ANNUAL REPORT OF THE
BEAN IMPROVEMENT
COOPERATIVE

A VOLUNTARY AND INFORMAL ORGANIZATION
TO EFFECT THE EXCHANGE OF INFORMATION AND MATERIALS
REPORT OF THE
BEAN IMPROVEMENT COOPERATIVE

No. 13
March 1970

Coordinating Committee: M. E. Anderson
L. L. Dean
I. L. Jorgensen
L. A. Polzak
W. J. Zaumeyer
D. P. Coyne, Chairman

Please address correspondence about BIC membership and BIC annual reports to:
D. P. Coyne, Department of Horticulture and Forestry, University of Nebraska,
Lincoln, Nebraska 68503

Page
Thirteenth Annual Report of the Bean Improvement Cooperative. .......... 2
News Notes and Committee Reports ........................................ 4
Breeding beans tolerant to several bacterial diseases
by W. A. Frazier, Oregon State University, Corvallis, Oregon ....... 12
Control of bacterial diseases of beans
by J. J. Natti, Cornell University, Geneva, New York ........... 20
Research Notes .......................................................... 27
Stocks for Exchange ................................................... 79
Stocks Desired .......................................................... 79
List of Members ......................................................... 80
Bibliography ............................................................ 92
Financial Statement ..................................................... 112

Note: None of the information contained in the research notes of this report
may be used in publications without the consent of the respective
authors. Please correspond with the authors concerned.
THIRTEENTH ANNUAL REPORT OF THE BEAN IMPROVEMENT COOPERATIVE

I wish to thank all of you who submitted research notes and other useful information for inclusion in the 1970 report. I think this is a very useful report for all of us concerned with bean improvement and with problems of the bean industry. I think the report would be even more useful if more members would contribute research notes, ideas, and useful information for the report. The success and usefulness of the report depends on each member and the information he submits for publication each year. Please take time to share your ideas and progress in research with your fellow BIC members.

I wish to acknowledge the excellent assistance of Dr. D. W. Burke, USDA, ARS, Prosser, Washington, for compiling the extensive bibliography in the areas of plant pathology and entomology, and Dr. Harry Mack, Department of Horticulture, Oregon State University, for compiling the bibliography in the area of culture, physiology and quality of beans. I am also grateful to Dr. Matt Silbernagel for sending detailed information concerning the BIC Meritorious awards that were presented to four outstanding members; Dr. Melvin E. Anderson, Rogers Brothers Company; Dr. William A. Frazier, Oregon State University; Dr. Walter H. Pierce, Asgrow Seed Company; and Dr. William J. Zaumeyer, USDA, at the BIC meeting in Seattle on January 7, 1970. This information is included in the news section of the report.

On behalf of the BIC Coordinating Committee, I also wish to thank and congratulate Matt Silbernagel, Program Chairman, and the program committee members J. D. Atkin, J. P. Baggett, W. L. Hollis, T. P. Kiely, and L. D. MacKellar, for the productive, informative, and stimulating program they arranged for the BIC meeting in Seattle, Washington, last January 7, 1970.
I also wish to thank Miss Sandra Skibinski, Mrs. Betty Ilkenhons, and Mrs. Jean Arp for typing the annual report.

During the coming year I would appreciate receiving suggestions from members on ways to improve the usefulness of the BIC report. Your advice is needed and appreciated.

For the Coordinating Committee

Dermot P. Coyne
Four Members of Bean Improvement Cooperative Received Meritorious Awards in January 1970

Four long time members of the Bean Improvement Cooperative were honored at a special awards luncheon on January 7, 1970 by being presented meritorious service awards in recognition of their outstanding scientific accomplishments relating to the improvement of beans, Phaseolus vulgaris.

The four were: Dr. Melvin E. Anderson, Plant Pathologist for Rogers Brothers Seed Company, Twin Falls, Idaho; Dr. William A. Frazier, Horticulturist, Oregon State University, Corvallis, Oregon; Dr. Walter H. Pierce, Plant Pathologist, Asgrow Seed Company, Twin Falls, Idaho; and Dr. William J. Zaumeyer, Plant Pathologist, U.S.D.A., Beltsville, Maryland.

The BIC recently presented a one-day program at the Washington Plaza Hotel, Seattle, Washington, at which scientific papers relating to various aspects of bean improvement were presented to an audience of about 125. The group meets every other year, in conjunction with a major processing convention, alternately on the east coast, midwest, and west coast. They met this year in conjunction with the Northwest Food Processors Association's Annual Convention, which met in Seattle on January 5 and 6. The BIC met on January 7, and they were followed by their sister organization, The National Pea Improvement Association, which also met at the Washington Plaza Hotel, January 8.

This year's meetings, the theme of which was Seed Quality Improvement, was chairmanship by Dr. Matt Silbernagel of the U.S. Department of Agriculture, located at the Irrigated Agriculture Research and Extension Center, Prosser, Washington. The noontime awards luncheon was chairmanship by Dr. Dermot P. Coyne, coordinating chairman for the BIC, who works for the University of Nebraska, Lincoln, Nebraska.

Dr. Anderson was introduced by the Vice-President of Rogers Brothers Company, Mr. Harvey W. Mauth, who praised Dr. Anderson not only for his scientific accomplishments as a snap bean and pea breeder, of world renown, but also for his personal achievements as a family man, a life long Boy Scout leader, and a friend of all who know him. Upon graduation from the University of Wisconsin, in 1933, Dr. Anderson joined Rogers Brothers Company, and for two years remained in Wisconsin to work on the project of developing Fusarium wilt resistance in peas. In 1935 he moved to Idaho and at that time started his career as a bean breeder. In his 35 years of bean breeding, Dr. Anderson has developed more than 40 new and distinctive bean varieties that have entered commercial channels of distribution. Some of these varieties have, for periods of five to ten years, enjoyed several million pounds of annual sales, and at least a dozen of them have for years passed the coveted million pound mark. Primary emphasis has been on the breeding of beans for the food processing industry.
Included among the more well-known bean varieties developed by Dr. Anderson in his career are: Earligreen, Earliwax, Puregold Wax, Slendergreen, Slenderwhite, Slimgreen, Sensation Refugee 1066, Sensation Refugee 1071, Supergreen, Improved Tendergreen, Tendergreen 32304, Tenderwhite, Tempo, and Wadex. There have been many years when varieties developed by Dr. Anderson have accounted for nearly 50% of the volume of snap bean seed used by the entire U. S. Processing industry.

Dr. Frazier was introduced by Dr. Harry Mack of the Oregon State University, Corvallis, Oregon, who is one of Dr. Frazier's graduate students. Dr. Frazier was described in a recent article in the American Vegetable Grower as "vegetable breeding's modern Merlin", because his accomplishments in tomato and snap bean breeding seem close to wizardry. Dr. Frazier has been a leading proponent for the past 20 years of intensive efforts to dwarf the Pole Blue Lake bean to bush size, so that it may be mechanically harvested with today's modern equipment. Plant breeders throughout the country, as well as many foreign nations, have been quick to recognize the superb Blue Lake qualities that Dr. Frazier has transferred to a bush Blue Lake bean, such as his recent O.S.U. 68-58. Breeding material from Dr. Frazier's program is being used by virtually every bean breeder in the country.

Dr. Frazier was also responsible for the organization and development of the Bean Improvement Cooperative, of which he was chairman and annual reports editor for a period of some ten years. This organization is recognized as a model of efficiency and effectiveness in achieving an exchange of scientific and technical information, as well as breeding material among all members of the scientific and commercial community associated with beans.

Dr. Frazier's scientific accomplishments were recognized on a National scale in 1968, when he was elected and served as President of the American Society for Horticultural Science. In his capacity as President of the ASHS, he instituted sweeping reforms that will benefit professional, commercial, and recreational horticulture for many years to come. Dr. Frazier was also cited by the BIC awards committee for his accomplishments as an outstanding teacher in the Horticultural sciences. Dr. Frazier has, in addition to teaching, been an inspiring advisor to his many graduate students, one of whom recently pioneered basic award winning studies on the biochemical genetic basis of flavors in beans.

Dr. Pierce was introduced by Dr. Carroll Briggs of the Asgrow Research Center, located near Twin Falls, Idaho. Dr. Pierce was director of the Asgrow Research Center from its inception in 1952 until his retirement in 1966. A position which requires not only outstanding research ability, but considerable administrative skill.

Dr. Pierce started at the University of Idaho as a Plant Pathologist in 1926. In 1930 he went to the University of Wisconsin where he pioneered some classic work on the identification of common bean mosaic virus, which at that time was one of the industries major problems. He returned to Idaho in 1933 and helped develop some of the first common mosaic resistant varieties, which even today, nearly 40 years later, still have not lost their resistance. He joined the Asgrow Seed Company in 1937 as a plant
breeder and pathologist with responsibility for their pea and bean breeding programs. In the 30 years of his employment at Asgrow, Dr. Pierce achieved recognition as one of the world's truly great bean breeders. He is credited with developing about 30 bean varieties, many of them unusually successful. Some of the especially noteworthy of these include: Harvester, Bush Blue Lake, Blue Lake 274, Early Harvest and Astro.

Dr. Pierce's success as a bean breeder was attributed to his talent for organization, a thorough knowledge of the improvements needed and a good eye for recognition of those characteristics in the field.

Dr. Zaumeyer, who recently retired from the U. S. Department of Agriculture, after more than 41 years of public service, was introduced by Dr. D. W. Burke, a dry bean breeder for the U. S. Department of Agriculture and employee of Dr. Zaumeyer for some 16 years.

Dr. Zaumeyer is respected internationally as the foremost authority on bean diseases. He pioneered work on bacterial diseases, bean rust, inheritance of disease resistance and the use of antibiotics for disease control. He and associates have identified and described most of the known virus diseases of beans. Whenever new problems arise, or new research is initiated on beans, peas or other edible legumes, Dr. Zaumeyer's advice is sought. In recognition of his outstanding record as a Plant Pathologist, he was elected President and later a Fellow of the American Phytopathological Society. He is also eminent as a bean breeder. Since 1930 he and the project, which he has headed for 24 years, have released nine snap beans, 15 dry beans, and 10 lima bean varieties, each with improvements in disease resistance and type.

Among the famous and still highly popular varieties developed by Dr. Zaumeyer and others are: Tendercrop, and Great Northern 1140. Tendercrop established new standards in the bean processing industry and was a key factor in the rapid success of mechanical harvesting of snap beans. Most new varieties used in the freezing and canning trade now carry Tendercrop genes to improve the plant habit.

His activities as a scientist and research leader have been inspired by close acquaintance with the people, mechanics, economics and needs of the bean industry. He is esteemed not only for his work and wisdom, but for his enthusiasm, broad interests, keen wit and his kind consideration for all.

Note: This information concerning the BIC awards was assembled by Dr. Matt Silbernagel, USDA, Program Chairman for 1970 BIC meeting.

BIC Awards Committee for 1970: I. L. Jorgensen
M. J. Silbernagel
D. P. Coyne, Chairman

Expression of Thanks for Travel Fund:
The Awards Committee wishes to express their appreciation to many seed and processing companies who provided generous contributions for a travel fund for Dr. Zaumeyer to attend the Bean Improvement Cooperative Awards banquet at Seattle on January 7, 1970.
High Honors Were Also Received By Other BIC Members During The Past Year:

Dr. W.A. Frazier, Department of Horticulture, Oregon State University, Corvallis, Oregon, was President of the American Society for Horticultural Science during 1968-1969. He presented an outstanding thought provoking presidential address entitled "Horticulture's Issues in Education, Science, Communication, Philosophy, Politics, and Human Welfare" at the Society's annual meeting at Washington State University, Pullman, Washington, August 1969. This address was later published in Hort. Science, Vol. 4, No. 4, 276-284, 1969.

Dr. Albert P. Lorz, Horticulturist, University of Florida, Gainesville, was elected a fellow of the American Society for Horticultural Science during the annual meeting of Society, Washington State University, Pullman, Washington, August 21, 1969. Dr. Lorz is noted for his genetic and breeding work with beans. He has also been involved with research on escarole, tomatoes, and watermelons.

Dr. Hamdy M. Eisa and Dr. Henry M. Munger, Cornell University, Ithaca, New York, received the American Society for Horticultural Science "Asgrow Award" for the best paper on genetic and biological factors affecting production and handling of vegetable crops (Donor: Asgrow Seed Company, Orange, Connecticut) for their paper in the Proc. Amer. Soc. Hort. Sci., Vol. 92, entitled "Male Sterility in Cucurbita pepo."

The late Lucien Laferriere, University of Idaho Bean Research Laboratory, Twin Falls, who was the graduate student, and Warren H. Gabetman, University of Wisconsin, who was the major professor received the American Society for Horticultural Science "The Marion W. Meadows Award" for outstanding graduate student research in vegetable crops (Donor: Marion W. Meadows Memorial Award Committee, Ithaca, New York) for their paper in Proc. Amer. Soc. Hort. Sci., Vol. 93, entitled "Inheritance of Color, Total Carotenoids, Alpha-Carotene, and Beta-Carotene in Carrots, Daucus carota L."

Retirement - Dr. William J. Zaumeyer

Dr. W. J. (Bill) Zaumeyer, Investigations Leader for the Bean and Pea Investigations team (Vegetables and Ornamentals Research Branch, Crops Research Division, Agricultural Research Service, United States Department of Agriculture) retired on October 31, 1969, after more than 41 years of public service as a bean pathologist, breeder and research administrator. The Bean Improvement Cooperative was the most recent among many, who have paid public tribute to this most outstanding man. (See related article, this report, on BIC Meritorious Service Award presentations).

A retirement party held in December 1969, at Beltsville, Maryland, was attended by a large number of Bill's friends who presented him with a volume of testimonial letters, and a camera.

Bill and his wife plan to spend about 6 months in Ireland (April to October 1970). He has received a Fulbright grant to work with Dr. Edward Ryan on diseases of beans and peas, at the Kinsealy Agricultural Institute,
Dublin. He will share an office in the Department of Plant Pathology, with Dr. L. D. Leach (Plant Pathologist, University of California, Davis).

He intends to maintain his residence at 3804 Thornapple Drive, Chevy Chase, Maryland 20015, where his friends may reach him after his return from abroad.

While he has retired from his official duties with the U.S.D.A., he hopes to be able to maintain occasional contact with the bean world as a private, special consultant.

REPORT OF THE BEAN GERM PLASM COMMITTEE

16 January 1970

A. No request for use of gene symbols was received.

B. Membership new:

Dr. Leland W. Hudson
USDA, ARS Room 59
Johnson Hall
Pullman, Washington 99164

C. Replacement for Dr. F. L. Smith

Dr. C. L. Tucker
Agronomy Department
University of California
Davis, California 95616

D. Chairmanship

Dr. M. H. Dickson will take over the Chairmanship of this committee from the date of issue of this report.

Attention is called to BIC members to submit gene symbols to the Chairman for approval so that duplication can be avoided.

L. H. Camacho
S. Dana
M. H. Dickson
D. P. Coyne
C. L. Tucker
D. H. Wallace
S. Honma, Chairman

NOTE TO MEMBERS OF W96 AND OTHER BEAN BREEDERS INTERESTED IN HALO BLIGHT TOLERANCE

J. J. Natti, and M. H. Dickson

The W96 will meet in Geneva, New York in August and we would like to invite anyone to send bean lines for comparative testing and evaluation for Halo blight tolerance.
We would like enough seed for two 20 foot rows or less, if necessary. All lines will be inoculated with a homogenate of Halo blight races 1 and 2. You can identify your lines by variety or your own code. The plot will be available for observation at time of W96 and will then be discarded, no selections or samples being saved. Please submit samples not later than May 15 to: M. H. Dickson, Dept. of Vegetable Crops, New York State Agricultural Experiment Station, Geneva, New York 14456

MEETINGS

Next Biennial BIC Meeting

Fred Bliss, Dept. of Horticulture, Univ. of Wisconsin
Program Chairman for the next meeting

The Bean Improvement Cooperative members attending the January, 1970, meeting in Seattle, chose to have the next meeting of the BIC in Milwaukee, Wisconsin, in 1971. The meeting will be held at the Sheraton-Schroeder Hotel in conjunction with the Wisconsin Canners and Freezers Association Meeting which is scheduled for November 10-12. The exact date of the BIC Meeting is still to be set. Several suggestions regarding the format and scheduling of the meeting have been received. Any further suggestions and recommendations concerning the program should be sent to Program Chairman, Fred Bliss or other members of the Program Committee: L. A. Polzak, Carroll Briggs, S. Honma, A. P. Sprague, C. Lamborn.

Annual Meetings of the PCCMCA

A. M. Pinchinat

BIC members who wish to attend the PCCMCA annual meetings in Central America (See BIC 12:5, 1969) or to receive the proceedings of each meeting should contact:

Ing. Agr. Heleodoro Miranda
Coordinador PCCMCA/ Bean Section
IICA, Apartado 1815
Guatemala City, Guatemala

The 1970 meeting was held in Antigua, Guatemala, January 25-30. The papers presented at the sessions covered the general areas of economics, biochemistry, genetics, phytopathology, entomology, soils physics and fertility, and national and cooperative yield tests.

Pea Growing Research Organisation, England

A. J. Gane, Director of Research

The Pea Growing Research Organisation (P.G.R.O.) is marking its Silver Jubilee by holding six Regional Symposia, under the Presidency of the Rt. Hon. the Lord De Ramsey, in Peterborough, Colchester, Norwich and Lincoln. The Symposium on snap beans is to be held in Peterborough on the 8th April, 1970, when seven papers will be presented by the Director and senior staff.
of P.G.R.O., and three speakers from elsewhere. Details are available on request and any overseas visitors will be welcome.

Those visiting the U.K. are welcome to call at the P.G.R.O. Research Station, Thornhaugh, Peterborough.

GRANTS

**USDA Legume Protein Grant to M.S.U.**

- M. J. Silbernagel, USDA, Prosser, Washington

Dr. R. J. Evans of Michigan State University, East Lansing, will conduct studies relating to the improvement of protein content and quality in beans, peas and lentils. Specifically he will seek improved rapid screening techniques for the most limiting essential amino acids, by chemical as well as microbiological assay procedures. His findings will be used to supplement current USDA protein improvement programs by ARS-Bean and Pea Investigations workers, Dr. M. J. Silbernagel (Beans - Prosser, Washington) and Dr. V. E. Wilson (Peas and lentils - Pullman, Washington).

ARS will provide $32,000 in support of the 2-year study and will be represented by Dr. W. J. Zaumeyer, Plant Pathologist, Bean & Pea Investigations Leader, Beltsville, Maryland.

**Grant from Ministry of Overseas Development of Great Britain**

- Dr. A. M. Evans, Dept. of Agricultural Science and Applied Biology, University of Cambridge, England

The Ministry of Overseas Development of Great Britain has made research grants of £82, 820 pounds to the Department of Agricultural Science and Applied Biology, University of Cambridge, U.K. and the Department of Crop Science, Makerere University College, Kampala, Uganda. The research grants are for three years to develop work already in progress on the genetic improvement of grain legumes, particularly *Phaseolus vulgaris* and to collaborate in improving protein quality and nutritive value in potential bean varieties.

NEW PROJECTS

Dr. J. R. Steadman (Ph.D. Univ. of Wisconsin, 1969), recently appointed assistant professor of plant pathology at the University of Nebraska, will be initiating studies on the epidemiology of vegetable diseases. A major phase of this research program will involve a study of the dry bean root rot problem in western Nebraska. It is hoped that this investigation will lead to effective control measures for the bean root rot.

REQUEST FOR REPRINTS

Mr. Colin Leakey, Faculty of Agriculture, Makerere University College, Uganda is preparing a review article for the Commonwealth Agricultural
Bureau on *Phaseolus vulgaris* beans grown for dry seed. He would be very glad to receive reprints of any publications from any bean workers relating to developments during the last ten years in this field as he is hampered in his task by lack of adequate library facilities.

**VREEKEN SEED, DORDRECHT, HOLLAND**

The breeding program of Vreeken Seed, Dordrecht, Holland, includes among other things: (green bush beans)

a. improvement for the possibility of mechanical harvesting;
b. simultaneous ripening of the pods with the preservation of quality for a long period;
c. simultaneous resistance (or tolerance) to virus, fungus, and bacterial diseases.
d. A start has been made in testing for "root diseases". Unfortunately we lack sufficient knowledge in this matter.

**NECROLOGY**

**Dr. Herbert Lamprecht.**

Recently we received the sad news of the death of Dr. Herbert Lamprecht, a distinguished geneticist who did a vast amount of research with peas and beans.

**Dr. Greta Priestley.**

Dr. North, Director of the Scottish Horticultural Research Institute, Dundee, Scotland wrote to me "I very much regret having to tell you that Miss Greta Priestley died on December 5, 1969 after a prolonged illness. She was a popular member of the staff and a determined worker who paid meticulous attention to detail. We miss her as a friend and a competent colleague." Miss Priestley was engaged in breeding early maturing green beans adapted to the marginal environment of Scotland for beans.
STOCKS AVAILABLE FOR EXCHANGE

Colin Leakey
Faculty of Agriculture
Makerere University College
Uganda

Small quantities of seed will be made available to interested breeders, particularly in low latitudes, of newly selected Pinto type varieties showing promise in East Africa in return for information on their performance elsewhere.

W. Vreeken,
Vreeken's Zaden,
Dordrecht, Holland

We are gladly willing to exchange F2 - F5 lines of several crosses. There are several lines with high resistance and more suitable for other markets. When persons like to receive samples, they should write to us and give us a short description of their problems and of the samples they can offer for exchange.

STOCKS DESIRED

J. W. Bradbeer
Botany Department
King's College
68 Half Moon Lane
England

Seed which yields appreciable numbers of plants with obvious plastid defects (e.g. pigment deficiency) or possible plastid defects (slow growth, premature death) is required for studies on chloroplast development.

W. Vreeken
Vreeken's Zaden
Dordrecht, Holland

We are always interested in new developments in interspecific hybridization between Phaseolus species and new possibilities for improvement.
Names of members are maintained in this list for two years, even though dues have not been paid. Annual reports are sent to members only when current dues are paid.

Adams, M., Curtice-Burns, Inc., 315 Alexander Street, P. O. Box 681, Rochester, New York 14602

Agenbroad, O. D., Green Giant Co., Dayton, Washington 99328

Alvarez, Luna, Eduardo, Director Technico, Kmoz Carretera A Navolato, Apartado 229, Simientes Mexicanas, S. A., Culiacan, Sinaloa, Mexico

Anderson, Axel L., Department of Botany and Plant Pathology, Michigan State University, East Lansing, Michigan 48823

Anderson, M. E., Rogers Bros. Seed Co., Box 2188, Twin Falls, Idaho 83301

Andeweg, J. M., Breeding Station, Royal Sluis, Wageningen, 31, Afweg, Wageningen, Holland

Asmer Seeds Ltd., Attention: Dr. Holland, P. O. Box No. 33, 33 Moor Street, Ormskirk, Lawcs, England

Atkin, John D., Corneli Seed Co., Hollister, California 95023

Baggett, J. R., Oregon State College University, Department of Horticulture Corvallis, Oregon 97331

Barrios, Ing. Agr. Alfredo, Centro de Investigaciones Agronomicas, Seccion De Fitotecnia, Maracay, Edo, Aragua, Venezuela

Bartz, H. M., Mitchell, Nebraska 69357

Bliss, F. A., Department of Horticulture, University of Wisconsin, Madison, Wisconsin 53715

Boucard, Gerard, Societe Anonyme Darbouco, 87, Rue Du Quai, P. O. Box 4, Port - Au - Prince, Haiti

Bouwkamp, John C., Department of Horticulture, University of Maryland, College Park, Maryland 20742

Bradbeer, J. W., Botany Department, University of London King's College, School of Biological Sciences, 68 Half Moon Lane, London, S. E. 24, England

Brewer, John V., 2625 No. Union Street, Appleton, Wisconsin 54914

Briggs, Carroll G., Research Department, Asgrow Seed Company, P. O. Box 235, Twin Falls, Idaho 83301
Brooks, Jim, Razor Back Farms, Inc., Springdale, Arkansas 72764

Burke, Douglas W., USDA, ARS, Crops Research Division, Irrigated Agriculture Research and Extension Center, Prosser, Washington 99350

Burpee, W. Atlee, III Vice President, W. Atlee Burpee Co., Hunting Park Ave. at 18th Street, Philadelphia, Pennsylvania 19132

Camacho, Luis H., Head, Grain Legumes Program, Instituto Colombiano Agropecuario, Centro Nacional de Investigaciones Agropecuarias, Palmira, Colombia, South America

Campbell, John A., Truck Crops Experiment Station, Crystal Springs, Mississippi 39059

Campbell's Soups Ltd., Kings Lynn, Norfolk, England

Cassidy, J. C., The Agricultural Institute, Horticulture and Forestry Division, Kinsealy, Malahide Road, Dublin 5, Ireland

Chester B. Brown Co., Morrill, Nebraska, 69358

Chung, Jai H., Crop Research Division, DSIR, Lincoln, Christ Church, New Zealand

Clark, G. H., Experimental Farm, Harrow, Ontario, Canada

Colville, Robert B., Del Monte Corporation, P. O. Box 89, Rochelle Illinois 61068

Corneli Seed Company, 101 Chateau Avenue, St. Louis, Missouri 63105

Cosgriff, P. W., Pict Limited, Box 46, P. O., Mt. Waverley, Vic. 3149, Australia

Counter, Ben F., Fort Lupton Canning Co., Fort Lupton, Colorado 80621

Coyne, Dermot P., University of Nebraska, Department of Horticulture & Forestry, Lincoln, Nebraska 68503

Crites-Moscow Growers, Inc., Moscow, Idaho 83843

Crosby, E. A., National Canners Association, 1133 20th Street N. W., Washington D. C. 20036

Curme, John H., Agricultural Research Department, Green Giant Co., Le Sueur, Minnesota 56058

D. Van Der Pleog's, Elite Zaden N. V., Zaadteelt and Zaadhandel N. V., Barendrecht, Holland
Dana, S., Department of Genetics & Plant Breeding, Faculty of Agriculture, University of Kalyani, P. O. Mohanpur, Nadia, West Bengal, India

Davis, David, Department of Horticulture, University of Minnesota, St. Paul, Minnesota 55101

Davison, Arlen D., Western Washington Research & Extension Center, Puyallup, Washington 98371

Deakin, John R., USDA Vegetable Breeding Laboratory, Box 3348, Charleston, South Carolina 29407

Dean, L. L., University of Idaho, Bean Research Laboratory, Box 67, Twin Falls, Idaho 83301

Department of Science Services, Attention: Librarian, Department of Agriculture, Rydalmer, New South Wales 2116, Australia

Dickens, L. E., Department of Plant Pathology, Colorado State University, Fort Collins, Colorado 80521

Dickson, M. H., Agricultural Experiment Station, Department Vegetable Crops, Geneva, New York 14456

Dolan, D. D., Room 220 Sturtevant Hall, Plant Introduction Station, New York Agricultural Experiment Station, Geneva, New York 14456

Drijfhout, E., Institute for Horticultural Plant Breeding, P. O. Box 16, Wageningen, Netherlands

Duarte, R. A., Centro Nal. Invest. Agr., Tulio Ospina, Medellin, Colombia, South America

Echandi, Eddie, Co-leader National Bean Program, North Carolina State University Mission, U. S. Embassy, USAID, Lima, Peru

Eisa, Hamdy, M., University of Arizona, Environmental Research Laboratory, Tucson International Airport, Tucson, Arizona 85706

Emery, G. C., Ferry-Morse Seed Co., San Juan Bautista, California 95045

Ensign, Ronald, University of Idaho, Agricultural Experiment Station, Moscow, Idaho 83844

Evans, Alice, School of Agriculture, University of Cambridge, Downing Street, Cambridge, England

Fenton, Allen, Green Giant Company, Watsonville, California 95076

Frazier, W. A., Oregon State College, Department of Horticulture, Corvallis, Oregon 97331
Gabelman, W. H., Horticulture Department, University of Wisconsin, Madison, Wisconsin 53715

Gamez, Rodrigo, Departamento de Fitopatologia, Universidad de Costa Rica, Ciudad Universitaria, Costa Rica

General Foods Corporation, Birds Eye Division, County House Road, R. D. 3 Albion, New York 14411

Gonzales, J. A., Centro De Investigaciones Agronomicas, Sec De Fitopatologia, Maracay, Venezuela, South America

Gordon Edgell PTY Limited, Head Office Agriculture, P. O. Box 56, Bathurst, 2795, New South Wales, Australia

Green Giant Company, Attention: J. G. Martland, Agricultural Research Department, LeSueur, Minnesota 56058

Guazzelli, Richardo Jose, Estacao Experimental de Uberaba, Caixa Postal 57, Uberaba, Minas Gerais, Brazil

Hagedorn, Don, University of Wisconsin, Department Plant Pathology, Madison, Wisconsin 53706

Haltvick, E. T., University of Wisconsin, Department of Horticulture, Madison 6 Wisconsin 53706

Hartmann, Richard W., Department of Horticulture, 1825 Edmondson Road, University of Hawaii, Honolulu, Hawaii, 96822

Haws, C. L., Del Monte Corporation, California Division, 2600 7th Street, Berkeley, California 94710

Hepler, R. W., Department of Horticulture, Pennsylvania State University, 101 Tyson Building, University Park, Pennsylvania 16802

Hickey, Joseph C., Burnham and Morrill Company, P. O. Box 1871, Portland, Maine, 04104

Hikida, H. R., Campbell Soup Co., Riverton Laboratory, Branch Pike, Riverton, New Jersey 08077

Hollis, William, National Canners Association, 1133 20th Street North West, Washington, D. C. 20036

Honma, Shigemi, Department of Horticulture, Michigan State University, East Lansing, Michigan 48823

Hopp, Richard J., Department of Plant and Soil Science, Hills Building, The University of Vermont, Burlington, Vermont 05401
Hornby, C. A., Division Plant Science, University of British Columbia, Vancouver 8, B. C., Canada

Horticultural Research Institute of Ontario, Department of Agriculture and Food, Vineland Station, Ontario, Canada

Hrab, A. R., FMC Corporation, Niagara Chemical Division, P. O. Box 601, Yakima, Washington, 98901

Hubbeling, Ir. N., Instituut voor Plantenziektenkundig Onderzoek, Wageningen, Netherlands

Hudson, Leland W., USDA; ARS, Room 59, Johnson Hall, Pullman, Washington 99164

Huffington, Jess M., 600 Debaugh Avenue, Towson, Maryland 21204

Hung, Lih, Department of Horticulture, College of Agriculture, National Taiwan University, Taipei, Taiwan, Republic of China

Hunts Canning Co. PTY, Ltd., Attention: Mr. J. A. Skipsey, 53 Mount Street, Perth, Western Australia, Australia

Idaho Bean Commission, State House, Room 206, Boise, Idaho 83702

Institute of Agronomy, Avenida Barao de Itapura, Campinas SP, Brasil, South America

Inter-American Institute of Agricultural Sciences, Library and Documentation Service, Turrialba, Costa Rica

Intermountain Bean Co., Inc., Box 805, Twin Falls, Idaho 83301

Jorgensen, I. L., 1500 Jackson St. N. E., Northrup-King Co., Minneapolis, Minnesota 55413

Jorgensen, M. Blangstrup, Danish State Exp. Hort. Station, Spangsbjerg Kirkevej 41, Esbjerg, Denmark

Joseph Harris Co., Inc., Moreton Farm, Rochester, New York 14624

Kaplan, L., Dept. of Biology, University of Massachusetts, 100 Arlington Street, Boston, Massachusetts 02116

Kelly, J. F., Vice President, Pioneer Research, Campbell Institute for Agricultural Research, Riverton, New Jersey 08077

Kidar, N., Faculty of Agriculture, P. O. Box 12, Rehovot, Israel

Killey, T. P., Charter Seed Company, Box 191, Twin Falls, Idaho 83301

Kinbacher, Edward J., Department of Horticulture and Forestry, University of Nebraska, Lincoln, Nebraska 68503
Kluber, John, FMC Corporation, Niagara Chemical Division, Box 3091, Modesto, California 95353

Kovachick, W., Unilever Research Laboratory, Colworth/Welwyn, Colworth House, Sharnbrook, Bedford, England

Kurzenhauser, J. W., 905 John Adams Parkway, Idaho Falls, Idaho 83401

Kyle, Jack H., Garden City Branch Station, Kansas State University, Garden City, Kansas 67846

Lamborn, Calvin R., Gallatin Valley Seed Co., Box 167, Twin Falls, Idaho 83301

Lawyer, L. O., Del Monte Corporation, 850 Thornton Street, San Leandro, California 94577

Leakey, Colin L. A., Makerere University College, P. O. Box 7062, Kampala, Uganda

LeBaron, Marshall, Branch Expt. Station, Route 1, Kimberly, Idaho 83341

Les Graines Caillard, Ets Caillard Et Quris, 35 A 41 Rue Du Petit-Thouars, 8 A 12, Rue Du Clon, Angers, France

Library Order Division, University of Guelph, Guelph, Ontario, Canada

Librarian, Agricultural Experiment Station, P. O. Box 'H', Rio Piedras, Puerto Rico 00928

Librarian, Canada Department of Agriculture, Research Branch, Research Station, Harrow, Ontario, Canada

Librarian, Department of Agriculture, P. O. Box 2298, USS 0:207, Wellington, New Zealand

Loerke, E., Van Waveren and de Bres GMBH, Rosdorf uber, Gottingen, Germany

Lorz, A. P., University of Florida, Department of Vegetable Crops, Gainesville, Florida 32601

Lunn, Vibe, Institute of Seed Pathology for Developing Countries, 78, Ryvangsalle, Hellerup, Copenhagen, Denmark

Mack, Harry J., Horticulture Department, Oregon State University, Corvallis, Oregon 97331

MacKellar, L. D., P. O. Box 2109, Portland, Oregon 97214

Magoun, John, Seed Research Specialists, P. O. Box 3091, Modesto, California 95353

Markarian, D., Curtice-Burns, Inc., 360 East Avenue, P. O. Box 670, Rochester, New York 14602
Matheson, James A., Agway Inc., Box 336, Prospect, Pennsylvania 16052

Mauth, H. M., Rogers Bros. Seed Co., P. O. Box 2188, Idaho Falls, Idaho 83401

Mayer, L. E., Stokely-Van Camp Inc., 941 North Meridian, Indianapolis, Indiana 46206

McCabe, John, Ferry-Morse Seed Company, P. O. Box 100, Mountain View, California 94040

Meader, E. M., RD 2, Box 515, Rochester, New Hampshire 03867

Merck and Co., Inc., Rahway, New Jersey 07065

Metasol Products, (G. J. Lederer), 200 Wagaraw Road, Hawthorne, New Jersey 07506

Minion, G. D., Del Monte Corporation, Agricultural Res. Department, 85 Thornton Street, San Leandro, California 94577

Ministère de L'Agriculture, Centre National de Recherches Agronomiques Station, Centrale de Genetique et d'Amelioration des plantes, Route de Saint Cyr, 78 - Versailles, France

Miranda, Heleodoro M., IICA, Zona Norte, Apartado 1815, Guatemala, Guatemala

Miyasaka, Shiro, Secao Leguminosas, Instituto Agronomico, Campinas, S. P. Brazil, South America

Moh, Carl C., I.I.C.A., Centro Ensenanza e Investigacion, Turrialba, Costa Rica

Moldenhauer, Robert T., Asgrow Seed Company, Filer, Idaho 83328

Morris John, Rogers Bros. Seed Co., P. O. Box 104, Twin Falls, Idaho 83301

Muehmer, J. K., Department of Agriculture & Food, Western Ontario Agricultural School and Experimental Farm, Ridgetown, Ontario, Canada

Munger, H. M., Department of Plant Breeding & Biometry, Cornell University, Ithaca, New York 14850


Natti, John F., Cornell University, New York Ag. Experiment Station, Geneva, New York 14456

Neergaard, Paul, Danish Government, Institute of Seed Pathology for Developing Countries, 78, Ryvangs Alle, Hellerup, Copenhagen, Denmark

Nishi, Sadao, Hiratsuka Kawagawa, Japan
Nunhems Zaden, N. V. Nunhem, Kasteel Nunhem, Haelen, Holland

Ormrod, Douglas P., Chairman, Department of Horticulture, Ontario Agricultural College, University of Guelph, Guelph, Ontario, Canada

Orozco, Silvio H., Granja Agrícola, Palmira, Colombia, South America

Ortega, Simon Ybarra, Seccion de Fitotechnia, Direccion de Investigacion, Centro de Investigaciones Agronomicas, Ministerio de Agriculture, YCRIA, Republica de Venezuela, South America

Oshima, N., Department of Botany and Plant Pathology, Colorado State University, Fort Collins, Colorado 80521

Ozaki, Henry Y., University of Florida, Institute of Food and Agricultural Sciences, Plantation Field Laboratory, 5305 S. W. 12th Street, Fort Lauderdale, Florida 33314

Parker, M. C., Gallatin Valley Seed Company, Box 144, Twin Falls, Idaho 83301

Pea Growing Research Organization, Ltd., The Research Station, Great North Road, Thornhaugh, Peterborough, England

Pearson, O. H., Department of Plant Breeding & Biometry, Cornell University, Ithaca, New York 14850

Peck, Nathan H., Department Veg. Crops, Agricultural Experiment Station, Geneva, New York 14456

Pierce, W. H., Asgrow Research Center, P. O. Box 793, Twin Falls, Idaho 83301

Piersma, S. F., Del Monte Corporation, Agr. Res. 204, Rochelle, Illinois 61068

Pinchinat, A., Instituto Interamericana de Ciencias, Agrícolas de la oea, Centro de Enseñanza e Investigacion, Turrialba, Costa Rica


Prasad, Krishna, Department of Horticulture, Iowa State University, Ames, Iowa 50010

Provvidenti, R., Department of Plant Pathology, New York State Agricultural Experiment Station, Cornell University, Geneva, New York 14456

Pryke, P. I., 8 Zander Avenue, Nunawading 3131, Victoria, Australia

Quinones, F. A., Department of Agronomy, New Mexico State University, P. O. Box 3Q, Las Cruces, New Mexico 88001

Radebaugh, Garnet, Green Giant Company, Dayton, Washington 99328

Relyea, K. E., Farmers Seed & Nursery Co., Fairbault, Minnesota 55021
Renaud, Juan E., Centro De Investigaciones Agronomicas, Sec de Fitopatologia, Marcay, Venezuela, South America

Robinson, B. F., 1318 Fremont Drive, Twin Falls, Idaho 83301

Robinson, L. R., Jr., FMC Corporation, Niagara Chemical Division, Box 3091, Modesto, California 95355

Royal Sluis, Koninklijke, Zaaizaadbedrijven, Gebroeders Sluis N. V., Enkhuizen, Holland

Ruiz-Fornells, Rafael, Instituto Nacional de Investigaciones Agronomicas, Centro de Cerealicultura, Avada Puerta de Hierro, Madrid 3, Spain

Rumseys Seeds Pty. Ltd., Attention: Mr. Gordon C. Smith, Director, P. O. Box 215, Parramatta, New South Wales 2150, Australia

Rutger, J. Neil, Department Plant Breeding, Cornell University, Ithaca, New York 14850

Saettler, A. W., Department Botany & Plant Pathology, Michigan State University, East Lansing, Michigan 48823

Sanchez, Roland L., 747 Plum Lane, Davis, California 95616

Sandsted, R. F., Department Vegetable Crops, Cornell University, Ithaca, New York 14850

Schroeder, Robert H., FMC Corporation, Niagara Chemical Division, 2650 San Juan Hiway, San Juan Bautista, California, 95045

Schroeder, W. T., Department of Plant Pathology, New York State Agricultural Experiment Station, Geneva, New York 14456

Schroth, Milton N., Department of Plant Pathology, University of California, Berkeley, California 94720

Schulbach, Roy, 3254 Center Street N. E., Salem, Oregon 97301

Schulz, Paul E., Agricultural Research Center, Libby, McNeill and Libby, Read Road, Route 3, Janesville, Wisconsin 53545

Scott E. W., Joseph Harris Co., Inc., Moreton Farm, Rochester, New York 14601

Serials Department, University of California, General Library, Berkeley, California 94720

Sheldon, A. K., Curtice-Burns Inc. 360 East Avenue, P. O. Box 670, Rochester, New York 14602

Silbernagel, Matt J., USDA, ARS, Irrigation Experiment Station, Prosser Washington 99350
Sistrunk, William A., Department of Horticulture & Forestry, Physiology and Processing Laboratory, Route 6, University of Arkansas, Fayetteville, Arkansas 72701

Sluis and Groot, Koninklijke, Zaadteelt en Zaadhandel, Enkhuizen, Holland

Smedley's Ltd., Attention: M. O'Keefe, Lynn Road, Wisbech, Norfolk, England

Smith, Stuart N., Sweet Corn Genetic Service, 808 E. Lincoln Way, Ames, Iowa 50010

Sneddon, J. L., Variety Classification Unit, Huntington Road, Cambridge, England

Snyder, W., Department Plant Pathology, University of California, Berkeley, California 94720

Sprague, A. P., Del Monte Corporation, 850 Thornton Street, San Leandro, California 94577

Starke-Ayres (C. Starke & Co. Ltd.), Attention: W. E. Kerr, Technical Director, 13-17 Main Road, Mowbray, C. P. South Africa

Stayton Canning Co. Co-op, Stayton, Oregon 97383

Steadman, James R., Department of Plant Pathology, University of Nebraska, Lincoln, Nebraska 68503

Stedjee, FMC Corporation, Niagara Chemical Division, P. O. Box 3091, Modesto, California 95353

Strider, D. L., Mountain Horticultural Crops Research Station, North Carolina State University, Route 2, Fletcher, North Carolina, 28732

Sumeghy, J. B., Yanco Agricultural College and Research Station, YANCO, New South Wales, 2703, Australia

Taylor, Gordon, FMC Corporation, Niagara Chemical Division, P. O. Box 3091, Modesto, California 95353

The National Agricultural Library, Current Serial Record, Beltsville, Maryland 20705

Thomas, Lee, Asgrow Seed Company, P. O. Box 290, Filer, Idaho 83328

Tompkins, Daniel R., Department of Horticultural Food Science, University of Arkansas, Fayetteville, Route 6, Arkansas 72701

Torrey, T. C., W. Atlee Burpee Company, Fordhook Farms, Doylestown, Pennsylvania 18901

Tucker, Carl L., Agronomy Department, University of California, Davis, California 95616
Touzard, C. M., Société L. Clause, 91 Bretigny Sur ORGE, France

Unilever Research Laboratorium, Duiven, Netherlands


Van Waverein Pflanzenzucht, GMBH 3405 Rosdorf, Gottingen, Germany

Vaughan, E. K., Oregon State University, Department Botany & Plant Pathology, Corvallis, Oregon 97331

Vieira, C., Universidade Rural do Estado de Minas Gerais, Escola de Pos-Graduacao, Vicoso, Minas Gerais, Brazil

Viets, John, The Larsen Company, Green Bay, Wisconsin 54305

Vilmorin Andrieux, Sce Recherches Et, Selections a Verneuil, L Etang 77, France

Virgin, W. J., Del Monte Corporation, P. O. Box 36, 850 Thornton Street, San Leandro, California 94577

Voysest, Oswaldo, Department Crop Science, Michigan State University, East Lansing, Michigan 48823

Vreeken's Zaden, Attention: Mr. W. Vreeken, P. O. Box 182, Dordrecht, Holland.

Wallace, D. H., Plant Breeding Department, Cornell University, Ithaca, New York 14850

Washburn, H. G., Jr., 3053 West Pine Valley Road N. W., Atlanta, Georgia 30305

Weibullsholm Plant Breeding Institute, Attention: W. Weibull, Landskrona, Sweden

Weigle, J. L., Department of Horticulture, Iowa State University, Ames, Iowa 50010

Wester, R. E., USDA Plant Industry Station, Beltsville, Maryland 20705

Wien, H. C., V. P. Cornell Graduate Education Program, College of Agriculture, University of the Phillipines, College, Laguna, Phillipines

Wilkinson, Robert E., Department of Plant Pathology, Cornell University, Ithaca, New York 14850

Williams, Richard D., Pure Line Seeds, Inc., Box 91, Moscow, Idaho 83843

Willis, P., Manager, Chain Sprockets (Vic.) Pty. Ltd., Cr. Errol and O'Shannassy Streets, P. O. Box 100, North Melbourne, Australia

Wood, D. R., Department of Agronomy, Colorado State University, Fort Collins, Colorado 80521
Yagyu, Paul, Northrup-King, and Co., Seed Research Center, 13410 Research Road, Eden Prairie, Minnesota 55343

Younes, Mohsen A., Kafr-Kela El-Bab, Gharbia, U. A. R. (Egypt)

Young, Dale H., (Borden) Comstock-Greenwood Foods, P. O. Box 267, Newark, New York 14513

Yukura, Yasuo, 46-7, 3-Chome, Miyasaka, Setagaya-Ku, Tokyo, Japan

Zaumeyer, W. J., USDA Plant Industry Station, Beltsville, Maryland 20705

Zwann, A. R. & Sons, Inc., Voorburg - The Hague, R. J. Zwann, Holland

Zwann, John A., P. O. Box 1, New Britain, Pennsylvania 18901
BIBLIOGRAPHY

Breeding and Genetics


Campbell, J. A. 1967. 15 varieties of processing type beans compared. Miss. Fm. Res. 30: No. 9: 1, 6.


Hahn, M. 1968. Die neuesten Bohnensorten und ihre Anbauwurdigkeit. (The newest bean varieties and their cultural value). Gemuse. 4: 170-2 (illus.).


*** *** ***

Pathology

Compiled by D. W. Burke
USDA, ARS, CRD, Irrigated Agriculture Research and Extension Center, Prosser, Washington


Fenwick, H. S. 1969. Austrian winter pea, a previously unreported host for Pseudomonas syringae. Phytopathology 59:11


Griffin, G. J. 1969. Carbon and nitrogen requirements for macroconidial germination by Fusarium solani: dependence on spore density. Phytopathology 59: 1556


Main, C. E. 1969. The tobacco brown spot lesion, a model to study halo formation. Phytopathology 59(8): 1040.


Ross, J. P. 1969. Effect of time and sequence of inoculation of soybeans with soybean mosaic and bean pod mottle viruses on yields and seed characters. Phytopathology 59(10): 1404-1408


* * * * * * *

Entomology


* * * * * * *

Culture, Physiology and Quality

Compiled by Harry J. Mack
Oregon State University, Corvallis, Oregon


Communication from Dr. A. M. Pinchinat. IICA-CEI, Turrialba, Costa Rica.

Bibliography on the Genus Phaseolus

A general bibliography on beans (Phaseolus spp) is compiled and published by the Training and Research Center of the Inter-American Institute of Agricultural Sciences, in Turrialba, Costa Rica. The first and basic issue contains 3,006 bibliographical entries and was published in 1965. Its first supplement, which appeared in 1969 covers the period 1965-1968 and contains 1,363 entries. The supplements are normally scheduled to appear every two to three years, depending upon the amount of available literature. For further information, please write to:

Chief Librarian
IICA-CEI
Turrialba, Costa Rica

Publications issued 1963-1969 by the IICA Bean Program.

A list of publications dealing with many phases of bean research at IICA during the period 1963-1969 (inclusive) may be obtained by writing to Dr. Antonio M. Pinchinat, IICA-CEI, Turrialba, Costa Rica.
ADDITIONAL NOTES

NOTE: The following two notes were received from Dr. North on March 5, 1970, after the report was typed so it was decided to include them at the end of the report. We appreciated receiving the notes from Dr. North. His letter was delayed in the mail.

RELEASE OF GLAMIS - A NEW BUSH BEAN VARIETY

C. North
Scottish Horticultural Research Institute
Dundee, Scotland

Glamis, bred by the late Miss Greta Priestley, was derived from a cross made in 1955 between Fullcrop and the Scandinavian variety Record. The latter parent was chosen for its capacity to grow well and to produce straight pods under cool conditions, though its pods are not entirely free from strings.

Glamis (pronounced Glarms) is an early-maturing snap-pod variety acceptable in Britain for freezing and canning and suitable for mechanical harvesting. The seed is mottled dark brown. Glamis has performed well in trials in Britain and Scandinavia and promises to be a suitable variety for areas where marginal for bean crops.

Seed of this variety which is covered by the British Plant Variety Rights Scheme is now available from commercial sources in Britain. Plant variety rights have also been applied for it in some other European countries.

********

Miss W. Greta Priestley

Members will be sorry to hear of the untimely death of Miss Priestley on the 5th of December 1969 after a prolonged illness. She was a popular member of the staff at the Scottish Horticultural Research Institute, a keen golfer and a meticulous and thorough plant breeder with a very intimate knowledge of her material.

Miss Priestley received her horticultural training at Reading University and worked during the war for the Seed Production Committee which did much to ensure adequate supplies of seeds during a difficult period for Britain. After three
working on breeding and selection of vegetable crops with the Department of Industrial and Scientific Research in New Zealand, she joined the staff of the Scottish Horticultural Research Institute in 1954. Here she has been the main worker on the improvement of beans, Brussels sprouts, and cabbages.

The work on white seeded varieties of beans suitable for northern climates and resistant to anthracnose will be continued by Mr. Tony Redfern. It is not intended to extend this work, but to phase it out with the conclusion of the programme started by Miss Priestley.
Bean Improvement Cooperative
Financial Statement
March - 1970

* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

Balance on hand as of March 15, 1969 $461.62

Income during period from dues and sale of
back issues of reports

<table>
<thead>
<tr>
<th>Deposited</th>
<th>Not Deposited</th>
</tr>
</thead>
<tbody>
<tr>
<td>290.49</td>
<td>33.00</td>
</tr>
</tbody>
</table>

Expenses:

Cost of 200 (8 1/2 x 11) menu-programs
for BIC meeting in Seattle,
January 7, 1970. $32.40

BIC Report

3 qr. FRANKEL STENCIL $11.55
26 Reams 8 1/2 x 11, 28 lb. white
mimeograph paper 67.60
Typing, proofing, and running report,
assembling, addressing envelopes,
stuffing and stamping -
106 hours at $2.00 per hour 212.00

Total cost of BIC Report $291.15

Total Expenses 323.55

Net balance available March 7, 1970. $461.56

New BIC Contingency fund
(Balance remaining from a travel fund for
Dr. W. J. Zaumeyer) 267.73

Grand Total available as of March 7, 1970. $729.29

* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *