

Helminths and TB in Polynesia? Untangling a syndemic?



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The Cook Islands and Tuvalu – some questions



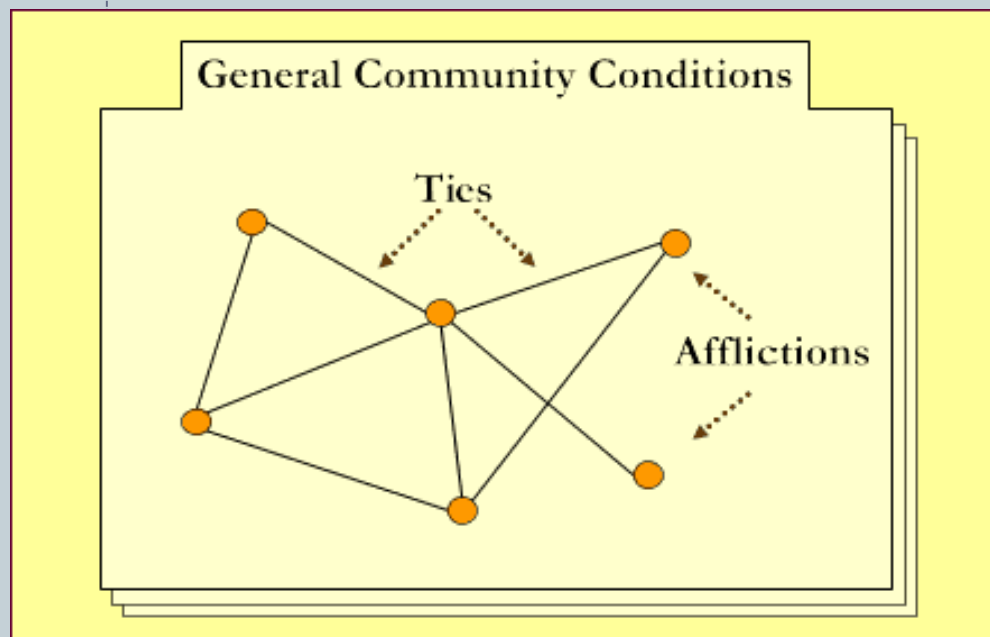
Island	Per 10,000 1956	Per 10000 1965/6
Penrhyn	40	0
Rakahanga	n.d.	70.04
Pukapuka	397	142.8
Manihiki	40	78.9
Palmerston	n.d.	0
Aitutaki	343	93.3
Mitiaro	n.d.	27.0
Mauke	n.d.	125.2
Atiu	n.d.	124.1
Rarotonga	299	222.1
Mangaia	268	85.6

Futer-Puati 2009 Tables 1-2

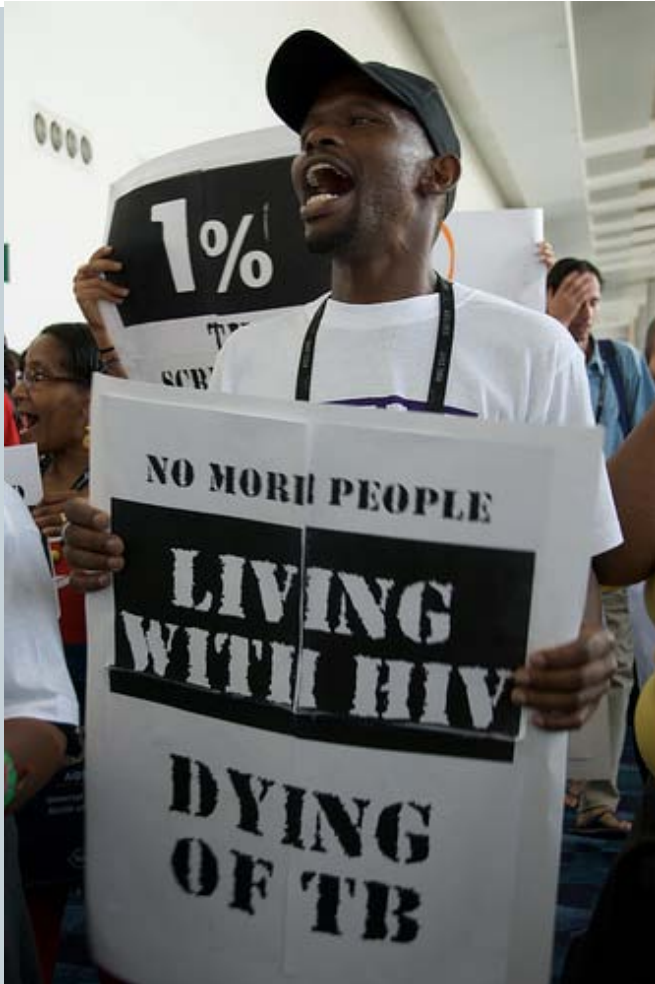
Syndemics?

“two or more afflictions acting synergistically, contributing to excess burden of disease in a population”

- I.e. not just two diseases but two diseases interacting for the worst
- And in particular ecological circumstances



Syndemics involving TB



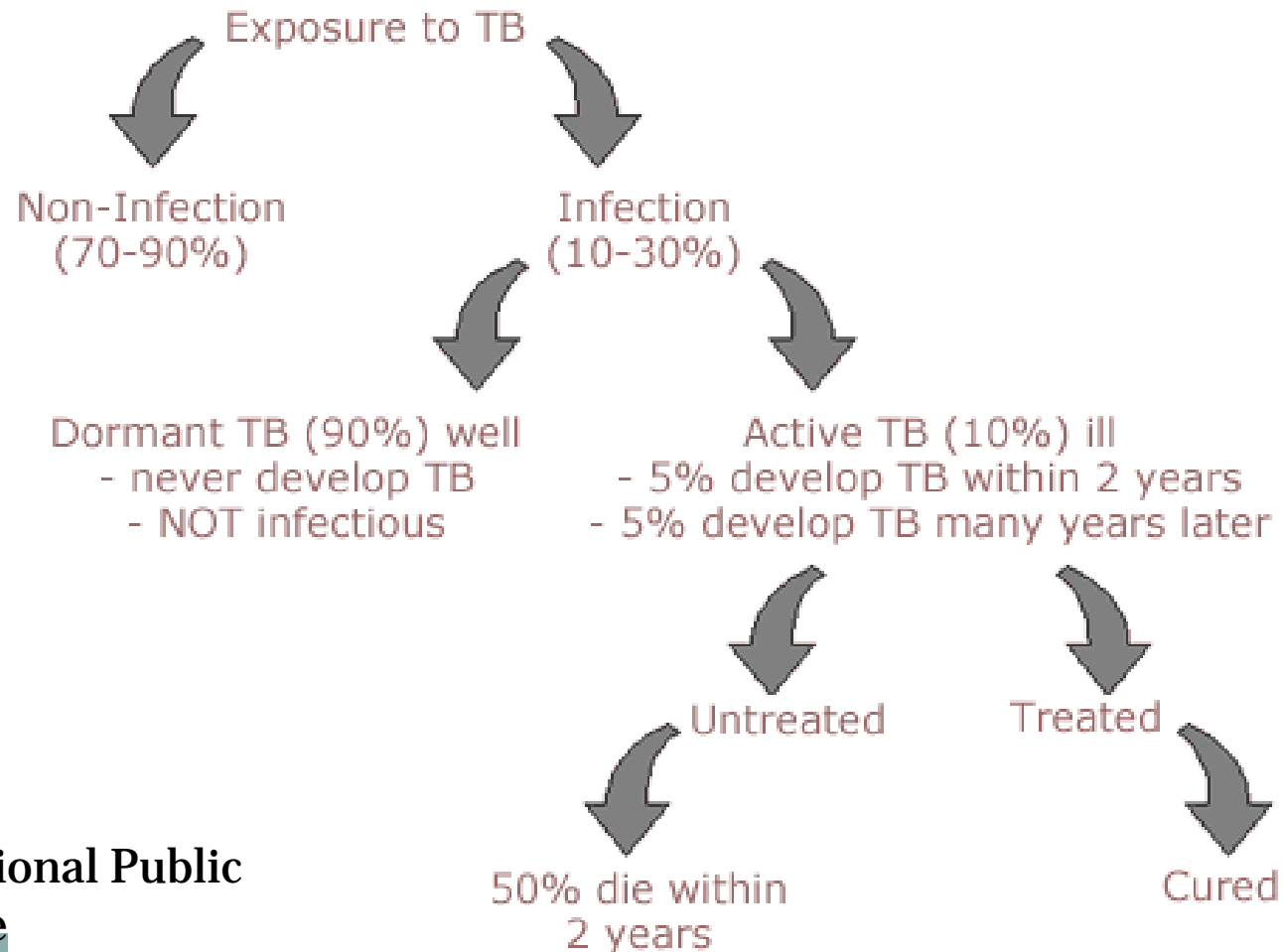
Collaborative Framework for Care and Control of Tuberculosis and Diabetes



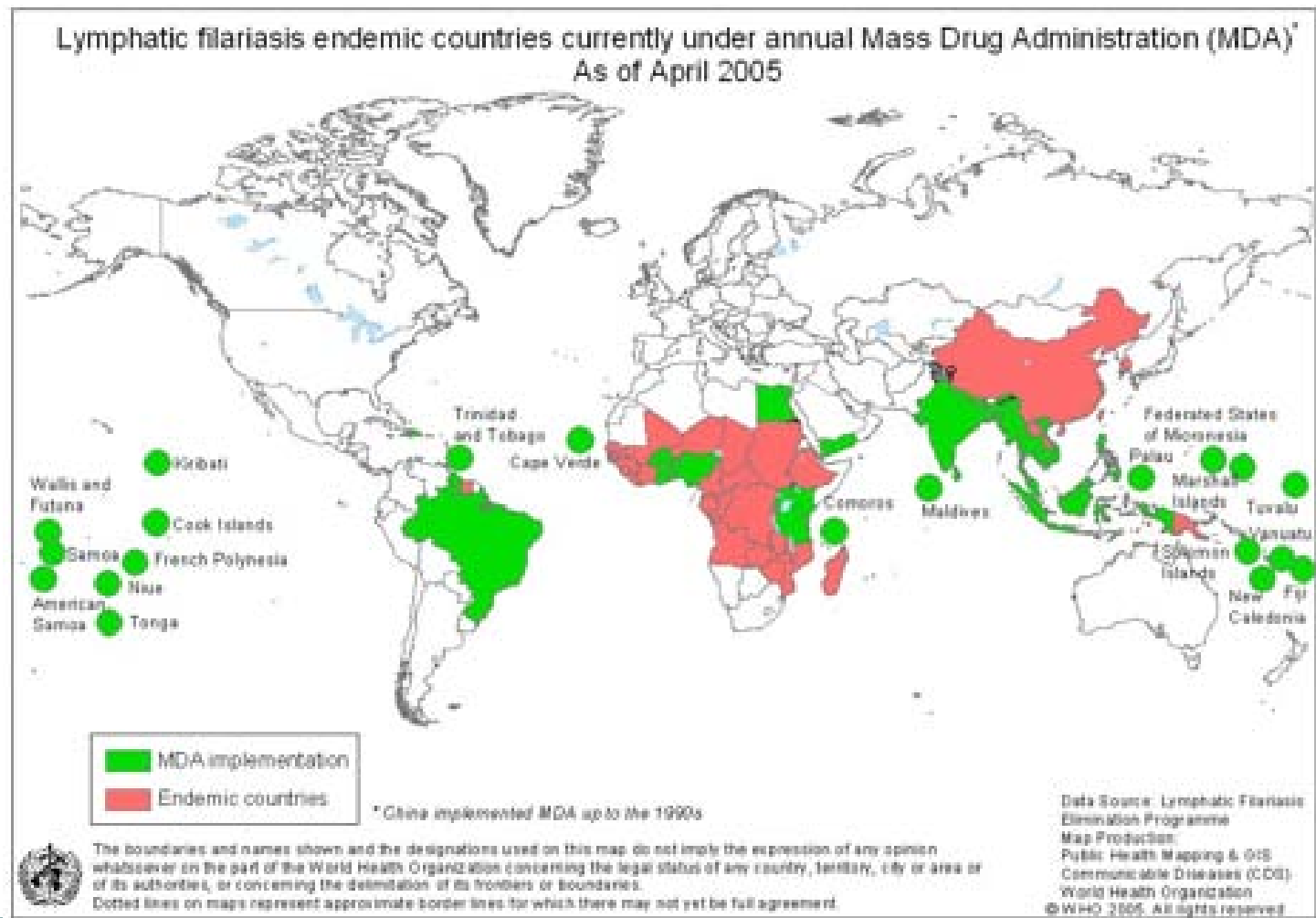
Remembering about TB



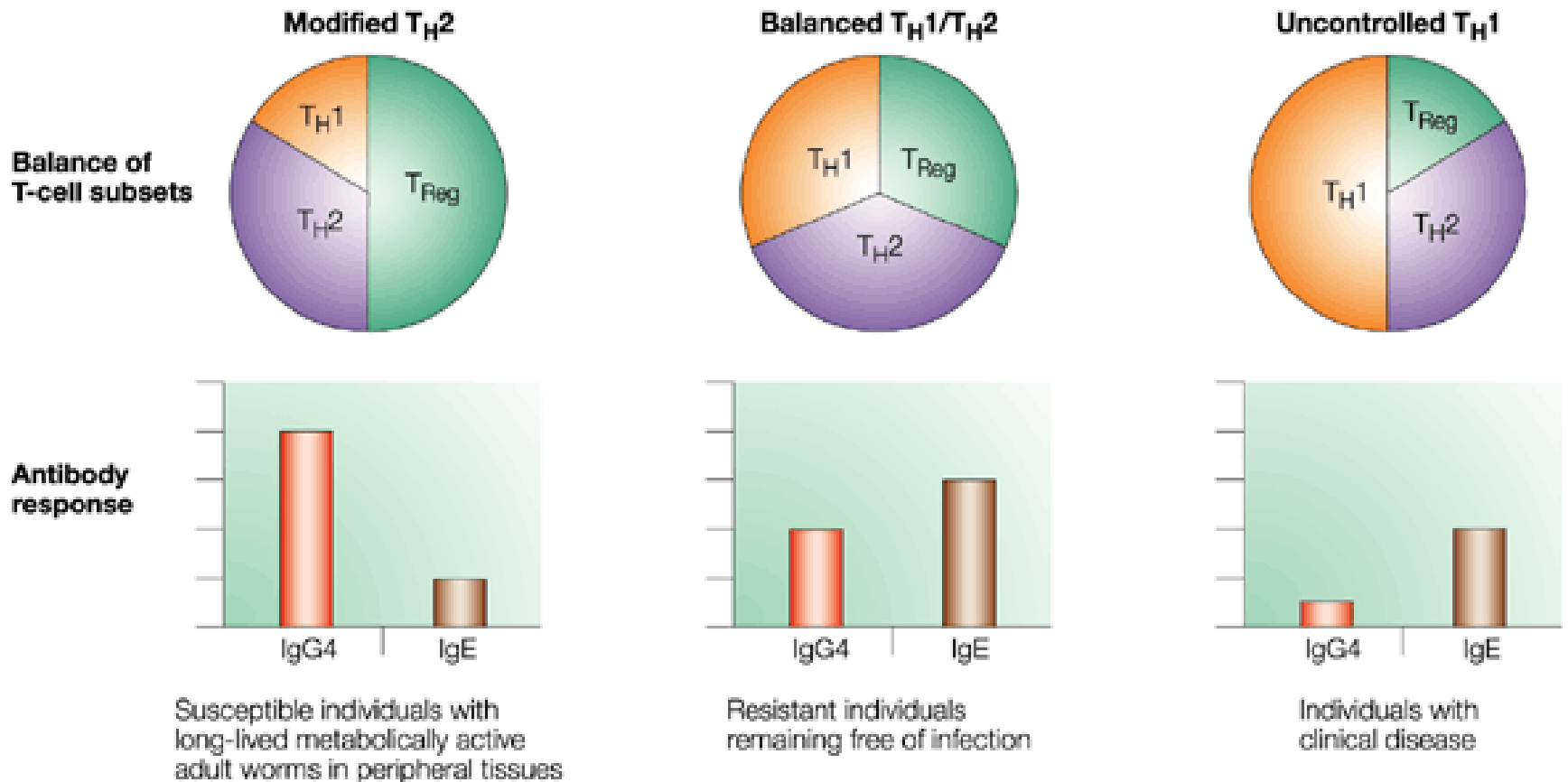
The Natural History of TB Infection



But helminths?

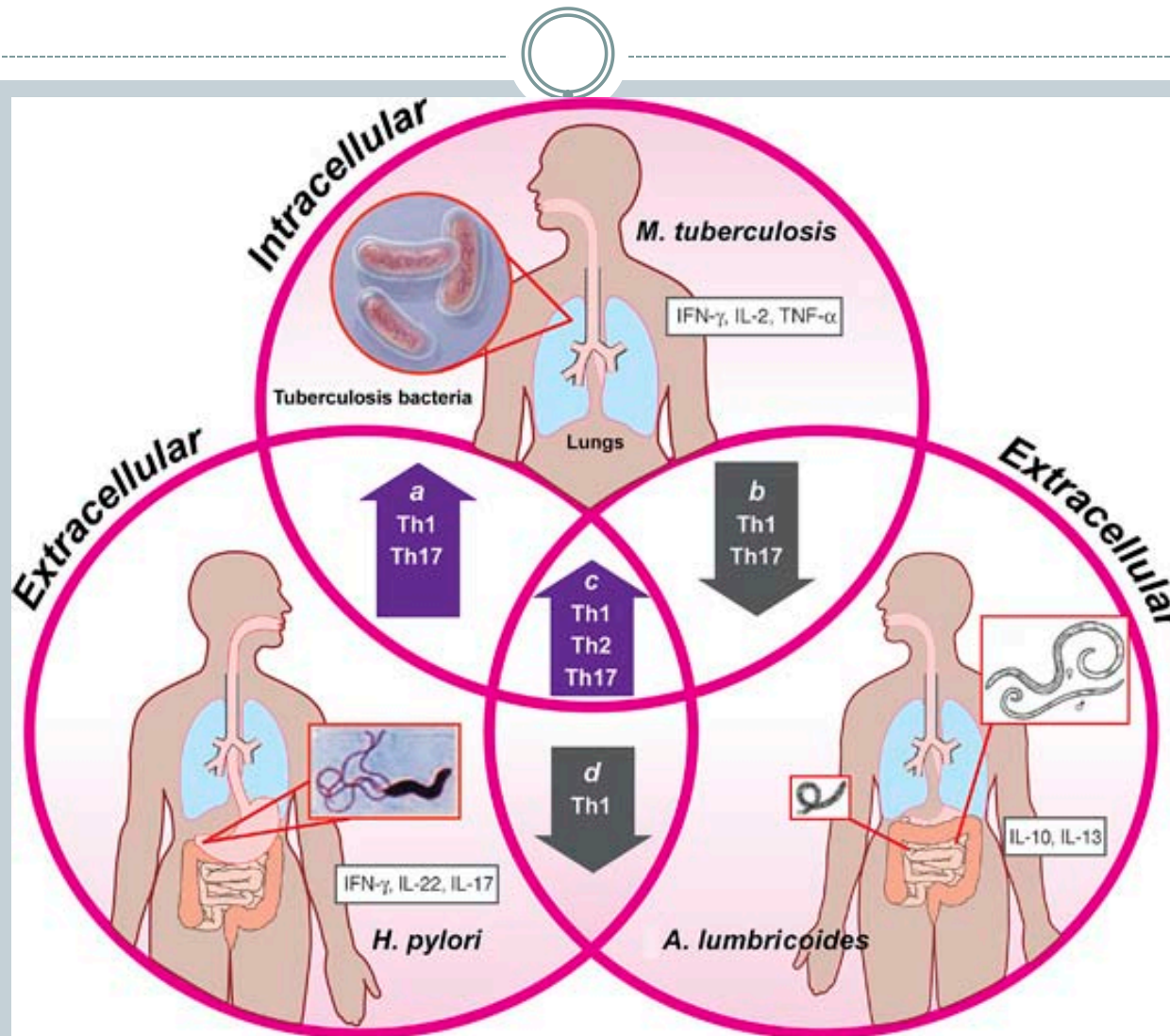


Helminths and immunomodulation



Nature Reviews | Immunology

TB and helminths – an interaction?



Does this interaction explain these anomalies?



Table 2. Number of TB Persons as Discovered by Mass Miniature X-ray Examination 1956.⁴⁰¹

Location	Population	No. X-ray	Suspect Only	Active T.B	Previously Known cases	Total TB Cases	Rate per 10,000 Population
Rarotonga	6072	4116	306	55	68	123	299
Aitutaki	2612	1137	39	34	5	39	343
Mangaia	1974	1641	100	41	3	44	268
Pukapuka	673	403	25	13	3	16	397
Manihiki*	864	412	37	3	1	4	-
Penrhyn*	575	360	8	2	0	2	-
Total	12775	8069	515	148	80	228	283

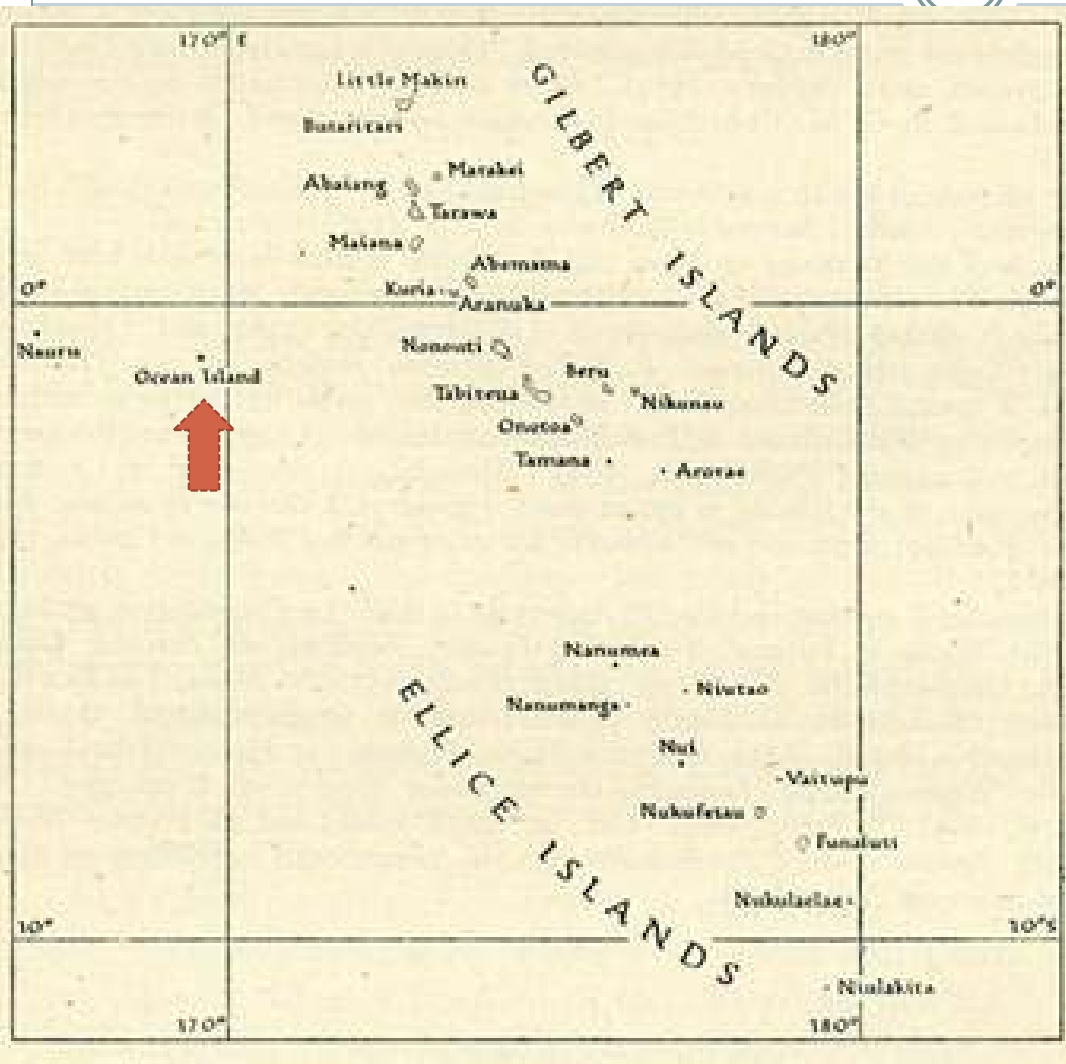
*Manihiki and Penrhyn rates are unreliable as approximately 300 frames were unsatisfactory and unable to be read

Table 3. Mantoux Reaction and B.C.G. 1956.⁴⁰²

Location	Number Mantoux	Positive Reactions	Percent Positive	Negative Reactions	No. Vaccinated	Percent Rejectives Vaccinated
Rarotonga	3678	1699	48	1979	1963	98.2
Aitutaki	1725	685	39	1040	1040	100
Mangaia	1614	751	46	863	863	100
Pukapuka	327	121	37	206	206	100
Manihiki	410	132	32	278	263	94.6
Penrhyn	320	66	21	254	254	100
Total	8074	3454	42	4602*	4589	99.3

*miscalculation in original text - should be 4620

Tuvalu – the case of Ocean Island



1945 Annual report by District Officer RG Roberts –
'apart from some scattered cases of elephantiasis, yaws and filariasis, the health of the people appears very satisfactory.' (p6)

Tuvalu – the case of Ocean Island



- *It is necessary, however, to comment on p. 6 of the report, in which it is stated that ‘apart from some scattered cases of elephantiasis, yaws and filariasis, the health of the people appears very satisfactory.’ In fact, no statement regarding the health of the Ellice Islanders is complete without a reference to the high incidence of tuberculosis. With regard to filariasis, I have always understood that tests performed by the BPC on Ellice Islands labourers on Ocean Island have indicated that over 75% of the population of the Ellice Islands suffer from filariasis.At present it would be a mistake to regard the health of the Ellice Islands as a matter for satisfaction.*
- (Acting Resident Commissioner Wernham 1945)

So why worry about it?



- The potential of thinking about biological interactions within context to explain anomalies
- And the need to tie down both biological and historical, political and ecological processes.
- Acknowledgments
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