

ANNAITEM 1: ON THE EFFECTS OF SARIN (GB)

In Britain the Ministry of Defence has patented manufacturing processes such as Patent No. 810930 for a method of making Sarin. The US Technical Manual TM 3-215 describes the effects of Sarin as follows:

"... running nose; tightness of chest; dimness of vision; pinpointing of the eye pupils; difficulty in breathing; drooling and excessive sweating; nausea, vomiting, cramps, and involuntary defecation and urination; twitching, jerking, staggering; and headache, confusion, drowsiness, coma and convulsion. These symptoms are followed by cessation of breathing and death.... Although skin absorption great enough to cause death may occur in one or two minutes, death may be delayed for one or two hours. Respiratory lethal doses kill in one to ten minutes, and liquid in the eye kills almost as rapidly."

WHAT IS BIOLOGICAL WARFARE?

A publication by the Dept. of Health, Education and Welfare in America states: "Biological warfare is the intentional use of living products to cause death, disability, or damage in man, either by causing his sickness or death, or through limitation of his food supplies or other agricultural resources. Man must wage a continuous fight to maintain himself and defend himself, his animals, and his plants in competition with insects and micro-organisms. The object of BW is to over come those efforts by deliberately distributing large nos of organisms of native or foreign origin, or their toxic products, taking full advantage of the ability to utilize more effective methods of dissemination and unusual portals of entry. BW has been aptly defined as public health in reverse."

ITEM 2:

Close liaison is maintained with the US and Canadian CW establishments and British inventors are sometimes applicants in patents assigned to the US Army.

ITEM 3: Late in 1946 the editorial director of "Science Illustrated" claimed that a one inch cube of a chemical known as botulinus toxin would be sufficient to kill every person in the US and Canada.... during WW II methods of isolating the toxin in pure form had been developed at Fort Detrick.... the most toxic type of botulin is type "A". A lethal dose of type "A" is estimated to be about 0.12 microgramme. Less than 500 gr mmes of type "A" might suffice to kill the population of the whole world.

COLINITEM 4:

At Porton attempts have been made to locate the genetic elements which determine virulence - to induce mutations which will make an avirulent strain ( of no military value) virulent. In particular this is the case with the bacteria *Escherichia coli*.

US BRIEFS TO KIOWA:

- 1) What is the true nature of the brief to which the director and his staff at Porton are working?
- 2) How much research at Porton is concerned with biological warfare, and is the work primarily offensive or defensive?
- 3) How does the work at Porton conform with the 1925 Geneva Protocol?

DR. OR LAMOUR, MEMBER OF ERIC R SCI ARTIST, SAID:

"In the context of biological warf re even life-saving techniques such as immunisation take on a strange aspect: immunity among ones own population and troops is a prerequisite to the initiation of disease by our forces, as well as a precaution against the initiation by others. Some diseases are currently excluded from active consideration as BW agents chiefly because no vaccines against them have yet been developed."

DR. B. DIXON, A BRITISH MICROBIOLOGIST, LMS S ID:

"Much of the work (at Porton) can be interpreted as preparation for offensive biological warfare. Much of it can equally be explained as prudent defensive research. The available evidence is equivocal .... the extent of our research into methods of offensive biological warfare is still shrouded in ~~XXXXXX~~ uncertainty

ITEM 5:

In the US 22 leading scientists including John Edsall, Felix Bloch, Paul Doty, Robert Hofstadter, and C.L. Tatum, initiated a petition which was eventually signed by 5000 scientists. It was sent to President Johnson and it stated:

"CB weapons have the potential of inflicting, especially on civilians, enormous devastation and death which may be unpredictable in scope and intensity; they could become far cheaper and easier to produce than nuclear weapons, thereby placing great mass destructive power within the reaches of nations not now possessing it; they lend themselves to use by leadership that may be desperate, irresponsible, or unscrupulous...."

"~~U~~ forces have begun the large scale use of anti-crop and "non-lethal" antipersonnel weapons in Vietnam. We believe this sets a dangerous precedent, with long term hazards far outweighing any short term military advantage. The employment of any one CB weapon weakens the barriers to the use of others. No lasting distinction seems possible between incapacitating ~~XXXXXX~~ and lethal weapons or between chemical and biological warfare. The great variety of possible agents forms a continuous spectrum from the temporarily incapacitating to the highly lethal. If the restraints of the use of one kind of CB weapon are broken down, the use of others will be encouraged."

*Pete.*

A NOTE FROM 12 PHYSIOLOGISTS:

Arguing from the basis of special knowledge of the effects of chemicals on ~~XXXX~~ plants, 12 physiologists wrote to the President that the persistence of some defoliants is such "that productive agriculture may be prevented for some years" and that "massive use of chemical herbicides can upset the entire ecology of a region."

ITEM 6:

During the Second WW the British conducted BW experiments with anthrax - spores of which remain in the soil for a long time - on the small island of Gruinard, off the NW of Scotland. According to a statement by C.A. Gordon Smith, director at Porton, when the island was recently revisited it was concluded that "it may remain infected for 100 years."

SLOGAN 'CLOSE BORTON DOWN'

KEEP SCIENCE CLEAN

T of E ref 4

DONG

## ON THE EFFECTS OF $\text{SO}_2$ - AN INCAPACITANT AGENT

" It has both physical and mental effects, but its precise nature is not clear; unclassified information is notably less ample than for other chemical agents. The Army Technical Manual TM 3-215 lists the following effects: interference with ordinary activity; dry, flushed skin; tachycardia; urinary retention; constipation; slowing of mental or physical activity; headache; giddiness; disorientation; hallucinations; drowsiness; maniacal behaviour (sometimes); and increase in body temperature. The weapons employment manual warns that these are "critical limitations to the use of BE, but cites the usefulness of incapacitants against intermingled enemy and friendly units and against mixed populations of friendly, enemy, and civilian personnel."

L. 2178

J. R. Robinson states in "Science Journal": "By the 1950's the advances in CBR research were enormous. By the discovery of the new V-agents which, unlike mustard gas, pass quickly through the skin and into the circulation. An almost invisible drop of V. or VX on an ear lobe can be lethal. The V-agents are essentially liquid and relatively non-volatile equivalents of the nerve gases. The only protection is all enveloping impermeable clothing which must be destroyed or elaborately cleaned after every contamination. Such measures may be possible for fighting units, but what of civilian populations?"

EXHIBIT 25 ON LAD-25:

CKXLAHANXX It is said that in terms of "militarily promising effects" the hallucinogen LSD-25 is regarded as the most potent psychotomimetic agent known, producing "hallucinations, schizoid states, and a sense of depersonalization".

In 1964 General Rothschild in "Tomorrow's Weapons" writes: "Think of the effects of using L.D-25 covertly on a higher headquarters of a military organization. Some military leaders feel that we should not consider using these materials because we do not know exactly what will happen and no clear-cut results can be predicted. But imagine where science would be today if the reaction to try anything new had been: 'Let's not try it until we know what the result will be.'"

T.T.H. 3:

Chemical intoxicants can induce abnormal conditions of the body. Examples are vertigo (heat stroke or exhaustion), orthostatic hypotension (inability to remain upright without fainting), muscular hypotonia (inability to move or move voluntary muscles), physiological blindness, vomiting, and anesthesia. Pharmaceutical labs spend much time eliminating the effects of certain drugs. The labs are doing the exact opposite.

contd. from bottom of this page

and long lasting vaccine. There are few, if any, naturally occurring infectious organisms which fulfil all these requirements, although with modifications, some existing ones could be endowed with many of them. THIS IS WHAT RESEARCH AT PORTON LOOKS FOR.

XXXXXX

R. CLARKE, IN "SCIENCE JOURNAL", SAYS ABOUT AEROSOLS :

"Nearly all the evidence that is available points to the inhalation of infected aerosol droplets as the best means of transmission of a BW agent. Considerable research has been carried out in this ~~XXXX~~ aspect of BW and it has been shown that the optimum ~~XXXX~~ diameter of aerosol particles used should be between 1 and 5 microns in diameter. Particles of this diameter will be sufficiently small to pass down into the lung ~~XXXX~~ and there penetrate the alveoli of the lung wall. Aerosol of this size can be produced quite simply .... they will drift down to Earth only slowly, allowing maximum time for them to spread over ~~XXXX~~ large distances by the prevailing meteorological conditions.

AN EXAMPLE:

Dr. LeRoy Feathergill, who worked at Fort Detrick, released 200 kgms. of zinc cadmium sulphide (a harmless fluorescent material) as an aerosol of 2 micron diameter during a 25 km boat trip 16 km from the shore. The aerosol travelled 750 kms down wind and covered 50,000 sq. kms.

ITEM 9:

R. Clarke, in "Science Journal" states: "....the existence of BW agents and the efforts of nations to improve them probably constitutes a hazard comparable with the stockpiling of nuclear weapons. Although they may not be reliable in action the chance remains that the ~~XXXXXX~~ accidental or deliberate release might produce more fatalities than the use of several large nuclear ~~XXXXXX~~ devices. An example from the animal kingdom ~~XXXX~~ will suffice to illustrate the point. In May 1952 in the Department of Eure and Loire in France one or two rabbits were inoculated with myxomatosis virus. By the end of 1953 the disease had spread through 26 Departs of France, and through Holland, Belgium, Germany, and Switzerland, killing between ~~EX~~ 60% and 90% of the ~~XXXXXX~~ rabbit population."

"It seems that some nations are now prepared to ~~XXXX~~ accept the risk of a human catastrophe of this kind .... in return for the possession of a weapon of unknown if not dubious value. It is not surprising that Pugwash - the international association of scientists dedicated to the preservation of world peace - have since 1959 been seeking ways of bringing about biological disarmament."

MIKE

ON CBW STRATEGY:

Arguments military strategists have put forward in favour of using biological agents runs roughly as follows. Compared with nuclear weapons, technologies involved are extremely cheap and theoretically very simple. ~~XXXXXX~~ Any country with the ability to produce vaccines could manufacture virulent strains of micro-organisms in sufficient quantity to produce large scale effects. With the exception of botulinus toxin and other chemical substances, BW agents are self propagating in their human hosts and therefore only minute quantities would be required to initiate disease. The manufacturing unit required would be small and easily concealed (for this reason it is not known how many centres are now engaged in BW research). Delivery of the agents would not require an expensive force of nuclear bombers, missiles and submarines; they could be dropped from a small aircraft, introduced into ventilation systems or the public water supply.

"Furthermore, the result of the attack would affect only the living population (humans, animals, plants). Communications, bridges, roads and buildings would be left unharmed. ~~FOR THIS~~ RE FOR BW HAS BEEN TERMED "NON-DESTRUCTIVE WARFARE" IN THE US.

ITEM 10:

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

The i.e. characteristics of a BW agent are very stringent. It must be highly virulent, produce an incapacitating or lethal effect very quickly, be capable of production in large quantities and storage for a period of two or three weeks, be highly stable when propagated as an aerosol, be infectious through the respiratory route, and difficult or impossible to cure. Furthermore there must be a low level of both artificial and natural immunity in the population at risk, and the user alone should possess a highly effective

C

Flu 1968

C (Continued) at top of page