

From 1937 to the end of the war Japan reportedly made extensive use of chemicals in bombs, shells, and candles against the Chinese. Japan ~~has~~ ^{supposedly} combined harassing gases with conventional firepower as a tactic.

The use of chemical agents in armed conflict is as old as organized war. (Examples: poison arrows, burning oil, salting land, poisoning wells, and various toxic or irritant smoke-making methods)

However WWI is modern beginning of chem war with a million casualties and over 100,000 deaths due to chemical weapons.

Although Germans usually blamed for first use, French soldiers were using rifle-launched tear gas grenades ^{**} as early as the first month of the war ^{*} (August 1914).

[*See Clarke, *The Silent Weapons*]
 ** ethylbromacetate was the first combat gas - it is over twice as toxic as chlorine. [Augustin M. Prentiss, *Chemicals in War*, NY: N. Graw-Hill, 1932]

Geneva Protocol of June 17, 1925,
and a list of the 98 Signatory
States (as of Mar 1971)

is Appendix I of

A Harvard ~~Geneticist~~ Geneticist, Matthew S. Meselson, was named by the AAAS at its Dec 69 meeting to prepare the plan for a study of the effects of defoliants and herbicides in Vietnam.

Meselson was a long-time foe of chemical and biological warfare.

Washington Arms Cont of 1922
had a provision prohibiting
in war the use of chemical
agents.

Approved by Senate & ratified
by President Harding on 9 Jan 1923.

However, French rejected the
Treaty over a dispute on the section
covering submarines, so it was
never in force.

Chemicals in warfare again
were the subject of the Geneva
Protocol in 1925, at the
initiation of the American
delegation.

Ironically, despite Senate
acceptance of the Washington Treaty
provisions without a dissenting vote,
the Protocol found widespread
opposition and remained in committee
until ^{8 April} 1947 when President Truman
"recalled" it and other obsolete
treaties. [Dept of State Bulletin 16, part 2, (1947), 726.]

Nixon resubmitted it - announced 25 Nov 69.

Hague Gas Declaration of 1889
tried to ban projectiles
"... the sole object of which
is the diffusion of asphyxiating
or deleterious gases."

[See George Bunn, Wisconsin Law Review
(1969), 375]

The 1919 Versailles Treaty
to make peace with Germany
had a provision outlawing
"...the use of asphyxiating, poisonous,
or other gases and of all analogous
liquids, materials or devices."

The Cambodian province of Kompong Cham (so-called Fishhook area) was subjected to a major herbicidal attack in spring 1969. (mid April to mid May 1969)

Severely affected 24,700 acres. ~~8~~
Total affected 173,000 acres

[Egyptian Gazette Cairo 25 May 1969, p 4.]

24 700 82 acres
173 000 577 acres

US investigative report on
the Cambodia affair in 1969

concluded that at least
part of the damage was
"probably caused by a direct
spray application."

quoted in *Neslands*, 4034, 179

CE Minarik, JB Shumate, NG Vakili,
and FH Tschirley, "Report on
Herbicide Damage to Rubber and Fruit
Trees in Cambodia," U.S. State
Department, Saigon (1969).

Cambodian claims of mortality
to vegetation and of widespread
diarrhea, colitis and vomiting among
local populace was discounted.

US "sources" denied US
military border violations. They
also denied that in use defoliants
could kill plants ~~and~~ or cause
dilemmas in humans.

Washington Post, 4 Jan 69, p. A18

Dept of State stated that
US spray missions had not
come closer to Cambodia
than 3 miles.

US however asked to inspect
the damaged area and Cambodia
agreed, despite the lack of
diplomatic relations between the two
nations. since 1965.

NY Times, 5 Jan 69, p 4

4034
Policy statement of Pres. Richard M.
Nixon on Chemical & Biological
Warfare.

Renounces again the first use
of lethal chemical weapons & extends
it to incapacitating chemicals

Says will submit Geneva Protocol
to the Senate.

New York Times 26 Nov 1969
reprinted Newsweek, 4034, 284-65

DOD ordered on 15 Apr. 1970
to end the spraying of Orange.

US announced on 26 Dec 1970
that it would rapidly phase out
the use of all herbicides in VN.

From Council of the AAAS Resolution
at the 1970 Annual Meeting in Chicago.

Resol. introduced by E. W. Pfeiffer

Reprinted in:

"Accidental defoliations in Vietnam indicate that trees less than 7 years old can be killed by the dosages used in military operations, but that older trees normally recover."

However older trees do die. For example, "all ~~the~~ trees on 100 hectares on Plantation Ben Cui were killed by herbicides in 1965, despite the fact that the trees were 33 years old."

[from Orin and Pfeiffer, Science 168, 544 (1970).]

Maj/Gen ~~Davison~~ Davison, in reply to a protest statement by 29 US scientists against the use of anti-crop agents said:

"this is not chemical or biological warfare, nor is it a precedent for such. It is in ~~reality~~ actuality a relatively mild method of putting pressure on a ruthless enemy."

cited in Cookson and Nottingham (67), 43.

Verway, 4036, 76.

Crop destruction acres

1961 - 1969

1970 on p 25

Author

Westly

Code #

4037

Page (s)

22

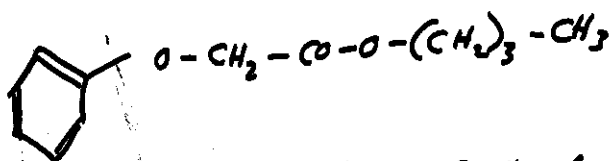
4039

J M Briantais, Research fellow of the
National Council for Scientific Research,
Photosynthesis Laboratory, Paris (France)
in "Action of Defoliants and Herbicides
on Plants; Their Utilization in Viet Nam"
pp 143-49

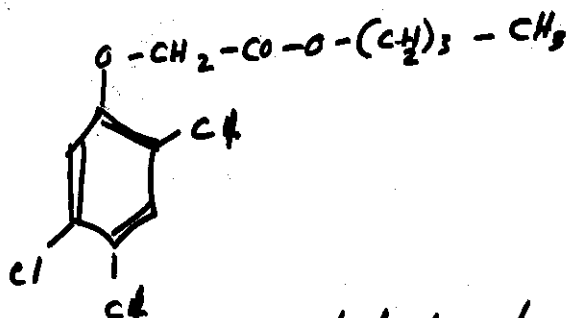
claims

" Since 1966, special spraying modalities
have been practical in Viet Nam: for example,
the dropping on ricefields of herbicide drums
which empty themselves after hitting the
ground. This was noticed for the first time
in Vinh Long province in December 1966.
In the same period, the American army started
dropping on Cao Tho province plastic
containers which burst open as soon as
they hit the ground and spread their
herbicide contents." Says "obviously
that this makes the rule of application
"higher than in agriculture."

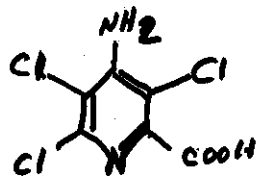
N-4039: 146



n-butyl ester of 2,4-dichloro-
phenoxyacetic acid



n-butyl ester of 2,4,5-
trichlorophenoxyacetic acid



Picloram
4-amino 3,4,6-trichloropicnic
acid.

Author N

Code # 4039

Page (s) Followout in back of Book

4039

JN Briantais ~~claims~~ reports the
herbicide - producing firms as:

"Dow Chemical, Diamond Alkali, Chiroxyl
Chemical, Thompson, ~~Mont~~ Monsanto,
Ansul, and Thompson-Hayward" (148)

sees them as • "bellicose
pressure groups" interested
in their profits (149)

H-4039: 148 & 149

Hilary Rose and Steven Rose, in "CS-Gas an Imperialist Technology:" claim that chemical weaponry "combinations" (original emphasis) must be considered of particular significance (47) (46)

Implies deliberate combination

" Thus, herbicide orange was used in conjunction with herbicide white, or blue with white, or, as on one occasion, orange herbicide was simultaneously used with CS and napalm. " (46)

Task Force Report - Effects of Chemical Warfare in S. VN

For 1969, estimated 1,034,300 hectares of forests and 5-1,700 hectares of rice, crops, & orchards destroyed

Province	Crops & Forest destroyed	People Poisoned
Quang Tri, Thua Thien	15,000	5,000
Quang Nam, Quang Ngai, Binh Dinh, Phu Yen, Khanh Hoa, Gia Lai, etc	100,000	30,000
My Tho, Ben Tre, An Giang Tra Vinh, Chau Doc, Kien Phong, Vinh Long, Rach Gia, Go Mau, Long An, Tay Ninh, Bien Hoa, BA Ria, Co Cong, Kien Tuong, Bac Lieu	300,000	150,000

(121)

All inspection seems to be
here say, second-hand.

Data on herbicide effect on preg. women by
talk on 22 May 71 with 2 doctors in Hanoi;
(136-37)

Documents of the Committee for
Denunciation of U.S. War Crimes in Laos

claim over 2000 US planes shot
down by Laotian AA defense (250)

Gives yearly breakdown, including 373
in 1970 (251)

Says during the 1971 invasion of the
lowland, 496 planes and helicopters
were shot down or captured (251)

Says during 1971 invasion, "U.S. aircraft
sprayed chemical toxics on Laotian territory
~~during~~ during the operation, destroying
the vegetation and poisoning civilians..."
(254)

Table of acres sprayed

Author Carlston

Code # 4043

Page (s) 140

" Incendiaries were occasionally used in conjunction with defoliants in South Vietnam for crop destruction purposes. Firestorming attempts using napalm after defoliation missions were also tried, though with virtually no success. "

New York Times, 14 Mar 1970,

" An offshoot of the firestorming concept, utilizing napalm and aviation fuel, also failed. "

Congressional Record (1 Mar 1971), H 987.

Author

Kaldor

Code #

4048

Crop Dest.

Page (s)

54

An integral ~~As~~ part of the new Amer strategy of position defenses of strategic locations was the forced depopulation of large areas of rural Vietnam.

One of the techniques of "area denial" was large scale defoliation by chemical herbicides.

Later, the engineers developed "Rome ploughs" to more thoroughly clear the vegetation cover of the enemy, while extensive aerial mining & bombing helped further deny large areas to the populace.

Author Kaldor & Eide

Code # 4048

Page (s) 31-32-33

Dragon tooth mine - camouflaged
? partially made of plastic.
Plastic splinters were particularly
difficult for surgeons to
detect

Spider mine - sends trip wires
out in 8 different directions
after landing.

Cluster bomb units - some bounced
into the air before exploding
- time delays caused unexpected
explosions hours, days ? even
weeks later.

Author Kaldor

Code # 4048

Date (s) 33

CBU-59B

Has 717 bomblets, which can discriminate between 'soft' and 'hard' targets. If the bomblet hits a soft target, such as the ground, it pops up 3-10 feet into the air before bursting — maximizing the damage potential. If it hits a hard object like a truck or runway, it explodes instantly.

Author KalderCode # 4048Page (s) 62Other Weapons
Misc

Chemical munitions:

Pres. Kennedy authorized Farmgate operations to use napalm in operations over South Vietnam under ~~some~~ certain ground rules. (50-51)

In 1964 napalm was first used in Laos to aid in the recapture of Phou Kout, under the authority of the Amer. Ambassador, Leonard Unger. (53)

[Pentagon Papers, Grand Ed, III, p 534.]

Pres. Johnson authorized the use of napalm on targets in NVN on 9 Mar 1965. (54)

[Pentagon Papers, Grand Ed, III, p. 284]

Phosphorus-based incendiaries were first reported in SEA in March ~~1965~~ 1965. (54-55)

[Wall Street Journal, 22 Mar 1965]

Magnesium-based incendiaries were introduced in Aug 1966. (55)

[New York Times, 19 Jan 1967]

Author Kalder

Code # 4048

Page (s) ()

Other Weapons

Misc

"The State Department, in the words of one direct observer, was reduced to 'much feeble protestation' against napalm use. It had already lost the opening round of the debate on tactical issues with the decision to use herbicides, and its energy and influence on subsequent issues was clearly on the wane."

The Secretary of State regarded decisions on military tactics and ordinance selection as essentially a military matter.

Author

Kaldor

Code #

4048

Page (s)

55

Misc

Viet Minh means "the League
of Alliance of the Viet for
Independence."

Vietnam declared an independent state in
March 1944 by Japan. Bao Dai,
former Emperor of the French Protectorate
of AN Nam was chief of state.

The kings of Laos and Cambodia were
made chiefs of these independent states.

France agreed to recognize the autonomy
of these states in 1946. (21)

Author

PAN

Code #

4049-

BK good

The French Government granted
Full independence to Viet Nam
on June 4, 1954, less than a
month after its defeat at Dien Bien Phu.

Diem became Prime Minister with
full power over the State of Viet Nam.

Two weeks later, 20 July 1954,
France and the Hanoi regime
signed the Geneva Truce.

Author PAN

Code # 4049

Page (s) 83-84

Bks - d

The National Liberation Front
of South Vietnam

(Mat-Tran don-toc giaiphong)

or National Front for the
Liberation of S. Vietnam

Author Gettemon

Code # 41050

Page (s) 229

BK9nd

Vietminh is the popular
contraction of Viet Nam Doc
Lap Dong Minh, the League
for the Independence of Vietnam.

Vietnam, means Land of the South

Vietnam Doc-Lap Dong Minh Hoi
is Revolutionary League for the
Independence of Vietnam (55)

Author Gettlem

Code # 4050

Page (s) 39

BKgnl

Marshall "had definitely favored the use of gas." "We were all ready to use it on some of the islands."

After the losses at Iwo Jima, he was prepared to use it at Okinawa.

Marshall didn't argue whether it was justified but only whether it would be effective in getting results without such terrible losses.

"The reason it was not used was chiefly the strong opposition of Churchill and the British. They were afraid that this would be the signal for the Germans to use gas against England."

Author DAVID E. LILIENTHAL The Journals of D. E. L.
 Vol II THE ATOMIC ENERGY YEARS 1945-1950
 Code # NY: HARPER & ROW, 1964.

" in WW II the War Department mulled over the idea of using poison gas on Iwo Jima in order to take that fearfully defended island. It was quite the spot to use poison gas, if ever. But when the idea came to the attention of the late Fleet Admiral Chester W. Nimitz, he nixed it, saying, 'I decided the United States should not be the first to violate the Geneva Convention.' It was a tough decision for the Admiral to make at the expense of many gallant Marines. The exact casualty figures on Iwo Jima were 17,252 Marines wounded, 5,931 killed.

Author Elaine Shepard

Code # 4054 The Doom Pussy (New York: Trident Press, 1967)

Page (s) 233

Tokyo fire storm

March 9/10, 1945

25 tons of bombs per square mile

used M47 napalm bombs and
M69s

Burnout 15.8 sq. miles

83,793 dead

40,918 wounded

5:614-17

Author Craven, Wesley F. & Cate, James L., eds.

Code # The Army Air Forces in World War II, 7 vols
Chicago: Univ of Chicago Press, 1953

Page (s) 5: The Pacific: Midway to Nagasaki, June 1944 to August 1945

During World War II, in 1944, the National Defense Research Council conducted tests on an idea for a incendiary device to be borne by bats.

The idea was the product of the fertile mind of a Los Angeles dentist, Lytle S. Adams. An effective device and a "bomb" container for transporting the bats to the target cities was developed under the code-name "X-ray." According to Fieser, the project was suddenly cancelled for an unknown reason, but he speculates that while the bats "would be vectors for bombs . . . they would be vectors also for germs." "Our side might be accused of initiating biological warfare."

Fieser, Louis F.

Author _____

4059

Code # _____

Feb 1
Crit

One of the problems of wartime weapons research in such exotic areas as chemical warfare is typified by the experience of Louis F. Fieser.

Fieser was a member of the National Defense Research Committee, working on bombs and incendiaries. In 1941, Feiser's group of researchers came up with a promising discovery using a gel type incendiary. Tests of various compositions and ignitors were carried out at Harvard University. In 1942, Professor Feiser persuaded the University maintenance dept. to construct a shallow pond on the soccer field beside the Business School, for the testing of incendiary bombs. Tests were carried out on 4 July 1942. Within the month, the Dean of the Business School received a letter from the Navy Supply Corps School. The 30 July 1942 letter pointed out that the soccer field had been designated by the University as the drill field for the Navy School and that these experiments had rendered almost $\frac{1}{4}$ of the field unusable for drill, thus hampering an "important part of our [Navy] indoctrination." The letter noted that continued use of the field for bomb experiments would "seriously hamper the training" of the Navy Supply School.

Apparently the perfection of incendiary bombs had second priority to the drill instruction of future Navy supply officers.

Ltr, Captain K. C. McIntosh, Navy Supply Corps School, to Dean Donald K. David, Harvard Graduate School of Business Administration, 30 July 1942.

reprinted in

Louis F. Fieser, The Scientific Method (New York: Reinhold, 1964), 41-42.

Shows how chem war takes 2^d place

Author Feiser

4059

Code #

41-42

Page (s)

WWII

Washington decided in early 1967 that the Marine blocking bases along Route 9 in ~~Long Tri~~ ~~Paria~~ South of the DMZ "should be linked with a 'fire break' or 'barrier' of ground swept clean of vegetation and sown with barbed wire, mines, and sensors."

This was the area called by the press the "McNamara Wall."

"The North Vietnamese were not greatly inconvenienced."

Author West

Code # 4060

Page (s) XV

The "revolt" in I Corps occurred when Premier Ky relieved an old rival, Maj General Nguyen Chanh Thi, of his command on 10 June 1966.

This led to the so-called Buddhist Revolt, with most of the 1st ARVN Division--at least part of the 2^d staying loyal to Thi. The revolt was suppressed with Vietnamese Marines and elite airborne troops brought in by Ky. The revolt was ended by 22 June and Thi was reassigned to the United States.

Author West

Code # 4060

Page(s) xiii

In July 1966 the NVA 324B Division moved across the DMZ into Quang Tri Province. This NVA regular unit was countered by reinforcing the ARVN 1st Division with US Marine battalions.

Eventually the entire 3rd Marine Division was strung out as a blocking force along Route 9, from the coast to the Laotian border.

Author West

Code # 4060

Page (s) Xiv

Renewed interest in flamables as weapons in WWII (such as napalm) were only a rediscovery of what Callinicus the Syrian found in the early eighth century A.D., when he invented an inflammable liquid known as "Greek Fire." Callinicus's discovery was superceded by the later use of gunpowder, although rediscovered in the fifteenth century by the defenders of Belgrade against the Turks.

Author Haldane, J.B.S.

Code # 4061

Page (s) 6

Belgrad

5001

5001

Kraus and Mitchell first tested 2,4-D and 2,4,5-T on rice in experiments in Chicago from 14 May to 25 June 1943.

They concluded that the effects were significant and that the chemicals were "highly toxic" to rice.

Author Peterson

Code # 5001 **5001**

247

Page (s) 247

Mustard gas was first used from aircraft during Mussolini's invasion of Ethiopia.

In October 1941 the Japanese reportedly used mustard gas and Lewisit against Chinese troops at Ichang.

Author Marsden

Collection # 5065 5065

Page (s) 6

5071

When the Russians ~~then~~ launched an offensive against the Germans in northern Norway in Oct 1944, the Germans carried out a program of systematic destruction of every manmade structure, including even ~~destroying~~ ^{chopping down} all fences and dynamiting the foundations of buildings after the structures were burned. Only a few churches were spared. ^{23,000 square miles.} This complete destruction was intended to ~~deprive~~ force the Soviets ~~and~~ forces to be totally self sufficient in the natural harshness of the northernmost inhabited region of Europe.

Lund, 195-86, 193-74

(5071)

Notes that in 1965 Ranch Hand C-123s flew more than 500 sorties, spraying 37,250 gall. of chemicals over 75,000 acres to denude the jungle. (42)

A similar quantity of chemicals was used to kill crops. (42)

Aircraft were hit by enemy ~~fire~~ fire a total of 426 times. (42)

"Spraying of chemicals to kill foliage and reduce cover along roads and in VC strongholds has become a major USAF activity." (42)

J. S. Butz, Jr.

"Tactical Airpower in 1965 ... The Trial by Fire."
Air Force and Space Digest 49 (March 1966), 35-42.

Questions arise due to lack of knowledge of long term effects, lack of specificity of herbicides, possible human toxicity, danger to ecology, etc.

Use of ~~herbicides~~ chemical weapons is opening of "Pandora's box" (584)

The use of hunger as a weapon will put the burden on the aged, the very young, and the women, rather than enemy combatants. (584)

Even the chemical knowledge we have on the effects of 2,4-D and 2,4,5-T in the loose aerobic soils of North Am. may not be valid when applied to the anaerobic muds of Southeast Asian lakes and rice paddies. (584)

Arthur W. Galston (Prof of Biology at Yale, President of the Botanical Society of America)
 "Military Uses of Herbicides in Vietnam."
 New Scientist, 38 (1968), 583-84.

Scientist in 1974 says w/
soil still fertile & effects
on plant growth undetectable
a year after spraying

Whole article refutes Westing
& Flamm & Crovato estimates

Author

Bettel

Code #

5082

Page (\$)

30

The Concerned Architects and Planners of UCLA was a group of Calif. students and faculty formed as an anti-war, pro-ecology organization in 1968 at UCLA. They were reactivated in 1972 due to the increasing use of "ecologically destructive weapons . . . supplied by this country to replace the use of our troops of our troops" (297)