

From the

VETERINARY VIRUS RESEARCH INSTITUTE Cornell University, Ithaca, New York

October, 1959

Volume 9





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# DEC 22 1960 THE INSTITUTE REPORT

EACH year the Institute Report is prepared especially for the persons whose help makes possible our continued operation. These are listed under "Acknowledgments", and each one is sent a copy of this Report and of various reprints as they become available during the year.

The majority of our donors are interested primarily in the Cornell Research Laboratory for Diseases of Dogs, since this section of the Institute is supported entirely by their contributions. For this reason, the Report mentions work from the C.R.L.D.D. in greater detail than the correlated, but separate, work with cattle, swine, cats, or other animals and fish, from the Microbiology Laboratories.

Winter views of Institute.

# VIRUS RESEARCH INSTITUTE STAFF

# General Institute Staff

- JAMES A. BAKER, B.S., M.S., D.V.M., Ph.D., Director of the Institute and Professor of Virology.
- JAMES H. GILLESPIE, V.M.D., Assistant Director of the Institute and Professor of Bacteriology.

#### Administration:

DUDLEY BAKER (Mrs. James A. Baker), Editor of Publications.

JOYCE M. FREEMAN, Secretary to the Director.

MARGARET HARDESTY, Bookkeeper.

MARJORIE D. LANGER, Secreary

- JOSEPH D. MINOGUE, B.S., Director of Development, Day Hall. (Replacing F. Weston Prior, now with Northeastern University, Boston).
- HADLEY C. STEPHENSON, B.S., D.V.M., Veterinary Consultant and Emeritus Professor of Vet. Therapeutics and Small Animal Diseases.

#### Maintenance:

CHARLES BAILOR, Animal Technician. ROBERT DAVENPORT, Maintenance Assistant. GEORGE KIGER, Janitor. ELDON MEAD, Farmer. (On temporary leave with Army). CHARLES MUNCH, Sr., Animal Technician. CLARENCE RAYMOND, Technical Assistant. LYLE RAYMOND, Foreman. ROBERT SANDERSON, Farmer. CARL SEARS, Experimentalist. FRANK SEARS, Building Maintenance Supervisor. EDSON WHEELER, Senior Animal Technician.

# MICROBIOLOGY LABORATORY

SYLVIA A. GOULD, R.N., Laboratory Technician. BARBARA JOHNSON, Histological Technician. LARRY KEENAN, Student Assistant. PETER H. LANGER, V.M.D., Research Associate. VIVIAN MORGAN, Laboratory Assistant. BEN F. SHEFEY, B.S. M.S. Ph.D. Associate Professor

BEN E. SHEFFY, B.S., M.S., Ph.D., Associate Professor of Nutrition. (On Sabbatic Leave, 1959-60 at Cambridge University).

JOAN THOMPSON, D. H., Laboratory Technician.

ELIZABETH WHEELER, Laboratory Assistant.

# CORNELL RESEARCH LABORATORY FOR DISEASES OF DOGS

# LELAND E. CARMICHAEL, A.B., D.V.M., Ph.D., Director and Research Associate.

Daynemouth Division (Provided by Colonel and Mrs. Lee Garnett Day): RUTH KENNESON, B.S., M.T. (ASCP), Laboratory Technician. MYRTH GUEST, B.S., Laboratory Technician.

Giralda Division (Provided by Mrs. Geraldine Rockefeller Dodge): LOIS W. PAGETT, R.N., Laboratory Technician. MARY E. GEHRES, R.N., Laboratory Technician.

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

DOUGLAS S. ROBSON, Ph.D., Statistical Consultant. BARBARA HILDRETH, B.A., Laboratory Technician.

# 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 the necessary information on which to base a program to conquer distemper.

> Thomas F. Benson, D.V.M.—Diagnostic Lab., N. Y. State Vet. College, Cornell University, Ithaca, New York.

W. Philip Boyer, V.M.D.-Morris Plains, New Jersey.

Uncas T. Crocker, D.V.M.-Monticello, Florida.

John Gilmartin, M.S.-Norwich, New York.

Robert G. Gonser, D.V.M.-Canton, Ohio.

Gilbert N. Haigler, D.V.M .- St. Louis, Missouri.

Victor Heiman, Ph.D.-Waverly, New York.

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Robert Moshier-Waverly, New York.

William O. Reece, D.V.M.-Chicago, Illinois.

Clarence C. Sapp, Jr., D.V.M.-Albany, Georgia.

H. Grady Young, D.V.M.-Thomasville, Georgia.

# MESSAGE FROM THE DIRECTOR

Reports in previous years have not been easy to write. Although information collected each year contributed to our knowledge of dogs and their diseases, it could not as yet be correlated into an adequate program for individual dog owners and their veterinarians. More time was necessary for more facts to be accumulated and for careful checking and rechecking. As you can appreciate, construction of a program for control of disease is much like construction of a building. But, it is more difficult than the average building—especially the foundation, which had to be tested over and over again in order to be certain that it would bear the superstructure of applied fact which we wished to place on it. At last, I believe that we have a practical program that offers sufficient satisfaction. We now recommend:

1. Vaccinate always with live virus vaccines. Distemper vaccines of egg origin and infectious canine hepatitis vaccines of tissue culture origin can now be standardized by the manufacturers, and, if this is done properly, efficient live virus vaccine is assured.

2. Vaccinate according to the Nomograph whenever possible. This method originated at the Cornell Research Laboratory for Diseases of Dogs and studied in great detail for the past year, has given more than 95% success in field trials carried out by our select group of cooperating veterinarians.

3. Vaccinate puppies at 9 weeks of age, if there has not been a nomograph; should give about 85% success.

4. A blood test to determine whether the vaccination was successful should be made whenever possible. If puppy has not developed immunity, it can be revaccinated.

5. Since about one-third of all immune puppies lose this immunity within a year, two procedures are possible to help prevent disease. One, all of the dogs could be blood tested each year to check their level of immunity and those needing it can be revaccinated. Or, an alternate procedure would be to vaccinate all dogs annually. While exact figures are not yet conclusive, we know now that some dogs lose immunity in their second year. To insure continued protection, annual vaccination of all dogs is recommended as a routine safety measure. An explicit article is being prepared for publication on this subject. As soon as available, reprints will be sent to everyone on our mailing list.

6. While antiserum may be valuable therapy for a sick dog, we do not recommend its use for prevention of distemper until such products are standardized and shown by these standards to contain enough antibodies to really protect against distemper. The Nomograph determines the desirable age to vaccinate a puppy. If it is used, antiserum is not needed.

7. Lacking standards, efficiency of other types of vaccines cannot be determined readily. Their real efficiency, however, can be determined by immunity tests of the dogs after vaccination.

On behalf of the staff of the laboratory, therefore, it is with pleasure, in this ninth year of operation, that I present to you the hope that distemper in dogs can be controlled if suggested practices are applied properly. Our program cannot guarantee 100% immunity for all dogs. After all, 100% is an ideal and represents ultimate success. It is the deviation from this point that is the actual measure of progress. Since 100% is not attainable, we have come to agree upon something better than 95%, which means that we seek a vaccination program that 19 times out of 20 protects dogs against disease. Practical experience has shown that, if distemper and infectious canine hepatitis can be prevented, the majority of dogs will be healthy.

Studies on the occurrence of virus diseases in dogs have shown that the common ones are distemper and infectious canine hepatitis. With the exception of rabies, and occasional oddities which do not naturally belong to dogs, distemper virus and infectious canine hepatitis virus actually are the only two viruses known to cause disease in dogs. In this respect, dogs are unusually fortunate, since other species of animal seem to harbor a large variety of viruses and are prone to more diseases caused by them. I do not mean to imply that dogs do not suffer from other infections for we know that leptospirosis, a bacterial disease, is important and certain other bacteria, fungi and parasites must be controlled for total health in dogs.

We now have a specific program representing the best that can be devised at present. This program is based on facts as we have found them and, while we may not like the limitations, they are imposed by the nature of the viruses and response of the individual dog. Further study should lead to further improvements, and certainly, this is an end to be desired.

This vaccination program could conquer distemper if we could have widespread application. There must be more puppies vaccinated and more dogs revaccinated each year if epidemics are to be eliminated. Evidence about the spread of infectious diseases like distemper indicates that 70% of all dogs must be immune in order to arrest transmission. This has been done for smallpox by compulsory vaccination of travellers, armed forces and school children. We cannot use compulsory vaccination for all dogs. We believe, however, that if sensible practices are followed by everyone, then we can achieve the same effect and conquer distemper and infectious canine hepatitis. All dog owners would benefit if we observed these rules:

1. Do not sell or give away any puppy unless it appears healthy and has been vaccinated for at least one week.

2. Do not buy or accept as a gift any puppy unless it appears healthy and has been vaccinated for at least one week.

3. Annual vaccination for all dogs, or, alternatively, have blood test made and revaccinate those that have lost immunity.

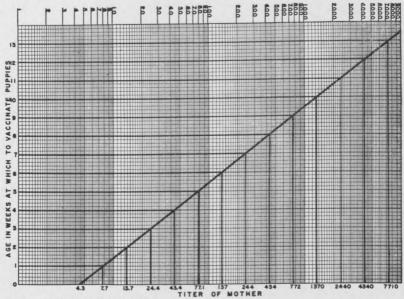
4. Remember-it is the unvaccinated dog which spreads disease.

We continue our efforts to add to general knowledge. During the past year, we have shipped a large number of virus specimens to be used by other workers. This is of great importance, for any information, whenever produced, benefits all. It has also been our privilege to be hosts to visitors, not only from this country but from many other countries throughout the world. An interchange of ideas is certainly beneficial. We, too, try to do our part in spreading our own ideas and information as widely as possible. You will note the various publications of our staff, which attest to this. In addition, all of us give as many talks to interested groups as possible and consistent with the time we can spare away from our daily work. After all, it is the attention to details in the laboratory which represents progress. Nevertheless, information must be publicized or it will not be used. We try to keep balance in our program.

Our annual budget for the present fiscal year is \$90,000.00 for the Cornell Research Laboratory for Diseases of Dogs. At the present rate of contributions, this leaves little surplus to add to endowment so badly needed for stabilizing staff employment. I hope those of you who read this will continue your support and encourage others to help. Please remember that next year is our tenth year of operation. Perhaps, this occasion should be marked by some effort to increase endowment substantially.

To a number of our supporters, who by unusual effort and counsel or by very generous financial support have made this year successful, we are deeply grateful. I would like to express special appreciation to Colonel and Mrs. Lee Garnett Day, Mrs. Geraldine R. Dodge, Mr. John M. Olin, Mrs. Elizabeth I. Poe, and Mr. John C. Neff and the members of the Research Committee of the American Kennel Club, Mr. T. W. Merritt, Mr. Howard Parker and Mr. C. K. Rickel.

Joimes a. Baker



Courtesy of the Cornell Veterinarian

## THE DISTEMPER NOMOGRAPH

For the first time in the science of Immunology a concise chart has been made that indicates the age at which young can be immunized successfully. With no vaccination or with vaccination delayed too long, there is always the risk of infectious disease, often fatal to the young. Indiscriminate vaccination at an early age has not been the answer.

We have been studying for some years one of nature's important methods of protecting the newborn against disease—a method that has been long recognized but not fully understood. This protection is obtained during the first 24 hours of life from ingestion of colostrum, or the first milk from the mother after birth of young. Colostrum provides the young with antibodies of all the infectious diseases to which the mother herself is immune. This protection is temporary and passive, but it is so complete while it lasts that if a vaccine is given while colostral protection is still present, it cannot establish immunity.

We have found that the colostrum of individual dogs varies greatly in the amount of protection it can give. A mother with a high titer, or level, of antibodies against distemper will produce colostrum that provides an equally high level of protection to her puppies, and her puppies will be protected longer than puppies from a mother with a low level of antibodies. Puppies with a low level will need to be vaccinated sooner than those with a high level. And all of the puppies, of course, need to be vaccinated just as soon as possible.

A blood sample from the prospective mother, before the puppies are born, can be tested for its distemper antibody level. Once this titer of an individual mother is known, it can be checked on the Distemper Nomograph to show the proper age for vaccination of her puppies. If the blood test reveals that her own level is below 100, that is considered too low for her own safety, and she should be vaccinated and her titer checked again to see if she has become successfully immunized. If a mother has no titer, the puppies can be vaccinated at one week of age, and the mother should be vaccinated, of course. Puppies that do not obtain any colostrum during their first 24 hours of life can be vaccinated at one week of age, even if their mother had a high titer.

# VISITORS TO THE INSTITUTE



Dr. Baker, left, talks to group of visiting Japanese scientists.



Scientists attend meeting in Seminar Room.

# VISITORS FROM THE INSTITUTE



Dr. Baker and Dr. Gillespie attend a scientific meeting.



Dr. Hadley C. Stephenson, center, with Director Lagerloff, right, of Royal Vet. College of Stockholm, Sweden, with veterinary students from Argentina, Egypt, India, Pakistan, Thialand, and Turkey, who were informed of our work with viruses. These veterinarians were attending an advanced F.A.O. (United Nations) veterinary course in Stockholm on Animal Production.

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#### ACKNOWLEDGMENTS

# ACKNOWLEDGMENTS

Of those who contributed September 15, 1958 to Oct. 15, 1959

# INDIVIDUALS

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Oak Hill Beagle Club

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Oakland County Kennel Club Silver Bay Kennel Club Obedience Training Club of Palm Beach Skye Terrier Club of America County Skyline Cocker Club, Inc. Obedience Training Club of Rhode Island Somerset County Dog Obedience Club Somerset Hills Kennel Club Ohio Valley Cocker Spaniel Club Oklahoma City Obedience Training Club, South Shore Dog Training Club, Inc. South Side All Breed Dog Training Club, Inc. Old English Sheepdog Club of America Inc. Old Monmouth Dog Training Club, Inc. South Side Beagle Club Old Pueblo Dog Training Club, Inc. South Texas Obedience Club Olentangy Beagle Club, Inc. Southern California Beagle Club Olympic Kennel Club, Inc. Southern California Collie Club Onondaga Kennel Association, Inc. Southern Michigan Beagle Club Orange County Fox Hunters Association Southern New York Beagle Club Orange County Hunt Southern Tier Kennel Club Oregon Retriever Trial Club Papillon Club of America Spring Church Beagle Club, Inc. Steel City Kennel, Inc. Peaks Lake Retriever Club Suffolk County Beagle Club, Inc. Penn-Ohio Miniature Schnauzer Club Suffolk Obedience Training Club, Inc. Penn Treaty Kennel Club, Inc. Tennessee Beagle Club, Inc. Pickering Hunt Pine Hill Beagle Club, Inc. Tidewater Beagle Club Tompkins County Fish & Game Club, Plainville Beagle Club Inc. Poodle Club of America Toronto and New York Hunt Poodle Club of Massachusetts Towanda Beagle Club, Inc. Potomac Boxer Club Tri-City Beagle Club Pug Dog Club of America Troy Dog Training Club Queen City Dog Training Club Tucson Kennel Club, Inc. Queensboro Kennel Club, Inc. Twin Brooks Kennel Club, Inc. Raleigh Kennel Club, Inc. Union County Kennel Club, Inc. Rio Grande Kennel Club United States Kerry Blue Terrier Club, Robins Range Kennels Inc. Rochester Poodle Club United States Open Field Trials, Inc. Rockland County Kennel Club Utah Cocker Spaniel Club Rombout Hunt Valley Hills Obedience Club, Inc. Rubber City Kennel Club Russell Beagle Club, Inc. Vancouver Dog Obedience Club, Inc. St. Joseph Kennel Club, Inc. Washington State Cocker Spaniel Club St. Louis Collie Club Waterloo Kennel Club St. Mary's Beagle Club, Inc. Welsh Terrier Club of America Sacramento Dog Fanciers Association, Inc. West Allis Training and Kennel Club Salinas Valley Sporting Dog Association Westbury Kennel Association Sandusky Kennel Club Westchester Kennel Club San Francisco Dog Training Club West Coast Cocker Spaniel Club Saranac Lake Hare and Beagle Club, Inc. Western Montana Retriever Club, Inc. Scottish Terrier Club of California Western New York Fox Hunters Scottish Terrier Club of Kentucky Association Sewickley Hunt Western New York Retreiver Club, Inc. Sharerag Hounds, Inc. Western Pennsylvania Dachshund Club Sherman All-Breed Dog Training Group Western Reserve Kennel Club, Inc. Shetland Sheepdog Club of Southern Westminister Kennel Club California Wilmington Kennel Club Shreveport Kennel Club, Inc. Wisconsin Amateur Field Trial Club, Inc. Shrewsbury Dog Training Club, Inc. Wisconsin Golden Retriever Club Siberian Husky Club of Alaska Wolf River Retriever Club Siberian Husky Club of America The Women's Club of Niles Sierra Dachshund Breeders Club of Los Woodbrook Hunt Club Angeles County

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