VETERINARY MEDICINE

World Attack on Animal Ills

International cooperation in fighting animal diseases is saving meat, milk, and eggs for a hungry world. It is also protecting human health.

By DR. FRANK THONE

➤ BECAUSE American stockmen dreaded a cattle plague with a Boer-Dutch name, fewer Chinese peasants will lack rice. Because hens sickened and died in an English town famous since the Middle Ages, there will be more eggs in Argentina.

Because Czech farmers were horrified at the rate they were losing pigs, a new lead toward the conquest of poliomyelitis may be opened up.

Less widely heralded than medical men's researches on the ills that afflict human beings, veterinary research is of vast importance to mankind as well. Animals mean meat and milk, shoes and saddles, and (for all our motor age) a great deal of transportation and farm power. Some of the diseases they have are transferable to man: rabies, anthrax, brucellosis—a whole array of perils to human health. So government departments and international organizations are well advised when they devote much effort and generous funds to the discovery of causes and cures for the ills of animals.

Cattle Plague

Take that cattle plague with the Boer-Dutch name, for example. During the war there was a report that an enemy nation was preparing to initiate biological warfare by launching an infection of rinderpest among our Western cattle herds. In anticipation of this thrust (which was never delivered) our own veterinary researchers made ready their parry, in the form of an effective vaccine.

Rinderpest, translated from its Afrikaans original, means "cattle pest." It is exactly that. It is a deadly disease of all kinds of cattle, including the Asiatic water-buffalo, that kills nine-tenths of all the animals it attacks. It was first known in South Africa, whence its name. Unknown as yet in the Americas, it has been found to exist in practically all parts of Africa and Asia.

It is endemic in Ethiopia and the Sudan, which are great grazing areas and could become great meat-exporting countries, if the curse of this dreaded infection were not on their beeves. The peoples of this huge sector of Africa can become much more prosperous than they are, once practical means for protecting their herds, already available, can be applied.

Rinderpest cuts even closer to the basis of human life in rice-eating China. Few Chinese eat beef or drink milk, yet one kind of cattle are absolutely essential to life in China. Chinese farmers use buffalo as their plow animals. If a man has a buffalo or can hire one during the planting season, he makes a good crop of rice and his family has food for the year. If the buffalo dies of rinderpest, all the field labor has to be done by hand— and human muscles are simply not adequate for the task. So there is a short crop, with famine afterwards.

Rinderpest outbreaks are frequent in rice-eating China. And where these cattle die, the human population dependent on their slow, patient, grunting toil is not long in following them.

The wartime development of a protective vaccine was a joint project of the United States and Canada, carried on in a carefully isolated laboratory on an island in the St. Lawrence river. The big advance in technique was the growth of the vaccine in incubated eggs, instead of the bulkier, slower, costlier job of producing it in the bodies of animals. At the end of the war, since the vaccine was no longer needed for possible defense purposes, the laboratory was closed down.

However, realizing the immense potential value of the vaccine in lands where rinderpest already existed, the job was taken over first by UNRRA, then by FAO—Food and Agriculture Organization of the United Nations. Their technicians helped the Chinese to produce the vaccine, and in the even more difficult task of inducing the Chinese farmers to bring around their draft cattle to receive this life-saving protection. While the recent course of the civil war in China has interfered with this work, there is no question about its being resumed and pushed further as soon as things become stabilized there.

Protecting Milk

Another example of the great benefits of international cooperation in bettering food supplies through safeguarding the health of cattle is the case of bovine mastitis. This is a "strep" infection of cows' udders, which cuts milk production, shortens animals' lives, and affects human health directly through the causing of certain maladies such as one type of "strep" sore throat. Mastitis is fought not with a vaccine but with penicillin, which is produced in a form suitable for veterinary use. It has been estimated that this treatment is capable of increasing milk production in Europe alone by more

CATTLE PROTECTED AGAINST DISEASE—At a field vaccinating station in China patient, slow-paced plow-buffalos line up for the "shots" that will protect them from rinderpest.

IMMUNIZING CHICKENS—A Chinese farm wife holds a frightened hen while the veterinarian inoculates it against one of the worst known enemies of chickens, Newcastle disease.

than 5,000,000 tons a year.

Foot-and-mouth disease affords still another example of the value of international cooperation in fighting animal ills. Prevalent in Europe and South America, this debilitating infection of cattle was kept off the North American continent until recently, when it became established in central Mexico. Naturally, cattle interests in the United States have become very much alarmed.

Kill-And-Bury Method

When it became evident that the complete kill-and-bury method of suppressing the disease, successfully used against two or three outbreaks on American soil, was not going to work under the quite different conditions obtaining in Mexico, the fighting forces fell back on the vaccination method. This time it is a Swiss vaccine, improved by American and Mexican scientists, that is being injected into the cattle south of the Rio Grande.

Brucellosis is a disease complex that afflicts both domestic animals and human beings, so the international attack on it is being conducted on both the veterinary and the medical fronts. It gets its name from that of the causal germ, known to bacteriologists as Brucella. This is an exceedingly small organism, barely visible under the highest powers of the microscope; it is intermediate in size between "regular" bacteria and the microscopically invisible viruses. Among animals, brucellosis is widely known as contagious abortion, from one of its commonest and costliest manifestations. In human beings, whom it "drags down" but seldom kills, brucellosis is called Malta fever and undulant fever. Brucellosis is being fought in both animals and man with vaccines and antibiotic drugs.

Newcastle disease, so called because it was first detected in Newcastle, England, is one of the worst of known enemies of chickens. It is present in practically all parts of the world, including the United States. Best known weapon against it is a vaccine; American workers have developed a new and reportedly highly effective one, which is being used in other lands by FAO workers.

Swine Disease

One of the strangest yet most encouraging stories of this veterinarians' war for the saving of human lives comes from iron-curtained Czechoslovakia. Pigs were dying by the tens of thousands in the province of Teschen, from an apparently new virus malady. It was accordingly given the name, Teschen disease. Czechoslovakian scientists are working on a preventive virus, but in the meantime the only practical means of checking its spread is ruthless liquidation of all herds of swine in which it appears.

What should interest medical men most, however, is the strange similarity between Teschen disease and human poliomyelitis. Both are virus-caused. Both bring about a muscular paralysis. Of course, afflicted pigs die; for them there are no iron lungs. But in dying they may be able to give some information about the nature and course of human poliomyelitis, hitherto unobtainable because of the lack of suitable experimental animals on which to conduct tests.

Dr. K. V. L. Kesteven, FAO adviser on animal diseases, believes that if the problem of Teschen disease can be solved, conquest of polio will be speeded. To Czech farmers losing pigs this may be scant consolation. But it may eventually save the lives of many little children.

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CHEMISTRY

Gammexane Smoke Found Not So Good for Paper

➤ SMOKE of Gammexane, or benzene hexachloride, one of the more promising of the new synthetic insecticides, isn't good for paper, S. Chakravorti of the research laboratory of the National Archives of India states in the journal, NATURE (April 16).

Its use was proposed as a means of getting rid of insects that infest places where valuable papers and books are kept, and that sometimes do a good deal of damage to important records. However, because nothing was known about its effects on the paper itself, Mr. Chakravorti decided it would be wise to make some tests before putting it into general use. It turned out to be a wise precaution.

Two-ounce Gammexane smoke generators were used in closed rooms where paper samples were exposed. After three days the samples were tested, and were found to have lost from one-half to nearly three-fourths of their tensile strength and resistance to breaking on being folded repeatedly.

Some of the samples were artificially aged by heating for three days at boiling temperature. Most of them yellowed, and practically all of them became less resistant to folding. One especially fine all-rag paper, used in repairing ancient manuscripts, and normally able to withstand more than 4,000 foldings before breaking, after the Gammexane-plus-aging treatment, broke the first time it was folded.

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