SEVENTY-NINETH ANNUAL MEETING

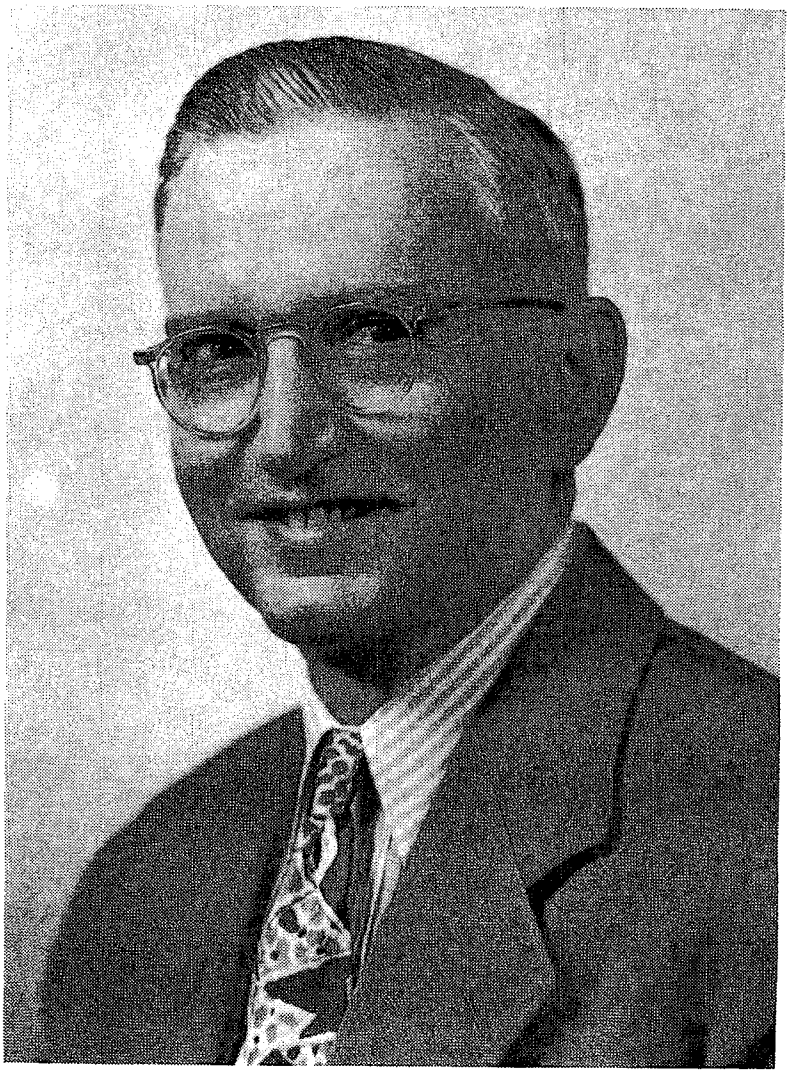
of the

FLORIDA STATE
HORTICULTURAL SOCIETY

held at

Miami Beach, Florida

OCTOBER 24-27, 1966



FRANK LASSITER HOLLAND
1966

DEDICATION

We affectionately dedicate this volume to the memory of Frank L. Holland. One of Florida's great agricultural leaders, he served the Society for many years as Treasurer and member of the Executive Committee, and in 1952 as its President. In 1962 he was elected to Honorary Membership.

At an early age he moved from West Virginia with his family to Bartow, Florida, and attended schools there. In 1917 he was graduated from the University of Florida with the degree Bachelor of Science in Agriculture. Prior to the graduation ceremony he enlisted in the Florida National Guard, Infantry, served with his unit in France and received a field promotion to rank of First Lieutenant.

His professional life was devoted to Florida's welfare, and especially to its great agricultural industry. Practically reared in his family's citrus grove, he later became County Agricultural Agent in Polk County. He left that post in 1933 to become the first Secretary-Manager of the Florida Agricultural Research Institute. For nearly 30 years in this capacity, he served the Institute and all of Florida's agriculture with distinction and with an outstanding record of achievement. He relinquished this position in 1962 to enter private consulting practice.

He organized and served for six years as first President of the influencial Florida Agricultural Council, later receiving its award as "Man of the Year" in 1961. The Progressive Farmer magazine, in 1959, named him "Man of the Year in Service to Florida Agriculture." In 1962 the agricultural faculty of the University of Florida honored him with a plaque engraved: "In sincere acknowledgment—from appreciative staff members for your keen and personal interest in the agricultural and related programs of the University of Florida." Among other honors bestowed in recognition of his wide service and leadership were those conferred by Gamma Sigma Delta, the honor society of agriculture; the Future Farmers of America; the Florida Agricultural Extension Workers Association; the Florida Turf-Grass Association; and by "his own" organization, the Florida Agricultural Research Institute.

These well-deserved honors did not change him. Characterized by integrity and a dynamic driving force, along with an unusually wide knowledge of accurate facts, he championed what he believed to be right, and what he believed should be done.

As a devoted husband and father, active in Church and civic affairs, he held membership in a long list of organizations, contributing his sound advice, warm personality, and tireless energy to each.

His unexpected death March 30, 1966, after but a brief illness, shocked and saddened his many friends and myriad associates throughout Florida and the nation. His labors were finished. Generations ahead will be the richer for his influence.

FLORIDA STATE
HORTICULTURAL SOCIETY
Executive Committee
1966

PRESIDENT
ARTHUR F. MATHIAS
Haines City

CHAIRMAN
DR. ERNEST L. SPENCER
Bradenton

SECRETARY
DR. HERMAN J. REITZ
Lake Alfred

TREASURER
R. R. REED
Tampa

PUBLICATION SECRETARY
RALPH P. THOMPSON
Winter Haven

EDITING SECRETARY
W. L. TAIT
Winter Haven

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WILLIAM H. MATHEWS
Plymouth

VEGETABLES
DR. W. T. FORSEE, JR.
Belle Glade

KROME MEMORIAL
DR. T. T. HATTON, JR.
Miami

ORNAMENTAL
MRS. AMEGDA J. OVERMAN
Bradenton

HANDLING AND PROCESSING
DR. JOHN J. SMOOT
Orlando

MEMBERS-AT-LARGE

GERALD G. NORMAN, Winter Haven
N. P. BROOKS, Homestead
W. S. ARRINGTON, Oakland
JOHN H. KAUFFMAN, JR., Eustis

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1967

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ORNAMENTAL
E. W. MCELWEE
Gainesville

HANDLING AND PROCESSING
ROBERT W. KILBURN
Lake Wales

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GERALD G. NORMAN, Winter Haven
JOHN B. DYE, JR., Fort Lauderdale
LEON W. MILLER, Golden Rod
WILL E. WATERS, Bradenton

Constitution

Article I—NAME—This organization shall be known as the Florida State Horticultural Society.

Article II—OBJECTIVE—The objective of this Society shall be the advancement and development of horticulture in Florida.

Article III—YEAR—The years shall begin January 1 and close December 31.

Article IV—CLASSIFICATION OF MEMBERSHIP—There shall be three classifications of membership, all of which carry voting privileges:

A—Annual
B—Sustaining
C—Patron

Nothing in this article shall be construed as operating against or cancelling the privileges of Life Members accepted as Life Members prior to the adoption of this constitution.

Article V—ELIGIBILITY FOR MEMBERSHIP—Any individual, firm or partnership interested in the development and advancement of horticulture in Florida shall be eligible for membership.

Article VI—DUES—Dues shall be paid annually according to classification at rate as prescribed in By-laws.

Article VII—ANNUAL MEETING—The Society shall hold an annual meeting each year in accordance with the By-laws unless prevented from doing so by causes beyond its control.

Article VIII—SECTIONS—The Society shall be divided into sections representing various horticultural interests as provided in the By-laws.

Article IX—OFFICERS—The officers shall consist of a President, a Vice President from each section, A Secretary, a Publication Secretary, an Editing Secretary, and a Treasurer, which officers shall be elected by a majority vote of the membership present at the annual meeting and shall assume their respective offices at the beginning of the new year.

Article X—SUCCESSION—In the absence of the President or his inability to serve temporarily the Vice President of the Citrus Section shall serve instead. If the position of President is vacated, the Executive Committee shall designate his successor.

Article XI—EXECUTIVE COMMITTEE—The Executive Committee shall consist of not more than 15 persons including the immediate Past President and all Officers above named, the others to be selected at same time and in same manner as prescribed in Article IX. The immediate Past President shall be chairman of the Executive Committee. The Executive Committee shall have authority to act for the Society between annual meetings.

Article XII—MEETINGS OF THE EXECUTIVE COMMITTEE—The Executive Committee shall meet upon call of the Chairman at such time and place as may be approved by a majority of the Committee. A majority of the Committee shall constitute a quorum. The Committee may be canvassed by mail and vote by ballot in like manner.

Article XIII—COMMITTEES—The Chairman of the Executive Committee shall, with the approval of the Executive Committee, appoint all standing or special committees as provided in the By-laws.

Article XIV—DUTIES OF OFFICERS—The *President* shall be the official head of the Society and preside at the general session of the annual meeting. He shall be directly responsible to the Executive Committee and may be removed from office for cause by an affirmative vote of a majority of the full Executive Committee.

The *Vice Presidents* shall be members of the Executive Committee. The Vice President of the Citrus Section shall assume the duties of the President in the temporary absence of the President. The Vice Presidents of the various sections shall preside over the particular sections of which they are representatives at the annual meeting.

The *Secretary* shall record all records of all meetings of the Executive Committee and shall be responsible except as may otherwise be designated in the By-laws for recording and keeping proceedings of the annual meeting. He shall likewise issue and mail out statements of dues to the membership, notices of meetings and perform such other duties as ordinarily accrue to that position.

The *Publication Secretary and Editing Secretary* shall perform such duties as may be prescribed and authorized by the Executive Committee.

The *Treasurer* shall be responsible for all funds paid into the Society and shall issue and countersign all vouchers paying bills or accounts against the Society. The Treasurer shall be placed under bond in an amount determined by the Executive Committee, premium on which shall be paid by the Society.

Article XV—AMENDMENTS—This Constitution may be amended at any annual meeting upon the recommendation of a majority of the Executive Committee when approved by a majority vote of the membership present.

Article XVI — EFFECTIVE DATE — This Constitution shall become effective immediately upon approval by a majority vote of the membership at the annual meeting in October 1951.

This Constitution was revised at the annual meeting in November, 1963.

By-Laws

1. The Society's year shall begin January 1 and end December 31.

2. Dues—dues shall be paid annually for the current year and shall be payable to the Treasurer of the Society. Dues shall be as follows:

Annual Membership	$ 6.00
Sustaining Membership	$ 10.00
Patron Membership	$100.00

3. Annual Meetings—the Society shall hold an annual meeting in the fall of each year at a place and time selected by a majority vote of the Executive Committee. The order of business at the annual meeting shall be determined in advance each year by the Executive Committee.

4. The meetings of the Society shall be devoted only to horticultural topics, from scientific and practical standpoints, and the presiding officer shall rule out of order all motions, resolutions and discussions tending to commit the Society to partisan politics or mercantile ventures.

5. SECTIONS—The Society shall consist of the following sections:

Citrus Section
Vegetable Section
Krome Memorial Institute
(Tropical and Sub-Tropical Fruits)
Ornamental and Floriculture Section
Handling and Processing Section

Other sections may be added on recommendation of a majority of the Executive Committee when approved by a majority vote of the membership present at an annual meeting.

COMMITTEES

Nominating Committee—The President not less than thirty days before annual meeting shall appoint a nominating committee consisting of not less than two persons from each section, which committee shall make nominations at the annual meeting of the Officers and other members of the Executive Committee for the ensuing year; Provided that the members representing various sections shall seek advice of each section in open meeting concerning the nomination of Vice-President for that section. Such nominations by the committee however shall not preclude nominations from the floor.

Program Committee—The Vice Presidents of the various sections shall constitute a Program Committee of which the President shall be the Chairman and the Secretary and Treasurer shall be ex officio members.

Auditing Committee—The President with the approval of the Executive Committee shall appoint an auditing committee which committee shall confer with the Treasurer in preparing an audit to be presented by the Treasurer at the annual meeting. The President shall appoint such other committees as may be deemed advisable and approved by the Executive Committee.

DEPOSITORY

The Executive Committee shall have authority to select a depository or establish a trusteeship for funds of the Society as it may deem in the best interest of the Society. All Patron Membership dues and all donations, unless otherwise specified by donor, shall be invested by the Treasurer in United States Government bonds. The earnings from these bonds shall be left as accrued values or reinvested in the United States Government bonds unless it is ordered by the Executive Committee of the Society that such earnings can be made available for operating expense.

APPROVAL OF BILLS

All bills before being paid shall be approved by the President, Secretary or Treasurer, and vouchers drawn to pay such bills shall be signed by the President or in his absence the Vice President of the Citrus Section and countersigned by the Treasurer.

HONORARY MEMBERS

Any individual who has rendered especially meritorious service to the Society and to the advancement of horticulture in Florida may be designated by a two-thirds vote of the full Executive Committee of the Society as an Honorary Member of the Society. Such honorary members shall not be required to pay dues.

AMENDMENTS

These By-laws may be amended at any annual meeting by an affirmative majority vote of the membership present when such amendments have been approved and recommended by a majority of the Executive Committee.

These By-laws shall take effect immediately upon adoption by the membership at the annual meeting in October, 1951.

These By-laws were revised at the Annual Meetings in November, 1963 and November, 1964.

Proceedings of the FLORIDA STATE Horticultural Society 1966

VOLUME LXXIX PRINTED APRIL 17, 1967

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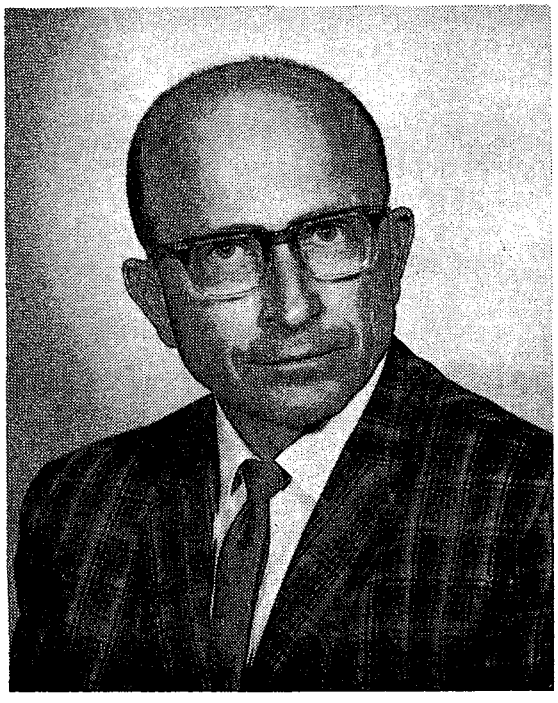

R. A. CONOVER

Award granted to R. A. Conover, Sub-Tropical Experiment Station, Homestead, for having contributed most to Florida horticulture through work published in the *Proceedings* of the Florida State Horticultural Society over the preceding five-year period within the Krome Memorial Section.

Awards For Outstanding Papers

Awards for Outstanding Papers in Volume 78 of the PROCEEDINGS of the Florida State Horticultural Society presented at the Annual Banquet of the 79th Annual Meeting of the Society (Oct. 26, 1966) by Jay W. Whittaker, Swift & Company, Winter Haven.

Citrus Section

Effect of Clay Materials, Lime, and Phosphate on Growth of Young Orange Trees. C. D. LEONARD, J. G. A. FISKELL, and R. B. DIAMOND.

Vegetable Section

Factors Involved in Liming Soil for Watermelon Production. P. H. EVERETT, S. J. LOCASCIO, and J. G. A. FISKELL.

Krome Memorial Section

Storage Trials with Limes, Avocados, and Lemons in Modified Atmospheres. S. B. SALAMA, W. GRIERSON, and M. F. OBERBACHER.

Ornamental Section

The Effect of Natural Amino Acids on Severity of Bacterial Leaf Spot of Chrysanthemums. R. H. LITTRELL and S. S. WOLTZ.

Handling and Processing Section

The Relation of Specific Gravity of Whole Fruit to the Internal Quality of Oranges. S. V. TING and J. G. BLAIR.

Presidents of the Florida State Horticultural Society from 1888 to Present

Year	*Presidents*
1888-1896	Dudley W. Adams
1897-1904	George L. Tabor
1905-1906	C. T. McCarty
1907-1908	P. H. Rolfs
1909	William C. Richardson
1910-1922	H. H. Hume
1923-1929	L. B. Skinner
1930-1936	John S. Taylor
1937	C. W. Lyons
1938-1940	Charles I. Brooks
1941	T. Ralph Robinson (Succeeded Mr. Brooks who passed away Dec. 1940.)
1942	Henry C. Henricksen
1943-1947	Frank M. O'Byrne
1948	William F. Ward
1949	Frank Stirling
1950	Leo H. Wilson
1951	G. Dexter Sloan
1952	Frank L. Holland
1953	R. E. Edsall
1954	M. U. Mounts
1955	H. A. Thullbery
1956	R. A. Carlton
1957	R. E. Norris
1958	A. F. Camp
1959	S. John Lynch
1960	W. L. Thompson
1961	Ruth S. Wedgworth
1962	John H. Logan
1963	Herman J. Reitz
1964	Willard M. Fifield
1965	Ernest L. Spencer
1966	Arthur F. Mathias

HONORARY MEMBERS

Active

Blackmon, Gulie H.	1964	Krome, Mrs. Wm. J.	1960	Spencer, Dr. Ernest L.	1962
Brown, A. C.	1952	Logan, John Henry	1965	Tait, W. Lacy	1962
Camp, Dr. A. F.	1956	Menninger, Dr. E. A.	1964	Thompson, Ralph P.	1962
Carlton, R. A.	1962	Mounts, M. U.	1958	Thompson, W. L.	1962
Fifield, Willard M.	1955	Norris, R. E.	1962	Thullbery, Howard A.	1962
Henricksen, H. C.	1939	O'Byrne, Frank M.	1962	Ward, W. F.	1962
Holland, Spessard L.	1943	Peterson, J. Hardin	1950	Wedgeworth, Mrs. Ruth	1965
Hoyt, Dr. Avery S.	1950	Reitz, Dr. J. Wayne	1955	Winston, J. R.	1960
Jamison, Dr. F. S.	1962	Robinson, Dr. T. Ralph	1942	Wolfe, Dr. Herbert S.	1964
Johnson, Warren O.	1965	Sloan, G. Dexter	1964	Yothers, W. W.	1955

Deceased

Anderson, J. B.	1922	Haden, Mrs. Florence P.	1934	Rolfs, Dr. P. H.	1921
Berckmans, Dr. P. J. A.	1893	Hart, W. S.	1909	Rolfs, Mrs. P. H.	1921
Berger, Dr. E. W.	1940	Hastings, H. G.	1939	Ruehle, Dr. Geo. D.	1958
Bosanquet, L. P.	1924	Holland, Frank L.	1962	Shaw, Miss Eleanor G.	1927
Chase, J. C.	1939	Hoyt, R. D.	1914	Singleton, Gray	1962
Chase, S. O.	1939	Hubbard, E. S.	1922	Skinner, L. B.	1931
Clayton, H. G.	1956	Hume, Dr. H. Harold	1927	Steffani, C. H.	1958
Commander, C. C.	1952	Krome, Wm. J.	1927	Stevens, H. B.	1934
Fairchild, Dr. David	1922	Lipsey, L. W.	1922	Swingle, Dr. W. T.	1941
Flagler, H. M.	1903	Mayo, Nathan	1940	Taber, Geo. L.	1914
Floyd, W. L.	1939	Mowry, Dr. Harold	1950	Tenny, Lloyd S.	1956
Gaitskill, S. H.	1909	Newell, Dr. Wilmon	1940	Webber, Dr. H. J.	1941
Garrett, Charles A.	1951	Painter, E. O.	1909	Wilson, Lorenzo A.	1934
		Redmond, D.	1893		

A. F. MATHIAS
Haines City

PRESIDENT OF THE SOCIETY — 1966

THE PRESIDENT'S ADDRESS

A. F. MATHIAS
Haines City

Each year at this time we engage in a sort of tribal ritual called The Presidential Address —a high souding name for a verbal obstacle course, designed to test the stamina of the members of this society. It is the general feeling that, if you can sit through one of these, then you are truly fit to face anything in the way of ordinary business problems or government intervention that might arise during the year. For those too weak to make it through, we usually have an antidote in the form of a distingusihed, intelligent, and personable speaker to help bring you back to normal.

Your fine chairman, Dr. Ernest Spencer, after serving a full year with your president, has made the suggestion that this year we have two such speakers.

Truthfully, I must tell you that being president of this society is really a very easy job. With great foresight, you have supplied an outstanding staff of officers to carry out the work of your society. Under the very able leadership of Dr. Ernest Spencer, as chairman, your society's business has been in good hands this past year. Dr. Herman Rietz has done an outstanding job of handling the many and varied details of his office, and your finances have been looked after by Mr. Ronnie Reed in his usual capable manner. The enviable postion of esteem in which our *PROCCEDINGS* are held is due in large part to your editing secretary, Mr. Lacy Tait, and to your publication secretary, Mr. Ralph Thompson. We thank all of these fine people for a difficult job well done.

Much of the ground work for a successful meeting is handled by the local arrangements committee. We have been fortunate in having a hard working committee headed by Mr. N. P. Brooks. Their contribution to this meeting has been invaluable.

Today I would like to single out for special praise those persons responsible for putting together the outstanding programs we are enjoying at this annual meeting. These are Mr. Gerald Norman, Program Corodinator, and the Sectional Vice-Presidents: Mr. Bill Mathews, of the Citrus Section; Dr. John Smoot, of the Handling and Processing Section; Dr. W. T. Forsee, Jr., of the Vegetable Section; Dr. T. T. Hatton, Jr., of the Krome Memorial Section; and Mrs. A. J. Overman, of the Ornamental Section. We owe a vote of thanks to the Sectional Vice-Presidents and to the authors of the many papers for their contribution to our excellent program. These people have shouldered their responsibilities well—which is a sly way of leading into some remarks about the responsibility of membership in the Horticultural Society itself.

Horticulture is as interesting and demanding profession as any I know of, whether it be lawyer, doctor, merchant, or chief. It is as old, as time honored, as self-respecting profession as exists today, and we should look on it as such. Most of us here today are active members of the horticulture profession. We are making our living this way. We have the same dreams and aspirations for our families that others do. It is to our advantage to promote horticulture in all its phases. Since we do derive so many benefits from our profession—since we are so willing to take from it, shouldn't we be just as willing to give something to it? It is in this area that we begin to see what some of the responsibilities of membership are.

First, we must realize, although there is a world of difference between my work as a citrus production manager and that of you who might be engaged in research, in vegetable growing, in selling fertilizers or pesticides, or in growing of sub-tropical fruits, we still have the same basic goals. My business may be so far removed from yours that we neither one understand the problems the other faces—still, we are both interested in building a dynamic agriculture in Florida, an agriculture that not only offers good, high quality products to the consumer, but gives reasonable returns to the producer.

What better meeting ground do we have? What better vehicle for the advancement for our professions exists than the Florida State Horticultural Society? If this be so, and I firmly believe it to be, then we must all share the responsibility of building a better Horticultural Society.

This Society has a glorious history of advancing horticulture in Florida. Seventy-nine years,

to be exact, of furthering the cause of better education for horticulturists, of fighting their battles before the State Legislature, of pushing the cause of better research facilities, of planning for better bud-wood, of eradications of disease and insect pests. As great as these efforts have been, today's fast changing argiculture is demanding an even greater effort, a united effort on all our parts. We are going to have to run fast just to stand still in the market place.

It is my hope that this society will never lose its united front, that we shall never degenerate into just a reporting society that is interested only in the publishing of our *PROCEEDINGS*. As fine as they are, we must offer service in other areas. It is for this reason I think everyone connected with horticulture should be an active member of this society—so that we can benefit from their thinking and guidance, as we attempt to build a better agriculture.

I was more than surprised this year to find that many of the persons closely connected with our profession are not members of this society. Many who hav been members in the past have let their membership lapse, for what reasons I cannot say—perhaps we have not offered to the industry those elements it is needing; perhaps we, as a society, have lost some of the spark that characterized the early founders of this society. If this be so, then that responsibility must also fall on our shoulders.

If a person has a purely selfish interest in advancing only his own cause, he certainly does not want to overlook the benefits that can be derived from being a member of this society and receiving a copy of its *PROCEEDINGS*. There is no better way to keep current than through attendance at these meetings and use of the *PROCEEDINGS* as reference material. However, if he has as his goal not only his own advancement but that of his profession as well—with all its influence on what we Americans call "The Good Life"—then he wants to be a responsible member.

Responsible membership means we take seriously the programs of this society—we take seriously the cause of more members, for it is unfair to leave this work to just the few people on the Membership Committee. They need our help through our personal contact with others. It means taking an active part in all organizations and programs related to agriculture. But, most important, it means being proud of your profession, of taking a back seat to none. The most important thing in the world from time immemorial has always been the feeding and clothing of the masses. This is the profession we are engaged in, and one we can be proud of.

The past year has clearly shown us that the future of agriculture is full of challenges that must be met head-on. Challenges that will test the mettle of all engaged in agriculture. Not the least of these is the labor supply problem. Without going into the many reasons why we should be short of labor while people are demonstrating in other areas for higher welfare checks or as to why farmers are not only asked to recruit labor in other areas, but required to furnish the transportation and housing for this labor—it is sufficient to say that this only points up the reasons we should work together to promote the development of mechanical harvesters and better methods of producing and processing our crops.

Much research over the past several years has indicated that the pesticide scare was in most cases without foundation, but it has resulted in slowing to a mere trickle the development and release of new and better chemicals. The challenge here is to find better means of growing our crops, using only what is presently available to us. This has always been an area in which members of this society have proven their resourcefulness, and will again.

We have seen the surplus problem in agriculture change to one of near shortages with the shifting of emphasis on the national level to one of more production. This is the kind of challenge that farmers like, and are ready to do something about. We sincerely hope that it can be done with a minimum of government control.

Most people engaged in the horticulture profession by their very nature tend to be individuals who make their own decisions; but, in our segmented society we are going to find no one to fight our battles but ourselves. Agriculture, while it has the most important job in the country, that of feeding the people, has today fewer champions and less supporters than ever in its history. For this reason, we must work together to further our own cause.

The value of the *PROCEEDINGS* of this society is in their use—the value of a piece of farm equipment is in its use. An idle piece of equipment gathers only rust—the same is true of membership—its value is in its active use. Use your membership in this society not only to

enjoy the fellowship at our annual meeting; but, use it to keep abreast of new developments—use it to present a united front for all agriculture in Florida. Together we can have a loud voice.

We can never be satisfied with the status quo—for, if we are, then farmers in general will continue to be behind most others in terms of profit earned on capital and in returns for management risks and labor input. Our *profession* must ever strive to strengthen the ability of farmers to earn greater profits. One of your greatest aids in doing this is an active membership in the Florida State Horticultural Society.

I wish to thank you for allowing me to be your president this year. It has been rewarding in many ways, not the least of which has been your support and friendship.

HIGHER EDUCATION AND THE HORTICULTURAL INDUSTRY

J. WAYNE REITZ, President
University of Florida, Gainesville

When your president asked me to speak at your annual meeting, I readily accepted, not that I had a compelling impulse to make an earth-shaking speech, but rather because I welcomed the opportunity to be again with old friends. Whether real or fancied, I find myself in these past several years with obligations which prevent me from doing many of the things I would like to do and from being with many people whose friendship I cherish.

I haven't checked this statement with scholars in the humanities, but it has been said that the stage of development of a civilization parallels the development of its horticulture. This, I believe, is true for several reasons. First, horticultural crops require intensive specialized care that the backward and undeveloped cannot give.

Second, fruit and vegetables are luxury and health crops rather than staples. As civilizations developed, tastes became more sophisticated and the beauty, aroma, and flavor of horticultural crops made them the favorites.

Third, as civilizations developed, man's appreciation for beauty grew and he developed gardens of beauty using ornamentals and flowers and even edible fruits and vegetables. All civilizations of merit have had their famous gardens. In our current civilization the use of flowers and other ornamentals to express sorrow, grief, love, tenderness, and happiness is customary. Fine gardens and development of collections of orchids, succulents, and other ornamentals are the joys of those who love the good and the beautiful, just as are the collections of great works of art, literature, and music.

However much I would like to dwell on this theme of the civilizing influence of gardens through promoting an appreciation of beauty and related interests, I prefer to direct my remarks on the more scientific and educational facets of horticulture.

In Greek and Roman civilizations, some of those we know best as philosophers and literary giants were also our first horticultural scientists. Homer writes of the garden of Alcinous where fruits, among them pears, grapes, and figs, were grown 1000 years B.C., but Theophrastus (370-285 B.C.), the "Father of Botany," was the first to describe detailed horticultural practices.

The well-known scholar Pliny described many varieties and compiled many facts. His peers discredited him as a scientist because they said his work was too utilitarium or applied—an argument still rife among scientists today. Many other of these classical scholars conducted experiments or made observations relative to horticultural crops. With the decline of the Roman Empire, horticulture entered an age of darkness, just as did art and literature.

As Europe emerged from the Dark Ages, scientific horticulture again began to develop. Today the term horticulture has a currency in Europe that perhaps surpasses that in the United States. In Europe, large scientific institutions specialize in horticultural research. In England alone, there are several distinguished research centers dedicated to horticultural investigation. The Royal Horticultural Society, formed in London in 1804, has 35,000 members. So it is with other major European nations.

Higher education in horticulture is also well developed.

In the United States, the Land Grant universities have traditionally given both undergraduate and graduate degrees in horticulture. Initially, undergraduate education in horticulture bordered on the vocational. Current undergraduate education at the University of Florida is scientifically and broadly oriented. First, it gives the student a broad education in his political, religious, literary, and fine arts heritage. He comes to understand himself better, as well as his social and physical environment, and develops a fuller appreciation of his role in society. Second, through courses in mathematics and logic, he is aided in developing the ability to think clearly and make decisions. Third, he learns to communicate both in written form and verbally through courses in the communicative arts. Fourth, he studies basic sciences of chemistry, physics, and biology so he can understand the technological material of his profession. Fifth, he becomes proficient in his profession of horticulture. This does not entail the memorization of existing recommendations, but a study of the scientific basis of horticultural practices and management. Thus, it is the objective of the University in horticulture as well as in other

fields to furnish a cultured, clear-thinking graduate who is able to communicate his thoughts. As such he is equipped to keep abreast of the current technology and has the capability of solving horticultural problems by reading, interpreting, and evaluating the new scientific literature on which the future horticultural technology will be based.

Such a graduate will be limited only by his own energy and intelligence—not his educational background. Moreover, if the horticultural industry of Florida is to continue to prosper, it must be lead by such men. No longer is native ability and vigor enough. No longer can we wait, as we did in the days of antiquity, when it took nearly 2,000 years for an astute observation by Theophrastus on cross-pollination to be explained and applied. Horticultural technology requires a sophisticated scientific background and the horticultural industries require a person able to converse with and understand people in other professions.

In graduate level work the University of Florida is somewhat of a newcomer, but is rapidly attaining stature as a leading graduate school. This is important, for the almost fantastic growth of graduate programs at the University in general indicates the ever-increasing need for better and more education. The excellence of an institution's graduate program is one mark of its overall excellence. From a purely practical viewpoint, it is becoming increasingly difficult to attract outstanding scientists and teachers unless the institution offers the Ph.D. in his field and unless he can direct the programs of graduate students. Northern institutions, such as Cornell, Michigan State, Purdue, and Rutgers, have furnished the large mass of horticultural researchers but I am happy to state that Florida has joined the ranks of the leaders in this field within the past 10 years. Of the schools in the Southeast, only Florida and Louisiana State University offer the Ph.D. degree in horticulture. North Carolina State offers a Ph.D. in basic plant sciences with research in horticulture. At Florida, Ph.D. degrees in fruit crops and vegetable crops, and a master's degree in ornamental horticulture are offered. I am sure you will be interested to know that the fruit crops department of the University of Florida has one of the largest graduate enrollments in this field in the nation, with students from various states throughout our country and several foreign countries. In addition to the Ph.D. degree, a non-thesis master's *degree for* those planning to go into industry and a thesis degree for those planning a career in research, teaching, or extension are offered.

At the doctoral level, emphasis is on research training. Heavy concentrations of chemistry, mathematics, statistics, as well as horticultural sciences serve as a broad base for original dissertation research. Since horticulture is an applied science, mission-oriented research sometimes basic and sometimes applied, as the need demands, is emphasized.

At this point I would like to digress for a moment to speak about the University in general. We opened this fall with 18,039 students with a graduate enrollment including the Genesys graduate program which equals the freshman class, the latter having been kept constant for the past five years. We are faced with the necessity of continuing growth although we do not seek bigness. Regardless of our wishes, we cannot elect to remain small if we are to meet the continuing needs of the State of Florida. At the same time we are faced with the necessity of maintaining and enhancing quality. I am firmly convinced that the image of higher education in the State is highly dependent on our maintaining a point of excellence. Certainly this can best be done at the University with its complex of professional schools supported by a strong College of Arts and Sciences and, on the theory that quality is most quickly achieved by building strength upon strength. All institutions with four-year programs should be good. Highly specialized programs and graduate programs need to be concentrated and not dispersed if we are to avoid pricing ourselves into mediocrity.

In both undergraduate and graduate work, the University utilizes the staff and facilities of its Agricultural Experiment Stations for its teachers and its research training. It has not always been this way. This is a tremendous advantage because the highest quality staff and facilities are thereby made available both for undergraduates and graduates. Moreover, the research staff is stimulated and kept current through the demands of teaching. In recent years, the formation of an Institute of Food and Agricultural Sciences has brought teaching, research, and extension even closer together. A Center of Tropical Agriculture has been formed. The branch experiment stations are now more closely allied with the educational program.

I believe it is now safe to say that the University of Florida is not excelled by any and equalled by few in the scope and excellence of its undergraduate and graduate programs in horticulture. Student enrollment is increasing but the demands for our graduates are many times greater. Encouragement from industry in stimulating students to follow a horticultural career is needed. Education and research are the only ways of competing successfully in a highly competitive world.

We have heard much of late of the "Food for Peace" program, because food is a basic weapon in our international policies of building foundations for freedom and peace. We could not produce enough to feed the world, even if the means of payment from abroad were available. But through Education and know-how an attack on the food problem can be made. This has injected a new dimension in our program. Students now seek our education and know-how from all over the world. One of their primary educational needs is in agriculture and Florida is uniquely fitted to supply these needs. This is especially true in horticulture. A military victory in Viet Nam will be meaningless unless that nation can feed itself and develop its economy. The University is currently training a special cadre of volunteer agricultural specialists from the United States to go to Viet Nam and assist in developing their tropical agriculture. Two Vietnamese have already received advanced degrees in fruit crops and have returned to their native land informed on our culture and prepared to win a more lasting peace than can be won militarily.

Because of Florida's position as a horticultural leader in commercial production, research, and education, much of the developing world looks to Florida for leadership. It is noteworthy that the heads of the departments of horticulture at the Universities of the Philippines and Puerto Rico obtained their Ph.D. degrees in our Fruit Crops Department within the past five years and the head of the Experiment Station at Alajuela, Costa Rica, recently obtained an advanced degree in our Vegetable Crops Department. Many positions of significance in horticultural research and education in foreign countries are being filled with Florida graduates.

In addition, the University of Florida system is lending a number of its scientists to foreign countries for short periods as guest lecturers and advisors in education and research. This is being done through federal grants and contracts.

Recognizing Florida's unique position and responsibility in tropical agriculture, the Institute of Food and Agricultural Sciences, under Provost E. T. York's leadership, has formed a Center for Tropical Agriculture. Headed by Hugh Popenoe, an internationally recognized expert in tropical agriculture, the Center attracts funds from private and federal granting agencies and coordinates the University's responsibility in international agriculture. It complements rather than competes with other facets of the Institute. For example, it furnishes the various horticultural departments and branch experiment stations with graduate assistantships to work on problems important to Florida as well as to the rest of the subtropical and tropical world. It has furnished researchers in horticulture a facility to study certain facets of mineral nutrition under subtropical and tropical conditions. It has recently furnished $5,000 for microscopes for a special course in citrus production taught each year at the University's Citrus Experiment Station at Lake Alfred. It has paid some of the expenses for staff members of our branch experiment stations to attend important conferences in other countries. It brings in lecturers from various parts of the world to the University where they discuss problems in tropical horticulture, marketing, and related fields.

Thus, at the same time Florida is meeting its international responsibilities, its facilities and staff are being developed to serve Florida better. Moreover, there has developed not only in horticulture but among the staff in all facets of the Institute of Food and Agricultural Sciences an excitement at the role it is playing. Individual productivity is up; the stimulation of new funds and rapidly developing graduate programs is developing a "hybrid vigor" in its research and educational programs.

Members of Florida's horticultural industries can be proud and confident that this education-research group is not only in step with the times, but showing the leadership one should expect as it renders service to the dynamic horticultural interests of this state. At the same time we are proud of the advances being made by the horticultural industry; its imaginative leadership, its reliance on the latest scientific findings and its broad contribution to the economy of the State, improved diets, and the general welfare. Your future is bright and deservedly so.

SHARE-ING IN THE DEVELOPMENT OF FLORIDA HORTICULTURE

E. T. YORK, JR.

Provost, Institute of Food and Agricultural Sciences

University of Florida, Gainesville

It is a great pleasure to attend the 79th Annual Meeting of the Florida State Horticultural Society. In the three and half years that I have been in the State, I have been extremely impressed by the very high quality of these meetings. Indeed there are many national societies that do not measure up to the broad scope and high standards which mark these annual sessions of this State Society.

Three years ago I had the privilege of addressing this society on the general topic of "Challenges and Opportunities in Florida Agriculture." At that time I pointed to the fantastic growth enjoyed by Florida Agriculture, particularly over the past two decades. This has been a rate of growth, at least during part of this period, exceeded by no other state in the nation. As noteworthy as this progress has been, I am even more impressed today by the opportunities for further growth and development of our State's agriculture. These potentials, in essentially every segment of our agriculture, have been set forth in the rather comprehensive analyses which were a part of Operation DARE.

Actually there have been several recent developments which make the outlook for agriculture even more favorable than we could have hoped for when we met with you three years ago.

The very critical world food problem has come into sharp focus in this period, adding some completely new dimensions to agriulture throughout the world—including ours here in Florida. Indeed never in my lifetime has the overall outlook for agriculture—particularly from the demand standpoint—appeared to be more favorable.

The big question is—what are we as a state going to do to take full advantage of this more favorable climate for agricultural development?

One of the basic objectives in Operation DARE has been that of examining the role of our programs at the University in an attempt to see how we could more effectively contribute to the further advancement of our State's agriculture.

In this connection I would point out that we have two distinct functions. The first is one which you normally associate with a University —that of training and education. Certainly today's highly specialized and complex agriculture demands an ever increasing supply of well trained personnel.

I am happy to report that we are making substantial progress in this area. Our agricultural enrollment at the University this fall is the largest in history—some 18 percent above the level of last fall—and between 55 and 60 percent above the level three years ago.

During the past there years our enrollment in agriculture has been increasing at a rate 2-2½ times as fast as the enrollment for the university as a whole. This is a very significant reversal of a rather marked decline in agricultural enrollment which occurred throughout the nation in the late 1950's and early 1960's. Despite the rapid increase in enrollment however, we are still falling short of meeting the demands for trained manpower by an ever growing, dynamic agricultural industry.

The second major role of the University's agricultural programs involves a research and development function for the total agriculture of the State. This is basically the concern of the Agricultural Experiment Stations and the Agricultural Extension Service. Incidentally, these two functions account for approximately 90 percent of the budget of the Institute of Food and Agricultural Sciences at the University.

There have been many individuals, organizations and groups which have contributed to the present state of development of Florida Agriculture. However, I don't know of any state where the agricultural development has been more dependent upon agricultural research and education than is the case in Florida. We have many problems which are essentially unique to our State—serious problems of soil fertility and minor element deficiencies, along with severe insect and disease problems with crops and livestock—these and many more.

Dr. Beckenbach, Director of the Agricultural Experiment Stations put these research contri-

butions into perspective when he pointed out that without such efforts—"the hills of Central Florida would still be in scrub oak—not in citrus; the flatlands would be in pine and palmetto —not improved pastures; and the Everglades would be in sawgrass—not vegetables and pastures."

As we look to the future, I would say that agricultural research and educational programs at the University are going to be just as important if not more so to the further growth and development of Florida's Agriculture as they have been in the past. In emphasizing the favorable outlook for agriculture, I don't mean to imply that we are not faced with problems—severe problems. Most of the easy problems have already been solved—and today I would say that we are confronted with some of the most difficult problems Florida Agriculture has ever faced. As in the past, however, these are problems which lend themselves to a solution through research and education. Consequently, we at the University have never been faced with a greater challenge than we have today.

In attempting to meet these challenges, we have been examining our total program and what will be needed to enable us to carry out our responsibilities most effectively in serving Florida agriculture.

At the present time we are almost completely supported by public funds—federal, state, and in the case of Extension, county as well. We are hoping and expecting to secure increased appropriations of public funds to take care of a portion of our needs. And I might add that the Florida Agricultural Council is doing a tremendously effective job in assisting in these efforts—particularly at the state level.

To be realistic, however, with the tremendous demands being placed upon County, State and Federal government for increased funding of programs of all types, I don't think it is realistic to hope that these cricitally important agricultural, education, research and development programs can expect to receive the level of support of public funds needed to enable us to meet the demands and help solve the problems facing the agriculture of the state.

Consequently, we are turning to the private sector—to individuals, businesses and industries—to the direct beneficiaries of these programs—for help—as many other states are having to do. In doing this we would still hope and expect to receive a major portion of our support—perhaps at least 95 percent—from Federal, State and local government.

However, the additional support which we would hope to secure from the private sector could have a tremendous impact upon our total program and what we are able to accomplish. The flexibility with which we could use such funds would be of particular value.

We are calling this effort the SHARE program. SHARE is an acronym standing for Special Help for Agricultural Research and Education. The name, in fact, describes rather specificially what the program is all about. Furthermore the word SHARE has a very special and symbolic meaning in that through this effort, Florida Agriculture will have an opportunity to Share very directly in the support need for its future growth and development.

Through this program, individuals, organizations, businesses and industries can make tax deductable contributions to support the overall program of the Institute or some particular activity.

Let me cite some specific examples of need. We have to make up our legislative budget request more than one and a half years before the beginning of a biennium and three and a half years before its end. Frequently we have problems develop after we have submitted our request which demand immediate attention. We frequently don't have the funds or the flexibility to deal with these problems until there have been very costly delays. Special funds such as those that could be made available through the SHARE Program could take care of this need—to tide us over until State funds could be made available.

In the past two to three years we have fallen seriously behind in our competitive salary situation. As a result we have lost some of our most outstanding staff members to other states which could pay higher salaries. SHARE funds could enable us to keep our top personnel and to recruit and hold others like them. I would hope for example that we could establish some "distinguished professorship positions" through which we could attract some of the most outstanding agricultural scientists and educators in the nation to provide leadership in many key areas such as the Horticultural sciences.

SHARE funds could also be used for scholarships, fellowships and loans to enable us to attract the most outstanding young men and women in the state into agricultural professions

and to provide them with the training necessary to enable them to best serve the future needs of our industry.

Incidentally as one example of what can be done in this area—the Agricultural Council last Spring agreed to provide leadership in an effort to raise some $8,000 which when combined with Federal funds available for this purpose would make possible the establishment of a $100,000 loan fund for students in agriculture—a fund leader in this Society. I am happy to say that Mr. Frank Holland, who was a great champion of Florida agriculture and, I might add, a great leader in this society. I am happy to say that this fund raising effort has been a great success. So very shortly we will have a $100,000 loan fund which will be of tremendous value to our young people studying agriculture in the years ahead.

There are of course many, many other extremely valuable programs and activities which SHARE funds could make possible. I think we already have a very good agricultural research and education program in Florida. A basic goal through SHARE is to have a truly superior program—one which is unexcelled anywhere else in the country. I think Florida deserves this type of program. I want to say that we are committed to an all out effort to try to make this possible.

I might add that there are a number of reasons for considering a program of this nature—in addition to the ones I have given. Many times in the last two to three years as I have talked to members of the legislature and others (including the Governor) about our program and its needs, time and again I have been asked —what is the agricultural industry itself doing to support these efforts directly. Of course, there are good answers to such a question. I think however, that an active and successful *SHARE* program as we have described would provide one of the most effective answers—and should in fact make it even easier to secure needed appropriated public funds as well.

I want to say that this is not going to be a "hard-sell"—high pressure program. We are merely going to provide the opportunities for those individuals interested in Florida agriculture to contribute to—to share in—its further development through bequest, gifts, and contributions of any type. Actually our tax laws present some very attractive inducements in this area. At any rate the SHARE program will provide an opportunity for those who have been and will continue to be the beneficiaries of these programs to contribute very directly to their support—so that these research and educational programs in turn can do a more effective job of serving the agricultural industries of this State—including, of course, the individual or industry making the gift.

And I would add something that I said to the Florida Agricultural Council at its meeting yesterday. When we talked about financial support for these programs—public or private, we are not talking about *help* for the University of Florida—we are talking about help for Florida agriculture. Our primary mission at the University is to serve the agriculture of this great State. The primary goal of SHARE is to enable us to do this job even more effectively in the future.

We think the SHARE program *can* add a new dimension to our total agricultural effort and enable all of us to more effectively deal with the problems and more completely realize the great potentials which lie ahead in Florida agriculture.