The Genotype. No. 40 1955/1956

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G. H. RIEMAN

THE GENOTYPE

No. 40 1955 - 56

WHAT'S NEW

Remodeling of Building

Most newsworthy event of the year is the remodeling of the Genetics Building, a welcome and much needed project. After several years of planning the blueprints were drawn up, and work was begun last fall.

The main effort was concentrated on the second floor, and, while some of the labs were forced to move to temporary quarters (microbial genetics to the Bacteriology Building, corn lab downstairs to rooms 1 and 12), the inconvenience was well compensated for by the eventual result. The microbial genetics lab was repartitioned and extended to include the northwest corner room previously used by the Drosophila lab. The Drosophila lab moved one room north into a room previously used by bacterial genetics. The old Drosophila lab will be used for making media and as a general lab. In addition, the second floor labs and offices have at last been equipped with that new and modern convenience--ceilings! (No longer does the second floor have that hayloft atmosphere.)

Improvements throughout the building have included new asphalt tile floors, and an improved ventilation system. The external appearance of the building remains the same but the roof is being repaired.

We are all pleased with the result, and are looking forward to a research renaissance in our new "plush" quarters.

(Quoted portion above taken from an impassioned discourse by the department chairman on the new facilities.)

Staff

Dr. Irwin departed May 11 for the meetings of the 7th International Congress on Animal Production which were held in Madrid between May 22 and June 1. He presented a paper on the use of blood groups in animal breeding. Prior to the meetings he and Mrs. Irwin enjoyed a tour of southern Spain.

On the return trip they spent time in Paris, London, Cambridge and Oxford. We understand that Mrs. Irwin was able to keep the Doctor out of the many interesting biology laboratories long enough to partake of some of the less academic wonders of Europe. In spite of this full itinerary, they arrived back in Madison June 17.

The Kimber Genetics Medal was presented at the annual meeting of the National Academy of Sciences, April 23-25, Washington, D. C. to Dr. Sewall Wright. The Kimber Genetics award was established in 1954 by the Kimber Farms Foundation, California, to provide recognition for distinguished achievement in genetics. The award is made by the National Academy of Sciences with the cooperation of "Science" and the Genetics Society of America.

Drs. Esther and Joshua Lederberg recently were given the Pasteur Award by the Society of Illinois Bacteriologists. The award is made annually for important work in bacteriology to an investigator under 35 years of age. This is the first time the award has been given to a team. Needless to say, it was in recognition of the Lederbergs' outstanding work in bacterial genetics.

Seminar

The departmental seminar underwent additional changes this year. During the fall semester a monthly colloquium was held. In addition, an informal student-conducted seminar met two of the remaining three Thursdays. The graduate student seminar seemed to be enjoyed by all those attending; at least, great enthusiasm was shown in the discussion periods.

There was another innovation this spring. Some felt that students taking seminar for credit should have a little more staff supervision, and Dr. Stone was selected as staff advisor. The informality was maintained however, and from all reports it was a most successful venture.

Picnics

The suggestion last year to replace the Christmas party with a fall picnic turned out to be an excellent idea. For once a Genetics picnic was not plagued with foul weather, and as you will see in the sports section, the early softball practice seems to have spurred our team on to better things. Almost everyone attended, and there was food and more food. Charlie Kiddy and his co-workers are to be commended for their splendid efforts.

The picnic this spring was delivered from the aroma of the Stock Pavilion and was held in the shelter at Hoyt Park. The weather? We had lots of it---all cold; however, we did escape rain. Intermingled with the members of Ag. Journalism, we sat in one another's pockets, and dined. The lack of elbow room was compensated for by good food and the warmth afforded by the persons on either side. The softball players took full advantage of the outing, while others were introduced to a new gamesters game, Matrix, by the Lederbergs. We are looking forward to another try this fall.

Distinguished Visitors

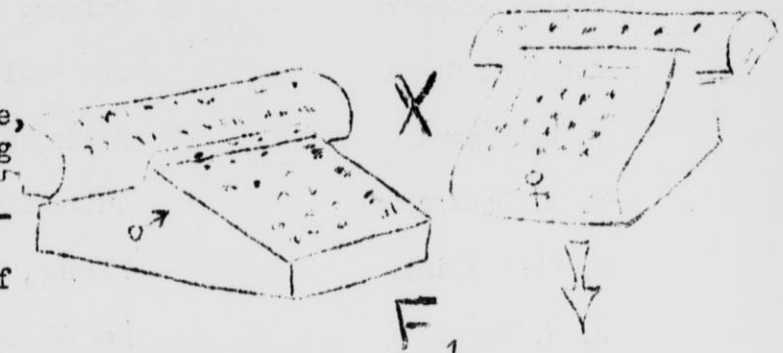
George Klein	Karolinska Inst., Stockholm
Ake Gustafsson	Forest Tree Breeding Station, Stockholm & Svalöf
Taku Komai	National Inst. Genetics, Japan
O. H. Frankel	C.S.I.R.O., Canberra, Australia
Alan Robertson	Inst. of Animal Genetics, Edinburgh
R. W. Kaplan	University of Frankfurt, Germany
Philip Sheppard	Oxford, England
Kan-Ichi Sakai	National Inst. of Genetics, Japan
I. Nishiyama	Kyoto University, Japan
F. X. Laubscher	University of Stellenbosch, South Africa
R. Ceppellini	Milano, Italy
J. W. Boyes	McGill University, Montreal
Ralph Lewin	Scripps Inst., La Jolla, California
K. C. Atwood	Oak Ridge, Tennessee
Arne Hagberg	Svalöf, Sweden
Tosio Kĭlagawa	Kyushu University, Japan
C. W. Cotterman	Wadley Inst., Dallas
Barbara McClintock	Cold Spring Harbor, New York
Maurice Sussman	Northwestern University, Illinois
A. H. Sparrow	Brookhaven National Laboratory, New York
R. D. Hotchkiss	Rockefeller Inst., New York
Robert Briggs	Lankenau Hospital, Philadelphia
A. Torriani	Pasteur Inst., Paris
J. V. Neel	University of Michigan
G. Pontecorvo	University of Glasgow, Scotland
E. G. Malherbe	University of Natal, South Africa

Athletics

The performance of the Genetics Department basketball team this year was most encouraging, after the rather disappointing season last year. While the team this year did not win any more games than the team last year (won 1, lost 16), they did not lose their games by as many points--a most heartening trend. With the esprit de corps instilled by these near-victories we are looking forward next year to a few more wins.

Through the mutterings and whisperings of "ineligible players," "professional athletes," and "interdepartmental raiding for players" the Genetics Department is still pleased to report a change in the fortunes of its softball team. The unbelievable final score: won 5, lost 2, for a tie for second place in the College of Agriculture Graduate League. We wish to extend our congratulations to the team for its superior playing and proselytizing.

Animal Breeding



Eric Bradford left last May to assume the duties of Asst. Prof. of Animal Husbandry at Macdonald College, Quebec. After completing the writing of his thesis, he returned after Thanksgiving to take his final examination. His present status is not only that of a Ph.D. but also that of a father.

Francis Wolfe received his M.S. last October, and left immediately for an Infantry Officers' course at Fort Benning, Georgia. He has completed his training in Georgia and is at present in Korea. Anyone wishing to correspond with him will have their letters forwarded if addressed to 1430 Lakeshore Drive, Chicago 10, Illinois.

Jim Chung is in the process of writing his thesis. He expects to have it completed in time to receive his Ph.D. this summer.

Walter Neville will resume his duties at the Georgia Exper. Station this fall. He plans to return to Wisconsin later to complete his thesis requirements.

Vern Felts is continuing his thesis work, and has also assumed the role of fatherhood.

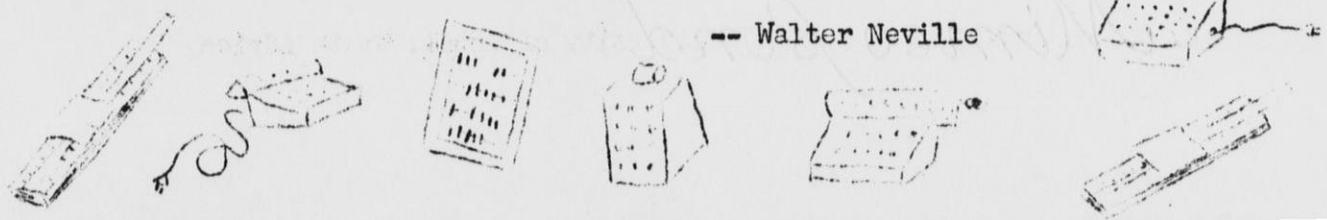
Cecil Hartung, after receiving his M.S. degree last fall, remained at the University to work toward his Ph.D. degree.

Jerry Cooksey, a graduate of Washington State College, arrived last June to begin work toward his M.S. degree. He is studying the relation of body measurements (including body weight) of swine at 154 days of age with carcass characteristics at slaughter.

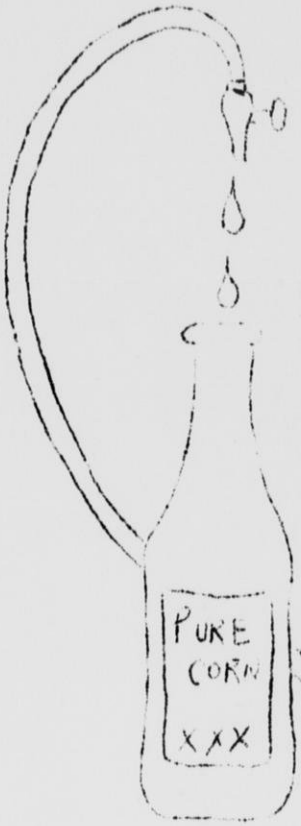
Wayne Robison, after graduating from Oklahoma A & M, came here last June to work toward his M.S. degree. He is examining the relationship of body measurements of swine at slaughter weight with various carcass characteristics.

Curtis Bailey, a native of Ohio and at present a herdsman at the U.W., plans to become a full time student this fall. His research will be with sheep breeding. Curtis obtained his M.S. from Texas A & M.

-- Walter Neville



Corn Group



Fred Valentine is still classifying his mutable orange material. He is planning to complete his work in August and will then leave for Syracuse, New York, where he will be a member of the staff in the Dept, of Forest Botany, College of Forestry in the State University of New York system.

Howard Clark, after completing the analysis of his data on relative stabilities of independent red and light variegated mutations from medium variegated, left in February for the Harrow Experimental Farm, Ontario, where he is doing breeding work on beans and small grains. He plans to return this summer to take his final.

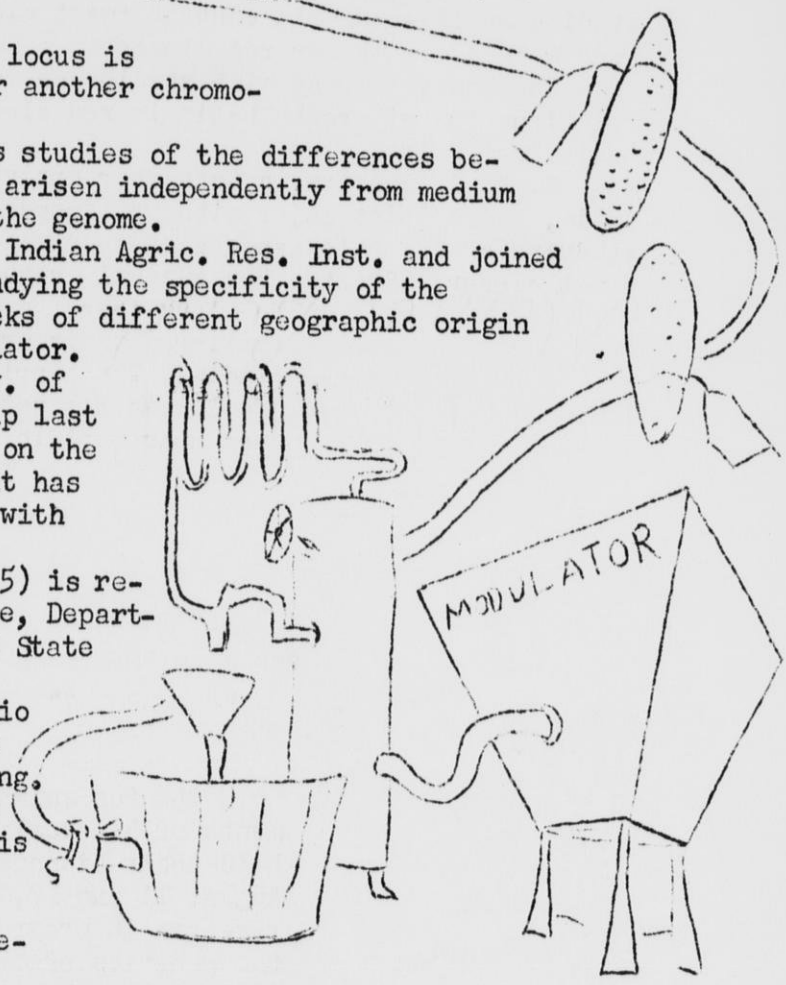
Bruce Ashman is continuing his work on stippled aleurone, and at present is studying light-stippled, a new R allele which shows some of the novel effects recently discovered at this locus.

Bob Brawn, who left in 1949 to teach genetics at Macdonald College, returned last June to complete his research, and will receive his Ph.D. at the June commencement. Bob has studied the effect of homozygosity and heterozygosity of the variegated pericarp allele on concurrent mutations to red and to light variegated. The heterozygote mutates more frequently to both these pericarp phenotypes, suggesting that a Modulator "released" from the P locus is nearly always "captured" at one or another chromosomal site.

E. R. Orton is continuing his studies of the differences between mutant self-reds which have arisen independently from medium variegated and lack Modulator in the genome.

S. Kedharnath comes from the Indian Agric. Res. Inst. and joined us in the fall of 1955. He is studying the specificity of the Modulator units isolated from stocks of different geographic origin and the constancy of a given Modulator.

Irmgard Messmer from the Univ. of Freiburg, Germany, joined our group last summer. She is beginning studies on the rate of mutation of an R^r gene that has been extracted from heterozygotes with stippled.



Cheng-Mei Fradkin (Ph.D., 1955) is research assistant to Henry L. Plaine, Department of Zoology & Entomology, Ohio State Univ. Howard, her husband, is a Ph.D. candidate in sociology at Ohio State. Mei will return to Madison this summer for the corn pollinating.

Donald R. Wood obtained leave from Colorado A & M long enough this spring to complete his Ph.D. work here. His thesis dealt with the dosage action of Modulator on variegated pericarp.

Dr. Brink gave 4 lectures on mutable alleles at the Univ. of Texas, Austin, in April. Recently he served as a section chairman in the Brookhaven Symposium on Genetics in Plant Breeding.

Cytology

Dr. Cooper is working on polyembryony in Hieracium. His work on stomatal abnormalities will be in press soon.

The potato section has a new member, Madan (Mac) Magoon from India. Under the direction of Drs. Hougas and Cooper, Dr. Kay Beamish is busy studying the cytology of the hybrids between induced tetraploid potatoes and a commercial variety. John Lee is working on the cytogenetics of Mexican and South American diploid species, and Mac Magoon is working on tetraploid species.

Steve Takats has hopes of finishing up his research this summer. His thesis problem is an attempt to analyze the kinetics of first meiotic prophase in Lilium.

Doug Johansen is now selling agricultural chemicals for the Diamond-Black Leaf Company in Montana.

-- John Lee

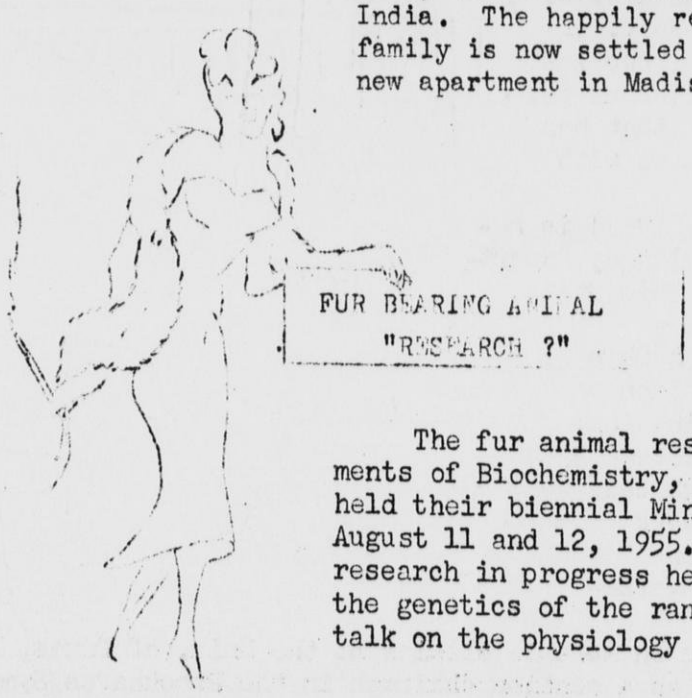
But Dr. Cooper Told him to run his tissues up an alcohol series!

Clover and Alfalfa

Dr. W. K. Smith and his students are continuing studies on low-coumarin content sweet clover and now have work under way on red clover.

Don Emery is busy with studies on genetic relationships of growth habit in red clover. Don hails from Maine.

S. V. S. Shastry, a September arrival from India, has a joint major with Dr. Cooper. He is studying cytogenetic aspects of species crosses in sweet clover. Shastry has recently returned from New York where he met his family on their arrival from India. The happily reunited family is now settled in their new apartment in Madison.



The fur animal research project (cooperating Departments of Biochemistry, Veterinary Science and Genetics) held their biennial Mink Farmers' Summer School on August 11 and 12, 1955. Dr. Shackelford outlined the research in progress here at the University and discussed the genetics of the ranch mink. Pete Nutting gave a talk on the physiology of mink reproduction. There were

also several guest speakers from other institutions and the industry, as well as from the Departments of Veterinary Science and Biochemistry.

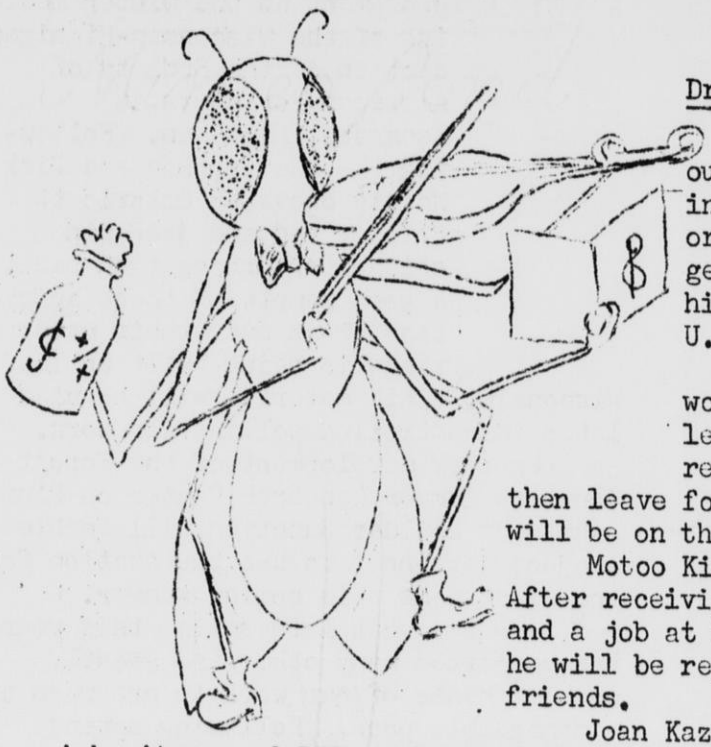
This year Dr. Shackelford is continuing his genetic studies to establish linkages among the 30+ different genes for qualitative differences in mink, and he is also attempting to elucidate the status of several new phenotypic variations in coat color.

Pete Nutting is continuing his study on factors influencing growth and fur production in mink as well as doing work on the reproductive patterns of the chinchilla. Pete plans to finish up his work on his Master's degree this June, and then start work for Ross & Wells, Inc., fur food distributors and processors. He and his family will be located in Milwaukee after he starts on his job.

Bob Cochrane is continuing his work on the effect of stilbestrol on mink reproduction and factors involved in the delayed implantation phenomenon in mink, marten and lactating rats.

A new member of the fur group, Chuck Fox II, is making an extensive study of the fur on the live fox, and its effect on female Homo sapiens.

-- Bob Cochrane



Drosophila Group

Dr. Newton Morton has been working out various methods for studying linkage in humans, learning techniques of micro-organism genetics, and boning up on human genetics. The last is in preparation for his new position as geneticist in the U. W. Medical School.

Bill Lee has finished his thesis work on irradiation induced dominant lethals in the honeybee and receivedhis Ph.D. this spring. He will then leave for the Univ. of New Hampshire where he will be on the Entomology staff.

Motoo Kimura is finishing up this spring also. After receiving his Ph.D. he will sail for Japan, and a job at the National Inst. of Genetics. He says he will be replaced here next fall by one of his friends.

Joan Kazalski is finishing up a study of the inheritance of DDT resistance in resistant flies for her M.S. degree, and also wearing a big diamond that promises a new status and title this June.

Three new arrivals have begun playing with complicated breeding schemes, in the hope of getting uncomplicated results:

Larry Friedman (ostensibly a Zoologist) came here from Mickey's laboratory at Northwestern.

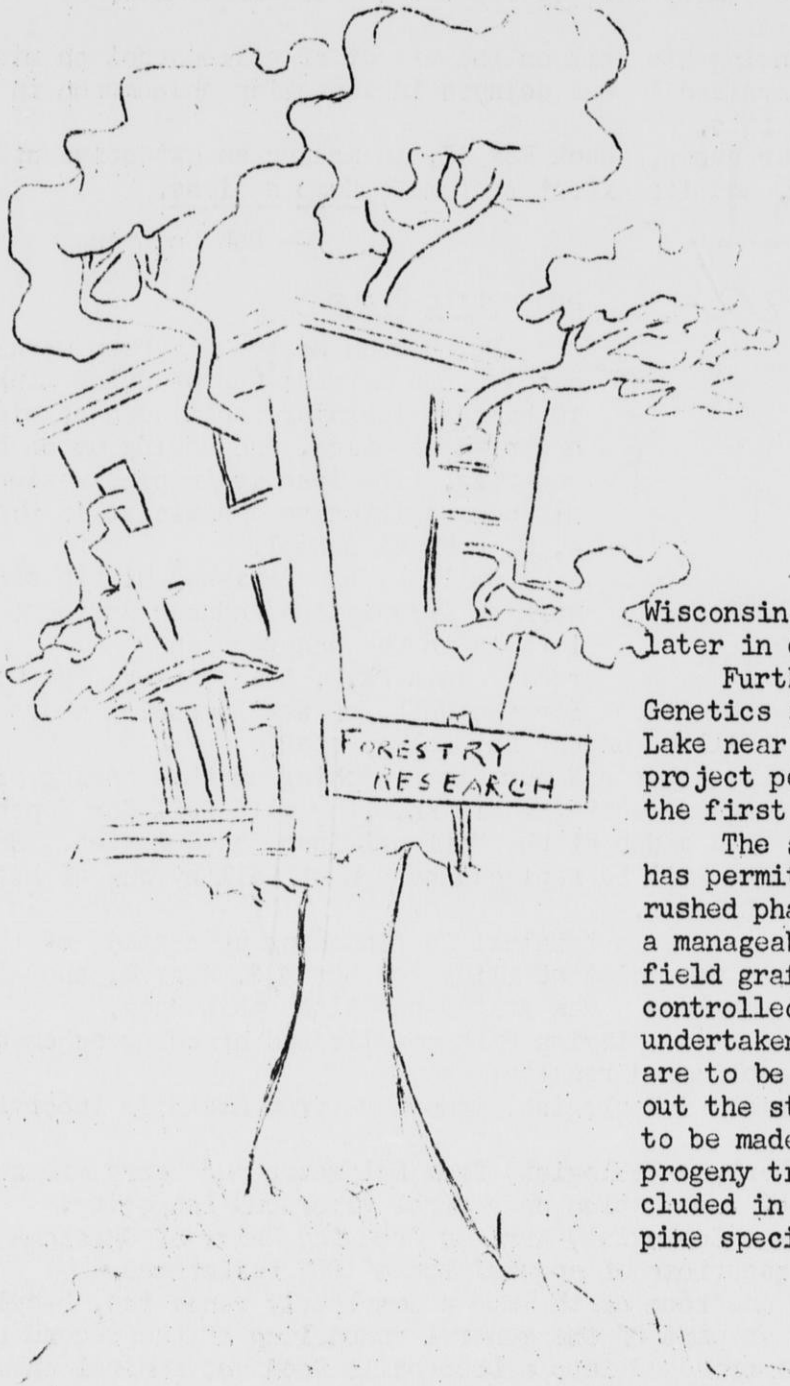
Elaine Johansen (similarly a Zoologist) from Kalamazoo and Larry are setting up a study of the effects of irradiation on general vigor and longevity.

Jack Bennett (formerly a Zoologist) arrived from the Univ. of Oklahoma and is studying some esoteric questions of acquisition of DDT resistance.

The fly lab has moved one room north into a completely renovated, 8-cylinder, chrome plated new location as part of the general remodeling of the second floor. The former fly lab has metamorphosed into a Drosophila food and general chemistry laboratory.

Dr. J. F. Crow, as usual, has been trying to keep track of all this and do his own work too. He has been flying about the country with a committee of geneticists working under the auspices of the National Academy of Sciences trying to obtain a reasonable estimate of the effects of high-energy irradiation on humans. In addition a goodly collection of guest lectures, conferences, etc. has kept him occupied in his spare (sic) time from fly work and other interests.

-- Jack Bennett



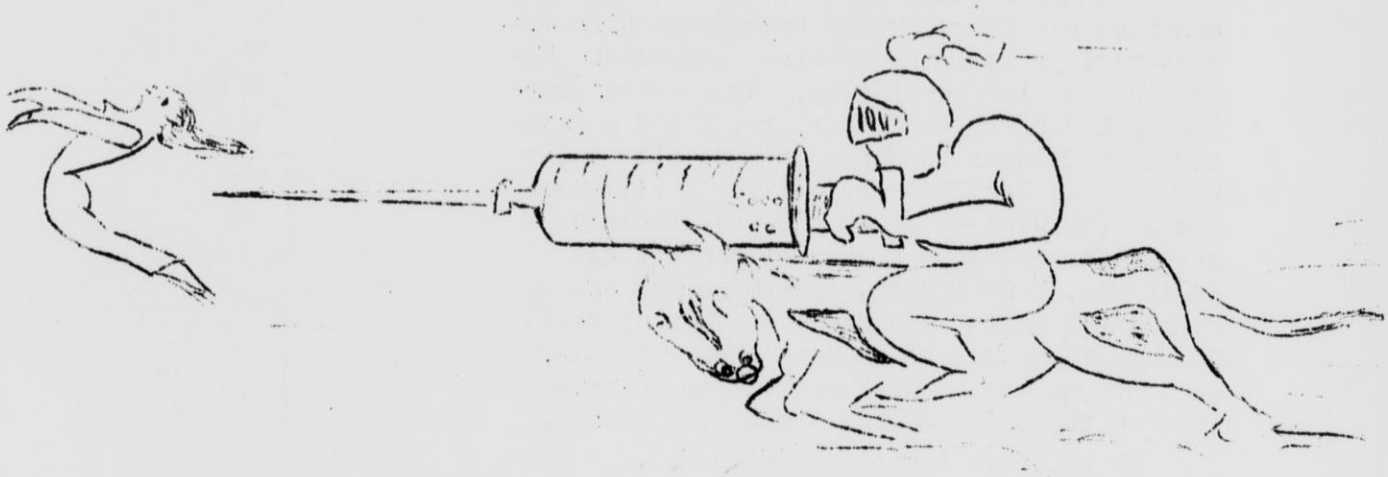
Forest Tree Breeding

All phases of research in forest tree improvement are continuing. During the last week in February Bob Hitt presented a paper on pine improvement at the winter meeting of the Wisconsin-Michigan section of the Society of American Foresters at Escanaba, Michigan. Following the meeting Bob and Dick Hartig drove to Ontario to collect red and jack pine scions for propagation here. A good sample of these species from areas over their natural range is being built up in Wisconsin. This material will be used later in controlled pollination work.

Further development of the Forest Genetics Summer Research Center on Plum Lake near Boulder Junction will enable project personnel to use the station for the first time this coming summer.

The somewhat late spring this year has permitted many otherwise greatly rushed phases of our work to progress at a manageable pace. Following spring field grafting throughout the state, the controlled pollination program has been undertaken. Various crosses and selfs are to be made on trees scattered throughout the state. Preliminary readings are to be made during the summer on the first progeny trials established here. Included in the trials are a number of pine species.

-- Bob Hitt



Immunogenetics

If translocation was the best description last year, mutation is perhaps the word for the blood lab this year. July brought a lethal mutation, with an expressivity of approximately 90%, in the form of the barn fire. Reconstruction of the animal colonies has been partially successful in the west end of the Stock Pavilion.

We have had three deletions: Dr. Wilmer Miller took up his new position with the University of California at Davis as postulated in last year's Genotype. Connally Briles received his Ph.D. in October and is now at North Louisiana Hill Farm Experimental Station. We haven't received any word on his activities so we will just hope that no news is good news. Carol Popelka left in September to train as a medical technologist. We heard later, however, that she gave this up and is at home in Beloit. By late September this deletion became a Jean (Leik) substitution. Jean received her M.A., with a major in Genetics, from the Univ. of Oregon, and has the job of Research Asst. well under control. In fact, she has our disorder in such a state of order that we find it impossible to find anything.

Dr. Bill Stone still shows a great deal of genetic variation: cattle blood typing, studies of cattle J, immunochemical studies with monkeys in association with Dr. Link's group in Biochemistry. Don Shaw suffered a mild crossover as a result of the fire, and is now working on cattle embryos. In addition, Don and Dr. Stone, with the assistance of Jean Leik, are studying antibody titre fluctuation in humans. (Thanks, donors!) Jash Patel, somewhat the worse for wear and tear, successfully completed his Master's work on the J system of cattle; as yet he has not selected a problem for his Ph.D. research.

Dr. Henry Gershowitz plans to continue his work here on blood groups in hogs, but is looking for a mutagen which will translocate him to a good position elsewhere. (Any suggestions?) Dr. Scheinberg had no comments for this article, but rumor has it that he has a job offer at Oak Ridge pending a security clearance. Jack Stimpfling, who was also silent when questioned, is still pursuing his work with doves and may soon be singing the thesis blues. Martin Bacharach received his Ph.D. in August and is now Project Associate in the Poultry Department. He joins Henry in the request of a mutagen.

-- Don Shaw

Microbial Genetics

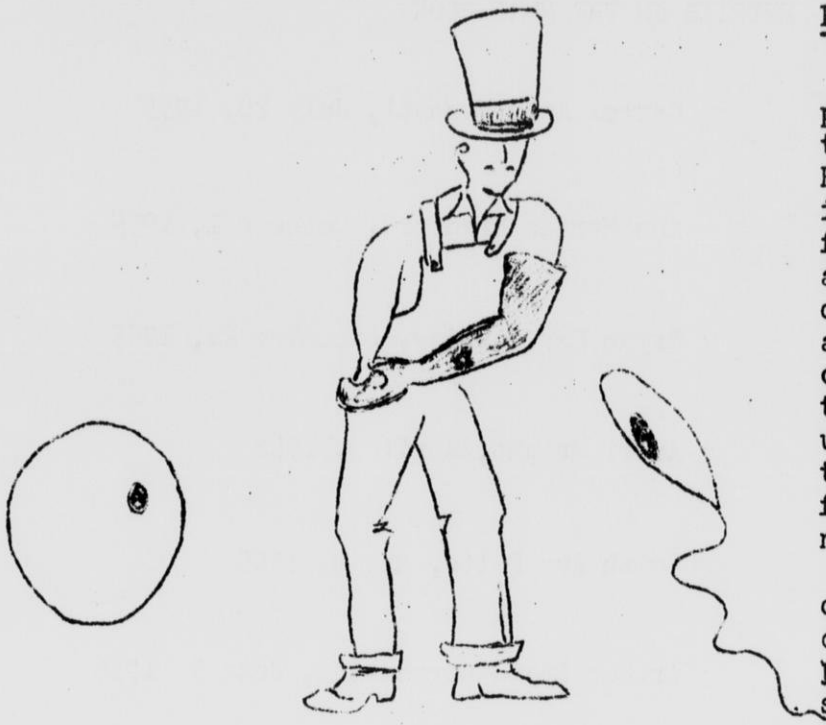
The major event of the year for microbial genetics was the abortive transduction to the Bacteriology Building of nine exogenotes comprising the lab population. Syngenosis (see Morse, Lederberg and Lederberg, 1956) persisted from October to March when we all gladly returned to new, modern, ceilinged (!) quarters. (We wish to thank the bacteriology people for making our stay as comfortable as it was.) Obviously, something was accomplished while we were away (Is that why?) because there was no letdown upon returning in contrast to the high spirits in which we greeted the brick palace across the street.

Changes are taking place in M.G. Larry Morse will be leaving in July for Denver where he will be Asst. Prof. of Biophysics, Webb Building, Univ. of Colorado Medical School. Gaylen Bradley, Streptomyces geneticist, has resigned his position as Head of Eggs to take an appointment as Instructor in the Department of Bacteriology and Immunology at the Univ. of Minnesota. The new Egg Head is Alan Richter, new student from Cornell University, working on compatibility in E. coli. Connie Thomas is also a new arrival from Cornell; she is studying Salmonella antigens. Dot Gosting, Josh's technician, will be switching jobs this summer to become assistant to Perry Wilson, Editor of Bact. Reviews, in the Bacteriology Building. And then there were the two most awaited arrivals, Christopher Wright who did not and Ruth Jessica Rotman who did. Just the same, we welcomed Astri Wright, April 3rd, daughter of Bob and Mari. Bob, yeast geneticist and president of the Linkage Group, passed his prelims in January. Ruth Zloten, who is working with Staphylococcus, will be studying this summer at Pacific Grove, California. Ruth and Jerry Korman, a graduate student in social science, are planning to be married June 22. Tetsuo Iino is taking the phage course at Cold Spring Harbor. If anyone is wondering what the fan is doing on top of the 30-degree incubator behind which Iino works, concealed from view, he should note that the Salmonella are not in phase when the fan is shut. Several new people will be coming into the lab next fall. Newt Morton, erstwhile theoretical geneticist, is working with us part time. Drs. Frits and Ida Orskov of the State Serum Inst. at Copenhagen will be visiting for a year. Another guest will be Dr. Wolfram Heumann of the Botanical Inst. at Braunschweig, Germany. He has been studying star aggregations in Agrobacterium and Rhizobium.

News of alumni: Tom Nelson is back in Madison as Proj. Assoc. in the Botany Department, working on the physiology of blue-green algae. Helen Bernstein is at the Lister Inst. working with Bruce Stocker who was here during the summer of 1952. Stocker was recently married to Jane Beveridge. Aleck Bernstein is at the Enteric Laboratory of the British Public Health Service working on Salmonella phages.

Visitors to the lab this year included K. C. Atwood, Norton Zinder, R. D. Hotchkiss, A. Novick and W. Braun.

-- Alan Richter



Physiology of Reproduction

The repeat-breeder cow project is continuing thanks to the labors of Charlie Kiddy, Harold Hawk and Bob Loy. Charlie is also doing some work in the field of immuno-sterility, and also devoted some time to the development of a gonadotrophin assay. Harold is investigating certain endocrine relations to the defensive mechanisms of the uterus. Nearly all of Bob's time is taken up with the perfection of a progesterone assay method.

Other individuals spending considerable time doing research on cattle are Don Gooch, N. C. Buch & Darrell Foote; Don & Darrell have been studying hormonal methods of maintaining pregnancy in ovariectomized sheep and heifers. In addition Darrell is studying the association between birth weight of dairy calves and their intra-uterine location. Don is also investigating some of the factors contributing to length of calving intervals in beef cows. Buch is doing similar study in dairy cattle. Buch has also completed a project in which certain factors affecting the freezing ability and survivability of bull semen were studied.

Warren Foote has had the questionable pleasure of handling a major project with sheep in which he studied the effects of heredity and environment (feeding management) on reproduction in sheep. He has also been involved in a study of factors affecting testis temperature in rams and in the development of a gonadotrophin assay. Don Waldorf, Harold Spies and Dwane Zimmerman have been studying the effects of different levels of feeding on embryo survival and growth in swine. Don and Warren also did a study on certain endocrine relationships during the estrual cycle in gilts.

This group is being overrun with Okies; any suggestions for a cure will be appreciated.

-- Don Waldorf

ENTRIES IN THE HERD BOOK

Jack
Katherine — Carrol Anne Bennett, July 28, 1955

Eric
Lyssie — Ann Marian Bradford, October 1, 1955

Pete
Shirley — Bryan Ray Nutting, December 24, 1955

Bob
Mari — Astri Wright, April 3, 1956

Vern
Helene — Edith Ava Felts, May 4, 1955

Henry
Beverly — Arthur David Gershowitz, June 3, 1956

Jim
Trudy — Milo Charles Wiltbank

Clarence
Donna May — Brian Hulet

Charlie
Beverly — Kathleen Mary Kiddy, January 22, 1956

SEX LINKAGE

William Burns and Joan Kazalski
Clarence J. Rohovetz and Bette Schotten

RECENT ADVANCES IN GENETICS

FINALS	PRELIMS	MASTERS
Martin Bacharach	N. C. Buch	Warren Foote
Eric Bradford	Harold Hawk	Cecil Hartung
Bob Brawn	John Lee	Joan Kazalski
Connally Briles	Walt Neville	Charlie Kiddy
N. C. Buch	Jack Stimpfling	Madan Magoon
Harold Hawk	Steve Takats	Jash Patel
Clarence Hulet	Fred Valentine	Fred Rilling
Motoo Kimura	Bob Wright	Roger Short
William Lee	Don Young	Don Waldorf
Jim Wiltbank		Francis Wolfe
Don Wood		

ACQUIRED CHARACTERS

Jack Bennett	M.A.	Washington University	Crow
Larry Friedman	M.A.	Northwestern University	Crow
Elaine Johansen	B.S.	Kalamazoo College	Crow
Joan Kazalski	B.A.	Rutgers University	Crow
Alan Richter	B.S.	Cornell University	Lederberg
Connie Thomas	B.S.	Cornell University	Lederberg
Jerry Cooksey	B.S.	Washington State College	Chapman
Wayne Robison	B.S.	Oklahoma A & M	Chapman
Curtis Bailey	M.S.	Texas A & M	Chapman
Madan Magoon	M.Sc.	Punjab University, India	Cooper-Hougas
S.V.S. Shastry	B.Sc.	Andhra University, India	Smith-Cooper
Irmgard Messmer		Univ. of Freiburg, Germany	Brink
S. Kedharnath	M.A.,M.Sc.	Madras University, India	Brink
Don Gooch	B.S.	Oklahoma A & M	Casida
Bob Loy	B.S.	Arizona State College	Casida
Harold Spies	B.S.	Oklahoma A & M	Casida
Dwane Zimmerman	B.S.	Oklahoma A & M	Casida
Darrell Foote	B.S.	Utah State College	Casida

TRANSLOCATIONS

Newton Morton	University of Wisconsin Medical School
Motoo Kimura	National Inst. of Genetics, Mishima
William Lee	University of New Hampshire
Larry Morse	University of Colorado
Gaylen Bradley	University of Minnesota
Eric Bradford	Macdonald College, Quebec
Francis Wolfe	U. S. Army
Howard Clark	Harrow Experimental Farm, Ontario
Boris Rotman	University of Chile
Doug Johansen	Diamond-Black Leaf Co., Montana
Wilmer Miller	University of California, Davis
Connally Briles	North Louisiana Hill Farm Exper. Station, Homer, La.
Jim Wiltbank	U.S.D.A., Beltsville, Md.
Ahmed El Shiekh	Faculty of Agric., Heliopolis University, Egypt
Clarence Hulet	Idaho State College, Pocatello, Idaho
Fred Rilling	Conrad, Montana
Roger Short	Weybridge, Surrey, England

EPILOGUE

We wish to extend our thanks to the people who wrote research reports, and to Bob Leik and Naomi Cohen for the illustrations. Also, for the stencilling and mailing, our thanks to the secretaries: Bette Rohovetz, Marie Vertein and Nancy Neis.