

LIBRARY OF THE
UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

C

IZa1Es

no. 16-20



AGRICULTURE

The person charging this material is responsible for its return to the library from which it was withdrawn on or before the **Latest Date** stamped below.

Theft, mutilation, and underlining of books are reasons for disciplinary action and may result in dismissal from the University.

UNIVERSITY OF ILLINOIS LIBRARY AT URBANA-CHAMPAIGN

~~NOV 1 1978~~

2416

~~OCT 25 1983~~

~~NOV 2 1978~~

~~NOV 07 1984~~

~~FEB 29 1980~~

~~MAY 8 1985~~

~~JUL 1 1980~~

~~JUL 3 1980~~

~~MAR 23 1981~~

~~OCT 18 1999~~

~~SEP 25 1982~~


11/31/04

~~NOV 2 1982~~

APR 14 2000

~~OCT 4 1983~~

APR 14 2000



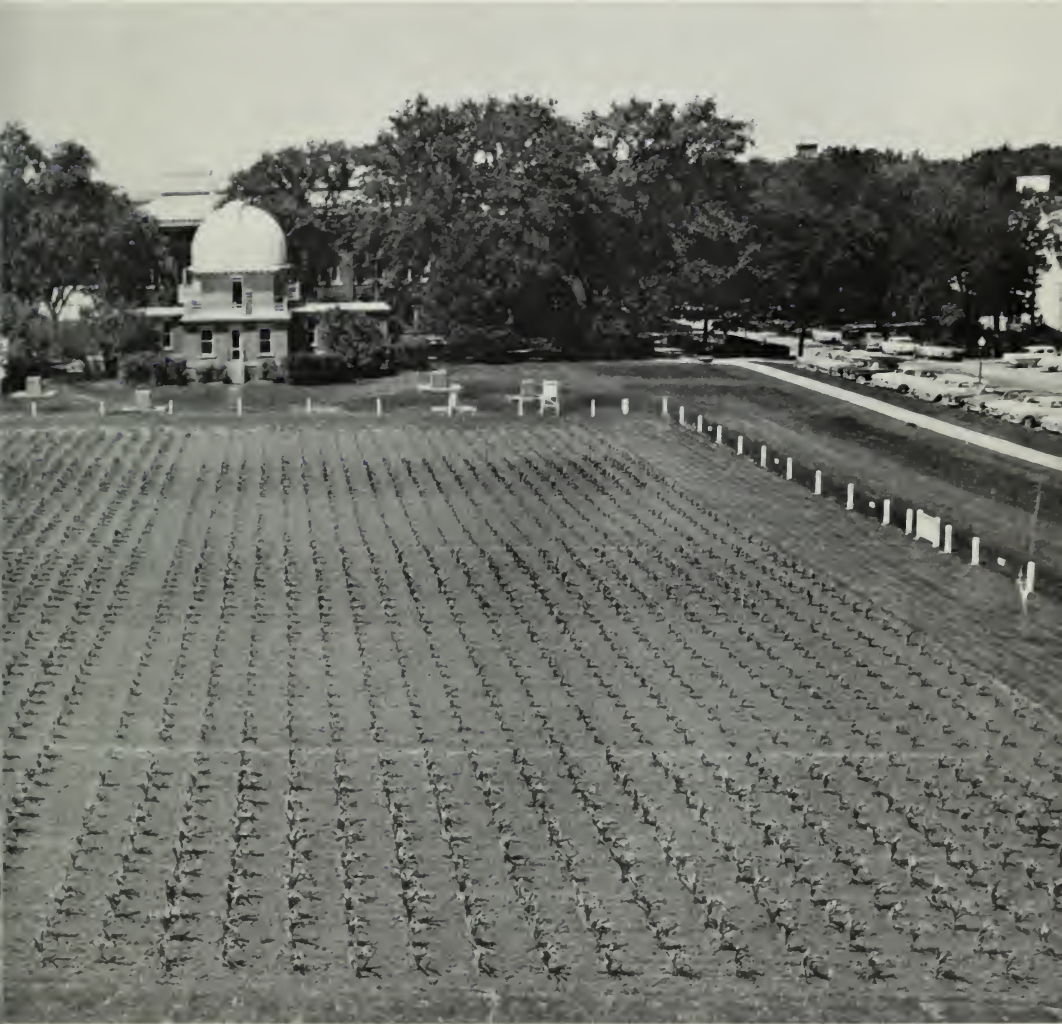
Digitized by the Internet Archive
in 2012 with funding from
University of Illinois Urbana-Champaign

1E5
Agriculture
1963
1963
UNIVERSITY OF ILLINOIS
AGRICULTURE LIBRARY

THE MORROW PLOTS

A National Historic Landmark

THE LIBRARY OF THE
MAR 11 1969
UNIVERSITY OF ILLINOIS



UNIVERSITY OF ILLINOIS COLLEGE OF AGRICULTURE
SPECIAL PUBLICATION 16
URBANA, ILLINOIS, JANUARY, 1969

IZa/E
118-20

The Morrow Plots: A Symbol of Hope

On September 12, 1968, the Morrow Plots, an agricultural experiment field located in the middle of the campus of the University of Illinois at Urbana-Champaign, were officially designated a National Historic Landmark. This pamphlet reprints the remarks made on that important occasion. As Congressman William L. Springer of Illinois said in introducing the remarks in the *Congressional Record* of October 1, 1968: "The Morrow Plots, begun in 1876, were the first field experiment plots established by a college or university in the United States. The lesson they have taught us has a great meaning for the world today. The lesson is that through scientifically proved practices, the productive capacity of an acre of land can be multiplied fourfold. Truly, as stated by Dr. M. B. Russell, the Morrow Plots stand as a symbol of hope that hunger and privation are not the inevitable fate of man."

MORROW PLOTS

HAS BEEN DESIGNATED A
REGISTERED NATIONAL
HISTORIC LANDMARK

UNDER THE PROVISIONS OF THE
HISTORIC SITES ACT OF AUGUST 21, 1935
THIS SITE POSSESSES EXCEPTIONAL VALUE
IN COMMEMORATING OR ILLUSTRATING
THE HISTORY OF THE UNITED STATES

U. S. DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

1968

ORVILLE G. BENTLEY, Dean, University of Illinois College of Agriculture

For nearly a century the Morrow Plots have been a monument to the concept that research and education are relevant to one of man's great concerns — the production of food from the soil. Besides providing research, the Morrow Plots have been a teaching laboratory. They have attracted farmers and other visitors from all over Illinois and all over the nation. The plots are known internationally and many visitors to the campus come to see these plots.

The message from the Morrow Plots is simple but dramatic: man must conserve the soil if he wishes to harvest a bountiful crop from it for himself as well as for succeeding generations. The penalty for indifference to this message is also dramatically apparent.

With the passage of time, the Morrow Plots have become a museum piece, but they differ from many artifacts in that they retain a sense of relevance and urgency for the present. As one reads the history of the plots and reviews the findings that have been drawn from the experiments conducted on them, it seems that the richest legacy they have given us is of hope for the future and some understanding of the vision the founders of this University held for the future of this great state and our nation.

It was fitting, then, that the College of Agriculture should seek to have these historic plots recognized during the centennial observance of the University of Illinois. It is for the purpose of commemorating the designation of the Morrow Plots as a National Historic Landmark that we meet here today.

The original plots, later to be designated as the Morrow Plots, were begun in 1876. Fixing the exact date has not been easy, but official records from the Board of Trustees of the Illinois Industrial University, plus other excerpts from later Board minutes, clearly indicate that plots were begun on this site in 1876.

Another interesting historical reference that seems apropos to this occasion is quoted from the June 10, 1876, issue of the *Prairie Farmer* in which there appeared a brief note from Professor of Agronomy Manley Miles of the Illinois Industrial University, from which I quote: "I have decided to repeat the experiment made by Lawes and Gilbert, with wheat and barley, and with our staple crop, Indian corn. Believing that the experiments referred to have been the most valuable of any I am acquainted with, in demonstrating the action of commercial fertilizers upon the

cereals, I expect to obtain results in the corn experiments now in progress that will at least be suggestive to the practical farmer."

It is an honor for me to preside at this dedication ceremony and to present the program arranged for the occasion by representatives of the Department of Agronomy. We are pleased that this dedication ceremony could be made to coincide with the annual Agronomy Field Day which has attracted farmers and businessmen to our campus.



The citation designating the Morrow Plots a National Historic Monument is displayed by speakers at the dedication ceremony. From left to right they are: Orville G. Bentley, Dean of the College of Agriculture; Congressman William L. Springer; J. W. Peltason, Chancellor of the University of Illinois at Urbana-Champaign; M. B. Russell, Director of the Illinois Agricultural Experiment Station; Allen T. Edmunds of the National Park Service; and M. D. Thorne, head of the Department of Agronomy.

ALLEN T. EDMUNDS, Associate Regional Director, Great Lakes Area Office, National Park Service

It is a real pleasure to be here today and participate in the program of presentation of plaque and certificate designating this significant area as a National Historic Landmark.

The Registry of National Landmarks is a program of public service administered by the National Park Service, U.S. Department of the Interior, under the authority of the Historic Sites Act of 1935. It was to establish an inventory of the nationally significant historical and natural properties of America and to vigorously encourage their continued preservation that the Registry of National Landmarks was undertaken. The Registered National Landmarks Program is voluntary. Landmark designation does not change ownership or responsibility for the property.

To receive National Landmark status, an area must have been given comprehensive field evaluation by National Park Service specialists and committees of recognized authorities, screened by the Advisory Board on National Parks, Historic Sites, Buildings, and Monuments, and declared eligible for the Registry of National Landmarks by the Secretary of the Interior.

The single absolute requirement in the evaluation of areas is that they be of national significance. Each selected site must possess exceptional significance in illustrating or commemorating the natural character or the historic heritage of the United States.

A Historic Natural Landmark, to possess national significance, must reflect integrity; it requires original location and intangible elements of feeling and association. This is no small distinction. From some 30,000 sites and structures studied by our National Survey of Historic Sites and Buildings up to now, only a little more than 750 of the most distinguished have been selected to be national landmarks.

In these times of rapid changes and scientific endeavors in outer space, it is nice to know that an experiment of considerable benefit to many generations, the Morrow Plots, has been in continuous operation since 1876 on this plain old earth. Truly this is a historic landmark.

Chancellor Peltason, it is with a great deal of pleasure, on behalf of the Secretary of the Interior, Stewart Udall, and the Director of the National Park Service, George B. Hartzog, Jr., that I present to you this plaque and certificate designating the Morrow Plots as a National Historic Landmark.

J. W. PELTASON, Chancellor, University of Illinois at Urbana-Champaign

It seems particularly fitting that the Morrow Plots, which have for so long been associated with the well-being of rural America, should now be designated as a National Historic Landmark.

For nearly a century the faculty, the staff, and the students of this great University have been just a little closer to agriculture because of the Morrow Plots and the stories that these Morrow Plots tell about good soil management. These lessons have been especially significant for the young people who have not had the privilege of living on the land.

We are a relatively young nation, but even so we have a rich and illustrious history. Much of this history has its roots in the field of agriculture, and it is meaningful to all of us that today we are recognizing the historical contributions of the Morrow Plots. Speaking for President Henry and all members of the University staff, I am proud to accept the designation of the Morrow Plots as a Registered National Historic Landmark.

WILLIAM L. SPRINGER, Congressman, 22nd District of Illinois

It seems strange to us in 1968 that there ever should have been any question that our rich prairie soil could be depleted by the continuous growing of crops.

We know now — and we have known for many years — that the growing of corn and other crops does drain our soil of elements essential to bountiful harvests like we had last fall.

We also know now that we can maintain the productivity of our fertile land through crop rotation, the application of fertilizers, and the planting of legumes.

Every schoolboy knows these things now — at least every schoolboy who grows up in a rural community — but these fundamental facts, which underlie our vast and productive agricultural industry, were not known as facts when the Morrow Plots were first established in 1876.

Before that time there were men, intelligent and farsighted men, men of science as well as practical farmers, who developed theories on the basis of their own insights and their own observations. Many of these theories proved true but not until they were tested here at the Morrow Plots.

It is fitting, therefore, that these plots have been designated as a Na-

tional Historic Landmark. This designation means that your federal government has taken official recognition of the exceptional value of the Morrow Plots in commemorating the history of the United States.

This designation was made by the Honorable Stewart L. Udall, Secretary of the Interior, upon the recommendation of the Advisory Board on National Parks, Historic Sites, Buildings, and Monuments, entirely on the basis of studies prepared by the National Survey of Historic Sites and Buildings, pursuant to the Historic Sites Act of 1935.

At this point I would like to read the description of the Morrow Plots as prepared by the National Survey of Historic Sites and Buildings.

MORROW PLOTS, ILLINOIS

Begun in 1876 and enlarged in 1879, the Morrow Plots at the University of Illinois were the first field experiment plots established by a college or a university in the United States. They were reduced in number from 10 to three in 1904. The Morrow Plots were of great importance in proving that prairie soil could be depleted by the continuous cropping of corn and, conversely, that crop rotation was an effective method of preventing soil exhaustion. They continue to provide data on the effects of crop rotation and the impact of organic and chemical nutrients on plant yields. Of the three plots now used, one dates back to 1876 and the others to 1879.

May I, at this point, add a personal note.

Dean Bentley first wrote to me, according to my files, on December 29, 1966, about the possibility of having the Morrow Plots designated as a National Historic Landmark. It was hoped that we could obtain this recognition during the University's centennial year which, as you all know, began in early 1967 and extended through March 11, 1968.

Unfortunately, we found that the wheels don't move that rapidly where historical landmarks are concerned. The criteria by which these landmarks are evaluated and adjudged are severe and exact, and necessarily so. These studies took almost a year and a half, and it was not until last May 17th that I had the honor of announcing the official designation.

Even without this recognition, the Morrow Plots have long attracted the attention of agronomists and farmers from all parts of the world. Many of them have come here to see them, and I am sure that many farmers from all over the world will continue to do so.

I congratulate the University of Illinois and its great College of Agriculture on this splendid achievement.

M. D. THORNE, Head, Department of Agronomy, University of Illinois

It is obviously impossible to pay tribute to all the individuals who have made an important contribution to the Morrow Plots. I will introduce several present today who have been directly involved with the planning and operation of the plots, and will refer briefly to a few of the many who made contributions in the past.

The Morrow Plots were established in 1876 by Professor Manley Miles, who was the first professor of agriculture in the United States, at what is now known as Michigan State University. (It is a pleasant coincidence that Mr. Edmunds of the National Park Service now has an office in the Manley Miles building, named after the same Professor Miles, on the campus of Michigan State University.) The plots were named after Professor George Morrow, who was instrumental in getting the plots recognized officially by the University and in helping to start them. The Morrow Plots have been associated with the history of the University of Illinois almost since its beginning. The first regent (president) of the University, John Milton Gregory, reported the establishment of the plots to the Board of Trustees, and the first Chancellor, Dr. Peltason, is here today to receive the official designation of the plots as a Historic Landmark. The presence of President Henry on this occasion is evidence of the continuing recognition by the University of the value of these plots.

Publications reporting the research on the plots include many well-known names: T. F. Hunt, F. D. Gardner, Eugene Davenport, W. J. Fraser, Cyril G. Hopkins, J. E. Readhimer, W. G. Eckhardt, F. C. Bauer, R. S. Smith, L. H. Smith, E. E. de Turk, C. J. Badger, A. L. Lang, L. B. Miller, C. H. Farnham, P. E. Johnson, L. F. Marriott, M. H. Nelson, and J. W. Pendleton. Over the years many others have contributed to the worldwide reputation of the plots. I wish to recognize especially the great support of W. L. Burlison, who was head of the Department of Agronomy for more than thirty years, and of M. B. Russell, both as head of the Department and as Director of the Agricultural Experiment Station.

Finally, I want to pay tribute to seven contemporaries who have worked intensively with the plots, six of whom are here today and one by representation.

Mrs. Mary Farnham is representing her husband, C. H. Farnham, whose death in India two months ago saddened all of us. Mr. Farnham was superintendent of the Agronomy Research Farm at Urbana before

his assignment to the University of Illinois staff at Jabalpur, India. For more than twenty years he supervised the day-to-day care of these plots.

M. G. Oldham succeeded Mr. Farnham as Superintendent of the Agronomy Research Station. He has had the day-to-day supervision of these plots for the past three years.

Lloyd Clapp, foreman of the Agronomy Research Station at Urbana, has been the righthand man for Mr. Farnham and Mr. Oldham for more than twenty years. He represents the fieldmen and technicians who have conscientiously performed the actual operations on the plots.

Lester Boone, Agronomist at Urbana, has charge of the records for the plots and helps with the planning.

The names of A. L. Lang and L. B. Miller have been almost synonymous with the Morrow Plots in the minds of a great many people who have heard them talk or read their publications. For more than thirty years, these two men have been intimately associated with the plots, planning the research and reporting the results. Though now retired, both continue to be active and interested in the plots.

S. R. Aldrich, Extension Soil Specialist, represents the agricultural extension employees in the state who have told the story of the plots to those interested in agriculture in Illinois. He has also served as chairman of today's program.

These men are some of the reasons that the Morrow Plots have been rightfully called the most valuable piece of land in America and are now designated a National Historic Landmark.

DAVID D. HENRY, President, University of Illinois

While I do not expect to add to the information about the Morrow Plots presented here by others, I welcome the opportunity to make several points as to the meaning of this occasion. The event is of University wide significance. The only other officially designated National Historic Landmark at the University of Illinois is the famous Jane Addams' Hull House at the entrance of the Chicago Circle Campus.

It is relevant for me first to express appreciation, institutionally and personally, to Congressman William Springer for his representation in this matter. In countless effective ways, Mr. Springer is a bridge between the University and the federal government, and we are grateful.

The Congressman has reminded us that a hundred years ago agriculture was not a science. It was an aggregate of folklore, rumor, and

report. Not very many people were really sure of anything about agriculture and what many thought they were sure of was often not so. Out of that condition, because of the research activity represented by the Morrow Plots, came the agricultural science which has had a fantastic impact upon the world and which today is regarded as the salvation of the human race.

The historic marker to be placed here is a reflection of the flowering of a magnificent concept upon which universities have been built and which today lies at the very essence of our own survival. I refer to the research function of universities which results in the advancement of knowledge. I also refer to the precept of the land-grant university movement — to carry knowledge, old and new, into the field, the home, the office, and the community. These are basic elements in the mission of the university. They are of importance to students as well as to external communities. We teach graduate students through the research process, and the undergraduates profit from being a part of a community of learning. The marking of the Morrow Plots may be seen as an index to these concepts in American life.

At this point, I enter a note of concern as to what is happening in Washington. For twenty years, the federal government has invested heavily in research in all fields of learning. Agriculture has been a part of that developing program. Anyone who looks at the record, from atomic energy to cancer to space, knows that the investment has had impressive dividends. Now, unfortunately, in the reevaluation of budget priorities, occasioned by war, inflation, and the intricacies of federal finance, the government must take a new look at priorities in expenditures. In that process there is very great danger that the research activities of the universities will be curtailed. Let us hope that our tribute today to the achievements in agricultural research will provide perspective. Research must be among the highest priorities if we are to continue to have the benefits that come from the advancement of knowledge.

I am hopeful that our examining the history of the Morrow Plots will help us understand the priority that we must continue to give to the basic idea of the advancement of knowledge, the federal government's relationship to it, and the necessity for continuing dedication to its enhancement as a means of survival as a people, as a nation, and indeed as a world.

M. B. RUSSELL, Director, University of Illinois Agricultural Experiment Station

It is particularly fitting that recognition of the historic significance of the Morrow Plots should occur at a time when this great university is entering its second century of service to the state, the nation, and the world; when this state is celebrating its sesquicentennial; and when this nation is still less than two hundred years old. Thus, in a historic sense, these plots are young. This institution is young. This state, this nation, and its people are young. Appropriately, there is a strong note of history in this ceremony and in the remarks made here today.

It is of interest to observe that the Morrow Plots were established in 1876, the centennial year of one of the greatest proclamations of free men in all time, the Declaration of Independence. It is now clear that the lesson of the Morrow Plots represents a new kind of declaration of independence — not of political independence but independence from one of the fears that man has had since the dawn of time, the fear of hunger. With this in mind, I would like to share with you a few thoughts that will help us see the Morrow Plots in broader perspective.

Thinking of the plots in terms of a declaration of independence, let us reflect for a moment that from the beginning, the story of man has involved his conquest of nature, his efforts to understand himself, and his desire to live in harmony with his fellowmen. To meet his basic biological needs for food and shelter, primitive man foraged in his environment in a way not dissimilar to that of other mammals with which he shared the terrestrial biosphere. Man, however, slowly developed a new component of the ecosystem in which he operated that markedly altered his history. This new input was the capacity for rational thought. The ability to learn from experience and to transmit knowledge from one generation to the next marked the beginning of man's cultural development.

Early man learned that the environment was malleable and could be modified to meet more effectively his basic needs. Since that time, there has been a slow, often uneven, increase in man's ability to control or modify the physical and biological characteristics and behavior of the ecosystem of which he is a part.

Another consequence of the injection of the human mind into the ecosystem has been the development of a structured culture involving specialization of function and the flow of goods and services among the component parts of the total society. Such structuring and specialization

have greatly increased the capacity of groups of men to manage more fully their total environment, but at the same time have increased the interdependence among individuals and subgroups. As the complexity of the social structure has increased, techniques have been developed to regulate the functional interactions among its component parts with the objective of enhancing the welfare of mankind. In the contemporary world, mankind is making adjustments in its organization and structure for a young, virile, and highly reactive component called science.

History records the rise and fall of many civilizations, often associated with the mismanagement of their basic capacity to feed their people. From this location in the fertile heartland of this prosperous nation, it is difficult for us to realize that the lot of millions of people throughout the world is still one of hunger and privation. In this land of plenty, it is difficult to realize that more than half of the population of the world goes to bed hungry. General recognition of the magnitude and significance of this problem of worldwide food supply has been brought most forcefully to the attention of the American public by the study published last year by the President's Science Advisory Committee entitled "The World Food Problem."

That report reminds us that at present this planet supports a population of roughly $3\frac{1}{4}$ billion people, with an estimated doubling time of 25 to 30 years, which means that by the end of the century there will probably be more than 6 billion people on this troubled planet.

The total land surface of the world is about 32 billion acres, or about 10 acres per person for the present population. However, only about 10 percent of this is of a quality and in a climatic situation that renders it suitable for cultivation. Thus the present population has available roughly one acre per person for the production of its food and fiber needs. Furthermore, a high proportion of the land being farmed is still cultivated with traditional, primitive practices.

We are all familiar with the ominous implications of the Malthusian quotient that says that the food supply tends to increase as a linear function and in direct proportion to the area of land under cultivation whereas the population increases as an exponential function. This, of course, is a very grim, pessimistic outlook on the future of man.

The Morrow Plots, however, stand as a symbol of hope that hunger and privation are not the inevitable fate of man. For in the final analysis the capacity to produce food is based on the use of the soil, water, and sunlight through the alchemy of the green leaf. Basic understanding of

the processes and components of those fundamental reactions generated by science introduces multipliers at every stage of the food production process.

A comparison of the treated and untreated parts of the Morrow Plots shows that through the application of science-based production practices, the capacity of an acre of land to produce can be multiplied roughly fourfold.

In worldwide studies of the yield responses to improved practices, this same 4-to-1 ratio is found in wheat, rice, maize, and other food crops. Comparisons of national yield averages of the developed countries with those of the underdeveloped countries show similar ratios. These data clearly demonstrate that science can provide a multiplier factor in the food production equation. This multiplier is the symbol of hope that is a part of the Morrow Plots.

None would suggest that mere knowledge of the germ plasm of the grain, the chemistry of the soil, or the biology of pest control is the only ingredient necessary to bring about the effective application of this multiplier symbol. For nowhere is the idea of interaction among factors of production more dramatically evident than in agricultural production. There is a strong and fundamental interaction between a large number of physical, biological, and the social, political, and economic factors that strongly affect food production. The mere existence of the technical knowledge of how plants grow, of how they respond to fertilization, or of how to control pests cannot be translated into food to fill stomachs of hungry children unless at the same time there can be developed a kind of social, economic, political, and cultural environment that engenders hope, provides the opportunity for recognition, and creates incentives for improvement.

Some of the most urgent needs and challenging opportunities are to discover in the area of the social, political, and cultural development the kinds of principles that can serve as guideposts for progress in the same way that the Morrow Plots serve in the field of natural science.

In summary, then, we can say that in historical perspective and in terms of their broader implications, the Morrow Plots do serve as a symbol of hope for hungry people throughout the world. They serve as living proof that nature is malleable. They demonstrate that man is not a passive captive of nature but, that, given knowledge, he can manage natural resources and biological production processes in ways that meet more fully his basic needs for food.

Located in the heartland of a young nation in an area of high inherent productivity, the Morrow Plots are still very young when measured on the scale of man's ageless struggle for food, shelter, and the meaning of life. In many parts of the world this struggle has ebbed and flowed for thousands of years often in ecologically hostile environments. In other regions the steady increase in population has caused millions of restless, hungry people to move into new lands in their efforts to feed themselves and their children. What is the meaning of the Morrow Plots to these people?

To the hungry people in the densely populated nations where the land has been cultivated since the dawn of civilization, the simple lesson of the malleability of nature and of man's capacity to understand and apply knowledge is a shining symbol that land, water, sunshine, and the alchemy of the green leaf are renewable natural resources which, if managed wisely, can yield food in perpetuity.

To those agricultural pioneers moving into new lands, the message from the Morrow Plots is that the inherent productivity of even the most fertile soil is not inexhaustible and that crop yields will quickly decline if exploitive production practices are used. However, if managed wisely, the productivity of land brought under cultivation will not decline and, in fact, can normally be expected to increase.

It is fitting therefore that as the University of Illinois enters its second century, the historic character and broad significance of the Morrow Plots be given national recognition. In its campus setting this bit of historic ground serves as a constant reminder to faculty, students, and visitors from this and other nations around the world of the timeless truth and broader interpretation of President Draper's perceptive statement: "The wealth of Illinois is in her soil and her strength lies in its intelligent development."

These plots also serve to remind us all of this institution's continuing commitment to the traditional land-grant college philosophy and its continuing efforts to be aware of and responsive to the needs of society. Thus the challenge of, the search for, and the dissemination of the knowledge needed for the intelligent use of soil and other natural resources to meet human needs throughout a hungry world lie at the heart of the symbolic hope of the Morrow Plots.



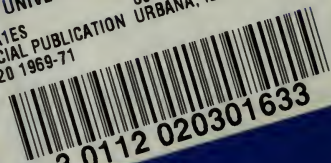




UNIVERSITY OF ILLINOIS-URBANA

C. IZAIES
SPECIAL PUBLICATION
16-20 1969-71

C001
URBANA, ILL.



3 0112 020301633