



North Head Sanctuary Foundation Inc

Custodians of North Head

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Now is the time to see Whales at North Head

David Jenkins, Whale Spotter and Nomad Photography



The sun sparkles off the azure sea like a million diamonds glittering in the sun. Out on the horizon backlit blows stand out against the blue like cotton candy. Charging forth the heavily pregnant whales are on a mission to reach the warm waters off Queensland before their babies arrive. It's an epic journey from the storms and ice deep in the Southern Ocean, one of the longest migrations in the animal kingdom. This year well over 50,000 Humpbacks will migrate along the Australian coast between April and November. It a *remarkable story of recovery from the few hundred left alive at the end of whaling in the 1970's.*

Bearing witness to this event gives so me much hope of the resilience of nature to recover if we give it half a chance.



Education Room - Bandicoot Heaven

We are open on Saturdays and Sundays 10-4, with a COVID-safe plan in place. New volunteers wanted. For more information, please contact Judy Lambert on twsombat@iinet.net.au

Native Plant Nursery

We can always use more hands to help with planting and weeding our areas. If you would like to join us, please call in any Tuesday or Friday morning between 8am and noon. For more details, email northhead@fastmail.com.au

Quorum sensing

Peter Macinnis

In the late 1980s, I found myself on Radio National's *Late Night Live*, discussing Gaia with Jim Lovelock. The ABC researcher mistakenly thought I opposed the idea, but Jim and I had a good chat about how Gaia theory might work, not the hoped-for slanging match. We agreed that there were other sorts of coordination going on, some of it by way of pheromones, and we wondered if the interspecies interactions that his Gaia theory assumed, could be pheromonal.

We knew that slime moulds used chemical signalling by then, but *quorum sensing* first showed up in the journal *Science* in 1996. The early papers were all about bacteria, but fire ants (*Solenopsis*) in the US southwest gather on the body of a weak human in large numbers before detection, and will then sting almost simultaneously, on some signal or other. Quorum sensing tells them they are there in large enough numbers.

The bobtail squid (*Euprymna scolopes*) spends its days buried in the sand in shallow water off Hawaii. After dark, it comes out to hunt in the shallows, but being a piece of free-floating succulent calamari is risky: the squid needs to hide while hunting. On moonlit nights, its shadow on the sand would be a giveaway, and deeper predators would look up and see its dark shape.

It uses internal bacteria, *Vibrio fischeri* to generate exactly the amount of light to match the blocked moonlight, so it fades into the background, but too much light would be dangerous. The squid flushes out most of its bacteria each morning, leaving a few to grow during the day, and the remainder, come nightfall, use quorum sensing to manage light production, responding to signals from the squid.

Bacteria make signal molecules which reach a threshold, after which new proteins are formed, and new behaviours are seen. The slime in your drains, biofilm in formal terms, contains many species of bacteria, fungi, algae, protozoa

and debris. The quorum sensing is not just within one species.



New Holland
Honeyeater

Photo Peter
Macinnis

I often speak sternly to out of season flowers, but they're all doing it, and I wonder if they communicate with each other. The New Holland Honeyeaters are in full riot this month, hurtling around in crazy twittering mobs.

Is this also quorum sensing?

They won't be quorum sensing when they sit sentry in July: that's just visual, but does the wildlife talk about us behind our backs?

Atua and Influenza, November 1918

Jenny Wilson

Atua, a steamer trading between Suva (Fiji), Auckland and Sydney and left Suva on 26 October 1918. She arrived at Auckland on 31 October and left on 2 November, arrived in Sydney on 8 November with 54 sick of the crew which consisted of 7 Officers; 6 Engineers; 13 Deck; 20 Engine department and 31 Providoring – total 77 and 8 sick passengers of 67 first class and 19 second class passengers suffering from influenza. It was a most virulent type, and the source of infection was Auckland. The ship was placed in quarantine at North Head, all the sick were taken to hospital at Quarantine Station and everyone except 11 anchor watch men were removed and isolated on shore.

The following newspaper article reveals some of the problems faced by those travelling on the Atua -

Newcastle Sun (NSW: 1918 - 1954), Fri 15 Nov 1918.

“IN QUARANTINE

Atua's Passengers NARRATIVE OF TREATMENT”

“A number of passengers in quarantine from the S.S. Atua forward their narrative and their opinions as follows: —

Two extraordinary things are allowed by law —

(1) that a steamer, the Atua, should be allowed to do a 23 days' trip, Sydney to Fiji and back to Auckland, without a medical man.

(2) mismanagement of the quarantine at Manly. The Atua steamed from an infected port with a suspicious case on board, when at Auckland, with nothing to fall back upon but a medicine chest. Steward after steward fell ill, seaman after seaman, coal trimmer after coal trimmer, and passenger after passenger, culminating with the chief steward, purser and captain becoming infected. In that condition we steamed into quarantine and remained on board for nearly 24 hours. Before landing on the quarantine ground all were free to intermingle and visit each other, the well, the fairly well, and the distinctly ill, and each grade stood in the same line for the daily medical inspection, even those who were marked for further inspection. It seemed, too, that one had only to object to the inhalation bath to be excused, and though a throat spray was the substitute there is one case where even the throat spray was not used. The aim of quarantine is thus defeated by: —

1. Passengers infected or not infected entering unclean rooms.
2. Indiscriminate mixing.
3. Insufficient medical examinations.

4. Overworked doctors.

5. No laundry.

6. Total darkness, which makes it exceedingly difficult to obtain necessary aid.

7. Telephone rooms and receivers improperly disinfected, and not disinfected till the third day.

8. Hardly any ice.

9. Insufficient fresh milk.

10. Useless food for the sick or well.”

In all there were 88 cases of pneumonic influenza from Atua and 16 died. They are listed below with their name, age and date of death.

MAILILI 23 10.11.1918 south sea islander.

LUCID 28 11.11.1918 south sea islander.

JASSIA 30 11.11.1918 south sea islander.

William Campbell MENZIES 30 11.11.1918

(He was a well-liked purser and had been on Atua for three years. He left behind a wife, Elizabeth and infant child, George. He lived at Artamon.)

Percy EATHORN 22 12.11.1918

(Eastmore spelling used in Newspapers)- steward.

Arthur BARNETT 23 12.11.1918 steward

PERASI (Fijian) 20 13.11.1918 crew

Charles LELLAND 34 14.11.1918 (Linnond

spelling used in Newspapers) - passenger.

MONASSA (Fijian) 14.11.1918

(Nornunra spelling used in Newspapers) - native acting as a steward.

James MOORE 35 16.11.1918

(Interestingly the death notice in the Newspaper has his name as John Albert Moor, same age and job - second cook, and died in Quarantine).

John McKARRALL 28 16.11.1918

(McKarrall spelling in Newspapers) - second class passenger.

ASSARMURA (Fijian) 29 19.11.1918 engine trimmer

ABEL 30 21.11.1918 native Fijian seaman.

Charles DICKSON 35 20.11.1918 steward.

A. William BLISS 10 months 22.11.1918

(A baby boy named Arthur Bliss, passenger. Mrs Bliss was released from Quarantine on 5 December 1918)

SAVANAKA 24 26.11.1918 native Fijian

The abovementioned were all buried in the Third Quarantine Cemetery.

“The infection on the Atua was of VERY VIRULENT TYPE. The cases treated at the Quarantine Hospital at North Head, on this trip, were not exceeded in virulence by any subsequent cases treated there. It was on these cases that the Commonwealth coryza vaccine was first tried with successful results.”

Reference - *Influenza and Maritime Quarantine in Australia* by J.H.L. Cumpston, M.D., D.P.H., Director of Quarantine 1919 together with various newspapers in Trove used as references in this article.