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1. Title: Harassing, Annoying, and "Bad Guy" Identifying Chemicals

2. Type of Effort: S & T

3. Proposed by: Wright Laboratory

4. Capability Sought and Uses to Which It Could Be Put:

a. Chemicals that can be sprayed onto enemy positions or onto infiltration routes used by enemy forces. Three classes of chemical weapon are proposed:

(1) Category #1: Chemicals that attract annoying creatures to the enemy position and make the creatures aggressive and annoying. Stinging and biting bugs, rodents, and larger animals would be candidates to be drawn to the enemy positions.

(2) Category #2: Chemicals that make lasting but non-lethal markings on the personnel.

(a) Those that were exposed to the chemicals during travel on infiltration routes or from being sprayed while in the enemy camp could be easily identified (by smell or appearance) weeks later, making it impossible for them to blend with the local population. The chemical marking should also be annoying to the exposed individuals and to those around him/her. Spray equipment could be used as part of a perimeter defense system (if decontamination for friendly forces is available).

(b) A variation on the theme would be that we would have the counteracting treatment, and affected personnel would have to come to us for the treatment. This version would be especially suitable for use against mixtures of enemy forces and non-combatants. Civilians would come to us for treatment, and the enemy forces that did not seek treatment could be identified.

(c) A more subtle version would be some lasting chemical marker that was not obvious to humans, but would be obvious to trained dogs or special detecting equipment. These chemicals could be sprayed on infiltration routes. Marked individuals would not know they were marked, and would not know how the dogs/equipment identified them.

(1) These chemicals could also be used as part of a security system (for civilian or DoD use) for high value stored items, being released when the building was broken into.

(3) Small dispensers of the chemical could be used by banks as an alternative to exploding red dye for marking stolen money and marking the robber. Unlike red dye, the robber would not know he was being marked and would be easier to identify.

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(3) Category #3: Chemicals that effect human behavior so that discipline and morale in enemy units is adversely effected. One distasteful but completely non-lethal example would be strong aphrodisiacs, especially if the chemical also caused homosexual behavior. Another example would be a chemical that made personnel very sensitive to sunlight.

5. Technical Description; Objectives, Approach, What Will Be Done:

a. Category #1 Chemicals: Identify and/or develop chemicals that attract annoying or injurious creatures and make them aggressive. Sex attractant chemicals for bugs is one candidate. Another example: A "sting me/attack me" chemical that causes bees to attack would be especially effective for infiltration routes. Treat a section of trail with the chemical, and position multiple bee hives a short way down the trail.

b. Category #2 Chemicals:

(1) Obvious and Annoying Chemicals: Identify and/or develop chemicals that create lasting markings (smell or appearance) on exposed personnel. The obvious markings should also be annoying to exposed and adjacent personnel, and difficult or impossible to remove. One example: develop a low toxicity compound of [redacted] that still retains the characteristic of creating [redacted] (severe and lasting halitosis) for those exposed to small concentrations. Counteracting or decontaminating treatments should be devised for some chemicals.

(2) Hidden Marking Chemicals: Identify and/or develop chemicals that can create lasting but not obvious scent markings on people. Develop equipment or train dogs to detect the scent.

c. Category #3 Chemicals: Select types of personnel behavior changes/effects desired, create and test chemicals.

d. For all chemicals: Conduct tests to determine safety/toxicity for humans, then conduct field trials to determine initial and lasting effectiveness in various climates and conditions. Modify existing delivery systems/application techniques as needed (spray tanks on aircraft, artillery shells, etc) to apply the chemicals, or create specialized dispensers. One example: Spray equipment and associated detection equipment which would be positioned beside infiltration routes, and would apply fresh chemicals to the trail when personnel approached.

6. Risks and limitations:

a. Status of Technology: Attractant chemicals for many bugs that are harmful to food crops are known and widely used. [redacted] compounds are known to cause [redacted] which lasts for months, but [redacted] compounds used commercially are toxic. Many chemicals are known that cause

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exposed personnel to stink badly. Application equipment needed is low tech, state-of-the-art.

b. New Discoveries Needed: Chemicals that attract bees and cause them to sting would need to be identified or created. Attractant chemicals for other bugs of interest would need to be identified or created. Non-toxic compounds of [redacted] would need to be developed that still created [redacted] Various chemicals that created lasting and obvious markings (smell and/or appearance) on personnel would need to be identified or created, then tested. Decontamination procedures would also need to be created, preferably treatments that could not be obtained from anyone but our forces. Chemicals that created lasting but unnoticed markings on personnel would need to be developed, along with the detection equipment to identify effected personnel. Special dog training program may also be needed. Chemicals that effected human behavior in ways that would be disruptive to unit morale and effectiveness would need to be created. Manufacturing techniques would need to be developed for chemicals needed in large quantities.

c. Operational Limitations and Susceptibility to Countermeasures: Some chemicals should only be used on enemy forces, while others could be used on mixtures of enemy personnel and civilians. Decontamination would be the countermeasures.

7. Project Plan: (Assume start date 1 Oct 94)

a. Step 1: Select/assign DoD organizations with expertise to run/participate in the development programs. Participating organizations should provide knowledge about medicine, chemical manufacturing, and weapons application/use. Completion 1 Feb 95

b. Step 2: Select types/categories of chemicals to be developed. (Completion 1 May 95) Then, have various companies develop chemicals and conduct laboratory tests. Complete 1 Dec 97

d. Step 3: Conduct field tests in different climates/conditions with chemicals known to have acceptable toxicity to determine effectiveness and best application techniques/procedures. Completion 1 Sep 98

e. Step 4: Produce effective and safe chemicals in large quantities and conduct operational evaluations, to perhaps include selected use during actual hostilities. Complete 1 Sep 00

8. Project Cost:

FY95	FY96	FY97	FY98	FY99	FY00
600K	800K	800K	1500K	2000K	2000K

2200
1700
4000
7700K

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