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The Genotype. Spring 1952

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1952

spring

number

The Genotype



NEW SCIENCE: JOURNALISTIC GENETICS

EDITORIAL

If the flavors of the Journal of Animal Science and of Genetics have anything in common or anything which can be identified as smacking of the Department of Genetics, it may be a coincidence. On the other hand, it might be traceable to the fact that 3/13 of the departmental faculty are editing these two journals-- L. E. Casida, editor of the Journal of Animal Science; R. A. Brink and James F. Crow, editors of Genetics.

As far as we know, there have not been any competitive baits offered by these fourth-estaters to tempt peddlers of scientific wisdom to patronize one or the other of these journals. In fact, the costs of printing and the large number of papers being submitted have left us all, editors and patrons alike, wondering where and when all that ought to be published is going to be published. We are sure the C-B-C (Casida-Brink-Crow) combination will welcome suggestions on how to publish more material at a faster clip and without imposing undue financial burdens on producers or consumers.

SOCIAL EVENTS

Hoyt Park swarmed with children on the day the Genetics Department held its annual picnic. In the traditional soft ball game each team had 20 or more players, thanks to the prolificacy of the staff. The female members of the teams displayed great form on the diamond.

Those who were not playing worked up an appetite chatting or chasing their brood. Sam Scheinberg can draw a contour map of the woods. His boy Danny led him a merry chase throughout the entire area.

Weiners grilled over an open flame, coleslaw, potato salad, cake, ice cream and coffee were consumed in vast quantities. All went home tired and aching but happy.

World of Sports:

Once again the Genetics Department joined with the Agronomy Department to form a soft ball team. This year the Pathology Department had their own team and what was once the "Pathgenegrons" had been whittled to the "Genegrons." Despite this loss, the "Genegrons" made a formidable showing in the Grad soft ball league by finishing second (two other teams tied for first). Captain Ron Anderson led the team through some rough contests. Doug Knott was on the mound for most of the games and was ably supported by Bob Nilan (now Dr. Robert Nilan), Sam Scheinberg, Gus Stokes, Bill Stone, Nort Zinder and others. Agronomy contributed some capable boys as well.

Donuts & Coffee:

Last fall it was unanimously decided to continue with coffee and donuts. This pre-seminar treat had become very popular. This year under the guidance of Wilmer Miller, coffee time was made even more enjoyable with Spudnuts. The coffee is prepared by Bette Schotten, our secretary, who makes delectable brew.

Christmas Party:

Perhaps the highlight of the social season was the Linkage Group's annual Christmas banquet, which was held at the First Congregational Church. At dinner some 75 or more members alternated between eating and answering such questions as "A geneticist is when" on a quiz sheet given to each. The staff members were then given the opportunity to show how they answered the question. Dr. Irwin lent a serious note with a few remarks recalling the history of the Linkage Group.

Bill Stone emceed the program for the evening which was highlighted by a fantasy in which the gruff but henpecked Professor Prometheus Piffle was transported into dreamland by his fairy gene. Dreamland in the case of the professor was the Linkage Quarter Night Club where the dainty "ladies" of the chorus replete with bells on garters and hair on chests did a ta rah rah boom de ay meiosis dance.

The evening came to a merry close with a community sing led by Tom Roos and his guitar.

DEPARTMENTAL NEWS

New Chairmen:

The Genetics Department acquired a new chairman last July 1 when Dr. R. A. Brink, who had capably filled the post for the previous 12 years, handed over the reins to Dr. M. R. Irwin. Dr. Irwin is a member of the National Academy of Sciences and recent past president of the Genetics Society of America. He has been a member of the staff of the Department since 1930. The success of Dr. Irwin's first ten months as chairman speaks well for the continued smooth running of the Department.

Corn:

It was reported in last year's Genotype that evidence had been found for the occurrence of a major genetic element, separate from the P locus, which conditions the phenotypic expression of variegated pericarp in maize. This factor was termed Modulator. Modulator appears to be an unusual kind of modifier. It may occur at the P locus as a component of the variegated allele. The mutation of variegated to the stable self colored type is believed to involve the loss of Modulator from the P locus. Such an event may be accompanied, however, by the acquisition of Modulator elsewhere in the genome. The element then becomes a modifier of the variegated phenotype. These views are based on some of the work which Bob Nilan (Ph.D. 1951) and R. A. Brink have done. Further work is now in progress on the genetic basis of variegated pericarp.

Ron Anderson has screened a large collection of corn varieties indigenous to many areas in North, Central and South America for colored pericarp patterns. The colored types are being incorporated into inbreds adapted to Wisconsin. Many examples of the known P allele patterns are present in the collection. Seed stock now on hand will permit the testing of several variant patterns for allelism at the P locus. The highly desired red cob variegated pattern has been isolated from two stocks of Bolivian origin. A pollen sterility study of a variegated stock twice backcrossed to an inbred WR parent showed a surprisingly large percentage of aborted pollen which was, however, distributed equally in both variegated and colorless pericarp offspring.

Don Wood reports that the Wisconsin corn which migrated to Colorado last spring proved very adaptable, and produced a good crop. He is crossing light and medium variegated lots of pollen onto a series of inbreds, and will be testing for differential "Modulator" effects.

Doug Knott is continuing work to test for a modifier of variegation which Emerson postulated was linked to WR. No clear evidence for such a modifier distal to the P locus has been found. Present data seems to indicate that at least some of the variability in VV alleles is intrinsic in the locus.

E. S. Kassem from Egypt, a joint major in Genetics and Agronomy, is studying the effect of mustard gas on corn pollen inbreds.

Theo. van Schaik from South Africa, another Ph.D. candidate, is also working on variegated pericarp.

Peter Barclay, a new arrival from New Zealand, is working on the effect of analogues of nucleic acid on chromosomes. Pete was formerly a plant breeder with the Grasslands Division in New Zealand.

Sweet Clover -- Bitter and Non-bitter:

Kuell Hinson's problem is to determine the genetic nature of the barrier between Melilotus alba and M. dentata, two sweet clover species. The barrier results in the production of chlorophyll deficient plants from this inter-specific cross. Many genes appear to be involved and chlorophyll deficient seedlings can be reared to the flowering stage by grafting them on normal sweet clover plants. However, the interspecific hybrids have a marked inability to produce seed constituting a second barrier between the species. This problem is also being studied.

Dr. and Mrs. Smith recently returned from a five-week visit to the British Isles which was Dr. Smith's first visit to his homeland (Scotland) since he came to America in the 1920's.

The Bug Lab:

In the genetics of micro-organisms lab, King E. Coli is ending another year of his omniscient reign. Always reticent about his private life, he had nevertheless seen fit to disclose a few truths and half-truths to his diligent subjects.

The King's favorite, Dr. Joshua Lederberg, has been using his influence in the court to gather information from his Majesty's relatives (other Coli's) and close friends. Dr. Esther Lederberg has been associating with the King's most intimate bodyguard, Lambda, a lysogenic phage.

Miss Ethelyn Lively uses a microscope for a really close view of life in the palace. She was awarded an M.S. last June and is now devoting her full time to his Majesty's service.

Two ladies-in-waiting (for an M.S. and a Ph.D.) are Misses Phyllis Fried and Elise Cahn, who also serve the King. Elise entered the kingdom in September, coming from the foreign shores of Long Island where she had been working at Cold Spring Harbor.

Another immigrant is Dr. P. David Skaar from Indiana. His allegiance to King Coli is questionable since he has been, up until this September, a subject of Emperor Paramecium. But he is here beginning a study of the inheritance of antigens in bacteria. His son, Stephen, is a native of Wisconsin, born November 18, 1951.

One alien who has been tolerated in the kingdom for nearly four years, and has now passed his final exam for the Ph.D., is Norton Zinder, who continues to pay allegiance to Prince Salmonella.

A new chief chamberlain joined the court this fall, Dorothy Gosting, who has an M.S. from the Bacteriology Department here. She is the wife of Louis Gosting, Asst. Prof. in the Chemistry Department.

Larry Morse, a Ph.D. candidate affiliated with the King's favorite, Dr. Lederberg, entered the University in September, bringing with him from Oak Ridge, Tennessee, one wife, one child and one model A ford.

Anyone who has a nickel, is welcome to visit the kingdom about 3 o'clock any afternoon and have a cup of coffee.

Potato Breeding Project:

Oddly enough the potato grows best in the heart of Wisconsin's vacationland. The potato is happiest during the cool summer evenings, as are most people.

Rhineland is the home of the potato seed growing area in Wisconsin. Our Potato Research Farm is located about eight miles east of Rhineland on county trunk C.

The Primary objective of the potato breeding project is the production of a commercial scab resistant variety. However, other lines of research are being investigated under the direction of Gus Rieman, Del Cooper and Bob Hougas. The effect of the Chippewa strains of X virus on yield and the nature of tuberization are two research leads under study at the present time.

The potato family in the Genetics Department consists of two groups. The game potatoes are Dr. Gus Rieman, Dr. Del Cooper, Mr. Ling Hung and Mr. Gus Stokes.

The wild potatoes are Dr. Bob Hougas, Dr. Del Cooper, Miss Kay Beamish and Dr. Ruth Walker who is expected in the coming summer. Miss Betty Williams is a hybrid, dividing her time between the wild and tame potatoes.

Solanum Species Investigations:

In South America, collectors of potatoes go up the mountains but in Wisconsin they go up the peninsula to the Sturgeon Bay field station where many of the same species are under cultivation. There are species hardly recognizable as potatoes. Some look like ground cherries, some smell like tomatoes and there are those which taste so bad that even insects won't eat the leaves.

Not only are the potatoes cosmopolitan in origin but so is the membership in the Solanum project. The spuds come from several countries of South America, Mexico, England, Germany and India. The workers are also from the far corners of the earth. M. S. Swaminathan, a guest investigator in the coming fall, is getting his degree at Cambridge. He is from India and has also worked in Holland. Kay Beamish is from Egmont, British Columbia and Ling Hung is from Linghai, China.

Attempts are being made to study the heredity of disease resistance and of fertility and to incorporate into our edible potatoes some of the desirable characters found in the introduced species.

The Fly Lab:

Newton Morton left for Japan in February 1952 after receiving a Master's degree. He will work as a geneticist on the AEC's Hiroshima project and plans to be gone for two years. Newt's thesis dealt with experimental data and theoretical treatment of population number and genetic drift.

Frank Seto passed his prelims in January and is now dividing his time between teaching and the study of the action of lethal genes in *Drosophila*. Dan Smith is working on the inheritance of resistance to insecticides in *Diptera* and is attempting to estimate the number of factors responsible for resistance to DDT in *Drosophila*.

Forest-Tree Breeding Research:

The University in cooperation with the Wisconsin Conservation Department has undertaken a program of forest-tree breeding research. The object of the work is to produce trees of improved genetic quality for use in the state's reforestation program. To attain this goal work is being conducted along three main lines:

a. Selection and testing of high quality individual trees of various species chosen in natural stands in Wisconsin, as well as from other stands over the natural range of the species.

b. Establishment of seed orchards of selected clones for the production of improved quality seed.

c. Specialized research activities including hybridization, vegetative propagation studies, flowering induction work, production of polyploidy, etc.

Although headquarters for the work is in Madison, much of the research is conducted at the Griffith State Nursery at Wisconsin Rapids and also at the Trout Lake Nursery near Boulder Junction. In addition, field plots are scattered over the entire central and northern part of the state.

The work is conducted in the Genetics Department by Bob Hitt in consultation with Dr. R. A. Brink.

Blood Lab:

Cliff Bryan can now be addressed as Master and Wilmer Miller earned a steak dinner for his prowess with the prelim committee. It is also going to cost him his freedom for Wilmer and Lotus Simon are making plans for an experiment in dominance. The rest go wearily on. Bill Stone is still hard at work on problems in immunochemistry. Bill claims to have won a handball game from Dr. Irwin but no witnesses were present. It looks like Bill will have to bribe some witnesses or make plans for permanent residence in Madison. Joy Palm is finally getting her fingers into what she loves most to get them--the slimy gooey contents of an embryo.

Joy is doing embryo studies on cattle twins, doves and pigeons. Connally Briles, Martin Bacharach and Sam Scheinberg are continuing their work with chicken red blood cell antigens.

Mikael Braend and Neimann Sorensen, two visitors from Scandinavia, are now learning the techniques of cattle blood typing. Mike hails from Oslo, Norway, where his veterinary duties included artificial insemination and work with the fetus vibrio. Neimann received his D.V.M. in July 1951 and has since been studying human blood groups and genetics at the Institute of Legal Medicine, University of Copenhagen.

Animal Breeding:

Dr. Chapman's boys have shown great industry during the past year with projects concerning dairy cattle, sheep, swine and laboratory rats well under way at present.

Jim Craig is finishing his thesis on the effectiveness of different systems of mating and sterility studies in albino rats, and hopes to graduate this summer. He has just accepted a position in the Department of Animal Science at the University of Illinois.

Vern Felts, after passing prelims in January, has moved to a new office and a new job at Animal Husbandry, where he is in charge of the Wisconsin Sheep Improvement Program (W.S.I.P.) and the Wisconsin Swine Selection Cooperative (W.S.S.C.). His thesis will be based on the W.S.I.P. records he has collected over the past two years.

Hassen Karam was recently welcomed back after a nine-month stay in New York where he underwent eye and sinus operations. Apparently in excellent health now, he is finishing his thesis on the construction of a selection index for sheep.

Milt Madsen, who was on leave from the staff of Utah State Agricultural College, has passed French, German and prelims this past winter and has now returned to Utah to start his thesis on factors in the selection of range sheep.

Camille Bernard and Eric Bradford, the pig weighers par excellence of the Department, are in charge of collecting records from the Wisconsin farmers who are testing inbred and inbred linecross boars for the University. Both Canadians, Camille came here from Laval in 1949, Eric from McGill in 1951. Camille is at present determining heritability values for several economically important characteristics in swine. Eric is studying the effect of season of farrowing on Wisconsin pigs, and plans to continue where Ralph Durham left off with the results of the boar testing program.

Jim Duckwall, who came here in 1951 from Berea College in Kentucky, is working with Dr. Tyler in dairy cattle breeding. His main project is determining the relationship between various body measurements and over-all type and production, based on records from the Emmons Blaine Jr. farm at Lake Mills.

Chin Sik "Jim" Chung, from Seoul, South Korea, and more recently from Oregon State College (1951), is at present attempting to determine from W.S.S.C. records the extent to which Wisconsin farmers make use of the indexes furnished them by the W.S.S.C. He hopes to continue work here with the rat colony following Jim Craig's graduation.

Physiology of Reproduction:

Wally Black, Les Ulberg, Bill Kidder and Jim Wiltbank are the cowboys of the physiology lab. Wally and Les are continuing the work with repeat breeder cows; Bill's interest is in determining the nature of the difference in fertility in bulls of high and low non-return rate. Jim is working with the Emmons Blaine Jr. Farm herd on a study of the incidence of atretic large follicles. Clayton O'Mary, the sheepman of the lab, is continuing work on the effects of diethylstilbestrol on weight gains in feeder lambs. Lou Baker is studying the comparative fetal growth rates and embryonic death of Poland China and Chester White gilts and reciprocal crosses between them. He is also working on a project concerned with the fertility of the post-partum heat period in sows.

Fur Animal Research:

The past year has seen a major change in the population of animals being studied by Dr. R. M. Shackelford and his assistants, W. D. Moore and T. B. Roos. In one case the change reflects a similar one in the industry; in the other it may precede such a change. Research of fox, as a species, has been largely discontinued, its place in the program being taken over by chinchilla and its pens by marten.

Experimental work is going on to determine the nature of the inheritance of several dominant factors influencing coat color and character in the mink. Other work on mink includes a study of the feasibility of egg transplants from mink to mink and from mink to ferret. Studies on the long-term effects of diethylstilbestrol on fertility are also being carried out.

As yet the chinchilla project is still in its exploratory stage; initial investigations are being carried out on the length of the oestrus cycle and the nature of changes involved in the cycle. An attempt is being made to study the chromosome numbers of two available species of chinchilla in order to give some theoretical explanation for the reportedly high incidence of sterility in offspring of the cross.

News from the Poultry Geneticists:

The chicken boys have come home to roost after having occupied one of the temporary buildings for the last few years. This temporary building is to be razed in the near future to make room for a diagnostic laboratory for mentally ill persons.

Returning to their old quarters in the Poultry Building were Dr. W. H. McGibbon and his two graduate students, Cletis Williams and Martin Bacharach. Dr. McGibbon is currently considering a study of the heritability of comb lopping in White Leghorn pullets. If the direction were indicative of the way in which a bird would turn when an attempt is made to catch it, it could serve as a sort of traffic signal and would reduce the commotion in the pen to a large extent. Dr. McGibbon has more than passing interest in such a possibility since he found the first exception to the general rule that the female sex is vague on their use of traffic signals.

Another study is an expansion of Dr. Lloyd Champion's research on inheritance of disease resistance to coccidiosis, a parasitic infection of growing chickens. Currently, nine day old chicks are fed embryonated eggs in concentrated form. Their approval or disapproval of this diet is observed five days later on the basis of those remaining. This project is one of the few which does not seem to require more and more space. Dr. Champion, by the way, is Assistant Professor of Poultry Husbandry at Michigan State College since last September.

Cletis Williams, Oklahoma A & M's gift to the department, is investigating the contribution of different males to the poultry population. By using males of different breeds, Cletis has little difficulty in determining the intimacies of the various males. The introduction of a new breed of chickens, which has been produced at Stillwater, Oklahoma, provided Cletis with additional material for study, in case he should find himself unoccupied with the material on hand.

Martin Bacharach, on the other hand, is using chicken blood for his research medium. In connection with this endeavor, he spends his time commuting between the Poultry Building and the Genetics Building. When Martin arrives at one destination he usually manages to make himself useful before deciding to take a look at what is going on at the other end of the line.

Dr. John L. Adams, Jr. is devoting his time to studies concerning the administration of hormones to chickens. He is hard at work trying to devise a method whereby male chicks can be changed into females and made to lay eggs by use of hormones. The solution of this problem would do away with the question of what to do with the excess male chicks, but would also create another one, by requiring extra storage space for the eggs. Luckily, Dr. Adams is teaching a course in Poultry Marketing, and thus should not have difficulty in solving the dilemma in due time.

RECENT ADVANCES IN GENETICS

<u>Ph.D.</u>	<u>Prelims</u>	<u>M.S.</u>
Bob Milan	Norton Zinder	Ethelyn Lively
Lloyd Champion	Frank Seto	Newton Morton
Ross Christian	Wilmer Miller	Cliff Bryan
Ralph Durham	Wally Black	Charles Larson
Stanley Peloquin	Milt Madsen	Bill Kidder
George Robertson	Les Ulberg	Jim Wiltbank
Walter Flaut	Bill Stone	Martin Bacharach
Norton Zinder	Vern Felts	Joy Palm
Doug Knott	Jim Craig	Phyllis Fried
Ron Anderson	Clayton O'Mary	
Hassan Karam	Gus Stokes	

NEW STRAINS (IMPORTED AND DOMESTIC)

		<u>Major Professor</u>
James Wiltbank	BS Brigham Young	Casida
Louis Baker	MS Kentucky	"
Harold Hawk	BS Penn State	"
Eric Bradford	BS McGill	Chapman
James Duckwall	BS Berea	Tyler
C. S. Chung	BS Oregon State	Chapman
W. D. Moore	MS Iowa State	Shackelford
Nancy Worner	BS Eastern Illinois State College	Brink
Fred Valentine	BS State Teachers College, St. Cloud, Minn.	"
Peter Barclay	Victoria U. College, New Zealand	Huskins
Mikael Braend	DVM Veterinary College of Norway	Irwin
Neimann Sorensen	DVM The Royal Veterinary & Agric. College, Copenhagen, Denmark	"
Howard Clark	BS McGill	Brink
Walter Hartstirn	BS Montana State	"
Cheng-Mei Wang	BS California	"
T. van Schaik	BS Univ. Stellenbosch	"
E. S. Kassem	BS Farouk 1st University	"
Elizabeth Williams	M.Ph. Wisconsin	Cooper-Hougas
Katherine Beamish	MS Univ. British Columbia	"
Elise Cahn	MA Indiana	Lederberg
David Skaar	Ph.D. Indiana	"
Dorothy Gosting	MS Wisconsin	"
Larry Morse	MS Kentucky	"

SEX LINKAGE

Henry B. Howe and Anne Haden
 Paul E. Waibel " Joyce Wickham
 Robert Wolf " Phyllis Ziegler

TRANSLOCATIONS

Bob Nilan	Washington State College
Ross Christian	Washington State College
Ralph Durham	New Mexico A & M College
George Robertson	Texas A & M College
Lloyd Champion	Michigan State College
Walter Plaut	Hammersmith Hospital, London
Newton Morton	A.E.C. project, Hiroshima, Japan
Leigh Woehling	Borden Co., Elgin, Illinois
Charles Larson	Farming, Portland, Connecticut

ENTRIES IN THE HERD BOOK

Clayton	Gary O'Mary, April 13, 1951
Grace	
Bob	Judith Nilan, July 1951
Win	
Ron	Scott Anderson, July 27, 1951
Jean	
Doug	Holly Ann Knott, Sept. 14, 1951
Holly	
David	Stephen Skaar, Nov. 18, 1951
Linda	
Elsayed	Susan Kassem, Feb. 16, 1952
Fawzia	
Jim	Ellen Wiltbank, March 1, 1952
Trudy	
Robert	Sherry Faye Wolf, April 10, 1952
Phyllis	
Bob	Roberta Ann Hitt, June 1, 1952
Larry	
Wally	Donald Scott Black, June 2, 1952
Betty	

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STAFF

Faculty Advisor:	Dr. M. R. Irwin
Senior Editors:	Bill Kidder Sam Scheinberg
Junior Editor:	Eric Bradford
Art Editor:	Lothar Richther
Contributors:	
Ron Anderson	Tom Roos
Martin Bacharach	Den Smith
Kuell Hinsen	Gus Stokes
Bob Hitt	Bill Stone
Ethelyn Lively	Betty Williams
Nancy Worner	

Special thanks to secretaries, Bette Schotten and Gloria Way, for technical assistance.

UNIVERSITY OF WISCONSIN

Department of Genetics
Madison 6, Wisconsin
June 1952

Dear Alumnus:

It has been decided that the next issue of "The Genotype" will be devoted primarily to former members of the Linkage Group. We should greatly appreciate your cooperation in filling out the following questionnaire and returning it to Editor of Genotype, Genetics Department, University of Wisconsin, Madison 6, Wisconsin, U.S.A.

Full name
Address
Organization or Institution
Official position
Degrees, when and where
Last visit to Wisconsin
Present research
Recent publications
Professional meetings attended during the past year
.
Married Number of children, boys girls
Items of interest

Please Note:

We wish to send the Genotype to everyone who is interested in receiving it, and therefore ask your cooperation in keeping our mailing list up-to-date. If you wish to receive succeeding issues of the Genotype, kindly mail the above questionnaire--completed--to us, or even let us know via a post card or letter.
