Brassard (armband) NX21854 Pte L. N. Kennedy
2/4 Field Ambulance, 7 Division AIF

Aitape – Wewak:

Casualties and Controversies

November 1944 – August 1945

AWM095580 Medical Ward 104 CCS, Wewak area August 1945 – patients with malaria and skin conditions

Controversies

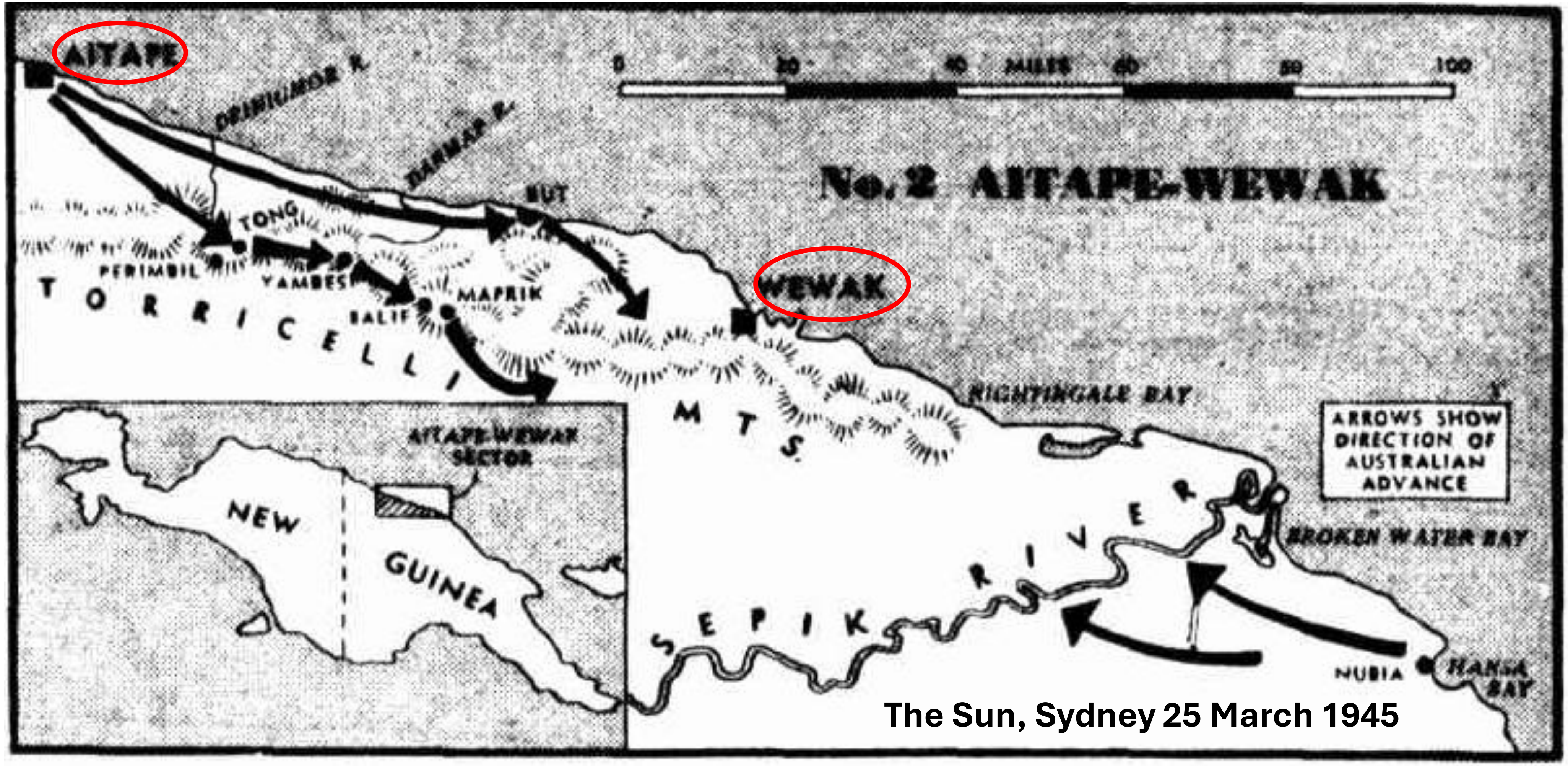
- **Malaria Epidemic and Atebrin***

- Supply, Treatment and Evacuation

Blamey’s Instructions to 1 Australian Army, 11 August 1944

‘Relieve the US forces at Aitape, defend the airstrip and base area, and by patrol activity maintain contact with the enemy in the Wewak area. The commitment of major forces is to be avoided.’

Cited by Keogh, *The South-West Pacific* 1941-1945, p398



The Sun, Sydney 25 March 1945

Australian Military Objectives [Sturdee & Stevens]

- Defend airfield and radar installations in Aitape-Tadjii area
- Prevent westward movement of Japanese forces in area and "seize every opportunity for the destruction of these forces."
- Give maximum help to ANGAU and Allied Intelligence Bureau in area for gaining Intelligence, establishing patrol bases and protecting 'native' population

First Australian Army Land Force

6 Division AIF

- 19 Brigade [coastal advance to Wewak]
- 17 Brigade [Torricelli Mts east to Wewak]
- 16 Brigade [relieved 19 Bde late Jan 45]

3 Base Sub-Area

(included AGH, Ordnance, Transport)

Imperial Japanese Force

XVIII Japanese Army [Lt Gen Hatazo Adachi]

- 51 Division
- 20 Division
- 41 Division

Australian Army Medical Units

- 3/4 Field Ambulance [Oct]
- 104 Casualty Clearing Station (including AANS personnel) [Oct]
- 2/7 Field Ambulance [Nov]
- 2/11 Australian General Hospital [Nov]
- 2/2 Field Ambulance [Dec]
- 2/1 Field Ambulance [Jan 45]
- 8 Malaria Control Unit

AUSTRALIAN WAR MEMORIAL 018145

Aitape, New Guinea. A busy time-off in the nursing Sisters' quarters at an Australian General Hospital. Sister Joyce Cleary of Parkes, NSW and Sister Enid Folland of Katanning, WA, take their turn at using the ironing tent.

AUSTRALIAN WAR MEMORIAL 018136

Aitape, New Guinea. At an Australian General Hospital open-air mess, nursing Sister Lillian Hastie of Mullewa, WA, turns the handle of a Singer sewing machine for Sister Dulcie Young of Casterton, Vic. Reason for that happy smile, is Sister Young is fixing clothes for her homeward trip.

Aitape-Wewak Casualty Statistics

Battle Casualties – 1564*

- 354 Killed In Action
- 1 Presumed Dead
- 79 Died of Wounds
- 1130 Wounded / Injured In Action

Disease Casualties – 16203^

- 1220 Dysentery
- 1386 Skin Diseases
- 7370 'Other' (typhus, hookworm, respiratory)
- 6227 Malaria

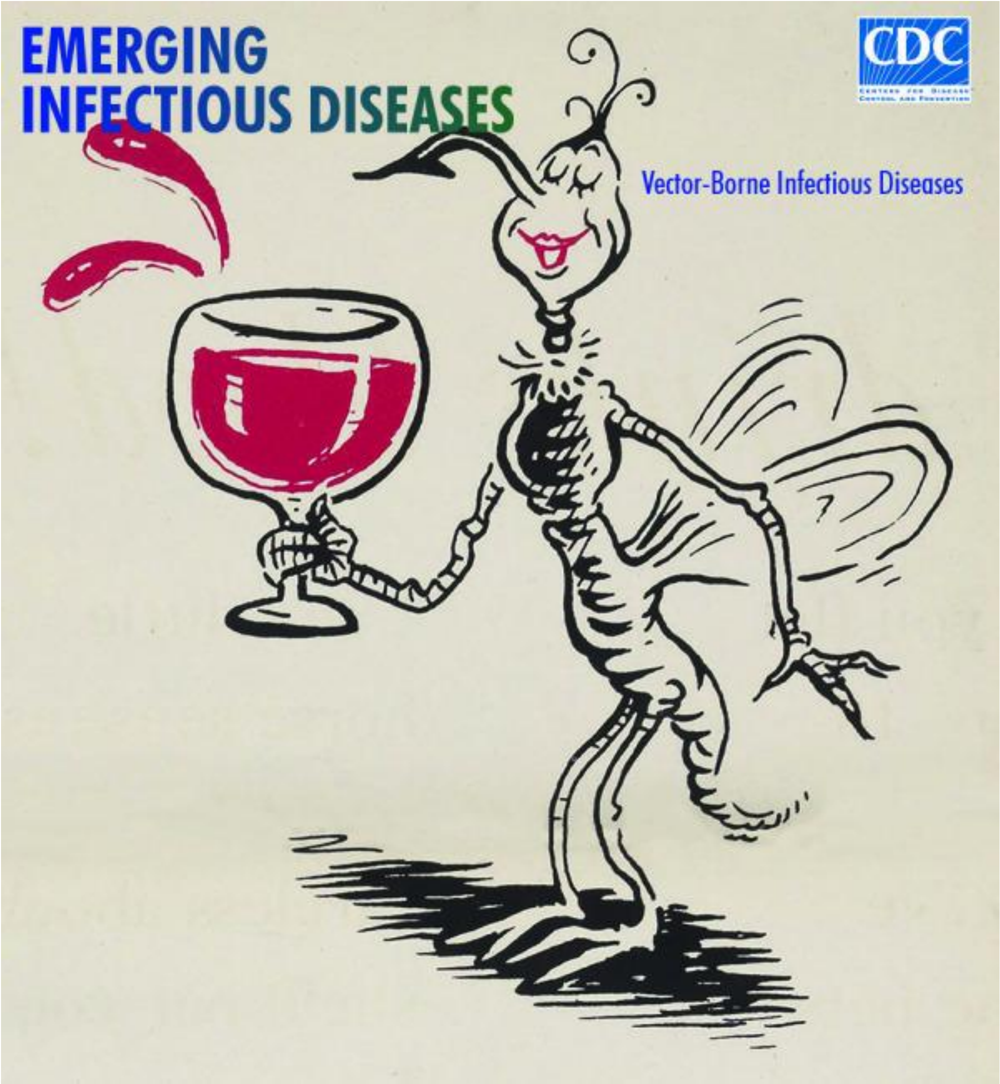
[38% of total disease casualties]

* AWM54 171/2/42 Casualties Papua, New Guinea, Aitape, Wewak, Australian Military Forces.

* Walker, *The Final Campaigns*, gives the battle casualties as 428 killed and 1124 wounded, p370

^ Long, *Final Campaigns*, pp385-6.

AWM093819 Cape Wom, Wewak Area July 1945



Ted Geisel (aka Dr. Seuss) illustration; Munro Leaf, text; United States War Department Special Services Division and Government Printing Office. Detail from *This is Ann–: she drinks blood!* (1943). Photomechanical print (poster): 35 inches x 47 inches/89 cm x 120 cm. National Library of Medicine, Bethesda, Maryland, United States. Public domain image.

An epidemic of swift onset and very serious dimensions ...

"A controversial issue at once arose, whose reverberations shook the 6th Division, and are even yet potent to evoke discussion ... Whether this epidemic was due to insufficient intake of atebrin, or to some other unexplained factor was not then determined.

But it might well have been regarded as an ironic gesture of fate that after an initial threat which it was hoped could be countered, and immediately after the adoption of the most rigid precautionary anti-malarial measures as yet imposed on an army, an epidemic of swift onset and very serious dimensions should strike the Division."

Allan S. Walker, *The Island Campaigns*, p360

Malaria ‘mal’ (bad) ‘aria’ (air)

- Miasma theory / germ theory until late 19th Century

- 1902 British physician and army officer, Ronald Ross awarded Nobel Prize for discovery that malaria was transmitted by mosquitoes

- Anopheles mosquito (over 400 species)
  - Anopheles farauti is dominant species in northern Australia and Papua New Guinea

- **Plasmodium** - Genus of parasite causing malaria

- 4 species of Plasmodium commonly infect humans with malaria
  - **P. falciparum (malignant malaria / malignant tertian/MT)**
  - P. malariae
  - P. ovale
  - **P. vivax (benign malaria / benign tertian / BT)**

- Disease Process
  - Plasmodium invade blood and multiply
  - Burst from erythrocytes (red blood cells)
  - Invade new red blood cells
  - Repeat

- Symptoms
  - Chills, body aches, high fever, sweating, headaches, delirium
  - Enlarged liver and spleen
  - Convulsions, oedema, jaundice, kidney failure, coma

- Treatment
  - Preventive / protective (clothing, nets)
  - Therapeutic (Quinine, Atebrin)
  - Eradicative (chemicals, drainage)

Cape Wom, Wewak area August 1945. Malaria Control Section 104 CCS

ATEBRIN

Research into alternatives to Quinine 1920s and 30s. All had side effects

Mepacrine / Quinacrine (brand name Atebrin /Atebrine) developed by German scientists 1931

Allies also produce Atebrin - soon became drug of choice

Side effects were 'sometimes terrifying'

- Nausea, headaches, diarrhoea common

Alarming and unique side effects of Atebrin included

- Bright yellow skin
- Neurological problems including nightmares, anxiety, psychosis
- Persistent rumours that Atebrin caused infertility

Concerns about long term toxicity

Initial recommended dose of 2gms daily caused serious and widespread illness. Dose was reduced to 0.05gms

Solution was large initial 'priming' dose then daily maintenance dose

- Other anti-malarial measures included nets and DDT
- US Army started using DDT in 1943

Land Headquarters Medical Research Unit of Army (Cairns) Atebrin Experiments 1943

Led by **Neil Hamilton Fairley**, Director of Medicine Australian Army

Objective

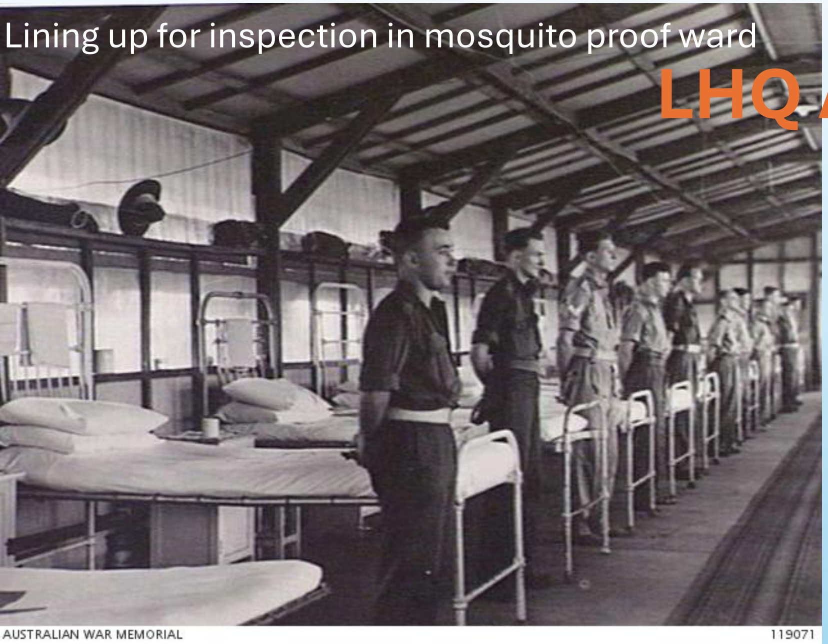
- Find drug to act as causal prophylactic i.e. prevent malaria before it is established in host

Methods

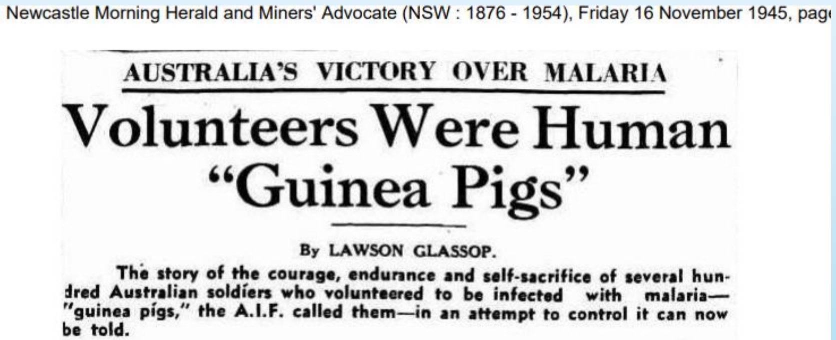
- Malarial Experimental Group formed June 1943
- Transmit malaria from soldiers infected in NG to army volunteers recruited from soldiers in Australia not previously exposed
- Various drugs trialled, including Atebrin

Nov 1945 Atebrin parade, LHMRU Cairns

LHQ Army Malaria Research Unit Cairns



Lining up for inspection in mosquito proof ward

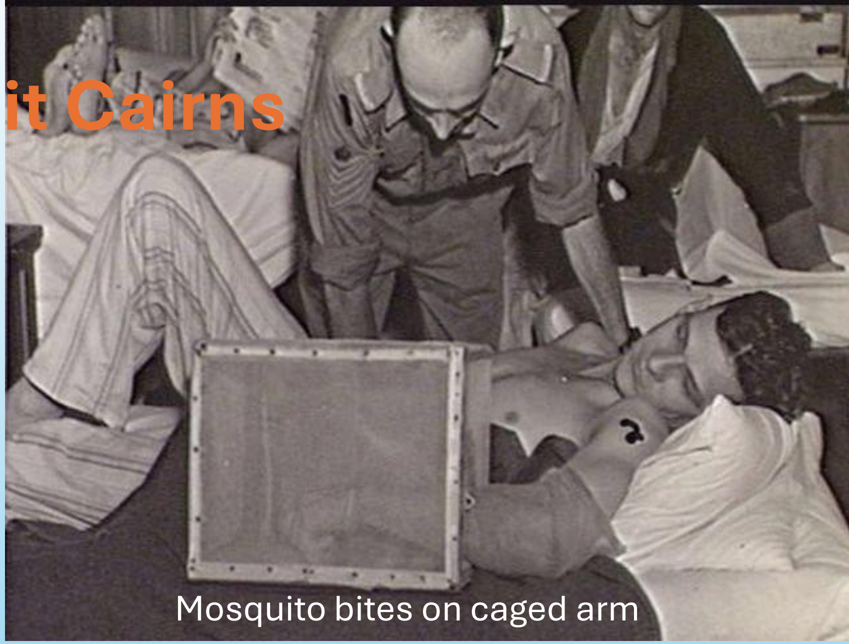

Newcastle Morning Herald and Miners' Advocate (NSW : 1876 - 1954), Friday 16 November 1945, page

AUSTRALIA'S VICTORY OVER MALARIA

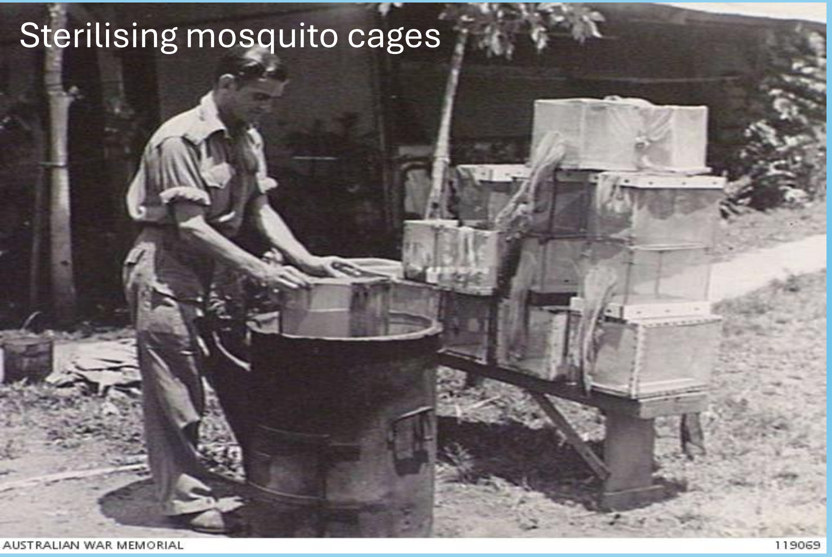
Volunteers Were Human "Guinea Pigs"

By LAWSON GLASSOP.

The story of the courage, endurance and self-sacrifice of several hundred Australian soldiers who volunteered to be infected with malaria—"guinea pigs," the A.I.F. called them—in an attempt to control it can now be told.


Mosquito bites on caged arm

- Fears that breakthrough cases would occur in areas where malaria endemic (New Guinea)
- Criticism = initial experiments not conducted under warlike conditions
- Volunteers subjected to more rigorous and prolonged testing to replicate tropical environs
- Exposed to heavy malaria infection, strenuous exercise, extreme temps
- Injections of adrenaline and insulin
- Hosed down with cold water / sleep in wet clothes
- Placed in freezer Cairns meatworks and exposed to hour of temps between 0 and -9°



Sterilising mosquito cages

Feeding mosquito larvae

AWM 126353 Melbourne, March 1946.
Brigadier N.H. Fairley CBE

Atherton Conference on Certain Aspects of Prevention of Disease in Tropical Warfare 12 June 1944

- **Taking one 100milligram tablet of Atebrin daily** suppressed malaria under conditions similar to jungle warfare
- **All** cases of falciparum (malignant) AND vivax (benign) malaria were suppressed <u>while taking atebrin</u>
- Falciparum was **cured** if atebrin suppression dose was continued for 4 weeks after last infected bite
- Relapses of vivax malaria occurred weeks after suppressive atebrin ceased
- Crucial to **ensure complete compliance** with suppressive therapy in field
- Need to <u>*see*</u> that atebrin has been swallowed – **strict supervision**.
- **Officers were responsible** for ensuring daily dose was taken

Senior Officers Australian Military Forces
Atherton Conference

Official Responses To Recommended Atebrin Dosage

"… neglect to comply … will be treated as a serious offence and will be punished accordingly."

General Blamey (revised instructions regarding atebrin dosage), September 1944

AIF's MEDICAL SERVICE BEST

"TELEGRAPH" CABLE.

WASHINGTON, July 11: The Australian Army's Medical Service compares favourably with that of any other country, and in the field of tropical medicine leads the world, according to the Australian Director-General of Medical Services (Major-General Burston).

General Burston is in Washington on his way back to Australia after inspection tours of Burma, India, and Britain.

He said that Britain and the United States had both adopted the Australian technique in handling malaria, and recognised the work of the Commonwealth Malarial Research Institute at Cairns as one of the most outstanding contributions to the Allied war effort in the Pacific and Far East.

Its exploitation of atabrin in the prevention and control of malaria had kept armies in the field under conditions unthinkable before the war.

The Commander-in-Chief in the South-East Asia theatre, said General Burston, had sent the Australian medical authorities a formal expression of gratitude for their advice, which had saved countless lives among British troops in Burma.

USA Grateful

The Americans, too, were equally appreciative.

In return, said General Burston, the British Medical Service in Burma had given him valuable pointers on the air evacuation of casualties from front line areas.

Specially equipped small planes landed a few hundred yards behind the firing line and ferried the wounded to airstrips further back, where they could be loaded into ambulance planes and flown to base hospitals within a few hours.

Telegraph (Brisbane) 12 July 1945, p1

'It has now been amply demonstrated to you that the control of this disease is in your own hands … it is purely a matter of training and discipline in all antimalarial measures, particularly the taking of atebrin … I have no hesitation in saying, most emphatically, Gentlemen – the ball is now in your court.' Director General Medical Services S. R. Burston

Progress of Malaria in Aitape-Wewak: "… an artificially suppressed epidemic"

- By Dec 44 case numbers "disturbing …coming in at an alarming rate" [ADMS Disher]
  - 9 Dec 6 Division – 1.3 per 1000 per day
  - 15 Dec 6 Division – 1.9 per 1000 per day
- Conference & Boards of Investigation established in Dec 44 in response to threat of malaria epidemic / examine areas of 'possible administrative failures'
- Mid Dec - troops in coastal areas are ordered to increase atebrin dose to 2 tablets per day
- 19 Bde remained on higher dose until end Dec – numbers initially declined

- By end Jan 45 cases increased
- All 6 Division ordered to temporarily increase atebrin dose to 2 tablets per day
- By 2 Feb malaria cases in 19 Bde = 44.8 per 1000 per week
- **By April 1945 it was clear that there was a "true epidemic of malignant malaria"**
- 6227 cases during 10-month campaign

> "Review of the experimental data and careful analyses of AMF malarial statistics make it possible to state with certainty that malarial rates consistently in excess of the minimum must be attributed to some break-down in administration of suppressive atebrin."
>
> Australian Medical Headquarters, Special Technical Instruction No 120, 19 February 1945

Graph showing weekly malaria rate 6 Division throughout campaign

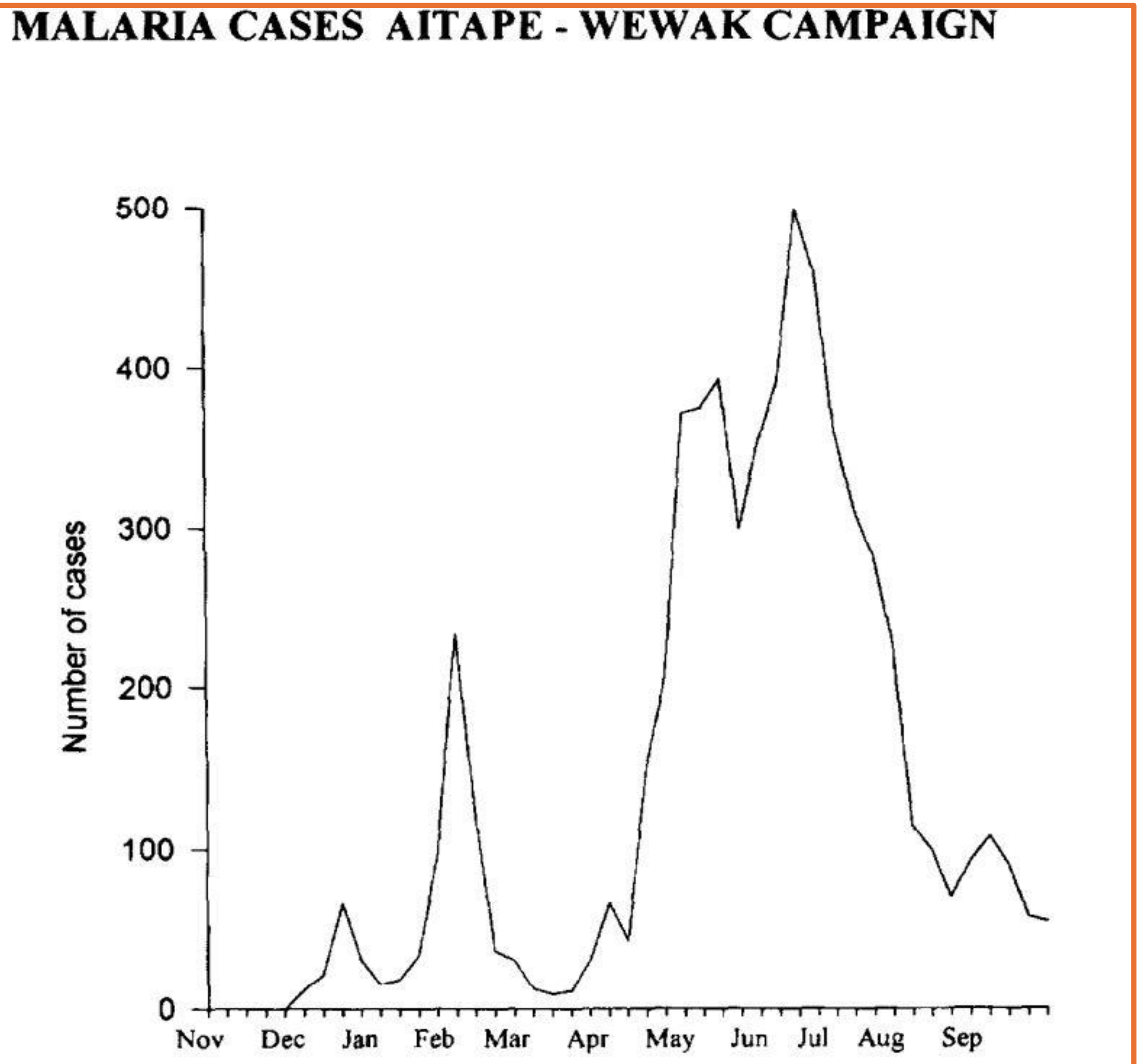


Fig. 3. Weekly malaria incidence in 6th Division; November 1944–September 1945.

Sweeney, A.W. 'The Possibility of an "X" Factor. The First Documented Drug Resistance of Human Malaria', *International Journal for Parasitology*, 1996

Malaria Epidemic – Key Points

- Malaria was hyperendemic ‘in all areas where troops were fighting.’
- All 6 Division brigades and Base sub area were affected, but not equally
- The variation of incidences was consistent with varied climate and terrain
- Predominant type of malaria was ‘malignant’ (Plasmodium Falciparum)
- Anti-malaria discipline was ‘not flawless, especially regarding the destruction of adult vectors’, but generally satisfactory

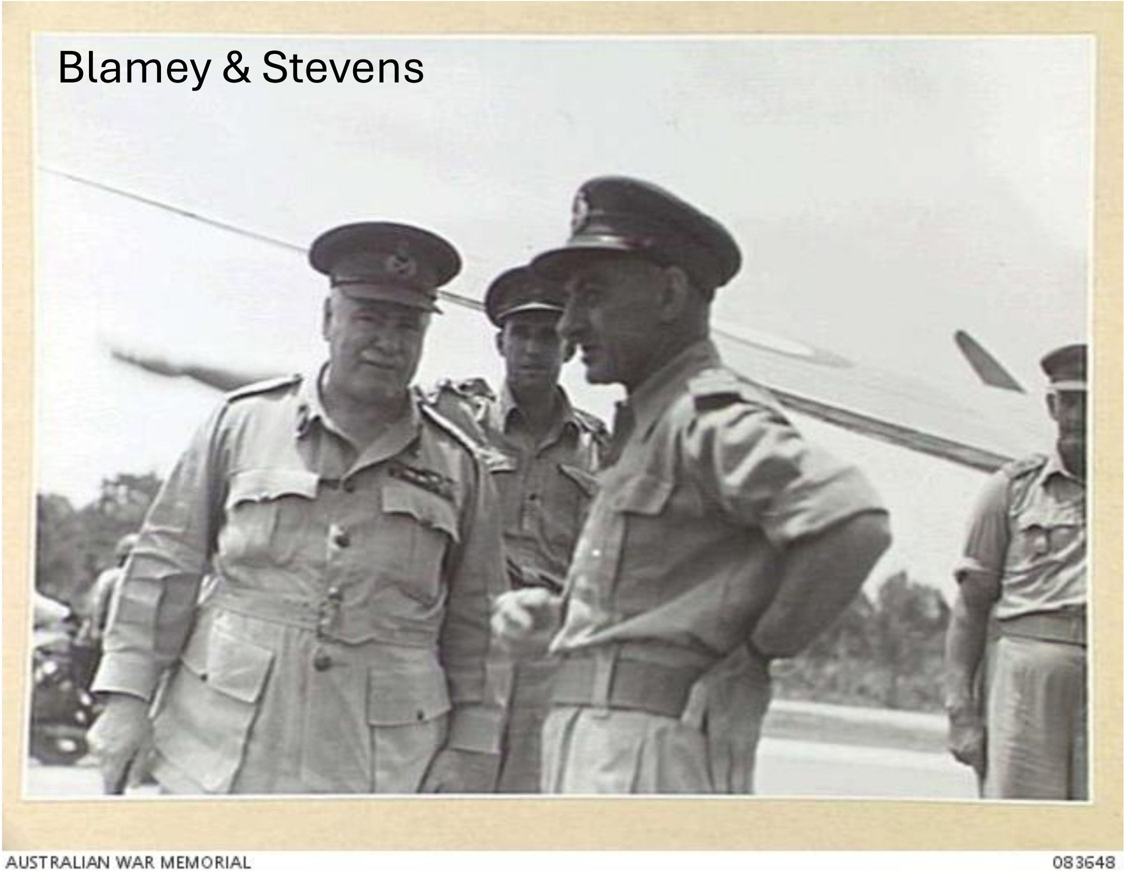
Atebrin Controversy – Key Points

- The official view persisted i.e. that the Cairns experiments ‘proved’ 1 x 100 milligram of atebrin per day would suppress malaria
- Many 6 Div Officers (esp. Medical) argued it was possible to strictly follow the recommended dose and adhere to regime yet still contract malaria if in hyperendemic areas
- Various theories regarding cause emerged: ‘X Factor’ Theory / existence of atebrin resistant strain of malaria
- Further experiments undertaken by Fairley and others in 1945 proved there was a strain of malaria that was ‘relatively resistant’ to atebrin in Aitape-Wewak area

The Damage Done

"The atebrin controversy was, of course, somewhat different, for there was involved also a question of blame, which was not entirely a scientific question.

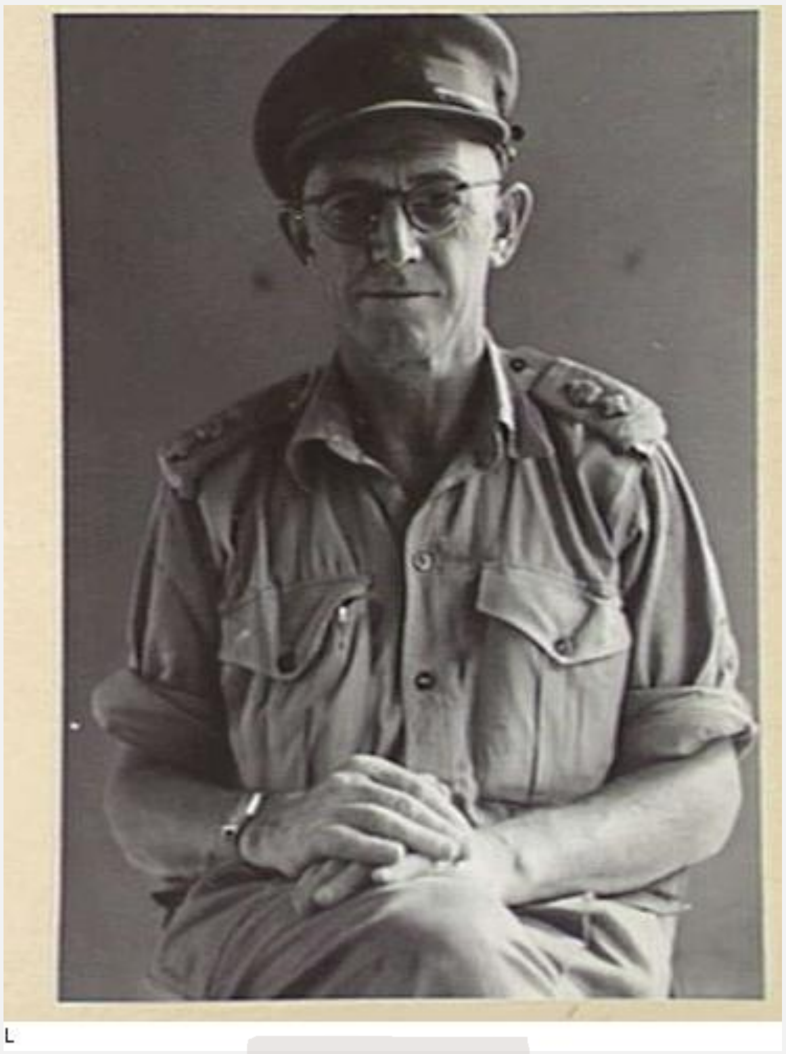
There are psychological lessons too, whose sharper features are still prominent in the minds of some of those who played a part in a worrying and responsible experience." Walker, *Island Campaigns*, p369



"What doors of indiscipline might be opened if adherence to the official dose of atebrin was varied?"

Walker, *Island Campaigns*, p368

- Supporters of Brigadier Fairley's work believed that any actions, such as increasing the atebrin dose, constituted an admission that the official atebrin dose could fail.
- It was feared that this would, in turn, cause morale to fall as men might feel that had been misled.



“Now to come down to the controversy about the epidemic”

“One important factor in the situation, which it may or may not be wise to bring out, was that Neil [Fairley] was unwilling to admit that atebrin could fail, because that might be used as an excuse to weaken discipline elsewhere, just as admission of atebrin dermatitis might have had serious repercussions.

At the time, he was in no doubt justified, but it was pretty tough on the Sixth Division.”

Ian M. Mackerras, Director, QLD Institute of Medical Research

May 1954.

"The lesson to be learned is that such people as Brigadier Fairley are scientists, and once they get themselves mixed up with propaganda, and lose their scientific approach to a situation much harm is done to the AAMC, let alone the fighting services as a whole."

Dr Richard S. Smibert, Commanding Officer, 2/2 Australian Field Ambulance

- Maintained malaria epidemic not due to method of atebrin administration OR non-compliance of soldiers
- Argued outbreak due to inadequacy of dosage under conditions in Aitape-Wewak
- Believed dosage should have been reviewed and possibly increased for duration of campaign
- Criticised lack of transparency regarding research methodology and results, and the limited distribution of Fairley's presentation at Atherton

Dallman Harbour [Wewak District], October 1945
Lt Col R. S. Smibert, Commanding Officer 2/2 Field Ambulance

“General Stevens ...
should have had enough sense not to be bluffed by Brig Fairley and his offsiders”

Dr R. S. Smibert, April 1954

WONDECLA, QUEENSLAND, AUSTRALIA, 1944-10-16. VX17 MAJOR GENERAL J.E.S. STEVENS, DSO, ED, GOC 6TH DIVISION, (1), WITH COMMANDING OFFICERS OF 6TH DIVISION MEDICAL UNITS BEHIND THE SALUTING DAIS DURING A PARADE HELD AT HEADQUARTERS 6TH DIVISION BEFORE MOVEMENT OF THEIR UNITS OVERSEAS. IDENTIFIED PERSONNEL ARE:- SX2817 COLONEL H.M. FISHER (2); QX6247 LIEUTENANT COLONEL D.A. CAMERON (3); VX241 LIEUTENANT COLONEL R.S. SMIBERT (4); NX22 LIEUTENANT COLONEL C.H. SELBY (5); NX123664 LIEUTENANT COLONEL K.C.T. RAWLE (6).

“It is apparent to me from reading your draft copy that you do not realise the damage that was done, and I truly hope when the next war comes, that those who served at Aitape-Wewak are too old to take part in it, and that those who are serving don’t delve too deeply into the attitude and advice given by such people as Brig Fairley otherwise, the respect built up by the AAMC in two world wars will be badly shaken.”

Excerpt from letter written by Dr Richard S. Smibert to Dr Allan S. Walker (Official Medical Historian), April 1954, in response to Walker’s request for feedback on Aitape draft chapter)

The Light of History …

“In the light of history, it seems just that the 6th division should be exonerated from the charge that lack of discipline in itself was the major cause of the epidemic”

Walker, *The Island Campaigns*, p368