Albert Francis Blakeslee papers, 1904-1954

1904-1954

Mss.B.B585

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Summary Information

Repository	American Philosophical Society
Creator	Blakeslee, Albert Francis,1874-1954.
Title	Albert Francis Blakeslee papers, 1904-1954
Date [inclusive]	1904-1954
Call number	Mss.B.B585
Extent	12.5 Linear feet Ca. 15,000 items
Extent	12.5 linear ft., ca. 15,000 items.
Location	LH-B-13-3; LH-SB-Black Case-8 (OS)
Language	English
Container	1-25
Abstract	Mostly concerned with Blakeslee's studies on beans, blood groups, colchicine, Datura, embryo cultures, and horticulture. Many letters relate to the support and direction of the Smith College Genetics Experiment Station, which he headed. Other letters are about the Carnegie Institution of Washington, "Biological Abstracts," American Association for the Advancement of Science, American Philosophical Society, Institut de France, University of Connecticut. Also contains travel letters from Germany and miscellaneous lectures.

Background note

Albert Francis Blakeslee, a geneticist and botanist, served as the director of Smith College Genetics Experiment Station from 1943-1954.

Albert Blakeslee's boyhood was spent in East Greenwich, Connecticut, where he early exhibited a strong liking for natural history. This leaning was not encouraged by his pragmatic father, who wanted the boy's education to plan for a financially independent career; but his mother was more sympathetic. After the two years of teaching at Montpelier Academy in Vermont, his natural inclinations were not to be denied, and he entered graduate study at Harvard with a determination to become a botanist. His Harvard professors, Farlow and Thaxter, greatly helped Blakeslee's development as a botanist. He engaged in a classification of the Mucors and discovered the positive and (sexual) zygospores and observed their sexual fusion to start the diploid phase of the Mucor life cycle. His summer in Venezuela as a plant collector for the Harvard Cryptogamic Herbarium (1903) and his two summers of teaching nature study in the Cold Spring Harbor courses broadened his knowledge of plants and generated in him a deep love of teaching. Thus, when he went to Germany for a postdoctoral fellowship in 1904, he was already becoming well known as a botanist.

At the University of Halle he worked under the distinguished mycologist Klebs for two years, with some stay during the period at the Universities of Berlin, Leipzig, and Oxford. This fellowship was supported by the Carnegie Institution of Washington. Blakeslee became fluent in the German language, as became apparent in later years when such a distinguished authority as Erwin Baur, plant geneticist, sent to Blakeslee in preference to any other English-speaking biologist a copy of his proposed publication on the dysgenic effects upon German life and culture of the post-war occupation of Germany's Rhineland by the French. Baur requested Blakeslee to be so good as to translate the communication into good English, edit it, and submit it for him to some American journal, such as Eugenical Notes, edited by Davenport. The original manuscript by Baur, the translation and very extensive editing -- really a toning down -- by Blakeslee, and the subsequent letter of withdrawal of the communication by Baur are all in the Blakeslee Papers, an invaluable addition to our knowledge of the course of German eugenics in the period between the two World Wars (see B. Glass, "A Hidden Chapter of German eugenics between the two World Wars," Proceedings of the American Philosophical Society 125: 357-367, 1981). While in Germany Blakeslee spent much time in art museums and attendance at concerts, and formed cultural tastes that were a lifelong joy to him.

Upon returning from Germany, Blakeslee accepted an appointment as professor of botany at the Connecticut Agricultural College, later to become the University of Connecticut. He taught many courses, in summer as well as during the regular year, and collaborated with C.D. Jervis in two popular handbooks for the identification of trees in New England and in winter. He made crosses of tree species, and successfully produced the first interspecific hybrid pine. His broad concern with social applications of botany and with teaching are to be seen in his paper presented in an American Association for the Advancement of Science symposium in 1909 on the subject, "The Botanic Garden as a Field Museum of Agriculture." He also conducted research on the genetics of poultry, and found certain genetic traits with visible effects that were linked with high egg yield; also he uncovered a negative correlation between

yellow color and the time of a year when the last egg is laid. He discovered that Rudbeckia hirta, the black-eyed Susan, is a frequently mutating species. Beginning what was to become his most famous genetical work, that with the jimson weed, Datura stramonium, he worked out the simple Mendelian inheritance of white versus purple flower color and of spiny versus smooth seed capsules. In 1914-1915, he gave, at Storrs, the first college course in genetics in the United States. Also, while on leave and at the Cold Spring Harbor Laboratory as a research investigator, he resumed his early work on the Mucors; and in Datura found, in 1913, his first trisomic type, the "Globe" seedpod type, which has 2N + 1 chromosomes.

In 1915 Blakeslee was invited by C. B. Davenport, Director of the Carnegie Institution of Washington Station for Experimental Evolution at Cold Spring Harbor, to fill the place just vacated by George Harrison Shull, who was transferring to Princeton University. Blakeslee accepted, although he much regretted the loss of his opportunities to teach. He remained at Cold Spring Harbor until he retired in 1941, at the age of 67. He became greatly renowned for his work on Datura stramonium, in which he eventually found a trisomic type for every one of the twelve chromosome pairs in the species, each type recognizable by a distinctive phenotype of the seed capsule. With his assistants, he raised as many as 70,000 Datura plants in each summer. In 1920, he was joined by John Belling, a gifted cytologist, as his collaborator. They developed the skilled art of making acetocarmine stains of smeared plant chromosomes, a technique that became universally adopted as an enormous time-saver and also one productive of better microscopic differentiation of the chromosomes in the set. The typical chromosome numbers for many species of flowering plants were determined by the team.

In 1924, Dorothy Bergner replaced John Belling as Blakeslee's principal coworker. With Bergner, Blakeslee discovered a thirteenth trisomic in Datura. As there are only 12 chromosome pairs, a different explanation was sought, and found. There are also secondary trisomics, in which one arm of a primary chromosome has been doubled while its other arm is missing. Such a chromosome, added to the 12 types in which an entire chromosome is extra, greatly increases the diversity of chromosomal types. In search of the origin of these secondaries, numerous translocation types were found, types in which parts of two primary chromosomes had undergone a reciprocal interchange. In the pairing of homologous chromosomes that takes place during meiosis, these aberrations give rise to rings of four associated chromosomes, two normal plus two translocation chromosomes in the ring. Non-disjunction is a frequent consequence, and additional types of trisomics result. The discovery in natural populations of so much chromosomal diversity was a stepping-stone to the new evolutionary synthesis of the 1930s. Polyploid and triploid Daturas were also found, as populations from various parts of the world were analyzed. In 1937 it was discovered that colchicine will paralyze mitotic cell division and give rise to cells in which the chromosome number has been doubled. Using this technique, Blakeslee and Bergner produced polyploids, periclinal chimeras; and a new research assistant, Sophie Satina, collaborated in working out cell lineages during plant development.

Other collaborations, going back many years, were with E.W. Sinnott on quantitative inheritance, with I.T. Buchholz on pollen tube growth, with C.S. Gager on the use of radium to produce mutations. By means of exposures to radium or X-rays, 541 different gene loci were identified by mutation, 81 of which were mapped to a specific chromosome. It was also found that there was an increase of mutations during the storage of seeds. With I. van Overbeek, Blakeslee applied the techniques of tissue culture to the study of Datura genetic types.

In 1931, Blakeslee became deeply interested in the human inheritance of taste sensitivity to a chemical substance, PTC (phenylthiocarbamide). It is intensely bitter to most persons, but tasteless to others. Blakeslee checked this capacity in identical twins and found they were always similar in their capacity to taste PTC, or inability to taste it. He gave many popular lectures and demonstrations of this novel aspect of human heredity.

Blakeslee became involved in the administration of the Cold Spring Harbor Laboratory as early as 1923, and moved to greater and greater responsibility as Davenport aged. Upon Davenport's retirement in 1936, Blakeslee was the natural choice to succeed him. By this time he was one of America's foremost geneticists. He had helped to reorganize the American Journal of Botany in 1935, had been elected to the National Academy of Sciences and to the American Philosophical Society, and had been honored by many foreign scientific and learned organizations.

Upon retiring at Cold Spring Harbor, Blakeslee spent two years as a research associate at Columbia University, but found in 1942 an ideal situation for his "retirement" years in an appointment as a visiting professor at Smith College. Here he started up a four-college conference (Smith College, Amherst College, Mount Holyoke College, and Massachusetts State College -- later the University of Massachusetts) on Genetics, and a second on Human Relations. He initiated an active program of genetics at Smith College. With Miss Satina, he continued research on Datura by utilizing the technique of raising plant embryos in cell culture, in order to determine at what stage of development particular abnormal types led to deviations from normality, and just what they were. He became president of the Smith College Faculty Club, and worked to improve the conditions of retired faculty members. He spent much effort on human relations of the town-gown sort. As in previous periods of his life, he attended many foreign scientific congresses, for example, all of the Botanical Congresses (until 1950), and the Indian Scientific Congress in 1947. He was a visiting lecturer at Harvard University in 1948-1949. Upon his death, he left his estate to the National Academy of Sciences as trustee to provide continued assistance in maintaining and further developing a balanced genetics research program at Smith College. His personality was marked by great versatility, good humor, and a live social conscience. He was generous in giving credit to others in joint activities, yet in general somewhat reticent. These traits are reflected in some of his correspondence.

Scope & content

25 boxes, covering the period 1903 to 1955. A medium-sized collection, primarily correspondence, including outgoing letters from Blakeslee. Many routine requests. The collection lacks extensive communication with Blakeslee's research collaborators during his years at Cold Spring Harbor, but there are extensive files of correspondence with John T. Buchholz, Charles S. Gager, and E.W. Sinnott.

Administrative Information

Publication Information

American Philosophical Society

Provenance

Acquisition Information

Gift from Smith College Genetics Experiment Station and the Genetics Society of America and accessioned, 12/08/1959 (1959 1700ms).

Indexing Terms

Corporate Name(s)

- American Association for the Advancement of Science.
- American Philosophical Society.
- Carnegie Institution of Washington.
- Institut de France.
- Smith College. Genetics Experiment Station.
- University of Connecticut.

Genre(s)

- Lectures.

Geographic Name(s)

- Germany -- Description and travel.

Subject(s)

- Beans - Research
- Blood groups.
- Colchicine - Research
- Datura.
- Embryology.
- Geneticists -- United States.
- Genetics -- Research.
- Horticulture.

Other Descriptive Information

This collection contains materials which relate to the history of genetics.

Author	Format	Date
Allen, C. E.	Correspondence (26 items)	1916-1934
Avery, Amos G.	Correspondence (9 items)	1923-1927
Avery, George S., Jr.	Correspondence (34 items)	1932-1953
Babcock, Ernest Brown	Correspondence (64 items)	1922-1947
Barss, Howard P.	Correspondence (47 items)	1944-1946
Bateson, William N.	Correspondence (8 items)	1907-1921
Baur, Erwin	Correspondence (19 items)	1906-1930
Bergner, A. Dorothy	Correspondence (25 items)	1921-1933
Biological Abstracts	Correspondence (6 folders)	1927-1953
Blakeslee, Albert Francis (Series II-III)	Manuscripts (87 folders)	1915-1957

Blakeslee Family (Series IV)	Manuscripts (30 pages)	1912-1954
Botanical Society of America	Correspondence (2 folders)	1929-1953
Boyd, William C.	Correspondence (86 items)	1949-1956
Brink, R. Alex	Correspondence (18 items)	1924-1947
Buchholtz, John T.	Correspondence Manuscripts (45 folders (720 items))	1921-1951
Bush, Vannevar	Correspondence (20 items)	1940-1952
Butler, E. G.	Correspondence (34 items)	1944-1949
Carnegie Institution of Washington	Records (3 folders)	1924-1931
Cartledge, J. Lincoln	Correspondence (48 items)	1921-1952
Cattell, James McKeen	Correspondence (52 items)	1904-1932
Chrysler, M. A.	Correspondence (46 items)	1907-1934
Cleland, Ralph E.	Correspondence (182 items)	1929-1951
Cook, Robert C.	Correspondence (147 items)	1924-1949
Creighton, Harriet	Correspondence (80 items)	1949-1950
Davenport, Charles Benedict	Correspondence (200 items)	1912-1943
Davis, Bradley Moore	Correspondence (69 items)	1904-1944

Dodge, B. Ogilvie	Correspondence (28 items)	1921-1952
East, Edward Murray	Correspondence (34 items)	1909-1937
Flynn, John E.	Correspondence (145 items)	1943-1946
Four-College Genetics Conference	Records (6 folders)	1943-1954
Fox, Arthur L.	Correspondence (64 items)	1931-1953
Gager, C. Stuart	Correspondence (137 items)	1914-1942
Gilbert, Walter M.	Correspondence (65 items)	1906-1946
Gortner, Ross Aiken	Correspondence (35 items)	1921-1933
Harvard University	Correspondence (5 folders)	1948
Hyde, James H.	Correspondence (151 items)	1947-1954
International Botanical Congresses	Correspondence (3 folders)	1910-1954
Jones, Donald F.	Correspondence (62 items)	1923-1950
Karpechenko, Georgii Dmitrievich	Correspondence (10 items)	1929-1931
Merriam, John C.	Correspondence (117 items)	1921-1936
Meyerhoff, Howard A.	Correspondence (22 items)	1945-1952
Morgan, Thomas Hunt	Correspondence (34 items)	1904-1934
Muller, Hermann Joseph	Correspondence (22 items)	1920-1954

Randolph, Lowell Fitz	Correspondence (25 items)	1924-1948
Robbins, William J.	Correspondence (34 items)	1928-1954
Satina, Sophie	Correspondence (36 items)	1922-1954
Schramm, Jacob Richard	Correspondence (30 items)	1921-1952
Shull, George Harrison	Correspondence (90 letters)	1909-1948
Sinnott, Edmund W.	Correspondence (325 items)	1916-1953
Smith College, Genetics Experiment Station (Series IV)	Records (7 folders)	1946-1955
Thaxter, Roland	Correspondence (27 items)	1904-1928
Tukey, Harold Bradford	Correspondence (31 items)	1944-1951
van Overbeek, Johannes	Correspondence (35 items)	1942-1950
Weston, William H., Jr.	Correspondence (45 items)	1922-1943
Wetmore, Ralph H.	Correspondence (34 items)	1944-1954
Wright, Benjamin F.	Correspondence (23 items)	1949-1954
Ziegler, Irmgard	Correspondence (60 items)	1958-1976

Other Descriptive Information

Scholars of physiology, biochemistry, or biophysics may find the following items of interest:

Author	Format	Date	Language
Northrop, John Howard, 1891-1987	Correspondence (3 items)	1926	English
Stanley, Wendell M. (Wendell Meredith), 1904-1971	Correspondence (5 items)	1942-1943	English
Van Slyke, Donald D. (Donald Dexter), 1883-1971	Correspondence (1 item)	1952	English

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Selected Inventory from Genetics Subject Guide			
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Blakeslee, Albert Francis	1915-1957	Manuscripts (87 folders)	Series II-III

Blakeslee Family	1912-1954	Manuscripts Series IV (30 pages)
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Ziegler, Irmgard	1958-1976	Correspondenc (60 items)	