

# THE INSTITUTE REPORT



From the  
VETERINARY VIRUS RESEARCH INSTITUTE  
Cornell University, Ithaca, New York

September, 1964

Volume 14



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CORNELL RESEARCH LABORATORY FOR DISEASES OF DOGS

## HISTORICAL NOTES

THE Veterinary Virus Research Institute was established in September, 1950, by the Board of Trustees of Cornell University. At the same time approval was given for formation of the Cornell Research Laboratory for Diseases of Dogs to be built as a unit of the Institute, with the expectation that it would become the first permanent research center in the world for study of diseases of dogs.

The entire Veterinary Virus Research Institute was designed to become a center for correlated studies of immunology and of ways to prolong productive life and to prevent diseases. Some of the diseases most difficult to work with, but most destructive to health or life, always have been those caused by infectious organisms, such as viruses, rickettsiae, leptospirae, fungi, bacteria, and parasites. With immunological research specifically in mind, new buildings were planned in which such research could be carried out accurately. Facilities have been built accordingly, as funds gradually became available through the years.

For a beginning, the Institute was assigned approximately one-half of the premises that comprised the former Veterinary Experiment Station on Snyder Hill, about two miles from the Cornell University campus. A gift to Cornell by Professor and Mrs. James A. Baker of an adjoining thirteen acres of land made possible immediate construction into the Institute grounds of a graded road that could be kept open in winter.

Breeding stocks of disease-free laboratory animals and the herd of disease-free cattle from the Rockefeller Institute were given to us in 1950. Also in 1950, a gift from the Gaines Dog Research Center allowed us to build at that time the Cornell disease-free dog kennel.

In January 1951, the Cornell Research Laboratory for Diseases of Dogs was dedicated officially. This building, pictured in our frontispiece, contains individual study units, and two main laboratory sections, The Daynemouth Division, given by Colonel and Mrs. Lee Garnett Day, and The Giralda Division, given by Mrs. Geraldine Rockefeller Dodge. Later in 1951, Mr. and Mrs. William Flemer, Jr., of Princeton, New Jersey, sent us approximately 5000 trees and shrubs. During the following year, a maintenance building was constructed.

In 1955, the new Microbiology Building, given by Colonel and Mrs. Lee Garnett Day and Mr. John M. Olin, was finished. In 1958, with funds from the U. S. Public Health Service and the Institute, the Control Laboratory was built. In 1960, a grant from the Caspary Estate allowed establish-

ment of our first endowed professorship. In 1961, expansion of our work with tissue culture became possible following construction of the Colgate Division provided by the late Miss Adele Colgate. In 1963, the John M. Olin Professorship was established in appreciation for all that Mr. Olin has done for the Institute.

None of this work could have been possible without the continuous support of many hundreds of individuals throughout the world who have thereby expressed their interest in the present and future welfare of animals.

## VIRUS RESEARCH INSTITUTE STAFF

### General Institute Staff

JAMES A. BAKER, B.S., M.S., Louisiana State University; D.V.M., Ph.D., Cornell. Professor of Virology and Director of the Institute.

BEN E. SHEFFY, B.S., M.S., Ph.D., Wisconsin. Caspary Professor of Nutrition and Assistant Director of the Institute.

### *Administration*

DUDLEY BAKER, (Mrs. James A. Baker), Louisiana State University. Editor of Publications. (Mrs. Baker was appointed to this position in 1951 and has served since that time without salary, as a personal contribution to the Institute.)

CLARENCE G. BRADT, B.S., Cornell. (Professor Emeritus of Animal Husbandry), Consultant in Development for Dairy Cattle Research.

JOHN R. HALEY, B.A., Cornell; M.L., Pittsburgh. Associate Director, University Development.

MARGARET HARDESTY, Bookkeeper.

DOROTHY A. MARQUIS, Secretary. (Until July 1, 1964.)

JOSEPH D. MINOGUE, B.S., Cornell. Associate Director, University Development. (In April, 1964, Mr. Minogue became Director of Development for Fordham University.)

HADLEY C. STEPHENSON, B.S., D.V.M., Cornell. (Professor Emeritus of Veterinary Therapeutics and Small Animal Diseases), Veterinary Consultant.

LINDA VANDERPOOL, B.A., Keuka. Secretary to the Director.

### *Maintenance*

CHARLES BAILOR, Animal Technician.

DAVID BROWN, Technical Assistant.

GEORGE KIGER, Custodian.

ELDON MEAD, Mechanic.

CHARLES MUNCH, SR., Animal Technician.

JAMES PETERSON, Animal Technician.

DONALD RUMSEY, Animal Technician.

GEORGE RUSSELL, Farmer.

CARL SEARS, Experimentalist.

FRANK SEARS, Building Maintenance Supervisor.

NICHOLAS SWADER, Technical Assistant.

EDSON WHEELER, Building Maintenance Supervisor.



## MICROBIOLOGY LABORATORY

- M. ISABEL BOWMAN, R.S., Prince Edward Island Hospital School of Nursing; P.H.N., University of British Columbia. Laboratory Technician.
- MOHAMED TAHER AHMED FOUAD, B.V.Sc., University of Cairo; M.Sc., Reading University, England. Research Assistant and Graduate Student.
- MEHMET N. GUVEN, M.R.C.V.S., Veterinary College, Ireland. Research Assistant and Graduate Student.
- ROBERT KAHRS, D.V.M., M.S., Cornell. Research Assistant and Graduate Student.
- JANET KNUUTILA, A.A.S., Alfred. Laboratory Technician. (Until April, 1964.)
- ALICIA LEWKOWICZ, B.A., Cornell. Laboratory Technician.
- VIVIAN MORGAN, Laboratory Assistant.
- MARIE WAMPACH, Laboratory Technician. (Until July, 1964, when Dr. and Mrs. Wampach returned to Belgium.)
- ELIZABETH WHEELER, Laboratory Assistant.

CORNELL RESEARCH LABORATORY FOR  
DISEASES OF DOGS

*Colgate Division* (Provided by the late Miss Adele S. Colgate):

- LORETTA BATES, Alfred. Laboratory Technician.
- VIVIAN KING, B.S., Cornell. Laboratory Technician. (Until July, 1964.)

*Daynemouth Division* (Provided by Colonel and Mrs. Lee Garnett Day):

- E. MARIE BANCROFT, M.T., Carnegie Institute. Laboratory Technician.
- JANE P. JOHNDREW, B.S., Cornell. Laboratory Technician. (Until July, 1964.)
- JOHN A. ROBERTS, B.V.Sc., University of Queensland; Ph.D., Australian National University. Research Associate. (Dr. Roberts was granted an additional year's fellowship by the Australian Government to continue his research at the Institute.)

*Distemper Evaluation Laboratory* (Operating Funds Provided by the American Kennel Club):

- MARILYN BRANDER, A.A.S., Broome Technical School. Laboratory Technician.
- DOUGLAS S. ROBSON, B.A., M.A., Iowa State; Ph.D., Cornell. Statistical Consultant.

*Giralda Division* (Provided by Mrs. Geraldine Rockefeller Dodge):

- FRANCES BARNES, A.A.S., Alfred. Laboratory Technician.
- LELAND E. CARMICHAEL, A.B., D.V.M., California; Ph.D., Cornell. John M. Olin Professor, with rank of Assistant Professor.

## COOPERATING STAFF

(These veterinarians and scientists in various parts of the United States are contributing much time and effort, without compensation, in order to help secure necessary information on which to base programs for control of infectious diseases.)

- DAVID BLUMENSTOCK, B.S., M.D., Cooperstown, New York.
- JOHN GILMARTIN, B.S., M.S., Norwich, New York.
- GILBERT N. HAIGLER, D.V.M., St. Louis, Missouri.
- R. M. KUHN, D.V.M., Stuart, Florida.
- CLARENCE C. SAPP, JR., D.V.M., Albany, Georgia.
- WALTER D. MARTIN, JR., D.V.M., Albany, Georgia.
- E. DONNALL THOMAS, B.A., M.A., M.D., Seattle, Washington.

## MESSAGE FROM THE DIRECTOR

THIS annual report of progress from the staff of the Veterinary Virus Research Institute to founders and donors of the Cornell Research Laboratory for Diseases of Dogs marks our fourteenth year of operation.

WORK IN THE CORNELL RESEARCH LABORATORY FOR  
DISEASES OF DOGS

Studies are being made of methods to help prevent undue loss of young puppies. Their mortality rate is high. Common causes are stillbirths, chilling, accidents to the newborn, or inability of the dam to suckle her young. In addition, and probably more serious than all other causes combined, are infectious diseases.

*Colostrum Studies*

As described in earlier reports, we have made countless studies and analyses with colostrum and have developed accurate information concerning its significance in the early life of newborn animals. Temporary passive immunity is absorbed by a puppy from colostrum received during the first hours of life, if the colostrum itself contains antibodies. Colostrum can confer this temporary immunity only against diseases to which the individual mother herself is immune, and according to her own individual degree of immunity. Such immunity in a puppy will decrease regularly day by day in a precise, predictable, mathematical manner, so that the puppy will become non-immune at a time that corresponds to the amount of immunity it received from its mother's colostrum; in other words, the higher the mother's immunity, the more effective are the antibodies in her colostrum, and the longer they will protect her puppies. While present in a puppy's body, these antibodies are effective not only against virulent virus of disease; they also will attack attenuated vaccine viruses of distemper or infectious canine hepatitis, if the puppy is vaccinated too soon. On the other hand, the puppy must be vaccinated as soon as colostrum protection has diminished in order to be protected without interruption against virulent virus of disease. Some puppies are susceptible at birth or become so shortly thereafter, while others may have antibody for as long as 16 weeks.

We are continuing our efforts to help solve this problem which means life or death for so many young puppies.



### *Distemper*

After definitive studies made at the Cornell Research Laboratory for Diseases of Dogs upon what was formerly termed the "Distemper Complex," better understanding has led to ability to make improved and standardized vaccines.

At the present time, the most important problem in the control of distemper is ability to provide adequate protection for puppies from the time of birth until the time when maternal distemper antibody has disappeared and the puppy can be immunized successfully. Amongst the studies we have made in this connection are:

(1) Development of a laboratory test of the mother's blood which, by use of a nomograph, indicates when her puppies should be immunized. Described in earlier Institute Reports, this method, although it is not yet practical for all dog owners to use because of transportation difficulties, lack of sufficient trained personnel, inconveniently located laboratories, and the expense involved, has proved successful in laboratories where there are available sufficient technical help and facilities.

(2) Use of heterotypic measles vaccine as soon as possible after puppies are born. No amount of maternal distemper antibody can interfere with the protection against distemper virus that is given by heterotypic measles vaccine. Encouraging progress is being made in this pioneer work at the CRLDD, and a measles vaccine—*properly attenuated specifically for puppies*—is in process of development and accurate testing at the CRLDD.

(3) Antiviral therapy by use of some chemotherapeutic agent which could inhibit development of distemper or other viruses, should a puppy become susceptible and exposed to disease. In preliminary laboratory tests, certain drugs appear to be effective against distemper virus. These will be tested further.

### *Studies on Nutrition*

Antibody production has been accepted as the major means whereby a dog protects itself against various infectious and parasitic diseases. Consequently, the earlier a dog forms antibodies the healthier it should be. Nutritional substances affect antibody production, especially the vitamins, folic acid, and pantothenic acid. Deficiencies of these vitamins impair antibody formation. Precise needs for these vitamins are being studied and standards are being established.



*Kidneys from infant puppies that died from mycoplasma infection. Note dark areas of hemorrhage.*

### *Mycoplasma*

Of particular interest is a new disease that apparently causes a fatal septicemia of young puppies. Two litters of puppies that died within two weeks of birth were submitted to us for diagnosis. Their pathology was unlike previously recognized diseases. From them the infectious agent termed *mycoplasma* was isolated. Mycoplasma are bacteria that grow within cells, as do viruses. At the present time, attempts are being made to find suitable culture media on which mycoplasma will grow in the laboratory, in order that more intensive studies may be made. Other work in this connection will be to determine whether this disease is widespread and the extent of puppy losses it may be causing, as well as to develop an effective means of control.

### *Other Work in Progress*

Work is continuing on diseases of the eye. The search for an effective heterotype for infectious canine hepatitis receives attention. A program for control of heartworm has been started.

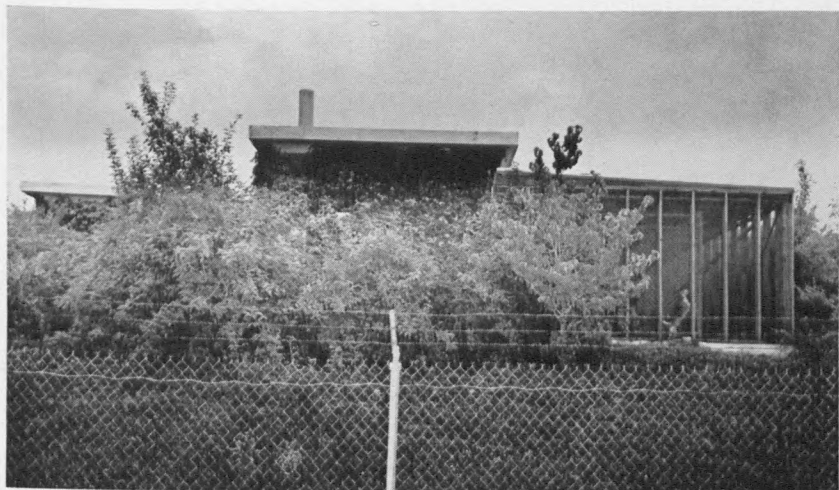
### *Housing for Dogs*

Proper housing for dogs should provide: (1) shelter with adequate space for comfort, (2) sanitary conditions, (3) ease of operation, and (4) features which may help protect the dogs from accident or disease. Heat

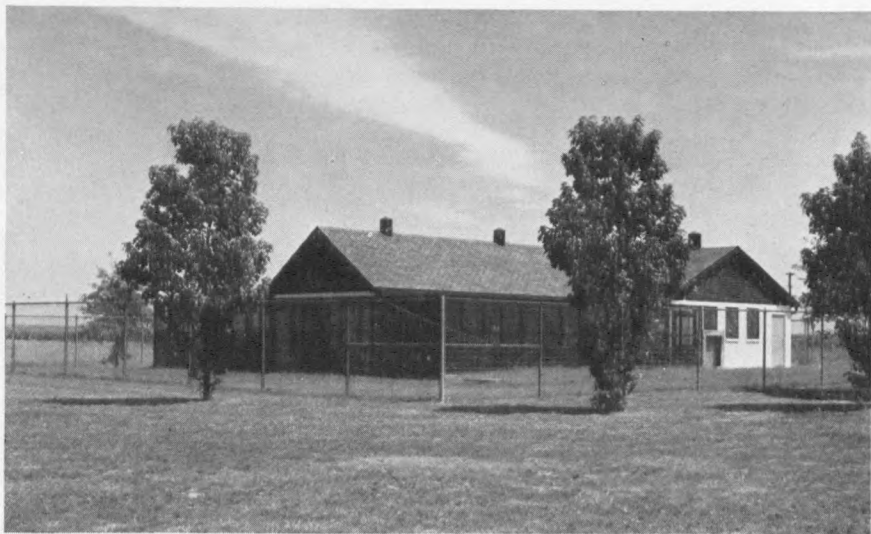
may be necessary in cold regions, and most especially for the whelping section of breeding kennels to prevent chilling of newborn puppies, which is nearly always fatal. Runs for the dogs should be connected to the heated area by a swinging door. Screening adds greatly to the health, appearance, and comfort of the dog by helping control insects that may carry diseases or cause unsightly lesions. To insure proper cleaning, runs should have a washable surface, like concrete, pitched  $\frac{1}{4}$  of an inch to the foot for good drainage. An adequate water supply is desirable, preferably with both hot and cold water. If the kennel drains can be connected with a septic tank, cleanliness of the dogs becomes a simple matter.

All of the above features have been incorporated in the breeding kennel for the Cornell Research Laboratory for Diseases of Dogs and have proved important in our successful rearing of disease-free dogs. For more than ten years there have been no diseases in this kennel, none of the dogs have died or become ill from any cause, and healthy puppies are being produced regularly.

At meetings of the Animal Care Panel and other organizations concerned with the welfare of dogs, our kennels have been described. Several large breeding kennels have been built in various parts of the United States using ideas developed at the CRLDD. Some of these kennels are pictured in the accompanying photographs.



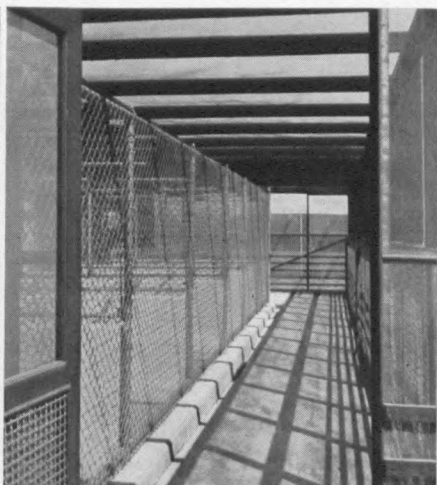
*Disease Free Kennel of the Institute*



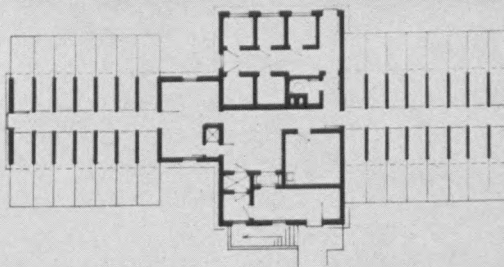
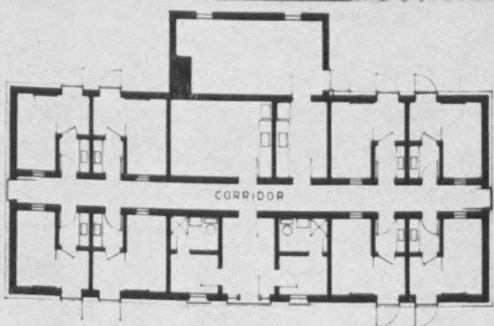
*John M. Olin's Breeding Kennel at East Alton, Illinois*



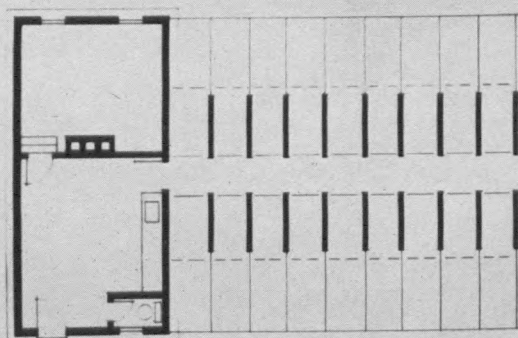
*The main entrance leads into  
a dressing room.*



*Interior view shows screening  
and gutter for sanitation.*



*New Animal Disease Research  
Center being developed by  
Mary Imogene Bassett Hospital  
at Cooperstown, New York.*



## STAFF ACTIVITIES

During the past year Dr. James A. Baker was asked to help design a research facility and a laboratory for vaccine production to be built with the United States Agency for International Development (AID) assistance in the Republic of Mali in West Africa. Two former members of the Institute staff, Dr. Charles J. York, Ph.D., Cornell, '50, and Dr. Peter H. Langer, Ph.D., Cornell '60, who are experts in vaccine production in this country, cooperated in giving their advice, which enabled Dr. Baker to present completed plans to Mali government officials in Bamako. The new Mali Virus Institute should be of special benefit by allowing production of vaccines that eventually should help increase cattle production in that part of the world, where rinderpest is still endemic. Continued interest in this project resulted in specialized training here for an AID officer assigned to Mali, Dr. Marvin T. Goff, who spent the early part of 1964 at the Institute. It is expected that certain Mali laboratory personnel may receive technical training here in the Microbiology Laboratory at the Institute.

Additional participation by the Institute in the AID program included training for two months of Dr. Martina Segura of Buenos Aires, a staff member of Argentina's National Research Organization, INTA.

There has been continued progress in research with heterotypic vaccines. On the basis of these findings, the Institute now is proposing that BVD vaccine offers a possibility for eradication of hog cholera. Many strains of hog cholera virus have been studied, including fully virulent virus collected from outbreaks of hog cholera as they occurred in different parts of the United States, including the Hawaiian Islands. BVD was found to protect pigs in a highly satisfactory manner against every single one of the natural field strains.

Members of the Institute staff, Dr. Baker, Dr. Sheffy, Dr. Carmichael, Dr. Kahrs, Dr. Roberts, Professor Bradt, and Dr. Stephenson, have had a busy year giving various talks and having discussions with numerous visitors from foreign countries, other universities, with government officials and with industrial workers. Dr. Baker visited several schools and laboratories in South America last spring.

Dr. Leroy Coggins, who received the Ph.D. degree in 1962, is now on assignment by the U. S. Department of Agriculture to the East African Veterinary Research Organization in Kenya. Dr. Coggins is conducting research upon African swine fever.

Amongst the many visitors to the Institute during the past year were: Col. Alan E. Cameron, former Veterinary Director-General of Canada; Dr. Alan O. Betts of Cambridge University, England, who formerly was a Visiting Investigator at the Institute for over a year; Dr. and Mrs. Rolf



Schnorf, of Ag Veterinaria, Zurich, Switzerland; Dr. Ian McIntyre, Dean of the Faculty, Kenya Royal Veterinary College, with Assistant Dean, Dr. Peter Nderito of Kenya; Dr. E. Donnell Thomas, School of Medicine, University of Washington, Seattle, Washington; Dr. Oswald T. Jones of St. Luke's Hospital, New York City; and Dr. and Mrs. T. S. Gregory of Parkville, Australia, where Dr. Gregory is Chief of the Animal Health Laboratories, C.S.I.R.O.

### IN APPRECIATION

We are grateful to all of our supporters whose interest and financial help make possible continued work in the Cornell Research Laboratory for Diseases of Dogs. Especially, we wish to thank the following for assistance, counsel, and generous support during past years: Colonel and Mrs. Lee Garnett Day, Mrs. Geraldine R. Dodge, and Mr. John M. Olin.

Mr. Richard Tift has volunteered much time and effort to the collection of funds for the laboratory.

Mr. John C. Neff, Executive Vice-President of the American Kennel Club, and members of the Research Committee of the American Kennel Club, Mr. T. W. Merritt, Mr. Howard Parker, and Mr. C. K. Rickel have continued generous support for the CRLDD's Distemper Evaluation Laboratory.

Mr. George Berner and the staff of *Dog World Magazine* continue to wage a voluntary and valuable campaign to help raise funds for the CRLDD from dog owners all over the United States.

*Beginners at the Ithaca Dog Training Club.*



## PUBLICATIONS FROM THE VETERINARY VIRUS RESEARCH INSTITUTE

Publications for the first ten years were listed in the Institute Report for 1960. Those for each following year were listed in its annual report. Papers published during the past year include the following:

- (159) BAKER, JAMES A.: Coggins, L.; Robson, D. S.; and Sheffy, B. E. Possibility of Hog Cholera Eradication with BVD Vaccine. *Proc. U. S. Livestock Sanit. Assoc.*, 1963, 67, 366.
- (160) CARMICHAEL, L. E.: Atkinson, G. F. and Barnes, F. D.: Conditions Influencing Virus Neutralization Tests for Infectious Canine Hepatitis Antibody. *Cornell Vet.*, 1963, 53, 369.
- (161) \_\_\_\_\_: and Langer, P. H.: Identification of Pneumoenteritis Isolates from Cattle as *Mycoplasma*. *Proc. U. S. Livestock Sanit. Assoc.*, 1963, 67, 129.
- (162) \_\_\_\_\_: Guthrie, R. S.; Fincher, M. G.; Field, L. E.; Johnson, S. D.; and Linquist, W. E.: Bovine *Mycoplasma Mastitis*. *Proc. U. S. Livestock Sanit. Assoc.*, 1963, 67, 220.
- (163) \_\_\_\_\_: The Pathogenesis of Ocular Lesions of Infectious Canine Hepatitis. I. Pathology and Virological Observations. *Path. Vet.*, 1964, 1, 73.
- (164) \_\_\_\_\_: Infectious Canine Hepatitis. Chapter in "Current Therapy—Small Animal Practice," R. W. Kirk, Ed., Saunders & Co., Philadelphia, Pa. 1964.
- (165) \_\_\_\_\_: An Incomplete Cycle of Adenovirus Type 4 in Canine Cell Cultures and in Dogs. *Amer. Jour. Vet. Res.*, 1964. In Press.
- (166) \_\_\_\_\_: Infectious Canine Hepatitis. Chapter in "Canine Medicine," Amer. Vet. Pub., Inc., Santa Barbara, Calif. 1964. In Press.
- (167) COGGINS, L. and Seo, Shirley: Serological Comparison with Rabbit Antisera of Hog Cholera Virus and Bovine Virus Diarrhea Virus. *Proc. Soc. Exp. Biol. & Med.*, 1963, 114, 778.
- (168) \_\_\_\_\_: Standardization of Virus-Neutralization Test for Bovine Virus Diarrhea. *Amer. Jour. Vet. Res.*, 1964, 25, 103.
- (169) \_\_\_\_\_: and Baker, J. A.: Standardization of Hog Cholera Neutralization Test. *Amer. Jour. Vet. Res.*, 1964, 25, 408.
- (170) \_\_\_\_\_: Study of Hog Cholera Colostral Antibody and Its Effect on Active Hog Cholera Immunization. *Amer. Jour. Vet. Res.*, 1964, 25, 613.
- (171) FOUAD, M. T. A.: Studies on Equine Rhinopneumonitis Virus with Particular Reference to some Physical and Chemical Properties when Propagated in Porcine Kidney Cell Tissue Cultures. Thesis, Cornell University, 1964.
- (172) GUVEN, M.: Rabbit Inoculations for the Diagnosis of Hog Cholera. Thesis, Cornell University, 1964.
- (173) KAHRS, R.: Atkinson, G. F.; Baker, J. A.; Carmichael, L.; Coggins, L.; Gillespie, J.; Langer, P.; Marshall, V.; Robson, D.; and Sheffy, B.: Serological Studies on the Incidence of Infectious Bovine Rhinotracheitis, Bovine Virus Diarrhea, Bovine Myxovirus Parainfluenza-3 and *Leptospira pomona* in New York State. *Cornell Vet.*, 1964, 54, 360.
- (174) Ferris, J.; Batchelder, R.; KAHRS, R.; and Pritchard, D.: Infectious Bovine Rhinotracheitis in New York Dairy Cattle. *Cornell Vet.*, 1964, 54, 319.
- (175) ROBERTS, J. A.: Growth of Virulent and Attenuated Ectromelia Virus in Cultured Macrophages from Normal and Ectromelia-Immune Mice. *Jour. Immunol.*, 1964. In Press.
- (176) \_\_\_\_\_: Growth of Ectromelia Virus in the Liver Parenchymal Cells of Different Strains of Mouse. *Nature*, 1964. In Press.
- (177) SHEFFY, B. E.: and Gilmartin, J.: Factors Affecting Antibody Production. *Proc. U. S. Livestock Sanit. Assoc.*, 1963, 67, 52.
- (178) \_\_\_\_\_: Hand-Rearing of Newborn Puppies. In: "Current Therapy—Small Animal Practice," R. W. Kirk, Ed., Saunders & Co., Philadelphia, Pa. 1964.
- (179) \_\_\_\_\_: PAV-1, A Safe and Effective Biological for Hog Cholera. In Preparation.

## ACKNOWLEDGEMENTS

Contributions received from September 1, 1963 to September 1, 1964 in support of the Cornell Research Laboratory for Diseases of Dogs.

## Individuals

- Mrs. Mary Anne Abrahamson  
 (In Memoriam)  
 Achenbach Foundation, Inc.  
 Mr. Anderson Ackley (In Memoriam)  
 Mrs. Edward P. Alker  
 Mrs. Leonore R. Allman  
 Mr. & Mrs. George A. Anderson  
 Anonymous  
 Miss Tracey Antonelli  
 Mr. Francis R. Appleton, Jr.  
 Mr. Frank C. Ash  
 Mr. Lloyd Aspinwall, Jr.  
 Mrs. Caro Austin  
 Mrs. Patrick Bagnantto  
 Miss Barbara Bailor (In Memoriam)  
 Mrs. Stevens Baird  
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 Mrs. Frederick Battershall  
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 Mrs. Marjorie M. Brandt  
 Mr. Walter F. Brandt (In Memoriam)  
 Dr. and Mrs. Eben Breed  
 Mr. John A. Brownell  
 Mrs. Lawrence D. Buhl (In Memoriam)  
 Mr. & Mrs. Andrew G. Carey  
 (In Memory of "Carino")  
 Mr. & Mrs. Andrew M. Carey  
 Maj. & Mrs. Rex V. Carr  
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 Miss Mary P. Case  
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 Miss Alice M. Comstock  
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 Mrs. Claire Knapp Dixon (In Memoriam)  
 Mrs. Geraldine R. Dodge  
 Mr. M. Hartley Dodge (In Memoriam)  
 Mr. & Mrs. Gaylord Donnelley  
 Mr. Francis H. Dorsheimer  
 Miss Faith M. Downer  
 (In Memory of Pretzel and Hansel)  
 Mrs. Charles Forrest Dowe  
 Miss Nancy-Carroll Draper  
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 Mr. & Mrs. Emory M. Ford  
 Mr. & Mrs. William K. Frank  
 Mrs. Vivian A. Frankel (In Memory  
 of Gibson Girl of Meadowbrook)  
 Dr. & Mrs. George H. Gardner  
 Mrs. Paul E. Gardner  
 Mrs. Gerald E. Genaw  
 Mr. Emanuel Gerard

## INDIVIDUALS (Cont.)

- Mrs. Jean-Lou Goldfinger  
 (In Memoriam)  
 Mr. Norton L. Goldsmith  
 Mr. Gus Goldwasser (In Memoriam)  
 Miss Mary E. Goodneighbor  
 (In Memory of "Jamie")  
 Miss Juliet T. Goodrich  
 Dr. John S. Gordon  
 Miss Emma M. Guckes  
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 Mr. & Mrs. C. F. Hendee  
 Col. & Mrs. George A. Hershberger  
 Mr. & Mrs. Joseph Higgins  
 Mr. & Mrs. Richard F. Hildreth  
 (In Memory of Mandy)  
 Mr. Joel G. Hill  
 Mrs. Allan M. Hirsh  
 Dr. & Mrs. James Hirsch  
 (In Memory of Elizabeth)  
 Mr. Carl Holmes  
 Mr. Donald P. Hostetter  
 (In Memoriam)  
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 Mrs. Nathan Z. Howard  
 Mrs. Dorothy B. Howe  
 Mrs. George S. Howell  
 Mrs. Wendell T. Howell  
 Mr. Denison B. Hull  
 Mrs. Gilbert W. Humphrey  
 Mr. & Mrs. James J. Hunter  
 Mr. Austin S. Igleheart  
 Mr. & Mrs. R. L. Ireland  
 Mr. Robert Livingston Ireland, III  
 Mrs. Peter Jay  
 Mr. Andrieus A. Jones  
 Mrs. W. E. Josten  
 Mr. & Mrs. Irwin H. Katz  
 Dr. & Mrs. I. Herbert Katz  
 Mr. Eugene M. Kaufman, Jr.  
 Miss Geraldine Kelisek  
 Mrs. Lillina Kelisek (In Memoriam)  
 Mr. Jeremiah M. Kennedy  
 Mr. & Mrs. M. R. Kerns  
 Mr. & Mrs. F. N. Kiamine  
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The Alameda Contra Costa Veterinary Medical Association	Long Island Veterinary Medical Association
Catskill Mountain Veterinary Medical Association	Metropolitan New Jersey Veterinary Medical Association
Cayuga County Veterinary Society	Midwest Small Animal Association
Central New York Veterinary Medical Association	Northern New Jersey Veterinary Medical Association
District of Columbia Academy of Veterinary Medicine	South Florida Veterinary Medical Association
Guilford County Veterinary Medical Association	Southern Tier Veterinary Medical Association
Hudson Valley Veterinary Medical Society, Inc.	Veterinary Medical Association of New York City, Inc.

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Westchester-Rockland Veterinary  
Medical Association  
Western New York Veterinary  
Medical Association, Inc.

Women's Auxiliary to the New York  
State Veterinary Medical Society  
Women's Auxiliary to the Veterinary  
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American Cyanamid Company  
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Cayuga County Society for the  
Prevention of Cruelty to Animals  
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The All Terrier Club of Canada  
American Chesapeake Club  
American Sealyham Terrier Club  
Anderson Kennel Club, Inc.  
Annapolis Kennel Club, Inc.  
Association of Obedience Clubs &  
Judges, Inc.  
The Back Mountain Kennel Club  
Basenji Club of America  
Basset Hound Club of America, Inc.  
Beaver County Kennel Club, Inc.  
Belgian Sheepdog Club of America, Inc.  
Blackhawk Retriever Club  
Blossom Valley Beagle Club  
Blue Ridge Beagle Club  
Borzoi Club of America  
Boston Terrier Club of America  
Boston Terrier Club of Miami Florida, Inc.  
Boston Terrier Club of San Diego  
County, Inc.  
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Bulldog Club of America - Div. 1  
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Chesapeake Bay Retriever Club of the  
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Cocker Spaniel Club of Eastern Missouri  
Cocker Spaniel Club of Kentucky  
Collie Club of America, Inc.  
Collie Club of Western Pennsylvania  
Colonial Retriever Field Trial Club  
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Companion Dog Training Club of Omaha  
and Council Bluffs  
Companion Dog School of Tulsa  
Contra Costa County Kennel Club, Inc.  
Coraopolis Beagle Club, Inc.  
Corn Belt Kennel Club  
Dachshund Club of America  
Dachshund Club of California, Inc.  
Dayton Dog Training Club, Inc.  
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Devon Dog Show Association, Inc.  
Doberman Pinscher Club of Chicagoland

## HUNTS AND CLUBS (Cont.)

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 The Dog Obedience Club of Torrance  
 Dog Owners' Training Club of Maryland, Inc.  
 Dog Training Club of Tampa, Inc.  
 The Dog World Distemper Fund  
 Eastern English Springer Spaniel Club, Inc.  
 Eastern Missouri Beagle Club, Inc.  
 Egyptian Kennel Club, Inc.  
 English Springer Spaniel Field Trial Assoc., Inc.  
 Erie Kennel Club  
 Finger Lakes Kennel Club  
 First Dog Training Club of Northern N. J., Inc.  
 Forsyth Kennel Club  
 Fort Wayne Beagle Club, Inc.  
 French Creek Valley Kennel Club  
 German Shepherd Dog Club of Long Island, Inc.  
 German Shepherd Dog Club of St. Louis  
 German Shepherd Dog Club of Sacramento Valley, Inc.  
 German Shepherd Dog Club of Wisconsin, Inc.  
 German Shorthaired Pointer Club of Michigan  
 The Glenburn Kennel Club, Inc.  
 Gordon Setter Club of America  
 Great Barrington Kennel Club, Inc.  
 Great Dane Club of Greater Houston  
 Great Dane Club of Northern California, Inc.  
 Great Dane Club of Western New York  
 Great Lakes English Springer Spaniel Breeders Association  
 Greater St. Louis Training Club  
 Groton Hunt  
 Hennepin County Amateur Retriever Club, Inc.  
 Hockamook Kennel Club  
 Hounds and Hunting  
 The Huntington Kennel Club  
 Illinois Valley Kennel Club  
 International Beagle Federation, Inc.  
 Irish Setter Club of Canada  
 Irish Water Spaniel Club of America  
 Iroquois German Shepherd Dog Club  
 Island View Retriever Club  
 Ithaca Dog Training Club  
 Jacksonville Dog Festival Committee  
 Jersey Shore German Shepherd Dog Club  
 K-9 Obedience Training Club of Essex County  
 Kanadasaga Kennel Club, Inc.  
 Keeshond Club of America  
 Kern County Kennel Club, Inc.  
 Kerry Blue Terrier Club of Kansas City, Mo.  
 Knockcross Kennels  
 Ladies' Dog Club  
 Lake Erie Beagle Club, Inc.  
 Lake Shore Great Dane Club, Inc.  
 Lake Shore Kennel Club, Inc.  
 Lancaster Kennel Club, Inc.  
 Land of Lincoln Dog Training Club, Inc.  
 Lehigh Valley Kennel Club  
 Long Island Basset Hound Club  
 Long Island Kennel Club  
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 Magic Valley Kennel Club, Inc.  
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 Middleburg Hunt  
 Miniature Pinscher Club of America  
 Minnesota Field Trial Association, Inc.  
 Mobile Kennel Club, Inc.  
 Monmouth County Kennel Club  
 Montgomery County Kennel Club  
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 National Retriever Field Trial Club, Inc.  
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 North Texas Retriever Club, Inc.  
 Northeastern Indiana Kennel Club  
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 Oak Hill Beagle Club  
 Obedience Training Club of Rhode Island  
 The Ohio St. Bernard Club, Inc.  
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 Onondaga Kennel Association, Inc.  
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 Pasanita Obedience Club, Inc.  
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 Pekingese Club of America, Inc.  
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 Port Chester Obedience Training Club  
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The Reserve Dachshund Club	Suffolk County Beagle Club, Inc.
Roanoke Kennel Club, Inc.	Summit Beagle Club, Inc.
The Rochester Collie Club	Susque-Nango Kennel Club, Inc.
Rockland County Kennel Club	Syracuse Obedience Training Club
Rogue Valley Retriever Club	Tampa Bay Kennel Club
Rombout Hunt	Tennessee Valley Kennel Club, Inc.
Sagehen's Retriever Club	Thronateeska Kennel Club
Saginaw Valley Kennel Club	Tonawanda Valley Kennel Club, Inc.
Saint John Obedience Club	Toronto & North York Hunt
St. Petersburg Dog Fanciers' Assoc., Inc.	Town & Country Dog Training Club
San Fernando Kennel Club, Inc.	The Towns Boxer Club, Inc.
Santa Anita Poodle Fanciers' Assoc., Inc.	Trenton Kennel Club
Sara-Bay Kennel Club, Inc.	Tri-State Kennel Club, Inc.
Saranac Lake Hare and Beagle Club, Inc.	Tucson County Kennel Club, Inc.
Shetland Sheepdog Club of Southern Calif., Inc.	Union County Kennel Club, Inc.
Shreveport Kennel Club	United States Kerry Blue Terrier Club, Inc.
Siberian Husky Club of America	Utica Dog Training Club, Inc.
Sioux Valley Retriever Club, Inc.	Washington State Cocker Spaniel Club, Inc.
Somerset Hills Kennel Club	Waterloo Kennel Club
South Bay Kennel Club, Inc.	Welsh Terrier Club of America
South Jersey Kennel Club, Inc.	West Allis Training Kennel Club
South Florida Miniature Schnauzer Club	Westbury Kennel Association, Inc.
South Shore Dog Training Club, Inc.	Western Reserve Kennel Club, Inc.
South Texas Obedience Club	Westminster Kennel Club
Southern California Chihuahua Club	Whidbey Island Kennel Club, Inc.
Southern New Jersey Cocker Spaniel Club	Windham County Kennel Club, Inc.
Southern New York Beagle Club	Wisconsin Amateur Field Trial Club, Inc.
Springfield Kennel Club, Inc.	Yakima Valley Kennel Club

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