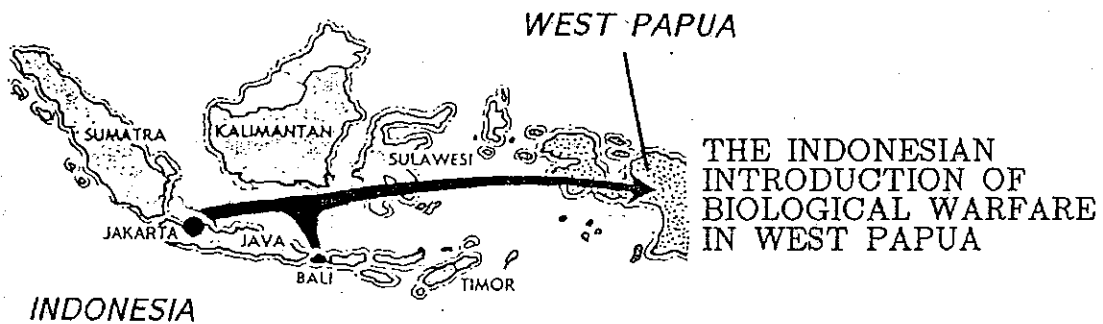


Transcultural
Tapeworm
Trafficking



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Transcultural Tapeworm Trafficking

The Indonesian Introduction of Biological Warfare in West Papua

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Lost to broad public attention is an insidious epidemic of pig tapeworms contracted by humans sweeping across West Papua and Papua New Guinea. A horribly pathological infection known as cysticercosis in humans has been running rampant for over 15 years in West Papua. Cysticercosis in humans comes from eating worm infested pigs. Although pigs have been a part of Papuan culture for thousands of years, the disease has never previously been anywhere on the island of New Guinea before 1970.

This paper is the result of an investigative search through often obscure medical literature. The author exposes the story of how, in 1971, the Indonesian military intentionally introduced infected pigs from Bali to the Me people of the Paniai Lakes highlands of West Papua. A Fourth World war is waging in West Papua and the Indonesians have the advantage of worm-infected pigs as a biological warfare tool of counter-insurgency. First, Professor Hyndman explains the pig-to-human tapeworm cycle to show the full implications of cysticercosis as an infection of pigs and humans. The Queensland University Professor describes the first West Papuan epidemic of cysticercosis in detail. He then illustrates the use of the disease for biological warfare by the government of Indonesia. Finally, Professor Hyndman proposes methods for combating the tapeworm outbreak.

FROM PIG TO HUMAN: THE WORM-SEED CYCLE

The pig tapeworm, is a parasitic invertebrate without a mouth, body cavity, digestive tract or anal opening. A gutless flatworm, the parasite must absorb food directly through its body covering. Each mature segment contains male and female sexual organs and an excretory opening. A full-grown seven meter tapeworm is a segmented chain with a communal lateral nerve cord. The sexually immature head segment, called a scolex, has specialized suckers for attaching to the human intestinal wall. The middle segments are sexually functional and the end segments are mere egg sacks. Eggs are either released in the human bowel or egg sacks are excreted whole into the environment.

Pigs start the intermediate host cycle when they swallow tapeworm eggs. Adult worms do not develop in the pig. Instead the hatched egg works its way through the intestinal wall and enters a vein. The embryo then travels the blood stream until it lodges in the pigs muscle. Nested in muscle tissues the small worm develops into its bladder-like form known as the cysticercus. These cysts eventually become the worm-head, but develop no further until a human eats the infected pork. The scolex pops out, attaches to the human intestine and grows its full seven meters of communal segments. Humans are the only host for sexually mature pig tapeworms.

SEVEN METERS OF DEATH

Unfortunately for humans, not only are they the sole host to mature *T. solium*. They can also act as intermediate hosts as well. When pigs and humans eat eggs of the pig tapeworm, bladder-like cysticerci can develop from embryos, causing the disease of *cysticercosis*. The larval stage of *T. solium*, *Cysticercus cellulosae*, invades human skin tissues, the brain, eyes, muscles, heart, liver and lungs (Tjahjadi *et al* 1978:279). Humans infected by seven meter pig tapeworms rarely experience discomfort, but when they harbor cysticerci it is physically devastating (Desowitz 1981:39).

If infection with the larval stage leads to cerebral cysticercosis it has severe and sometimes fatal results. Central nervous system involvement unpredictably ranges from general malaise to epilepsy and death. Infection of the eye most often occurs in the vitreous body and the subretina (World Health organization 1976:67,70). Inflammatory reaction to the cysts in the brain is a veritable 2-5 year time bomb leading to epilepsy and psychosis.

WEST PAPUA'S FIRST WORM EPIDEMIC

There had never been reports of human *taeniasis* or of *cysticercosis* in humans or pigs anywhere on the island of New Guinea. Nor was the absence of pig tapeworms the result of insufficient or uninformed search (Gajdusek 1977:83). Then in 1972 two Indonesian physicians examined feces of 170 Ekari people. They were admitted to Enarotali hospital located in the Paniai Lakes highlands of West Papua. Physicians discovered that 9% of the patients had tapeworm eggs (Tumada and Margono 1973:371). Between 1973-1976 there were 157 patients with severe burns admitted to the hospital (Subianto, Tumada and Margono 1978).

Three quarters of the patients were classified as having third and fourth degree burns and 17 underwent amputations. Epileptic seizures before or during hospitalization were present in 64 males and 27 females. Most of the patients were unconscious at the time of accidentally burning in the household fire. Nearly half displayed detectable or visible cysticerci.

The brain is the most common site where cysts lodge in humans besides tissues just under the skin and muscles. Autopsies confirmed that cysticerci located in the cortical layer of the brain caused the epileptic fits (Tjahjadi *et al* 1978:282). The horrendous extent of the cysticercosis epidemic becomes obvious in the following case studies (see Tjahjadi *et al* 1978:Figs.1-3; Gajdusek 1977:Figs.6-9): Tjahjadi *et al* (1978:280) report of one "35 year old male . . . admitted to the hospital for severe burns on his left foot. He had a past history of fits of four months duration. One night while sleeping on front of an open fire, a child saw that the patient's foot was on the fire and pulled it away. The patient was unconscious and had no memory of the accident on waking up a few hours later." A below knee operation had to be performed but the man died 18 hours after the operation. An autopsy was performed and there were multiple and scattered cystic nodules involving all lobes of both cerebral hemispheres of the brain. Over 20 cysticerci were found throughout the brain, the majority in the cortical layer (Tjahjadi *et al* 1978:281).

Subianto *et al* (1978:276-277) report that:

A boy, 7 years old, was admitted with fainting spells and convulsions for three months. The convulsions started from the right hand spreading over the whole body. After a convulsion, he fell unconscious. One

night his father witnessed his son lying with part of his head and upper arm in the hot ashes of the fire. the boy was still unconscious when the father pulled him out of the fire.

Upon examination the face and the upper right arm were covered with third degree burns. On the second day of hospitalization, the boy expelled segments of a tapeworm. Two complete adult worms were recovered from the stool after treatment with atabrine. The worms were identified as *Taenia solium*. Palpable or visible cysts were not detected.

Epileptic seizures were observed during hospitalization, especially when the usual dose of phenobarbital (50 mg t.d.d.) was decreased. One year later after discharge he was readmitted with burns on both feet.

Over 2000 Ekari people near the Enarotali hospital were surveyed by Subianto and Tumada in 1973. Eighty-seven (4.2%) had developed cysticercosis and 8% had developed intestinal taeniasis infection. Between 1975-1977 cysticercosis and taeniasis increased and spread, with intestinal infection up to 20% (Gajdusek 1977:87). However, fecal samples demonstrate a low sensitivity for the parasite. In one African study only 6% of the stools showed *taeniasis*. Autopsies indicated over 60% of the population were infected (Desowitz 1981:40). By 1978, serological tests confirmed that at least 25% of adults and children were infected with cysticercosis (Desowitz 1981:41). Undoubtedly, the majority of the Ekari people are infected.

Who are the people the Indonesian physicians and the international parasitological consultants call the Ekari? Why were they the first to suffer the ravages of worm infections and how did they become infected? The Ekari are a Fourth World people who call themselves the Me.

Anthropologists (Pospisil 1978) and southern neighbors of the Me people call them the Kapauku. Their north eastern neighbors call them the Ekari. The Me people, who number around 65,000, speak a Papuan language of the Trans-New Guinea phylum (Voorhoeve 1982). Their homeland is the Paniai Lakes region that forms a large highland basin 1500 meters above sea level. Paniai Lakes is the western-most of four densely settled highland basins. Also in West Papua is the Baliem Valley. The Wahgi and Asaro Valleys are in Papua New Guinea.

Autopsies indicated over 60% of the Population were infected.

The Me are labeled by the Indonesians, the physicians, the consultants and even the anthropologists as primitives from the Stone Age. By regarding the Me as living fossils it is easier to judge them as being so disgustingly uncivilized that they must personally bear primary responsibility for their own epidemic. The Javanese governor remarked to the consultant Desowitz, "You, know, they are not like you and me. They are very primitive, and it is extremely difficult to change their customs even for their better health" (Desowitz 1978:45).

This comment typifies the disdainful disregard the Indonesian state has for the Me. It shows too how they justify their aggressive *advancing civilization* policy. This thinking forms the rationale for eradicating *superstitions* and *primitiveness* from Me life (Pospisil 1978:110). The Indonesian physicians regard the *primitive huts* of the Me as partly responsible for the rampant epileptic seizures and worm infection (Subianto, Tumada and Margono 1978:275). Gajdusek (1977:84), the first international consultant to visit the Me,

called them *Stone Age Highland Melanesians* with a pig-breeding culture.

Desowitz (1981:41), the second international consultant to visit the Me, somehow found enough humour in Ekari *Stone Age toilet habits*. He flippantly title his book *New Guinea Tapeworms and Jewish Grandmothers* in commemoration of the devastating epidemic. His insensitivity towards the Me and their pigs can be appallingly ethnocentric:

Unfortunately, the traditional Ekari barbeque doesn't allow for thorough cooking. The Ekari throw the dead pig on the fire just long enough to warm it up. One reason for this haste is that, except at the big feasts, an Ekari wants the pig he slaughters to be all his. Neighbors are not customarily invited to dinner. The Ekari kills his pig secretly - or as secretly as a pig can be butchered - in the dead of night, following the kill with a quick turn on the fire. A fast-food meal takes place in stealth and gloom. (This and other customs have not endeared the Ekari to anthropologists, who have described them as greedy and avaricious, and as "primitive capitalists.")

"The pig must be killed and eaten at once."

Pospisil (1978:vii,3) admits his only interest in the Me was their primitive law and isolation. He wanted to be in "an untouched Stone-Age Papuan society and to study its primitive political institutions in action." Pospisil's view of the Me as *natives* and *primitive capitalists* belongs to 19th century thinking. Analytically his views are very much at variance with other socioeconomic studies of pig exchange

systems in the Highlands (Brown 1978). Although Pospisil finds the Me to be extremely individualistic, in all fairness he does not describe them as greedy and avaricious.

Pospisil's exhaustive analysis of pigs in Me economic and ritual life does not support the Desowitz version of secretly gorging undercooked pork. Successful pig breeding is the most important source of man's wealth and prestige. Pig trading in *juwo*, the pig feast, *tapa*, the pig fund-raising ceremony and *dedomai*, the pig market, is necessary. These activities are essential to achieving the political leader status of big man (Pospisil 1978:11). The Me display their wealth through the channels of conspicuous generosity. Stingy, greedy big men have been known to be executed (Pospisil 1978:31).

Putu duwai naago, the birth ceremony so dreadfully maligned by Desowitz, is actually an occasion of conspicuous generosity. It is a time to distribute free food (Pospisil 1978:31). Desowitz (1981:44) throws up his hands in dismay at what he sees as the abysmal cultural gap between *civilization* and the Me.

A big man said "you tell us not to eat the infected pig, to be careful, to cook it long. How can this be done? If a child is born at night, we must sacrifice a pig immediately. There is not time to look and see if it has seeds. The pig must be killed and eaten at once." The father gives the birth ceremony in honour of his newly born child. The ceremony includes pork prepared in a *dopo* cooking mound steamed together with fern leaves, vegetables and sweet potatoes (Pospisil 1978:65). Guests receive portions of pork prepared in this fashion.

Pigs have been in New Guinea for at least 5,000 years. In the big Highlands basins intensive agriculture has supported competitive big man pig exchange systems for over 2,000 years (Golson 1982). Pigs are an ancient,

integral part of Melanesian culture and identity. The military has been exploiting the intimate human-pig cultural association for its counter-insurgency potential in its war with West Papua.

"A GIFT" OF BIOLOGICAL WARFARE

According to the World Health Organization (WHO) (1976:67), taeniasis-cysticercosis is increasing in many countries. This, says WHO is due to "intensification of animal production, development of meat industries in several developing countries." The health organization also says that an increase in world meat and live animal trade, large-scale inter-country migration of agricultural and other workers are important factors. The *camping explosion* in some countries with an "increase of promiscuous defecation, other breakdowns of sanitary conditions, [and] sewerage farming" are also WHO reasons for the spread of tapeworm infections.

In *live animal trade* and *large-scale intercountry migration* the World Health Organization foreshadows the purposeful policies of Indonesia toward West Papua. However, what the devastating diseased pork in West Papua really suggests is that the World Health Organization must add the intentional use of *animal-to-human* infection as a deadly form of biological warfare to their list of transmission conditions.

"We can see the seeds that give us illness...."

Years after the outbreak of worm infections among the Me, Enarotali hospital physicians published their findings in the internationally circulated **Tropical and Geographical Medicine Journal**. They declared that the "cause

of the increasing number of taeniasis solium and cysticercosis in the area could not be established. The origin of the pigs in the Paniai district could not be traced since pigs have been in the area for a long time" (Subianto, Tumada and Margono 2978:278). This claim was clearly covering up their earlier admission in the obscure **Bulletin of Health Studies** in Indonesia. Here they reported that transmission to the Me was restricted to a single importation of one batch of infected pigs from Bali in 1971 (Gunawan, Subianto and Tumada 1976).

Gajdusek (1977:84) points out that it was the Me "who first noted the appearance in the pig flesh of strange cysts, which they had never seen before." He noted that the Me "brought this to the attention of the doctors, missionaries and administrators. They themselves had associated this infection with the introduction of new pigs, a gift from the Indonesian government in Java, since they had first seen the cysts in the flesh of new pigs and such cysts had appeared later in their own pigs." A Me big man stated in Desowitz (1981:44), "We are not blind. We can see the seeds that give us illness in the pig flesh."

Desowitz's (1981:41) reconstruction of historical events indicates that the tapeworm rode the "anti-colonial wave; the vehicles of transport were men and pigs." The anti-colonial wave is Indonesian state expansion into the Fourth World nations of West Papua which started in 1963. It was then that the Dutch reluctantly pulled out leaving West Papuans to decide their political future in an **Act of Free Choice** to be held in 1969. Indonesia outlawed social movements for autonomy in West Papua in the years leading up to what is better described as the **Act of No Free Choice**. The United Nations peace keeping force withdrew in 1963. As they did, over 15,000 Indonesian troops were stationed

in West Papua and land disputes immediately took place. Military officers seized Papuan land and resources for themselves and for transmigrants from Java (Osborne 1985:34). Politicized intellectuals and indigenous peoples linked to form the **Organisasi Papua Merdeka** (OPM), the Free Papua Movement. Founders of the **Organisasi Papua Merdeka** were Afak people and many received training from the Dutch for the Papuan Volunteer Corps. They fought the first OPM armed resistance movement in 1965 and sustained the struggle for two years (Osborne 1985:35).

In 1969 1,025 indigenous community leaders were chosen by the Jakarta government to represent some one million West Papuans in the **Act of Free Choice**. President Suharto personally intervened to declare that any West Papuan who opposed being retained in the Indonesian state would be guilty of treason (Osborne 1985:41). The first major OPM armed struggle against the **Act of Free Choice** took place at Enarotali and:

was launched by the defection of 85 well-armed Papuan policemen to the OPM. Encouraged by such action from within Indonesian ranks, local villagers laid siege to the Enarotali airstrip and four others, digging holes in the runways to prevent landings. On April 29, shots were fired at an aircraft carrying Irian's military chief, Sarwo Edhie, wounding a police inspector who was with the general. Local moral was boosted by raising the Morning Star flag and declaring the area liberated from Indonesian rule.

When Papuans seized a Catholic mission radio they broadcast an appeal to army headquarters at Nabire asking Indonesia to withdraw its troops and allow the people to choose their own future. According to a press statement by the Irian

governor, Franz Kaisiepo, the revolt had the support of all the leaders of the 30,000 people in the region. The statement said, forthrightly, that tribes which had been enemies for years were united in their hostility to the Indonesians (Osborne 1985:42).

The Indonesian army responded to OPM armed resistance with machine-gun strafing from aircraft. They flew in paratroopers which forced over 14,000 Me from their villages and into the bush as refugees (Osborne 1985:42). A few months later in July another major confrontation took place in the Paniai Lakes region. Thousands of other Me people abandoned their villages while women made food gardens in the remote portions of their mountain homeland. The Me warriors attacked Indonesian patrols on many fronts (Osborne 1985:47). The sham election had gone down by August, 1969. Indonesia's government then announced West Papua was officially the province of Irian and solely within Indonesia. In Australia, Labor MP Charles Jones, later a minister in the Whitlam government, complained, "nobody seems concerned that there should be independence for coloured people from other coloured people" (Osborne 1985:49).

It is not difficult to see why the Me people were singled out as recipients of worm infested pigs. By West Papuan standards, they were densely settled around the Paniai Lakes. Thousands had taken up sustained armed resistance against incorporation into Indonesia and their homeland was a prime locality for Javanese transmigrants. Desowitz (1981:41) is decisive about tapeworm trafficking when he writes that the Me:

were uncertain, to say the least, about the change in regime, and during the plebiscite, of shortly thereafter, the Indonesians sent troops

to Enarotali. Some of the soldiers came from Bali. Indonesia's President Suharto softened the military action by sending a gift of pigs. The pigs, too, came from Bali, the area in which pig rearing is largely concentrated, since Bali is Hindu and the rest of Indonesia is mostly Muslim. Whatever the political and social advantages of the gift, the medical result was an unforeseen tragedy.

It is extremely difficult to accept the proposition that the resultant worm disease outbreak was nothing more than a tragically unforeseen consequence of a beneficent military gift to the Me people. The Indonesian military are certainly not admitting they engineered introducing cysticercosis as a diabolical form of biological warfare. The simple transfer of one small batch of infected pigs is an insidiously easy counter-insurgency tactic to decimate and demoralize the enemy. The extent of the demoralization is testified to by a Me big man who said "no one lives forever, and if we must die, then we must die. Life is no longer a pleasure. We are only half men. The Indonesians will not let us make warfare that gave us manhood. I no longer care if I eat corrupt pig flesh When the missionaries brought us the coughing sickness [a whooping-cough epidemic in 1956], we rose in anger, this time we have no heart to do so" (Desowitz 1981:44).

The conspiracy of official Indonesian silence surrounding the fact that they transferred the pigs from Bali is guilt by lack of admission or acceptance of responsibility for their actions. The pig tapeworm has been a well known native parasite in Bali for over 60 years, but cysticercosis is almost

nonexistent (Tumada and Margono 1978:371; Tjahjadi *et al* 1978:279; Desowitz 1981:41). The Indonesian military continues to violently suppress the Me resistance movement. In 1981 a major operation code-named Clean Sweep by the Indonesian army was aimed at decimating the sustained OPM resistance and the campaign was particularly extended to the Me people:

where a TV team from the Dutch KKRO network filmed hundreds of men and women training. Most of them carried traditional weapons and they shouted anti-Indonesian slogans. By August this area was being bombed, and villagers alleged the use of napalm and chemical weapons. The highlands death toll was put at between 2500 and 13000. The Dutch TV people, having received news from the area, suggested the upper estimate. The PNG government favoured the lower, or even less, while Indonesia did not comment at all (Osborne 1985:87-88).

From evidence of Indonesian ferocity in the Fourth World war in West Papua, there is little room for doubt that they are capable of using worm infected pigs to their military advantage.

THE SPREAD OF CYSTICERCOSIS

Bending and Catford (1983:922), who led a medical research expedition to the Paniai Lakes in 1977, expressed grave concern that infected pigs threatens the continued existence of the Me people. They charged, "it ranked as one of the major causes of mortality in the adult population. In some areas the prevalence of subcutaneous cysts alone was 4% of the population on clinical examination." Desowitz

(1981:44) states there is "clear evidence that the infection had now spread to other parts of Irian Jaya." Gajdusek (1977:84,88) and Mitton (1983:227) indicate that by 1973 taeniasis and cysticercosis had already spread to the Western Dani people living in the Baliem Valley.

By 1975 these diseases had spread to the Mountain Ok people around Ok Sibil through introduction of infected pigs brought from the Paniai Lakes area. Cysts spread among the local pigs and according to Gajdusek (1977:84) "all of the surrounding pigs were killed and burned, and it is hoped that the new focus has been eradicated."

The Mountain Ok people live on both sides of the contemporary political border between West Papua and Papua New Guinea. In 1978 a World Health Organization medical research team reported that the Wopkaimin Mountain Ok in nearby Papua New Guinea showed no signs of cysticercosis. The report showed absence "either as subcutaneous nodules, calcified muscular nodules on X-ray, of Jacksonian epilepsy ... and examinations of 52 stool specimens disclosed neither eggs nor terminal ripe segments of *Taenia solium* (Taukuro *et al* 1980:84).

The West Papuan Fourth World war continued and particularly escalated in 1984. Indonesian counter-insurgency reprisals and road building on the border forced over 1800 refugees to seek asylum in Komopkin camp among Ningerum people. Over 400 more went to Niakombin camp among Yanggom people. Papua New Guinea callously referred to the refugees as *border crossers*. Conditions were so dreadful in the refugee camps that by August 1984 52% of the children from 1 to 5 years of age had severe malnutrition with signs of kwashiorkor (Ulijaszek

1985). Conditions at home were perceived as worse and the refugees remained in the camps. Over 10,000 more stayed in the Sepik region.

While on a return visit among the Wopkaimin in late 1985 Ian Fraser-Stuart, a Department of Primary Industries scientist, informed me that there were twelve confirmed cases of cysticercosis in the Komopkin and Niakombin refugee camps. It appears that worm infections had not been eradicated around Ok Sibil and it is now on both sides of the border.

Pospisil's (1978) ethnography, although widely read and far more accessible than the medical literature, presents a comically unrealistic appraisal of the impact of worm infections and the Fourth World war on the Me people. By titling his chapter **The First Two Decades of Exposure to Civilization**, Pospisil (1978:96) alerts the reader to his ethnocentric bias. Pospisil (1978:97) hoped for prolonged restudies of acculturation and did undertake field trips in 1955, 1959, 1962 and 1975. The whooping cough and diseased pig epidemics at least get a mention. His chapter incorrectly attributes the tapeworm outbreak to an unfortunate result of attempting to improve the breeding of pigs by introducing European varieties (Pospisil 1978:113,115).

Pospisil (1978:99-100) at least indicates the Me "simply wanted to be free and independent" which led them to fight a prolonged, bloody fight against Dutch colonialism in 1956 and a second revolt against the Indonesians at least as bloody as the first one. Yet he concludes, "the outcome of hostilities for the Kama Valley was not a defeat but a reasonable compromise. Indonesia has kept the region under control by an Indonesian district officer, a very decent and understanding man, while

the police force, composed of uniformed Kapauku [Me], keeps peace and order in the valley."

By implying that the advent of Indonesian administration only slightly changed the political situation since Dutch colonialism (Pospisil 1978:101), he misleads the reader. His false claims successfully sway the series editors to introduce the ethnography with the statement, "though the results of intensive contact with the outside world for the Kapauku [Me] are not without some sad features, one must judge these results, in the overall balance, as positive. Perhaps this is so, in part, because the individualistic, profit-oriented Kapauku found Western capitalism congenial." This view of Indonesian colonialism makes combating cysticercosis seem unnecessary and according to Pospisil (1978:113) "to check the parasite in the native situation is virtually impossible short of exterminating the pig population or enforcing a strict hygiene."

REPELLING THE HIDDEN SEED

The OPM should inaugurate a massive education program among the indigenous West Papuan peoples. Public health measures undertaken by missionaries and Indonesian officialdom have been unsuccessful because of distrust and other cultural reasons. Success of their Fourth World resistance movement depends on accepting the safe disposal of feces in pit latrines and the thorough cooking of pork. These are realistic preventive measures that Papuans can take, otherwise it can be pointed out that the people are playing into the hands of Indonesian strategic use of worm-infected pigs as biological warfare.

Intestinal worm infection is

treatable with drugs like *mebendazole* (Bending and Catford 1983:922) and newborn pigs can be immunized, but these drugs are expensive and unrealistically obtainable in West Papua. Massive pig killing to break the parasite life cycle is also unrealistic given the enduring and intimate cultural importance attached to the pig.

Finally, the OPM could also disseminate the worm-infested pigs story through their network of international supporters. Indonesia's intentional introduction of infected pigs from Bali is a crime by any standard. It is a punishable war crime which has all the characteristics of genocide.

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