

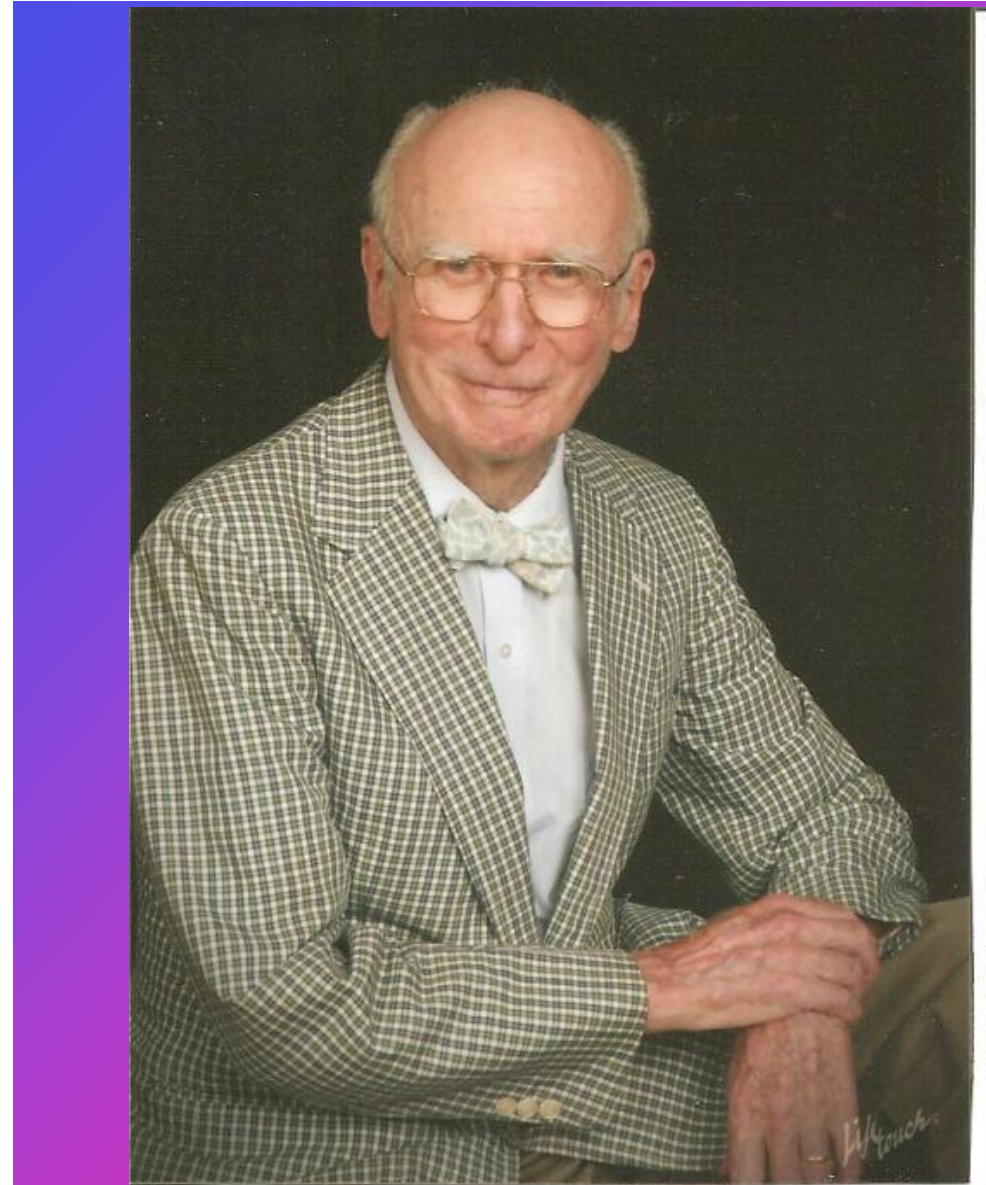
The Man from Radnor Who Changed the World

Jennifer H. Beacom

President, Radnor Historical Society

Sherret Spaulding
Chase (1918-2021)
Radnor High -1935
Yale University - 1939
Cornell University-
Ph.D. 1946

Father of "Doubled Haploid Method" in
Plant Breeding



Mom & Dad are High Achievers!

Clement Edwards Chase

- Graduate of Cornell University
- Civil Engineer
- Partner with the firm of Modjeski, Masters, and Chase
- Resident engineer for the construction of the Benjamin Franklin Bridge

Helen Mar Kelsey Chase

- Graduate of Wells College (NY)
- Master Horticulturist from the Ambler School
- Member of the Pennsylvania Horticultural Society



Growing up in Radnor

410 Oak Lane

Sherrett Chase in the 1930 United States Federal Census

[Detail](#) [Source](#) [Discover](#)

Name: Sherrett Chase
Birth Year: abt 1919
Gender: Male
Race: White
Age in 1930: 11
Birthplace: New York
Marital Status: Single
Relation to Head of House: Son
Home in 1930: Radnor, Delaware, Pennsylvania, USA
Map of Home: [Radnor, Delaware, Pennsylvania](#)
Street Address: Oak Lane
House Number: 410
Dwelling Number: 341
Family Number: 341
Attended School: Yes
Able to Read and Write: Yes
Father's Birthplace: United States
Mother's Birthplace: Ohio
Able to Speak English: Yes

Household Members (Name)	Age	Relationship
Clement Chase	47	Head
Helen Chase	40	Wife
Clement Chase	14	Son
Alice Chase	13	Daughter
Sherrett Chase	11	Son
Ingminn Carter	27	Servant

Neighbors: [View others on page](#)

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**T SPAN ENGINEER
KILLED IN FALL
FROM BRIDGE**

Motorists See Clement E.
Chase, Modjeski Aide,
Swept to Death Off Del-
aware Viaduct

Plunges Into Race Street, Dy-
ing Instantly After 120 Feet
Drop; Was Inspecting Pro-
posed High Speed Route

Tragedy Strikes the Family – September 1933

Clement Chase dies in a work
accident

Radnor High School

SHERRET SPAULDING CHASE "Sherry"

"Knowledge to be proud, and
wisdom to be humble."

Sherry is one of the less conspicuous members of our class. He has, however, a quiet sense of humor which enables him to enjoy life to the utmost. His scientific trend of mind accounts for his good work in science classes. In spite of his quietness, "Twelve-fifteen Chase" does get around with the ladies. Sherry has been on the fencing team all year and has "done himself proud" repeatedly in the capacity of sabre man. We are always glad to hear Sherry's tales about his extensive travels.

Entered Kindergarten; French Club, 1934-35; Law and Order, 1934; Football, 1933; Tattler Staff, 1935; Fencing, 1934-35. Plans to enter Cornell University.

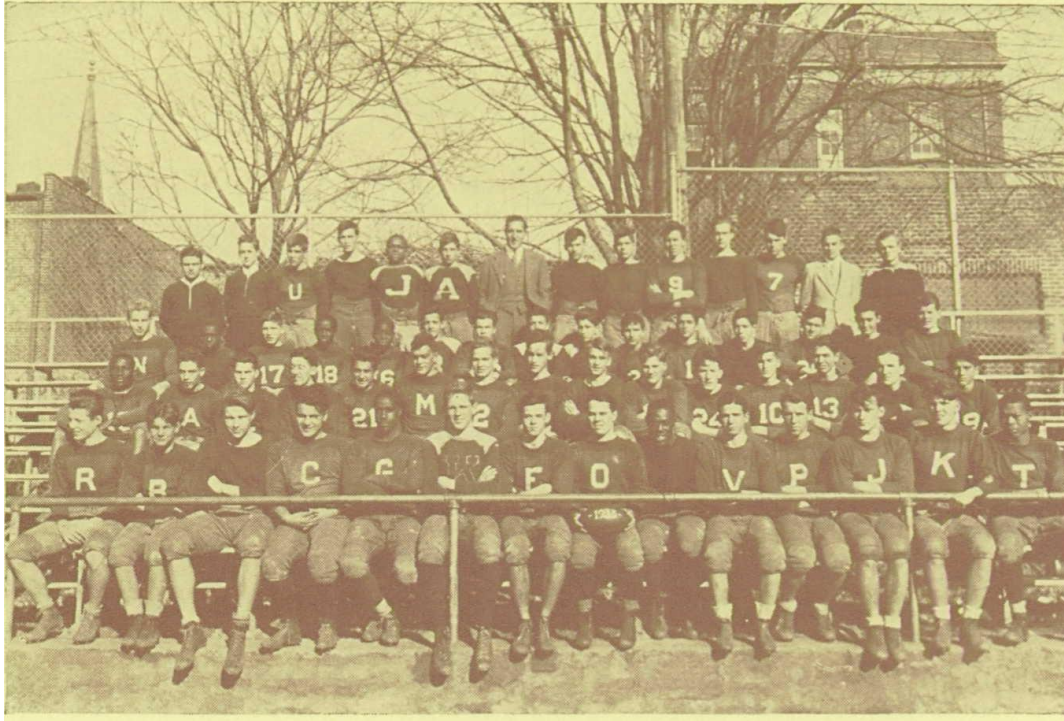


Sherret Chase

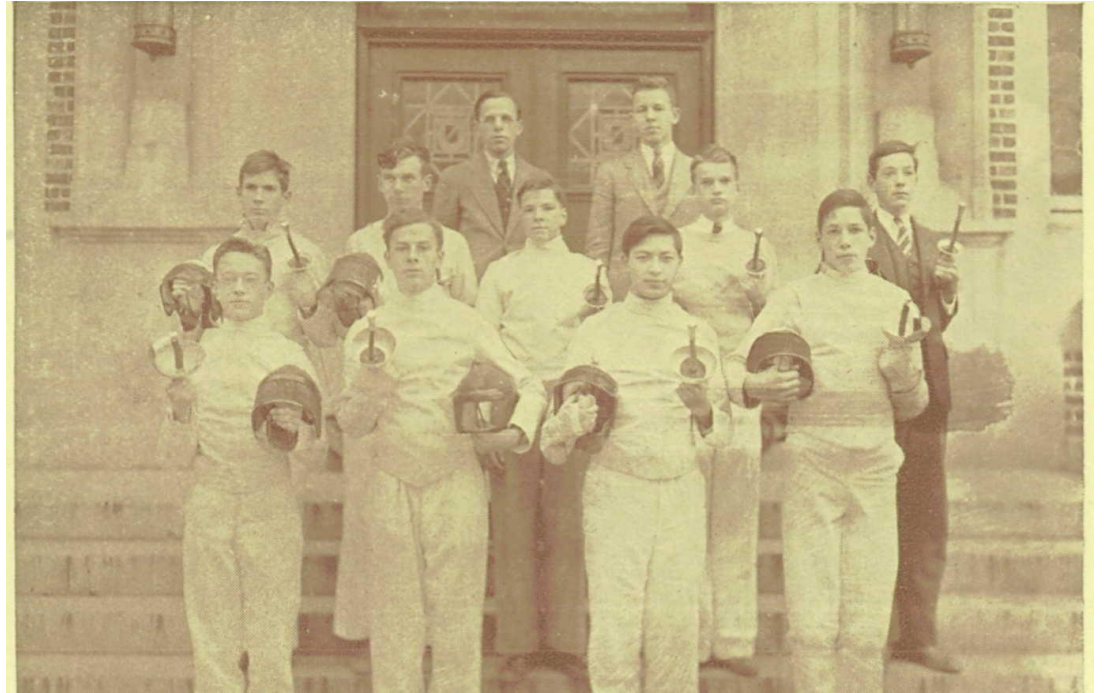


Radnor High School

Football



Fencing



College Experience

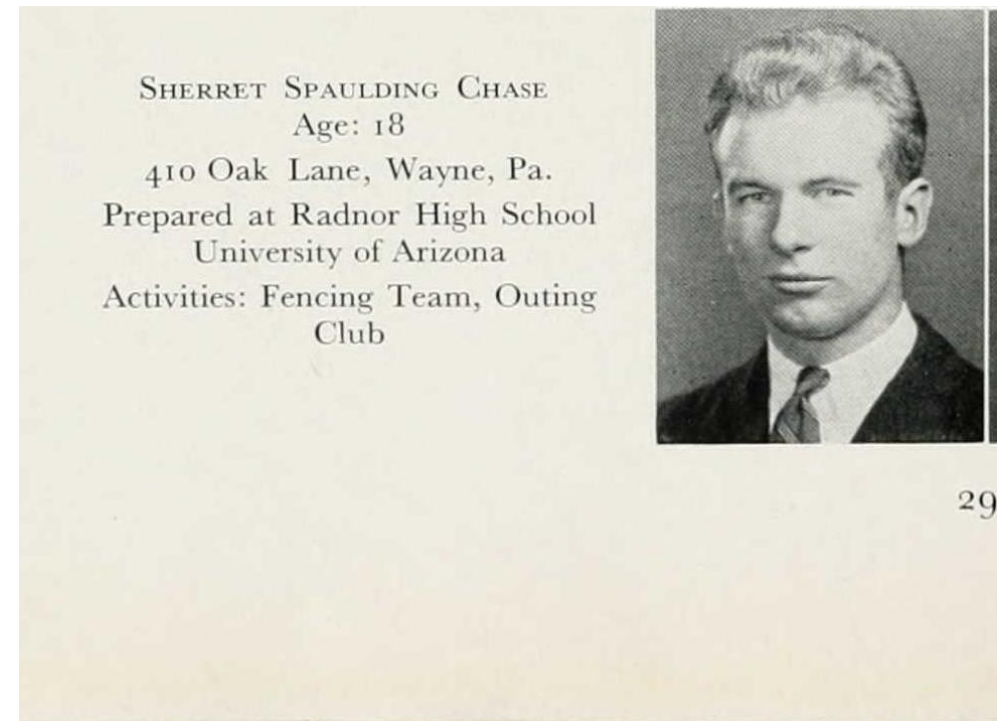
What about Cornell?

- “Western Experience” with brother
 - University of Arizona –
 - Majors in Biology
 - “When I started as a freshman at the University of Arizona, I was asked what my interest would be. I was uncommitted, except I did have an interest in science and biology. So I said I would major in medicine. The requirements for the medical students included a course in “Mammalian Anatomy (as exemplified by the cat).” I found that I reacted very negatively to formaldehyde and rotted cat and decided I would be a botanist instead – a good choice.”
 - One Year 1935-1936

College Experience - continued

Come East to Where?

- Transfers to Yale (Mom's suggestion)
 - Majors in Botany
 - Fencing Team - celebrated coach Papa Grasson
- Graduates 1939 with Bachelor of Science



Travels

- High School
 - 1933 - Experiment in International Living to Germany and Austria (led by Sargent Shriver)
 - Skiing in Laurentian Mountains in Quebec
 - Summer counselor at The Putney School in Vermont
- College
 - Visits Mexico and Mexico City
 - Drives to Okanogon Lake in British Columbia
 - Backpacking for the renowned Mundy/Hall mountaineering expedition in the unexplored Coastal Range area of the Klinaklini Glacier in British Columbia
 - Two summers 1938 and 1939 as assistant to Mr. Ernst Heyl in Newfoundland exploring and guiding salmon fishing
 - Exploring Cape Breton Island and the Gaspé Peninsula of Quebec
 - 1939 - leader of a Putney School group bicycling and camping in the circuit around Cape Breton Island, and on the Gaspé Peninsula.

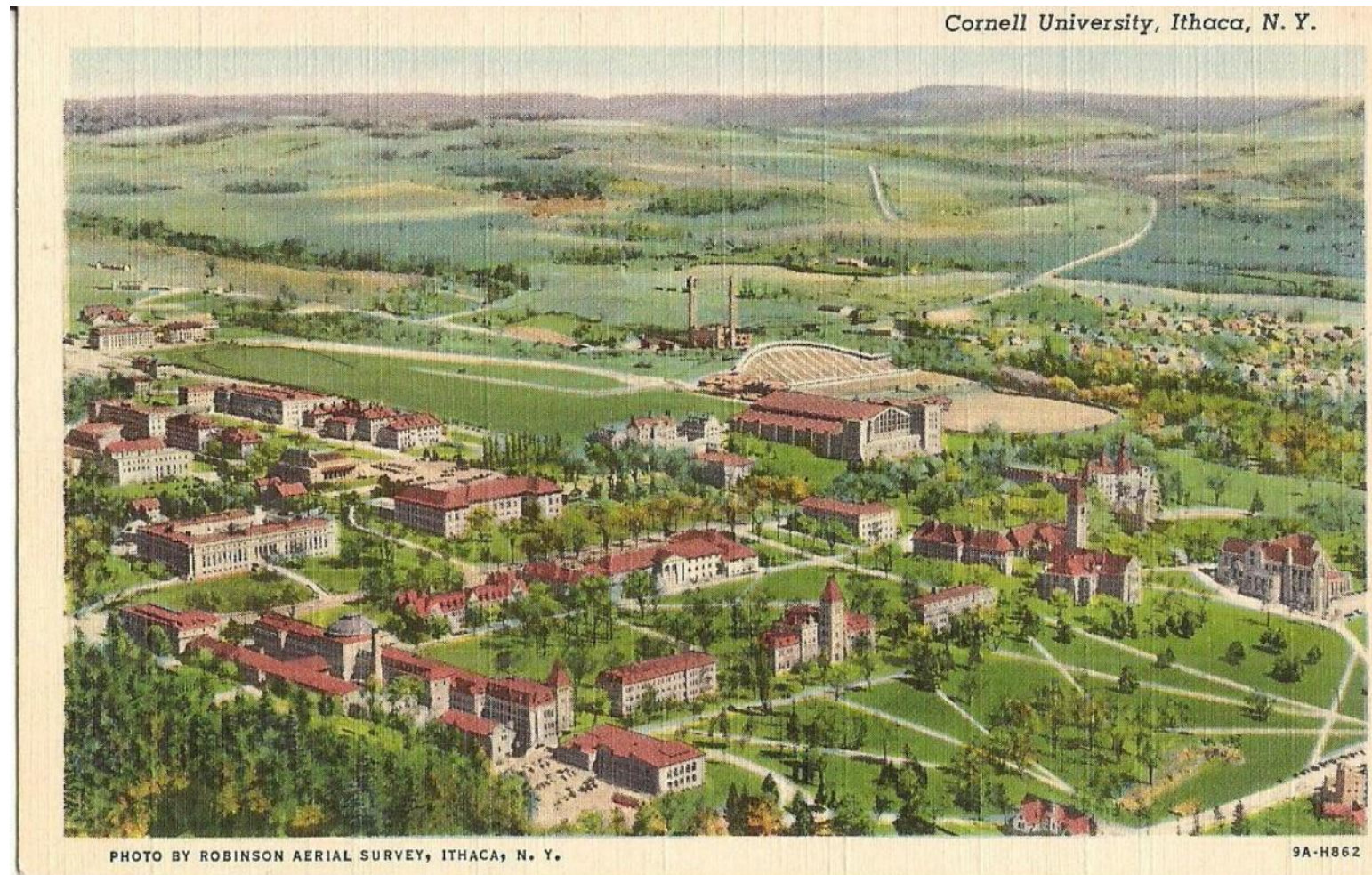
[illegible]

Mexico - September 7, 1937

[illegible]

France - September 8, 1933,
with his brother & sister

Finally, On To Cornell!



Studies Plant Cytology & Genetics

- Cytology - the study of cells as fundamental units of living things ([Encyclopedia Britannica](#))
- Genetics - the study of heredity in general and of genes in particular ([Encyclopedia Britannica](#))
- Thesis compared different species of the aquatic plant family Najas
- 18 months



World War II Intervenes

SERIAL NUMBER 1756	1. NAME (Print) Sherret Spaulding Chase (First) (Middle) (Last)		ORDER NUMBER 1632
2. ADDRESS (Print) Ashokan, Ulster, N.Y. (Number and street or R. F. D. number) (Town) (County) (State)			
3. TELEPHONE None (Exchange) (Number)	4. AGE IN YEARS 22 DATE OF BIRTH 6 30 1918 (Mo.) (Day) (Yr.)	5. PLACE OF BIRTH Toledo (Town or county) Ohio (State or country)	6. COUNTRY OF CITIZENSHIP U.S.A.
7. NAME OF PERSON WHO WILL ALWAYS KNOW YOUR ADDRESS Mrs. Clement Edwards Chase (Mr., Mrs., Miss) (First) (Middle) (Last)			8. RELATIONSHIP OF THAT PERSON Mother
9. ADDRESS OF THAT PERSON Ashokan, Ulster, N.Y. (Number and street or R. F. D. number) (Town) (County) (State)			
10. EMPLOYER'S NAME Cornell University Student			
11. PLACE OF EMPLOYMENT OR BUSINESS Ithaca, Tompkins, N.Y. (Number and street or R. F. D. number) (Town) (County) (State)			
I AFFIRM THAT I HAVE VERIFIED ABOVE ANSWERS AND THAT THEY ARE TRUE.			
REGISTRATION CARD D. S. S. Form 1 (over)		16-17105 Sherret Chase (Registrant's signature)	

Called up December 7, 1942

- Second Lieutenant and lead navigator
 - Flew in B-24's in southern Italy
 - 15th Air Force
 - 460th Bombardment Group (H)/760th Squadron
 - 55th Bombardment Wing
 - Flew over fifty combat missions, including over the oil fields of Ploesti in Romania
 - Was awarded the Distinguished Flying Cross
 - In service for three years (1942 – 1945) until September 1945.
 - Ended his service at First Lieutenant
- Isn't it ironic?
 - He had never been in an airplane before
 - He loved learning to fly but couldn't master landing the plane, so he was removed from the pilot program and transferred to navigation

Sherret S. Chase, Ph.D.

- Returns to Cornell in the fall of 1945
- Completes his graduate work in 1946
- Publishes his thesis in 1947
 - *Preliminary studies in the genus Najas in the United States*
- Non-thesis research in studies on haploidy in corn
- Iowa State University – Assistant Professor/Associate Professor

Doubled Haploid Method

- The method enables one to obtain inbreds in two rather than 6-8 generations.
- The Doubled Haploid (DH) Method helps to accelerate the development of inbred lines and, with this, accelerating also the breeding process and genetic gains.
- As the DH lines are genetically uniform, and with genomic selection strategies being dependent on accurate genotypic information, maize breeding programs, with the use of predictive performance software programs, have been able to rapidly develop and deploy sophisticated genomic selection strategies.

What does that even mean?



Real
Microbiologist

Mere Law
Librarian

Doubled Haploid Method for beginners

- Like people, corn is a “diploid”. It has two copies of each chromosome. Normal corn is “heterozygous” meaning each pair of chromosomes is different based on coming from two parents
- If you mate a corn plant with itself enough times, both copies will be essentially identical or “homozygous”. This process can take up to 10 cycles and requires years.
- It is possible to develop corn for genetic purposes that has only one copy of each chromosome (“haploid”)

Doubled Haploid Method for beginners

- Using the concept developed by Dr Chase, it is possible to mate a haploid with itself
- The resulting plant is a “doubled haploid”, with both sets of chromosomes being the same (homozygous).
- The process requires only two cycles (making the haploid, then the doubled haploid), which can be done in a matter of months.
- Homozygous strains allow for precise control of what genes and traits are passed down to the next generation, rather than the random recombination in normal mating, which also greatly speeds of the development of desired genes and traits.

DeKalb Agricultural Association (now DeKalb AgResearch)

- 1953 – 1966
- Research Geneticist
- International Maize Breeder
- Director of International Seed Operations
- Developed the first successful commercial maize hybrid using doubled haploids

FICHA DE TURISTA CIDADÃO DE PAIS AMERICANO PARA UMA ESTADA DE TRINTA DIAS NO BRASIL
(Tourist Card for Citizens of American Countries for A Thirty-Day Stay in Brazil)

Desta ficha, expedida em duplicata, uma via será entregue ao passageiro, para uso da autoridade competente por ocasião de desembarque, e uma via será enviada pela transportadora à Repartição consular brasileira a qual couber o despacho do navio ou aeronave.
This card will be issued in duplicate; one copy will be delivered to the passenger for use by competent authority at the time he disembarks, and one copy will be sent by the carrier to the Brazilian Consular Office clearing the ship or aircraft.

Nome por extenso **Sherret S. CHASE**
Name in full
Admitido no Brasil em caráter de TURISMO Nos termos da Lei Nº 2526, de 5 de Julho de 1955
Admitted to Brazil under tourist status Under the terms of Law Nº 2.526 of July 5, 1955

Lugar e data de nascimento **Ohio, U.S.A., June 30, 1918**
Place and date of birth
Estado Civil **Married** Nacionalidade **Norte-americana**
Civil status
Filiação (nome do Pai e da Mãe) **Clement Chase, Helen Chase**
Filiation (name of the Father and Mother)
Profissão **Geneticist**

Residência no país de origem **612 So. Main St., Sycamore, Ill.**
Residence in the country of origin
Nome (Name) Idade (Age) Sexo (Sex)


FILHOS MENORES DE 18 ANOS
SHILDRN UNDER 18 YEARS

Passaporte Nº **B117621** expedido pelas autoridades de **U.S.A.**
Passport Nº issued by the authorities of
na data **Feb 28, 1961**
on (date)

Remetida ao Consulado do Brasil em **N.Y.** por **ARG** em **MAR 16, 1961**
Sent to the Consulate of Brazil in by on
ASSINATURA DO PORTADOR (SIGNATURE OF HOLDER)

NOTA. — Esta ficha deve ser preenchida à máquina pela companhia transportadora, sendo as duas vias em original.
NOTE. — This card should be filled out in the typewriter by the carrier and the two copies should be original.

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Return to Academia & Public Service

- 1966-September 1987
 - Bullard and the Cabot Fellowships at Harvard University
 - Professor of Biology at the State University of New York College at Oswego
 - International Plant Research Institute (IPRI)
 - Director of Plant Breeding
 - Acting Director of Cell Biology and Director of Farm/Greenhouse Operations
 - DNA Plant Technology Corporation
 - Manager of Plant Breeding and Agricultural Research
 - Member of the Scientific Advisory Board

Retirement (if you can call it that)

- Lived at the family farm in Ashokan (Ulster County) New York
 - Two abandoned farms in the northern Catskill Mountains purchased by his grandparents in 1920
- Continued private corn breeding and research
- Maintained his consultant status with multiple international companies
- Founder and Founding President of the Catskill Center for Conservation and Development (served over 50 years)



Why is Dr. Chase's Work Important?

PHOTOGRAPH

Maize

Maize, called corn in the United States, is a staple food throughout most of the world, including among these farmers in Venda, South Africa. Maize is eaten by itself, and used for products such as sweeteners, breads, and cornmeal.

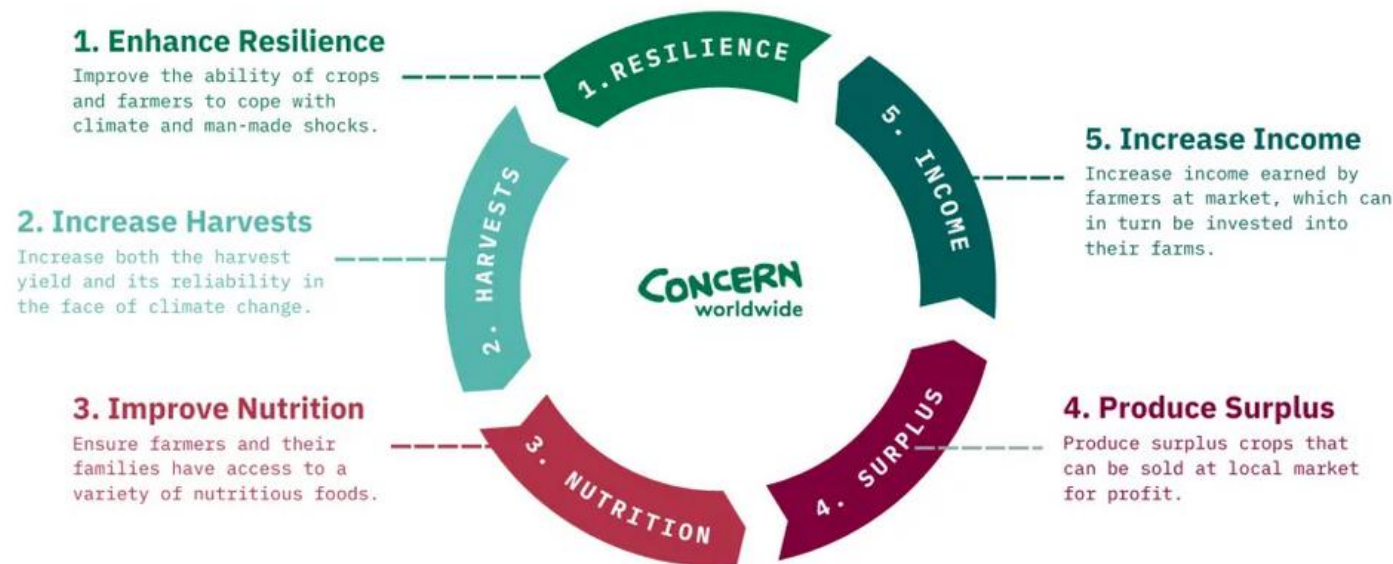
PHOTOGRAPH BY JELENA PERUNICIC,
MYSHOT



<https://education.nationalgeographic.org/resource/food-staple/>

Agriculture helps to solve world hunger

How can agriculture help end world hunger?



<https://www.concern.net/news/agriculture-and-hunger>

Corn has many “enemies”

8C St. Joseph, Mo., News-Press, Sunday, Sept. 6, 1964
Virus Menaces **Corn** Crop

LATE CROP OF
SWEET CORN IS
HURT BY HEAT

NEW AND DEADLY
CORN PEST HAS
BEEN DISCOVERED

In half the acreage of the Third World that
is devoted to growing **corn, drought** is a
recurrent threat that can wipe out an
entire season's production.

Example - Maize Lethal Necrosis



Example - Maize Lethal Necrosis

- In 2012, the Gates Foundation funded a Double Haploid facility in Kenya
- The program has since been helping all the breeding organizations in Africa to quickly develop superior hybrids for all the regions in Africa.
- The Double Haploid system made it possible to create resistant cultivars in a very short period of time.

In August [2018], I witnessed the achievement of the first batch of hybrids with true resistance, all possible because of the speed that DH allowed. A project that (in the best hypothesis) would have taken at least ten years was achieved in just six years! All possible because of the DH methodology!"

"This is a huge accomplishment for the poor African farmers that cannot afford to apply insecticides every week to kill the thrips and aphids which are the main vectors of this disease. You, Dr. Chase, should be very proud of the impact that the techniques that you developed are not only impacting the developed countries but also a lot of other countries particularly the developing countries!" "The merit for the speed is totally yours!" [Walter Trevisan, personal correspondence, October 12, 2018]

In September 2002,
the State of Illinois
Permanently
Recognized Dr.
Chase's
Accomplishments

This historical
plaque is located in
Dekalb, Illinois



What Lessons Can We Learn from Dr. Chase's Life?

- Life can throw some real curveballs your way
- Things don't always go as planned and that is OK
- Try new opportunities as they arise
- When given the opportunity, work for the public good
- Little changes can make a big difference in the world

Learn More About Radnor via RHS

- Visit the Finley House (113 West Beechtree Lane)
 - Open Tuesdays & Saturdays 2:00-4:00
- Review our website (www.RadnorHistory.org)
- Use our 700+ title Research Library
- Volunteer with RHS
 - You work to support RHS, we work to support you!



Thank you

Jennifer H. Beacom

President@RadnorHistory.org

www.RadnorHistory.org