

John A. Mulrennan, Sr.
AN ENTOMOLOGY PIONEER OF
FLORIDA

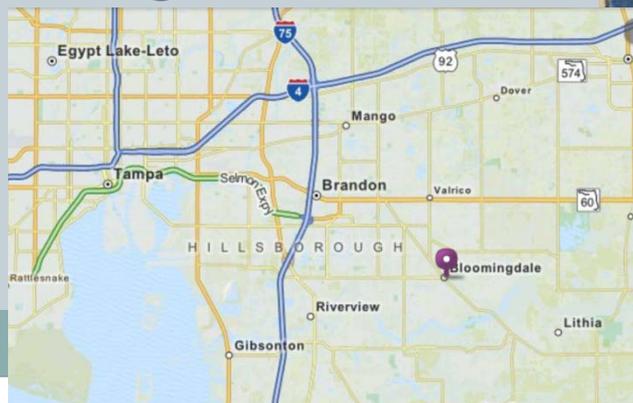


JOHN A. MULRENNAN, JR.
CAPTAIN USN, RETIRED

John A. Mulrennan, Sr.

1906

- Born into a Florida pioneer family
 - 1906
 - 160 acre homestead in Bloomingdale, Hillsborough County, Florida in.
 - Second oldest of four children
 - 4 years old when his father died in 1910 at the age of 31.



Uncle Joe Mulrennan

- Left his job in Tampa as a cigar maker
- Married my grandmother in 1912
 - Had four more children.
- They sold produce on 7th Avenue and 23rd Street in Ybor City
- Ybor City was a 16 mile trip one way with a team of mules and a wagon over a clay road.
- Dad was proud that he was involved in the beginning of the farm market system in Florida.

Ybor City, 1910



High School 1928



- Attended a “one teacher school” in Bloomingdale
- As a teenager, enrolled in school in Brandon.
 - Unfortunately, the teachers were not impressed with the education he received at the “one teacher school”.
 - He was put back a number of grades
- Graduated from high school in 1928 as a 22 year-old
 - Outstanding athlete while at Brandon.
 - He was a man among boys!

Meeting My Mother



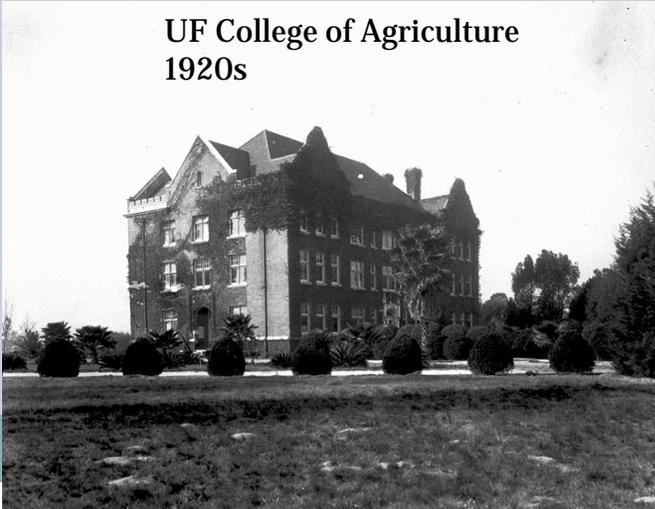
- Met my mother in high school at Brandon on the school bus.
- He winked at my mother the first time he saw her on the bus.
 - She thought, “What a flirt, but he is good looking.”
 - This started a romance of over 50 years.

University of Florida 1928



- **1928 entered the College of Agriculture at the University of Florida**
 - Wanted to go back home and take over family farm.
 - Worked part-time at the State Plant Board in Gainesville
 - Developed an interest in entomology at Plant Board through George Merrill
 - Decided to major in entomology.
 - Was encouraged by his soon to be wife who didn't want to go back to the farm.
- **1931, my dad and mother were married**
- **1932, was awarded a Bachelor of Science in Agriculture with an entomology major.**

UF College of Agriculture
1920s



Mr. George B. Merrill, who became Chief Entomologist following the death of Dr. Berger, was born in North Abington, Massachusetts in 1886 and attended Massachusetts Agricultural College and the University of Florida where he received a BSA degree in 1933. His early work was with gypsy and brown-tailed moths in Massachusetts and with sugarcane insects in Puerto Rico. He later became a specialist in the Coccoidea, and authored a book, *A Revision of the Scale Insects of Florida*, published in 1953. Mr. Merrill served as president of the Florida Entomology Society for 3 terms in 1920, 1923, and 1924. After retirement on January 1956, he was elected to honorary membership in the Florida Entomological Society in 1957 and was awarded a citation by the Society in 1968 for his distinguished service. Mr. Merrill died 28 June 1971 in Gainesville, Florida.

1932 and The Great Depression

- Took job as citrus grove foreman working in Island Grove, FL.
 - Paid \$1.00/day, six days a week; had use of the company truck.
 - My pregnant mother got malaria
 - Possibility of transplacental transmission to the baby
 - Mother was cured of malaria with quinine after giving birth to a healthy baby girl on November 19, 1932.
- His family's experience with malaria affected him profoundly
 - Saw how debilitating malaria was
 - How common malaria was at that time in Florida.
- Florida was not a healthy place to live, remembering that his father died at age 31 in 1910
- With this background for motivation, his true destiny was about to begin.



250. Located in the southeastern part of Alachua County. Ten miles south of Hawthorne off Highway 301 on SR 325.
REMAINS: Old Methodist Church, Clayton General Store, Large Fruitpacking house on the RR, Crosby Home, assorted craker homes



Rockefeller Foundation Work

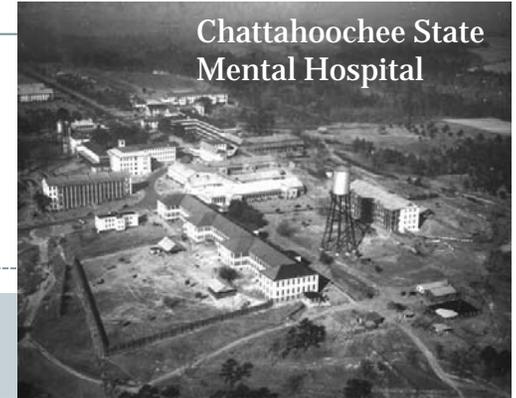
1933

- 1933, Dr. John T. Creighton at UF notified him of an entomology position in Tallahassee.
- Dr. Mark Boyd with the Rockefeller Foundation, and a world renowned malariologist, had a job
 - Work in malaria research
 - Establish an insectary to rear *Anopheles quadrimaculatus*
- Took the position and started a long career in public health and medical entomology.
 - Established the “quad” colony and *Anopheles punctipennis* to determine their effectiveness as vectors of malaria.
 - “Punks” not very efficient vectors like the “quads” and the colony was discontinued.



Mark F. Boyd (1889-1968), a physician, researcher and writer, specialized in tropical medicine, and his research on malaria brought him international recognition. The Rockefeller Foundation selected Boyd to conduct research on malarial regions of the western hemisphere. He was elected President of the American Society of Tropical Medicine, and received numerous awards. For 16 years Boyd served as an officer of the National Malaria Society and became president of the organization in 1946. Boyd also wrote a number of articles on public health and served on the Florida State Board of Public Health. He collected materials dealing with malariology, field ecology, and other branches of science like botany. The Mark F. Boyd Collection contains materials relating to Florida and United States

Rockefeller Foundation Research 1933



- **Experimental Protocol**

- “Quads” were placed in small cages
- He and Dr. Boyd fed the mosquitoes on malaria patients in the local hospital
- Mosquitoes held for 2 weeks
- They then fed the malaria infected mosquitoes on patients mentally ill due to syphilis in the brain.
- Malaria infection caused a high fever that would kill the syphilis spirochete and cure the mental illness.

- **Antibiotics now are used to effectively treat syphilis.**

- Wagner-Jauregg was awarded a Nobel prize in 1927 for this innovative treatment

9. Malaria Drug Therapy



Despite its name, malaria therapy wasn't used to treat malaria. Instead, the disease was used to treat the widely spread STD, syphilis. Before the early 1900s, no one had come up with any type of treatment that could be used in order to treat an STD. However, this is all changed when Wagner-Jauregg, a Viennese neurologist, decided that it may be helpful to treat those infected with syphilis by using malaria-infected blood. Though this seems extremely dangerous, the neurologist believed that by giving someone malaria, the high fever would be able to get rid of the syphilis bacteria that was in the body. Then, since there was a treatment for malaria, the patient would be given quinine which got rid of both viruses. In 1927, Wagner-Jauregg was given the Nobel Prize for the inoculation of malaria, and his treatment was widely used until penicillin was discovered as a medical treatment.

TX State Entomologist/Malariologist 1935

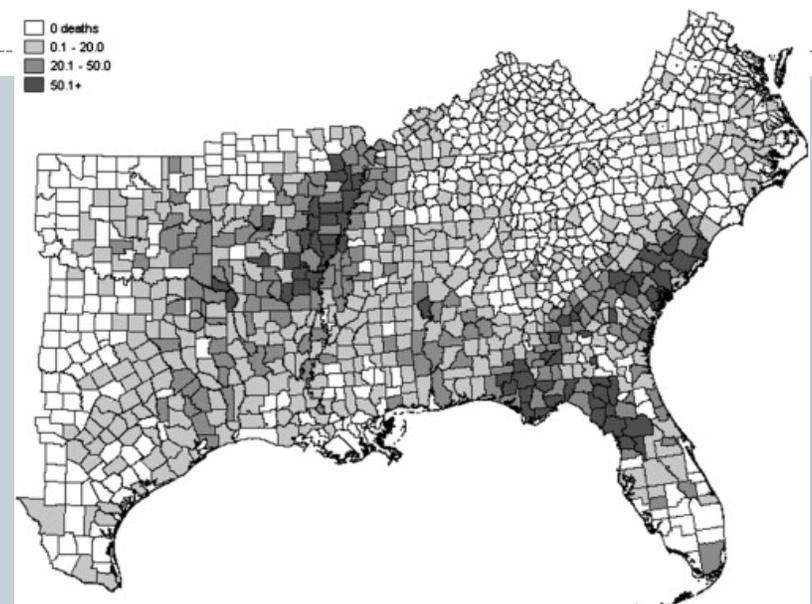
MALARIOUS AREA OF THE UNITED STATES
1934-5



- 1935, took a position as Assistant State Entomologist/Malariologist with the Texas State Board of Health
- By that time, I was born,
 - we traveled by train from Tallahassee to Austin, Texas.
- His primary responsibility was to help establish a malaria control program for the state of Texas.
- 1936, he was named head of the Malaria Control Program for Texas and successfully started it.

Rockefeller Foundation Entomologist 1937

- 1937, Rockefeller Foundation started
- Malaria Control Demonstration Project in Pensacola, Florida.
 - Needed an entomologist with malaria control experience.
- He took the job because he was ready to get out of Texas.
 - Drove from Austin to Pensacola
 - We moved into a bed bug infested apartment on Palafox Street in Pensacola
 - Dad fumigated the apartment with sulfur candles
 - We later moved into a house on NW 7th Avenue and



Malaria Control Demonstration 1938

Practical malaria survey and control procedures and their application to emergency situations



John E. Elmendorf, Fred W. Knipe, John A. Mulrennan, United States Army School of Malariaology
★★★★★
0 Reviews
s.n., 1946 - Medical - 228 pages



Mosquito control by
Florida East Coast
Railroad, 1930s

- February 1, 1938, became the first entomologist/malariologist in the Malaria Control Demonstration Project.
- Program was headed by Dr J. E. Elmendorf, Jr. M. D.
 - Panhandle of Florida was considered the malaria belt at the time.
- The program had entomological, engineering and medical aspects.
 - Entomological aspect: surveillance, identifying mosquitoes, and treating vector breeding areas and installing screens on houses.
 - Engineering: source reduction
 - Medical aspect: identify infected carriers and then prescribing treatments for the infected persons.
- When I was in first grade and the health officials came
 - Pricked our fingers for blood
 - Felt our midsections for enlarged spleens.

Pensacola Demonstration Project 1938

- 1938, he personally conducted vector surveillance and directed control operations.
 - Chemical control was with paris green and petroleum oils,
 - Most control was source reduction (hand dug ditches) done by the WPA
 - “Screens on Houses” program proved to be the most effective means of disease control..
- Dr. Wilson T. Sowder, MD, the State Health Officer with the State Board of Health related stories about my dad crawling under houses to inspect for mosquito resting places.



Creation of Bureau of Malaria Control 1941



- 1941 State Board of Health expanded malaria control to the entire state
 - Provided funding,
 - Created the Bureau of Malaria Control at the State Board of Health headquarters in Jacksonville
- Dr. Elmendorf came to Jacksonville to head the program, but remained only a short time until the beginning of WWII
- Dad was made Chief of the Bureau of Malaria Control.

Elmendorf Heads Malaria Control

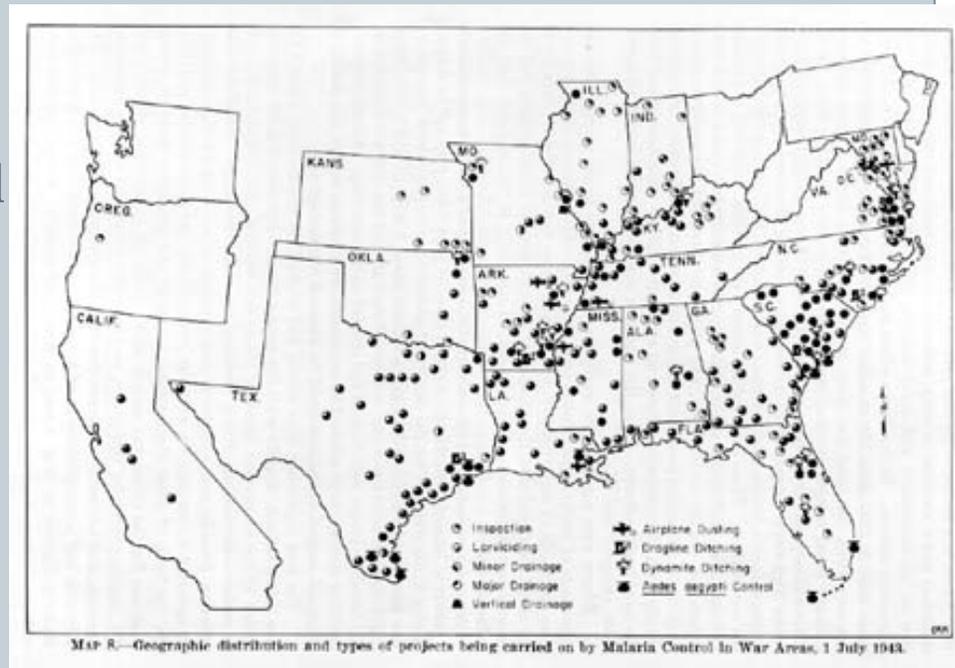
Jacksonville, May 29 — *P* — Dr. John E. Elmendorf Jr., has been appointed director of the state board of health's division of malaria control and will make a survey of Florida upon which to base recommendations for control measures.

Malaria Control in War Areas

1941

- December 7, 1941 and WWII changed everything.
 - Malaria Control Program became “Malaria Control in War Areas”
 - Military installations were built all over the state and many were in endemic malaria areas.
 - Military had little expertise in malaria control and the State of Florida’s Malaria Control in War Areas personnel did the job.
 - Dad began hiring the people in 1942.
 - ✦ Dr. Maurice Provost
 - ✦ Dr. A. J. “Jack” Rogers.

Locations for Malaria Control in War Areas



WWII



- **Army and Navy entomologists, physicians and engineers were trained in Florida on malaria control.**
- **John Mulrennan, Sr. trained them all!**
 - On my first day of college my zoology professor told me he was trained by dad during WWII
 - Later when I joined the Navy in 1959 I met a number of senior officer entomologists that had also been trained by my dad.
- **He made a huge contribution to the war effort and helped to prevent many casualties caused by malaria**

Post WWII

1947



- 1947, Malaria Control in War Areas ended with the war
 - Malaria control efforts were residual spraying of houses with DDT
 - **Last endemic case of malaria occurred in Collier County in 1948.**
 - Emphasis shifted from disease control to pest control.
- After WWII, Florida had a real problem with “fly by night” pest control operators in the state
- He was instrumental in the passage of the Chapter 482 F. S
 - With the cooperation of members of the pest control industry in Florida.
- The “Structural Pest Control Act” in 1947 regulated
 - Pest control industry by requiring certification of operators and licensing of companies
 - Certain functions in companies
- First pest control certification required in the US.

FLORIDA WINS LONG BATTLE WITH MALARIA

JACKSONVILLE — (AP) — One of Florida's biggest killers of the past is a menace no more. The battle against malaria has been won, the state board of health says in an annual report prepared by J. A. Mulrennan, director of the division of entomology.

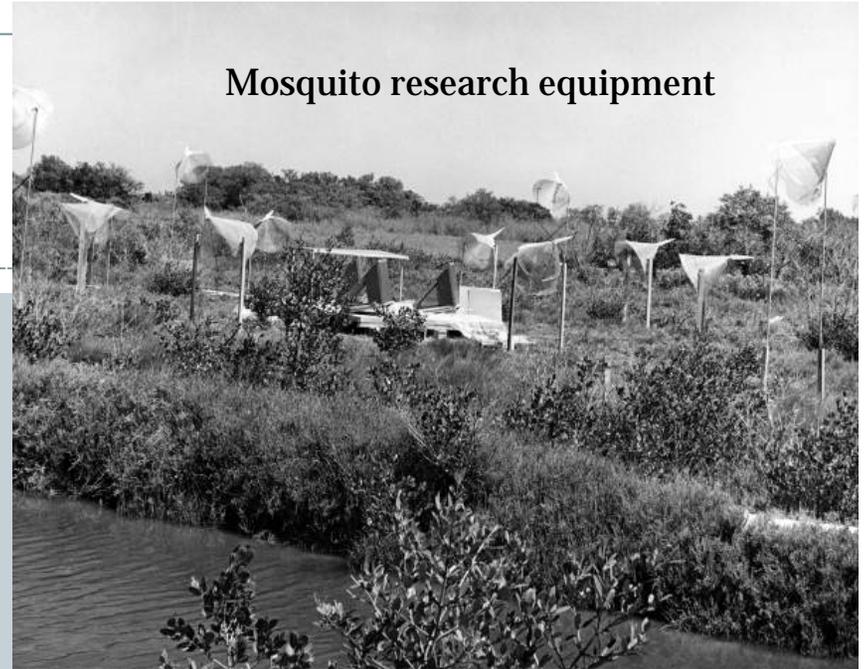
During the past year there was not a single authenticated case reported in Florida which originated in the state, Mulrennan said. Seven cases indicating malaria were reported but they were not confirmed by blood tests.

Mosquito Control Act 1949



- **1949, he helped passage of the “Mosquito Control Act” Chapter 388 F. S.**
 - Provided funding out of general revenue to aid counties or special taxing districts in their efforts to control pest mosquitoes.
 - These State One funds provided for the hiring of personnel and purchase of chemicals and application equipment.
 - Florida bought all of the chemicals (mostly DDT), stored them in a warehouse in Jacksonville, and distributed to counties and districts.
- **The initial effects of DDT on mosquito populations were truly amazing**
 - DDT was sprayed all over the coastal areas where salt marsh mosquitoes were prevalent.
 - However, mosquitoes stopped dying, and by the early 1950’s DDT resistance arrived.
 - A more scientific and long lasting approach was needed.

Mosquito Research 1952



- He believed you needed to understand mosquito biology to effectively develop control programs
 - Dr. Provost initially started the research program in Orlando in 1947
 - Added Dr. E.T. Nielsen, James Hager and William Bidlingmayer to his staff.
- One of the first major research projects launched by Dr. Provost and his staff was to determine the flight range of the salt marsh mosquito
 - Study conducted in the summer of 1952 on Sanibel Island in Lee County.
 - Thousands of mosquitoes were reared in swales
 - Mosquitoes were exposed to P-32, a radioactive isotope and released
 - Light, truck, and animal traps were used to collect the mosquitoes at different distances from the point of release.
 - Collected mosquitoes were sent to Jacksonville and identified by locating radioactive adults to determine the distance they had traveled.

John Mulrennan, Jr

1952



- 1952, I had graduated from high school, and my dad hired me to assist in the Jacksonville laboratory
 - We opened the mosquito collections, counted the numbers, and identified a representative sample.
 - A Geiger Counter was used to scan the collections for radioactive mosquitoes and record the locations of the collections.
 - This was my first exposure to “hands on” entomology.
- I worked in this lab for three more summers and became very proficient in identifying mosquitoes.
- During my last summer I learned to identify malaria parasites in blood smears that were accumulated by Dr. Mark Boyd, many years before.
- After that 4-year period, I changed my major in college from Pre-Med to entomology.

Mosquito Control Legislation 1953

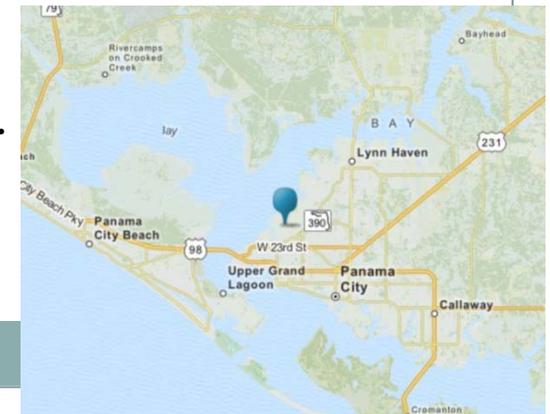


- In 1953 dad was successful in getting \$1,250,000 in additional State Aid legislation passed.
 - For permanent control (source reduction)
 - Was on a matching basis and are referred to as State II funds.
- An additional \$250,000 was authorized for construction and equipping of a laboratory, now called The University of Florida's Medical Entomology Laboratory in Vero Beach.
- Construction of the Florida Medical Entomology Laboratory (FMEL) was completed in 1956
 - Dr. Provost became it's first director and head of the Ecology Section.
 - Dr. Rogers left the University of Florida in 1956 and joined Dr. Provost to head up the operational research.



West Florida Arthropod Research Laboratory 1956

- 1956, He got funding to build The West Florida Arthropod Research Laboratory.
 - 1964, the operational research in Vero Beach was moved to Panama City
 - ✦ Dr. Rogers was it's director.
 - ✦ Research to develop control techniques to control arthropods of medical importance
 - ✦ Original staff members were B. W. Clements and Carlisle Rathburn.
 - Their initial lab was located in the cafeteria of the old Navy base.
 - Moved into their newly constructed lab in March of 1966.
 - In 1986 the name of the laboratory was changed to the John A. Mulrennan, Sr. Arthropod Research Laboratory.
 - ✦ Transferred to Florida A&M University (FAMU)
 - ✦ In 2012, due to budget cuts, The John A. Mulrennan, Sr. Laboratory was closed.



Dog Fly Control



- **WFARL developed the most effective means of controlling the Dog Fly or Stable Fly**
 - Aerial spraying the flies when the weather fronts brought them to the beaches from the farms to the north.
 - The spraying program started at the lab with a Steerman aircraft loaned to the state.
 - When the program acquired a military surplus DC-3 from Texas the Steerman was returned to Brevard County.
- **He created a separate state program, called Dog Fly Control.**
 - ✦ Aerial sprayed the beaches from Apalachicola to Pensacola.



Reorganization of Mosquito Control in Florida 1960s



- **1960s, Florida Legislature abolished the State Board of Health**
 - Created the largest state agency in the United States, The Department of Health and Rehabilitative Services(HRS).
 - The Bureau of Entomology became the Office of Entomology in the Division of Health.
- **1979, Florida Medical Entomology Laboratory was transferred from HRS to the University of Florida.**
 - He was retired and Dr. A. J. Rogers was Director of the Office of Entomology in HRS from 1976 to 1979,
 - ✦ Before my appointment as Office Director in July 1979.
 - Dad said decisions in HRS were made by social workers and not physicians and scientists.
 - He was absolutely right! I witnessed it firsthand during my 17 years as Office Director and later Bureau Chief under HRS and even when the program was moved to The Department of Agriculture and Consumer Services in 1992.
 - Programs that prevent disease or pestiferous insects are a hard sell to the legislature, public administrators, and the general public.
 - This was true even in the Navy when I was a Medical Entomologist.

John A. Mulrennan, Sr. Accomplishments



- The programs that my dad established have done their jobs extremely well.
- Florida has no endemic malaria or other vector borne diseases and pestiferous mosquitoes are kept at relatively low levels.
- All thanks to organized mosquito control programs.
 - The majority of the people in this state have no idea what it was like to live in coastal areas of the state or to be threatened by a vector borne disease.
 - Even occasional outbreaks of St. Louis Encephalitis, West Nile Virus or Dengue Fever don't seem to generate much attention.
 - Our comforts are taken for granted, but I assure you if it were not for the accomplishments of our pioneer public health and mosquito control workers the State of Florida would not be a "year round" tourist destination and the economy and the health of our state's citizens would not be where they are today.

John A. Mulrennan, Sr. Legacy to Entomology



- My dad was a man of his time.
- He was the right man, at the right place at the right time.
- He had a deep sense of responsibility to the people of the State of Florida and never lost sight of the fact that he was a public servant.
- He dedicated his life to improve the health and economical well being of all the citizens of his beloved state.
- He also had a very supportive boss in Dr. Sowder and was given the freedom to lobby the Legislature for the legislation to support his programs.
- He never would have been able to do what he did in this day and time. The bureaucracy wouldn't allow it.

John A. Mulrennan, Sr. Honors



- He received many honors during his lifetime.

- President of the American Mosquito Control Association
- President of The State Public Health Association
- First Chairman of the United States Mosquito Control Conference,
- President of The Florida Anti-Mosquito Association
- President of The Florida Entomological Society, and The Florida Public Health Association.
- Meritorious Service Award from the Florida Public Health Association and is in their Hall Of Memory.
- “Florida’s Man of the Year in Entomology in 1974 by the Florida Entomological Society.
- The honor he cherished the most was the Honorary Doctor of Science Degree bestowed on him by his alma mater The University of Florida in 1972. He loved the Gators and was a diehard fan for many years before his passing.



DR. JOHN A. MULRENNAN RECEIVES AWARD
FROM THE FLORIDA ENTOMOLOGICAL SOCIETY



Dr. John A. Mulrennan (right) reflects on his award as "FLORIDA'S MAN OF THE YEAR IN ENTOMOLOGY" at the Society annual banquet at Orlando 5 September 1974. Listening (left) is Dr. A. J. Rogers, recipient of the same award in 1973. Photograph by Frank W. Mead.

“John Andrew Mulrennan is a hard man to praise. John is a bulldozer—not a sports car. More than 40 years ago he had decided what his life was to mean to himself and his fellow man. He settled into a low crouch and started moving steadily, relentlessly and irresistibly ahead. Down went marshes and bogs, fake exterminators and inert politicians, public disbelief and hesitant legislators. In the level ground behind him sprang up scientific chemical and engineering control measures, realistic laws, and sound financing of large expensive projects. The only way he could steer was straight ahead. The goal was a mosquitoless, midgeless, flyless, healthier Florida, and John kept his hard nose pointed straight at that goal. He loved God and his fellow man, and he made that plain in the way he lived and spoke.

Statement in His Presidential Address to the Florida Public Health Association in 1955 Summarizes his philosophy of his life:



- **“If you have faith in the mission to which you have dedicated yourself for suffering humanity -- then, with your technical knowledge you will be able to open wide the eyes, minds and hearts of all mankind to the fact that public health is the preservation of the human body. Our responsibility is one of supreme importance when we realize that the human body is the most sacred of all temples -- for therein dwells a soul which on that final day must give its accounting for its stewardship on this earth”**