BIOLOGY

Trials of Germ Warfare

It would be difficult for the Russians to keep secret trials of any biological warfare weapons because large groups of people would be involved.

➤ THE other great secret weapon besides the atom bomb is biological, or germ, warfare. BW, the scientists call it for short. The subject is even more hush-hush than atomic energy. Scientific and military opinion, so far as anyone has dared to give one publicly, is divided on whether BW is more or less to be feared than atomic warfare.

The production of BW weapons might be kept secret, so far as cultivating the germs or their poisons is concerned. The laboratories might be given the innocent appearance of a plant producing vaccines for peacetime protection of the population against smallpox, diphtheria, and so on. Apparatus such as cloud chambers for testing methods of spreading the germs might be a little harder to conceal or disguise.

But actual trials of any BW weapon would be a hard secret to keep. And until BW is used in war its practical value, whether it would be effective, cannot be proved.

Any secret trials of BW would have to be made on people—not just a few human volunteers but men, women and children going about their work and play, or on an encampment of troops or of workers on some large industrial project. If effective, news of illness striking like an epidemic, even in a remote, relatively undeveloped area of the world would leak out fairly soon. Of course, there is the possibility that the Soviets could keep secret for a time at least a trial of BW on prisoners in some closely guarded camp in Siberia.

The bottleneck problem in BW is the large-scale spread of disease germs through the air. Pollution of water supplies, of food in industrial plant cafeterias and of the air in theaters or other public buildings could be accomplished but would be minor BW offensives, coming under the head of sabotage.

What germs might be used for BW is probably one of the most closely guarded secrets of this or any nation. Botulinus toxin, so deadly a poison that an ounce could kill 200,000,000 humans, and tetanus toxin, a close second as a killer, can probably be discounted. We have these poisons, but they are not practical for BW use because of the difficulty of getting them into enough people.

More effective for BW purposes would be a germ like the parrot fever virus. The value of such germs would come from the fact that the diseases they cause propagate themselves. The parrot fever virus grows and multiplies in the infected person.

Best argument against the use of BW, of course, is the danger of backfire. Once a good epidemic is started any place in the world, it is extremely difficult to stop it. Germs do not recognize international barriers, as has often been pointed out, nor do they know the difference between a friendly and an enemy uniform.

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NUTRITION

Well-Fed Standards Set

An imaginary man and woman have been created to reign over the world's food requirements, which have been raised. These are the first universal standards.

➤ MEET "Mr. Well-Fed." A young man of medium stature and middling weight, who will be the world's calorie arbiter, was created by a panel of nutrition experts in Washington.

"Mr. Well-Fed", as he might be called, is imaginary, a composite figment, but with his female counterpart, he will lord it over the world of food in much the same way the standard inch and the standard meter rule the world of measurement.

He will eat better than any previous "reference man", reflecting the more stable peacetime conditions that exist now than during or right after the war. His food need is set at 3,200 calories per day.

He is 25 years of age, weighs about 144 pounds and works at an active though not constantly strenuous job. He might be a dairy farmer, a truck driver or a laboratory worker who walks around a lot.

"Mrs. Well-Fed" is also 25 years old. She weighs 122 pounds. She might be a housewife taking care of a couple of active young children. Or she might be a light industrial worker. Her allotment of calories is 2,300 a day.

This hypothetical couple live in a temperate climate, such as might be found in England or Indiana. Their creators are a committee of international nutrition experts who were summoned together by the Food and Agriculture Organization. Their job was to set up accurate food requirements for the different regions of the world.

The committee's work, including the construction of this average couple as a world food yardstick, will be published in the near future. The deliberations were hailed by FAO officials as a major stride forward in properly feeding the world. This is the first time, they pointed out, that standards which are universal the world over have been reached. Prior studies, like the League of Nation's and the National Research Council's had only regional application.

Although the committee's reference "couple" are designed for the temperate zone, conversion factors which will fit the standard to any part of the globe have been drafted. These conversions take into account a host of variable factors including climate, individual variation, type of work and play engaged in, and altitude.

Some notion of the advance these figures represent may be found by comparison with earlier estimates. The new calorie figure for a man is 3,200 per day, 2,300 for a woman. The National Research Council has in the past suggested 3,000 as adequate for a grown man. The FAO in 1946 had set a temporary satisfactory maintenance level at 2,200 for men and 1,800 for women. At the same time they had set a rock bottom minimum subsistence level at 1,900 calories.

The new figures of 3,200 and 2,300 calories per day for the reference couple represent a nutritional gain throughout the world.

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PHYSIOLOGY

Brain Wave Changes Noted During Pain

➤ PAIN shows up in brain wave records. It registers as a decrease in the amplitude of the electrical waves of brain activity, Drs. F. B. Benjamin and A. C. Ivy of the University of Illinois department of clinical science reported to the American Physiological Society in Augusta, Ga.

Unfortunately, the pain change in brain waves is not specific. Cold, heat and touch cause the same change in brain waves. And the pain change does not depend on the nature and degree of pains. Brain wave records, therefore, cannot be used as was hoped to determine the severity and nature of the pain a patient says he has.

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