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INSTITUTION BUILDING AND RURAL DEVELOPMENT:
A STUDY OF UNITED STATES TECHNICAL ASSISTANCE PROJECTS

Indiana University
Bloomington, Indiana
June, 1968

One portion of the Final Report of the CIC-AID Rural
Development Research Project, Contract No. AID/csd-840

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FOREWORD

The Indiana University Report is the joint product of David R. Derge, principal investigator, Donald L. Souder, deputy principal investigator, and E. Hollis Merritt, Richard Bonnabeau, John Stryker, and William Murphy, research assistants. At earlier stages of the project, Neil O. Leighton and Allen Hershfield participated in the research. J. Gus Liebenow prepared the section of the report entitled "Agriculture, Education, and Rural Transformation in Sub-Saharan Africa."

GENERAL INTRODUCTION

Background

Indiana University has participated in a study entitled "An Analytical Study of AID/University Programs in Agricultural Education and Research in Less Developed Countries" which has been conducted under the auspices of the Committee on Institutional Cooperation financed by a contract with the Agency for International Development. The project has run for three years, from September, 1965, to September, 1968.

Specifically, Indiana University has had the responsibility for studying the factors influencing types of institutions best suited to the needs of the host country. The conclusions drawn and set forth in this report are based on data and information from three sources: (1) a questionnaire prepared by the Indiana University research group and administered by Senior Overseas Researchers (SOR's) as well as the impressions and judgments of the SOR's about the projects; (2) reports, publications, etc., prepared by members of the USUNIV field team, by members of the HI staff, and by planning commissions, etc., staffed from international agencies as contracted by the HG; and (3) file materials kept by the USUNIV on its foreign project(s).

Obviously, there are weaknesses in each of these three sources, and data were often not available or not as reliable as one wished. The file materials were written and collected for needs of the USUNIV and thus were not always satisfactory for the CIC-AID research needs; reports and papers from the HI or HG were usually prepared on a specific problem or else were overviews of the HC agriculture or education and, in both cases, were of limited value to the CIC-AID researchers. The SOR's had a difficult job to do in terms of area to be covered and projects to be studied in an 18-month time period when they were overseas.

Project Sample

The CIC-AID Rural Development Research Project (RDRP) was world-wide in scope, covering 68 projects. One SOR gathered the data for each of four sections of the world: (1) Latin America; (2) Africa; (3) Near East-South Asia (NEA); and (4) Far East. It was decided early in the

project that no expired projects would be studied except for those in the Far East area, where most of the projects had experienced phase-out. This immediately eliminated 15 contracts.

The Indiana University research group further limited the number of projects to be studied as follows: (1) a project had to be at least two years old by the time of the major data-collecting period, which started in July, 1966, and (2) a project would be included only if it were of an institution building nature, and only if it involved a foreign institution of higher education.

Thus, contracts with ministries were excluded with one exception which involved work with an agricultural training college in a ministry of agriculture and which was included for purposes of geographical distribution. One project was included which was at the diploma level rather than the university level, and this was done for purposes of geographical distribution. Projects involving only one or two advisors were excluded on the grounds that this was probably not institution building. Other projects had to be dropped from consideration because of insufficient information on them. The final number of projects included for this study was 18.

Of these 18 projects, only one had administrative control over research and extension activities as well as teaching. Of five projects where there were some research and extension opportunities, only two really had any kind of program in operation. One project had had control of extension for the HC but had lost it to the ministry of agriculture. Four of the projects involved completely new operations, whereas the rest were with an existing HC institution.

Methodology

The Indiana University research group, after selecting the projects to be studied, proceeded to compile a case study report on each project for "in-house" use. These case studies were then used to test the validity of 49 hypotheses which had been formulated during the early stage of the CIC-AID project and which had formed the basis for questions on the Indiana questionnaire. These hypotheses were formulated in terms of the interrelationship of variables as set out in the institution building model designed by the Inter-University Research Project in Institution Building (IRPIB).

Theoretical Model

Given the nature of the CIC-AID RDRP in terms of the limitations in time and manpower during the data collecting stage, it was decided to emphasize the institutionality, or lack of it, for each project rather than to work from country descriptions on "needs" in trying to determine the best institution building formula. This decision was made for several reasons: (1) the almost impossible task of defining "country needs" in any meaningful manner for cross-cultural work; (2) the impossible task in terms of time and manpower, not to mention availability of data, of constructing a profile of even 18 countries on the basis of their educational and agricultural needs; (3) the opportunity to partially complement an existing involvement in institution building research of Indiana University in IRPIB; and (4) the seemingly a priori decision on the part of most USUNIV's involved in these institution building projects that the American land grant model and philosophy is the institution best suited to the agricultural and educational needs of the developing countries of the world, and the apparent acceptance of this position by AID which wrote the contracts and supported them.¹

The basic assumption underlying the decision to test these projects for institutionality is that if an organization is achieving, or has achieved, institutionality, it is probably meeting some specific needs of the HC. The next task was to attempt to isolate those factors which seemed to have contributed to the institutionalization process or, in the case where it had not occurred or did not appear to be occurring, those factors which seemed to have impeded the process.

For purposes of testing institutionality, the institution building model designed by IRPIB was used.² The Inter-University Research Project defined institution building as "the planning, structuring, and guidance of new or reconstituted organizations which (a) embody changes in values, functions, physical and/or social technologies; (b) establish, foster, and protect normative relationships and action patterns; and (c) attain support and complementarity in the environment."³ Explicit in this definition is deliberate planning and guidance in the process of institution building. This social engineering approach is considerably different, and is to be distinctly removed from gradual institutional change through evolution or the more sudden, but generally undirected, change through revolution.

Underlying the above definition is the assumption that change takes place through social organizations and

that this process is generic. Also, it is assumed that organizations, to carry out change, are composed of certain elements and relationships that can be identified and isolated for purposes of analysis. With an understanding of the composition of these clusters of variables and the direction and intensity of these relationships, one can formulate basic propositions about institution building which will have cross-cultural applicability.

The thrust of the institution building theory concerns the "locking in" of the organization into its environment. From its immediate environment the organization must extract those resources (inputs) necessary for its survival and sufficient for its growth and development. In this environment the institution must also find consumers for its products (outputs). As the outputs come to have perceived instrumental value by clientele groups in the environment and/or as the organization acquires intrinsic value vis a vis those clientele groups, it is becoming institutionalized in the environment.

Institutionality, which is the product of successful institution building efforts, is not an absolute condition but must be viewed in terms of degrees to which the organization meets certain tests for institutionality. Survival is paramount but certainly not the only criterion. Esman and Blaise stipulate that certain relationships and action patterns must be seen as normative within the institution and for other social organizations in the environment.⁴ Also, the organization must be seen as having intrinsic value in its environment, a condition measured principally by the degree of autonomy the institution has attained.

In the research framework for the IRPIB model, there are several basic elements. There are five clusters of institutional variables which provide insights into the functioning of the organization as a system. These are identified as leadership, doctrine, program, resources, and internal structure.⁵ Of particular importance is the way the organization establishes relationships with its environment. These are referred to as linkage variables and are as follows: enabling, functional, normative, and diffuse.⁶

By combining both these sets of variables in chart form, one has a working matrix (see introduction to Chapter Two). The hypotheses which were mentioned earlier in the report were formulated on the basis of the interrelationships of the variables as found in cells "A" through "T" in the matrix. These hypotheses were tested on the case studies, and the analysis is included as chapter two of this paper.

Land Grant Mystique

In 1961, to mark the passing of 100 years of growth and development, the Land Grant Centennial Convocation was held at Kansas City, Missouri. Instead of taking the usual historical approach for a centennial celebration, it was decided to look and plan for the years ahead, to look at the preparedness of the land grant college for its second hundred years. Committees were formed to study and evaluate the various aspects and responsibilities of the land grant institutions. One of the committees, Group IV, was responsible for a study entitled "How Far Should Government--State and Federal--Go Toward Support of Public Higher Education in International Programs?"⁷

Herman R. Allen, in writing about the Land Grant Centennial Convocation, notes the following point that came out of Group IV: "The Land-Grant concept was singled out for particular notice by Group IV. 'It should be transplanted abroad wherever the environment and conditions appear promising,' it recommended, and 'university programs abroad should likewise include the Land-Grant triad: teaching, research, and extension.'"⁸

Of the 68 projects studied by the CIG-AID RDRP, 50 were with institutions of higher education. The others were with ministries or with governmental agencies and usually were concerned with upgrading research and extension programs of the HG.

Of the 50 college or university based projects, 28 were contractually committed to work in the areas of teaching, research, and extension. In the case of 15 of these 28 projects, it was specifically stated in the contracts that the USUNIV was to establish a "land-grant" type institution. One project was written on the basis of establishing a "land-grant philosophy" type institution; and the remaining 12 projects included teaching, research, and extension programs in the contracts. "Land-grant" type institution is never defined adequately except that implicitly it should include teaching, research, and extension.

Although most land grant people will insist that what is being carried abroad with the USUNIV team is the philosophy or the essence of the land grant college and not its form, one usually finds that the land grant triad of teaching, research, and extension is inseparably interwoven with the philosophy or the essence. While it is not surprising that the land-grant institution was being taken overseas as part of the intellectual baggage of the field team, it must be of some concern that the model and

philosophy were generally accepted as the best ones for world rural development. Although lip service was, and is, usually paid to the idea that institutions cannot be transplanted from one environment to another, it seemed from the evidence as this research project progressed that many projects were transplanting, or attempting to transplant, the model.

Because of this, the Indiana researchers decided that it was necessary, and would be worthwhile in the analysis work, to do some research on the history and development of the land grant college in the United States. The purpose was to find out (1) how the land grant institutions came into existence; (2) how they developed to their present state; (3) what and how they contributed to the growth and development of American agriculture and rural life; and (4) how they functioned and how much they were tied to their environments.

The purpose here was to see if they had been the moving force in American rural development that many claimed; what other agencies and organizations in the environment were supportive or complementary to the land grant institutions; how, and how well, the form and function could be separated; and how flexible had the institutions been historically, and how flexible are they today.

FOOTNOTES

1. John M. Richardson, Jr., 1967, An Analysis of AID-University Relations 1950-1965 (With Special Reference to Rural Development Contracts), A Report from the Center for Comparative Political Analysis, Department of Political Science, University of Minnesota, pp. 53, 19-24, 274.

2. The concepts and relationships set out in the following discussion on institution building and institutionality have been taken from the following sources: Milton J. Esman and Fred C. Bruhns, Dec. 1965, Institution Building in National Development--An Approach to Induced Social Change in Transitional Societies, University of Pittsburgh, Graduate School of Public and International Affairs; Milton J. Esman and Hans C. Blaise, 1966, Institution Building Research--The Guiding Concepts, University of Pittsburgh, GSPIA; Milton J. Esman, 1967, The Institution Building Concepts--An Interim Appraisal, University of Pittsburgh, GSPIA.

3. Milton J. Esman and Hans C. Blaise, 1966, Institution Building Research--The Guiding Concepts, University of Pittsburgh, GSPIA, p. 2.

4. Esman and Plaise, pp. 6-7.

5. Milton J. Esman, 1967, The Institution Building Concepts--An Interim Appraisal, University of Pittsburgh, GSPIA, pp. 3-4.

6. Esman, p. 5.

7. Herman R. Allen, 1962, Open Door to Learning, The Land-Grant System Enters Its Second Century, Urbana: University of Illinois Press.

8. Allen, p. 61.

CHAPTER ONE

ON THE HISTORY AND DEVELOPMENT OF THE LAND-GRANT
COLLEGE IN THE UNITED STATES

Introduction

On July 2, 1862, the Federal Land Grant Bill was signed into law by President Abraham Lincoln. More popularly known as the Morrill Act of 1862 after Justin Smith Morrill, the United States Representative from Vermont who introduced the bill into Congress,¹ this law was to provide the states and territories with public lands "for the endowment, support, and maintenance of at least one college where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the legislatures of the States may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life."

Although the wording of the Act is very general and no attempt is made to define content or method,² this piece of legislation contains the seeds of an institution which when fully developed over a half a century later will prove to be a moving force in American education and rural development. Coming of age for the land-grant college has been a slow and awkward process which has provided its critics, of which there have been many, with numerous points of attack. From bearing the burden of being America's "cow college" to basking in the glory of being "democracy's college,"³ the land-grant institution has shown that it has not been all things to all people. Originally conceived to serve Jefferson's "chosen people," the land-grant college soon found that time and circumstance had changed its clients into "hayseeds" and "country bumpkins." However, that the land-grant college was able to help resurrect the honorable yeoman who had fallen from grace as well as attract clients from a wider socio-economic base is obvious from the following statistics on its one hundredth anniversary.

. . . although the 68 land-grant institutions make up less than four per cent of all colleges and universities in the country . . . their combined enrollment represents 20 per cent of all the undergraduates . . . they grant close to 40 per cent of all the doctorates in every branch of study. (Editorial 1962:213)

When Harry Truman outlined his Point Four program, the land-grant colleges volunteered their services in the task of rebuilding the war-shattered European economies. From Europe it was only a short step to the underdeveloped areas of the world struggling against disease, malnutrition, a rapidly expanding population, and an obsolete agricultural technology on exhausted land. The most obvious reason for the rôle of the American land-grant college in international agricultural development is that this is where the agriculturalists are and this is where the agricultural programs are in the United States. Dean Rusk, Secretary of State, referred to the land-grant colleges and universities as being "invented in essence to assist in the process of development" (1962:17). From another source, the primary characteristic of the land-grant institutions (including the United States Department of Agriculture) is that "it is a developmental institution" (Bonnen 1962:1287). There is reason to question the idea that because an institution made significant contributions to the socio-cultural system within which it was developing, it is equipped to make these contributions in another system with which it has no functional relationship.

It seems only reasonable that before any critical analysis can be made of the efforts by the United States to direct rural development abroad through the mechanism of the land-grant college, there should be some awareness of the various pressures and conditions which prevailed in this country during the evolution of this institution from its inception in 1862 to the present. It is also necessary to know something of the ideas and the conditions which existed prior to the signing of the Morrill Act since it did not erupt full blown from Zeus' head.

Public Land Grants¹

It is probably necessary to a national ego to occasionally make claims for original contributions to the history of mankind, however dangerous it may be. One author (James Bonnen) writing on the contribution of the land-grant college (of Morrill Act origin) to the development of the United States claims for American credit the basic idea of the land grant for educational purposes (1962:1287). However flattering this may be, it is historically inaccurate. This then brings up another problem: that of precisely what is meant by the phrase "land grant institution" (college or university). Since in modern usage the phrase "land grant institution" usually refers to those colleges and universities which were created as a result of, or those which

were given the benefit of, the public lands allotted to the individual states and territories by the Federal Land Grant Act, better known as the Morrill Act of 1862, this usage will be continued throughout this paper. However, the idea of land grants for the support of education is a much older phenomenon and is definitely not unique to the New World. It is beyond the scope of this paper to even attempt to pursue this concept historically to establish its origin; however, some evidence can be provided, and should be provided, to show that the idea of land grants was a part of the intellectual and cultural baggage which the colonists brought with them to the New World.

America, in retrospect, can be considered fortunate to have been colonized by people from North European countries. It was these countries "which were among the first to begin to break the pattern of feudal institutions and to give greater scope and freedom to the growth of the middle classes" (Butts and Cremin 1953:30).⁵ Since America was largely settled by this expanding middle class in alliance with royalty to establish colonies for the glorification of mercantilism, some of the attitudes and values of this European middle class must be understood to be able to understand American development. For example, the English people had been accustomed to schools and a system of education since the late middle ages⁶ and felt an apparent deep commitment to that activity "with which the colonizers of America were familiar" (Schafter 1902:9). When many monasteries and other religious foundations were destroyed under Henry VIII and Edward VI causing many schools which were dependent on them to close, there was considerable resentment among the people who, in many places, began a program of construction and endowment of schools. This practice was carried into America by the colonists who founded "free schools" or "free grammar schools" and endowed them with land (Schafer 1902:11).

The earliest provision for a land grant for the support of education in America was made by the Virginia Company under the direction of King James in 1618 "to reserve ten thousand acres in the territory of Henrico, Virginia, of which nine thousand acres were to be used in endowing a university, and one thousand acres for a college" (Hibbard 1965:308). This, however, came to naught with the advent of the Indian War in 1622 which resulted in the destruction of the settlements and the abandonment of the educational projects until some time later. The practice of endowed education was first actually carried out in Massachusetts, Connecticut, and New Hampshire where its development was "steadily in the direction of a public land grant system" (Schafer 1902:11). It is in Massachusetts that one finds the first endowed college which was founded at Newton in 1636. Harvard, as it came to be called, located in the

renamed town of Cambridge, received in 1640 from the colonial government "five hundred acres toward its maintenance" (Hibbard 1965:308). This was just a beginning, for many of the best known colleges in the 13 colonies owed their origins and/or continued existence to land grants.

William and Mary College received 20,000 acres; Yale received 500 pounds sterling from the sale of lands; Dartmouth was the recipient of 40,960 acres; while Princeton received two acres for a campus. Colleges were started in both Georgia and South Carolina by the aid of land grants. (Hibbard 1965:309)

This brief review of the early history of American education is for the purpose of showing the historical basis for the idea of land grants for support of public institutions. It thus becomes obvious that the endowment of educational institutions with public lands was a well-developed cultural pattern by the time of the Continental Congress when another important plateau in the history of the idea of land grants can be identified. Hibbard sums up the rationale for the principle of land grants as follows:

It was approved on the grounds of both religious freedom and democracy, on the opinion that these kindred movements were each dependent on the ability of the individual to read and think independently. (1965:309)

Granting land for support of public institutions was an Old World practice that had apparently made a lasting impression on the colonists; and with the abundant supply of free land available in the New World, it is not surprising that this means of endowment would be continued. The actual support of the institution was through various means of utilizing the grant of land. Often the land was rented to provide continuing support; the land could be sold and the money invested to provide support as well as growth from the original endowment, or the land could be sold and the money used directly for the maintenance of the institution.

The interesting and important point is that, by the time of independence, education and endowments of public land were well established practices in the colonies. Thus, when the debt-ridden Continental Congress was faced with the problem of obtaining revenues, it naturally turned to the

large tracts of land in the public domain and just as naturally made provisions for education and religion in order to attract families to the frontier. In 1784 the Congress appointed a committee to study the problem of the sale of public lands and to draw up a plan for this sale. Two general means of disposing of public lands had been in operation in the colonies prior to the Revolutionary War. One of these was developed in New England and involved division of the land into townships before its sale and the provision of grants of land to be used for support of church and school. The other plan which had developed mainly in the South "involved simply the sale of land parcels varying with individual purchases" and contained no provision for support of education or religion (Butts and Cremin 1953:245). The resulting Ordinance of 1785 was a compromise although it "carried a provision reserving the sixteenth section of every township (each township was divided into 36 equal parcels one mile square called sections) 'for the maintenance of public schools within said township'" (Butts and Cremin 1953:245). It was not a requirement that the schools be built on this section but that this land be used for the support of education. The land could be rented or sold to provide the necessary operating capital.

The better-known document is the Ordinance of 1787, which was drafted by the Continental Congress to provide for government in, and distribution of, the lands contained in the Northwest Territory. Some 5,000,000 acres of land were allotted to the Ohio Company and the Scioto Company, a group of New England speculators and settlers. The Ohio Company, which was apparently the legitimate company, was allotted 1,500,000 acres under the Ordinance of 1787, which also provided for the sixteenth section of every township to be used for the maintenance of public schools. However, it added the provision that the twenty-ninth section of every township was to be reserved for the support of religion; and as the result of the lobbying activities of one Rev. Manasseh Cutler, a Massachusetts clergyman, specified that "not more than two complete townships [were] to be given perpetually for the purpose of a university. . . ." The Ordinance of 1787 contains the often quoted article three: "Religion, morality, and knowledge, being necessary to good government and the happiness of mankind, schools and the means of education shall forever be encouraged." With this the federal government took over from the colonies the practice of supporting education out of public lands. It was of this legislation that Daniel Webster said, "I doubt whether one single law of any law-giver, ancient or modern, has produced effects or more distinct, marked, and lasting character than the Ordinance of 1787."

The ordinance of 1787 set the pattern for decades to come in providing public lands to states and territories for the support of education, especially higher education. This endowment of higher education was the source of the many state colleges which developed in the new states. These were early found in the southern states and then later in the "western" states. New England and the Middle Atlantic states had their own variety of public-private colleges which were of much earlier origin and of various operating policies, e.g., Dartmouth received its charter directly from the King of England. These early state colleges which were brought into being and maintained by grants of public land as set forth in the Ordinance of 1787 "are not to be confused with those made under the Morrill Act of 1862, which stimulated the creation of the great chain of 69 land-grant colleges over a period of 60 years--up to the opening of the University of Alaska in 1922" (Chambers 1962:33). (This is the source of much of the confusion over the term "land grant college.") The practice was so successful that "by the middle of the nineteenth century, four million acres of land had been earmarked for some 15 state universities" (Brubacher 1962:72). For purposes of clarification on this matter of state universities, the following quotation would seem to be helpful:

. . . Manasseh Cutler . . . considered the existence of such a university endowment necessary to induce emigration from New England. The land-grant provision was intended . . . not to further education but to further the sale of land. From this . . . came the Ohio University at Athens.⁷ A second large sale of land . . . led to the chartering of Miami University at Oxford in 1809.⁸ Ohio University and Miami University, therefore, were the prototypes of the land-grant-supported state universities. (Rudolph 1962:276; underline added.)

The other aspect of the Ordinance of 1787 which should be discussed in more detail is that pertaining to public schools. The "sixteenth section" clause originally found in the Ordinance of 1785 and reiterated in 1787, which provided for public schools, "became the principle in all future grants within the North West Territory, and also in the new states of the Southwestern and Trans-Mississippi territory, enacted prior to 1859. From that time two sections in each township, sixteen and thirty-six, were granted for school purposes" (Schaefer 1902:41). With some exceptions because of peculiar circumstances the land grants for public schools were honored for all the states.

The precedent of the land grant was followed in the admission of Ohio, first, and then in the admission of all the other states with the exception of Texas (which had been an independent nation), Maine, and West Virginia, which had been formed from older states already in the Union. After 1850, more than one section was allotted for school purposes. Because their lands were of low value, four sections were allotted in Utah, Arizona, and New Mexico. (French 1964:48)

Additional support was made available to the states by the federal government from time to time. Much of this money found its way into the educational system of the various states. Some of the more important sources of these funds can best be summarized by the following quotation.

Considerable income came from so-called "5-percent funds," which were agreements under which the federal government gave states 5 percent of the proceeds from the sale of public lands within their boundaries if they agreed not to tax federal property. Other school income came from salt lands and swamp lands given to the states for improvement and sale. (Butts and Cremin 1953:245)

Then in 1836 came the Surplus Revenue Deposit Act which, in keeping with the practice of strong states rights and a weak federal government, provided for the distribution of "a surplus of \$28 million in federal funds to state governments, and many of the latter devoted the funds to school purposes." (Butts and Cremin 1953:246)

Federal Land Grant Act

Following the distribution of surplus money in the federal treasury in 1836 to the states for general internal improvements, there were numerous petitions by state governments in the next 20 years which seemed to set the stage for the beginning of Morrill's forty-year crusade for doing "something for the farmer" (Pritchett 1917:v). Throughout the first half of the nineteenth century there was an undercurrent, with varying degrees of enthusiasm and specificity, of talk about the need for attention to the practical problems facing the rapidly developing American society.

Before 1800 Columbia had promised work in agricultural chemistry, and here and there for the next fifty years an occasional college made what were generally unsuccessful efforts to achieve some vital relationship with the practical needs of an agrarian society.

By the 1850's the industrial potential of the United States was as apparent as its agrarian past, and there emerged a growing awareness that a new age required new training and new preparation. What were lacking, however, were any certain institutional foundations upon which to erect programs of agricultural and mechanical training as well as any deeply held respect for expertness. The ordinary farmer and the ordinary mechanic neither sensed the changing nature of their world nor felt any need for training beyond the job itself, but there did exist among local and regional agricultural societies and among educational reformers a belief that changing times required a new look at the competence of the American farmer and the American mechanic. (Rudolph 1962:247-248)

As the United States underwent rapid growth both in terms of land and population, there were those who saw the need for education in practical matters. As the rich land became rapidly destroyed through overuse and as the supply of public lands suitable for cultivation started being viewed in finite instead of infinite terms, the traditional, extensive methods of cultivation were beginning to be weighed in the balance and found wanting. With the rapid increase in the growth and development of the industrial sector of the American economy, the traditional apprenticeship training methods became more inadequate in terms of both quality and quantity. Industrial leaders were starting to demand that higher education be brought into line with the needs of the rapidly developing society. The new America of the 1850's placed demands on her citizens that were unknown 50 years earlier. The old farmer and the old mechanic with their limitations for the new age could not, and would not, be left in peace. The call was going out for a new kind of higher education, one more practical and more meaningful in its emphasis and less selective in its clientele. While the old education found its source in men and books, the new education would find its source in nature, things, and men as Rousseau had declared it should. America was "nature" in abundance, and she was inventing and building "things" at an ever increasing rate. Also, there always seem to be men to answer the call of their country whether they be called "men of vision," "rugged individualists," "reformers,"

or "capitalists." The isolated cries for educational change had grown to a chorus by the mid-nineteenth century; and change there would be.

Simeon De Witt, surveyor-general of the state of New York, gave one of the first calls for the establishment of agricultural education in 1819 when he published a pamphlet, "Considerations on the Necessity of Establishing an Agricultural College, and Having More of the Children of Wealthy Citizens Educated for the Profession of Farming." His proposal was for a state college with provision for experimental research. De Witt's cry was soon followed by others.

. . . Lieutenant-Governor James Tallmadge of New York made a report in 1826 recommending a School of Agricultural Mechanics and Useful Arts. In this, he predicted, "the manufacturer, the journeyman, apprentice and laborer will become the pupils." The idea grew and was taken up by some of the very active agricultural societies in the various states. John S. Skinner, editor of assorted agricultural and industrial journals, petitioned Congress in 1848 for state subsidies to be used in founding colleges of agriculture and mechanic arts. Though most farmers were skeptical, he found supporters. (Nevins 1962: 13-14)

While many of the early supporters for education in agriculture and mechanic arts looked to the state for support, other leaders were suggesting the federal government should provide assistance for this venture. The earliest definite plan for federal aid came in January, 1841, from Alden Partridge, President of Norwich University who "proposed to Congress that it appropriate funds from the proceeds of the sales of public lands, to be distributed among the states in proportion to their representation in Congress, for the endowment of institutions which would teach the natural and economic sciences as applied to agriculture, engineering, manufactures, and commerce" (Rasmussen 1960:110).

In 1848, Justin Morrill suggested that American colleges might well "lop off a portion of the studies established centuries ago as the mark of European scholarship and replace the vacancy--if it is a vacancy--by those of a less antique and more practical value" (Eddy 1957:27). By the 1950's this practical approach to education along with the principle of federal land grants as a source of endowment had almost taken the form of a movement among certain groups. In May of 1850 a professor of Latin and Greek and

the president of the Illinois Teachers Institute, Jonathan Baldwin Turner, outlined a plan for a State University for the Industrial Classes to be supported by income from federal land sales.⁹ In 1851 at a convention of farmers and mechanics called for the "expressed purpose of considering the establishment of an agricultural university" (Ross 1938: 163), Turner presented in some detail his popular industrial university plan. The mood and time was right in the State of Illinois and in February, 1853, the Illinois General Assembly unanimously adopted a resolution charging the United States senators and representatives from that state to get a bill through Congress providing each state with "an amount of public lands not less in value than five hundred thousand dollars, for the liberal endowment of a system of industrial universities." During this same general period of time, the state of Michigan petitioned the national Congress twice for a grant of land of 350,000 acres of public land "to endow an agricultural college" (French 1964:188).¹⁰

Therefore, when, in 1857, Justin Morrill first introduced a bill in the United States House of Representatives (H.R.2) which would grant "six million three hundred and forty thousand acres of the public land to the states, each state receiving twenty thousand acres for each senator and representative in Congress to which it was entitled under the census of 1850, the proceeds to be used in maintaining colleges for agriculture and the mechanic arts," there had already been "two decades of agitation by influential individuals and organized groups of considerable economic and political weight" (Ross 1962:98). Morrill himself was not an educator and apparently knew little about education beyond a general appreciation for it in an applied sense. His bills (1857 and 1861) were of a general nature doing little more than making provision for financial support and indicating a general emphasis on an applied and practical program. Even so, the bill that was eventually to become known as the Morrill Act of 1862 was precedent setting in that for the first time the federal government specified the nature of the institution to be established by the land grants (Kandel 1917:70). Morrill's speech in support of his bill in 1858 probably provides the most complete explanation of what he had in mind in terms of the institutions for which he was trying to get support. Even so, he spoke definitely on only two subjects--"the relation of extensive cultivation to agricultural decline and the European evidence of the corrective value of education" (Ross 1938: 180). He seemed to want to do something to raise the relative status of the farmer and the mechanic, but other than that his specific ideas on this practical program of education were either non-existent or, at least, never publicly stated. However, in retrospect, some historians have felt that one of the strengths of the Morrill Act of 1862

was its general nature. The subsequent evolution of the land-grant colleges and universities has been more along the lines of the particular needs of the socio-economic system of which it was a part because of the lack of restrictions and specifications placed on it at its inception.

. . . in any case, his [Morrill's] abstention from hampering specification and directives, whether due to non-academic modesty or legislative finesse--no doubt something of both--made possible interpretations and achievements far beyond his most extended vision, then or later. (Ross 1962:98-99)

There is also little doubt that some of the motivation for Morrill's action was purely political. Morrill, a Republican representative from Vermont who had a farming and mercantile background, favored a high protective tariff and probably realized the wisdom of bearing a gift to the still dominant agricultural interest of the country. Also, as Earle Ross remarks, "a gift . . . would help to realize the time-honored Whig design of distribution" (1938:173). Whatever his motives, however, "these considerations of the ways of practical legislation should not detract from his service in initiating the measure at this time and his loyal and continuous support for supplemental aid throughout his prolonged congressional career" (Ross 1962:98).

The bill for land grants which Morrill introduced in 1857 was passed on April 22, 1858, by the House and on February 7, 1859, by the Senate, both by narrow margins (105-100 and 25-22, respectively). However, Democratic President Buchanan vetoed the bill on February 24, 1859; the bill failed to get a two-thirds vote to override the veto--the vote in the House was 105 to 96. Thus ended the first attempt at the national level for support for agricultural and industrial education. The major point of the opposition was the issue of states rights although there was some concern for the large amount of land which would be taken out of the shrinking public domain. There was almost no discussion on the merits of the idea contained in the bill regarding the establishment of an educational institution. The opposition in the House was led by Representative Cobb of Alabama, who was chairman of the Committee on Public Lands which had reported the bill out unfavorably. In the Senate where there was strong opposition, Senator Pugh of Ohio led the fight against the bill mainly on the issue of its constitutionality but also on the misuse of large amounts of public land. Senator Rice of Minnesota, with true Jeffersonian reasoning, gave an impassioned speech against the bill of which the following quotation is probably the most interesting:

If you wish to establish agricultural colleges, give to each man a college of his own in the shape of one hundred and sixty acres of land, where he and his children can learn how to make it yield the fruits of the earth in the greatest abundance; but do not give lands to the states to enable them to educate the sons of the wealthy at the expense of the public. We want no fancy farmers; we want no fancy mechanics; but we do want homes for the working artisans and the cultivation of the soil.
(Kandel 1917:10)

It will be remembered that during this same time there was considerable pressure for provision of free land for homesteaders. The most common figure mentioned as the amount of land to be made available to each homesteader was 160 acres or one-fourth of a section. This, of course, was the amount of land finally stipulated by the Homestead Act of 1862.

With the onset of the Civil War, conditions changed as well as the composition of the Congress due to the withdrawal of Southern Congressmen, the major source of opposition to the land-grant bill. In December of 1861 Morrill introduced a revised bill¹¹ (H.R.138) in the House where it was passed on June 17, 1862, by a vote of 91 to 25. On May 2, 1862, Senator Benjamin Franklin Wade, a Republican from Ohio, introduced a land-grant bill (S.298) which was passed on June 11, 1862, by the overwhelming vote of 32 to 7. On July 2, 1862, Republican President Abraham Lincoln signed the bill into law. It is of passing interest to note the home states of those Senators who voted against the Morrill Bill in 1862: Doolittle and Howe of Wisconsin, Grimes of Iowa, Lane of Kansas, Saulsbury of Delaware, Wilkinson of Minnesota, and Wright of Indiana.

Thus began what has probably turned out to be one of the most significant contributions to education and development.

The Land-Grant institutions of instruction and research, in their wide areas of subject matter and varied forms of organization, have made the most original and characteristic American contributions to higher education. (Ross 1962:94)

True, the land-grant institutions were but skeletons compared to what one finds today in the United States; however, "the uniquely effective place which the land-grant

college has come to occupy in the scheme of American education has resulted not from any cleverly devised act struck off at a given time but from a gradual process of adjustment to changing economic and social needs, an adaptation to varied environments, and competent experimentation in subject matter and method" (Ross 1938:180). The importance in the legislation in 1862 was more in the sense of "becoming" than in "being." Despite some 11,367,832 acres of land¹² which was given to the states as a result of the Morrill Act of 1862 with a cash yield by 1910 of \$13,726,178 and almost 115,000,000 worth yet unsold (French 1964:190), the land-grant colleges made little impact during the first 50 years of their existence. Henry Pritchett could write in 1917 that "it is only within the last few years that they [the land-grant colleges] have addressed themselves directly to this problem" (1917:vi). Today it is obvious that the real contribution of these institutions has come since the 1930's and that at Pritchett's writing the colleges were still "becoming."

Statements regarding the cardinal importance of this act [Morrill Act of 1862] in the history of higher education, if well reasoned, must have reference not so much to the specific measure itself as to the spirit which it reflected and the matured achievement to which it markedly contributed. We are . . . concerned . . . with the evolution of the colleges as they now exist . . . it is necessary to consider the various stages through which these institutions have passed in reaching their established position in the movement before 1862; the bills of 1857 and 1862; the influences in the acceptance and application of the Act by the States; and the determination and justification of the field and scope--the fixing of the place in the academic sun and consequent securing of Federal and State support to remain there. (Ross 1938:158)

Additional Legislation

In the Morrill Act of 1862, the states were charged with providing education in agriculture and mechanic arts with the money from their land grants. The lack of other specifications left the states to their own devices in precisely how this money was to be used. Some states started new institutions whereas others upgraded an existing institution with the funds and turned it into their Land-Grant College. Two of the first colleges established under this Act were the Michigan Agricultural College (now Michigan

State University) and the Pennsylvania State College (originally the Farmer's High School founded in 1855). Most states used the land grant money to establish "agriculture and mechanical arts" colleges in conjunction with their already existing state universities. Other states added schools of technology and/or agriculture to older private institutions--Cornell is a good example of this, resulting in the half-private, half-public institution that is found today. The real problem was not how the states chose to implement their applied program in a physical sense but how they chose to develop the curriculum within the program.

In the beginning, most of the leaders in this movement were men with classical backgrounds--they were products of the existing educational system of the time. Most of them knew little about agriculture or mechanical arts; consequently, the course work was highly theoretical and had little to do with the actual needs of American agriculture or industry. The Morrill Act of 1862 had clearly placed upon the land-grant institutions which it created the responsibility to serve, "although they had some difficulty in learning exactly how" (Rudolph 1962:360). Most of the farmers and artisans ignored the new "A and M" colleges as being unnecessary. Some organizations as the National Grange (organized in 1867) actively opposed the Land-Grant Colleges. There were numerous problems not the least of which was keeping the educated person on the farm.

. . . it was to be some time before the land-grant institutions would contribute anything substantial to human-resource development in the agricultural sphere. And when the day of agricultural service dawned, the agriculturally oriented human capital formed by the land-grant institutions was not comprised of the students who returned to the farms. The college provided a road off the farm, not back to it. (Bowman 1962:527; underline added.)

This is not to say that the land-grant institutions had no impact during the early formative years. They were generally turning out a great number of teachers who contributed quantitatively and qualitatively to growth of the common school in the United States; this was especially true in the Midwest and West where there was an absence of private secondary schools. The state universities soon came to be the front runners in co-education providing large numbers of educated females who would influence and motivate the next generation as housewives and mothers (Bowman 1962:536). However, the stability and true "calling" of the land-grant college was some years in coming--"systematized and reasoned

subject matter and stabilized curricula came only with the experiment stations. . . ." (Ross 1938:183).

In 1887, Congress passed the Hatch Experiment Station Act. This law provided for the Federal government to furnish "annual appropriations of \$15,000 to the states for the establishment of agricultural experiment stations at the land-grant institutions 'to aid in acquiring and diffusing among the people of the United States useful and practical information on subjects connected with agriculture and to promote scientific investigation and experiment respecting the principles and applications of agricultural sciences'" (Brickman 1962:247-248). The signing of this bill into law came after a fight lasting five years and only after overcoming the usual fears of federal control, states rights, and problems of finance. A bill (H.R.6110) "to establish national experiment stations in connection with the agricultural colleges of the various states" was introduced in 1882 by Cyrus Clay Carpenter. It was not until 1887 that a similar bill, introduced into the House by William Henry Hatch of Kentucky, was passed. The major implication of this bill, beyond the actual financial support, was that it "brought the federal government into a tremendously important educational domain--that of research and experimentation in agricultural and conservation problems" (Butts and Cremin 1953:427). This was done by placing the general supervision of the Hatch Act funds under a Commissioner of Agriculture, a position which was later to become known as the Secretary of Agriculture.¹³ Additional support for the experiment stations was voted in 1906 when Congress raised the annual appropriation to each state and territory to \$20,000 with the provision that the amount would increase at a rate of \$2,000 a year until the annual appropriation reached \$30,000. The value of these experiment stations to the land-grant colleges is not hard to understand. They provided the practical emphasis previously advocated but certainly lacking in the curricula of the land-grant colleges.

The value of experiment stations or model farms in the promotion of agricultural education was early recognized, and was emphasized in particular by the reports on European Institutions. When the law establishing the Maryland Agricultural College was passed in 1856, provision was made for a model farm, on which experiments were made and recorded for a number of years. In 1870 Harvard College established an agricultural laboratory . . . for "a course of instruction in practical agriculture, in useful and ornamental gardening, in botany, and in such other branches of natural science as may be tried to promote a knowledge of practical

agriculture. . . ." State aided experiment stations were established in Connecticut in 1875 . . . and in North Carolina at Chapel Hill in 1877 in connection with the state agricultural college. (Kandel 1917:59)

Authors Freeman Butts and Lawrence Cremin see the experimental farms as the innovative force which resulted in the acceptance of the land-grant colleges as viable institutions in American agriculture:

In the teaching of agriculture it was the use of the demonstration farm that actually revolutionized agricultural instruction. In the early years agricultural colleges had enjoyed comparatively little interest from the farmers they served. Those who attended agriculture classes usually heard lectures about subjects which had little direct relation to the actual business of farming. Now, the radical change of technique created widespread interest in the work of these institutions. Through demonstration farms, agriculture students learned the techniques which were to revolutionize American agriculture, and state A. and M. colleges quickly became centers of progressive scientific thought. (1953:448)

The same year as the Hatch Act, 1887, the Association of State Universities and Land-Grant Colleges was founded. Operating under various titles over the years, this organization has been especially influential "in defining and extending appropriate areas of work and in raising and standardizing instruction and research" (Ross 1962:101). Additional support for the land-grant colleges was forthcoming in 1890 with the passing of the Second Morrill Act. Justin Morrill, then a member of the Senate, introduced a bill for additional support for the land-grant institutions every session of Congress beginning in January, 1873. The bill which was finally signed into law by President Harrison on August 30, 1890, provided for an annual appropriation of \$15,000 to each state with an automatic annual increase of \$1,000 for each state until, by 1900, the total appropriation of \$25,000 had been reached. The Second Morrill Act stipulated that the money granted was to be from the sale of public lands and was to be used "for the more complete endowment and maintenance of colleges for the benefit of agriculture and the mechanic arts" which were established as a result of the Morrill Act of 1862. The Act also provided that no money was to be given to "a college where a distinction of race or color is made in the admission of

students, but the establishment and maintenance of such colleges separately for white and colored students shall be held to be a compliance with the provisions of this act if the funds received in such State or Territory be equitably divided as hereinafter set forth. . . ." This "separate but equal" doctrine was part of the philosophy of the southern states to allow each race to develop fully and completely without interference from the other. By the early part of the twentieth century, seventeen states and the District of Columbia had as part of their constitutions or as public law provisions for separate educational facilities for Negroes and whites.¹⁴

In 1907 Congress passed the Nelson Amendment to the Morrill Acts of 1862 and 1890 which provided an additional \$5,000 a year for five years beginning in 1908 to the existing funds for the land-grant institutions. In this way Congress kept renewing its commitment to higher education in the United States. Probably the next major piece of legislation that is of concern here is the Smith-Lever Act which was passed in 1914. With this Act which "provides for federal aid to state agricultural colleges for cooperative agricultural extension work in cooperation with the Department of Agriculture" (Kandel 1917:93), the tripartite base of the modern land-grant institution was complete. Thus, it was over 50 years from its creation before the land-grant college assumed the form that is taken for granted today. The Smith-Lever Act provided \$10,000 a year for each state to offer an extension program in communities away from the main campus "to aid in diffusing among the people of the United States useful and practical information on subjects relating to agriculture and home economics and to encourage application of the same. . . ." The colleges were joined by the various farm organizations, e.g., the Farm Bureau, to provide an enlarged and elaborate extension service to rural America. The combined responsibility of the land-grant institutions for teaching, research, and extension provided efficient use of facilities and manpower as well as allowing for rapid feedback from one program to another which surely gave the American farmer the most efficient and responsible advisory service possible (Myers 1964:180). An additional innovative aspect of the Smith-Lever Act was the method of funding--the federal government provided money on a matching basis with state money. This was not the first time that the matching funds idea had been suggested as it can be found in some of the defeated federal aid bills of the 1870's and 1880's, but it was the first time it had been put into effect on a large scale in education (Butts and Cremin 1953:427).

With the Smith-Lever Act as a precedent, Congress passed the Smith-Hughes Act in 1917 which provided for the federal government to act in conjunction with the states "in paying the salaries of teachers, supervisors, and directors of agricultural subjects, and of teachers of industrial subjects, and in the preparation of teachers of agricultural, trade and industrial, and home economics subjects." This, then, set up the system of vocational education in the above-mentioned subject areas in the public secondary schools. The funding of this program was on a "matching" basis between the federal and state governments with the federal funds being administered by a newly organized Federal Board of Vocational Education (Butts and Cremin 1953:428). The emphasis was on service and various guidelines were being given to broadly define this service. This aspect of the land-grant colleges and its influence on American education has possibly been one of its major contributions.

Services to the states and nation by no means have been confined to the regular collegiate programs of instruction and research. In addition, thousands were reached through one of the most elaborate and inclusive systems of adult education ever devised. The co-operative agricultural-home economics extension services directed from the colleges and functioning in county organizations under the supervision of county agents and home economics specialists included problems of production, marketing, home-making, and rural standards of living. (Ross 1962:105)

In 1935, Congress enacted the Bankhead-Jones Act which "added to the annual appropriations for the land-grant colleges and universities and which provided for agricultural research and coöperative extension work" (Brickman 1962:250). A pattern of generalized financial support to the individual states for development of agriculture and mechanic arts through the land-grant college or university evolved over the years starting in 1862 with the first Morrill Act. The need for education in agriculture and the mechanical and industrial arts which was recognized by a small group of reformers and/or politicians in the early nineteenth century acquired a large public base of support as the United States became more industrial and as agriculture was threatened by the depletion of open lands and by the misuse and overuse of the one good farm land. The growth and development of the land-grant institutions in the various states has tended to be unique and locally oriented resulting in "an amazing variety of arrangements"

(Rudolph 1962:253). Thus, there tends not to be one land-grant institution type but a variety of types having evolved in response to the needs and peculiarities of the surrounding environment, both physical and socio-economic. Many of the basic differences are a product of the original method of providing a program of education in agriculture and mechanic arts. As has already been mentioned, some states gave the funds from the Morrill Acts to their existing state university to add a school or a department of agriculture and one of mechanic arts, e.g., University of Wisconsin; some states started separate "A and M" colleges, e.g., Michigan State University;¹⁵ and some states gave the money to a private institution to start a program in agriculture and mechanic arts, e.g., Cornell. Probably the greatest number of states gave the money to the existing state university thus "combining the new agricultural and industrial arts colleges with an older state college of arts and letters" resulting in the development of a unique American institution (Conant 1946:42).

It is easy to see, historically, the great impact which public monies have had on educational development as well as the more general development of the United States. It is probably safe to say that the large amounts of public land available in America have been crucial to the development of the United States since these lands were the major source of funds for support of development projects. Besides acquiring land and making it available to farmers at rather specific prices, the public sector also "promoted other services directly related to development and economic progress in agriculture. One such definite policy to catalyze agricultural development was land grants to railroads in order to extend transportation facilities and encourage improvement of factor and product markets" (Heady 1961:567). The public sector's support of research and education made these available to the American people at less than real cost thus contributing to growth and development. However, while the original development was supported by the public sector, the private sector moved into the field of research and development when it became obvious that there was a market for the resulting products and information.

The private sector of the economy now is extremely important and efficient in development and production of new agricultural technology. Likewise, it is efficient in communicating this knowledge to farmers; appropriately so, because farmer knowledge is necessary for productive use of material resources sold by private firms. Investment by private firms in communication (including salesmen, advertising and public relations) far exceeds

that of extension agents and printed materials by the colleges. If measurement extends far enough into fundamental research, the private sector investment in research for new farm technology now exceeds the public investment. Basic innovations in machinery, ration supplements, fertilizers, improved seeds and even certain aspects of livestock breeding (e.g., chickens), have come to flow largely from the private sector. The private sector also has illustrated greatest ability in applied researches, especially in adapting fundamental findings to applicable forms for marketing as materials. (Heady 1961:568)

The impact of the private sector on agriculture development was not so strong until there developed a science of agriculture in the land-grant institutions. It was about the turn of this century that the private sector started having much impact, and it was not really before the 1930's that the real leadership in development moved from public hands to private. Additional land being brought under cultivation into the twentieth century can account for most of the increased outputs in agricultural produce. However, since the 1930's, the amount of land under cultivation has actually declined slightly, but agriculture production is at an astounding level--so high, in fact, that the modern farmer has tended to find it increasingly difficult to realize a reasonable profit and has been forced to turn to the federal government for a variety of supports and subsidies with the consequent controls. As long as the American farmer had relatively unlimited supplies of cheap, fertile land, there was little effort to indulge in intensive farming techniques. It is interesting to note that as early as the 1830's numerous inventions such as McCormick's reaper were available to the farmer who generally made little use of them. It was not until after 1865 that agricultural mechanization underwent a revolution.

Between 1860 and 1890 the value of farm machinery in the nation doubled, and in the thirty years after 1890 it increased some 700 percent. When this is combined with the fact that in the thirty years after 1870 more land was added to America's farms than all the farming acreage developed since the earliest settlements, the phenomenal increase in agricultural yields begins to be explained. A further stimulus to farm production, especially after 1890, came from the application of scientific knowledge and techniques to agriculture. From the land-grant colleges and from newly established

agricultural experiment stations came a steady stream of information on soil analysis, fertilizers, cattle breeding, control of pests, etc. (Butts and Cremin 1953:303-304)

Educational Development

As was mentioned earlier, a commitment to formal education was part of the intellectual baggage that came with the colonists to the New World. The Puritans came burdened with a duty to show the world the correct path to fulfillment. They could not leave the future to accident, and the education and training of their leaders and their clergy, as well as the citizen, was necessary to assure the future. These educated and trained men "would spell the difference between civilization and barbarism" (Rudolph 1962:6). Combined with this feeling of a divine calling to witness to the world the proper path for "the good life" was the Protestant emphasis on the individual--the personal reading and interpreting of the Holy Scriptures. Thus, the citizen had to be able to read, write, and figure.

This proliferation of colleges--Harvard, William and Mary, Yale, New Jersey, King's, Philadelphia, Rhode Island, Queen's, Dartmouth--all before 1770, this planting of temples of piety and intellect in the wilderness was no accident. (Rudolph 1962:3)

This is not to say that the school was a major and influential institution in the life of the American colonists. Even at the time of the Revolution, the school was of relatively little concern to the average American. Interest at the time was in earning a living in this land of abundant but not necessarily easily exploitable resources. Also, the level of education needed to read the Bible, keep the household accounts, and read and write occasional letters was that of the primary grades.

Horace Mann estimated that [at the time of the Revolution] even in school-conscious New England perhaps one youngster in ten ever attended a school, and often this youngster attended intermittently and for very brief periods of time. (Butts and Cremin 1953:236)

This was to change rapidly within a few decades after the Revolution. From 1820 to 1860 there was increased demand for broader educational programs. It was during this time also that the first demands for some kind of vocational training were heard. As early as 1779 Jefferson had issued a proposal for public schooling in Virginia on the grounds that "a free society devoted to achieving the natural rights of its citizens can be maintained and tyranny prevented only if the people in general are well educated" (Butts and Cremin 1953:93).¹⁶ However, even Jefferson insisted on leaving the secondary education to private interests, a decision that later proved to be very limiting on the colleges when they started proliferating as Jefferson was to find out with the University of Virginia, the first true state university. By 1860, however, the educational institution had come to occupy an important position in American society.

By 1860, the nine colleges founded before the Revolution had increased to perhaps 200, the survivors of a precarious and often intensely competitive infancy. The exact number is difficult to ascertain, for records then were inadequate and the term "college" was one of hopeful ambition rather than precise definition. (Schmidt 1962:51)

Despite its increasing popularity, the college in America was still basically an aristocratic rather than a popular institution. Also, it must be remembered that the colonial colleges were not state institutions and had no intention of becoming such.¹⁷ It was really those state institutions formed west of the Appalachians which could qualify for the title of state college with all the implications that has for public education in the United States (Schmidt 1962:55). Although the eastern colleges paid lip service to offering an education to the poor as well as the wealthy, there was little of this in practice. As late as 1847, at the time of the proposed founding of the institution that was to become the City College of New York, there was considerable opposition because of its "unerring indications of the spread of that Agrarianism which preceded the decline and fall of the Roman republic" (Rudolph 1962:207). However, with the land-grant institutions from the Morrill Act, there began to evolve a different attitude among the general population toward colleges. Usually the school was neither completely understood nor looked at realistically; but the people began to realize that somehow schooling helped one to become successful. It was not always clear just how the school would help; and "in many cases it was simply a matter of attaining something which

over the centuries had traditionally been reserved for small groups among the upper classes" (Butts and Cremin 1953:269).

Agricultural education was slow in coming in the New World although it was not much behind that in Europe.¹⁸ By the middle of the eighteenth century, there were academies in America "which sought thru [sic] an emphasis on the practical to sound a protest against the prevailing emphasis on the formal and classical" (Kandel 1917:73). This type of education is associated with the attitudes and practices of Benjamin Franklin. As the country prospered in a material sense and as industrialism established its foothold in this new land, the need for a better trained populace began to be felt. By the early decades of the nineteenth century, reports of efforts being made in Europe in agricultural improvement through education were being read and listened to in the United States.

The two earliest agricultural colleges were started in 1817 at Hofwyl in Switzerland and Krumau in Bohemia. Few educational institutions have had as great an influence in the advancement of agricultural and technical education as Fellenberg's school at Hofwyl, but this influence was mainly exercised on institutions of lower grade than colleges. The advanced study of agriculture . . . was dependent on the development of applied chemistry. . . . (Kandel 1917:79)

In Germany there had been interest in agricultural education as early as the eighteenth century especially by Frederick the Great, who wanted to promote the development of agriculture in his state (Kandel 1917:80). It was in the late nineteenth century when a German, Liebig, made major contributions to agricultural chemistry which placed the study of agriculture on a scientific basis. England was of little influence in agriculture education since it was 1845 before the first agricultural college was established there with support from the local gentry. This institution was renamed the Royal Agricultural College in 1880, but it was still supported by private funds. The government did not begin assisting with agricultural education until 1882 "when it established a lectureship in agriculture at the Normal School of Science in London, and about the same period the Department of Science and Art included among its examinations one on the principles of agriculture" (Kandel 1917:81). In 1838, Charles L. Fleischmann, a graduate of the Royal Agricultural School of Bavaria, presented to Congress a memorial on the subject of agricultural development. He pointed out that in Europe there were schools of agriculture with a program based on the study of chemistry

and other natural sciences as well as on experimental research. Fleischmann notes that "America was still relying on imitations and magazines rather than on scientific training" and that the English system had been followed for too long "while Germany and other parts of Europe, offering better models, were neglected" (Kandel 1917:74).

For any institution to be self-sustaining in a socio-economic system, it must be thought to be of some value by the people of that system. This is especially true of an educational system which must satisfy to some degree the criterion of country needs.

Any educational system that "goes it alone"--ignoring the economy's manpower requirements and the special needs of social development--is bound to be a poor investment for any nation endeavoring to modernize itself and improve the living conditions and opportunities of all its citizens. (Coombs 1965:13)

Although the above statement was made concerning the underdeveloped world today, it is equally applicable to the United States in the mid-nineteenth century. The state college of late-nineteenth century America was not meeting the needs of the country. It was a state college in name only as it differed little from the private and church-supported institutions of the time and with which they competed for students and money. Its golden age was past--an earlier time when its "clear purpose and simple philosophy" was fully accepted by its constituency (Schmidt 1962:9). Times, conditions, and needs changed; and the state college did not, or could not, respond.

. . . in the second half of the century [nineteenth], the economic organization of American life was transformed, and the intellectual and moral foundations of the western world were severely shaken. Not all college leaders were hospitable to these changes or even aware of them. The flood that engulfed them came from three main sources: the new western state university, German scholarship, and higher criticism, and the philosophy of evolution. (Schmidt 1962:54)

It was around the middle of the nineteenth century that the German educational system began to have a pronounced influence on the United States. This was to continue almost to World War I during which time "the seminar

method of investigation, the laboratory system of scientific teaching, the lecture method, the Ph.D. degree"19 as well as "the German university spirit of search for knowledge and its concomitant emphasis on productive research were transplanted in large measure to America" (Rudy 1962:20). Sometime before the First World War, the United States experienced a reaction to German ideas and turned once again to England for educational patterns. The one major result of this return to the "mother country" was the adoption of the university extension system which Cambridge University had started in 1873. Thus, the nineteenth century in America was a period of borrowing, adjusting, adapting, and transforming the numerous influences that came from Europe in the field of education (Rudy 1962:31). The outcome of the process of selection over several decades is the American state university which is, to borrow a comment about Cornell University made by Ezra Cornell and Andrew D. White, "a place where anyone . . . [can] learn anything" (Brubacher 1962:72). When Charles W. Eliot became president of Harvard in 1869, he wrote that the American university would "not be a copy of foreign institutions . . . but the slow and natural outgrowth of American social and political habits" (Eliot 1869). It soon became obvious that the German model of graduate-level universities could not be sustained because of the absence of the gymnasium, the preparatory base on which the German university rested, and probably would not be supported by the American people because of its total commitment to postgraduate teaching and research.

The result was that a German-inspired graduate school granting the Ph.D. degree came to be superimposed in American universities upon a four-year, English-derived undergraduate college granting the baccalaureate, which in origin was a general education degree. (Rudy 1962:22)

Along with the structural changes of the American institution of higher learning went a modification in content in response to new demands being made by the society. Social and economic conditions required new functions of the educational institutions (Ross 1962:96ff) and "when the American people began to realize there was another kind of curriculum besides the conventional scholastic or humanistic one, which was concerned with their daily life in all its complexity, the state university became established as a popular institution" (Brubacher 1962:75). This attempt to meet the needs of farmers, mechanics, and industrialists, especially by the land-grant institutions created by the Morrill Act, inspired a renewed interest in education in

a society with "a deplorable decline of college enrollments" (Brubacher 1962:74). This is not to say that all the problems of American education were solved immediately, especially the problems involved in a practical education. In 1884 the Commissioner of Education wrote:

The instruction which these schools [of science] offer is at present too theoretical and follows too closely the model of the classical college. So far as science is concerned, the great difficulty is the want of material equipment. The training in agriculture and the mechanic arts languished from various causes. Competent men are not easily found to organize and conduct these departments, and in many states the rural population have little faith in the utility of training, especially the agricultural training. . . . (Kandel 1917:100)

There was a lack of grammar and secondary schools to provide students for the universities and colleges. This was especially true in the West, which did not have the private schools to act as feeders for the institutions of higher education.²⁰ There was also a lack of educational opportunities for females even in the East where the private girls' schools were primarily finishing schools for young ladies.²¹ In the East and South this was probably a matter of economics in that the economic system could support a non-functional female population. Thus, it is not hard to understand why the greatest advances in co-education came in the West "where an equality of the sexes was achieved in the ordinary work of the farm" and the woman "was not a thing apart," fragile and pampered (Rudolph 1962:314). This is not to ignore, however, the influence of Ezra Cornell, who established the first co-educational institution in the East, or the founding of several excellent women's colleges such as Vassar, Smith, and Wellesley which offered an academic program the same as the men's colleges. Most of these problems had been worked out by the first quarter of the twentieth century so that by World War I "the middle rungs of the American educational ladder had been securely bolted in, and an increasing number of children were using them to climb to higher educational and social positions" (Butts and Cremin 1953:419). With increased technology came the need for increased education and training in American society. It fell upon the schools to meet this need by supplying more and better trained manpower; to do this, they had to be changed structurally and functionally. This transformation was no where more noticeable than in the American university system.

The American university today is as different from the nineteenth-century British or Continental universities as the Renaissance universities of Italy and the Netherlands were different from those of the Middle Ages. Personally, I think the basic philosophy which almost unconsciously has shaped the growth of the modern American university is sound, for it is none other than a philosophy hostile to the supremacy of a few vocations; it is a philosophy moving toward the social equality of all useful labor. (Conant 1946:42-43)

As part of this university system, the land-grant institution made its own unique contribution to American education in particular and American development in general.

The land-grant college was the outstanding, permanent achievement of the industrial movement in education which, starting in Europe, found greatest opportunity in a new land of exploitable resources and equalitarian traditions. The movement marked essentially an effort to bring instruction more into harmony with the rapidly changing economic and social order and to democratize technical education and the high school and State university at their levels. (Ross 1938:159)

Economic and Social Development

The English colonists in America left their homeland at a time of considerable social unrest and change. Parliament and the Crown were engaged in a struggle for power, and there was an increasing demand for representative government and individual freedom in England. Many of these political institutions as well as a concern for freedom were brought to the New World where they found fertile soil. Relatively isolated from England by a month or more in time, the colonies were left generally to their own devices. Since representative government through an elected assembly was found in all 13 colonies, "the idea of government by consent of the governed was no revolutionary ideal in America but was pretty much taken for granted" (Muller 1963:365). The seemingly unlimited supply of land generally provided the colonists and the later immigrants with an opportunity for independence and freedom. In this new land, the settler found that he was the scarce factor and

that land was the plentiful one; a situation almost opposite to what he had left behind in Europe. In America, the immigrants saw a chance "to become landed proprietors" (Hicks, et al., 1966:11). By hard work, a man could earn his living, control the profits from his labors, and maintain his dignity as a free individual. This does not mean, of course, that there were no poor in America. The early colonists probably had a more intact class system than the later immigrants, and there were indentured servants as well as governors appointed by the Crown. However, even the poor "were . . . better off in America. Individualism was no mere theory, but to a considerable extent a simple fact of American life" (Muller 1963:367).

. . . no administrative organs of any sort, handed down from previous generations, prevailed to guide community life. In this type of environment--one in which individuality of thought and action was necessary for political success, and one in which physical energy and self-reliance were all but prerequisites of economic survival--the genesis of the American system of government and economic structure was nurtured. (Browne 1964:88)

Land may well be the keystone of American cultural development; not just an abundance of land, but land available to the individual farmer. This feeling toward land ownership is probably typified by the Homestead Act of 1862, but owner-operated farms was a tradition before that. Although there was considerable land speculation by individuals and groups and although there were huge tracts of land acquired by individuals especially in the South, land for use was the accepted, if not always practiced, norm. It was the "fluidity of land ownership [which] formed the basis of a fairly widespread ownership of land and prevented the type of exclusive aristocracy based on land ownership that characterized most of Europe" (Butts and Cremin 1953: 35). As the eastern lands filled up, the freed servant or the new immigrant moved west either buying a piece of the cheap land then available or often merely squatting on public or private land. Adam Smith credited the political institutions of the English colonies for providing favorable conditions for the improvement and cultivation of engrossed lands. He noted that "the engrossing of uncultivated land, though it has by no means been prevented altogether, has been more restrained in the English colonies. . . . The colony law which imposes upon every proprietor the obligation of improving and cultivating, within a limited time, a certain proportion of his lands, and which, in case of failure, declares those neglected lands grantable to any

other person; though it has not, perhaps, been very strictly executed, has, however, had some effect." (1908:80).

With cheap and plentiful land, early America could have been little else but agricultural. This is in fact what the Crown and merchant interests wanted in the new colonies as agricultural goods had a ready market in England. The rise of a merchant capitalist class in America was of definite concern to England as this cut into the profits at home. There is little doubt that the freedom and security gained from a frontier agrarian society had lasting effects on American cultural development. This is not to defend the rôle of the frontier as seen by Frederick Jackson Turner; however, frontier living did seem to inject "the tenets of freedom, equality, and individualism not only into the newly settled areas, but well back into the older, more populated regions" (Butts and Cremin 1953:143). The frontier was the breeding ground for Jacksonian democracy as equality of individuals left no place for Jefferson's "fit to act for the unfit." The lack of stratification in the frontier society revealed a commitment "so fully to the Jeffersonian faith in the people that all of Jefferson's fine distinctions, all of his careful reliance on an aristocracy of talent, all of his wise reservations on human capacities were abandoned in a heady embrace of the people" (Rudolph 1962:202).

Jefferson's "natural right" to be a free, land-holding farmer provided a popular foundation upon which the freedom-seeking immigrant recently removed from the oppressive socio-economic conditions in Europe could build his future. Along with the freeholding right went the necessity for education so that a man might better understand and protect his freedom as well as know and understand his God. Knowledge was not to be pursued for itself, as was the case with an aristocratic intellectual elite, but for practical use in day to day living.

American civilization generated an almost irresistible drive for the popularization of opportunities for learning, and one of the most notable aspects of this movement was a constant increase in the percentage of the population enjoying the benefits of a higher education. This phenomenon was accompanied by the emergence of institutional patterns peculiar to America, such as the state university, the land-grant college
 (Rudy 1962:24)

However, until late in the nineteenth century, there was a general lack of appreciation in the western states for institutions of higher learning which was probably justified since the curriculum offered had little to do with daily needs of the people. This was true even of the land-grant institutions. Also, it is probably true that the "frontier background of land abundance and the traditions of extensive cultivation led inevitably to a spirit of self-confidence and sufficiency" (Ross 1938:176). This conservatism which enabled men to open and to pacify the frontier was often the very quality which kept the settler isolated from change and new ideas. Nevertheless, the conservative farmer was also a practical man; and while "it was difficult to convince farmers and their sons that an agricultural education made sense" (Rudolph 1962:257), the complacency of the farmer and the hostility of the Grange was overcome when the land-grant institutions were able to offer "evidence that scientific agriculture paid in larger crops, higher income, and a better chance to enjoy higher living standards" (Rudolph 1962:261).

In the end, the growth of a body of applied agricultural science, the experiment stations, farmer approval, and federal and state financial assistance all fed upon one another, helping to develop the land-grant college into a significant educational movement. (Rudolph 1962:261-262)

As long as there was rich, cheap land available, the American farmer followed a course of extensive cultivation with little technological variation from that which he brought with him from Europe. It was with the closing of the frontier combined with the depletion of the quality of the land through the absence of any conservation practices that the American farmer found himself in trouble. He was then forced to turn to new techniques and practices to maintain his agricultural production. In the North it was probably the Civil War which provided the necessary economic impetus for a move to modernity in agriculture. Numerous inventions, such as the corn planter, the mower, the reaper, the two-horse cultivator, and the steam thresher, had been available before the Civil War but were too expensive to be widely used.

It took the war-induced labor shortage, huge demands, and high prices for farm produce to persuade the average farmer to give up his old-fashioned methods and make use of the new tools. (Hicks, et al., 1966:329)

It was during the nineteenth century that the land-grant college, offering a practical education, was conceived. Progress was the theme of the time and the raison d'être for the future. By the end of the eighteenth century, the American had deep roots in a democratic ideology which contained ideas of individual freedom, natural rights guaranteed by a Constitution, political self-determination and material and spiritual rewards through hard work. When the notion of progress from the European Enlightenment combined with this democratic ideology in the nineteenth century, the American was not to be denied his share of the world's goods and the attainment of "the good life."

Through his reason--through rational treatment of his problems--man could achieve greater happiness and prosperity than he had ever known. Science and political democracy were to be the great tools for the fulfillment of these aspirations. (Butts and Cremin 1953:185)

As soon as the land-grant colleges proved that they had the scientific where withal to provide the farmer with the tools and knowledge for progress, the farmer came to learn. The answer was given to a question put by Francis Wayland, president of Brown University, when in 1850 he summed up 50 years of the rôle of the college in American education:

We have produced an article for which the demand is diminishing. We sell it at less than cost, and the deficiency is made up by charity. We give it away, and still the demand diminishes. Is it not time to inquire whether we cannot furnish an article for which the demand will be, at least, somewhat more remunerative. (Wayland 1850:34)

This new "article" for which Wayland was making his plea was the land-grant college. While originating in 1862, it was many years before it fulfilled Wayland's criterion of being remunerative. The important point is that the design was right, and the institution only needed time and changing circumstances before its potential could really be fulfilled. Time provided breakthroughs in the field of science; and with the need for substitution of the factors of labor and land, conditions were right for "the great institutional payoff." As the supply of land became tight, substitution for this factor became necessary; and "society increased the supply and lowered the price of another important production

input--knowledge or technology" (Heady, et al., 1965:9). Society, through the land-grant colleges and universities and the United States Department of Agriculture, was the major source of support during the formative years of agricultural development in this country and has continued to be an influencing agency to the present.²² However, as the market for capital inputs used as substitutes for land and labor has increased, the private sector has become more involved until "the efforts and investments of private enterprise . . . may outweigh the public investment in the research and educational services of the land-grant universities and USDA" (Heady, et al., 1965:47).

Summary and Conclusion

This section can best be opened, if not summarized, by the following quotation:

It is not easy to understand the forces which exercise major influence in shaping and changing the schools and colleges of the United States because education in this country is not centrally planned and administered from a national office, nor is it completely controlled by the boards of education of the many thousands of local school districts. (Tyler 1961:2)

This paper has been an attempt to gain some understanding of the history and development of the American land-grant college and university. Actually, the paper has done little more than present the historical high-points of the development of this institution, provide some background to the developments from 1862, and mention a few of the themes which have run through the educational, economic, and social development in the United States. To do more would require a thorough knowledge of the history and development of American economics, sociology, thought, politics, and education to mention only a few. Also, to understand early American development, European development must be known since many of the attitudes, values, and institutions that played important rôles in the early history of the colonies had their origins in Europe.

To sum up the major influences that historically molded the land-grant institutions into what they are today would be next to impossible if not presumptuous considering the limitations of this paper. However, it seems

reasonable to conclude that the general nature of the institutions has probably been their major strength. It is dangerous to carry a comparison too far; but the lack of specialization in the institutions probably lessened selective pressures over the years and allowed the institutions to respond to the needs of their socio-economic environment as these needs became more clearly defined.

The thing that strikes one foremost out of the entire history of the evolution of these institutions (USDA-LGC) is that at no point, at the beginning or even well along in the process, did anyone have a completely detailed blue-print of what it was the system was to look like or what it was to do. It is even clearer that there never was any conscious general strategy of the development either of the USDA-LGC System or of American empiric and pragmatic problem-solving approach, organized within an only partially structured (and, thus, sometimes conflicting) set of goals. (Bonnen 1962:1286)

Even Justin Morrill, the father and long-time supporter of the land-grant institutions, was never definite as to what he thought their ultimate purpose was to be. He changed with the times in that he advocated agricultural and mechanic arts colleges for the benefit of agriculture in the 1850's and 1860's and national colleges of science for the benefit and promotion of all industries of the nation in the 1870's and 1880's. However, on one point Morrill was always consistent. The land-grant institutions were to place their emphasis on scientific or practical matters. Morrill's reasoning was as follows:

Knowledge not for use may do for useless philosophers, of whom the U.S. has, perhaps, too little appreciation, and postpones to a more convenient season. But here education embracing the largest numbers must have such scope as to practically fit the owner for his destined vocation. Its backbone will be made up with what will be most needed. (Kandel 1917:20)

This rather extreme position taken by Morrill toward non-practical education, while understandable and possibly even defensible in its time, can no longer be supported. At least since 1950, the economic growth of the United States has been so rapid that education for living,

if not for leisure, is realistic and necessary. The society still needs men and women educated along practical lines to run the industrial goose that lays the golden eggs; however, the kind of "practicality" needed today is considerably different from that needed 50 or a hundred years ago. Even more important, the society needs the services of the educational institution which is one of the major premises in the land grant philosophy. From the urban ghetto to the stagnating rural town, Americans are in need of information, health, ideas, skills, hope, and understanding.

This is not to single out the land-grant institutions for special castigation. It is to show that seldom does any social institution remain virtuous regardless of its stated aims or of its purposes when it was created. Also, reasons for having come into existence tend to get idealized over time with less satisfying ones getting lost. It is good to talk about "service" when one's service is a few lectures a year at the Farm Bureau or at an Association meeting for which one often gets paid; it is good to talk about "dignity of labor" when one labors by choice in the garden, the yard, or on a farm kept for tax purposes.

Cause and effect relationships are not easily established or clearly defined in the social sciences. Conditions are never singular with interaction being a simple one to one phenomenon. Multiple variables are involved, and parameters are usually plastic and elusive making them difficult to define. The land grant institutions are the products of the total environment of the United States over a one-hundred year period. At the same time, the institutions have made valuable contributions--educated individuals, research results, and benefits from service--which have helped make the environment what it has been and what it is today.

The fact that in 17 states, two land grant institutions were established--one for whites and one for blacks--means the institution was reflecting the social attitudes toward race and states rights that were, and are, part of the total environment. However, to call the land grant institutions "democracy's colleges" is to ignore this rather undemocratic aspect of their history. This is ignored again when "democracy's college" is exported to foreign countries for development purposes which usually include, implicitly if not explicitly, democratization.

Numerous people, conditions and "critical incidents" have, over the years, been responsible for the development of the land-grant institutions. From agriculture journals to a civil war to the boll weevil, all have had an impact,

greater or lesser, on agricultural development and on the development of the land-grant institutions.

The yeoman farmer and the self-made man are two versions of the same fundamental American myth: the myth of self-reliant free men achieving self-respect and security among equals. The land-grant college served both: it sustained the yeoman, it liberated the farm boy who would make his way in the city. And in doing so it kept its focus on the practical . . . it became in America the temple of applied science, essentially institutionalizing the American's traditional respect for the immediately useful. In the end, the land-grant college incorporated in its rationale the Jacksonian temper; it became the common school on a higher level; it became one of the great forces of economic and social mobility. . . . In the land-grant institutions the American people achieved popular higher education for the first time. (Rudolph 1962:265)

But one must remember that the land-grant institutions did not develop in a vacuum. They were the products of a rapidly growing society; and while in areas and at times they pioneered in this development process, at other times and in other areas they were simply part of the national infrastructure on which and in which other organizations were able to build.

From about 1820 to 1915 the United States was undergoing what might be called a transportation and communications revolution. From canal building in the 1820's to railroad construction beginning in the 1830's and reaching its peak in the 1870's and 1880's, the United States was being opened up and tied together by an extensive transportation system that would serve to provide the land-grant institutions with clientele when their programs were better developed and better recognized as meeting needs in the society. Communications played a similar role in linking the United States into a single potential market place and/or a single potential source of resources.

With the revolution in transportation and communications, and stimulated by it, came a rapid growth in industry and in the American economy. This further caused, and was dependent upon, an increasing specialization and division of labor which forced the general craftsman, e.g., the village blacksmith, to give way "to many inter-dependent individuals skilled in particular economic activities" (Hays 1957:11). The farmer also was forced to change as the nation became more tightly linked in a national and

international network of distribution responding to the pressures of supply and demand. Subsistence farming began to pass from the American scene giving way to commercial agriculture.

Markets, machinery; and science, then, transformed American agriculture from a relatively simply operation, requiring little capital and less knowledge, into a highly complex affair, demanding increasing amounts of investment, equipment, scientific information, and close attention to markets. The farmer was not irrevocably entwined in the complex industrial system. (Hays 1957:15)

The farmer, caught up in a system of cost/price, demand, and market fluctuations he little understood and even less controlled, responded to the frustrations often with simplistic solutions to complex problems. He attempted to organize with varying degrees of success and he entered politics with even less acumen. The Granger movement and the Populist party are two late-nineteenth century manifestations of the problems, uncertainties and insecurities that plagued rural Americans.

As the urban centers grew in size, complexity, and wealth, the farmer became fearful of the encroaching new and strange ways of life that were found in the cities, especially among immigrant groups coming then from eastern and southern Europe. With the apportionment of the states favoring the rural areas, the farmer fought the changes and advances recommended by the urban reformers.

But rural America was not the utopia that many imagined it to be including those who lived there. Early in the twentieth century, the Country Life Movement got under way with the purpose of improving the conditions of the rural people in terms of roads, schools, public utilities, and so forth. This movement was started mostly by urban civic leaders who wanted the rural areas "to cooperate to improve the facilities of the entire state by creating better rural highways and rural schools and by improving agricultural practices" (Hays 1957:111).

The movement received official sanction and considerable aid when in 1908 Theodore Roosevelt sponsored the Country Life Commission to investigate rural living; as its chief task the Commission compiled information about farm life and publicized the entire movement.

Country Life leaders especially encouraged scientific farming. For many years the state agricultural colleges and experiment stations had promoted agricultural science, but rarely had they sought to educate farmers to apply their discoveries. Much could be accomplished, it was thought, if each county maintained an agricultural expert to disseminate technical advice. A New York county established the first such expert or agent in 1912. The idea spread rapidly; in the Smith-Lever Act in 1914 the federal government provided grant-in-aid funds to render the plan permanent and available to every county in the nation. The program grew especially under the intense pressure for increased production during World War I. (Hays 1957:111-112)

Thus, the county agent/extension service which was to become such a valuable part of the land-grant institution in their contributions to rural America was brought into being by pressures in the socio-economic system generally outside the rural areas. This has often been the case with the land-grant institution from inception to well into the twentieth century, that pressures outside the rural area and often outside the institutional framework of the land-grant college have been major factors in making these institutions into what they are today. The purpose is to show the great influence on institutional development of groups with humanitarian reform interests or purely economic interests in agriculture and rural America. These pressures were critical to the development of rural America and to the development of the land-grant institutions.

These [reform] programs did not arise from a mass movement of farmers; a few rural leaders and urban groups with a stake in rural affairs advanced them. Inspiration and leadership for them came from the state agricultural colleges throughout the country. Agitation for agricultural education and scientific agriculture arose from urban groups that had a stake in agricultural prosperity--railroads concerned with the decline in farm railroad traffic, merchants who feared the shrinkage of rural markets, and bankers worried about the possible loss of borrowers. These groups not only financed the original county-agent movement; they spearheaded the drive for federal aid. Through chambers of commerce urban merchants joined with urban automobile enthusiasts to boost the good-roads movement. Educational organizations which reflected the new interests arising from the

improved urban school sought to raise the standards of entire states through a vigorous rural education program. (Hays 1957:112)

All this has strong implications for the most recent expansion of the land-grant institutions into the international development business. With the end of World War II and the beginning of the Marshall Plan for the reconstruction of Europe, the USDA and the American colleges of agriculture have been very much involved in international programs. Truman's Point IV and technical assistance to the underdeveloped areas of the world provided new opportunities and new problems for the land-grant institutions; particularly the colleges or schools of agriculture and education which carried most of the responsibility in international programs and are of primary concern here.²³

Providing technical expertise in agriculture is one aspect of international programs and generates problems of its own as one moves from temperate zone agriculture to tropical agriculture and from highly mechanized, scientific agriculture to hand cultivated, subsistence agriculture. However, when the move is to assistance in building institutions for rural development, the problems are magnified even more.

The engineer does not build a bridge, he helps construct an organization to build bridges. The educator abandons his departmental field to energize the building of schools and the training of teachers. The agronomist forsakes his seedbed and chemical laboratory to advise on building an agricultural extension service. They are all essentially engaged in institution-building. [Emphasis the author's.] (Cleveland, et al., 1960:157)

Institution building is a far more complex project than, say, breeding and selecting a new variety of rice or corn even as complex as that might be. Different kinds of knowledge and expertise are needed than what are usually available within a particular college or school within the university--this would seem to be particularly true of schools of agriculture and of education. The knowledge, experience and particular skills within the total university community should be brought into play in these institution building efforts abroad.

. . . the starting point in the formulation of an organization is to determine precisely what the organization is to accomplish and then to design the organization and administrative methods in the light of the experience, traditions, values, competences, and possibilities of the particular country. (Stone 1965:53)

To begin to accomplish the above takes strong commitment and cooperative efforts on the part of scholars from several disciplines and from both the donor country, here the United States, and the host country. Such cooperation is difficult at best because scholars tend to see the world in terms of the concepts within their own areas of expertise; and Americans, particularly, tend to have such confidence in their own institutions that it is tempting "to export to the benighted people across the seas the institutions . . . essential to . . . progress" (Cleveland, et al., 1960:160).

American technicians tend to hold the view that people are about the same everywhere and that problem-solving around the world usually means just doing what one would do at home (Byrnes 1965:45). Also, Americans generally seem to feel that if people in the underdeveloped countries would just be willing to work harder and cooperate with each other, they could build better lives for themselves. This "common-sense" positivism in Americans is primarily responsible for the myth that people anywhere can enjoy progress and development if they will only make a rational decision to do so. Concurrent with this one finds a "technocratic" positivism held to with great confidence by Americans which "encourages a disregard of the social and cultural obstacles to political and economic development in Asia, Africa and Latin America. In this form of American positivism, the problems involved are regarded as primarily technical in nature. . . ." (Geiger 1967:43).

As well trained professionally as the American generally is, it must be remembered that he is trained to live and work in his own society.

The professional knows the kinds of questions his society will ask of him and the job demands it will make upon him. Consequently, most professional training is designed in terms of programs rather than underlying problems, and the technician comes to judge himself by what he has to offer to the programs in which he participates. Professional training produces program-oriented specialists. Only rarely does it produce problem-oriented specialists.

However sound this approach is for professionals who will practice in the United States, it is seriously deficient in preparing people for work in other societies.

The task of the technical specialist is not to reproduce a standard American product, but to know how to adapt the scientific knowledge and operating techniques of his country to the economic, social, educational, and political reality of the country in which he works. The successful technical expert is the one who has learned to be problem-oriented and not program-oriented. (Foster 1962:179-180)

Technical advisors must be made aware of the fact that when they are participating in institutional development programs, their very concept of the problem and their program to work out the problem are culture-bound, i.e., derived from an American model.

. . . a concept is as much a function of a particular culture as a tool or a . . . program; it cannot be automatically grafted to a foreign body. (Foster 1962:183)

All people are not "about the same" and it is a serious mistake to assume that all underdeveloped countries are basically the same and to prescribe a single solution for their greatly different problems (Hla Myint 1965:14). This is why one has to question the thinking behind some of the technical assistance programs today. The land-grant college model and philosophy have been recommended and attempted to be put into operation as answers to rural development problems all over the world. With increased sophistication by technicians in institution building concepts and problems of development, the emphasis on the model or the structure has been dropped and now one hears and reads that it is the philosophy or the essence of the land-grant college that is being taken abroad. Besides the problem of separating philosophy from structure or essence from form which is receiving considerable attention in organization theory, there is the more immediate problem of the technician being able to adapt or transform this philosophy in a manner meaningful to the host country situation and devise a structure to perform the needed functions.

The United States technical assistance programs place great faith on the building of educational institutions in underdeveloped countries with the idea that

. . . the key to progress lies in inducing the host government to introduce a school system in which the virtues of thrift, the laws of science, the dignity of manual labor . . . would be taught.

However, the expectation that such education will change basic attitudes arises in large part from a misunderstanding of how the basic attitudes of personality are inculcated. They are inculcated only in small degree by the conscious mental learning of school. In the main, they are inculcated by conclusions about the best way to meet the problems of life that the child unconsciously draws between the ages of zero and say six or eight. . . .

The technical adviser must realize . . . he can not mold the culture, but must . . . make new techniques work within it. (Hagen 1962:32-33)

Almost doomed to failure before he starts, the technician finds himself in a difficult position. He is being extremely well paid, he has up to two years time invested and he is usually accustomed to progress and attainment in his professional ventures. He is not usually well equipped psychologically for the total lack of effectiveness or impact which he often has on a foreign assignment. He must submit an end-of-tour report which may be read by his colleagues at home and certainly by his departmental chairman. He often finds that "it is easier to lay the blame for what he perceives as sub-professional performance on the nationals and their organization than upon himself" (Byrnes 1965:18).

Preoccupation with imported technology, procedures, and organization often results in erecting symbols and monuments of progress rather than achieving real progress. School buildings do not produce education, nor hospitals health, no matter how lavishly they may be built and equipped. . . . Once the novel effect of the innovation passed, things somehow settle down again at their old level . . . the new organizations become curiously similar in their operation to the organizations they were supposed to replace. (Dubasi-Schwey 1965:31)

Thus, the problem of institution building cannot be solved by any one discipline or by any one institutional model or philosophy. With enough money, manpower and time it is, of course, possible to erect and equip various institutional structures. To succeed--to survive and, more important, to fulfill the needs for which they were created--the organizations must come to terms with the environment--political, economic, social and cultural. The way this occurs, if and when it occurs, is not always predictable to an outsider and not always the best in relation to either an ideal model or to a model from another country.

The general trend in less-developed societies is toward more differentiation and the establishment of a greater number and larger variety of more encompassing organizations. Since it is quite possible to establish organizations even when many of the cultural and psychological prerequisites of effective organizational behavior are not present, we are not surprised to find in these countries an unusually large variety of organizational ills including corruption . . . nepotism and favoritism . . . bribery . . . and simple inefficiency due to such things as ignorance, lack of motivation, lack of facilities, and poor coordination.

Sporadic efforts to eliminate these ills and to increase technical competence are as a rule limited in their effects because they focus on the symptoms rather than on the root of the matter. The source of the ills can be eliminated only by changing the culture and education of the participants and hence their psychological make-up, which is a long process. Organizational reforms seem to be successful at a late stage in the modernization process. Similarly, it is likely that a major increase in the effectiveness and efficiency of organizations in most developing countries will not come about in the foreseeable future. Furthermore it is quite possible for even a fairly modern society to function for many decades without a web of effective and efficient organizations. Such organizations, to be sure, have a much lower rationality than the bureaucratic model provides for, but they are not "impossible" modes of production, teaching, and fighting. Perhaps the level of efficiency attained is often not much lower than that which the particular society can carry, given its culture and its educational system. Large investments in organizational reforms are, under these circumstances, largely wasted. (Etzioni 1964:113-114)

The essence of the land-grant college, i.e., service-oriented and problem-solving, can be exported around the world as can the total land-grant model in form and function with teaching, research and extension. That it will be successful in contributing to many countries' rural development problems is doubtful. Several hypotheses with the purpose of determining just this problem of "goodness of fit" and "country needs" will be tested and discussed later in this report. Here it is sufficient to point out in summary that the land-grant institutions have developed almost fortuitously over a hundred year period to general and specific needs of a nation rich in natural resources, with a labor force from varied backgrounds and with varied skills and interests, and not restrained by too many traditions or elitist groups. Also, at the same time, numerous other aspects of the United States were undergoing change and development. The Industrial Revolution was undergoing its greatest period of expansion; the country was being opened up and tied together by a vast infrastructure in communications, transportation, markets, credit, and general education. The land-grant college grew with the country and because of it.

The land-grant institutions have probably never made all the contributions to American development they have been credited with; but they have certainly done their share. They were always supported by other parts of the developing society and were particularly assisted by the private sector as agriculture became a secure and lucrative marketplace.

To assume that a service mentality, a dignity of manual labor, and/or a problem orientation, collectively or individually, could be responsible for all the rural development is to miss the idea of an institution and the role it plays alone and in relationship with other institutions within a socio-economic system.

If the North American university is to become an effective force in assisting the less developed countries, it must be innovative in developing an international dimension on a parallel with domestic programs. It cannot be successful in this mission if it merely attempts to adapt the rest of the world to a system that has evolved in response to the needs of the United States. (Apple 1967:2)

CHAPTER ONE FOOTNOTES

1. This statement does not mean to imply taking sides on the controversy of the identify of the "Father" of the land-grant college. This was a subject of considerable debate in the early decades of this century with the two major candidates being Justin S. Morrill of Vermont and Jonathan B. Turner of Illinois. For a fairly extensive historical study of the leading men in the development of the idea of federal grants for agricultural schools, see Earle D. Ross, "The 'Father' of the Land-Grant College," Agricultural History 12:151-186 (1938).

2. Earle D. Ross (1938:176) describes the Morrill Act as follows: "The properly much-lauded Act of 1862, providing a conditional endowment of problematical value, offered the possibility of strengthening and stabilizing existing industrial colleges and the opportunity of starting additional ones. In itself the Act assured nothing."

3. See Earle D. Ross, 1942, Democracy's College: The Land-Grant Movement in the Formative Stage, Iowa State University Press.

4. Much of the information on the history of public lands in the New World contained herein was taken from A History of the Public Land Policies by Benjamin H. Hibbard (1965, University of Wisconsin Press; first published by Macmillan in 1924), an excellent source book on public land policies.

5. Many of the ideas, as well as direct quotations, in this paper are taken from R. Freeman Butts and Lawrence A. Cremin, A History of Education in American Culture, 1953, New York: Holt, Rinehart, and Winston. Although emphasizing educational development, it is also an excellent (and readable) work on the social history of America from settlement to present (1952).

6. For an interesting account of the school system in England, see Arthur F. Leach, English Schools at the Reformation, 1546-1548 (1896, West Minister: Archibald Constable and Company).

7. See Thomas N. Hoover, 1954, The History of Ohio University, Athens, pp. 1-11.

8. See Walter Havighurst, 1958, The Miami Years 1809-1959, pp. 13-14.

9. This, and much of the following information on Jonathan B. Turner, has been taken passim from The Life of Jonathan Baldwin Turner (1961, Urbana: University of Illinois Press) by Mary Turner Carriel.

10. The 1850 Constitution of the State of Michigan required that a college of agriculture be established and maintained. Michigan Agricultural College (later to become Michigan State University, the land-grant institution receiving funds from Morrill Act provisions) was dedicated on May 13, 1857.

11. The new bill requested thirty thousand acres for each senator and representative in Congress instead of the twenty thousand acres provided for in the bill of 1857. This was to be used by the states to "establish colleges for the benefit of agriculture and mechanic arts" (Kandel 1917:16).

12. A common misconception is that the land granted the states by the Morrill Act had to be within the various states. Actually, the land was part of the public domain in the frontier or western states. Also, provision was made for script to be issued in lieu of land and for the value of the amount of land for which the state qualified. The land was then sold by the states and the proceeds were applied to the educational program (French 1964:189).

13. The Department of Agriculture was created on May 15, 1862, and received cabinet status in 1889.

14. There are 69 land-grant institutions supported by federal money. Each state has at least one institution with the exception of the 17 southern states having a second for Negroes and Massachusetts which has two (M.I.T. and the University of Massachusetts) and the Commonwealth of Puerto Rico which has one (University of Puerto Rico). The last new grant made under the provisions of the Morrill Act of 1862 was for the Alaskan Agricultural College and School of Mines established in 1922. In 1935, its name was changed to the University of Alaska. The College of Agriculture and Mechanic Arts in Hawaii was established earlier, and its name was changed to the University of Hawaii in 1920.

15. In 1950, only 19 states had both a state university and a land-grant institution on separate campuses.

16. This proposal was Jefferson's Bill for the More General Diffusion of Knowledge which he introduced in the Virginia Assembly.

17. The Dartmouth College case is probably the classic example here. Dartmouth received its charter directly from King George III; and after the Revolutionary War when the State of New Hampshire tried to make it a state college, there was a court battle going to the United States Supreme Court where the decision was in favor of Dartmouth College on the grounds that the Charter could not be altered since Dartmouth was not a public institution.

Also, it was after the refusal of William and Mary to become a state institution that Jefferson began his long battle for the University of Virginia.

18. The first agriculture school in the United States was the Gardiner Lyceum at Gardiner, Maine, which was established in 1821. The state gave \$1,000 in 1823 for its support which is probably the first instance of state aid to agricultural education. The school closed in 1832 because of lack of funds.

Numerous organizations for agriculture had been formed in the late eighteenth century including the Philadelphia Society for Promotion of Agriculture organized in 1785 and listing Benjamin Franklin and George Washington as members.

19. Graduate education was pioneered in this country by Daniel Coit Gilman who was deeply impressed with the great German universities. Graduate education began with the founding of Johns Hopkins University in 1876. This was "the first clear-cut attempt in this country . . . to offer education at a level definitely beyond the undergraduate" (Walters 1962:125). See W. Carson Ryan, 1939, "Studies in Early Graduate Education: The Johns Hopkins University, Clark University, The University of Chicago," Bulletin 30, New York: Foundation for the Advancement of Teaching.

20. In 1870, the University of Michigan began a program of admitting students from various public schools of Michigan that the university had certified "as offering respectable collegiate preparation" (Rudolph 1962:283). See Joseph Lindsey Henderson, 1912, Admission to College by Certificate, New York, especially p. 51.

21. In the West, the University of Iowa in 1855 was the first to offer educational opportunities to women. The University of Wisconsin was next in 1863 followed by Indiana, Missouri, Michigan, and California.

22. Public Expenditures for research and education in agriculture for selected years, 1910-1959 (million current dollars).

Year	Agricultural Research	Agricultural Extension	Vocational Agriculture
1910	6.5	-	-
1920	14.5	14.7	2.4
1930	31.6	24.3	8.7
1940	41.3	33.1	17.0
1950	104.3	74.6	38.5
1959	225.4	136.0	66.7

Sources: USDA and U.S. Department of Health, Education, and Welfare.

23. The areas which have received the most attention under university contracts are agriculture and education. "For the first five years of universities' contracts (1951-1956), the larger number of contracts were for these fields, 54.4 million dollars out of a 68 million dollar total" (Reining 1959:71).

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CHAPTER TWO

TESTING THE HYPOTHESES

The Institution Building Model and Country Needs

There are numerous ways to define what outside technical assistance is most appropriate for development and modernization. Dimensions include (1) determination by indigenous decision-makers vs. outside decision-makers; (2) emphasis on political, economic, social, or other needs which may not be internally consistent or mutually supportive; and (3) short, medium, or long-range payoff.

The Interuniversity Research Project in Institution Building model proceeds upon the assumption that institution-building is desirable and implicitly that an institution meets needs of the country to the extent that it becomes self-supporting, integrated, and established. The measure of these is in the "linkage" of certain variables relating the institution with certain variables relating to the country. A perfect integration would be a perfect "linkage" between the two sets of variables. To the extent that the linkages are weak or nonexistent the viability or survival potential of the institution is in doubt. Ideally if these complicated linkage relationships could be quantified or scaled, a "take-off" point or self-sustaining point might be identified, but at this time the research methodology for such precise measurement does not exist. The development of a "linkage matrix" thus becomes crucial for operationalizing the model. This matrix is commented upon at length in the Project's Framework for Institution-Building Research (1964) as follows:

Institution building is a dynamic process in which the organization interacts with its environment in order to achieve the state of institutionality. The channels or points at which interaction of an organization with its environment takes place can constitute an important analytical framework of the process. These points of contact of an institution with its environment may be termed institutional linkages. Every institution, in the performance of its function, has a number of linkages with environmental organizations which fulfill complementary or competitive functions, provide the input of the given institution, or use its end products as an input. Besides these functional linkages, an institution has, in terms of its values and normative patterns, linkages with other institutions which embody and protect valuative and normative elements in the same area in which fall the values and norms of the institution of our concern.

The linkages between an institution and its environment can be identified not only in terms of their existence, but also, and more specifically, in terms of the elements which constitute the linkage. As an example, a teacher training institute may have a linkage with a political party, if the party has taken a stand on the function of goals of education. The content of this linkage, however, is different from the linkage which exists between the teacher training institute and the primary schools, or the institute and the civil service commission. In institution building vis-a-vis the environment, then, we are concerned with the linkages which exist, the elements which are linked, and the content of the linkages.

The linkage matrix may be viewed as the strategic map of the institution builders. The process of institution building can be said to be the manipulation of the linkages of the institution with its environment. The variables are those elements and actions which affect or pertain to this manipulation. The matrix points to the potential sources of support and resistance. The ideal end-state would be where the institution has succeeded in transferring all linkages which are negative in content to positive linkages. This, however, is not necessary. Certain linkages are more important to the institution in its search for institutionality than are others, both with regard to the environmental organizations with which a linkage exists and with regard to specific elements.

The elements of the institution may change or increase over time, but this can readily be accommodated within the framework. In terms of process and strategy, a number of concepts can be added to the linkage framework. Thus, in addition to capitalizing on existing or potential sources of support, the new institution can seek to isolate itself from environmental institutions which pose a threat or isolate the threatening institutions. It can create new linkages with the environment by seeking to shift functional affiliations or by creating a network of compatible organizations outside the existing environmental network of organizations.

This approach has certain appealing features. First, viability or survival of institutions brought in from outside is built into the model. The most logically defensible and symmetrical institution becomes irrelevant, if not dysfunctional, if it cannot survive through integration and

functional performance. Put in another way, if the institution needs perpetual propping-up and artificial respiration from outside, it is not viable. Second, a wide range (if not an exhaustive range) of institutional relationships is accounted for, rather than a single or limited special purpose test. It is easy to conjure up an institution-building project which produces a limited and well-defined product but not a viable institution.

There is a serious limitation of the model which appears when we consider cultural change imposed from outside over a long period of time with heavy investment of people and money. At any given point in time the linkages may be weak or non-existent but the whole cultural context is undergoing change. The linkages become stronger as the culture changes. This would be the product of a cultural imperialism where the whole value system, world-outlook, or philosophical posture undergoes change and institutions as such begin to meet the needs of the country as these needs are generated. You cannot build an educational system that will survive until the cultural expectations of the country require the outputs of the institution. The same could be said of an elaborate money and banking system or other institution.

Also, this model begs the question of whether a particular institution should be built, or more poignantly, should not be built. An institution which perpetuates a closed political system, or a chattel role for women, or inefficiency and corruption in public administration might score high on the linkage matrix. Conversely the most needed institutions (in terms of western definitions of modernization) may score low on a linkage matrix because of the dysfunction and cultural trauma occasioned by destroying a traditional society in favor of modernization. Perhaps the most realistic view falls between total destruction and total reinforcement, with institution building efforts creating new (and temporarily dysfunctional) products but enough within cultural boundaries to avoid unacceptability. If this is true a study of linkages should provide a means for ordering information and theory and estimates of the likelihood of institutional survival.

This section of the report approaches institution-building using the model described above, with a linkage matrix model diagrammed below.

LINKAGE MATRIX

Linkage Variables

Institution Variables	Enabling	Functional	Normative	Diffuse
Leadership	A	B	C	D
Doctrine	E	F	G	H
Program	I	J	K	L
Resources	M	N	O	P
Internal Structure	Q	R	S	T

I. LEADERSHIP

The Institution-Building Concepts--An Interim Appraisal has defined the institutional variable of leadership as "the group of persons who are actively engaged in the formulation of the doctrine and program of the institution and who directs its operations and relationships with the environment. Leadership is considered to be the single most critical element in institution-building because deliberately induced change processes require intensive, skillful, and highly committed management both of internal and of environmental relationships. Leadership is considered primarily as a group process in which various roles such as representation, decision-making, and operational control can be distributed in a variety of patterns among the leadership group. The leadership group composes both the holders of formally designated leadership positions as well as those who exercise important continuing influence over the institution's activities. A number of leadership properties are identified as variables, among them political viability, professional status, technical competence, organizational competence, and continuity. High ranking on each of these properties is expected to correlate with leadership success."¹

Effective leadership is central to any effort to establish normative relationships and action patterns. In the context of institution-building theory, leadership as an institutional variable is pivotal to any program designed to create "new organizations or the radical remodeling of existing structures in transitional or preindustrial societies and the patterns of interaction between institutions and their environment."² In fact, Esman and Bruhns state that "there appears to be no substitute, no effective way of circumventing inadequate leadership, and the likelihood is that the venture will stall, be reduced to ineffectiveness, and even fail unless adequate leadership is forthcoming."³

On the basis of this definition and description a number of hypotheses were developed to illustrate significant variables as they relate to enabling, functional, normative, and diffuse linkages at the leadership level of the institution-building model.

Hypothesis A1: Co-membership of leadership of HI in other government agencies facilitates goals of HI.

Governing boards, advisory councils, trustees, or whatever are eufunctional vehicles for the strengthening of enabling linkages at the leadership level give representation to relevant factors within the environment and serve to increase the attention and interest of those factors in the operation of the institutions. By involving environmental factors in the institution, the institution increases its potential for acquiring more resources and authority by virtue of its access to and influence with environmental factors sharing membership on host institution committees. Two examples of HI bodies creating co-membership of leadership between environmental groups and institution leadership are the Board of Management at IVd and the advisory council at IIb. At IVd, the Board of Management is composed of the vice-chancellor, the state director of agriculture, the state director of animal husbandry, and the state director of education as ex-officio members, two members of the state legislative assembly, one member from the state legislative council, two members are nominated by the state government, one representative from the state farmers' association, one from the national council of agricultural research, one from the state welfare board, one from the state bank, and one from the alumni association. At IIIb, an advisory council was formed consisting of the host institution director, representatives of the contract team, the rural development division of USAID, the secretary of agriculture, the national co-director of technical agriculture, the executive director of the rural credit agency, and the director of the university council. Both of these bodies create co-membership between HI leadership and environmental leadership and facilitate efforts to increase both resource and authority allocations to the host institution.

At Ic, the titular head of the national government and an extremely powerful politician in the state in which the host institution was located was also the titular head of the host institution. His support was seen as instrumental in the development of the institution; under his aegis, entirely adequate allocations of resources and authority were always forthcoming.

For further data relating to this hypothesis see hypotheses A3, A4, B1, and B2. Except as the illustrations of negative effects of enabling linkages discussed in hypotheses A2 and A4 serve as conditioning parameters, this hypothesis would seem to be correct.

Hypothesis A2: High frequency of interaction between HI leadership and government leadership facilitates goals of HI.

To the extent that interaction between HI leadership and government leadership increases the government's awareness of HI needs and an appreciation of both HI's problems and accomplishments, high frequency of interaction has positive consequences for institution-building. To a greater or lesser extent, every contract illustrates the benefits which accrue from such interaction but many also illustrate the drawbacks of a high frequency of interaction.

At IVc, a new chancellor was appointed in 1966 and everyone associated with the institution had great expectations about his performance, in large part because he had access to and a high frequency of interaction with government leadership. He had served as a member of the HC-American Survey Team, had wide experience in education, and knew many people in the state and national government. This might appear to strengthen the enabling linkages of the HI and to a certain extent it does. But he serves on numerous state and national government committees and has neither the time nor the energy to do an effective job either in terms of internal control and direction or in fighting the battles that seem to be necessary to support the HI and guarantee its autonomy. This finding was repeated at Ie. The principal being involved with the government works both ways, as he is seldom at the university which is 100 miles from the national capital. In I1b, the dean of the college rates high on the national level. he spends practically all his time in the national capital working on government problems and is not on the campus taking care of details.

For more data on this hypothesis, see hypotheses A3, A4, B2, and B3. High frequency of interaction between HI leadership and government leadership facilitates institution-building provided this interaction does not divert the time, energy, and attention of HI leadership from the internal needs of the HI and does not transgress the conclusions of hypothesis A3.

Hypothesis A3: Independence of HI leadership from frequent government interference in internal decision-making of HI facilitates goals of HI.

The extent to which institutional leadership is independent from government interference is not only a

very significant test of institutionalism in itself, but is directly related to the institutional leadership's ability to formulate a flexible, sensitive, and thorough-going strategy of change. One measure of an organization's institutionalism, as defined by Esman and Bruhns, is its autonomy. "The institutionalized organization has a high degree of autonomy. . . . The institution can establish rules and procedures deviating from and independent from the larger system of which it is a part."⁴

In general, no overt or blatant instances of government interference in the internal decision-making process of the institution was documented by the data. However, the position of the government conditions all policy decisions, especially as they relate to change tactics. One instance serves as an adequate illustration. IIIId was given university status in 1960, thus becoming autonomous, no longer subject to the edicts of the Ministry of Agriculture. Autonomy is seen in the ability to restructure university curricula. Financially, however, it is still dependent on the government for support, so it cannot do anything too radically at odds with government interest or policy. Control, then, is indirect. So long as the institution is financially dependent upon the government, the government's policies, interests, and perception of the appropriate rôle of the institution conditions the decision-making processes and delineates the policy alternatives of the institution.

The formulation of a specific strategy of change by the institutional leadership will be discussed later. At this juncture, though, it should be pointed out that the absence of leadership concerned with the development of a strategy of change, that is leadership committed to change, is an illustration of the negative consequences of institutional leadership independence. IVa exemplifies an institution which has failed to develop precisely because the leadership was insulated from government interference. The dean of the faculty of agriculture's lack of dedication, lack of commitment or drive was allowed to persist because of an absence of accountability. It would seem, then, that in those institutions whose leadership is committed to change, independence from government interference has positive consequences for institution-building endeavors. At those institutions where leadership is less committed to change than government elites, government interference in the internal decision-making processes and operations of the institution may not be detrimental for either institution-building or innovative thrust. At this point, no conclusions were attempted in cases where neither institutional nor governmental leadership is committed to change. For further data, see hypotheses A1, A2, A4, B2, and B3.

Hypothesis A4: Acceptance of HI leadership into social, political, and economic elites of HC as measured by frequency and content of social interaction, facilitates goals of HI.

The relevance of this hypothesis can be illustrated by a remark one researcher made in reference to the HC of IIIc. "The process of decision-making often does not occur within official channels. Personal force and connections often outweigh merit as decision-making determinants."5 This could have been made in relation to virtually any low income, transitional country.

IVd illustrates some of the characteristics of an effective leader and the eufunctional rôle access to government elites can play. In 1966, a new Vice-Chancellor was appointed. He was a strong, dynamic leader in relation to internal matters. He had served in official capacities on the state and national levels and had contacts with people at both levels of government. There may be ulterior motives in his efforts to build up the program, that is, he may see his position as Vice-Chancellor as a spring board for getting back into politics. Even if that is the case, his efforts to upgrade the university are highly effective in their consequences. Political access and connections, however, can also operate to guarantee the position of poorly committed leadership. It has languished under the leadership of an individual whose concern for the Ministry of Agriculture's policies and attitudes has prevented him from taking any initiative.

As in the case of hypothesis A3, it would seem that acceptability and access of the HI leadership into HC political, social, and economic elites is a two-edged sword. For committed, dynamic leadership, such access facilitates institution-building endeavors. Such connections can serve as a crutch for uncommitted leadership, relieving the necessity for dynamic, imaginative decision-making and the stimulus for initiative. For further data, see A2, A3, B1, B2, and B3.

Hypothesis B1: The quantity and quality of HI leadership interactions with clientele leadership is a factor in the success of HI.

The Board of Management of IVd, described in hypothesis A1, has operated in a way which demonstrates the benefits of frequent, meaningful interactions with clientele leadership. Functional, as opposed to enabling, linkages

"are the linkages with those organizations performing functions and services which are complementary in a production sense, which supply the inputs and use the outputs of the institution."6 Although "clientele" might imply primarily consumption of an institution's output, it is taken here to refer to groups which have both input and output relationships with the HI. The effectiveness of the Board of Management at IVd, then, can be appreciated, since many of the major client groups are represented. The board serves as a vehicle to aggregate organizations which benefit from and are concerned with the operation of the HI. Because of the interchange and interaction which takes place on this board, functional linkages with client groups are strengthened. Similar boards are constituted in nearly all contracts, some official, others unofficial. This contract was selected because data as to its effectiveness were available. In many cases, no data were presented that detailed the content and substance of interactions between clientele and HI leadership which resulted from the operation of this type of aggregating vehicle. In other cases, boards were created but their existence was solely on paper. To the extent that boards such as the Board of Management of IVd operate in a way which aggregates the interests of and intensifies the interaction between clientele groups and HI leadership, functional linkages are strengthened and institution-building efforts are facilitated.

It should be noted that a number of representatives of the government are members of the board of management. The importance of governments as enabling institutions, providing resources and authority, is compounded by the rôle of governments as client groups. The importance of government as a client of the HI and, thus, the importance government assumes in the formulation of a strategy for change is directly related to the level of social mobilization extant with the HC.7 The extent to which there has been economic activity throughout the society and the establishment of a measure of social interdependence is probably the extent to which there will be client groups apart from the government within any given country. Functional linkages with client groups and patterns of interaction between HI leadership and clientele leadership may involve only the relationship between the HI and the HG and its affiliated agencies. The implications of this for formulation of survival, service, and change (innovative) tactics are discussed in B3.

As HI-government relations relate to interaction between HI and clientele leadership, one problem found in a great number of cases, in all areas of the world, was the absence of a coordinated, ordered, and clear set of input-output relationships between the HI and various government agencies. Authority is delegated, resources

provided, and graduates employed by education ministries, agricultural ministries, and other agencies concerned and involved with the HI. Competition, jealousy, and conflict often result because of the overlapping interests. To the extent that there is no ordered and coordinated set of relationships between various governmental agencies and the HI, the HI is in a position to bargain for support with a number of enabling-functional (client) groups. However, this latitude for bargaining, the extent to which relations and interactions between HI and various government agencies are not clearly defined, is also the extent to which HI is vulnerable to attacks, manipulation, or retributive-preemptive competition by other government agencies.

Existence of client groups apart from the government is a function of the level of social mobilization within the HC. The extent to which client group and HI interests are aggregated and functional linkages strengthened may depend on the quantity and quality of interactions between HI and clientele leadership. A clearly defined HI-clientele relationship minimizes the latitudes for bargaining and vulnerability to attack. To the extent, then, that interests are aggregated, functional linkages strengthened, bargaining position maximized, the vulnerability minimized, extensive interaction between HI and clientele leadership facilitates institution-building. For further data, see A1, A2, A3, A4, B2, and B3.

Hypothesis B2: Acceptability to clients in professional and social and cultural terms is necessity for HI leadership to be effective as agents of the institution.

Keeping in mind the point made in hypothesis B1, that is, that the extent to which clients apart from the government exist is a function of the level of social mobilization within the HC and that by definition an underdeveloped country has a low level of social mobilization, the land grant philosophy imposes severe restrictions on the acceptability of HI leadership to clients. As has been brought out previously in the discussion of the land grant model, the essence of the philosophy is service to the society, primarily the rural sector, and the embodiment of the philosophy is the tripartite approach of teaching, research, and extension. However, as this approach is imposed or inculcated in the HI and its leadership, the HI becomes progressively more threatening to very important client groups.

The commitment to all three aspects of the land grant approach runs counter to the interests of whatever institution previously handled these functions. Teaching and agricultural education have been acknowledged as an appropriate activity for the HI to undertake. Extension, however, has generally been handled by ministries of agriculture or some other official or semi-official agency prior to the creation of the new HI. When the land grant approach adherents seek to acquire responsibility for extension, they engender the wrath, hostility, and competition of the agency which discharges that function. In many cases, this is the ministry of agriculture and in many cases this is the very same ministry which is responsible for funding the HI. Even in the contracts where the institution-building efforts have been most successful, where enabling, function, and normative linkages have been strongest, conflict over the desire to have extension and to a lesser extent research has occurred. As is pointed out in B3, some accommodation has to be made in order to develop sufficient support for survival capability. A HI run extension service may cause more agricultural innovation, but this may have to be bargained off in order to acquire survival capability. An accommodation which leaves extension service in the hands of whatever agency was operating it prior to the creation of the HI or the advent of the land grant philosophy impact need not preclude the HI from having an innovative impact on the extension service. IIb, IIIc, IVd are illustrations of institutions which reached an accommodation part of whose substance included maintenance of the extension service apart from the HI and, yet, each one is none the less having some innovative influence on the extension service in the respective HCs. Until some accommodation is made with regard to previously vested interests and action patterns no HI leadership will be acceptable; and until there is an acceptance, there can hardly be institutionalization. One leadership strategy, all too frequently not taken, for the problem of acceptability and accommodation is to demonstrate the utility of the institution as rapidly as possible. In formulating the strategy for change, especially in relation to the development of survival capability, HI leadership should be cognizant that the first products or outputs of the institution will be students, not research and surely not extension. Actual "start-up" of the institution should not be made until the leadership is aware of the criteria on which outputs will be judged and is reasonably certain that these criteria can be met. If the basis of leadership and institutional accommodation is perceived utility and mutual benefits, and the criterion for judging institutional outputs is a civil service examination, "start-up" should be made when there is reasonable certainty that outputs will be able to pass the examination and thus be meaningful or useful to clients. If they are not perceived as useful or

as a meaningful basis for reaching an accommodation, HI leadership will not be accepted by clients and survival capability not increased.

Acceptability to clients is necessary for HI leadership to be effective agents of the institution. If they are perceived as a threat to the client leadership, as in the case of the land grant model requiring the extension service to be taken over by the HI, there will not be acceptance. Only when some accommodative approach is adopted by HI leadership will HI leadership be acceptable to client leadership. If HI leadership can demonstrate the utility or meaningfulness of the HI and its outputs, it will facilitate accommodation and acceptance and, thus, increase prospects for survival capability. Acceptance of HI leadership, then, is essential to institution-building.

Hypothesis B3: The success of HI leadership in dealing with competing or antagonistic institutions is a vital factor in the growth of the HI.

In The Institution Building Concepts--An Interim Appraisal, Hanson and Siffrin are reported as associating the concept of institutionality to primarily instrumental values. Institutionality has "little significance in terms of a society in general but only in relation to specific relevant publics or clientele groups internal to the institution or within the environment on whom the institution and its activities directly impinge."⁸ Although Hanson attempts to inject the notion of intrinsic value as another means of evaluating institutionality, it appears that instrumental valuation has particular relevance for the formulation of survival tactics. The bargaining and accommodation involved in achieving survival capability for agricultural universities relates primarily to relevant publics, not the entire society. This is especially true in light of the previous discussion of social mobilization as a factor limiting the number of groups relating themselves in an input-output or even intrinsic value way to the institutions. The number of relevant publics or client groups is even less than is implied in the Inter-University Research Program literature and the necessity for calculated strategies designed to relate the institution to specific relevant publics in an instrumental way is correspondingly greater.

With this in mind, the dysfunctional consequences of a rigid adherence to the three-fold land grant approach as it effects relationships with relevant publics can be appreciated. This approach is interpreted as almost

imperialistic by incumbents to the pre-existing pattern of relationships and action patterns. If the drive to acquire control of all research and all extension were played down, there could be accommodations reached between the institution and government agencies which would strengthen functional linkages, thus facilitating institution-building, without sacrificing all potential to generate innovation.

As merely one illustration, the leadership of Ic was held at arms length because of the threat to outside, governmental agencies' autonomy. When they interacted with the Department of Agriculture, it was on the basis of either wanting control of extension service or of research, or else they wanted to change the internal structure of the department so it would more nearly approximate the image of what the HI personnel think it should be.

The consequences of conflict, antagonism, and jealousy, as seen at IVb for example, are simply not worth whatever advantages accrue from a continuing, rigid adherence to the land-grant model. Because of the antagonism over teaching, research, and extension between the Ministry of Agriculture and IVb, the Ministry of Agriculture is now upgrading its own institute. It had operated previously as a two-year training institute for extension workers and is now being upgraded to a four-year program in direct competition with the HI. The ramifications of this can be appreciated when one keeps in mind that as an enabling and functional linkage, the Ministry of Agriculture is partially responsible for allocating resources to the HI, it delegates much of the HI's authority, supplies many of its functional inputs, and absorbs a substantial number of its outputs. The detrimental effects on institution-building, especially in relation to the acquisition of survival capability, far outweigh any real or mythical benefits flowing from adamant and rigid commitment to the land grant model in the face of opposition by enabling-functional (relevant publics) linkages.

One danger in the present technical assistance arrangement can be called veiled accommodation or disguised competition. The presence of AID and American team personnel has tended to obscure the disjunction or absence of a clearly defined relationship or accommodation between the HI and HC agencies. AID and American personnel have, on different occasions, used their influence to guarantee that inputs of resources or support have been forthcoming from HC agencies, from enabling-functional client groups. The effect of this has been to improve the quality of immediate inputs without necessarily helping the institution develop or guaranteeing that this flow of inputs will continue after the American presence has been withdrawn. One

researcher remarked that the pervasive rôle of American personnel at Ia prevented indigenous HI leadership from developing the capability to fight their own battles. They are preparing a situation in which after the U.S. personnel has withdrawn and indigenous personnel has taken over, the likelihood of more friction and dissension between the host institution leadership and government will increase. These may include the Ministries of Agriculture or Education or whomever, i.e. the people who are reluctant to compete with HI for authority or resources and responsibilities while American personnel remain. American participation should be progressively scaled down so that when that participation is phased out, a meaningful accommodation or institutionalized set of relationships and action patterns has been found between HI leadership and the relevant publics within the environment.

In its drive to achieve institutionality, "it is essential [for HI leadership] to identify specific organizations which will be important to the new institution's welfare, with which it will conduct a continuing pattern of transactions,"⁹ and with whom interdependent supportive relations can be established. "It seems prudent for the new institution[s] working in an environment which may confront its leadership with more palpable resistances than opportunities, to do more of the accommodating in order to insure its survival, its access to resources, and its ability to carry out at least some elements of its program [land grant concept of service]."¹⁰

HI leadership's ability to identify needs (demands) in the environment, build functional linkages with as many prospective clientele groups as possible, and reach accommodation with relevant publics (enabling-functional linkages) may determine survival or failure to institutionalize and is thus absolutely vital to the institutional building of the HI.

Hypothesis B4: The HI will be facilitated in achieving its goal if the HI leadership has a good working relationship with the country's educational system.

To the extent that the country's educational system constitutes a relevant public for the HI, then good relations with the educational system are extremely important. There were no data available to suggest that the educational system was a relevant public or constituted a client group or potential linkage that might effect institution-building efforts in a central or immediate way. The capacity to innovate or utilize the educational system in formulating

innovative tactics is discussed in the program section. At the leadership level, there is no evidence to suggest that an absence of working relationships with the country's educational system hinders achievement of institution-building goals. The reader is cautioned that this may not be the case at the program level.

Hypothesis C1: The acceptability of HI leadership to institutions such as the church, secret societies, reform groups, and ideological groups is a factor in HI success.

Hypothesis C2: Legitimation of HI leadership by institutions in (1) above can be accomplished by endorsement, mutual accommodation, and other techniques.

Much the same conclusions as were made in B4 appear to be appropriate for these two hypotheses. In the words of one overseas researcher: "How badly does a plant with a strong tap root need to try to develop a branched root structure?" If social groups are relevant publics for the HI, then acceptance and legitimation might be a necessary precondition for institutionality or survival capability. The acceptance and legitimation of HI leadership by various social groups which do not constitute relevant publics certainly is desirable but is not essential for the development of institutionality. Non-relevant publics, social groups which have no instrumental ties to the HI, groups who have neither potential nor latent demands for the outputs of the HI become relevant for institution-building concerns only when they actively oppose the HI and are in a position to effect either enabling linkages or groups which are relevant publics. Acceptance and legitimation of HI leadership may facilitate innovative goals but in the short run, in the drive for survival, non-relevant publics are essentially unrelated to institutionality. This, of course, illustrates the difference between survival tactics and innovative tactics and the groups which are important to both.

Hypothesis C3: HI leadership will be effective to the extent that they represent the dominant social consensus and values of the HC. When this is the case they will work through traditional relationships and hierarchies (e.g., tribal structure, land-lord system). If they are not thus representative they must rely upon the development of consensus relationships and democratic techniques.

The importance of technical competence as a requirement for leadership far outweighs minor deviations from the dominant social consensus and values of the HC. Except where traditional relationships have an impact upon enabling or functional linkages, traditional relationships are irrelevant to immediate goals of achieving institutionality. A meaningful relationship with traditional groups might facilitate innovative strategies but there are as yet no hard data for substantiation of this notion.

Hypothesis D1: HI success is related to the efforts of HI leadership in conducting a systematic and continuous program to explain the institution and the AID project through whatever mass media have developed in the society (e.g., press, telecommunications).

Hypothesis D2: HI success is related to the development of a favorable climate of public opinion at all levels of the system.

A high public regard for the HI and an understanding of the HI by the society at large certainly does not hinder institution-building efforts. However, so long as the attitude of the society at large is not one of fear or antagonism, emotions which might seek release through pressure on relevant publics, enabling or functional linkages, popular opinion and understanding of HI should not be a primary concern of the HI leadership.

The generally lower prestige and status of agriculture in relation to professions such as law, engineering, or medicine has consequences for the program level of the institutional model but does not effect leadership or hinder its efforts to establish institutionality for HI.

Leadership should concern itself with public opinion only when negative feelings may prompt people to seek redress from enabling institutions. At Ic, there was some bad publicity which the university was never able to completely overcome when the university wanted to expand and buy extra acreage which meant pushing people off the land. By buying and fencing a piece of property, they cut off a pathway to a market and made a mile journey into a four mile journey. However, despite popular objections, the land was purchased, thus demonstrating the importance and thus irrelevance of the population as it related to institution-building.

The dean of the school of Agriculture at IIA put the matter into perspective. "Probably the best test of public relations that an institution has with other segments of the society, also perhaps the most accurate index of its public image, is found in the willingness of funding groups to provide the essential finance and other resources that are necessary to enable the institution to function effectively."¹² This illustrates once again the importance of relevant publics and enabling-functional linkages and the fact that relevant public is considerably less than the "public" of public opinion.

Revised Hypotheses on Leadership

Enabling:

Co-membership of leadership of HI in other government agencies strengthens enabling linkages of HI.

A2: High frequency of interaction between HI leadership and government leadership can serve to strengthen enabling linkages of HI.

A3: HI leadership will be most effectively maximized when change-committed HI leadership is independent from frequent government interference.

A4: When HI leadership is committed to change, acceptance of HI leadership into social, political, and economic elites of HC strengthens enabling linkages and facilitates the broad goals of HI.

Functional:

B1: Interaction between HI leadership and clientele leadership which aggregates the interests of both parties, tends to maximize HI bargaining position and tends to minimize its vulnerability, strengthens functional linkages, and facilitates institution-building.

B2: HI leadership which is personally and professionally acceptable to clientele leadership will be more effective bargaining agents of the HI and thus have the potential to strengthen HI functional linkages.

B3: HI leadership which is able to identify relevant publics within the environment and establish some accommodation with them is vital to the HI's prospects for achieving institutionality.

Normative:

C1: Acceptability or accommodation of HI leadership to social groups which constitute relevant publics themselves, or can have some impact upon relevant publics, functional linkages, or enabling linkages within the HC is essential for attainment of institutionality.

C2: Prospects for HI leadership being effective agents of the HI are greater if it does not transgress the values or deviate from the dominant social consensus of the HC.

Diffuse:

D1: HI leadership which is able to convert favorable public opinion into intrinsic valuation of HI will increase prospects for survival capability.

D2: HI leadership which is able to avert unfavorable public opinion of HI and minimize the effects of negative popular evaluation of HI upon enabling and functional linkages will increase potential for HI survival capability.

Leadership Footnotes

1. Milton J. Esman, 1967, The Institution Building Concepts--An Interim Appraisal, University of Pittsburgh, GSPIA, p. 3.
2. Milton J. Esman and Fred C. Bruhns, Dec., 1965, Institution Building in National Development--An Approach to Induced Social Change in Transitional Societies, University of Pittsburgh, GSPIA, p. 8.
3. Esman and Bruhns, p. 12.
4. Esman and Bruhns, p. 10.
5. Indiana University Working Manuscript on USAID/USUNIV Contract Case Studies, p. 109.
6. Esman and Bruhns, p. 17.
7. For detailed discussions of social mobilization, see Daniel Lerner, The Passing of Traditional Society, Glencoe, The Free Press, 1958; Karl Deutsch, "Social Mobilization and Political Development," American Political Science Review, vol. 55, Sept., 1961; Wilbert Moore, The Impact of Industry, Englewood Cliffs, Prentice-Hall, 1965; and S. N. Eisenstadt, Modernization: Protest and Change, Englewood Cliffs, Prentice-Hall, 1966. The vague and uninforming concept of "change readiness" is used by Esman in reference to the society at large. It has been inferred that social mobilization or something similar is the referent.
8. Esman, p. 25.
9. Esman, p. 30.
10. Esman, p. 32.
11. Indiana University, p. 33.
12. Indiana University, p. 157.

II. DOCTRINE

In Institution Building in National Development--An Approach to Induced Social Change in Transitional Societies, Esman and Bruhns define doctrine "as the specification of values, objectives, and operational methods underlying social action. The doctrine is viewed as the stable reference point of the institution and of its interaction with the environment, to which all other variables are related.

"Some of the variables in this category are: specificity, the extent to which the elements in the doctrine supply the necessary foundation for social action in a given situation; relationship to existing norms, the conformity of the doctrine elements to the socially expected and sanctioned behavior; relationship to the preferences and priorities of the society, specifying the relation of doctrine elements to the intermediate goals and targets of the society."1

Despite the importance of doctrine to the institution in planning and implementing program or providing a rationale for its existence, this variable is the most difficult to work with in an institution building model. Esman notes that "the concept of doctrine is perhaps the most elusive cluster of variables in the institution building scheme. . . ."2 He goes on to say that "the difficulties . . . in using this concept can be traced to the inadequacy of the conceptual equipment in modern social sciences for dealing with the influence of ideas on action. There are subtle differences in defining doctrine, in distinguishing formal themes from those which are really operational, differentiating those which are expressed from those which are implicit, discriminating those which are highly generalized from those which are specific in their reference."3

With the above as background, the following hypotheses were formulated and tested against data from a worldwide sample of AID/USUNIV institution-building contracts. Doctrine was studied in relation to the environmental variables of the model, enabling, functional, normative, and diffuse.

Hypothesis E1: The growth and success of the HI is related to the degree of acceptance of a concept of service similar to the Land Grant Concept in the U.S.

The evidence does not support this hypothesis regardless of how one defines success. Whether it is defined as survival or as having the ability to innovate or as achieving institutional⁴ success of the HI does not seem to be dependent upon the acceptance of a concept of service similar to that practiced by land grant institutions in the U.S. In fact, there is strong evidence that too much emphasis on the service concept, depending upon its physical manifestations, can be detrimental to the growth, and even survival, of the HI.

To review briefly, the land grant institutions in the United States have for many years been committed, in practice as well as in theory, to the welfare and the problems of the common man, particularly the rural common man.⁵ This commitment has been, at least in the last fifty years, a holistic one. The problems of the laborer or the farmer, his wife and his children have all been areas of concern for the land grant institutions in their problem-oriented, service-related concept of education and the role of the university in society. Although the concept of service permeates most aspects of the land grant institution, it is epitomized in the formal organization of the extension programs which include activities from adult education classes and regional campuses to farm field days, curriculum development and close cooperation with the county agents located throughout the state. Thus, when the American agricultural advisor from a land grant institution goes abroad, he tends to emphasize the need for a service orientation among the HI staff which usually means to him close coordination of teaching, research and extension. The problem really comes into focus when one realizes that in most of the developing nations, teaching is usually administratively under a ministry of education whereas research and extension are usually under the control of a ministry of agriculture or some other governmental or quasi-governmental organization. Thus, this recommendation for a tripartite based educational program and institutional structure would require major restructuring and redefinition within the HI. This happens only rarely.

The university, as an educational institution responsible for training individuals for the agricultural service agencies in the government, certainly needs, and can justify, research and extension programs for the training of students and the use of the staff; however, these programs can be of limited size and cost by the nature of their purpose. To be able to justify complete control over all state or national research and extension activities, the university must show its unique qualifications over existing institutions. This is usually impossible to do; and the argument that this is the way it has been done and is being done,

even quite successfully so, in the United States is not a sufficient argument for change in the HC.

The data indicate that at Ia, the HI is committed at the doctrine level to the service concept of the American land grant college and has been able, to some degree, to implement programs which seem to follow through from this doctrine. Also, at Ic, the leadership of the HI appears to have been committed to the land grant service concept for some years; and the HI, from all evidence, is rapidly becoming institutionalized in the environment in part, at least, because of this service orientation. At IIB, however, there is evidence that the acceptance of the land grant concept of service by the leadership and staff of the HI is not sufficient for success in a total sense of bringing about change. Thus, it appears that the HI must have the support and cooperation of outside agencies also involved in agriculture and rural development. This, then, brings up the problem of enabling and functional linkages and the number of relevant publics present in the environment which seem to be an indicator of the degree of social mobilization within the society. This is discussed at some length under leadership. Thus, at Ic where there is a high degree of social mobilization combined with HI leadership commitment to change and development, there has been marked institutionalization of the HI. However, at IIB, where, although the HI leadership and staff appear to be committed to change and development, there is a low level of social mobilization and the HI does not have a good working relationship with the ministry of agriculture, there does not appear to be any marked institutionalization of the HI.

At IVd, the land grant service concept has been widely accepted and the HI, from all indications, is playing a major role in researching local agricultural problems on a practical level and providing advice and assistance through its own extension service. However, the society within which the HI operates is highly mobilized and there are numerous relevant publics in the environment with which the HI can establish enabling and functional linkages. Particularly, there are strong commercial interests in the area which attach positive value to the HI doctrine and programs. This has generated strong political support for the HI at the governmental level giving the HI resources, autonomy and opportunity for innovative thrust, criteria for institutionality.

The HI at IIIb is part of an old and traditional educational institution; and to impose the land grant service orientation on such an institution will be next to impossible especially since the HG has other organizations specifically designed to do research and extension. Traditionally, the HI has provided trained manpower for governmental agencies in agriculture. The HG requested a USUNIV

advisory team to help in the establishment of a graduate program in the agricultural sciences to upgrade the quality of the education of the manpower it so desperately needed for its agriculture development programs. In the absolute, one can argue that the HI is not meeting the needs of the country; but it is naive to think that a USUNIV team can promote the sweeping changes necessary to produce an institution that will play a major role in the rural development of the HC.

At IIIa and IIIc, as at IIIb, the HG's wanted, and needed, graduate programs at existing educational institutions to provide more and better trained manpower for their agencies involved in agriculture. All the contracts are written in terms of upgrading and coordinating teaching, research and extension, i.e., in the image of the American land grant model and philosophy. The evidence here tends to indicate that at times a HG may have to take more than what it wants in an AID/USUNIV contract to get what it feels it needs.

At IIId, the rapid growth of the HI has apparently been due to the need of the HG for trained agricultural technicians and not to any commitment to service on the part of the HI staff.⁶ Here particularly the insistence on the part of the American advisory team for HI control of research and extension has caused problems for the HI since the government agency responsible for research and extension has been unwilling to share these with the HI. Also, apparently sensing very early the rather imperialistic intentions on the part of the USUNIV team toward research and extension, the agency has not been willing to cooperate to any extent with the HI on coordination of teaching, research and extension activities.

In summary, then, there is little evidence that the hypothesis as it is now stated is valid. There is considerable evidence that when the land grant concept of service is operationalized, the HI will be forced into conflict with other agencies within the environment. This in itself is not necessarily a serious problem especially in a society with a number of potential clientele groups in the environment to which the HI can turn for support. However, in most developing countries, the government and its related agencies are the only clientele groups, i.e., the only means of support for the HI. Thus, this hypothesis might be best reformulated as follows: "The growth and development, i.e., institutionalization, of an HI which is committed to the American land grant concept of service is related to the degree of social mobilization within the society and the resulting number and power of relevant publics in the environment." Or, "The level of social mobilization within the society and the resulting number and power

of relevant publics in the environment will provide parameters for the growth and development, i.e., institutionalization, of an HI with a commitment to the American land grant concept of service." Or, "In areas having low levels of social mobilization and few relevant publics in the environment outside the HG, the growth and development, i.e., institutionalization, of the HI is related to the ability of the HI staff to achieve a strong working relationship involving mutual respect for the given division of labor with agencies involved in agriculture and rural development."

In all the above suggested hypotheses, it is taken as a given that the outputs of the HI will be of such quality as to have a high positive valuation by the relevant publics in the environment; otherwise, the social mobilization index and these hypotheses are irrelevant.

Hypothesis E2: The ability of the HI to obtain resources and approval from the HG leadership is related to the degree of congruence between HI doctrine and prevailing HG doctrine.

There is strong evidence that HG leadership often will financially support an organization without specifically approving of its doctrine and without demanding that the organization contribute to the national development. In such cases, "one must then conclude either that financial resources were not so very scarce in these countries or that factors other than performance, perhaps international prestige, the desire not to hurt persons associated with the institutes, or willingness to wait a very long time for results, were more important in determining resource availability than performance tests or satisfying a felt need in the society."⁷ However, this usually also means that the HI is not to create any problems for HG leadership with its programs. Thus, the HI leadership, consciously or unconsciously, trades off its service and change thrust for survival. By definition, then, there can be no institutionalization taking place; however, there would seem to be a possibility for the HI in time, by accident or by design, to fulfill latent functions in the environment. This is a different kind of problem but probably should be studied in more detail than it apparently has been to date.

More important, however, is the fact that the same people who write the prevailing HG doctrine probably help write the HI doctrine, and there is not likely to be a lack of congruence. Evidence generally shows that the doctrine

of both the HI and the HG tends to be vague and idealistic and is not the strong reference point that it might be as defined in the beginning of this section. Thus, the ability of the HI to obtain resources and approval from the HG leadership will probably be on some other basis than congruence of doctrine.

At IIb, although there have been budget increases over the past fifteen years to the HI from HG for teaching, research has generally suffered cutbacks in support. A government representative interviewed at IIb, remarked that HI staff members returning to the HC from training in the United States have testified to the advantages of teaching, research and extension being in the university; however, he went on to note that few of these returnees have demonstrated a capacity or a spirit of service necessary to make a change. A similar problem exists at IIa with a decline in support for research; but there a government representative stated that the people in the government who control the budget do not have an understanding of a university as a service institution and thus do not budget for this sort of growth and development in the HI.

At Ia, Ib and Ic this hypothesis would be valid. The leadership of the HG has been committed to change as can be seen outlined in the National Development Plans, and the HI doctrines have been patterned on these perceived needs. The problem-solving, service orientation of the American land grant institutions has generally been accepted in all three areas with varying degrees of emphasis and with local adaptation as to institutional structure.

In summary, the independent variable here should probably be the degree of commitment of the HG leadership to the HI doctrine and programs, i.e., to rural growth and development, rather than the mere congruence of HI and HG doctrine. Doctrine, both HI and HG, is probably often a reflection of what HG and HI leadership know or suspect representatives from the developed countries and from international organizations expect to hear as well as being a good political platform in their own countries.

Hypothesis E3: The HI will receive support and approval from the HG in proportion to the usefulness the HI has demonstrated as a device for achieving national goals.

This hypothesis appears to be valid in most of the projects studied; however, it must be qualified for purposes of this study since national goals are not always

interpreted in the same way by HG leadership and by members of the USUNIV advisory team. At all projects in areas II and III, at IVa and IVb, and at Ib, Ie and to some extent Id the HG wants institutions to train manpower for the government agencies. In all cases, agricultural research and extension activities are already being handled, although not always satisfactorily, by governmental or quasi-governmental agencies and not by the universities. In all cases but one, there was at the time of the writing of the AID/USUNIV contract an existing HI often with years of tradition and service behind it. True, the service of the HI was usually to a national elite and not to the working class, and the service was in the classical tradition and not of a practical nature. However, the HI had friends--often in high political positions in the HC--and these were people committed to a type of institution and to a way of life. They would not, and did not, view major restructuring of the HI with favor. Yet, the evidence indicates that in almost every instance, the USUNIV advisory team attempted, or is still attempting, to gain control of the research and extension activities for the state or the nation for the HI. In not one instance of these projects listed above, have they succeeded; however, by their almost single-minded commitment to this tripartite form of the land grant institution, they have created numerous problems for themselves and for the HI in the HC environment.

In most, if not all, of these projects, the HI was receiving continued support from HG on the basis of its teaching function. This was fulfilling a country need for additional and often more highly trained manpower for government service.

Hypothesis F1: The success of the HI is related to the "goodness of fit" of HI doctrine and the economic system within which it operates. If HI doctrine is realistically geared to the realities of the country's stage of economic and political development, the chances of success are good.

Evidence tends to show this hypothesis as being irrelevant. Doctrine does not appear to have the functional relationship to program that it ideally should. Thus, regardless of what the doctrine of the HI proposes to do for the country, the real matter of "goodness of fit" doesn't come into focus until one moves into the area of program.

Following is a summary statement of the HI doctrine at Ic. "As an institution dedicated to the land-grant philosophy of service to all the people, the ' . . . [HI] is

usually urban in background, a sense of agricultural work and a practical orientation to the problems of rural life and development.

Ia and Ib are two locations where the HI program included organizing courses in agriculture in the secondary schools. This project has been relatively successful and there is some evidence that the pre-college exposure to agriculture has given the students a better grasp of some of the problems to be faced for rural development and nation building. However, the weight of the evidence is that this hypothesis is not valid and is probably irrelevant.

Hypothesis F3: The success of the HI in conveying technological change is related to the participation by clientele-groups in the formulation of HI doctrine, and the responsiveness of the HI to the clients.

This problem has been dealt with, to some extent, in E1 and E2. Since most of the areas studied here are areas of low social mobilization, the only clientele groups in the environment are HG and its related agencies. Since HG leadership agreed to the AID/USUNIV contract and was involved in the writing of the contract with its statement of purpose and philosophy and often in the creation of the doctrine of the HI, there is then participation by clientele groups in the formulation of the HI doctrine. However, having said this, one has not really said anything particularly insightful about institution building.

At Ic and at IVd where the HIs appear to be undergoing institutionalization and where there is a high degree of social mobilization resulting in numerous clientele groups with which the HI can establish linkage transactions, the clientele groups were, for the most part, not involved with the formulation of the HI doctrine. There may have been some modification of doctrine over time by influence of various clientele groups but this appears to be negligible.

In the United States, the clientele groups had little participation in the formulation of the doctrine of the land grant institutions; and it wasn't until some forty years after their formation when the land grant institutions were able to put content and substance into their programs, that clientele groups started paying much attention to them. Thus, a doctrine of change and development is fine but meaningless unless the HI has some programs by which to bring about this change and development.

Hypothesis G1: Success of HI is related to the congruence of HI doctrine and the prevailing religious, ethical, and cultural norms which are pertinent to rural development problems. To the extent that there is dissonance between HI doctrine and these norms, resistance to technological change outputs of the HI will be generated.

This hypothesis seems to be true at IIa, IIb, and IIc where doctrine of the HI does consider, in a general and idealistic fashion, the norms of the society; however, this geographical area seems to be something of an exception.

The problem posed by this hypothesis is much the same as that stated under hypotheses E2, F1, F2, and F3. The HI is generally not actively involved in rural development regardless of what the doctrine may state the HI is to do for the nation. Thus, prevailing norms in the society at large are not critical factors in the day-to-day operation of the HI. At Ic, the HI generally had strong support from the people as an educational institution. In spite of the personal attentions during its formative years by a major political figure of the HC, the HI was never able to gain control of the extension service which was administratively in one of the ministries. Thus, close contact with farming population--the place where innovations are cheek to jowl with values, attitudes, and traditions--was minimal, confined mostly to informal and individual contacts in the immediate vicinity of the campus and farms.

At IVd, one finds in operation an American type land grant institution with responsibilities for teaching, research, and extension. Again as in Ic, the society shows a high degree of social mobilization resulting in a viable and dynamic private sector which provides various clientele groups for interaction with the HI. There is evidence that as the mobilization index of the society increases, the "change readiness" of the people increases; and then the problem of "selling" a technological innovation to members of the relevant publics is more a matter of economics, input and output relationships, than of religious, ethical, or cultural norms.

Hypothesis G2: The ability of the HI to convey change to the environment will be effected by the degree to which the changes introduce dysfunction into the value system.

This hypothesis is so close to hypothesis G1, being tied to the same necessary pre-conditions before it can be adequately tested, that many of the same points made above are applicable here.

However, this hypothesis can be tested at the more micro-level of change than would be required for G1 which is biased toward rural development. The environment of G2 might well be the HG or even the HI if it were a long established institution. At IIIa, IIIb, and IIIc, the HIs were established institutions committed to a doctrine and program of supplying trained manpower to private, state, and federal agencies. With the coming of the AID contracts and the presence of a USUNIV team, there has been considerable pressure on the members of the HIs for a commitment to service in the land grant sense. This has been seen as a serious threat to the old, entrenched staff members. Thus, in these cases, dysfunction was introduced into the value system with the attempt at change resulting in strong opposition from the indigenous staff.

Conflict and dysfunction are very common at the micro-level when a USUNIV contract team insists on restructuring the HI to fit their concept of a land-grant college. Great amounts of energy have been expended in meetings at all levels of the HI by American advisors in getting credit points and numerical grade point averages adopted by members of the HI. These kinds of fights over such "critical" elements of the land-grant college always seem to cost more than what is gained in terms of relationships with host nationals.

Hypothesis H1: The interpretation and conveyance of HI doctrine to the environment by the mass media will facilitate achievement of HI goals.

There are examples which would give support to this hypothesis, e.g., Ia, Ic, IVb, and IVd. Generally, however, the environment of the HI is the HG which has had a hand in the formation of HI doctrine and does not require efforts through the mass media to be aware of, or favorable toward, the HI doctrine. Only where there are potentially relevant publics other than the HG in the environment will the HI probably receive much pay-off from extensive efforts at public relations through the mass media.

Revised Doctrine Hypotheses

Enabling:

E1: Where there are other client groups besides HG in the environment, a concept of service, without being tied to any institutional form, can be important for promoting enabling relationships.

E2: The HI doctrine should be at such a level of specificity that, while allowing for personal differences in leadership philosophy and ability, the main thrust of the institution in a national development context will be clearly defined.

E3: The growth and development, i.e., institutionalization, of an HI which is committed to the American land grant concept of service is related to the degree of social mobilization within the society and the resulting number and power of relevant publics in the environment.

E4: In areas having low levels of social mobilization and few relevant publics in the environment outside the HG, the growth and development, i.e., institutionalization, of the HI is related to the ability of the HI staff to achieve a strong working relationship involving mutual respect for the given division of labor with agencies involved in agriculture and rural development.

E5: The ability of the HI to obtain resources and approval from the HG leadership is related to the degree of total and active commitment on the part of the HG leadership to the doctrine of the HI and the HG.

Functional:

F1: The higher the level of specificity of HI doctrine, the less freedom HI leadership has in major policy changes but the more clearly is the HI defined to competing and complementing organizations in the environment.

F2: HI doctrine is meaningless until there is a body of knowledge and information accumulated that will have importance and relevance for the potential clientele groups in the environment.

Normative:

G1: As the relevant publics in the environment increase, the doctrine of the HI will have to be more sensitive to those religious, ethical, and cultural norms prevailing within those publics.

Diffuse:

H1: The interpretation and conveyance of HI doctrine to the environment by the mass media will facilitate achievement of HI goals when that environment is composed of potential clientele groups for HI outputs.

Doctrine Footnotes

1. Milton J. Esman and Fred C. Bruhns, December, 1965, Institution Building in National Development--An Approach to Induced Social Change in Transitional Societies, University of Pittsburgh, GSPIA, p. 14.

2. Milton J. Esman, 1967, The Institution Building Concepts--An Interim Appraisal, University of Pittsburgh, GSPIA, p. 14.

3. Esman, p. 41.

4. Esman and Bruhns, pp. 9-11.

5. There are indications of changes in the kinds of service and the recipient of the service of the land grant institutions in the United States today. This subject is touched on in the concluding pages of Chapter One.

6. Service is a difficult term to deal with. Educational institutions with trained manpower as their only outputs are probably supplying a service to their countries; however, this is not the complete meaning of service as it is found in the land grant institutions in the United States. An important question a researcher might ask is how do the HI staff view their teaching? If they see teaching as playing an active part in contributing to the growth and development of the state or nation, then one could probably legitimately say there is a service orientation in operation.

7. Esman, p. 21.

8. Indiana University Working manuscript of AID/USUNIV Contract Case Studies, p. 172.

III. PROGRAM

Esman and Bruhns define program "as those actions which are related to the performance of functions and services constituting the output of the institution.

"Relevant variables of the program are: consistency, with the rules or specifications contained in the doctrine and among the programmatic elements; stability, the reliability of the output in terms of quality, quantity, and in time perspective; feasibility, regarding physical and human resources, complementary production of other organizations, and the absorptive capacity of the society; contribution to needs, concerning the actual contribution made through program actions to satisfying the specified needs of the society."1

While program might be expected to be the putting into operation of the doctrine, this does not seem to be the case. Thus, program gets removed from doctrine which complicates research. Esman notes that a number of problems emerge in the study of program "among them how programs are formulated, priorities established, and resources allocated; how programmatic outputs can be modified or adapted in response to feedback from experience; and how the manipulation of outputs can effect the institutionalization of the organization or of its innovative purposes."2

With this as background, the following hypotheses were formulated and tested against the data from a worldwide sample of AID/USUNIV institution-building contracts. Program was studied in relation to the environment variables--enabling, functional, normative, and diffuse.

Hypothesis 11: Success of the HI is related to responsiveness of program to evaluations by HG and subsequent re-direction to satisfy government leadership.

There are examples of organizations which are supported, financially and politically, by host government leadership for various reasons, none of which are service or innovation orientation. Thus, the program of the HI will often have to be responsive to the evaluations of the HG but this may turn out to be a negative influence with the result being organizational survival at the expense of service and change.

Cases of HG leadership committed to service and change and insisting on these in the program of the HI are almost noticeable by their absence. One exception is at IIIb where an AID contract was written with a new military government which was making, at least initially, moves toward rural development.

This matter of HG evaluation of the HI program and the necessity of redirection of that program is the direct result of the lack of additional client groups in the environment, a subject which has been dealt with previously. As long as the HG is the main, if not only, means of support for the HI, the HI will probably experience government interference. As long as this is the case the HI cannot meet one of the main tests of institutional stability as outlined by Esman and Bruhns, i.e., autonomy.³

At Ia, while the HG was the only client group for the HI, HG leadership appears to be committed to the change and development thrust of the HI as outlined in its doctrine. The same is generally true at Ib. At Ic, there were other clientele groups in the environment which provided the HI with some autonomy from the HG although the major share of the physical and financial resources still came from HG. In IVd, there were other clientele groups outside the HG, and the HI was able to enjoy a certain amount of autonomy from HG pressures.

Hypothesis I2: Stability of political system is a factor in HI program success.

- a. Instability in political process will be reflected in HI program by:
 1. Inability to undertake longer-range projects.
 2. Tendency to undertake programs which are least dysfunctional to norms and values of the society.
- b. Tradition of removal of HI from political change will counteract instability results.

There is no strong evidence to support this hypothesis. Political stability can be seen as a two-edged sword cutting both ways in the change process.⁴ To be sure, extreme political instability pushed to such extremes as civil war or extended terrorist activities would surely disrupt most institution building activities, e.g., Biafra.

However, at less extreme positions or of less long duration, political instability can be responsible for needed changes in leadership in the HG. The extent of disruption on the HI will depend to some extent on its physical location in the HC. If the HI is somewhat remote from the capital city, staff and students can often weather coups and attempted coups with a minimum of disruption, e.g., Id and Ia. If the HI is located within the capital city, then it may easily get caught in the emotion of the incident and undergo varying degrees of disruption, e.g., IVa.

One side effect of political instability that may have an adverse influence on program growth and development in the institution is the reallocation of funds by HG leadership to meet immediate needs for defense, emergency medical supplies, or for purchasing of food which would ordinarily be grown locally, e.g., IVb and IIIc. In general, however, the sample of institution building contracts studied provided no conclusive evidence for supporting the hypothesis.

Hypothesis J1: The capacity of the environment to absorb the technological changes which are outputs of the institution will determine the usefulness and effectiveness of the program content of the institution. The "fit" of the program content to the capacity to absorb will be systematically related to the perceptions of social needs by the "clients."

Since in most cases the output of the HI is graduates (trained manpower) this hypothesis cannot be adequately researched. What few technological changes that do come out of the HI are usually geared to the existing clientele groups which are usually government or quasi-government agencies such as a produce marketing board, plantation growing of a cash crop for export, etc. If there is a relevant private sector in agriculture, it is usually an elite group involved in agri-business with a high level of technological sophistication so that research results from the HI do not have wide applicability in the rural environment. In the case of these clientele groups, there is usually close communication with the HI personnel on matters of program. Often the members of these elite groups are also members of the HG, the major source of funds for the HI.

In an area with a socially mobilized peasantry where one finds a high differentiation in the economic activity of the farmers, such as at IVd where the peasant tends toward the production of maize as the main crop and does not rely upon his own subsistence production for all his goods,

the HI must be cognizant of the technological needs as well as the capacity to absorb new technology of the peasant farmer. This situation seems to exist to some extent at Ia where the government appears to be committed to rural development; at Ic certainly where there is a high degree of social mobilization among the people; and at IIIId where, while research and extension activities have been denied the HI, an educational program has been developed with careful attention to the manpower needs of the HC.

Hypothesis J2: Success of the HI will relate to the degree its program is aimed at realistic improvements in agricultural development within the scope of the country's resources and capacity to absorb change. "Immediate payoff" aspects of the program will facilitate acceptance of HI program by clientele-groups.

Most of the comments and criticism on hypothesis J1 are also applicable here, at least for the first part of the hypothesis. The value of "immediate payoff" aspects of the HI program is more difficult to test.

Since most HI outputs are graduates and since often U.S. education is suspect in the HC by European educated nationals, it would seem to follow that the first HI graduates should be carefully selected for entrance and well trained before graduation so that they will have a high visibility in the relevant environment, thus producing an "immediate payoff" of sorts. Obviously, the concept of "immediate payoff" has more validity in terms of technological innovations, but the data in this study tend to limit analysis to manpower outputs.

The point can be strongly made here that many USUNIV teams begin programs in instruction before students can be selected properly and before the HI is ready to begin functioning. The evidence clearly shows that educational quality of graduating students is bargained off in this rush to get the HI in operation. This can cause a lack of trust in the ability of the HI to provide well-trained manpower. This happened at Id where certificate students were rushed through an inferior program, and also at IVa.

At Ic where the national civil service examination acts as an external examiner for the graduates of the various educational institutions, the particular HI studied here made its educational program and philosophy felt in the HC because of the high performance of several of its graduates on the exam. This was a case of "high visibility" and had

the effect of "immediate payoff" in the achieved status of the HI on the national scene.

Hypothesis K1: Success of the HI is related to the acceptability of outputs (students, research, extension) to the cultural and social norms of the environment. To the extent that dissonance occurs there will be resistance to the technological change being conveyed by the HI.

As has been previously stated, the environment to which the HI must be responsive is the micro-environment of the HG. At IIa, formal contacts of the HI leadership for 1966 were 11 contacts with the advisor to the ministry of agriculture and forestry; seven contacts with the advisor to the ministry of education; two contacts with the advisor to the ministry of commerce and industry; all other contacts with people at this level of government with no mentioned contacts with representatives of farmers associations, etc.⁵ This is typical of the HI personnel at the USUNIV contracts studied here. However, given the lack of potential clientele groups in the environment with which the HI might establish transactional linkages, contact with the government leadership is only reasonable if the HI is to survive and if its outputs are to be at all meaningful.

Of course, one can argue that the outputs will be acceptable to the norms of the relevant environment when the only consumer of the outputs is also the only source of financial and physical resources. The HC elite may well be the norm establishing group in the HC and will be quite influential within the HI. In the case where the HG prefers to keep extension service under tight bureaucratic control, viewing it as a powerful political tool the control of which is not to be passed around lightly, the "norm" is the less extension the better; and this is observed by members of the HI. In this case, to the extent dissonance occurs, the HI might well endanger its own survival not simply its innovative thrust as stated in the hypothesis. This is simply a case of the institutionality of the bureaucratic structure providing the means to set normative behavior patterns for other organizations in the immediate environment, in this case the HI.

For additional information on this hypothesis, see hypotheses G1 and G2.

Hypothesis L0: No hypotheses were tested under this cell of the model.

Revised Hypotheses for Program

Enabling:

I1: As long as the HG is the major clientele group in the environment, the program of the HI must be responsive to HG leadership.

- a. If HG leadership is committed to change and development, the HI program will reflect this commitment.
- b. If HG leadership is not committed to change and development, the HI program will reflect this lack of commitment.

I2: As the number of potential clientele groups in the environment increase, the HI program will become more a manifestation of the transaction linkages the HI has been able to establish on the basis of perceived instrumental value of the HI outputs.

Functional:

J1: To the extent the HI program is developed with clientele group needs in mind so as to have "high visibility" of the outputs, the outputs will come to have perceived instrumental value by the clientele group.

J2: National development must be dependent upon a "trickling down" effect in terms of innovations simply on the basis of cost.

- a. To the degree that program is designed to maximize this effect, broad national growth can take place but at a very slow pace.

J3: Program should be designed so that it does not come into immediate and obvious conflict with existing and competing programs until the HI has established secure linkages in the environment, i.e., gained some degree of institutional stability.

Normative:

K1: The HI program need only be concerned with the normative behavior patterns of relevant publics with which it has or expects to have linkage transactions.

K2: As HI outputs achieve a high perceived instrumental value in the environment and as the index of social mobilization goes up giving rise to more clientele groups in the environment, the HI will be in a position to influence normative behavior on a broad social scale through its program.

Diffuse:

L1: To the degree the HI can support a portion of its program on a charity base, i.e., not cost accounted on an input/output relationship, by providing some service through mass communication media, it can be a force for increasing the social mobilization in the environment.

Program Footnotes

1. Milton J. Esman and Fred C. Bruhns, December, 1965, Institution Building in National Development--An Approach to Induced Social Change in Transitional Societies, University of Pittsburgh, GSPIA, pp. 14-15.
2. Milton J. Esman, 1967, The Institution Building Concepts--An Interim Appraisal, University of Pittsburgh, GSPIA, p. 18.
3. Esman and Bruhns, p. 10.
4. Esman, p. 39.
5. Indiana University Working manuscript on AID/USUNIV Institution Building Contracts, p. 317.

IV. RESOURCES

Resources are defined in Institution Building in National Development--An Approach to Induced Social Change in Transitional Societies as "the physical, human, and technological inputs of the institution. Resources is a significant category, not only with regard to those resources which are at the institution's disposal or which it can acquire in absolute terms, but also regarding the sources from which they have been or can be obtained. Program decisions, and even decisions concerning doctrine and leadership, may be affected by the ability to mobilize resources, and the sources from which they can be obtained. The sources will also affect the interdependencies of the institution with other organizations.

"Two variables under resources are: availability--the physical, human and technological inputs which are available or can be obtained for the functioning of the institution and the performance of the program; sources--the sources from which the inputs have been obtained and alternative sources to which the institution has access."1

The IRPIB institution building model suggests that an institution must justify its continued access to resources by producing outputs which satisfy significant demands and needs within the society, and by thus creating favorable environmental linkages, the institution may insure itself an adequate share of scarce resources. The model presupposes an ever-existing struggle among institutional claimants for scarce resources, and that to be successful in obtaining such resources the institution must justify such resources through performance. An initial grace period of indeterminate length may be allowed when an institution is first established, with claims for resources being resolved in its favor. In the long run, however, the institution must earn its resources by good works which satisfy an influential clientele.

Hypothesis M1: Success of the HI depends upon the commitment by HG of financial resources adequate to sustain HI at an operating level after withdrawal of AID support. These resources must be realistic in terms of national capacities, and must relate functionally to some articulated or implicit national plan for rural development.

Among the contracts examined only three, IIa, IIb, and IIc, have experienced formal phase out of AID and USUNIV.

Therefore, the discussion of the hypothesis is necessarily limited.

In IIb, the HG substantially increased its commitment of financial resources to the HI from 1960 to 1966. This permitted an increase in the working budget of the institution which suggests that it was able to sustain an operating level at, or beyond, the level which had been reached at phase out. Significantly, USAID money was still being contributed, but in seemingly negligible amounts vis-a-vis HG allocations.

The HG in IIa also considerably increased its allocation to the HI between 1961 and 1966. In this country there was no evidence that USAID money was still being received. However, it was reported that the allocated financial resources were failing to adequately meet operational costs. This inadequacy was explained by the fact that approximately 90% of the budget had gone into overhead and administration, leaving very little for teaching and other operational expenses. In fact, when the reported 10% for "research" is added to the 90% for overhead and administration, one wonders indeed just how the teachers were being paid!

The third case, IIc, reflects a continuing increase in HG allocation of funds to the HI from 1964 to 1966. This institution also enjoys a "minimum" amount of financial aid from USAID.

Thus, in all three contracts where AID and the USUNIV have phased out, records show an increased commitment by HG of financial resources for the support of the HI. In two of the three cases USAID money was still being received, but in small amounts compared to the HG commitments. While on the surface it might seem that these are signs of HI success, a closer examination of the budgets in all three institutions tends to dampen such optimism.

In all three countries there has been a cutback in research and extension. And, as noted in the discussion of IIa, even teaching may be suffering from lack of adequate funds. Therefore, while there has been a numerically larger commitment of HG money, evidence suggests that the HIs in all three countries may not be maintaining an operation level equal to the level at the time of phase out. Furthermore, and most importantly, the monetary increases and budgetary allocations do not appear to be directed toward those areas most relevant to rural development, e.g., research, extension, and perhaps teaching.

Among the countries which continue to have active USUNIV contracts, it is difficult to make any kind of valid judgment as to what their fates may be after the withdrawal of AID support. The evident HG commitment varies widely from country to country. Two examples may be helpful in understanding this range of commitment.

In IVa, there appears to be a definite lack of a genuine enabling relationship between the HG, the main client for the HI outputs, and the HI. In 1966 the HG was contributing only one-sixth of the cost expended by the HI for its operation. This would suggest, in terms of the IRPIB model, that "institutionalization," even at the level of survival, has not yet been achieved. However, the HI at IVa doesn't particularly have to be concerned with this situation since the majority of the financing for the HG stems from three foreign countries, one of which is the U.S. If the U.S., in the form of AID money, were to withdraw its support, the financing from the other two foreign countries would probably continue. However, if all foreign support were suddenly stopped, indications are that it would be impossible for the HI to remain in operation.

Less discouraging is the case of Ia. The HI here is one of 11 faculties of the National University. All faculties plus the administration must compete for the funds allocated by the HG. In 1967 the HI obtained 1.02 million (local currency) out of a total university budget of eight million. The dean of the HI considered that figure to be a fair and adequate share.

From the very beginning of the USUNIV contract, the various levels of the HG have demonstrated concern and interest for the success of the HI. In development plans of the HC, both agricultural and educational improvements have been items of the highest priority. Given such financial and moral support, it seems probable that HG will continue to sustain the HI at a successful operating level after withdrawal of AID support.

Several problems became obvious in dealing with this hypothesis. First, as was already mentioned, the hypothesis is limited to non-active contracts while most of the contracts examined were still active. To be properly tested the hypothesis must await phase out of AID and USUNIV contracts at more locations. Even then a certain time lapse might be desirable in order to give the institution time to make whatever adjustments that are necessary following phase out. Also, a true test of the hypothesis should involve institutions which are solely dependent upon the HG for the necessary financial resources to maintain the institution at an operation level. As was noted earlier, in the

case of the three contracts which have experienced phase out, AID funds have continued to be a contributing factor, although not necessarily in substantial amounts, in at least two of the three contracts. However, external aid, even in small amounts, could affect the testing of the hypothesis.

The analysts assumed it to be a given that the HG must commit financial resources adequate to sustain the HI at least at survival level or any discussion of institutionality becomes academic. It also was accepted as a given that the resources committed by the HG must be realistic in terms of national capacity. This was generally substantiated by the data. However, it was felt that there are reasons why HG would find it necessary, if not desirable, to support the HI at some level of survival without there being a functional relationship between the HI doctrine or program and a national plan for rural development. Nevertheless, this part of the hypothesis is meaningful within the limiting preconditions set out in the IRPIB model, i.e., that the national leadership be committed to change and development.

Hypothesis M2: Success of the HI depends upon the availability of personnel resources indigenous to the country and adequately prepared by primary and secondary schools for a college-level experience.

Almost all of the USUNIV contracts examined have initially faced the problem of finding adequately prepared students to fill the available seats. In most cases this problem may be partially traced to the fact that, prior to the establishment of the HI, most primary and secondary schools in the various countries placed little or no emphasis on the types of course work necessary for preparing students for higher education in colleges of agriculture. Another general factor is that most secondary school graduates are from urban areas and, therefore, have little, if any, appreciation for the problems facing the rural areas of their countries. A third common problem noted was that agriculture education, especially at the secondary level and higher, is an unpopular course for students to pursue. Host institutions and USUNIV teams have met these personnel resource problems in various ways, some of which are discussed below.

The personnel at one contract location, Ic, indicated that they were "always able to get sufficient students" for the available spaces. In 1967, it was reported that there were over 1,100 applicants for admission who had at least

the minimum qualifications. The HI accepted approximately 300 of those applicants. This is indeed an unusual case which may well reflect the region's lengthy interest and emphasis on quality elementary and secondary education.

Ia had a very different experience. When the HI was established there several years ago it was found that secondary school graduates were not adequately prepared for higher education at the HI. The problem was resolved by establishing a technical school through which students passed before entering the HI. In this way the USUNIV team was able to bridge the educational gap between the country's secondary schools and the HI. Since that time various government ministries, in cooperation with HI personnel, have worked to alleviate the problem of inadequately prepared students by encouraging, at the elementary and secondary levels, curricula which provide the students with an educational background of sufficient breadth and depth so that they can more fully profit from a college education.

The elementary and secondary schools in the other countries of geographical area "I" also revealed an increased emphasis on agricultural education. In most cases the initial incentive appeared to be related to the establishment of the HI. In some cases USUNIV personnel are working at both the college and secondary level to ensure a constant supply of well-educated students for the HI. Probably a large percentage of those students who are exposed to agricultural education at the primary and secondary levels will never gain entrance into the HI. However, as a literate, quasi-agriculturally oriented group who may presumably take up farming as a profession, they will likely serve an invaluable rôle in helping the HI achieve its objectives particularly in the areas of service and change.

In region IV, investigation showed a generally poor quality student entering the various host institutions. Unfortunately there is little evidence, with the exception of IVd, that much of anything is being done to improve this situation. IVa, in the beginning, did champion secondary vocational agriculture schools which were to function as channeling vehicles, moving students to the HI. However, this program never really got started. The USUNIV team which had been involved was terminated and the "channeling" schools de-emphasized. Thus, the quality of preparation of students coming from those institutions has declined.

In all the contracts examined in the III region, it was reported that student timber is poor. Often a year of preparatory studies is necessary. Efforts have and are being made to rectify this problem and significantly all contracts have reported improvements.

The data, therefore, clearly confirm this hypothesis. It is essential to HI success that there be a sufficient number of students, adequately prepared by the primary and secondary schools for a college-level experience.

Any improvement in the quality of primary and secondary education would be useful to newly established host institutions. But, programs that would develop human resources among the rural population would be of particular value since, as has already been pointed out, the bulk of the students who enter the host institutions are from urban areas and do not have any commitment to, or understanding of, agriculture and the rural sector.

Hypothesis M3: Success of the HI depends upon commitment by HG of faculty and staff resources adequate to sustain HI at an operating level after withdrawal of AID support. An attitude of professionalism and dedication to HI doctrine must be generated in such personnel in order to develop institutional continuity.

It was impossible to test this hypothesis. In the first place most of the contracts examined are still quite young and/or still some time away from AID withdrawal. Secondly, "hard" data was unavailable for those contracts which have experienced phase out.

One factor which repeatedly came out in the examination of the data was the apparent failure, in many instances, of the participant training program. Too often it appeared that potential faculty and/or personnel returning to their native countries after participant training were attracted into other occupations. Scanty information in countries where phase out has occurred suggested that the motivating factor sometimes originates from HG inability, or failure, not only to provide competitive salaries, vis-a-vis comparable professions, but also such things as research facilities, etc. The participant trainees often became disillusioned, particularly after having spent two or more years in the U.S. where standards are, relatively speaking, so much higher. It is, therefore, not too surprising perhaps to find that in several countries erstwhile faculty or personnel of host institutions accept jobs in government or in private industry. Should this trend continue, it could spell disaster for some institutions whose future success or failure lies in the hands of participant trainees who must be prepared to assume major responsibilities when USUB teams depart.

Hypothesis M4: There is a "critical mass" of financial resources and personnel resources which must be reached before the institution becomes self-sustaining, and failure to reach this point makes it unlikely that the institution will survive as an important element in rural development. There may also be a time factor which requires N years of operation before an institution becomes self-sustaining.

Before an institution becomes self-sustaining it must first have accumulated a "critical mass" of enabling financial and personnel resources. Having reached the self-sustaining point does not, however, necessarily guarantee survival of the institution. If the institution does not justify its continued receipt of such resources by producing outputs which respond to and satisfy significant needs within the environment, it may be by-passed in favor of other institutional claimants who are competing for resources.

Esman found in one case study that the availability of dedicated core staff members and sufficient money encouraged the national leadership of the institution "to push ahead vigorously with its program, with full expectation that its performance would justify continued and even increased access to the resource inputs which the institution required."²

Although there were insufficient data to adequately test the hypothesis, what evidence there was tended to support the "critical mass" theory. Thus, for example, in IIIId it appears that the critical mass of enabling financial and personnel resources has been reached. The most obvious reason for such a conclusion is the fact that the institution has experienced continued and substantial growth despite the gradual phase out of the USUNIV contract. There is undoubtedly a time factor involved before an institution becomes self-sustaining, but it is impossible to fix such a time factor which would apply across the board.

Hypothesis N1: The success of the HI will be enhanced by close communications with clientele groups on resource needs from HG and other sources. Direct and indirect assistance by clients in this are vital.

Few of the contracts examined have yet developed a discernible clientele, other than HG or quasi-HG organizations. Therefore, there are hardly any substantive groups relevant to the process of institution building as it is conceived in the IRPIB model.

In countries where clientele groups, other than government, do exist, evidence suggests that there may be a positive correlation between the amount and quality of communication which transpires between HI and clientele groups on the one hand, and success of the HI in obtaining enabling resources from HG on the other. The data, however, were so meager on this score that final judgment could not be made.

Probably this hypothesis should best be eliminated. The effect of the HI's interactions with clientele groups and organizations would undoubtedly be reflected in the HI's ability to obtain enabling resources. However, this is only one of many products of such communication and interaction. Cells B and J, functional leadership and functional program respectively, are both addressed to HI-clientele interaction and communication, and the consequences thereof. Therefore, any evaluation within those two cells would necessarily take into account the substance of hypothesis N1.

Hypothesis N2: A deliberate attempt by HC secondary schools to provide an input of adequately trained graduates is necessary for success of the HI.

Under cell M2 above, the lack of adequately trained secondary school graduates in most host countries and the problems these shortages created for the various host institutions were discussed. Also discussed were some of the efforts being made to remedy the situation. Almost anything of a substantive nature here would be more or less a repeat of what has already been said.

The analysis generally confirms the validity of this hypothesis, but this does not mean that success or failure of the HI necessarily hinges on it. It would be most desirable for any HI to have better secondary students from which to draw upon. Also, as was mentioned earlier, any vocational agriculture program at the elementary and secondary levels would enhance HI programs by developing literate human resources among the rural population. Lacking such programs at the secondary levels to provide suitable inputs, the HI may have to resort to other means in order to obtain human resources of the caliber required. Thus, Ia built a technical school to bridge the educational gap of students entering the HI. Several other institutions have found it expedient and desirable to provide their incoming students with six months or a year of preparatory study before admitting them to the college program proper.

Hypothesis N3: The program of the HI must be carefully geared to the capacity of the HC economy to provide minimum technological requirements for proper use of HI outputs. If maximum use of HI outputs calls for more extensive or sophisticated country resources than are available, the HI will not sustain itself.

Because of the scarcity of data in this area, it is difficult to make a valid assessment of this hypothesis. However, the evidence does indicate that where research is one of the outputs of the HI, as is the case in Ic, the results are too sophisticated and/or too expensive for the average peasant farmer or the HC to make any use of them. Also, the lack of a well-developed national infrastructure such as roads, markets, credit, and communications is often a retarding factor in the HC's ability to maximize the research outputs of the HI even when these have some "goodness of fit" with the technological level of the farmer.

In most of the contracts studied, the most important output of the HI is trained manpower. Government is usually the main consumer of this output; and given the usual bureaucratic structure, it is difficult to judge the "goodness of fit" of the graduates of the HI and the manpower needs of the government. Also, in the case where the HI has bargained off its service and change rôles for survival, the HG will probably continue support to the HI whatever the quality and quantity of the outputs.

Hypothesis O1: The prevailing norms and values of the society set limits on the physical, human, and technological resources which can be allocated to the HI.

The evidence indicates that the prevailing norms and values of given societies have been relatively insignificant as barriers, or limiting factors, in the HI's ability to obtain resources. At least the subject has been virtually ignored in end-of-tour reports, etc., indicating it may not be especially critical to resource allocation.

It was pointed out that in IIIa, technically oriented education is often pursued by those who can't qualify for medical or law school since there is a direct correlation between social status and the level of education one has passed. The same accusation, however, can probably be made for all societies across the board, i.e., technical education does produce a negative reaction vis-a-vis a professional education.

The people of Ic appear to be upward bound in their society and to generally support education and development. However, there are certain things which could impede progress. First, there is no such thing as an income tax. Thus, even with increased production--if this should be a product of the HI--the local government, which funds the HI, does not have ways to get a share of this money. Another problem that Ic has faced is in acquiring land for expansion. This problem is explained by (1) scarcity of land, (2) the traditional systems of land tenure, and (3) subsistence agriculture with few, if any, alternatives for employment elsewhere. Thus, in this case, land may become a resource, critical to HI success.

In the final analysis, the validity of this hypothesis cannot be proved or disproved; however, since sociological questions have not tended to get much attention on technical assistance projects, this hypothesis has not been adequately tested and should be saved for additional research.

Hypothesis 02: The prevailing norms and values of the society set limits on the attractiveness and usefulness of the HI outputs.

In attempting to determine whether or not prevailing norms and values of the society set limits upon the attractiveness and usefulness of the HI outputs, the analyst was able to produce only one piece of evidence which has bearing on the question. The data are specifically concerned with a country in which two contracts are located, but contains definite implications for other countries as well. "An agricultural graduate is early deflected from the vocation of agriculture and is drawn off into political life or into the government bureaucracy. This is all the more common since the patronage of the agricultural college comes not so much from the families of practical farmers as from the wealthy planters. These families have long furnished the political leaders of the country and it is but natural that the sons, whether their studies have been in law, agriculture, engineering, or even in medicine, should maintain the family tradition and go into politics."3

The above statement was made in 1913 but is still valid in 1968, since the tendency is to move away from agriculture to the urban centered jobs. The point is that a degree, even from an agricultural college, often proves to be an end in itself, a passport to a government career,

because of the cultural traditions which relate social status to occupation.

As with hypothesis 01, it would seem unwise to abandon or reconstruct the hypothesis before it has been subjected to legitimate testing.

Hypothesis P1: The success of the HI in obtaining the necessary human, physical, and technological resources is related to the amount of effort expended by mass media in establishing a favorable climate for the allocations.

The testing of this hypothesis suggests that there may be an important relationship between HI ability to obtain resources and the amount of effort expended by mass media in public relations.

In 1962, although almost one hundred students took the HI entrance examination for agriculture at Ic, when enrollment was completed, less than 35 students were able (or willing) to pay their fees. The enrollment picture changed in 1963 with a surge of interest in agriculture as a field of study. This appeared to be the result of a rather extensive propaganda campaign by the government extolling the importance of agriculture and the need for its development in the area.

In another case, the program at IVb has recently had one rather striking success. When the HI succeeded in introducing new strains of maize particularly suited to the area, the HI was given favorable exposure via the mass media. This is a good example of an institution involved in a positive transaction with its environment by providing an output valuable to an influential clientele.

Another contract which has had extensive exposure to the mass media and has established a favorable public opinion as a consequence is IVd. This is exemplified by, among other things, pressure exerted at the government level for continued and/or increased financial support for the HI.

It is significant that at another HI, IIb, a private foundation has a project going at the present time aimed at developing a relationship with the mass media.

Revised Hypotheses on Resources

Enabling:

M1: For institutional survival, HG and/or other client groups must provide adequate financial resources after the withdrawal of AID support.

(1) While "adequate" support must increase with increased expectations by clients for the HI outputs, resources must be realistic in terms of national capacities.

(2) While clients, particularly HG, may provide resources to the HI adequate for its survival for reasons unrelated to the desirability of the outputs, e.g., for national prestige, etc., the trade-off for the HI will usually be in terms of its potential for service and change.

M2: The more adequately the personnel resource inputs to the HI are prepared by the HC primary and secondary schools for a college-level experience, the more efficiently can the HI use its limited resources in providing a college-level experience with a consequent higher level of output.

Functional:

N1: Given the low level of social mobilization in most developing countries and the resultant lack of potential client groups for relationships with the HI, most indigenous organizations are dependent on the HG for providing inputs, for consuming outputs, and ultimately for institutionality.

N2: A deliberate attempt by HC secondary schools to provide an input of adequately trained graduates to the HI is an indicator of the normative influence and institutionality of the HI.

Normatives:

O1: The prevailing norms and values of the HG elite may set certain limits on the physical, human, and technological resources which can be allocated to the HI.

Diffuse:

P1: To the extent that relevant publics exist in the environment, efforts expended through the mass media giving the HI a high visibility will serve to create a favorable climate for increased support in terms of human, physical, and technological resources.

Resources Footnotes

1. Milton J. Esman and Fred C. Bruhns, December, 1965, Institution Building in National Development--An Approach to Induced Social Change in Transitional Societies, University of Pittsburgh, GSPIA, p. 15.
2. Milton J. Esman, 1967, The Institution Building Concepts--An Interim Appraisal, University of Pittsburgh, GSPIA, pp. 20-21.
3. Indiana University working manuscript on USAID/USUNIV contract case studies, pp. 74-75.

V. INTERNAL STRUCTURE

Esman and Bruhns in Institution Building in National Development--An Approach to Induced Social Change in Transitional Societies define internal structure as "the structure and processes established for the operation of the institution and for its maintenance. The distribution of functions and authority, the processes of communication and decision making, and other relationships and action patterns, are essential for the analysis of institution building and maintenance. Internal structure and processes determine the efficiency and effectiveness of program performance, as well as the identification of participants with the organization, its doctrine and program.

"Important variables in this category are: identification, the mechanisms and processes which enhance identification of participants with the institution; consistency, conformance of internal structure with the rules and specifications of the institution's doctrine and program; adaptability, the capacity to change over time to accommodate shifts in program emphasis and other changing conditions."1

On the basis of the above definition, the following hypotheses were formulated and tested.

Hypothesis Q1: The success of the HI is related to internal structure which maximizes the institution's ability to negotiate with enabling institutions (preferably through one channel or spokesman for the HI rather than competing and dissused spokesmen).

Generally the evidence supports the validity of this hypothesis. In almost all cases, the only enabling institution is the HG. Thus, a single person with good connections in the government seems to be the best operating procedure for the HI, at least during its formative years when it often needs the protection of a powerful individual or individuals in its competition for scarce resources with other governmental agencies.

In the case at IIIb, the head of the HI was formerly with the HG and still retains powerful connections within the bureaucracy. In this particular case, the HI leader is intelligent, ambitious, and progressive. He channels the money within the HI to those people and those departments committed to progress and development. In the situation at IVa, however, the HI leader who also has strong political

connections in the HG is an extremely ineffective person whose government connections only make it impossible to remove him. In this case, the linkage is a negative one for the HI.

At IIIa, the USUNIV with the support of the HI leader tried to reorganize the existing institutional structure away from the more classical lines to one which would be more efficient and more service-oriented. As one can imagine, the effort has been less than successful because of the entrenched individuals with vested interests in the structural status quo. In this case, the threatened group has refused to support the new programs of the HI and has made every effort to undermine the presence of the USUNIV team with friends, etc., in the HG. Thus, although the old structure maximized the institution's ability to get support from the HG, it was not service or change oriented. This, of course, is the problem with having only one clientele group in the environment, the HG.

Hypothesis R1: The more "modernized" a country the better it is to place the project within existing HI (providing HI has modernized too). The less modernized the country, the more necessary to build new HI operations free from other institutional control and domination.

The evidence indicates that there is not necessarily a relationship between the dependent and independent variables in this hypothesis. Therefore, as it is written, the hypothesis cannot be tested.

In the first place, "modernized" would have to be more clearly defined. For purposes here, one might equate modernized society with a society with a high degree of social mobilization. If this definition were to be used, then chances are the USUNIV contract would be better off starting an entirely new HI. It would have numerous potential clientele groups in the environment with which it could try to set up linkage transactions. Therefore, if the main thrust of the USUNIV contract were to introduce a radically different kind of institution into the environment, it would probably have more chance on its own with its major concern being that of producing outputs which would have such a "high visibility" in the environment that they would have perceived instrumental value for many clientele groups who would then give support to the new HI.

There is also a matter of whether the HC can afford to support more than one HI. At IIIId, there was an existing,

firmly entrenched educational institution in the HC. The decision was to establish an entirely new HI patterned after the land grant institution in the U.S. It was evident within less than one year after the contract date that the HC could not afford to support two institutions of higher learning. In general there is considerable evidence that AID and the USUNIV often oversell the HG leadership on the type and size of institution that is needed to such an extent that the HC cannot support the program. Also, despite a large budget by AID for various contracts, most of the money goes to the home campus of the USUNIV and to the advisors for salaries, transportation and fringe benefits; and only a small percentage actually goes to the HC in the form of equipment, books, and for participant training programs.

The following quotation from Esman on this subject would seem to sum up the problems very well. "An existing organization which has clear jurisdiction over a functional area may already be deeply institutionalized and thus highly valued among important clienteles. Leadership will therefore be inclined to resist changes. If such an organization is relatively small the choices of innovators are either to capture its leadership position and attempt to reconstitute the organizations--and this process of capturing the leadership of a well-institutionalized structure either from inside or outside is a quite difficult task--or, alternatively, attempt to start a new organization to compete with the older one in its field of jurisdiction. The latter possibility is more feasible when the original organization is perceived by important groups within the society as discharging its functions inadequately or as neglecting activities which it should be performing, or when it is not catering to emergent needs or demands within its field of jurisdiction. Unless these circumstances prevail, it is unlikely that a new and competing organization can be successfully created.

"If the existing organization is large, complex, and deeply institutionalized, if it has a widely diffused internal power structure, then efforts to work diffusely within the system are likely to be futile because of the broad base of opposition to change and the lack of a center of innovation within the existing institution. In this event, the most feasible strategy for the innovators is to set up a new unit within this organization which they can use as their own base of operations to gain control over critical resources or activities such as funds, staffing, programming, or significant environmental linkages."2

Hypothesis R2: The success of HI is related to how well the internal structure is organized for serving the needs of clientele groups, and the continuity and stability of the structure.

To repeat again, the only clientele group in all but a few of the cases studied is the HG. Still, however, unless the HG is maintaining the HI for reasons other than the value of its outputs, the structure of the HI should be organized in such a way as to best serve those agencies of the HG which are the clientele groups. One important problem comes out here which needs to be discussed. Often times the HG leadership knows what it needs, e.g., at IIIa, the HG wanted an AID contract for USUNIV advisors to help set up a graduate school in agriculture. However, often the HG must take the total land grant college with teaching, research, and extension to get the graduate school it wants and needs which seems to be what happened at IIIa. With the USUNIV team pushing for control of research and extension, there is continued friction between the ministries and the HI.

In the case of TVa, the ministry of agriculture needs trained manpower for its very active extension service. The HI is to provide this manpower. So far, the HI has not been able to produce a satisfactorily trained person for the ministry. The outputs are inferior and have extremely "low visibility" in the environment. Yet the USUNIV team wants control of the research and extension programs. There is not much success here no matter how one defines success. At Ic, the HI does not have control of the research and extension programs for the HC, but they do have research and extension activities built into the institutional program for use by the staff and students. Educationally, the HI is very successful, i.e., is becoming institutionalized. The research is getting to the place that, although often too sophisticated for the average farmer, farm days, etc., are being held and are having a good influence on the visitors. The HI may slip into extension and research for the HC by the back-door as it were. But the society is highly mobilized; there are relevant publics to look to besides the HG and the programs of the HI seem to be geared to the problems of the area.

At Id, the country needs a middle level trained manpower group to help in the extension service which is in the ministry; to work in some of the quasi-government and agri-businesses in the country; and to fill jobs as laboratory assistants, etc., in the HI and on its experimental stations. The HI has a two-year certificate program for students, but structurally the institution was never really

geared for this kind of program. Thus, the certificate students tend to receive a watered down version of the first two years of the regular four-year program. As a result, the certificate students, so far, have an extremely "low visibility" in the society.

Thus, the evidence would support the validity of this hypothesis; however, the problem comes when one realizes that in most cases the only clientele group is the HG. It is probably a danger that the HI can become so structurally specialized in serving government agencies that it would not be able to respond adequately should additional clientele groups develop in the environment.

Hypothesis S1: Internal structure of the HI will tend to reflect traditional authority/dominancy relationships based on sex, age, ethnic backgrounds, tribal groups, and so forth. This may hinder or facilitate the HI activities.

It is certain that the internal structure of the HI will reflect to some degree the authority/dominancy relationships, etc., of the larger environment. In African countries, tribalism is often a problem in the educational institutions both in terms of staff and of students. HI leaders will often hire staff, especially junior staff, on the basis of tribal affinity, kinship, social obligations, etc., rather than on the basis of ability and qualification. The professorial "chair" pattern found in Latin America reflects certain attitudes about interpersonal and intergroup relationships found in the society. To say this is really to say nothing. Traditional patterns of authority, etc., may, and do, impede change and development in a society and in an institution. But then this is really what change is all about.

Hypothesis S2: To the extent that HI success depends upon disruption of traditional patterns of the culture, the maintenance of traditional authority/dominance relationships within the HI internal structure will act as an inhibiting factor.

Since most of the HIs are operating only in the educational field and not in research or, more important, extension, this hypothesis cannot be tested. It is certainly true that, as was mentioned in hypothesis S1 above, attempts

to change the authority/dominance relationships as it relates to changes in the internal structure of the HI creates tensions.

Revised Hypotheses on Internal Structure

Enabling:

Q1: The success of the HI is related to an internal structure which maximizes the institution's ability to negotiate with the HG and enabling institutions through one spokesman with political influence in the HG.

Functional:

R1: The higher the degree of social mobilization in a country the better it is to place the project in an entirely new HI free from other institutional control and domination.

R2: The success of the HI is related to how well the internal structure is organized for serving the needs of the HG and other possible clientele groups, and the continuity and stability of the structure.

Normative:

S1: The internal structure of the HI will tend to reflect traditional/dominancy relationships based on sex, age, ethnic background, tribal groups, and so forth. These usually hinder HI goals.

Internal Structure Footnotes

1. Milton J. Esman and Fred C. Bruhns, December, 1965, Institution Building in National Development--An Approach to Induced Social Change in Transitional Societies, University of Pittsburgh, GSPIA, pp. 15-16.

2. Milton J. Esman, 1967, The Institution Building Concepts--An Interim Appraisal, University of Pittsburgh, GSPIA, p. 47.

CHAPTER THREE

THEORETICAL IMPLICATIONS OF THE DATA FOR
INSTITUTION BUILDING AND THE IRPIB MODEL

Introduction

Selection of the Inter-University Research Program in Institution Building (IRPIB) model was based on a number of factors. First, the model had been clearly articulated and appeared to have the scope and symmetry which would lend itself to operational uses. Second, it had been operationalized by competent scholars in the field of institutional development and had undergone reevaluation and refinement based on field experiences. Third, it was close at hand and its availability accelerated Indiana University's research endeavors. It appeared early in the CIC-AID project that little attention would be given by the group as a whole to developing a theoretical model for guidance of data gathering and analysis. The Indiana group, however, felt that some theoretical base would be essential. Thus the availability of a developed model which promised relevance was welcomed. Theoretical work done by other research teams subsequent to data collection came too late to be of use.

When the term institution-building is used, strengthening and incremental reforming of existing institutions is not implied. "Institution Building concepts, in contrast, emphasize the creation of new organizations or the radical remodeling of existing structures in transitional or pre-industrial societies and the patterns of interaction between institutions and their environment. . . . Institution building or rebuilding involves deliberate efforts to introduce radical innovations into transitional societies whose cultural values and social structure--not to mention economic and political interests--may not initially be supportive of these changes."1 The implications and thrust of institution building concepts are substantial; they involve more than mere reform and suggest more than the construction of buildings and libraries. Normative relationships and progressive innovation are basic to the approach.

An institution is taken by Esman and Bruhns to mean "an organization which incorporates, fosters, and protects normative relationships and action patterns and performs functions and services which are valued in the environment."2 An institution is always a functionally specific organization or a cluster of functionally specific interdependent organizations, although not every organization is or will become an institution. An organization or

cluster of organizations becomes an institution when it/ they are institutionalized. By institutionalization, Esman and Bruhns mean "the process by which new ideas and functions, through the instrument or organization, are integrated and fitted into developing societies, are accepted and acquire the capacity to sustain themselves and in turn influence the larger environment in which they function."³ Institutionalization, then, involves the establishment of normative relationships and action patterns which transcend the boundaries of the functionally specific organization. Influence flows simultaneously from the environment to the institution and from the institution to the environment. The concept of institutionality as it is presented in the IRPIB model involves the organization adjusting and accommodating to its environment in order to survive while the organization simultaneously endeavors to cause significant changes in that environment.

The IRPIB Model

There are three categories of variables in the conceptual model: Institutional variables; Linkage variables; and Transactions.

Institutional variables attempt to explain the systematic behavior of the institution as an organization. There are five clusters of institutional variables: leadership, doctrine, program, resources, and internal structure.

Leadership is defined as the "group of persons who are actively engaged in the formulation of the doctrine and program of the institution and who direct its operation and relationships with the environment."⁴ Decision-making, representation, operational control, and strategy of change formulation are roles normally associated with leadership. Properties identified as assets for leadership were political viability, professional status, technical competence, organizational competence, and continuity. "Leadership is considered to be the single most critical element in institution building because deliberately induced change processes require intensive, skillful, and highly committed management both of internal and of environmental relationships."⁵ As Chapter Two indicated and as will be discussed later, our data tend to confirm Esman's findings that "there appears to be no substitute, no effective way of circumventing inadequate leadership, and the likelihood is that the venture will stall, be reduced to ineffectiveness, or even fail unless adequate leadership is forthcoming."⁶

The doctrine was defined as the "specification of values, objectives, and operational methods underlying social action . . . a series of themes which project, both within the organization itself and in its external environment, a set of images and expectations of institutional goals and styles of action."7 Doctrine was one of the most difficult clusters of variables for the IRPIB researchers to treat satisfactorily. No definitive statements as to generality vs. specificity, doctrinal adjustment, or acceptable magnitude of disagreement over goals and styles was attempted by Esman.

Program variables are "those actions which are related to the performance of functions and services constituting the output of the institution . . . subvariables which are identified as relevant to the program or output function of the institution are consistency, stability, and contribution to societal needs."8 Esman discussed instances where program developments met with favorable response from elements within the environment but on the basis of different perceived needs (demands) and based on different criteria for evaluation.

Resources were defined as "the financial, physical, human, technological, (and informational) inputs of the institution. Resources is a significant category, not only with regard to those resources which are at the institution's disposal or which can be modilized but also regarding the sources from which they have been or can be obtained."9 The expectation of the IRPIB researchers, and largely their conclusion as well, was that access to resources was related to outputs which satisfy needs--demands in the environment--and this satisfaction was converted into more resources.

Internal structure was defined as "the structure and process established for the operation of the institution and for its maintenance. The distribution of functions and authority, processes of communication and decision-making, and other relationships and action patterns are essential"10 variables in internal structure. Adaptability and consistency are considered to be the two most important qualities in an effective internal structure.

Linkage variables constitute the second major category of variables in the model. Linkage variables examine the relationship between the institution and its environment. The channels or points at which interaction takes place are termed linkages. "Every institution, in the performance of its function, has a number of linkages with environmental organizations which fulfill complementary or competitive functions, provide the input of the given

institution, or use its end products as an input. Besides these functional linkages, an institution has, in terms of its values and normative patterns, linkages with other institutions which embody and protect valuative and normative elements in the same area in which fall the values and norms of the institution of our concern."¹¹ Four categories of linkages are identified: (1) enabling linkages; (2) functional linkages; (3) normative linkages; and (4) diffused linkages.

Enabling linkages "are the linkages with those organizations and social groups which control the allocation of authority and resources needed by the institution to function."¹² This linkage generally establishes the formal status of the institution within the environment as well as monetary and other varieties of resources.

Functional linkages "are the linkages with those organizations performing functions and services which are complementary in a production sense, which supply the inputs, and which use the outputs of the institutions."¹³ Capital and operating budgets are included in enabling linkage inputs but non-major or peripheral monetary inputs can be included in functional linkage category if those particular inputs are accompanied by other inputs or linkage transactions.

Normative linkages are the points of contact, the locking in of the institution "with institutions which incorporate norms and values (positive and negative) which are relevant to the doctrine and program of the institution. This applies to both the socio-cultural norms and the operating rules and regulations."¹⁴

Diffused linkages are the "interdependencies between an institution and its environment which cannot clearly be identified by membership in specific, formal organizations. The establishment and operation of an institution is also affected by the more diffused support or resistance in its immediate environment and in the larger society."¹⁵ The nebulous type linkages involved here are such things as image, public opinion, favorable impression and the like.

The third major category in the institution building model is transactions. An institution conducts certain transactions with the social organizations with which it has linkages. "Transactions are defined as the exchange of goods and services, and the exchange of power and influence. Thus, it is not restricted to physical inputs and outputs, but includes such social interaction as communication, support acquisition, and the transfer of norms and values. A specification of the transactions which take place between

an institution and the social entities in its environment may be made in terms of the purposes of the transactions."16

Transactions can be for the purpose of gaining support for and overcoming resistance to the institution. Such transactions ideally create or strengthen bases of support for the organization and its program. Another type of transaction is the exchange of resources, the acquisition of resources as inputs to the organization and the distribution of outputs into the environment as inputs. Other transactions are intended to restructure the environment so as to generate or increase complementarity. Transactions may have the effect of transferring the norms and values of the institution into the society. A single transaction may have several purposes or effects at any given time. Institutional leadership formulates an institution building strategy based to a large extent upon the potential transactional relationships available to the organization.

The concept of institutionality, mentioned previously, acquires some capability for operationalization on the basis of linkage and transactional relationship examination. The thrust of the IRPIB and Indiana University research endeavors were concerned with the matrix of linkages, and through them transactions, which an organization carried on with its environment. Based on this linkage and transaction matrix, institution building efforts could be evaluated and institutionality, potential for institutionalization or unsuccessful institution building efforts, determined. The IRPIB model provided for a number of tests of institutionality. "among them the ability to survive--a necessary but not sufficient condition of institutionality; being viewed in its environment as having intrinsic value which in turn can be tested by the autonomy the institution has gained; the influence which it exercises; and the spread effect of its activities--whether specific relationships and action patterns embodied in the organization have become normative for the other social units with which it interacts."17 Esman considers institutionality to encompass more than the functional integration of an organization into its environment, in an input-output set of relationships. Intrinsic value of the institution, stemming from its commitment to certain normative values apart from the tangible products of the organization and a corresponding commitment to the organization and acceptance of those values by the environment. Esman concluded that intrinsic value is an absolutely essential portion of the definition of institutionality. "In modern societies institutions which are values intrinsically by that very fact are also serving an instrumental purpose for those who prize them."18

Although not made explicit in the "Interim Appraisal," there appears to be an imminent fundamental change for the model as a guide or research strategy. IRPIB and Indiana University researchers both encountered difficulty operationalizing the categorization of linkages which is formally presented in the IRPIB working papers. Clear or meaningful distinction between linkage categories was frequently impossible. Not only did points of contact between the institution and the environment defy categorization, but the same linkage relationship could serve different purposes at different times and many were multifunctional at any given time. Although the classification of linkages was not meant to be rigid, a research strategy designed to evaluate institution building may be more effective if it focuses upon transactional relationships rather than the linkage matrix per se. "It may prove more useful to concentrate on clarifying and refining classes of transactions according to their major purposes and to abandon the classification of linkages, since these are the significant units of action by which relationships are managed."19 The data presented in Chapter Two confirms the wisdom of this change.

Analysis and Critique

The IRPIB institution building model, then, was operationalized in four cases, with differing degrees of commitment by the senior researchers. Putting aside the problem of how closely or rigidly the model was applied by the researchers as a vehicle for organizing data, the discussion of strategies of change as they relate to Esman's definition of institutionality and the refinements made in the IRPIB model appear to be both overly sanguine and misleading. The data as presented in Chapter Two and the general conclusions of the Indiana University researchers indicate that a new definition of institutionality is essential. The discussion of strategies of change presented in the Interim Report as amplified in Chapter Two of this report and in this section suggests the shortcomings of the IRPIB model, even as a vehicle for organizing data, and problems caused by Esman's definition of institutionality.

Institution Building Strategy

No responsible leader in an organization striving toward institutionalization (by whatever definition of institutionality one may choose) can assume that each contact the organization has with its environment is of equal value and importance to the institution building effort. By virtue of potential inputs, potential demands for the organization's outputs, or complementarity of norms and values, some portions of the environment can be more significant to an organization's institution building prospects than other portions. In his discussion of linkages, Esman has made essentially the same point; "certain linkages are more important to the institution in its search for institutionality than are others, both with regard to the environmental organizations with which a linkage exists and with regard to specific elements."²⁰ The first task of an organization leader if he is to successfully institutionalize his organization (again the definition is open) then, is to recognize that some environmental contacts are more important than others.

One might reasonably expect that an organization and its institution building endeavors exist within the context of an environment which is characterized by scarce resources; each entity within the environment is striving to capture a portion of the scarce resources for itself. In such an environment, utility, production of meaningful outputs, and relationship to the allocation mechanism would seem to be the determinants of how scarce resources are in fact distributed. The presumption is made by virtually everyone that this environment is a rational one, however rational is defined, and broadly reflects the societal conditions of virtually every country. This presumption was accepted by the researchers at Indiana University although it was recognized that there are exceptions. Professor Esman concluded with regard to the case studies; "either that financial resources were not so very scarce in these countries (Thailand and Turkey) or that factors other than performance, perhaps international prestige, the desire not to hurt persons associated with the institutes, or willingness to wait a very long time for results, were more important in determining resource availability than performance tests or satisfying a felt need in the society."²¹

Educational organizations might be particularly insulated from the pressures of financing in an environment of scarce resources given the aura which surrounds education in low income countries. However, these expectations are taken to be transitory in nature, and in the long run, all organizations can be said to exist in an environment of scarce resources.

If this is the case, then leaders of organizations which are endeavoring to become institutionalized must not only recognize that some contacts with the environment are more important than others, but further that efforts to introduce radical innovations into transitional societies, whose cultural values and social structure--not to mention economic interests--may not initially be supportive of these changes, must be tempered by the realization that the environment has a scarcity of values resources. As leaders pursue whatever goals they have set for themselves and their organizations, and the general goal of institutionalization, the alternative courses of action available to organizational leadership are limited by the scarcity of resources in the environment.

Since institution building involves development of an institution from a mere organization and certain innovative purposes, leadership may find the two goals conflicting in some instances. In such cases, the leader will have to make any decision to resolve the contradiction on the basis of the cost of sacrificing one to guarantee the other goal. The survival of the institution as an organization has to take precedence over rigid adherence to innovative purposes; the ability to fight another day is a greater virtue, in this case, than is the prospect of defeat for a good cause. Survival is defined here as sufficient support in terms of authority, financial resources, and functional inputs to maintain operations. An institution is surviving if it possesses these necessary supports and inputs in adequate amounts on a permanent basis. (This definition of what constitutes survival or the capability for survival differs from the IRPIB definition, see their working papers for comparison.) This bias for survival also conditions the choice of alternative courses of action for organizational leadership.

Since the environment is characterized by a shortage of valued resources, the basis for other organizations carrying on transactional relationships with the HI is the perceived benefits which accrue to them from the relations. "The receptivity of linked institutions and groups to the new institution (or radically remodeling existing one) will vary directly with their perception of the benefits they are likely to gain, minus the cost to them in any salient values."²² Factors within the environment will intensify their transactional relationships with the HI if they perceive their own marginal utility to be maximized. This marginal utility perception, and thus proclivity for transactional involvement, can be effected if the HI accommodates itself or makes its products more attractive or, whenever the nature of the transactional involvement is changed so as to increase the marginal utility perception of the factor within the environment.

For purposes of convenience and comparability with the IRPIB model, factors within the environment which carry on transactional relations with the HI are called clients, even though the relationship may involve inputs to the HI rather than its outputs. Clients which are in some way, directly or indirectly, connected with the inputs of support and resources constituting requisites for survival capability are called relevant publics.²³ A leadership strategy which is cognizant of the primacy of survival will be most effective if it attempts to strengthen or establish as many transactional linkages as possible. In this effort, leadership must be able to tabulate the instrumental evaluation of HI (cost-benefit calculation) by client groups and respond so as to increase the perceived instrumental value of the HI.

As the Interim Report illustrated, all leadership decisions do not involve strengthening positive transactional relationships. "Institutional leadership is not always able to take the initiative in manipulating external linkages and may frequently have to fend off unfriendly incursions from linked institutions and adopt accommodative tactics in order to protect itself."²⁴ The fact that an organization is producing outputs was shown in Chapter Two to be no guarantee for support. The question involved was the quality of students graduated from an agricultural university but the principle has general applicability. To the extent that outputs of an organization come to have instrumental value for a client, transactional relationships are strengthened. If the outputs do not satisfy whatever criteria are used to judge them, outputs may spark opposition to the HI. The reason for this goes back to the notion of scarce resources in the environment. If the HI is given resources, some other element in the environment is probably not getting as many as it may desire. Poor outputs could thus provide a credible basis for a general attack on the HI by a group seeking to increase its resources by minimizing the resources of the HI. The reason for this goes back to the notion of scarce resources. In the narrow sense of deciding whether outputs should be generated or the broader sense of any action taken by the HI leadership, a decision must be made as to whether the support and strengthened transactional relationships resulting from outputs or agreeable action are greater than the opposition and/or jealousy which also might develop. Each decision must be decided on the basis of how survival potential is effected; survival capability might be greater if no action by the HI generates opposition, or it may be that a given action by the HI generates support which is so significant as to outweigh any opposition.

The decision which is most appropriate for a leader who is striving to institutionalize his organization when he is faced with the foregoing choice should be obvious. Since some transactional relationships are more important than others when striving for survival capability and since survival capability is paramount in the near term decision-making process, transactional relationships most vital to survival and their potential response to action by the HI determine the appropriate decision for the HI, regardless of the potential response of other transactional relationships. Likewise, when there is a choice as a general policy, accommodation should be made on the basis of relevant publics rather than simple client groups or potentially available client groups. Resistance to the HI by any economic, political, cultural, or any broad social interest is relevant for the HI to the extent that survival capability is affected. If survival capability is not affected by resistance of these interests, then efforts to institutionalize an organization (however defined) as they relate to survival of the organization are not jeopardized and accommodation need not be reached.

On the basis of the foregoing discussion, it would seem obvious that the most effective leadership strategy for realizing survival capability (the relative bias of institution-building efforts in the near term) would be one which utilizes instrumental accounting as a basis for establishing and strengthening transactional relationships. Accommodations and efforts to increase the clients' perceived marginal utility of transactional relations should be pursued most vigorously with those clients who constitute relevant publics. In the final analysis, after all, relevant publics can and do affect the survival of organizations and thus success of institution building efforts where other clients and the remaining environment as an undifferentiated aggregate can not.²⁵

When it is recognized that the level of social mobilization within any given society imposes even more qualifications on institution building strategy formulation, the shortcomings of the Esman-IRPIB model and institution building strategy become all the more glaring. The IRPIB model introduces the concept of change readiness in the environment as a factor which can facilitate or retard institution building, but the actual dynamics of this aid-hinderance relationship are never explained. In fact, what constitutes change readiness is never defined. The broad process of social mobilization is seen as a factor which to a greater or lesser extent makes the necessity of instrumental evaluation of transactional relationships all the more imperative.²⁶ The level of social mobilization can be seen as a general guide to the number of organizations which are potentially available as client groups.

As a society becomes more socially mobilized, the number of groups in the society increases to accommodate new occupational, status, economic, and even family roles generated by social change. Specialization and differentiation increase the interdependence within the society. The lower the level of mobilization, the fewer the available groups with whom an organization can carry on transactional relations. Where there is a relative scarcity of transactional relationships, potential client groups are thus of great importance. Leadership must, under these circumstances, pursue a policy of accommodation with relevant publics which is founded upon the recognition that each relevant public is vital to institution building efforts and the acceptable costs in terms of goals or commitment to goals of change will be much higher to secure transactional accommodations.

In transitional societies having a relatively low level of social mobilization there are few foci of concentrated resources and, however poor a country may be, the government is certainly an outstanding center of concentrated resources. The conclusions of Chapter Two are applicable to a large degree in all institution building projects--public or private. As a sophisticated, differentiated institution with high absorptive capacity where there may be few other groups capable of absorbing the outputs of an organization seeking to institutionalize itself, government is a substantial even massive factor in the organization's decision-making. As such, government is one of the few entities which has a very large interest or potential interest in the outputs and inputs of the institution. Any organization's capacity to introduce disfunction into the social environment, in its values and institutional arrangements is dependent upon the response of the government. As an institution which can provide all the necessary support for an organization's survival, a strategy which tends to increase the government's perceived utility in the organization's transactional relations is most effective for institution building.

The pivotal character, literally life and death importance of the government as a broad factor in an organization's drive for institutionality and immediate concern with survival capability, is directly related to the level of social mobilization in the society. The greater the level of social mobilization in the society, the greater the level of social mobilization, the relatively less vital is the government. Alternative groups are increasingly available to carry on transactional relations as the level of mobilization increases. Because the process of mobilization involves differentiation, diversification, specificity of function, responsibility, and authority, it also

means that power (not in any absolute sense, but rather in the sense of social importance within an ever more interdependent society) is more diffused. Thus, more and more groups will be capable of carrying on transactional relationships which can constitute elements in an institution's survival capability. Relevant publics as a distinguishable group within the transactional clientele of an organization-institution will decrease. A leadership strategy which endeavors to broadly increase and strengthen client-institution transactional relations will be possible. The urge to compromise or establish transactional accommodations with relevant publics to the perceived marginal utility of the relevant publics and quite possibly at a cost of broad goals of change on the part of the institution will be less necessary.

It is only when relevant publics, instrumental accounting, and transactional accommodation cease to be pivotal concerns of organization-institution leadership and the pressure for survival ceases to be the preponderant factor in decision-making that the essence of Esman's approach to institution building becomes relevant as an operational model. For it is then that one meaningfully speaks of intrinsic valuation of the institution. If the society is characterized by a low level of social mobilization, intrinsic valuation is very much secondary to transactional accommodations, instrumental accounting, and utility maximization of relevant publics and clients in general as an index of institutionality.

FOOTNOTES

1. Milton Esman and Fred Bruhns, 1965, Institution Building in National Development--An Approach to Induced Social Change in Transitional Societies, University of Pittsburg, IRPIB mimeograph, pp. 8-9.
2. Ibid., p. 5.
3. Ibid., pp. 2-3.
4. Ibid., p. 13.
5. Milton Esman, 1967, The Institution Building Concepts--An Interim Appraisal, University of Pittsburg, IRPIB mimeograph, p. 3.
6. Ibid., p. 12.
7. Ibid., p. 4.
8. Ibid., p. 4.
9. Esman and Bruhns, op. cit., p. 15.
10. Ibid., p. 15.
11. Milton Esman, general editor, 1964, Framework for Institution-Building Research, University of Pittsburg, IRPIB mimeograph.
12. Esman and Bruhns, op. cit., p. 17.
13. Ibid., p. 17.
14. Ibid., p. 18.
15. Ibid., p. 19.
16. Ibid., p. 19.
17. Esman, 1967, The Institution Building Concepts--An Interim Appraisal, University of Pittsburg, IRPIB mimeograph, p. 6.
18. Ibid., p. 26.
19. Ibid., p. 35.
20. Esman, 1964, Framework for Institution Building Research, University of Pittsburg, IRPIB mimeograph.

21. Esman, Interim Report, op. cit., p. 21.

22. Ibid., p. 65.

23. This use of clients and relevant publics differs slightly from usage in Chapter Two and markedly from the Interim Report, see p. 25 of Interim Report.

24. Ibid., p. 60.

25. It should be noted that this point, the relative importance of relevant publics in leadership decision-making and organizational action sharply disagrees with Esman and the IRPIB model. It is also a point which has sparked much controversy among the researchers at Indiana University. The following section represents an even greater break from the institution building model developed by IRPIB, and has been the basis of heated debate and substantial dissensus at Indiana University.

26. The broad process of social change and social mobilization are treated in D. Lerner, The Passing of Traditional Society, Glencoe, The Free Press, 1958; Karl Keutsch, "Social Mobilization and Political Development," American Political Science Review, Vol. 55, September, 1961; Wilbert Moore, The Impact of Industry, Englewood Cliffs, Prentice-Hall, 1965; and S. N. Eisenstadt, Modernization: Protest and Change, Englewood Cliffs, Prentice-Hall, 1966.

APPENDIX A

AGRICULTURE, EDUCATION, AND RURAL TRANS-
FORMATION IN SUB-SAHARAN AFRICA

I. THE PROBLEM

Throughout much of sub-Saharan Africa today the "Revolution of Rising Expectations" is rapidly giving way to a "Revolution of Rising Frustrations." The bright promise of a post-colonial world in which the problems of poverty, disease, and ignorance would be alleviated has simply not materialized for more than the privileged few. Independence has not enlarged the pool of investment capital and skilled manpower available to African planners. Even our knowledge of the physical resource base has not been substantially altered for most countries in tropical Africa. For some, it is true, the discovery of uranium deposits in the Sahara and along the eastern horn of Africa may bring a new hope. Somalia, Niger, and Upper Volta could become the African equivalents of Kuwait and other countries which have been able to purchase the fruits of industrialization without having to go through the painful process of industrial transformation. For the majority of African states, however, this "windfall" prosperity must remain the things of which dreams are made.

Given the present knowledge of Africa's resources as well as the contemporary requirements of industrialization, the majority of Africa must anticipate one of three courses. For the fortunate few that have within their boundaries some combination of iron ore, coal, hydroelectric power, oil, a reasonably skilled manpower pool, and some of the incidental mineral resources required for industrialization, there is the prospect of achieving a limited manufacturing base. That base, however, will not for some time to come meet the housing, food, and clothing expectations of more than a fraction of the citizens of these states. Moreover, the states which are among the best endowed in this respect--Nigeria, the Congo (Kinshasa), Rhodesia, South Africa, and Angola--are among the states or territories which have the most pressing problems of political instability based upon inter-ethnic conflict.

In addition to the states listed above, there is a second category of political units which possesses readily exploitable mineral resources, such as copper, zinc, vanadium, diamonds, uranium, and bauxite, which are required by the more highly developed states for the operation of a nuclear and jet age economy. Thus, Ghana, Sierra Leone, Gabon, and several others have been able through the mining of minerals to pay part of the costs of the new schools and hospitals and the infrastructure of roads, railroads, and harbors needed for modernization. Even here, however, there is often a tenuous reliance upon a single extractive

industry. Thus the grandiose development plans are in constant jeopardy as a result of price fluctuations on the world market, the development of man-made substitutes for these commodities, and political and military crises on the world scene.

For the leadership of states in the two preceding categories, the chief problem with respect to modernization differs mainly in degree from the one faced by the leaders of mineral poor states. The harsh reality of Africa today is that the best for which they can hope is the limited prosperity which comes from an expansion in the quantity and quality of agricultural commodities. The overwhelming majority of the 200 million or more residents of sub-Saharan Africa are agriculturalists. While urbanization has certainly been a significant element in the rise of nationalism in the 1950's and 1960's and has provided the beginnings of modernization, its impact has been limited. Between 80 and 90 per cent of the people of the continent live in isolated homesteads, villages, and towns which seldom exceed a few thousand inhabitants each. Even those living in some of Africa's metropolises--including the largest Negro African city, Ibadan--have only tenuous roots in the urban complex. The social, political, and even economic ties that the urban migrant maintains with the rural hinterland are so strong that social scientists have great difficulty in describing urban as opposed to rural man in tropical Africa. Although an African may enjoy the paved streets and bright lights of the city, he and his kinsmen are seldom far removed from the economy based upon the technology of the hoe or the plough, of cattle herding, or of gathering tree crops from the forests or cultivated plots.

Despite the prevalence of an agricultural base, it is clear that most African leaders are emotionally and ideologically committed to a course of industrial development for their people. It is understandable why this should be so. The promises made to their people in the anti-colonial struggle were based upon the assumption that industrialization would automatically follow independence. Even in a country such as Tanzania, where the national leadership has realistically committed itself in February, 1967, to a course of strengthening the agricultural sector instead of following at this stage the will-of-the-wisp of instant industrialization, it was apparent that not all Tanzanian leadership was pleased. In May, 1967, for example, Sheikh A. M. Babu, who had been Minister of Commerce during the nationalization of the banks in Tanzania, insisted that East Africa's economic salvation lay in heavy industries like iron, steel, and coal. "We must never rely on agricultural exports for our development in the long term policy," he stated. To do so, he insisted, would leave

Tanzania and its neighbors "wildlife states" or "banana republics" in a "world of giants."¹ Elsewhere in the continent the high priority placed upon heavy and light industrial development is explicit in the typical five and ten year plans for economic development. There is frequently a sharp contradiction in those states between the political rhetoric which emphasizes the need for strengthening the rural agricultural sector and the desire for industrial planning. The Volta River project in Ghana (which may yet be Nkrumah's most positive monument) has been financed from the profits of the cocoa industry, rather than the proceeds from the Cocoa Marketing Board being ploughed back into rural transformation. The political realities of contemporary Africa often dictate that the leadership caters to the articulate demands of the more politically alert urban minorities for paved streets, sewage plants, breweries, and other trappings of modern industrial society rather than to the unstated interests of the rural peasants.

The reluctance of African leadership to give a higher priority generally to agricultural over industrial development is matched by a positive hostility towards agriculture on the part of the educated youth. Responses which other scholars received in West Africa are probably even more striking than those this author and others got in East Africa. During my research in Tanzania (then Tanganyika) from 1953-1956 I administered questionnaires on job preferences to middle and secondary school students in seven districts of the trust territory. Farming in most instances ranked between 7th and 10th place, far behind that of teacher, government clerk, medical technician, businessman, and other prestigious and highly remunerative positions which would take one out of the rural environment. A decade or more later, J. D. Heijnen was more optimistic in his interpretation of the 7th place ranking of agriculture as a vocational preference. He did indicate, however, that farming was invariably regarded as a standby occupation and not as one which an educated youth would embark upon willingly.²

The attitude of educated youth towards agriculture in Kenya was well summarized by E. B. Castle, who commented that the Kenyan youth:³

allows himself to be pushed as a last resort into a farm school in the hope that this will make him want to be a farmer. Farming is not regarded as a "job"; one gets a "job" in the offices and towns and it is to the town that the more enterprising school leaver goes. Thus we have the tragic situation wherein the most needed type of work has the lowest status in the social consciousness. Even when a

young man is tempted by bursaries to undergo agricultural training he often does not intend to be a farmer but an "agricultural adviser" who keeps his hands clean. Or he may use this opportunity as a means of further education for getting an office job.

It is the purpose of this paper to explore some of the foundations for this general antipathy on the part of Africa's educated leadership towards agriculture; to examine some of the consequences of this psychological attitude with respect to development planning; and to suggest some educational and other approaches which might be taken in dealing with this situation of hostility towards the one factor in the economy which may spell the difference between prosperity or despair for the rural masses of tropical Africa.

II. AGRICULTURE AND AGRICULTURAL EDUCATION IN TRADITIONAL AFRICAN SOCIETY

In exploring the current antipathy of Africa's educated elite towards agriculture, some understanding of the role of agriculture and agricultural education in traditional society might be helpful. Such an analysis need not constitute a "harping back" to a golden age of Africa in which the peasant farmer--in the Jeffersonian image--is to be regarded as the noble citizen in contrast to his city cousin. It is not, first of all, a looking backward since the period of traditional society in many African states is still very much with us. Even in those states where the processes of modernization are well underway, there are vast numbers of people who have been only briefly touched by the impact of the 20th century or who are compelled only occasionally to be aware of the larger political and economic system which exists beyond their parochial villages.

Traditional agriculture, moreover, could hardly be viewed as "golden." There are many areas of east and central Africa where the crude technology of the digging stick, the cutlass, and the hoe as well as the limited knowledge regarding means for retaining water and storing food continue to hold forth the promise of a famine every four to seven years. Even where starvation has not been a recurrent prospect, the lack of crop diversification and the paucity of scientific knowledge for dealing with natural disaster has meant for many of Africa's inhabitants a life of scarcity,

undernourishment, and an inordinate amount of man's existence being devoted to extracting a meager and dull livelihood from the soil.

This is not to condemn all aspects of traditional agriculture in Africa. Indeed, for every tribal group that has been characterized by its frequent resort to magic and propitiations to the ancestors in securing rain or a good harvest, one can point to neighboring peoples who had devised ingenious irrigation systems, had experimented with highly successful techniques of cultivating the very complicated soils of Africa, and had risen beyond the parochial subsistence economy of the village to a highly sophisticated market economy which brought the agricultural people of the interior into contact with the peoples of the coast. Moreover, for all its deficiencies in the face of an expanding population, the traditional shifting system of cultivation found throughout the continent has been a fairly effective means for restoring the fertility of the land against the continual leeching by torrential downpours and the hot tropical sun. Indeed, given the highly varied conditions of soil within a given region, the unpredictable rainfall, and the great variety of grasses, weeds, birds, and insect pests which the African cultivator must face, it is remarkable that Africans have survived at all! The normal technological challenges that the African farmer faces are far more complex than those faced by his British or French counterpart in the temperate zone latitudes.

In most of the 800 or more traditional societies of Africa, agriculture has provided answers to more than the material needs of the citizenry. The organization of cultivation, herding, hunting, and gathering is closely related to social, political, and religious matters. There has been a much higher integration of the various facets of life than has been realized by Western and other agents of innovation, who have tended to regard a hoe as simply a hoe rather than as a part of the religious and political system of the community. The American and European advisers on land tenure reform, moreover, frequently forget that the rules for allocating farm plots are based as much upon social as upon economic considerations. The outside agricultural advisers want to increase production through the encouragement of innovative skill and the acquisitiveness of the individual. The traditional land allocation was based upon usufructuary right of occupancy, with one's holding expanding and contracting as his family obligations increased and diminished through his lifetime. The security of the community was more important than the technical skill of the individual. Similarly, the outside advisers who recommend land consolidation as the only means for insuring mechanization of agriculture fail to see (or

don't care to take into account) that the fragmentation of land-holding insured that the moderately fertile land was distributed widely instead of becoming the monopoly of the few.

The predominance of social and political over economic considerations was also evident among the cattle-herding people of East Africa. The colonial and other agents of change regarded cattle from the standpoint of nutrition, the danger of soil erosion as a result of overgrazing, and other material considerations. They encountered stiff social and political hostility from people who viewed cattle as part of the prestige economy rather than as objects of consumption.

The prevalent philosophy of agriculture did not view an increase in production as a desirable end in itself or as useful in meeting the imagined needs of people far from one's village. Increased production was based upon the observable needs for food, clothing, implements, and prestige on the part of one's self, his kinsmen, and his neighbors. Surplus production, moreover, did not necessarily increase a man's wealth; it often magnified the prosperous farmer's obligations to his family and community. Given the cooperative nature of the economic unit (whether it was the family, an age group, a village, or some other corporate unit), it was difficult to know which individuals were actually responsible for an abundant harvest or a successful hunt. Thus individual skill and talent were submerged in the collective enterprise. And part of that collective enterprise was the assistance given by extra-corporeal beings--the ancestors and other spirits.

Since so much of traditional agriculture had social, religious and political implications, the education of the young with respect to their role in the economy came largely as part of the process of growing up in a society. A man learned the economic role of each age grouping within the society as he passed from being the boy who chased away the birds from the rice, to being the youngster who assisted in the harvest, to being ultimately the man who cut down the trees and cleared the fields for seeding by the women. A similar sequence of informal passage occurred for the girls of the community. A young man became a good hunter or cultivator by observing and emulating his father or uncle, by participating in the various religious performances associated with the several stages of the annual agricultural cycle, or by sitting as a youth outside the circle of elders who reminisced about famous hunters, about locust invasions, or about the relative quality of land in the area. Traditional agriculture relied very heavily upon informal observation and demonstration.

In addition to this informal education, there was a system of apprenticeship for certain kinds of specialist roles related to agriculture, such as blacksmithing, weaving, and tanning. There was, moreover, in both east and west Africa a fairly widespread formalization of the education process at the time of puberty. This situation was far from universal, however. There were separate "bush schools" for each sex, and the initiates were normally secluded from their families for anywhere from a few weeks to several years. During this period of indoctrination the youngsters were told not only about tribal history and lore but also many useful things with regard to the proper techniques of cultivation and hunting; the uses of herbs; plant and animal diseases; the art of basket-making or honey collection; and the making and setting of animal snares and traps. At the end of the period of seclusion the young man or woman (who had frequently been subjected to circumcision or clitoridectomy during this time) emerged as a full member of the society.

However deficient both the informal and formal instruction in agriculture may have been in traditional society, it at least did not contribute to a sense of alienation towards the primary mode of earning a living in African society.

III. THE COLONIAL LEGACY

It is a convenient tactic on the part of many African nationalist leaders to attribute all of their contemporary ills to the policies and practices of the European colonial powers who dominated the African continent from the end of the 19th century until the 1960's. It would be a gross error, however, to assume that the record of the colonial powers in the field of agriculture was entirely--or even essentially--negative. Indeed, it was during this very brief period of political control that the continent of Africa blossomed forth as one of the great raw material producers of the world.

Most of the major export crops for which Africa is noted today were in fact introduced from outside the continent and propagated by European missionaries, traders, and colonial administrators. Cocoa, for example, which serves as the leading crop in Ghana and has provided the capital for modified industrial development, was introduced during the 19th century from Central America--by way of Spanish Fernando Po and Portuguese Sao Tome. Sisal, which has been the number one export commodity of Tanzania for many years was introduced from Florida and Yucatan by the Germans at

the beginning of their rule in East Africa. Cashew nuts, which are gaining added significance in Tanzania and Mozambique as the demands of the plastic industry create new uses, were also colonial imports from Central America. Peanuts, which the French brought from Central America in the 1820's, play a vital role in the development schemes of Leopold Senghor in Senegal. Even several of the crops that serve as staples--cassava, maize, swamp rice (as opposed to the indigenous upland rice), and wheat--were introduced from the New World or Asia.

Indeed, one of the few important export crops, coffee, is indigenous to Africa. But it is now being produced in considerable quantities in the Ivory Coast and Kenya, many miles from its original homeland in Ethiopia. Many of the better strains of coffee trees, moreover, were developed in Brazil, Arabia, or Reunion and subsequently reintroduced to Africa. Cotton and rubber have similar histories of having originated in Africa, but the current crops in East and West Africa are the product of superior strains developed outside Africa. Furthermore, the marketing of palm oil, pyrethrum, and other crops which were indigenous to Africa has been initiated or dramatically altered as a consequence of the European colonial presence. The idea of mass production not only benefited the European planters who came in under the umbrella of colonial rule, but it also revolutionized agriculture for Africans as well. The use of fertilizers, insecticides, and weed-killers provided new means for dealing with the hard environmental conditions faced by African cultivators. The research programs which the colonial powers introduced, moreover, have continued the assault on the problems of agriculture under African management.

We might note, too, that the construction of roads, railroads, harbors, telegraph lines, and other infrastructures are making it possible for the economy of the entire African continent to be transformed from a set of highly parochial, subsistence-oriented economies to a market economy based upon global transactions. Without this elaborate system of communications and transportation--often constructed under almost impossible engineering conditions--it would today be only the coastal regions of the new African states which would be shipping their agricultural commodities abroad and participating in the development process.

Finally, for all of its ills, the colonial experience was also helpful in creating new attitudes towards production and human nutrition, and in establishing a relationship between natural phenomena and success in agriculture. The European school system conveyed the notion to many Africans that it need no longer be their fate to starve and suffer the physical maiming which comes from protein and other

kinds of nutritional deficiencies. Through the use of superior technology and scientific information, the physical environment could in many instances be either controlled or adapted to man's needs rather than man's having to be the dumb victim of fate, magic, and witchcraft. The colonial experience showed, too, that much could be accomplished through role specialization and a rational division of labor instead of "each doing the work of all," as was typical of the traditional organization of work in Africa.

The Adverse Side of the Coin. In many respects, however, the colonial experience was a disaster in terms of developing positive attitudes on the part of educated Africans with respect to the dignity of agricultural labor. In contrasting the European administrators' style of living with their own, it became difficult to convince the African nationalist elite that they could achieve the good things of modern life for themselves and their people merely by taking a more rational approach to agricultural production. Colonial agriculture seemed to be of only incidental concern to the African, and then only in the most menial way.

It was apparent even in the most enlightened colonial territories that the European powers did not seriously consider the aspirations and desires of the Africans in colonial innovation with crop production. In some cases the non-African orientation was blatant, as in Kenya, Rhodesia, and other areas where African land was "sold" by the colonial governments or "leased" for 999-year periods to European settlers. The Africans who were permitted to remain on the land which had been theirs stayed only as squatters, or as part of a captive labor force which worked for very low wages. There were, moreover, many instances of outright eviction, with the dispossessed Africans having to move into less fertile reserves or gravitate to the small urban clusters that were beginning to form around the ports and district headquarters. In South Africa, Kenya, and Rhodesia the total acreage of land alienated to Europeans told only part of the story. The alienated area was also the land which had a reasonably high fertility, a minimum annual rainfall needed for farming, a low density of population, and the absence of tsetse fly and other types of infestation which would have diminished the value of the land. The Africans got what was left over.

The purposes of the great agricultural revolution were often remote insofar as the actual condition of the African peasant was concerned. The benefits which came to the African cultivator as a result of the introduction of new crops were accidental byproducts of other activities. The colonial administrator in Ghana (the former Gold Coast), for example, got the Ashanti farmers to cultivate cocoa

because the government needed revenues. Cultivated rubber was introduced in Nigeria to meet the industrial needs of Great Britain. Maize and other new staple crops were introduced in Kenya because the white settlers required a healthy labor force. The Sukuma cultivators of Tanzania were encouraged to plant cotton at the end of the Second World War in order to offset the impending British losses of India, Egypt, and the Sudan.

The long-run consequences of placing the imperial interests ahead of the interests of individual dependencies are being realized today. From an imperial standpoint it was rational to have Ghana concentrate on cocoa production, Tanzania on sisal, Nigeria on palm oil and rubber, Uganda on cotton, and Malawi (Nyasaland) on tea, rather than having each dependency compete substantially with the others. This greatly simplified the problems of labor recruitment and training, grading and marketing of commodities, and research. With independence, however, it left the leadership of each new state managing a mono-culture, the single crop being subject to drastic price fluctuations in the world market and to the constant threat of man-made substitutes diminishing the market for the commodity. Since so much depended upon this single crop, the economic development schemes of the new states were to be in constant jeopardy. It has been the mono-culture, perhaps more than any other single item, that has led the African leaders to be extremely skeptical of relying upon the agricultural sector in building a modern society. And the great fiascos of the Groundnut Scheme in Tanzania, the Yumdum Chicken Scheme in the Gambia, and the irrigation scheme of the French Office du Niger in Mali gave few African leaders confidence that a concerted campaign to add second and third crops in a hurry could be carried out with much success.

The Assault on the African Cultivator. The disenchantment of the African nationalist leadership with agriculture has been matched by the relatively low esteem in which farming and rural life are held by the African masses in general. Whether educated or illiterate, the average African does not anticipate having many of the good things of life come his way if he depends largely upon a career in farming. Actions of the colonial regime, both direct and indirect, severely limit today the ability of nationalist leadership to galvanize the masses in terms of increased production even when the leadership itself is committed to the idea.

Much of the discontent stems from overt attempts by colonial agents to change the content and techniques of African cultivation. In the early days it was the political

administrator (the British district commissioner or the French commandant de cercle) who assumed the responsibility for innovation. With only a liberal arts background acquired at Oxford or the Sorbonne, the political administrator was a rank amateur who played a kind of Russian roulette with the lives and fortunes of the several hundred thousand Africans under his command. His untutored advice could spell famine or pestilence and, only by accident, prosperity. The later addition of agricultural and veterinary officers provided a measure of expertise. The specialist staff, however, was very short-handed; and even if they spent the better part of each month on tour in their districts, they could not hope to reach more than a fraction of the population. Consequently, they had little time in which to educate and persuade, even if they had known the local language. They had, then--as will be noted shortly--to rely on coercion to make themselves even moderately effective.

The relationship between the political officers and the technical staff has had one very serious long-run impact upon the development of a technically competent cadre of African agricultural officers. This was the snobbery which prevailed, at least in the British territories, between the two levels of the colonial service. It did not escape the notice of the status-conscious Africans that the Oxford or Cambridge trained district officers tended to look down upon the technical officers. Not only were the latter less well educated (a technical school education or at best a "red brick" university), but in many cases they came from Australia, Canada, South Africa, and other Commonwealth areas, or even from Italy, Cyprus, or Goa. Since the specialist staff was treated in a subordinate manner, Africans did not aspire to fill their roles. They assumed that it was the occupation (rather than the origins of the staff) which accounted for the low prestige.

More serious than the status problem were the methods used by the colonial administration in securing agricultural innovation. In contrast to the traditional African technique of agricultural education, which relied largely upon demonstration and observation, innovation under colonial rule took place largely under threat of coercion. In British Africa (and there were counterparts in French and Belgian areas as well) the transformation of the economy was to take place, first of all, in response to the demands of the tax collector for cash rather than produce. The only way to secure cash in a subsistence economy was to grow a cash crop which could be sold to the European or Asian trader. Later the transformation was to take place through legislation (nominally passed by African councils or chiefs) which carried with it the threat of fines or imprisonment for

failure to comply. There was, for example, a whole series of "thou shalt not" orders relating to the protection of forests, grasslands, water holes, and hunting preserves. There was a series, too, of "thou shalt" orders which required people to plant cash crops for tax purposes or an extra field of cassava as a reserve against famine. These were followed by orders which required Africans to plant in a specific way, rid their fields of proscribed noxious weeds, or use a specific manuring technique. Thus, through the constant threat of coercion, reform in agriculture was to take place. It was argued by the administrators that they did not have time to let education or cash incentives provide the stimuli to change; by the time these took effect the natural resources of Africa would have been exhausted.

What made the coercion in agriculture so objectionable is that administrators seldom took the time to present the reform in terms which were meaningful to the African cultivator. Being asked to increase production for its own sake, without any assurance being given that he would have more things to buy or more schools for his children, made little sense. The only tangible results the peasant could observe from higher production were higher taxes, which were used to pay the salaries of policemen, tax collectors, agricultural officers, and others who would only make his life increasingly miserable. Moreover, the African farmer was constantly being asked to deal with problematical threats to his future (such as the denuding of forests where he and his forefathers had cut wood for generations without apparent loss) rather than to respond to the demonstrated needs of the present.

Colonial administrators argued that the value of coercion must be tested by the results. In areas where force was systematic and took place over a long enough period, it did succeed in changing habits and the present generation of independent Africans is the richer for it. It is they who are bringing in the coffee, cashew, and cocoa crops which their fathers planted under threat of fine or imprisonment. On the other hand, this argument fails to consider what the results might have been had education and incentives been provided. It ignores the question of how many really good and imaginative farmers left the land rather than continue to submit to the senseless threats. Moreover, for many Africans compulsory farming prejudiced their attitudes towards agricultural extension programs as being something the foreign colonialists wanted rather than something which would improve the lot of African farmers.

One final consequence of the punitive approach to agricultural innovation was to be of short-range disadvantage to the European colonial powers and of long-range

disadvantage to the nationalists. This was the exploitation by the rising nationalists of the farmers' hostility towards the various agricultural rules and orders. Kwame Nkrumah, for example, capitalized upon the cocoa farmers' antagonism towards British orders which required the burning of all trees infected with the swollen shoot disease. TANU in colonial Tanganyika supported the protest of the Sukuma and other tribesmen against the cattle destocking orders which the British insisted were a soil conservation measure. Later, as Nkrumah and Nyerere moved from their roles of "nationalist agitators" to being the responsible leaders of modernizing states, they found it politically difficult to reintroduce the very measures they once opposed.

In addition to coercion, the second major characteristic of agricultural reform during the colonial period was experimentalism. It was an experimental approach carried out by people who had little prior experience with tropical agriculture; nor were they prepared to listen to their African charges who had, at the very minimum, managed at least to survive at the subsistence level. The African had some crude knowledge of his soils, had worked out a rough technology, and had even developed a primitive meteorological "science." Ignoring what Africans knew about the inadequate rainfall of the Nachingwea area of Tanzania, for example, the British government invested millions of pounds on a groundnut scheme in an area where no reliable records of rainfall existed.⁴ It was only late in the colonial day that other administrators would agree with Robert Delavignette, who had served in the colonial service in French West Africa, that African agriculture:⁵

was a complete mystery to us. . . . The whole situation was so different from what we had expected that we sometimes even denied to these people the status of peasants; we did not realize how they must have laboured and suffered to make their soil into cultivable land, and we regarded them as merely labourers, only fit to be used on European plantations.

Experimentalism often took the form of a doctrinaire approach to cultivation instead of taking into account the great variety of soil conditions throughout a territory. The technique of tie-ridge cultivation, for example, which proved so successful in one area of Tanzania as a device for retaining the rainfall on the land, proved to be disastrous when it was rigidly applied to another area of Tanzania with very sandy soils. It was only the action of the African peasants in planting by traditional means "reserve" fields,

far from the view of the European officers, that prevented famine when the other crops were destroyed in a tropical downpour.

Experimentalism became such a regular feature of rural reform in Tanzania that the Africans referred to it as wazimu wa mzungo, or the "white man's madness." It was to be anticipated that each new district officer or agricultural officer would have his pet projects. Since he could not possibly pay attention to the whole gamut of affairs which were legally under his jurisdiction, he concentrated upon one or more items which would be his contribution to district development (and possibly to his promotion, as well). As soon as the Africans of his district, for example, discovered that the madness of the new officer was road construction, they could relax with regard to the soil conservation projects, the chicken schemes, and other programs of his predecessor. This not only led to a great deal of misdirected energy on the part of African cultivators, but it meant that agricultural innovation tended to be highly capricious and without much attention being given to follow-through. Projects once launched and then permitted to lapse were even more difficult to introduce at a later date.

The experimentalism failed, moreover, to take into account local taboos and prejudices. The assumption that "auntie knows best" led to many failures when a measure of flexibility in approach might have permitted the desired end to be accomplished by other means. Protein, for example, can be obtained from various plant sources (such as the leaves of the baobab tree), yet natural resource officers persisted in urging Africans to stock ponds with fish to overcome a protein deficiency, even though these particular Africans had a long-standing taboo against eating fish. Moreover, agricultural officers directed most of the educational efforts towards men, failing to recognize that agriculture was a community-wide enterprise and that many of the vital roles were reserved for women and children. In certain areas, it is the women who control land use. A husband moves to his wife's area at the time of their marriage, and changes in agricultural techniques take place only with the consent of the wife and her relatives.

The ultimate failure of the European reform of agriculture was the failure of the colonial system to provide proper incentives for increased production and meaningful channels for African participation in the economy. The African farmer always found himself at the mercy of outside forces: the international pricing system for bulk commodities; the territorial marketing boards; the banks which would not extend credit where the land was communally owned;

the Indian or Lebanese traders who purchased his crops; and the Asian shopkeepers who offered only a limited display of consumer goods to be purchased with his profits. Although producers' cooperatives did make a significant contribution to development (for example, among the coffee growers of Tanzania and the cocoa farmers of Ghana), the European colonial governments generally were very reluctant to encourage the growth of this new corporate enterprise without elaborate supervision. Moreover, where peasant agriculture competed with European plantation agriculture, the colonial government gave far greater assistance to the latter. In Kenya, for example, Africans were successfully prevented from growing coffee on the grounds that it would lower the overall quality and increase the prospects for disease in the European coffee estates--despite the fact that the Chagga of Kilimanjaro in Tanganyika were demonstrating that Africans could not only grow high grade coffee but could also manage a highly efficient cooperative society.

The Indirect Factors: Migration and the Educational System. The frontal assault of the colonial bureaucracy upon traditional agriculture and the stability of rural life was complemented by indirect factors which further undermined African attitudes towards agriculture. One of these factors was migration to the European estates or mining compounds, where the money required for taxes and other commodities could be obtained in far less time than one could secure cash from the sale of crops. Escape to the European enterprises or to the urban communities that were emerging at the ports and administrative headquarters, moreover, gave one some respite from the irrational harrassment of the district commissioner or the agricultural officer. Even where the migration was but a temporary break from rural life, it did have the attraction of the bright lights and other conveniences which the rural areas lacked (or were slowly being provided through compulsory unpaid labor). The urban centers also had schools, clinics, and other facilities which came to the rural areas only after the Second World War, as rural development schemes became the new--but belated--obsession of the European colonial administrators.

In the long run, the most significant of the indirect causes of a general depreciation of the agricultural rural way of life was the European school system. As conceived during the colonial and pre-colonial periods, and as perpetuated in many instances since independence, the formal Western school system has actually been counterproductive in terms of creating a class of modern agriculturalists committed to resolving the primary economic problem of contemporary Africa.

This is not meant as a criticism per se of the school system--for without the decades of sacrifice made by European missionaries and officials as well as African teachers, the new states would lack the cadre of statesmen, doctors, engineers, businessmen, and others required to run a modern state. Moreover, substantially the same type of liberal education will be required for the indefinite future if Africa is to meet its mounting need for more--certainly not less--managers of the new societies and economies which are being fashioned during this transitional period from traditionalism to modernity. Nor is this criticism directed against the Christian missionaries, who shouldered upwards of 90 per cent of the educational effort in Africa prior to the Second World War and who continue to play a significant role in many states even after independence. It is a specious argument to suggest that had the missions done less, the colonial governments would have done more. The general record of the colonial governments in the fields of development and welfare was certainly not encouraging. When colonial governments did involve themselves in education at the early stages, it was to meet the very narrow needs for clerks, forest guards, market masters, and low-skilled assistants to the European technical staff.

The real criticism of the European school system is that it produced a child with a negative orientation towards agriculture. Given the fact that it divorced the African child from his environment, this consequence was perhaps inevitable. This alienation was physical as well as psychological. The boarding school was--and indeed remains--a common feature of education not only at the middle and secondary school levels, but in many instances at the primary level as well. Although it was obviously borrowed from the European tradition, the boarding system was justified as the only means for insuring regular attendance, a balanced diet for the children, and the proper environment for study--away from the heavy responsibilities that African children normally face in rural life.

The boarding school also separated the child from contact with the principal African religious, social, economic, and political structures which would make him a full participating member of his community upon completion of his education. Conversion to Christianity, which was often a requirement for enrollment, made him renounce the community-wide traditional observances based upon propitiations to the ancestors or the rituals and practices of Islam, such as the fasting during Ramadhan. Since many of the rituals related to the annual agricultural or herding cycle, the mission-educated youth had no legitimate role to play in these observances. Moreover, his absence from the family at critical times in the production cycle excluded him from

active membership in the most meaningful economic and social unit of traditional society. Indeed, the entire system of economic relationships was disrupted by his reorientation from an extended family, based upon matrilineal or patrilineal rights and obligations, to a bilateral nuclear family. The boarding school also took the youth away from the tribal "bush schools." This meant that he was deprived of the kind of life-long associations which would have been useful in providing economic and other assistance in time of need. Moreover, he was denied instruction with regard to the time-tested methods of cultivating, hunting, and carrying out other activities related to successful rural life. He was in a sense an uneducated person insofar as being prepared to face the problems of economic survival in his native community.

The curriculum of the schools in British and French territories also divorced the African child from his environment. The emphasis was upon literacy and rote memorization of data from the humanities and the classics which had little relevance to the African milieu. Technical and vocational aspects of study were largely ignored, as were the social and natural sciences, until fairly late in the development of most school systems--especially in those areas where fundamentalist Protestants dominated. Although the rhetoric of colonial education officers seemed to support the wisdom of the Phelps-Stokes recommendations of the 1920's that African education ought to be practically-oriented, visible evidence of changes in curricula were hard to find. About the best that the schools could offer were the garden programs which, through indifference or ignorance, were invariably doomed to failure.

It was not until the end of the Second World War that British (and to a lesser extent French) administrators realized the consequences of the liberal arts orientation of the schools and attempted to introduce agricultural programs in the primary and middle schools. By that time, it was too late. Both educated and uneducated Africans alike assumed that the move was politically inspired and designed to prevent the educated nationalists from challenging the European colonial administration. Western education and control over one's own political, economic and social destiny had become synonymous. Without Western education, how could Africans articulate their demands in European-controlled parliamentary institutions, and how could they make common cause with other African nationalists? The insistence upon an agricultural bias in the schools appeared to parallel other post-war developments such as the emphasis of the British government upon African participation in local government at the expense of national politics.

By the end of the Second World War the essentially elitist orientation of the school system had become evident. Schools did not always begin that way, for in East Africa the mission schools were often founded to take care of the slaves purchased from Arab traders. In West Africa, chiefs who were suspicious of the mission schools frequently sent their slaves instead of their sons to be educated. Over the years, however, the schools emphasized the privilege of the few: members of royal clans over commoners; Christians over Muslims and "pagans"; the urban coastal resident over the rural peasant; and those who could pay the school fees over those who could not. At independence there were few dependencies in which more than 10 per cent of the school-age children were enrolled in schools, and the attrition rate between the first year of primary school and the beginning of secondary school was anywhere from 99 out of 100 to 999 out of 1,000. The latter fact was attributed in great measure to the rigid adoption of the European system of evaluating performance. Instead of continual and cumulative judgments being made, success or failure depended upon the single comprehensive examination. Since the examinations were administered by European agencies (the Universities of Bordeaux or Paris for French-speaking Africa, the Cambridge University syndicates for British Africa), there was a rigid adherence to so-called European "standards" of performance and competence with respect to subjects which Europeans regarded as academically respectable. There was little attention to things African, particularly a subject so mundane as African agriculture. The pressures upon teachers and school authorities with respect to the required examination subjects effectively discouraged innovation either in subject-matter or in approaches to study.

The curious thing is that even the failures (the "school leavers," as they were euphemistically called) and the uneducated peasants supported the elitist notion of the school system. Having been exposed to a little education, the drop-out felt too alienated, too embarrassed, or too proud to return to a life of toil on the farm and often became part of the growing group of urban unemployables. The illiterate peasant who had invested much, both financially and psychologically, to send a son or nephew to school did not expect that the educated youth would return to a life of farming with its low status. The "my son, the doctor" syndrome had become very strong in Africa. The uneducated family of the educated youth looked upon him as their window to good fortune. He would bring fame, political power, and wealth to his family and give assistance to them in time of need. It would thus, in their opinion, be a wasted sacrifice if the educated youth returned to a life of toil in the village.

Many of the situations noted with respect to primary and secondary schools were compounded when the European powers ultimately got around to creating universities in colonial Africa. Although a few institutions of higher learning antedated the Second World War (such as Fourah Bay, founded in Sierra Leone in 1827, and Liberia College in the 1860's), the establishment of universities in Ghana, Nigeria, Uganda, and Senegal came almost on the eve of independence. The universities were staffed by expatriates who brought with them an obsession for "standards," academic tenure and academic freedom, and a limited view of the proper role of a university in a developing society. Engineering, agriculture, mass communications, and other mundane subjects were to be given very low priority. Of the 7,894 students enrolled in universities in tropical Africa in 1958-59, only four per cent were taking courses in agriculture and a further seven per cent were committed to engineering. The remainder were distributed among the humanities (20%), natural sciences (20%), social sciences (14%), law (12%), education (11%), medicine (8%), and fine arts (4%).⁶ Given the kind of previous educational training these students had received, it would perhaps have been surprising if the results had been otherwise.

IV. THE PRESENT DILEMMA

Independence has now placed Africans in charge of the management of their own affairs in all but the last strongholds of colonial rule--South Africa, Rhodesia, and Portuguese Africa. Yet independence has not brought an end to misery and want. Independence has exposed a dilemma which is almost universal in Africa today--a conflict between an intense passion for education and an inability, or even a reluctance, to acknowledge the critical role which agriculture must play in providing the means for building new schools as well as other aspects of modernization so strongly desired.

The UNESCO philosophy that education will solve all problems of humanity has perhaps its staunchest defenders in Africa. To most African leaders, education will make up for the deficiencies in resources, capital, transportation, and other elements of industrialization. Equipped with the knowledge of the scientific world and with Western technology, African leaders will discover new resources, novel ways of combining old resources, and the techniques of management needed to provide better houses, more food, and an easier life for their people. As testimony to their faith, African governments have devoted a higher percentage of

their national budgets to education than most developed or developing states elsewhere in the world. A very high percentage of the foreign aid (both private and governmental) is related in one way or another to education. It is the largest "industry" on the continent. Not only is the base being rapidly broadened through an expansion of primary schools and adult literacy programs, but the capstone is being polished as well. There are few states without a national university, and several now have two or even more.

It is apparent, too, that the educational systems are under the control of Africans, even though there is a continued reliance not only upon expatriates from the former colonial metropolises but also upon new personnel hired or on loan from the Scandinavian countries, Israel, India, and the American Peace Corps. The cadre of foreign teachers is plainly on tap, and not on top. The curriculum is now being molded to suit needs which are more clearly African in character. The religious aspect of the primary and secondary schools has been drastically curtailed. The examination system, even when tied to an external system of evaluation, has been modified to insure that there is greater attention to the history of the Wolof rather than to "our ancestors the Gauls," and to the geography of the Nigerian rainforest rather than to the English moors. Concessions have been made to the political problem of tribalism, and thus greater emphasis is being placed upon the development of civic loyalty, national identification, and the contribution which Africans have made to their common historic, artistic, and cultural fund.

Despite the change in ownership and direction, the educational property remains substantially unaltered with respect to the fundamental question regarding the role of agriculture in the developing societies of Africa. Nyerere's dramatic plans to reorient the curriculum of the primary and middle schools in favor of a heavy emphasis upon agriculture and rural development have not been emulated elsewhere.⁷ Schools of agriculture and veterinary sciences remain relatively unpopular even in the new universities which were modeled after the American land-grant system. Despite the visible growth in the educational system, the long-run future of agriculture in Africa has become more bleak. Even though only a fraction of Africa's children are actually enrolled in schools, the school system has penetrated some of the more remote parts of the country and altered the expectations of those previously ignored by the colonial regimes. Now, as Bert Hoselitz has pointed out, "even a modicum of formal education provides the school leaver with a rationale for a job outside of farming."⁸

Few African leaders have found it politically possible to suggest that at this present stage of development, it might be better to exclude the new school program from the rural areas of the country where agriculture is still regarded as a normal way of life. Moreover, for fear of offending U.S.A.I.D. and other foreign advisers, few principals of African universities or ministers of education have asked whether it is really appropriate to have a Ph.D. program in agriculture in a society that regards farming with such disdain. The identification of agriculture with the university system has not, apparently, raised the prestige ranking of either. Colleges of agriculture are not only among the highest cost units of what is the most expensive higher educational system outside of North America, but there is a considerably small return on the investment.⁹ Few students enroll in agriculture as a first preference; and once they are freed from any scholarship or governmental obligations, they quickly abandon their concern with agriculture in favor of a career in politics or administration. The general snobbery of their educated peers regarding agriculture and a rural existence is very difficult to overcome.

In the many conferences of African educators regarding the role of the African university, it is apparent that the improvement of agriculture is only one among many priorities, and not a very high one at that. The Tananarive Conference of 1962, for example, did not even single out agriculture as an important item for concern, though it did indicate as the fourth priority that African universities should help the complete development of human resources for meeting manpower needs. This was subordinate to such objectives as maintaining "adherence and loyalty to world academic standards"; insuring "the unification of Africa"; and encouraging the "elucidation of an appreciation for African culture and heritage and to dispel misconceptions of Africa, through research and teaching of African studies." It was apparent that innovation and a desire to venture into uncharted areas of learning were still being subordinated to a fear of African academics being judged sub-standard by their former French or British mentors. There are other indications--the lavish housing, maid service, academic gowns, jokes in Latin at high table, and other evidences of an unsevered umbilical cord with the European founding institution--that a college of agriculture and veterinary sciences is very much out of place in certain universities in West Africa.

The reluctance of the university-trained agriculturist to return to the rural areas to practice his profession, or even to serve as the administrator of an agricultural

extension service, means that much of the task of providing the stimuli for innovation must fall to others. The rudimentarily-trained African technical staffs that replaced the Europeans at independence are much more subject to political pressures from above and do not enjoy many advantages over European predecessors with respect to the establishment of rapport. Many are regarded simply as "alien" Africans, and the building of mutual respect is frustrated by long-standing ethnic animosities. They are, moreover, perhaps less familiar with the fundamental agricultural problems of the area than their European counterparts, and hence the most significant consequence of rapid Africanization of the technical service has been the loss of the "institutional memory" which had been constructed during the several decades of colonial rule.

Curiously, many of the colonial tactics criticized by the nationalist leadership are now being employed by the governments of the independent states. A Canadian student of Tanzanian politics, for example, reported an incident in which troops uprooted fields of cassava in an area where the farmers refused to plant cotton because they objected to purchasing the fertilizer that was to be used in cotton cultivation. At the national level, too, the students at the University College of Dar es Salaam regarded as coercive the National Service Program which required each university graduate to spend two years of his career in the rural sectors of the country where his talents were required. The protest by students in 1966 over this issue was met by the government's countermeasure of removing the striking student from the university for two years (later reduced to one) and returning him to his rural homeland. Finally, for a country like Tanzania which has attempted to rely upon education in securing an improvement of agricultural and rural life, the forcible removal from Dar es Salaam of the unemployed was not calculated to make the rural areas attractive places in which to live.

V. POSSIBLE ALTERNATIVES

Given the critical role which agriculture must play in development planning, and given too the counter-productive tendency on the part of the formal educational system with respect to building positive attitudes regarding agriculture and rural life, what are the alternatives which African leaders must consider?

First of all, no one seriously considers dismantling the present educational structure, and few expect great

promise from a radical reorientation of the existing curriculum in favor of a strong agricultural bias. Indeed, the existing formal school system will undoubtedly have to be expanded if African states are to meet their growing needs for trained managerial talent and other types of manpower to run a modern bureaucracy as well as to transform the economy and social order.

The sad fact is that the poverty of most African economies, the shortage of trained teachers and schools, and other factors, condemn most of Africa's children today to a life without literacy. Only 55 per cent, for example, of Tanzania's school children can find places in the school system. Despite the egalitarian commitment of most of Africa's leadership, a wise use of scarce resources may compel national leaders to make the formal school system more--rather than less--elitist in scope. Nyerere, for example, has already curtailed plans for the rapid growth of the base of the educational pyramid in order to concentrate more effort upon the middle and higher levels. To capture the best talent and make fuller use of existing facilities, more selective admissions procedures will have to be employed. There will have to be as well a continual and cumulative type of evaluation of student performance so that the selecting-out process takes place quite early, before expectations are raised too high. Finally, governments will be obliged to exercise considerable restraint in the siting of new schools so as to avoid spreading the system too thinly throughout the country. A selective admissions and evaluation program should insure that those who do enter school and complete the first four or five years have a reasonable chance of finishing. Under the present policy in most states, the student is carried along quite far and his expectations raised beyond the point of fulfillment, and then he is cast out to become part of the pool of urban unemployables. Such a wasteful approach to education not only creates threats to the political stability of the new states but places severe strains upon economies that are already over-taxed. The search for new revenues to finance this inefficient system either places the new state further in debt to foreign donors or results in a further squeeze upon that sector of society which is still productive--namely, the rural agriculturalists.

To overcome the elitist quality of the formal school system, several things might have been done. First of all, an attack will have to be made upon the boarding school concept in favor of community schools at the primary, middle, and even secondary school levels. The boarding school is a far more expensive proposition than the renting or purchasing of school buses. Indeed, the little red school house and the school bus are perhaps more significant American exports than is the land-grant college. The divorce between

the life of the child at school and his home atmosphere has to be ended. It should be recognized, moreover, that in America during the 19th century the second generation school child was often the informal educator of his immigrant parents. Why should not the same process take place in Africa?

Secondly, the elitist tendency of the formal schools might be offset by a modest, rather than a radical, reorganization of the school curriculum and the school environment in favor of agriculture. The school garden programs of the past failed because the activity had little relevance to the set examination system, and it was supervised by European or African missionary teachers who knew little about local agriculture and were concerned with the problems of status. The natural science courses, however, could be made relevant to the school farm; and local expertise (the model farmer, the herbalist from the "bush" school, and others) could be brought into the instructional program and the supervision of the school farm. The social science and literature courses, moreover, should be related to national and local conditions more than has been done since the severance of the colonial relationships. But above all, the school program must emphasize the dignity of labor by having the students perform meaningful tasks, both to further their own schooling (working off fee payments, for example) and to help in the support of school programs. As Nyerere has said with respect to students in Tanzania:10

they do not learn as they work, they simply learn. What is more, they take it for granted that this should be so. Whereas in a wealthy country like the United States of America it is common for young people to work their way through high school and college, in Tanzania the structure of our education makes it impossible for them to do so. Even during the holidays we assume that these young men and women should be protected from rough work; neither they nor the community expect them to spend their time on hard physical labour or on jobs which are uncomfortable and unpleasant. This is not simply a reflection of the fact that there are many people looking for unskilled paid employment--pay is not the question at issue. It is a reflection of the attitude we have all adopted.

Rural Transformation. And what of the fate of the overwhelming majority who will never get to attend school; of the minority who are exposed to the educational system but are early weeded out; and of the educated persons who must be attracted back to the rural areas as administrators,

farm supervisors, and the other clientele needed to increase the quantity and quality of agricultural production? What can be done to improve attitudes toward agriculture and rural life in Africa for both educated and illiterate Africans alike? The answer, of course, lies far beyond the matter of school curriculum, garden programs, and the like. It actually requires an entire orientation of thinking on the part of the urban educated elite who have inherited the reins of power in post-independent Africa.

Far too much of the profits of increased crop production in the past, for example, has been siphoned off by the national elite to light and pave city streets, build lavish parks, and in other ways inadvertently increase the lure of the city to the rural farmer. Even more radical programs than those launched by Senegal and Tanzania have to be undertaken to provide the hinterland communities with clean water, electricity, medical facilities, markets, recreational programs, and other amenities. The transformation must, moreover, be based in great measure upon local participation in decision-making. Only in that way can there be assurance that the vast fund of knowledge which the people possess about their environment will be tapped. Only through local consultation will the people feel they have an investment of time and money in making any new enterprise a continuing effort. While recognizing that the centralization of decision-making in the new states has been regarded as a safeguard against the emergence of tribal separatism, there must be some risk-taking in that direction in order to gain the active support of the local population in rural transformation. It has been demonstrated time and again in Africa that the people will give of themselves and even pay more taxes when they are brought into the process of improving their own condition.

In addition to improving surroundings for himself and his children, the individual farmer must be made to feel that there is an economic incentive to remaining in agriculture rather than following the will-of-the-wisp of a higher immediate salary in the urban industrial sector. Incentive can only come through continuous research and coordination of the activities of a variety of governmental ministries. The activities would include a greater diversification of crops so that farmers would not be destroyed by a fall in the price of a single commodity; price-fixing so that the system would reward the producer at the expense of the middlemen and the urban sector; greater research regarding new uses of agricultural commodities; more processing of raw materials at the site of production, thereby reducing shipping costs and keeping some of the increased profits in the rural areas; the provision of credit facilities; and appropriate governmental irrigation and land-reclamation projects.

Depending upon the form agricultural production took (small peasant, yeoman farmer, cooperative, plantation, state farm), other kinds of incentives would have to be forthcoming.

There is one area of rural reform with which most governments are reluctant to tamper. That is the matter of land tenure. The traditional system of tenure, based upon usufructuary right of occupancy and fragmentation to insure social justice, is certainly stoutly defended in many areas of the continent, and overt moves today to consolidate holdings, permit registration and sale, and to alter other phases of land holding would probably accelerate the flow of rural migrants to the cities. Nevertheless, in areas which have long demonstrated an understanding of modern agriculture, it might be wise for African leaders to follow the course of the Kenya government, which began land consolidation a few years ago and now has many yeoman farmers earning annual incomes of more than £ 1,000. This certainly has given agriculture a new prestige value in Kenya. Moreover, it is no accident that some of the most prosperous (and the most proud) farmers in Africa today are those in areas where coffee, cocoa, cashew, and other tree crops are grown. Inasmuch as trees are normally owned by the person who plants them, and since nothing can be cultivated under trees that are closely planted, it matters little that the land in theory belongs to the community. In practice, the land belongs to the man with the trees; and his holdings may be expanded far beyond the normal acreage allotted to a subsistence farmer. Thus, "back door" private ownership of land has been a factor in increasing production, even though private ownership may conflict with the socialist ideology of many African leaders.

The introduction of an imaginative program of rural transformation requires a great deal of political risk-taking. Not only must the national leadership resist the more vocal and highly organized urban elements who are determined to divert the earnings from the agricultural sector into urban industrial development, but the leadership must also be able to placate rural unrest as well. The leadership must be prepared, unless it is determined to fritter away its limited resources in behalf of its ideological commitment to egalitarianism, to engage in "pocket" development. That is, it must single out those areas where the productivity is already high, the attitudes towards agriculture still reasonably positive, and an eagerness of the population to participate in community development has already been demonstrated. In a highly developed society such as the United States, the existence of an Appalachia is inexcusable. In societies which are practically at the level of Appalachia, general long-run improvement depends upon a short-run concentration of resources in those areas having

the greatest promise of transformation in the least amount of time. As development takes place in the "pocket" areas, some proceeds can be rediverted to assist the less endowed areas. At the present stage of limited resources, it is far better not to disturb the existing patterns of subsistence agriculture than to raise expectations which cannot be realized.

Agricultural Education. The kind of agricultural education system an African state should have depends upon the manner in which production is, or will be, organized in that society. Unfortunately, the question of whether production should be left to independent farmers, farmers banded together into cooperatives, owners of privately-run plantations, or managers of state farms is a matter ultimately of politics and ideology rather than technology alone. In the present stage of development, however, most countries possess a mixed economy even if the disposition of the leadership is in favor of one approach over another. Cultivators in most states continue to farm as individuals or families, the land being communally owned and some of the work being organized by age, residence, or other group factors. Plantations exist in the states where there were large European settler communities. Some of these estates have continued in alien hands, but many have been broken up into small estates, been purchased intact by Africans, or been converted into state farms. Cooperatives--both those introduced by the Europeans and the traditional ones which have been transformed in response to cash crop production--are fairly widespread. The state farm had its origins in the schemes of the colonial authorities to increase the production of groundnuts, cotton, and other commodities at the end of the war. Several states since independence--Ghana under Nkrumah, for example--have experimented with this form of production. To be effective, the agricultural education system would have to be sufficiently flexible to deal with each kind of organizational approach.

"The Small Farmer." For the mass of independent farmers who are growing cash or subsistence crops on small plots assigned on the basis of usufructuary right of occupancy, education should be visual and oral. To the greatest extent possible, use should be made of the still-functioning "bush" schools and other traditional means for educating the young with respect to local grasses, plant pests, and other positive and negative factors of the environment. The instructors in the "bush" schools might be the most effective persons to reach in attempting innovation with respect to new methods, crops, fertilizers, and insecticides. Agents of change should rely upon those who still command a wide measure of respect because of their traditional credentials for leadership. The colonial powers,

being concerned primarily with political stability, often failed to identify those individuals in traditional society who could be effective agricultural innovators.

Even greater use should be made of "model farmer" programs as an educational device in traditional society. The greatest impact would be upon the young adult. The "model farmer" (and both male and female should be identified) should be brought into the script-writing process for radio programs directed to the rural sector of the population. At the present, most of the scripts for national radio programs (which can be heard by large numbers thanks to the advent of the inexpensive saucepan and transistor radios) are written by and for the urban minority. Disseminating news about seeds, new farm implements, and other items through a modern medium blesses those items with modernity, just as the written word had almost a religious effect upon an earlier generation of Africans.

Extension work should also draw heavily upon local talent, which not only commands respect but also understands in a practical way the limits of its environment. On my return to Tanzania in 1967 I discovered a number of instances of the "black man's madness" which almost matched the "white man's madness" referred to previously. In one instance an African official, who was an alien to the region, imported cattle herds for breeding without taking any prior steps to eradicate or control the tsetse fly. Providing local model farmers with functional literacy may be the cheapest and most effective way of getting new programs across. Functional literacy would keep the cultivator abreast of new developments without alienating him from his environment as the formal school system might. Short courses at technical schools or demonstration farms for model farmers could compensate for the shortage of central government supervisory extension workers.

"Cooperative Societies." Education for farmers involved in producers' cooperatives would follow at least the lines indicated above. Inasmuch as the existence of a cooperative is some index of a more sophisticated approach to agriculture, the area would probably also be one where the formal school system as well as a parallel school for technical training could fill certain basic needs for the members of the cooperative society. In a cooperative society, it is not necessary that all the members be kept abreast of improved fertilizers, more effective sprays for crops, and new techniques for mechanical cultivation and harvesting. These are services which the cooperative society could hire for its members. The agriculture or cooperatives department of the central government could staff the schools, which would be supported by the local societies. The local

societies would also undertake the identification of candidates for this specialized training, and the pool of talent would consist of those who had completed primary or secondary school and still had managed to maintain their ties with their rural homesteads.

"Plantations and State Farms." The history of large-scale governmental operations in the field of agricultural production has been colored by the failures of such enterprises as the Groundnut Scheme in Tanzania (a case of lack of foresight, obsolete equipment, and an obstinate environment) and the state farm operations of Nkrumah in Ghana (a case of over-commitment to ideology and some unfortunate barter arrangements with the Soviet Union). Moreover, the government farms tended to be capital-intensive and did not really solve the problems of employment or significantly involve Africans in a modern economy. They were run by Europeans and Asians. The Africans were brought in as short-term, unskilled laborers. Despite some setbacks, one can be sure that attempts will continue to be made in the direction of large agricultural schemes.¹¹ The relatively successful record of plantation agriculture in Africa, moreover, would indicate an expansion of that form of agricultural organization.

Insofar as education is concerned, both kinds of enterprises have similar needs. At one level, plantations and state farms require a cadre of secondary school, or even university-trained, farm managers, accountants, engineers, and agricultural specialists who could deal with problems of soil fertility, plant pathology, and other matters relating to the crops produced on the estates. At another level, both enterprises require skilled and semi-skilled laborers who have not only specific training with respect to the required farm tasks but also a measure of functional literacy which would be of direct use to the job and be an indirect factor in psychological adjustment to the somewhat impersonal environment of the giant enterprise.

Although programs such as National Service in Tanzania and the various youth programs in other states might provide useful short-range employment at both levels of the large-scale operation, the compulsory nature of these schemes often has adverse results. Thus, extraordinary efforts would have to be taken to make the enterprise attractive enough to have a continuing labor force. The lack of financial, social, and psychological incentives in the past resulted in a constant turn-over of personnel, especially at the lower levels. This increased the cost of training as well as complicating the problems of medical examinations, renovation of housing, and other matters. Therefore, extra

inducements, such as family garden plots, primary schools, and social welfare and recreational programs, would be required to encourage the worker to relocate his family on or near the large estate.

"Agricultural Education in a Formal Setting." Having suggested that the existing formal educational system will continue to produce future bureaucrats, doctors, and other high-skilled talent, and having emphasized the role of informal or very specialized vocational training for various types of farming situations, what is the role for agricultural education in a formal setting?

Imaginative and effective farm schools paralleling the formal primary and middle schools are a possibility--as the Wairaka school in Uganda, for example, has demonstrated.¹² Such efforts, however, are burdened by having to compete with the more prestigious formal school. Thus the system must be made attractive to older youths and those who had legitimate reasons for terminating their enrollment in formal schools after the acquisitions of basic literacy and mathematics. The curriculum has to be immediately practical to the farm situation; the instructors have to provide a daily example of the dignity of labor; and school must not only provide tools, seed, and credit at the time of school-leaving, but it must be constantly prepared to give him advice after the student is on his own.

Agricultural training at the secondary school level has seldom been designed to create independent farmers, since the traditional forms of land tenure usually make it difficult for one so well trained to use his talents to the fullest. The only exceptions I have encountered are in the areas of Africa where tree crops have permitted a measure of de facto private ownership, and a single farmer may have several thousand coffee or cocoa trees under his control. Normally the agricultural secondary school has been oriented towards the training of agricultural assistants who provide most of the extension work for the central government's ministries of agriculture. The more effective agricultural secondary schools take a fairly broad view of their mandate, examining crop husbandry, soil and water conservation, agronomy, animal husbandry, elementary animal hygiene and health, fisheries, forestry, and elementary economics. Great care, however, must be taken to select those students who have a high commitment to agriculture. The agricultural secondary schools should not serve simply as second choices for those not admitted to the college preparatory schools. Great care must be taken in placement, too, to insure that ethnic and other factors do not serve as barriers to effective innovation.

The role of agricultural education in the institutions of higher learning is a difficult one. It is obvious that African states need field staffs in the departments of agriculture who have more than a liberal arts education. The management of state farm and other large scale enterprises, moreover, can probably not be handled by those who have completed only a secondary school certificate. It is also apparent after two decades of experimentation that the inclusion of colleges of agriculture and veterinary sciences within the general university framework has not given the kind of respectability to agriculture which was desired. Indeed, the attitudes of snobbery on the part of fellow students have probably been a contributing factor to the further demoralization of the agricultural student. Nevertheless, it is obvious that there is a legitimate place in higher education for a concern with the problems of agriculture in Africa, and means must be taken to strengthen this effort. Whether the colleges of agriculture must be included within the general university or established separately in a rural setting; whether the curriculum ought slavishly to follow that of colleges of agriculture in more developed societies for fear of being labeled sub-standard, or whether they ought to venture out into novel programs more closely adapted to the needs of Africa; and whether a Ph.D. program is a necessary investment are questions which must be raised. Certainly if the agricultural courses in the universities recruit their clientele from among those who have gone through the ivory-tower environment of the primary and secondary school boarding systems, it will be difficult to develop and sustain a commitment to life in a rural setting. It might be far better to revise the curriculum to attract those who come up through the agricultural secondary schools and select students who combine good academic performance with a demonstrated interest in extension work.

A further heretical question related to the matter of agricultural research, which is certainly a sine qua non for a developing society. Africans must be constantly concerned with the task of finding new crops, better strains of existing crops, diverse uses for agricultural products, and ingenious ways for dealing with the mounting problems of plant and animal diseases. For research in agriculture to be effective there must be a continual two-way communication between the scientists and the farmer in the field. There is no absolute reason why a nation's agricultural research program should be vested in an ivory-tower university setting as opposed to operating as a separate research enterprise which could service an entire region of the continent faced with similar problems. There is no reason either why African states at this stage of development should feel bound, as a matter of pride, to allocate very scarce resources for the higher education of their nationals as soil scientists.

if students have to be coerced into these subjects or if they fail to follow through on the national investment at the end of their training. For some time to come it might constitute a cheaper and more effective use of national revenues to hire research services in agriculture from whatever sources are available. If the political leadership feels that it must develop its own cadre of nationals in the agricultural sciences, it might be a wiser course to send them to India, Mexico, or the West Indies to receive training in tropical agriculture than it would be to establish very high-cost institutes in Africa.

Finally, it must be realized that the role of the African university in rural transformation must go far beyond the narrow mission assumed by colleges of agriculture and veterinary sciences. Indeed, the genius of the land-grant college in America is that it did not address itself merely to the problems of the vocational role of one sector of society. It addressed itself in a highly pragmatic fashion to the entire human condition and sought the development of a livable and not merely a tolerable society. Hence, the new university in Africa must assume a broad mission with respect to rural transformation and the reshaping of African attitudes regarding agriculture. It is a mission which will encompass the more traditional disciplines of history and literature but will include as well the efforts of the sociologist, the political scientist, the instructor in business management, the journalist, and the authority in audiovisual and other kinds of mass communications. The African university must be prepared to adopt a pioneering approach to the study of the African environment, and not accept the ready-made formulae of either Europe or America.

Footnotes

1. Tanzania Standard, 18 May 1967, p. 1.
2. "Results of a Job Preference Test Administered to Pupils in Standard VIII, Mwanza, Tanzania," in James R. Sheffield, ed. Education, Employment and Rural Development (Nairobi: East African Publishing House, 1967), pp. 431-443.
3. Growing Up in East Africa (London: Oxford University Press, 1966), p. 145.
4. Actually, had they consulted the 16th century journal of a Portuguese traveler, they would have realized that the area was a wilderness.
5. Quoted in George H. T. Kimble, Tropical Africa, Vol. 1 (New York: Doubleday & Co., 1962), p. 138.
6. M. Brewster Smith, "Foreign vs Indigenous Education," in Don C. Piper and Taylor Cole, eds. Post-Primary Education and Political and Economic Development (Durham: Duke University Press, 1964), p. 57.
7. Cf. Julius Nyerere, Education for Self-Reliance (Dar es Salaam: Government Printer, 1967); and Socialism and Rural Development (Dar es Salaam: Government Printer, 1967).
8. "Investment in Education and Its Political Impact," in James S. Coleman, ed. Education and Political Development (Princeton University Press, 1965), p. 547.
9. Frederick H. Harbison estimates that the cost of educating an African student in an African university in 1967 was about \$3,000, which is perhaps even higher than the cost of educating that same person in America. Cf. "Education in the Development Process," in Allan A. Michie, ed. Diversity and Interdependence Through International Education (New York: Education and World Affairs, 1967), p. 133.
10. Education for Self-Reliance, *op. cit.*, p. 13.
11. A very critical study of 13 state farm enterprises in Kenya, Tanzania, Uganda, Mali, Upper Volta, Chad, and the Ivory Coast is contained in a 1967 study conducted by John C. de Wilde of the World Bank's African Department.
11. Cf. John W. Hanson, Imagination and Hallucination in African Education (Michigan State University, c. 1967), pp. 35-37.

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