

ASGAP PALM & CYCAD STUDY GROUP

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Cycad Poisoning : A famous scientific controversy about the true cause of the neurodegenerative disease known as ALS & Parkinson-complex (ALS/PDC), & common in the inhabitants of Guam, the native Chamorros, may be close to resolution at last. My medico elder son gave me an interesting book 3 or 4 years ago, which I can't find at the moment. The author was Oliver Sacks, a famous epidemiologist, expert on neuro-disease, & medical popularist. You may have seen his earlier book, 'The man who thought his wife was a hat.' He considered cycads & several other possible causes of ALS/PDC, & at that time had to return an open verdict. Ruled out were viruses, aluminium in the water, heavy metals in the soil, mineral deficiencies, & others. The disease was first recorded on Guam, in 1904, but was rare until World War 2. By the 1940's it was the main cause of death among adult Chamorros. During the Japanese occupation of Guam the Chamorros were treated brutally, some starved to death, & tortillas made from cycad flour was a major item of diet. After the American recapture of Guam in 1944, for some years ALS/PDC cases were still widespread but finally tapered off. Some sufferers had mainly Alzheimer's type symptoms, some mainly Parkinson's-type, & many had both. All died eventually.

The cycad connection was a major suspect as a potent nerve poison, the amino acid BMAA (Beta-methyl-L-alanine), was detected in cycad seeds. But the process of making flour removed almost all the BMAA. In 2002, reports an article by Stephanie Pain in the 10-1-2004 issue of New Scientist, Sacks & the ethnobotanist Paul Cox, director of the National Tropical Botanical Garden in Hawaii, 'suggested that BMAA could yet be the culprit', via people eating flying foxes, one of whose favourite foods was cycad fruits. 'Flying fox is the most prized food item in the Chamorro diet', said Cox. 'They boil them whole in coconut milk & eat the entire animal, hide & everything.' Men ate more bats than women, & the disease is more common in men. Guns made it far easier to hunt the bats, & one of the two native species became extinct, & the other is reduced to 50-odd bats on the U.S. Airforce base. Unable to test live bats, Cox & a colleague analysed 50-year-old museum specimens '& found that bat tissue contained almost 400 times as much (BMAA) as the cycad's seed coat', which has about 9 micrograms per gram of tissue. Brains of people who died from ALS/PDC had around 7 micrograms-per gram. 'That's not enough to cause acute poisoning but we think that this consistent low level in the brain is enough to start killing the motor neurones', said Cox.

In November 2003 there was a new twist to the story. Closer scrutiny of the cycad revealed that the BMAA is produced by a cyanobacterium living inside the coralloid roots, where it doubtless helps protect them from herbivores. This cyanobacterium is now being targetted as a possible cause of diseases similar to ALS/PDC in the Kii peninsula of Japan, & among the Auya & Jakai tribes of Irian Jaya. "There are no fruit bats in Japan & the Kii people don't eat cycads, although both they & the people of Irian Jaya occasionally use them in medicines.' Or, as Cox suggested, BMAA may 'find its way into the diet by different routes.' So lay off those bats, & beware ingesting patent medicines of dubious provenance.

Best wishes to everyone, & may it rain on all your fields. I have just had, on .29-6-05, 170 mm, more rain by far than the rest of 2005 put together Cheers, Kerry.