

# THE INSTITUTE REPORT

September, 1953

Vol. 3, No. 1



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



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All persons from whom contributions have been received during the past year are listed under "Acknowledgments". Their contributions help make possible research work at the Institute; for this select group the Institute Report is prepared as a progress report of recent activities.

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Jean Walters, Laboratory Technician

<sup>1</sup>Dr. Burnstein received Ph.D. degree September, 1953. Now at Johns Hopkins University.

<sup>2</sup>Dr. McBee received Ph.D. degree September, 1952. Now in England.

<sup>3</sup>Captain Mitchell on assignment from A.U.S.

<sup>4</sup>Dr. Gillespie on sabbatical leave for study at Staats Veeartsenjkundig, Onderzoekingsinstituut, Amsterdam, The Netherlands.

<sup>5</sup>Dr. Celiker is studying on a fellowship from the Turkish government.

<sup>6</sup>Dr. Greig received Ph.D. degree September, 1953. Returned to Animal Disease Research Institute, Hull, Quebec.

*Giralda Division:*

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<sup>7</sup>Professor Aygun on assignment from the Turkish government.

<sup>8</sup>Dr. Moro is a Rockefeller Foundation Fellow on leave from the Universidad Mayor Nacional de San Marcos, Facultad de Veterinaria, Lima, Peru.

## THE LABORATORIES

Usually scientific findings are interesting only to a few workers capable of understanding clearly what has been done. There is always a necessary lapse of time between an original discovery in the laboratory and any practical application of the discovery which may prove of benefit to the general public and, therefore, understandable to them. Because of the training required and the terminology used, specialized details of scientific work frequently will remain incomprehensible to some extent to persons in other fields of work. The well-informed public of today, however, realizes the importance of science to all mankind and no longer visualizes the scientist as an impractical hermit. Today, fortunately, few persons still hold the medieval belief that scientific work should be carried out only in order to provide mental stimulation and that research, to be worthy of the name, should never be of any practical value.

Recognized as the most fortunate nation in the world of today, we know that our fortunate position has come about because we are a practical nation. Because of ignorance, sickness, laziness, or misfortune there will always be certain individuals suffering from malnutrition even in this country, but America has no starving masses of people, dying from lack of food. We realize that in the world today food is the most important single thing. Of the three most primitive necessities of mankind, food, shelter, and clothing, food is the one essential. Food is a factor in trying to help establish peace in the world.

Of immediate practical use and of great economic importance, veterinary medical research helps control or prevent diseases in animals. Such research eventually helps everyone who eats and everyone who owns an animal. Direct benefits are apparent first to owners of animals that might become diseased. Owners of pets are concerned with prevention of disease and suffering. Owners of livestock, dairy herds, or other farm animals are concerned with economic loss. One single infectious organism can multiply and destroy an entire herd and then move on to another herd and spread eventually across the entire country. Bovine Leptospirosis has spread in this way\*. To prevent the spread of such diseases, the diseases must be studied.

The Virus Research Institute at Cornell has buildings, laboratories and modern scientific facilities designed specifically for work with infec-

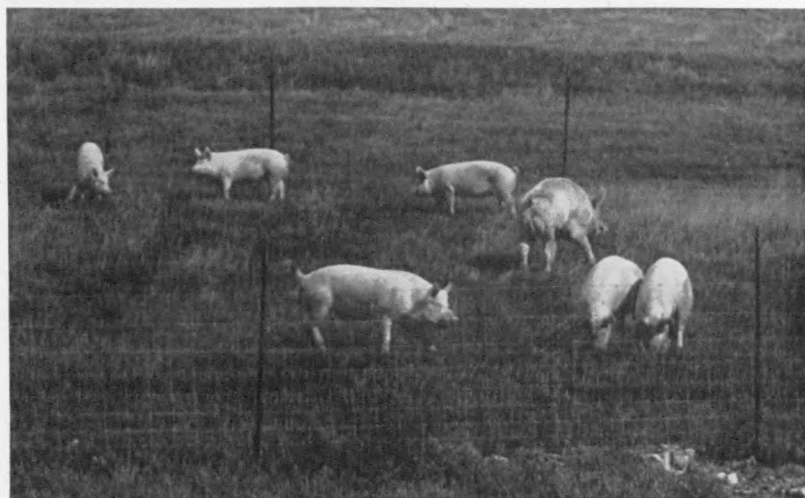
\*Baker, J. A. and Little, R. B. Leptospirosis in Cattle. *J. Exp. Med.* 1948, 88, 295-308, *J.A.V.M.A.* 1950, 116, 105-111.

tious disease organisms. All work at the Virus Institute is planned to be of value in the eventual understanding and control of disease.

Some recent findings from our laboratories of immediate value are:

1. Development of the first vaccine effective against bovine leptospirosis.
2. Development of an antigen used to test cattle for the presence of leptospira.
3. Development of the first dual purpose vaccine for animals, which, used properly, will protect dogs against both distemper and infectious hepatitis.
4. Finding that distemper virus can persist in the brain of dogs for at least 45 days and then produce convulsions.
5. Recognition that the age of an animal at the time it is vaccinated may play a vital role in immunization.
6. Relationship of immunity in mothers as transferred to their offspring and duration of such immunity.
7. Relationship of infectious agents to kidney injury and to the transmission of certain diseases by infected urine, as shown for leptospirosis and infectious hepatitis.

Fundamental studies in the various laboratories are in progress.



*Swine herd that furnishes pigs used in studies of hog cholera, transmissible gastroenteritis and leptospirosis.*



*The Gaines Isolation Kennel, showing security fence to keep out stray animals and the runways screened to keep out insects.*

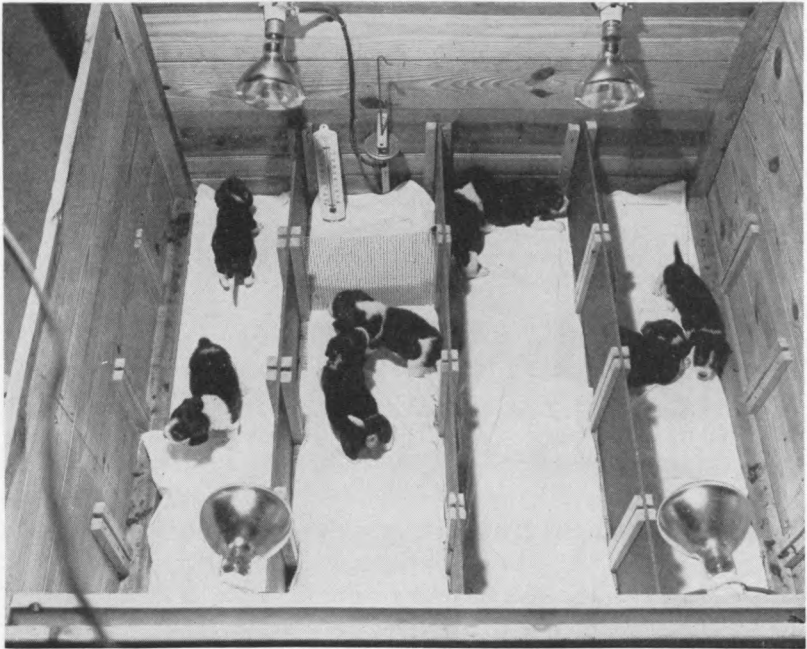
**Daynemouth Division\*** Studies are continuing on distemper virus and the mechanism responsible for its production of nervous manifestations. Isolation of a particular strain of distemper virus from a dog with encephalitis, designated as "Snyder Hill", has provided an important means for analysis of factors involved in the production of encephalitis.

Other work in this laboratory is concerned with dual infection produced by the distemper virus in combination with infectious hepatitis virus. These two viruses in combination are responsible, apparently, for many cases of disease diagnosed in the past as "severe distemper". The important question is being studied as to whether these two agents act synergistically or by addition of effects.

**Giralda Division\*\*** Work continues upon infectious hepatitis in dogs. Preliminary surveys indicate that this disease occurs in nearly half of the dogs in the United States. Of this number, nearly ten per cent of the cases terminate in death, many others are injured, while a few animals show no evidence of disease. Virus has been isolated from the urine of infected dogs from 3 days to 261 days after recovery. Such infected urine undoubtedly is important in the spread of this disease. A focal interstitial nephritis indicates that the kidney is the source of virus eliminated in the urine. Further work continues on the significance of damage to the kidney.

\*Established by Col. and Mrs. Lee Garnett Day.

\*\*Established by Mrs. Geraldine Rockefeller Dodge.



*A litter of pups in the puppy incubator.*

An important accomplishment during the past year was development of a vaccine to prevent infectious hepatitis in dogs. Initially, a few dogs that had been vaccinated showed virus persisting in the kidney. In order to prevent this, a modified vaccination procedure was then developed. Vaccination with this new vaccine should make possible a healthier dog population in the future by curtailing kidney damage. This vaccine was combined with distemper virus so that dogs will be immunized against both of these diseases simultaneously. This is believed to be the first dual virus vaccine for animals. Veterinarians may be able to get supplies soon from commercial sources.

**General Laboratory** An investigation of diseases in swine is in progress. As a result of the transfer of hog cholera virus to rabbits\* with the resultant attenuated live virus vaccines for im-

\*Baker, J. A., Serial passage of hog cholera virus in rabbits. Proc. Soc. Exp. Biol. and Med., 1946, 63, 183-187. Attenuation of hog cholera virus by serial passage in rabbits. J.A.V.M.A., 1947, 111, 503-505. Preventive measures for hog cholera. Bull. Internat. Epizooties.



munization purposes, some believed and hoped that all losses from this disease in swine might be avoided thereafter. This cannot happen until we have full knowledge about the virus of hog cholera itself and of various factors that influence immunization. Accumulation of this knowledge is imperative if we are to proceed rationally with a program of eradication. Even though the new hog cholera vaccines offer great promise and, without doubt, will be important in economical swine production, improved ones might be developed and the factors which operate to produce immune response in the host might be brought under better control.



*Mouse colony. Mr. Carl Sears, who has charge of the small animals, is wearing rubber gloves and sterilized coveralls.*

In some years and in some areas, transmissible gastroenteritis of baby pigs is even more serious as a destroyer of pigs than hog cholera. In our laboratories basic studies are concerned primarily with the problems of pathogenesis, concentration of virus in various tissues, persistence of virus in infected pigs and prevention of stunting caused by persistence of virus in the kidneys.

In an investigation of diseases in cattle, an agent of the elementary-body type has been found and named *Miyagawanella bovis* in keeping with the classification in Bergey's Manual. Progress has been made in characterizing the morphological, serological, epidemiological and pathogenic features of this agent. It appears to be an important cause of dis-



*Puppy formula shelf. The younger puppies must be fed every four hours, day and night.*

ease in cattle. Another virus, known at present as virus diarrhea, has been isolated, characterized to some extent, transferred to rabbits and attenuated successfully for vaccine purposes. Evaluation of the importance of this virus continues in an effort to determine whether vaccination would increase cattle production. Work also continues on *Leptospira pomona* and studies are directed towards epidemiological aspects with search made for possible reservoirs of infection in animals other than cattle and swine.

## RECENT PUBLICATIONS

- (1) Persistence of Hog Cholera Virus in Blood of Pigs. Baker, J. A., Mitchell, G. B., and Asdell, M., To be published.
- (2) Immunity to Virus Diseases in Dogs. Baker, J. A., Proc. A.A.H.A. 20th Ann. Meeting, 1953.
- (3) Leptospirosis in Swine Caused by *Leptospira pomona*. Burnstein, T., and Baker, J. A., J. Inf. Dis. In Press.
- (4) Leptospirosis in Swine. Burnstein, T., A Thesis, Cornell, 1953.
- (5) The Effect of Temperature, pH, and Chemicals on Egg-adapted Distemper Virus. Celiker, A., and Gillespie, J. H., To be published.
- (6) Encephalitis in Dogs Produced by Distemper Virus. Gillespie, J. H., To be published.
- (7) Immunity in Dogs to Distemper. Gillespie, J. H., and Celiker, A., To be published.
- (8) Clinical Features of Infectious Canine Hepatitis. Gillespie, J. H., Proc. A.V.M.A. 89th Ann. Meeting, 1952, 224-225.
- (9) Dual Infection of Dogs with Distemper Virus and Virus of Infectious Canine Hepatitis. Gillespie, J. H., Robinson, J. I., and Baker, J. A., Proc. Soc. Exp. Biol. and Med., 1952, 81 461-463.
- (10) A Pleuropneumonia-like Organism from Dogs. Greig, A. S., A Thesis, Cornell, 1953.
- (11) Transmissible Gastroenteritis in Swine. Lee, K. M., Moro, M., and Baker, J. A., To be published.
- (12) Transmissible Gastroenteritis in Swine. Lee, K. M., A Thesis, Cornell, 1952.
- (13) Infectious Hepatitis. Poppensiek, G. C., Gaines Veterinary Symposium presented at Kankakee, Illinois, Oct. 22, 1952.
- (14) Immunology of Infectious Canine Hepatitis. Poppensiek, G. C., Proc. A.V.M.A. 89th Ann. Meeting, 1952, 228-229.
- (15) Field Trial of Effectiveness of Simultaneous Vaccination Against Canine Distemper and Infectious Hepatitis. Stephenson, H. C., Proc. A.A.H.A. 20th Ann. Meeting, 1953.
- (16) Summary of Symposium on Infectious Canine Hepatitis. Stephenson, H. C., Proc. A.V.M.A. 89th Ann. Meeting, 1952, 230-231.

- (17) Response of the Chorioallantoic Membrane of Hen's Egg to Dis-temper Virus. Stunzi, H.,\* Gillespie, J. H., and Celiker, A., To be published.
- (18) Zur Pathogenese der Hepatitis contagiosa canis. I. Teil: Perakute und akute Krankheitsstadien. II. Teil: Untersuchungen an rekonvaleszenten Versuchshunden. Stunzi, H., and Poppensiek, G. C., Schweiz. Zeit. fur Allg. Path. und Bakt. 1952, 15 and 1953, 16.
- (19) Vaccination for Bovine Leptospirosis. York, C. J., and Baker, J. A., Amer. Jour. Vet. Res., 1953, 14, No. 50.

### PREVIOUS PUBLICATIONS

- (1) Infectious Hepatitis in Dogs. Baker, J. A., Richards, Mabel G., Brown, A. L., and Rickard, C. G., Proc. A.V.M.A. 87th Ann. Meeting, 1950, 242-248.
- (2) Recent Findings in Infectious Diseases. Baker, J. A., Gaines Veterinary Symposium on "The Newer Knowledge About Dogs", presented at Kankakee, Illinois, Oct. 24, 1951.
- (3) Virus Diseases. Baker, J. A., and York, C. J., Advances in Veterinary Science, Academic Press, Inc., 1953, 1, 49-74.
- (4) Studies on the Role of the Adrenal Gland in Resistance Against the Toxin of the Feline Pneumonitis Virus. Burnstein, T., A Thesis, Cornell, 1951.
- (5) Preliminary Studies on the Problem of Encephalitis of Dogs. Gillespie, J. H., North Amer. Vet., 1951, 32, 837-838.
- (6) Experimental Q Fever in Cats. Gillespie, J. H., and Baker, J. A., Amer. Jour. Vet. Research, 1952, 13, 91-94.
- (7) A Hitherto Undescribed Organism Infectious for Deer Mice. McBee, L. A., A Thesis, Cornell, 1952.
- (8) Persistence of Virus in Urine as Factors in Spread of Infectious Hepatitis in Dogs. Poppensiek, G. C., and Baker, J. A., Proc. Soc. Exp. Biol. and Med., 1951, 77, 279-281.
- (9) Virus Diseases of Dogs. Poppensiek, G. C., Veterinary Medicine, 1952, 47, 282-284.

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\*Dr. Stunzi is Director of the Veterinary Pathology Institute, University of Zurich, Zurich, Switzerland. This work was done at the Cornell Research Laboratory for Diseases of Dogs while Dr. Stunzi was on leave as a fellow of the Association of Swiss Universities.

- (10) A New Member of the Psittacosis-Lymphogranuloma Group of Viruses that Causes Infection in Calves. York, C. J., and Baker, J. A., *The Journal of Experimental Medicine*, 1951, 93, 587-604.
- (11) Aspects of Control in Bovine Leptospirosis. York, C. J., *Proc. U.S. Livestock Sanitary Assn. 55th Ann. Meeting*, 1951, 295-300.
- (12) Complement-Fixation Test for Bovine Leptospirosis. York, C. J., *Amer. Jour. Vet. Research*, 1952, 13, 117-120.

### FINANCIAL SUPPORT

The Institute derives a large part of its financial support from private sources. The State of New York is providing funds for some of the work on farm animals. A portion of the additional funds needed have been made available by temporary grants from industrial organizations and from the National Institutes of Health.

The Cornell Research Laboratory for Diseases of Dogs must obtain its operating expenses entirely from contributions, since funds from public sources are not available for this purpose. Individual dog owners, industrial organizations, veterinarians and dog clubs have assumed the responsibility of providing for its operation.

Sufficient unrestricted funds are needed to take care of future operations of the Institute. This is imperative in order to plan long-range projects and to assure funds for the future salaries of trained employees. This would also enable promising lines of research to be carried out without delay.

In establishing the Institute under its administration, the Board of Trustees authorized the Treasurer's office of Cornell University as custodian of all funds given in support of the Institute. Donors, therefore, are assured of maximum benefit from their gifts by this supervision of Cornell University officials. Cornell is glad to receive any gifts or bequests that will help the work of the Institute. All checks should be made payable to Cornell University, and instructions should be given that the funds are for support of the work of the Virus Institute.

## ACKNOWLEDGMENTS

From September 1, 1952, to August 31, 1953

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 Evergreen State Shetland Sheepdog Club  
 Federated Rhode Island Sportsmen's Clubs, Inc.  
 Finger Lakes Kennel Club  
 Fox River Valley Hunt  
 Foxcatcher Hounds  
 Franklin Township Beagle Club  
 Genesee Valley Kennel Club  
 George Washington Beagle Club, Inc.  
 German Shepherd Dog Club of Canada  
 The German Shepherd Dog Club of Greater Miami  
 German Shepherd Dog Club of Long Island  
 German Shepherd Dog Club of Washington State  
 German Shepherd Dog Club of Western New York  
 Golden Gate Dachshund Club, Inc.  
 Gordon Setter Club of America  
 Great Dane Club of America  
 Great Dane Club of California  
 Greenwich Kennel Club, Inc.  
 The Greyhound Club of America  
 Heart of America Boxer Club, Inc.  
 Holiday Beagle Club  
 Hoosier Kennel Club  
 Housatonic Kennel Club  
 Hudson Highland Dog Training Club  
 Hughcliff Kennels  
 Imperial Beagle Club  
 Ingham County Kennel Club, Inc.  
 International Beagle Federation, Inc.  
 Jamestown Allbreed Training Club  
 K-9 Obedience Training Club of Essex County  
 Kennel Club of Buffalo, Inc.  
 Kentucky State Foxhunters Association  
 Klipnockie Beagle Club  
 Labrador Retriever Club, Inc.  
 Lake Erie Beagle Club  
 Liberty Bell Cocker Spaniel Club  
 Little Rhody Beagle Club, Inc.  
 Magic Valley Kennel Club, Inc.  
 Mahoning-Trumbull Beagle Club  
 Marin County Dog Training Club  
 Maryland Cocker Spaniel Club  
 McKinley Kennel Club, Inc.  
 Meadow Brook Hounds  
 Michiana Kennel Club  
 Mid-Hudson Beagle Club  
 Mid-Jersey Companion Dog Training Club  
 Minneapolis Kennel Club, Inc.  
 Minnesota Field Trial Association  
 Missouri Valley Beagle Club  
 Mohawk Valley Kennel Club  
 Montclair Dog Obedience Training Club  
 Morris and Essex Kennel Club  
 Moskeeter Gun Club  
 Myopia Hunt Club  
 National Capital Kennel Club, Inc.  
 National Retriever Field Trial Club, Inc.  
 Nassau Dog Training Club, Inc.  
 New England Association of Beagle Clubs  
 New England Dog Training Club, Inc.  
 New England Sled Dog Club, Inc.  
 New Jersey Beagle Club  
 New Jersey Boxer Club  
 New Trier Dog Training Club  
 New York Boxer Club  
 Niagara Cocker Spaniel Club of America  
 North Atlantic Assoc. of Beagle Clubs  
 North Dakota Retriever Club  
 North Jersey Beagle Club  
 North Shore Dog Training Club, Inc.  
 Northern Carolina Association of Beagle Clubs  
 Northeastern Indiana Kennel Club  
 Norwegian Elkhound Association  
 The Norwich Terrier Club  
 Oak Brook Polo Club  
 Oak Hill Beagle Club  
 Ohio State Fox Hunters Association, Inc.  
 Ohio Valley Beagle Club, Inc.  
 Old English Sheepdog Club of America

- Olentangy Beagle Club, Inc.  
 Onondaga Kennel Association, Inc.  
 Orange County Fox Hunters Assoc.  
 Orange County Hunt  
 Oregon Retriever Trial Club  
 Pacific Northwest Boxer Club, Inc.  
 Pacific Northwest Collie Club  
 Penn Treaty Kennel Club, Inc.  
 Pensacola Dog Fanciers Assoc., Inc.  
 Plainville Beagle Club  
 Poodle Club of America  
 Potomac Afghan Hound Club  
 Potomac Boxer Club  
 Prospect Beagle Club  
 Providence County Kennel Club, Inc.  
 Quaker City Ladies Doberman Pinscher Club  
 Queen City Dog Training Club, Inc.  
 Red Jacket Association of Beagle Clubs  
 Roanoke Kennel Club, Inc.  
 Rolling Fork Beagle Club  
 Rubber City Kennel Club  
 Saginaw Valley Beagle Club  
 St. Louis Collie Club  
 St. Louis Dog Breeders Association  
 Sandia Dog Obedience Club  
 San Diego Collie Club  
 San Fernando Valley Springer Spaniel Club  
 Saranac Lake Hare & Beagle Club, Inc.  
 Saw Mill River Kennel Club  
 Scottish Terrier Club of America  
 Shenango Valley Beagle Club  
 Siberian Husky Club of America  
 Skyline Cocker Spaniel Club  
 Smokey Mountain Beagle Club  
 Somerset County Dog Obedience Club  
 Somerset Hills Kennel Club  
 South Jersey Beagle Club  
 South Texas Obedience Club  
 Southern Association of Beagle Clubs  
 Southern California Beagle Club  
 Southern New York Beagle Club  
 Southern Tier Kennel Club  
 Southland Beagle Club  
 Southwestern Virginia Fox Hunters Assoc.  
 Sportsmen's Spaniel Club  
 Spring Church Beagle Club  
 Staten Island Kennel Club  
 Mr. Stewart's Cheshire Foxhounds  
 Susque-nango Kennel Club, Inc.  
 Tompkins County Fish & Game Club, Inc.  
 Toronto & North York Hunt  
 Tri-County Obedience Club  
 Twin Ports Dog Training Club  
 Union County Kennel Club, Inc.  
 United States Open Field Trials, Inc.  
 Vicmead Hunt  
 Washington State Cocker Spaniel Club  
 Washington State Obedience Training Club  
 Waterloo Kennel Club  
 Wattaquoc Foxhound Club  
 Webster Beagle Club  
 Weimaraner Club of America  
 Welsh Terrier Club of America  
 West Coast Cocker Spaniel Club  
 Westbury Kennel Association  
 Westchester Kennel Club  
 Western Association of Beagle Clubs, Inc.  
 Western Montana Retriever Club  
 Western New York Field Trial Association  
 Western New York Fox Hunters Association  
 Western States Norwegian Elkhound Association  
 Western Wash. English Springer Spaniel Club  
 White River Valley Beagle Club  
 Women's Field Trial Club