It is the aim of all research to describe and explain natural phenomena and then to formulate and predict their occurrence. It is the special aim of medical research to better the lot of the human race. Animal experimentation serves mankind well by saving the lives of humans who would otherwise be subjected to untried medication or surgical practices, and furthers a necessarily bold approach to unsolved problems which, were humans the only subjects, would be entirely unwarranted.

Animal experimentation provides several avenues of benefit to man, the development of new surgical techniques, the testing of new drugs, the biological assay for standardization of drugs and for diagnosis, and the training of students and surgeons. And to the animals themselves, certain benefits have accrued, notable, vaccines for the prevention of disease and serums, sulfonamides and penicillin for their treatment.

In urology the tremendous improvement in pre- and postoperative care has made it possible to extend the benefits of improved urological diagnosis and surgery to increasing numbers of patients. But upon what does this improved care and surgery depend? It depends upon a vast number of individual problems, each one of which involved the use of animal experimentation. We now are able to treat the diabetic with insulin and the patient with pernicious anemia with liver extract thanks to the researches of Banting and Best and Whipple and Robscheit-Robbins (1925) on dogs. We are able to treat existing infection with sulfonamides, penicillin, streptomycin and aureomycin as
indicated, thanks to hundreds of animal experiments by Domagk, Fleming, and Waksman. No longer must surgical blood loss be feared. Adequate replacement therapy with citrated whole blood is now an established practice based on the sound footing of competent animal researches of Rueck in rabbits and Batch and Little in humans.

It is indeed inspiring to follow the course of animal experimentation. Aristotle knew and described eunuchoidism but no progress was made in an understanding of endocrine relationships until controlled animal experimentation was applied to the problem. Bovin and Ancel discovered that the masculinizing activity of the mammalian testis was independent of its spermatogenic function by experimental studies of surgical cryptorchidism in animals. Moore and Quick were able to show that seminiferous atrophy was due to the increased temperature in the cryptorchid testis. Smith and Engel demonstrated that the seminiferous tubules were also under hypophyseal control by their work with pituitary extracts in hypophysectomized rats. Until Gallagher and Koch perfected their technique of quantitative assay of androgens in the capon, no real progress in isolation of androgens was made. Just 4 years later, Butenandt was able to isolate, crystallize and determine the structural formula of androsterone. Ruzika was then able to synthesize androsterone and later testosterone.

Our understanding of the formation of urine and renal physiology has rested almost entirely upon animal studies, notably those of Richards, Smith, Addis, and Truea. We have come to know more about the neurophysiology of micturation through the animal researches of Dees and Langworthy, Barrington, Denny-Brown and Robertson. One form of calculus disease has been clarified and prophylactic therapy discovered by the researches of Osborne and Mendel on vitamin A deficient rats.
Diagnosis has been facilitated by the development of excretion urography with organic iodides which were first proved in animals by Binz and Von Lichtenberg. Braasch and Morse have shown that animals still play an important part in diagnosis as in the guinea pig inoculation for tuberculosis and in the Aschheim reaction for testicular tumor.

Experimental surgery has given us the important answer to how much kidney tissue dare we remove and to what extent will remaining tissue hypertrophy. Without animals Allen and Hinman would have been unable to solve this problem. Experimental surgery has helped to perfect new surgical techniques before trying them on patients such as the study by Vermooten, Spies and Neuwanger on transplantation of the ureter, and critically evaluate older practices, such as the Fenger pyeloplasty in the study by Herbst and Polkey.

Experimental researches on the dog, the only laboratory animal which spontaneously develops prostatic hypertrophy, has resulted in an understanding of the endocrine relationships in this condition. It was in great part the result of experimentations with the dog which led Huggins and Hodges to their discovery that carcinoma of the prostate gland was susceptible of endocrine control.

There is every reason to believe that animal experimentation will continue to be a most valuable tool in the solution of biological problems and that progress in medicine and surgery will depend upon a free and unencumbered humane use of animals.