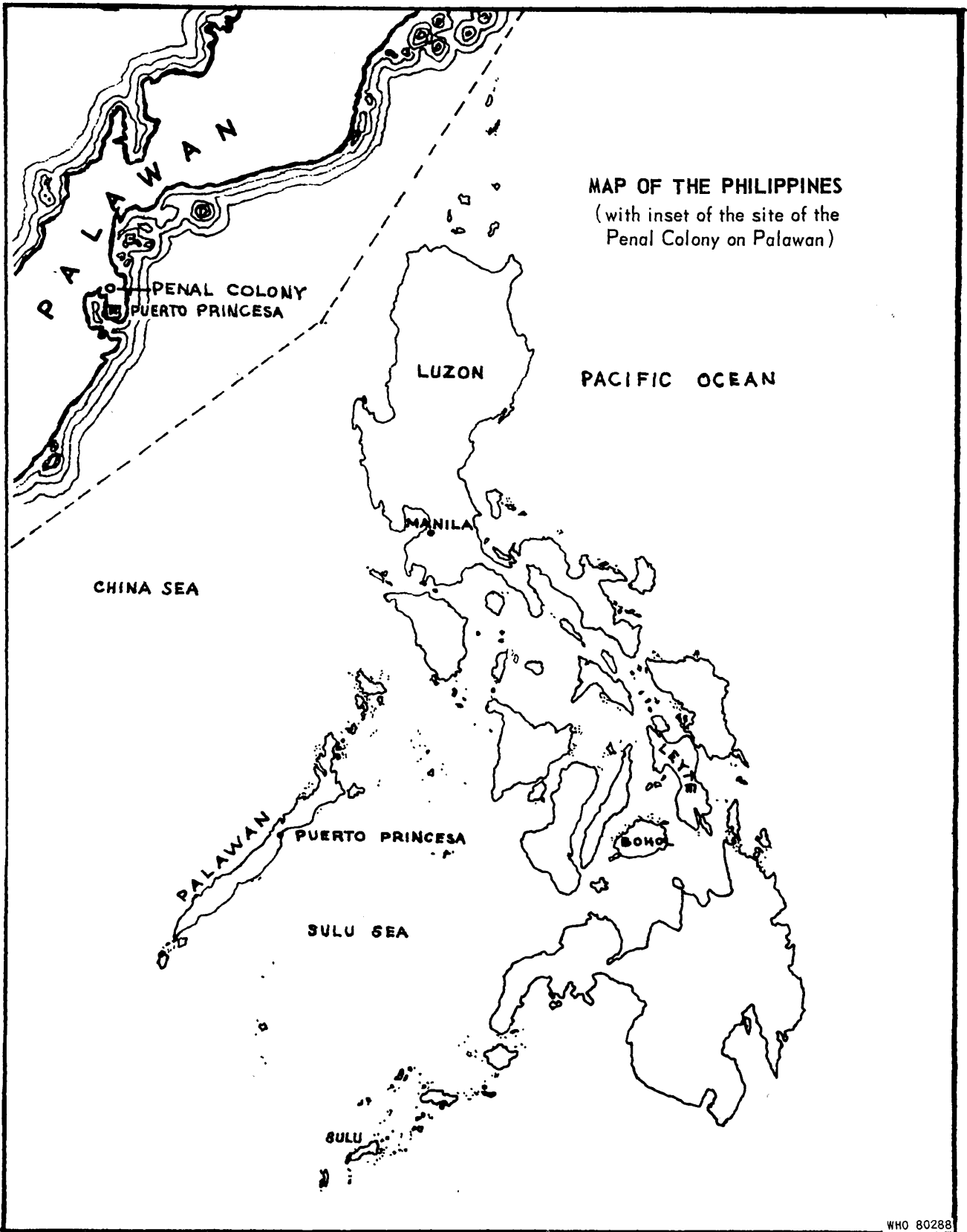
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RESUME

Bien que des rapports antérieurs aient signalé la présence de Plasmodium ovale dans la région du Pacifique (Nouvelle-Guinée et Philippines), aucune infection par ce parasite n'avait été observée au cours des dernières années.

L'article traite de deux cas d'infection par ce parasite enregistrés dans l'île de Palawan; les deux malades, l'un et l'autre Philippins, adultes, de sexe masculin, n'avaient jamais vécu ailleurs qu'aux Philippines. Le premier habitait l'île de Palawan depuis plus de cinq ans et le second depuis plus de deux ans.



MAP OF THE PHILIPPINES
(with inset of the site of the
Penal Colony on Palawan)

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