

MEDICINE

Humane Man and His Animals

Animals are as important to man in the Atomic Age as they have been throughout the ages, from the cow supplying milk to the mouse hurtling through space.

By BENITA TALL

► WHETHER IT IS a cow weighing hundreds of pounds or a mouse weighing a few ounces, man usually takes good care of the animals entrusted to him.

He is, to phrase it in one word, humane.

There are several reasons for this characteristic. Practically speaking, it is profitable to take care of the animals. Healthy cows, sheep and chickens, for example, produce more and better milk, wool and eggs. Diseases affecting animals cost American livestock owners more than \$2,000,000,000 each year. This averages out to more than \$11 for each man, woman and child in the country.

About ten percent of all farm animals die annually as the result of disease or parasitism.

In the case of laboratory animals, the practical aspects concern the animals' usefulness to the scientist. The "guinea pig," whether a true guinea pig or a rhesus monkey, is useless as an experimental animal if it is suffering with some unknown disease or affliction. There are already too many unknowns for the scientist to learn about for him to concern himself with unnecessary ill health. If the scientist is testing the effects of a chemical cure for cancer, he must be sure that, except for the cancer, the experimental animal is healthy. Not to be sure of this would mean other factors might have caused the effects observed.

Money is a consideration here, too. Lab-

oratory animals are expensive. To waste them, either through direct loss or through poorly planned and needless experimentation, is impractical.

There is also a moral aspect to man being humane. The simple fact that animals are living creatures means that it is necessary to avoid inflicting pain or to help an animal that may be suffering. Some persons tend to believe that because animals do not express themselves in the same way as human beings do, they do not feel pain. Scientific studies disprove this—even if "common sense" did not. Animals have nerves and senses and their bodies react to pain as do human beings.

What is being done to ensure that animals are protected against disease and needless pain?

A great deal has been accomplished, plans are being made for current activities including basic research into the causes of disease, and for studies of animal care procedures. Information and "action" groups exist to inform the public, whether scientist, pet owner or farmer, on the proper care of animals. These activities are being carried out on national, state and local levels.

The Federal Government has come to play an increasingly important role in the field of animal health through the program of the U. S. Department of Agriculture. The work of the USDA is twofold: research is directed at learning the causes of animal diseases and their control; programs have been established that

indicate practices livestock owners should follow to acquire and maintain healthy animals. These include such things as proper housing, nutrition, breeding, quarantine and vaccination procedures, and even animal psychology.

Specialized laboratories carry out the research on animal diseases. Probably the most famous of these is the super-exclusive Plum Island Laboratory off Long Island, N. Y.

As difficult to get into as some atomic energy installations, if not more difficult, Plum Island is the site of a planned attack against foot-and-mouth disease. It is unique inasmuch as it is the only place in the United States where the disease is "allowed". There, scientists can study the disease-causing virus, the disease itself and potential preventives. Extreme precautions are taken to eliminate the possibility of anyone's unknowingly carrying the disease organism off the Island, thus infecting and endangering valuable livestock.

U. S. Controls Disease

The fact that foot-and-mouth disease has been under control in the U. S. for years is testimony to the care exercised by Federal quarantine officials and existing livestock importation regulations. In several other nations the disease is a persistent threat to farmers and livestock owners.

Currently a drive is underway to make 1959 a "national livestock loss prevention year." The plan of action, sponsored by the American Foundation for Animal Health with the cooperation of interested groups, is designed to focus attention on the need for disease prevention and to single out the important causes of livestock losses while giving owners up-to-date information on control methods.

The stage has been set for possible costly disease outbreaks because many livestock owners feel secure that certain diseases are under control. An example is hog cholera, the Foundation points out. The percentage of swine being vaccinated against the disease has declined substantially in recent years. With the number of susceptible swine increasing, there may be a recurrence of cholera outbreaks of disastrous proportions.

During 1959, each month will be devoted to focusing attention on one major disease problem. These will include the pneumonia enteritis complex, internal parasites, shipping fever, mastitis, nutritional diseases, pinkeye, swine erysipelas and leptospirosis.

Although the laboratory is very different from the farmyard or the cattle ranch, there are similar problems in animal care and disease prevention.

Caring for the laboratory animal means providing it with suitable food, housing and protection against disease, just as with cattle, sheep, pigs and chickens. However,



SPACE MOUSE—Given the first opportunity to examine components of his space "house," Benjy examines equipment that was part of the nose cone of a rocket sent more than 600 miles up. Behind the mouse is the cradle and cage that formed his personal compartment, together with a carbon dioxide absorber to provide pure air. A delicate but harmless operation, carried out by scientists at the Space Technology Laboratories, Los Angeles, Calif., made it possible for scientists to monitor his reactions to space flight.

the scientist is faced with two additional problems: opposition by those who believe animals should not be used in experiments; and the inherent one posed by the introduction of a living organism, a variable with many unknown characteristics, into an experiment.

Lab Animals Are Protected

Stringent safeguards are in effect that protect the laboratory animal. Anesthesia must be administered in experiments causing pain. In certain circumstances where recovery of the animal is not possible, it must be destroyed painlessly and quickly. Other rulings exist to ensure adequate food, etc.

Regulations also exist concerning the procurement of animals for research purposes. The breeding of laboratory animals specifically for research has benefited the scientist in two ways: he receives an animal from a legitimate source; the animal comes with a more or less well-defined genetic makeup, and is thus less of an "unknown" in the experiment.

Groups such as the Animal Care Panel and the National Society for Medical Research are continually working to improve the condition of laboratory animals and to make known the problems faced by the biologist in working with a living creature.

Experimentation is indispensable to the biologist just as it is to the rocket engineer or the physicist. Such research can benefit all life, whether it is the mouse or man.

Science News Letter, February 7, 1959

METEOROLOGY

Suggest "Blue" Salt Aids in Making Rain

► "BLUE" SALT in the atmosphere may play an important role in making rain, a Canadian scientist told the American Meteorological Society meeting in New York.

Dr. Henry M. Papee of the division of applied chemistry, National Research Council, Ottawa, said laboratory studies showed "blue" salt adsorbs water vapor much more readily than normal salt. The "blue" or activated salt, he suggested, is formed in the atmosphere by "radio-chemical excitation."

He prepared the "blue" salt by treating microcrystals of sodium chloride with radio frequency waves. The surface of the treated salt decreases much more slowly than that of normal sodium chloride when exposed to water vapor, Dr. Papee reported.

The blue color is due to colloidal sodium on the outer surface, making the activated salt "remarkably stable" at room temperatures.

Whether rain is formed by the melting of ice crystals or the growth of tiny drops of water vapor, there must be a minute particle around which the crystal or the raindrop forms. Weathermen call such particles condensation nuclei.

Dr. Papee reported that the treated salt would provide a "much more efficient condensation nucleus" than ordinary salt.

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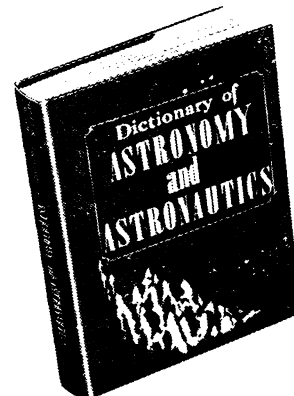
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