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## CUBA'S BACTERIOLOGICAL WARFARE EFFORTS

**By Dr. MANUEL CEREIJO...FEBRUARY 1998**

Cuba has worked hard on this area since the mid 80's. They have created several centers and institutes that do work on research and development in the areas of biotechnology, biomedicine, and related subjects. Within these centers, there are special groups, according to some engineers who have defected, working on projects to develop chemical, biological, and bacteriological warfare.

These centers and Institutes are: the Biotechnology center, the Immunology center, the Genetic Engineering center, the Tropical Medicine Institute, the Finlay Institute, the Biocen, the Academy of Sciences, the Oceanographic Institute, the Biological Preparations center, and the Center for the Breeding of Laboratory Animals, the National Center for Animal and Plant Health, the Neuroscience center, and La Fabriquita, or Little Factory.

Many Cuban engineers and scientists have been trained in former East Germany, Russia, North Korea, Iraq, Iran, Vietnam, and China. Castro has spent, since 1991, over \$ 1,500 millions in instruments, equipment, materials, with very little commercial application. Only vaccines against hepatitis, meningitis, and the development of interferon.

The groups work by sections, departments, where one group does not know the work of the other groups. They have developed, from marine technology, with the assistance of Japan, which never knew what the final product was, a paralyzing toxin, which is now ready to use.

In 1992, the Institute of Oceanographic studies, conducted an experiment with the Academy of Sciences, to find which places in the Cuban Coast were the best to let bottles and containers reach the United States coast line fastest and most effectively. The announced reason was an study of marine streams. They put notes inside the bottles, asking for replies.

They found where in Cuba was best to throw containers with bacteriological material, or any floating devices. The north coast of the Habana Province was found to be the best, as well as the region around the town of Sagua La Grande. A container, the size of an attache, can cause great damage to an urban population, if it contains one of these toxic substances.

Cuba has acquired three 10,000 RPM centrifuge equipment. These are of very high capacity and they are shielded against lethal agents. Also, Cuba is involved in the

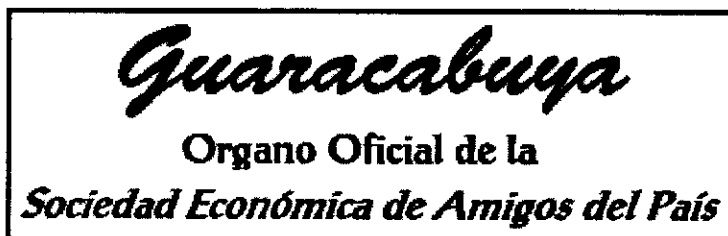
so call "binary weapons", where to chemicals are used (harmless, otherwise) to form a toxic agent when a weapon is exploded. They can be disguised as common agricultural chemicals, which make them more difficult to detect. This new weapon is part of the ultra-lethal Novichok class. Also, they have the capability to develop A-232, made from agricultural and industrial chemicals that are not lethal until mixed. These new agents are as toxic as VX, a persistent nerve agent, and as resistant to treatment as Soman. Also, more difficult to detect and easier to manufacture than VX.

In fact, A-232, or A-234, can be made using common industrial solvent acetonitrile and an organic phosphate compound, disguised as a pesticide. Saddam Hussein and Castro are friendly allies. Castro has sent medical teams and scientists to Iraq. These activities are very suspicious. Secretary of State, Madeleine Albright has warned that Iraq has enough anthrax to "kill every man, woman, and child in the world".

The Cubans also have carried out studies on the propagation of microorganisms by means of fumigation aircraft or microjets. They have made use of microjet on land, and in the air. This same system could become the basis for the application of bacteriological weapons. Obviously, Florida would be a main target. We should have in mind that crops in Florida have suffered severe damage this year.

The Fabriquita could be engaged in producing an anthrax toxin like the one reportedly being developed by the Russians, according to the defense publication Jane's. Russia's new variant of the anthrax toxin is totally resistant to antibiotics and could cause a catastrophe. Jane's said the Russian military arm had developed the toxin and three new nerve agents.

Citrus cancer is *Xanthomonas citri*. These are well known bacteria with fifty separate pathogens in the *Xanthomonas* group. They can be developed in the laboratory with rapid multiplication in the field. Nature, or Castro's?



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