

tracts. As a result, quality control and improved sanitary methods were taught to a large segment of the American food industry.

There were approximately 2,200 veterinarians in the military service during World War II.

Teaching

3. INSTITUTIONAL WORK

Of the 18 colleges of veterinary medicine in the United States 17 are state institutions relying on state funds as their primary source of financial support. The 18 veterinary colleges employ approximately 1,400 veterinarians on their faculties, and in 1967-68 enrolled 4,623 students. Veterinarians are also employed by universities which do not have veterinary colleges, to teach students enrolled in agricultural and biological science programs, to conduct health-related research involving animals, and to care for university-owned animals.

Veterinarians also are being employed in increasing numbers by medical schools in the areas of comparative medicine, pathology, epidemiology, and as laboratory animal specialists.

Research

In the United States, the total annual losses of livestock and poultry and their products through disease, parasites and insect pests amount to about 2.7 billion dollars (Losses in Agriculture. Agriculture Handbook No. 291, Agricultural Research Service, U.S.D.A., August 1965).

The need to increase the effectiveness of animal disease control is urgent not only because animal diseases are economically wasteful, but also because many of these diseases are transmissible to man.

In 1965, it was estimated that veterinarians in the animal health industry (pharmaceutical and biological) alone controlled a segment of industry valued at \$600 million annually. Veterinarians hold positions of leadership in approximately 310 different companies operating in the chemical and pharmaceutical industries of the United States.

Although many veterinarians engaged in research serve the areas of animal health, veterinarians play a vital role in industrial research and development of drugs and other chemicals consumed by man. The greatest recruiting fervor is in the field of toxicology. Veterinary toxicologists are primarily concerned with developing knowledge of the toxic potential of chemical substances, and their fate in the environment, in order to prevent poisoning. Veterinarians serve as directors of toxicology research for many of the major pharmaceutical companies developing drugs for human use.

Veterinarians have pioneered in toxicologic research concerning space; environmental hazards; pesticides; toxicants in food, air, and water pollution; and chemical warfare agents.

Veterinarians' activities include research in the discovery and development of drugs and other chemicals to be used as food additives in the treatment of human and animal diseases. After a new chemical is synthesized, the veterinarian is responsible for determining the potential value of the chemical in treatment of disease. Before the chemical can be released for human trial, he must determine, through a long series of testing in many species of animals whether or not the chemical is toxic.

Veterinarians in the biologics industry are engaged in discovery and development of new vaccines, serums, and other biological products of animal origins. Veterinarians have the responsibility not only for determining the value of potential products, but also for assuring both the safety and potency of the products. Federal veterinarians supervise activities in 58 companies licensed to produce biologics for disease prevention and as treatment.

4. COMPARATIVE MEDICINE

Since the time of Pasteur, veterinary medical scientists have made significant contributions to medical science. Smith and Kilbourne's recognition that an arthropod could serve as a vector of an infectious disease, Texas fever, was a highly important medical discovery. Jenner's use of cowpox virus to immunize against smallpox, and Ramon's success in producing an effective immunizing agent against tetanus in horses were medical milestones. Dr. Karl F. Meyer's work on botulism was hailed by medicine and the canning industry as a major accomplishment against this highly fatal food-borne disease. Commonly used fracture splints (Stader) and hip prostheses (Gorman), as well as spinal an-