

## EXPERIMENTAL MEDICINE AND ITS OPPONENTS

A strenuous campaign is being carried on in the United States against animal experimentation. Because of its great importance and value, organized medicine is protecting the interests of experimental research. The following paper was read before the Community Health Meeting under the auspices of the American College of Surgeons in Boston on October 17, 1934.

### THE RÔLE OF EXPERIMENTAL MEDICINE IN HUMAN SALVAGE

GEORGE CRILE, M.D.

Research in medicine has given us pure water to drink, a well-balanced diet, vaccination against small pox, the control of most of the infectious diseases, the prevention of goiter. It has charted the brain; it has given us thyroxin to cure the cretin; it has revealed to us the romance of the ductless glands; it has given the solace of anesthesia, the means to ease our pain, the prevention of surgical shock, the control of wound infections. It has given us blood transfusion, a cure for pernicious anemia, and a relief from diabetes. Medical research has so controlled the safety of children that women are called upon for fewer children to balance our population. It has banished the great plagues and given increased security to man and has lengthened the normal span of life.

Almost equally has medical research benefited our domestic animals, for the rarity of disease in animals is to a large extent due to scientific researches planned for the purpose of discovering the cause and method of prevention of such diseases as tuberculosis, cholera and rabies. These researches have been carried on wholly by subjecting animals to the necessary experimentation. It is apparent, therefore, that domestic animals have profited greatly by experiments made upon themselves in scientific researches.

The efforts of research workers have not only conferred benefits on every species of domestic animal as well as on man, but the research workers have often voluntarily used themselves for experiments as in the investigation of the cause of malaria and yellow fever, as a result of which these diseases are controlled. In war the research on man himself has gone on by means of man's self-inflicted wounds—eight million of which resulted in death. In the vast experience of the war, emotion, infection, starvation, cold, exhaustion and death have added much knowledge which will be of use to coming generations of man and of other species of animals.

It is to be remembered that every dose of insulin for diabetes, every dose of liver extract for anemia, every dose of thyroid hormone, every inoculation against diphtheria, scarlet fever or tetanus

is at the expense of some larger animal, a horse, dog or cow; that the test for the disease of the pituitary gland involves the life of a rat; that the test for tuberculosis of the kidney may involve the life of a guinea pig; that the test for pregnancy involves the life of a rabbit; that the standardization of the potency of adrenalin is at the expense of a rat or a rabbit; that our daily food involves the lives of steers, sheep, swine and fowls. In addition the horse is a faithful servant which man has tamed from the wild state.

Thus of all the animals that have served man and themselves by providing the control of their diseases and of man's diseases, a thousand mice, rats, rabbits and guinea pigs are used as compared with one dog, which is not used for food, does no work, is the only guest animal of man.

One of the great menaces to the life of the dog, a disease which has produced great distress in its slow tortureful death, is rabies. This disease has now been practically eliminated as the result of experimentation upon the dog itself. The distemper also that affects so many dogs is now largely prevented and cured as the result of experimentation upon dogs by means of which the cause of distemper has been discovered and vaccines for its prevention and treatment have been developed. If the dog himself were to make a statement regarding the use of a limited number of his own kind for the discovery and the cure of a disease that menaces him, he would be just as much in favor of this practice as is the human being, for as we have already stated, human beings have sacrificed themselves in an effort to discover the causes of certain diseases and to devise methods of prevention and treatment.

The enormous number of cases of sickness and death among the two billions of human beings always present on the earth has actually contributed to the welfare of the dog and other domestic animals, for, as the result of the study of the cause of the diseases that affect human beings, the domestic animals also have benefited. The principles of surgery and preventive medicine which are applied to man are as effective when applied to dogs and cats and horses by the veterinarian as when applied to human beings. Thus the misfortunes and suffering of man have brought far more benefit to the dog than man has ever received from the use of the dog in research.

Those who are opposed to experimentation on animals, ask for insulin when they need it; demand aseptic operations; demand that typhoid fever be prevented; they demand anesthesia when their appendices are taken out; protection against blood poison; antitoxin for their diphtheria-stricken children; typhoid inoculation against typhoid fever; antitoxin against lock jaw; blood transfusion when

they are bleeding to death—and even ask for vaccination against disease for their lap dogs.

Even this cursory review of man's control over his destiny and the destiny of the vast numbers of domestic animals indicates a synthesis woven exclusively by the reason and the imagination of man. If we compare the lot of the fed and protected and contented domestic animals and the present day lot of civilized man with that of the unprotected animals of the past and of our forefathers, how utterly important it appears that we should not stop, but should promote to the utmost the experimental researches which result in the accumulation of the biologic laws and facts upon which our security depends.