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GENOTYPE

(Presented to you by the Staff of the Genetics Department)

No. 34

1948-49

THIS ISSUE'S STAFF

Faculty Advisor:
Senior Editor:
Junior Editor:

Dr. R. A. Brink
R. K. Oldemeyer
R. A. Anderson

The many friends of Professor E. W. Lindstrom of the Department of Genetics at Iowa State College were saddened by the news of his untimely death on November 8, 1948. Readers of the Genotype will recall that Dr. Lindstrom became a staff member of the Department of Genetics at the University of Wisconsin in 1919, following his discharge from the U. S. Army. In 1922 he moved to Iowa State College to build a Genetics Department.

Although his own research efforts centered on various phases of the genetics of corn and tomatoes, his professional interests extended well beyond the limits of the botanical sciences. A confirmation of his belief that the fundamental findings in plant pathology concerning the role of heredity in the resistance of the host to a pathogen were also to be expected in animals--at that time contrary to general opinion in medical circles--is expressed in the continuing project on this important subject at Iowa State College.

A fitting tribute to his influence is paid to him by J. L. Lush in the Journal of Heredity: "Genetics is further along and is already a sounder science than if he had chosen some other field of work."

EVOLUTION

Corn Genetics

A new line of research in the Department is concerned with mutation at the pericarp (P) locus in corn. The pericarp genes constitute one of the longest series of multiple alleles known in this plant. The group comprises both relatively stable and mutable members. The latter are represented by variegation and mosaic and the former by self red, orange and the near colorless and colorless types common in the field corns. Students participating with R. A. Brink in these studies are Ronald Anderson, Douglas Knott, Robert Nilan and Walter Plaut.

Microbial Genetics

The microbial genetics laboratory occupies the northern third of the second floor "general room," having engulfed two offices in the course of its development. A series of desks and wall cabinets line part of the northern and western walls, while a chemical bench is placed parallel to the long axis of the room. The usual equipment for bacterial research (incubators, autoclave, water still, pipetting machine, refrigerator, centrifuges, etc.) are located where space permits

including the area immediately outside the laboratory. Special apparatus such as a fume hood equipped with steam bath, gas, and water outlets has been installed. An ultraviolet lamp to induce mutants and a spectrophotometer have also been provided, and Warburg apparatus is expected in the near future.

The projects in operation include studies in the life cycle of Escherichia coli and the related Salmonellae, genetic control of fermentation enzymes, latent viruses, and gene mutability. In addition to the grad students associated with Dr. Lederberg in these projects, able assistance is also being given by Donald A. Gordon (Project Assistant).

Drosophila Genetics

Drosophila genetics is presently housed in one of the temporary buildings, in a corner of the large room where the genetics-zoology 6 lab. is held when the course is being given. It is hoped that some day this corner may be walled off for the mutual benefit of those without and within. New equipment includes a walk-in refrigerator (where the flies are protected from the hazards of hot Madison summers and from the vicissitudes of steam heat in the winter), an autoclave, a regular refrigerator, and 5 new microscopes (harbingers of more to come?).

The main project at this time is the study of the inheritance of resistance to various poisons, e.g. DDT, ether, chloroform, and carbon disulfide. Dr. Crow is being assisted by an undergraduate, Phil Brachman, and hopes that the work on Drosophila genetics will expand rapidly and that there will soon be graduate students engaged in such research here.

Forest-Tree Breeding and Genetics

Since the early days of the CCC's and following thru to the present time, millions of trees have been planted in a great program of reforestation in this country. Emphasis has been on quantity rather than quality and consequently many discouraging results have been noted in the plantings. Winter injury, insect and disease injury, and poor form are but a few of the more important defects now showing up. Much of the trouble can be traced to the seed and its origin.

Realizing that present practices of seed collection are unsatisfactory and that seed origin does play an important part in plantation success, the Wisconsin Conservation Department and the University of Wisconsin have undertaken a program of research in forest-tree breeding for the purpose of improving the quality of the planting stock.

In order to aid in our planning and to study techniques, a trip was made to the Institute of Forest Genetics at Placerville, California, in August of last year. The discussions and suggestions of the group there were of great value.

A survey of the remaining virgin red pine stands in Wisconsin was made last summer and a substantial seed collection made in the fall. Letters requesting seed of the various species for use in breeding stock arboretums were sent to ranger district headquarters and experiment stations both in this country and Canada. Most of this seed is now planted in the Griffith State Nursery at Wisconsin Rapids.

Plans for the future include the establishment of one or more breeding stock arboretums. The conversion of some of the best existing plantations to seed tree nurseries is also anticipated. Progeny test areas in various parts of the state are planned for testing those individuals or groups of individuals that show promise of having superior quality with regard to growth, form, and seed production.

Inter and intra specific hybridization of a few of the pines to improve not only form and growth, but also to adapt certain strains to Wisconsin's conditions is also planned. Thought has also been given to the vegetative propagation of the pines and research on methods and techniques is planned for some future date. Continued cooperation is planned in collecting and exchanging plant materials and pollen with the various breeding stations and forestry agencies both in this country and Canada. The forest-tree breeding program is in charge of R. G. Hitt under the general direction of R. A. Brink.

Animal Genetics

The Genetics Department in cooperation with several others has helped organize the research activity and management procedure in the Dairy Cattle Breeding Program which is being undertaken on a 575 acre farm near Lake Mills.

This project which is cooperative with the U.S.D.A. is one of the programs under the Research and Marketing Act. Ohio and Minnesota are the only other states cooperating.

The Animal Genetics group have also started a sheep selection program on Wisconsin farms comparable to the swine selection cooperative which has been effective five years.

Records are collected on the farms, and a selection index is worked out for the farmers' use.

Potato Genetics

The North Central Region has selected Wisconsin as the location for the maintenance and preliminary evaluation of wild and cultivated tuber bearing Solanums. This joint federal and state project is under the direction of R. W. Hougas who will have his summer headquarters at Sturgeon Bay. The Branch Station at Sturgeon Bay is being considered also as a possible site for a national Potato Introduction Station.

HETEROCHROMATIN

Dr. G. H. Reiman attended the potato breeders' meeting at Presque Isle, Maine, last fall and the national meeting of the Plant Introduction Project at Ames, Iowa this spring.

* * *

Dr. G. H. Reiman, Wayne W. Weber, and R. W. Hougas attended the Phytopathology and American Potato Association meeting at Pittsburg last fall. Weber and Hougas presented a joint paper entitled, "Unusual Variation in the Sebago Potato."

* * *

M. K. Ali also attended the Phytopath meeting and presented a paper entitled "Genetics of Resistance to the Common Bean Mosaic in Bean."

* * *

Wilhelm Rudorf, director of the Kaiser Wilhelm Institute for Research in Plant Breeding, Germany, was on the campus last fall. He presented a very interesting talk on the German work in the use of wild species for the improvement of cultivated plants. Special emphasis was placed on the potato breeding program in breeding for late blight and insect resistance.

Dr. Neal attended the fall meetings of the Agronomy Society of Fort Collins, Colorado, and the Corn Conference of the North Central States in February.

* * *

Fleming Juncker of Denmark was a departmental visitor. A farmer who during the war was a leader in the Danish underground, he is now managing a farm which includes 140 acres of corn. His farming operations are fully mechanized, including a mechanical corn picker.

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A. B. Chapman and R. M. Shackelford attended the International Genetics Congress at Stockholm, Sweden last summer. Subsequently, they travelled in Norway, Sweden, Denmark, Holland, France, Switzerland, England and Scotland, visiting animal breeding men at the experiment stations and universities of these countries. Points of call included the Zoological Congress in Paris, the Genetics Department at Cambridge where they visited R. A. Fisher and saw his laboratory, and the Genetics Department of the University of Edinburgh. Dr. Chapman was able to spend some time at his boyhood home in northern England. They were house guests of Ivar Johansson at Uppsala, Sweden during the Genetics Congress.

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The F. A. O. is now sponsoring a program of hybrid corn trials in Europe. Corn is expected to play an important role in restoring the agriculture in parts of that area. France, Holland and England are now growing early Wisconsin inbreds and hybrids.

* * *

Dr. Neal has received introductions of inbreds and open-pollinated material from Switzerland, Holland and Germany. He has also received stock from the Guatemala research station connected with Iowa State College.

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A European Corn Conference for exchange of seed stocks and ideas has been initiated under the leadership of Dr. M. Jenkins of the United States Department of Agriculture.

* * *

Dr. Bob Andrew has released an early canning type of sweet corn, Wisconsin Golden 804, to supplement last year's introduction of an early garden type, Wisconsin Golden 800.

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Dr. Chapman attended the Conference of Collaborators of the Regional Swine Breeding Laboratories at Ames, Iowa, for discussion of a method of analysis of data on selection.

* * *

Dr. Casida has spoken to several groups on "Causes of Lowered Fertility in Cattle." Among them were the State Association of Artificial Breeding Organizations of Iowa, the Illinois Farm and Home Week, and the National Brown Swiss Breeders' Association at their Beloit meeting.

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Dr. Casida attended the meetings of the American Society of Animal Production in November, and was appointed editor of the Journal of Animal Science effective this past February.

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Dr. Casida spoke on "Sterility Problems" before the State Obstetrical Association in Milwaukee on May 20th.

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Ray D. Owen, Ph.D., now at Cal. Tech., Pasadena, is co-author with Adrian Srb (Cornell) of a textbook called "Principles of Genetics" soon to be published by W. H. Freeman Co.

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During the summer of '49, Michael Doudoroff, Professor of Bacteriology at the University of California, Berkeley, will spend some time here on a Guggenheim Fellowship. He is noted for his studies on the enzymic synthesis of sucrose.

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Dr. L. C. Ferguson, Ph.D., '40, Associate Professor in Bacteriology Department of Ohio State University, has resumed work on cellular antigens in cattle.

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Dr. R. W. Cumley is now executive editor of the Texas Cancer Bulletin.

* * *

Elwood Briles (Ph.D. '48) is now assistant professor of Poultry Husbandry, Texas A. & M. College, College Station, Texas.

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Morton Rosenberg (Ph.D. '48) is now chairman of the Poultry Husbandry Department, University of Hawaii, Honolulu.

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Dr. W. A. Kraft (Ph.D. '32), Director of the Regional Swine Breeding Laboratory at Ames, visited the department last June and again this May on one of his regular visits.

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Among the foreign visitors to the department during the past year were Dr. T. Caspersson, Carolinska Institute, Stockholm, Sweden; Dr. O. Maale, State Serum Institute, Copenhagen, Denmark; Dr. Paul E. Sylvester, Department of Agriculture, Central Experiment Farm, Ottawa, Canada.

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Professor E. R. Hudson, Director of Lincoln College, New Zealand; Mohammed Ayad, Plant Breeding Section, Giza, Egypt; K. Gurnani and H. C. Merchandain of the Pakistan Department of Agriculture were also visitors to the Department during the past year.

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Dr. Ira Cunningham, Superintendent of the Animal Research Station, Wallaceville, New Zealand, was on the campus in April and gave a talk before the immunology seminar on photosensitivity diseases in cattle and sheep.

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Dr. S. E. Luria, Associate Professor of Bacteriology, Indiana University, Bloomington, visited the campus last December to attend the conference on poliomyelitis.

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Dr. H. J. Muller, Professor of Zoology, Indiana University, Bloomington, was on the campus for a day last winter. He presented a lecture in the afternoon concerning gene mutation and evolution and in the evening at a Sigma Xi meeting another lecture on the genetic effects of irradiation.

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Dr. Clyde Stormont attended the Genetics Society meetings at the A.A.A.S. convention in Washington, D. C. last September and presented a paper on the acquisition of the "J" substance by the bovine erythrocyte.

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D. T. Berman gave a paper by himself and Dr. M. R. Irwin at the Society of American Bacteriologists meeting last May in Minneapolis: "Further studies of the bactericidal action of bovine serum on Brucella abortus."

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Dr. Clyde Stormont spent several days in Wainwright, Alberta, collecting blood samples from various hybrids between domestic cattle and bison.

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Dr. Joshua Lederberg spent several days last November at Yale as a visiting lecturer on the genetics of microorganisms. He also attended the conference sponsored by the National Academy of Science on current trends and developments in the theory of the gene, held at Shelter Island, Long Island, N. Y., May 30 to June 2, this year.

* * *

Dr. Irwin took a trip last November to the wild life game refuge of Southwestern Oklahoma, near Cache, to collect blood samples from buffalos. Since then samples have been received of elk blood as well. In February he gave a paper in Memphis, Tennessee, at the meetings of the American Cancer Society held primarily for clinicians. The topic was "Individuality in Animals." While there he visited with A. G. Golden who is now in the Department of Pathology of the Medical School of the University of Tennessee. And, lastly, Dr. Irwin wishes publicly to rejoice in the fact that he was one of many in this department who didn't have to go anywhere at Christmas.

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Dr. W. K. Smith and Dr. R. A. Brink attended the National Alfalfa Improvement Conference at Lincoln, Nebraska last July.

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G. N. Stroman (Ph.D., '23), C. M. Woodworth (Ph.D., '20), and W. W. Yapp (Ph.D., '23) were among the alumni visiting the department during the past year.

* * *

Margaret Landes Heimbürger visited the department in September in the company of her husband, Dr. C. Heimbürger, forest-tree breeder for the Ontario Department

of Lands and Forests. Dr. Heimbürger gave a talk before a group interested in forest-tree breeding.

* * *

Dr. Otto Lorris Mohr, Rector, University of Oslo, one of Europe's best known geneticists, paid the Department a short visit April 10.

APPOINTMENTS

R. W. Hougas (Ph.D., '49) has been appointed Agent on the joint state and federal project of Potato Plant Exploration and Introduction.

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Wayne W. (Jim) Weber has accepted a position as Farm Manager and Plant Breeder with the Red Dot Farms, Rhinelander, Wisconsin.

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Wayne D. Naarup (B.S., '49) is now Sales Manager of the Federal Foods Division of Fromm Brothers, Nieman and Company, Inc., Thiensville, Wisconsin.

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Wendell Kyle (Ph.D., '49) is accepting a position at the U. S. Sheep Experiment Station, Dubois, Idaho.

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Ray Dutt (Ph.D., '48) is now with the Department of Animal Husbandry, University of Kentucky, Lexington.

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A large group attended the meeting of the American Society of Animal Production in Chicago, November 26th and 27th. Drs. Casida, Chapman, Irwin, Stormont, R. E. Christian, Wendell Kyle, A. C. Warnick and E. L. Wiggins presented papers.

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Dr. John Beaudry (Ph.D., '48) has returned to the Genetics Department and is now working on the potato project entitled, "Classification and evaluation of the new Correll collection of Solanum species from Mexico." He was formerly at Macdonald College of McGill University, Montreal, Canada.

INSTRUCTION

Dr. James F. Crow is teaching a new genetics course entitled, "Human Heredity." About 35 students enrolled in this course the second semester 1948-1949.

HONORS

R. A. Brink, who attended the meetings of the National Academy of Sciences in Washington, D. C. in April, reports that the Academy awarded its Public Service Medal to G. H. Shull, formerly professor of biology and genetics at Princeton University, for his part in the development of hybrid corn.

* * *

Have you ever worked hard, for months, even years to attain some desired objective? That is a foolish question to ask any serious minded graduate student, isn't it? But when a graduate student has a double objective, can he or she work equally hard for the attainment of both? The Editorial Staff is proud to announce that one of our advisors has demonstrated it is possible to work hard, but perhaps not equally hard -- for two objectives.

With pride in her accomplishment we point to the fact that the Ph.D. was awarded Miss Nancy Kent in June of 1948 and that in June of 1949, she attained the "degree," "Mrs."

* * *

Our remaining question concerning such achievements is "When will the last of the holdouts, that noted fur-animal geneticist, be taken by surprise and find himself bound for life?"

DEPARTMENTAL ADDITION

Robert G. Hitt is now in charge of forest-tree breeding at the University. He received his B.S. degree in forestry at Purdue in 1948.

CROSSOVERS AND TRANSLOCATIONS

E. W. Shrigley (Ph.D., '37), Department of Microbiology, Medical Center, Indiana University, Indianapolis.

B. L. Wade (Ph.D., '29), Head of Department of Horticulture, University of Illinois, Urbana.

R. L. Murphree, Department of Animal Husbandry, University of Tennessee, Knoxville, Tennessee.

Gordon E. Dickerson (Ph.D., '37), Professor of Animal Husbandry, University of Missouri, Columbia.

ACQUIRED CHARACTERS

- Ronald E. Anderson (B.S., Nebraska) - - - - - Dr. R. A. Brink
Pericarp Studies in Corn
- Wallace G. Black (B.S., Wisconsin) - - - - - Dr. L. E. Casida
Embryonic Death in Rabbits
- L. Jean Cross (B.A., Colorado U.) - - - - - Dr. M. R. Irwin
Immunogenetics of Doves
- Vern L. Felts (B.S., Wisconsin) - - - - - Dr. A. B. Chapman
Swine Improvement Project
- Douglas R. Knott (B.S., Univ. of Brit. Columbia) - - - Dr. R. A. Brink
Pericarp Studies in Corn
- Robert A. Nilan (M.S., Univ. of Brit. Columbia) - - - Dr. R. A. Brink
Pericarp Studies in Corn
- Stanley J. Peloquin (M.S., Marquette) - - - - - Dr. D. C. Cooper
Endosperm Development in Corn

Walter S. Plaut (B.S., Rutgers) - - - - - Dr. R. A. Brink
 Pericarp Studies in Corn

Wm. H. Stone (M.S., Univ. of Maine) - - - - - Dr. Clyde Stormont
 Immunogenetics of Cattle

Norton D. Zinder (B.S., Columbia) - - - - - Dr. Joshua Lederberg
Salmonella Genetics

FRAGMENTATIONS

John Micheal Adams Son of Dorothy and Jack, born May 11, 1949
Ameen Ali Son of Bessey and Mohamed, born June, 1949
Susan Anderson Daughter of Jean and Ronald, born June 11, 1949
Gerald Bieck, Son of Marjorie and Oscar, born February, 1949
Barbara Lynn Durham Daughter of Jane and Ralph, born November 29, 1948
Philip Lee Dutt Son of Louise and Ray, born March 9, 1949
Thomas Alan Gibson Daughter of Doris and Pryce, born October 25, 1948
Carolyn Jean Hitt Daughter of "Larry" and Bob, born April 15, 1949
Marie Verena Kunz Daughter of Georges and Cora, born October 22, 1948
Kevin Ray Kyle Son of Donagene and Wendell, born June 8, 1949
Julie Ann Mast Daughter of Elizabeth and Chancey, born March 4, 1949
Martha May Moore Daughter of Dortha and Leon, born February 17, 1949
Sharon Ann Murphree Daughter of Alice and Bob, born June 14, 1949
Kristin Kay Oldemeyer Daughter of Shirley and Bob, born September 8, 1948
John George Pelouquin Son of Helga and Stan, born March 5, 1949
Susan Joy Stone Daughter of Elaine and Bill, born May 5, 1949
Robert Thomas Stormont Son of Marguerite and Clyde, born November 16, 1948
Carolyn Kay Wiggins Daughter of Kay and Earl, born December 14, 1949
 (Died June, 1949)

Martynas Albert Ycas Son of Mary and Martynas, born February 4, 1949

EXPERIMENTS IN DOMINANCE

Harriet Cecelia Baylies and Gerald Jerome Mantell - - - - July 11, 1948
 (Harriet graduated from Northwestern Medical school, June 1949, and will
 now interne at Wesley Hospital, Chicago for one year.)
 Wallace G. Black and Elizabeth Anne McLee Yount - - - - July 9, 1949
 Nancy Kent and Alan Ziebur - - - - - June 15, 1949

SURVIVAL OF THE FITTEST

Doctors - - M. A. Ali, Elwood Briles, R. W. Hougas, W. H. Kyle, Mort Rosenberg,
 Tsuneo Tanabe, Mohammed Jafar.

Prelims - - D. T. Berman, R. W. Hougas, A. C. Warnick, W. W. Weber, R. I. Brawn.

Masters - - W. G. Black, R. E. Christian, Ralph Durham, Vern L. Felts,
 Douglas R. Knott, L. C. Ulberg.