THE STUDY OF TECHNOLOGICAL CHANGE IN UNDERDEVELOPED AREAS

PRACTICUM SESSION III

Report of Team III

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Many valuable insights and definitions were offered in the reports of both Team I and Team II. And, by standing on the shoulders of our worthy predecessors, we are enabled to look a little further into the future and to see some new perplexities on the ever expanding horizon of constituents of technological change.

Team II offered a particularly useful and, we feel, lasting contribution in their clarification of the concept of "underdeveloped area". But it is not to their credit that they re-used Team I's definition of technological change, which was "the adoption of a rational means to achieve a desired end which logically is more efficient than any other means which have been present in any society since the time of its inception." We wonder what is meant by rational means.

(I) Does this imply that technological changes always occur through the scientific analysis of a problem in connection with the satisfaction of material needs? Or, does technological change occur through the operation of a "chance" factor, as occurred in the invention of the simple lever or the wheel?

(II) Are changes in the social structure the inevitable result of changes in the material system, as Ogburn claims,[1] or do the changes in the material system grow out of the cultural understandings of the material environment?

(III) Is technology an art, as the Greek root of the word might indicate, or is it an applied science, as Webster's Dictionary would lead us to believe?

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[1] Francis R. Allen, et al., Technology And Social Change, (New York: Appleton-Century-Crofts, Inc.), 9.

Although we do not propose any easy solution to this problem of definition, we think that, in the interest of on-going research, the problems must, at least, be mentioned. One cannot construct a valid theoretical framework without first understanding the terms involved. Father O'Farrell will give us another insight as to the meaning of this important factor.

As a point of departure, showing the need for a fresh theoretical approach, we question the validity of Team II's statement that "the analysis of change is therefore really the examination of the circumstances which tend to upset the relative equilibrium of a society." From the time of Sumner's "Folkways" to Pareto's concept of equilibrium, much has been written of the anomie, the social and personal disorganization that can result from too rapid an introduction of change. In most cases, sociologists and anthropologists on technical assistance teams, have, while insisting on the importance of taking the culture into account, also insisted that change must be slow, cautious, and tentative if resistances were not to be aroused, if social and personal disorganization were not to follow.

In New Lives for Old, a study of drastic cultural transformation in twenty-five years, Margaret Mead has demonstrated that a culture can change its basic institutions and outlook on life within the span of a single generation. And this change was accomplished without disorganization and loss of social control. Mead questions the wisdom of inaugurating partial and slowly progressive change that offers to the population in an underdeveloped area a taste of the benefits of the new way of life, but carries with it, the crushing realization that they cannot achieve full participation in it. "So this study of

the Manus suggests the great importance of whole patterns, that it is easier to shift from being a South Sea Islander to being a New Yorker-as I have seen Samoans do-than to shift from being a perfectly adjusted traditional South Sea Islander to a partly civilized, partly acculturated South Sea Islander, who has been given antiquated versions of our philosophy and politics, a few odds and ends of clothing and furniture, and bits and pieces of our economics."[2]

"What are the chances for an "X" human group?"

Every community is concerned with its continuity in time - for survival and expansion. This leads us to the consideration of some PRE-REQUISITE AND INEVITABLE REQUIREMENTS, for survival and expansion:

. MAINTENANCE OF HEALTH:

. REPRODUCTION OF NEW MEMBERS: Mating

. Provision of RESOURCES: Economy

. Provision of values and skills so as to make the individual ADAPTABLE: Socialization

. ARRANGEMENTS which maintain stability: Control, government

. Set of explanations about why life is worthwhile living, or ends are pursued: Education, Art, Religion

Every society performs these, but on a moving continuum, ranging from the least efficient use of resources, to the most efficient and fruitful.

This fact can be hypothetized:

"The point of least efficient use of general resources is the the point of least expansion chances, while the point of most fruitful use is the point of maximum expansion chances."

"What is Technological Change? How do you relate Technical Change to the chances of survival and expansion?"

I. We define some concepts, for solving the question:

1. Technique is a choice of means which is consciously and systematically orientated to the experience and reflection of the actor.[3]

2. Technology: the sum of means employed rationally.

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[3]Max Weber, The Theory of Social and Economic Organization, trans. A.M. Henderson and Talcott Parsons (Glencoe, Ill.: The Free Press, 1947), 160

Technological Change can be consequently considered:

1. As a change in the orientation-evaluation and the attitudes of the member, himself.
2. Or as a rationalized change in the instruments, the environment, physical and human, he works with.

Rational correct action: is that when an "objective correct means" is used in accord with scientific knowledge.

Subjective correct action: is that when one thinks or estimates he is using the correct means for achieving an X end, although it may not be so: for example, the F.A.O. officer who would introduce technological change as a whole, without providing for the gaps this would produce, does not act "objectively".

II. The introduction of technical change presupposes a process of contact, mixture, grafting and transformation, of two cultures and systems of procedures - a new variable of "growth", which could be treated as such, but is very long and difficult. That is why we consider them separately.[4]

CULTURE

Which are the cultural concepts which can be useful for an interpretation of this process?

I. We know already the value-orientation of the "desirable" of a rationalized society.

II. The primitive and underdeveloped societies' ideas, beliefs and symbols are patterned in the following way:

1. There is a continuity of MAN, LAND, ENVIRONMENT, NATURE or Cosmic Forces, and GOD.
2. There is an identification of EVIL and SIN, FORTUNE and GOOD LIFE; of past, present and future.

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[4] K. Malinowski, Cultural Change, p. 62.

3. There is an <u>emotional unity</u> of man and land, of man with the group.

According to this, Body, Life, Work, Seasons, Family, Group acquire certain overlapped meanings of SACREDNESS, BELONGINSS, AFFECTION.

These ideas define for the members of that group what is the <u>desirable</u>. The desirable is equivalent to their hierarchized urgency of needs. These can be considered as needs of objects, needs of cooperation, or both, ordered to the gratification - in underdeveloped areas - of the "self-oblation" to the family, tribe, land, etc.

In underdeveloped areas there is a tendency to concretize ideas and actions, and therefore, to make of many ideas, one only. There is less tendency to reflection, which segregates ideas from affections, and ideas from objects and persons. That is why there is a tightness in the conception of things: Pattern Integration, and in the interpretation of behavior: Functional Integration. The needs may be rational or only emotional. Every function is a response to a need, adjusting a member to society at the same time. The needs may be implemented by various items, (elder, the charismatic leader, the council, etc.) and by various functions or one function (religion) may cover various needs: religious, control, socialization, etc. Now, according to the more or less rational content and patterns of that culture, there will be more or less rationality in the performance of that culture.

<u>Social System</u>:

Needs are satisfied, through functions, by certain items (monogamy or polygamy; meat or vegetables; money or objects of exchange). Functions are carried along by interaction, and interrelationships,

which, if they are distinct, constitute the roles. A crystallized combination of roles forms an institution, if this configuration is strategic and at the same time legitimate to the society.

Now, in the underdeveloped countries:

I. The Social System of relationships, roles and institutions will follow quite exactly the Cultural Pattern Identification, Overlapping of functions, Diffusion in using means and definition of ends, etc.

II. The non-rational needs are covered in the Social System by random items and not rationalized interactions: "Sacred animals are respected although people die of hunger." The patterned integration produces, in practice, contradictions between two strategic factors: for example, family members ingol, and killing one of the sons for increasing father's tsav among the Tivs.[5] These are critical cleavages where change can be introduced.

A gap in one need satisfaction more easily disrupts the equilibrium, because there are no substitutes, due to the simplicity of the configuration: because a man cannot be alienated from the land of his ancestors, if he is taken to the city, he will feel no reason for continuation of life.

I. A most important consideration is that of the:

1. meaning given to functions and items:

bath = purification (Burma)

dinner = family union (Greeks)

smile while saying something sad = not to grieve more the master, as sign of dependence.

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[5]Margaret Mead, ed., Cultural Patterns and Technical Change, (New York: The New American Library, 1955), 102-03, 97

II. Manifest and latent functions:

Latent functions are not discovered due to lack of "conscience" and may be disruptive: Among the Burmese, the settlement of an informal religion, for defense against the nats. Or generosity in building pagodas, as a means of acquiring prestige.

A CASE OF CHANGE

The Island of Manus is located in that group of islands called the Admiralties. The inhabitants of Manus are of particular interest to us in that here we have the transformation of a small cluster of stone-age people into a community asking for a place in the modern world. This all happened within an overall period of twenty-five years, and, more particularly, since the end of World War II.

The new movement was led by a returned police boy, in Rabaul, by the name of Paliau. There were thirty-two villages and about four thousand people who were to be members of this New Movement.

Paliau returned to the Manus in 1946 and began his movement towards modernization. There was to be a new version of Christianity, plans for modern villages, political unification, economic betterment, and some form of community organization.

The Australian Administration worked with Paliau and the local leaders, explaining to them the workings of councils and co-operatives. One of the most, if not the most, important influences upon the Manus people was the occupation of their island by the American forces during the war. This was an external happening that did much to predispose these people to change their way of life. They saw the Americans: with racial groups intermixed, working with mechanical objects, having a sense of organization, having a tendency to treat their fellow soldiers as human beings, and with many other elements of the American culture - and the Manus liked what they saw.

Some of the Manus knew that from this time on their own culture would have to change. This group knew that in order to share the benefits from the outside world this change - the leaving of their island homes, the leaving of their coves, the giving up of their shell money, their old joint families - would have to be from one pattern to another. This they did. The Manus changed as a unit: parents, grand-parents, children.

Their economic system began with the use of dog's teeth and shell beads as the symbols of money. This precluded it from being a closed system among their own tribes. But even here there was not even a sufficient incentive in transferring these symbols to induce the transportation of objects, food or otherwise, which were needed by a group or by a person. It was a day-to-day subsistence economy. All capital goods and most consumer goods were obtained by affinal exchanges and trading.

This type of activity was broken down by Paliau and the European trader store, with Eurpoean money taking its place in the society. Under the old system, the husbands were, for a long period, in the service of their financial backer, who had paid for their wife.

Now in the satisfaction of their needs, the people work for money and trade for money. Each individual has the right to buy or sell, the right to work for wages and the right to the wages when he has earned them. This is the patterned interaction now taking place. This pattern is put into action by seeing labor as an investment. The Manus now see that it is cheaper to work for a wage and buy cord to make a fish net than it is to buy the bark and make the cord themselves. Yet with all of this interaction within a new system, old ties still have to be invoked. Some objects, such as large turtles, big tree trunks, bark which are hard to obtain become the objects of trade among the inhabitants. In the transitional phase through which the Manus are now passing, this new economic system is exerting pressures on the social life, not unlike those present in our Western civilization, for example, that problem of relation between number of children and amount of work necessary to provide for them. Some of the villages of the Manus now need a bank. They must pass on to the setting up of further institutions for the protection of their new-found individual freedom.

Technical Assistance and the Manus are inseparably bound together. The future of these people will depend upon the course of economic development in New Guinea, which in turn is dependent upon trends in the modern world. Are these people to be limited to their traditional village communities or are they to enter into a territory-wide unification? It appears that the present situation in Manus is part of the same problem which exists in many of the underdeveloped areas of the world. Is it not a new forward thrust for ethnic identity? The main question still remains for the Manus of today - how are they to be further integrated into a wider system? They no longer possess the old and have the hope of attaining the new.

I. Paradigm applicable:

to the individual

to the group, community

to the nation

II. Other Factors of Change:

1. Relationship to loss of equilibrium.

2. Time.

3. Geography.

PARADIGM FOR THE STUDY OF TECHNOLOGICAL CHANGE IN UNDERDEVELOPED AREAS

necessity of ---------- CHANGE ---------- desire for

results
from a

from without ---------- CHALLENGE ---------- from within

to means
used to
fulfill

community ---------- NEEDS ---------- individual

which have
resulted in

type of action ------ PATTERNED INTEGRATION ---------- need for action

and

action ---------- FUNCTIONAL INTEGRATION ---------- reason for

in

national level, community level ---------- INTERACTION ---------- domestic leaders, individuals

for

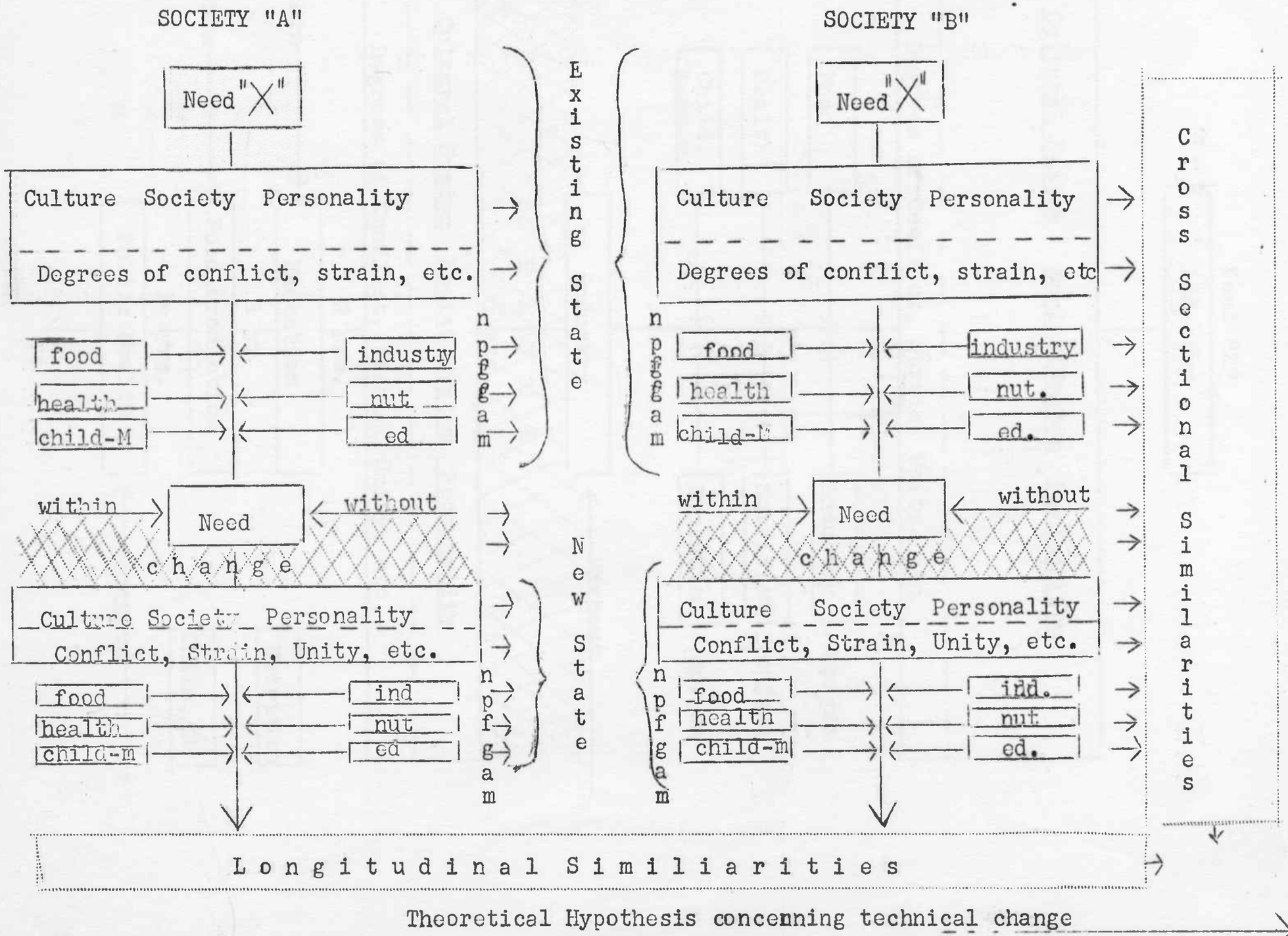
cultural ---------- SURVIVAL ---------- social

I Paradigm applicable:
to the individual
to the group, community
to the nation

II Other Factors of Change:
1. Relationship to loss of equilibrium
2. Time
3. Geography

RESEARCH DESIGN

FOR THE STUDY OF TECHNOLOGICAL CHANGE IN UNDERDEVELOPED COUNTRIES



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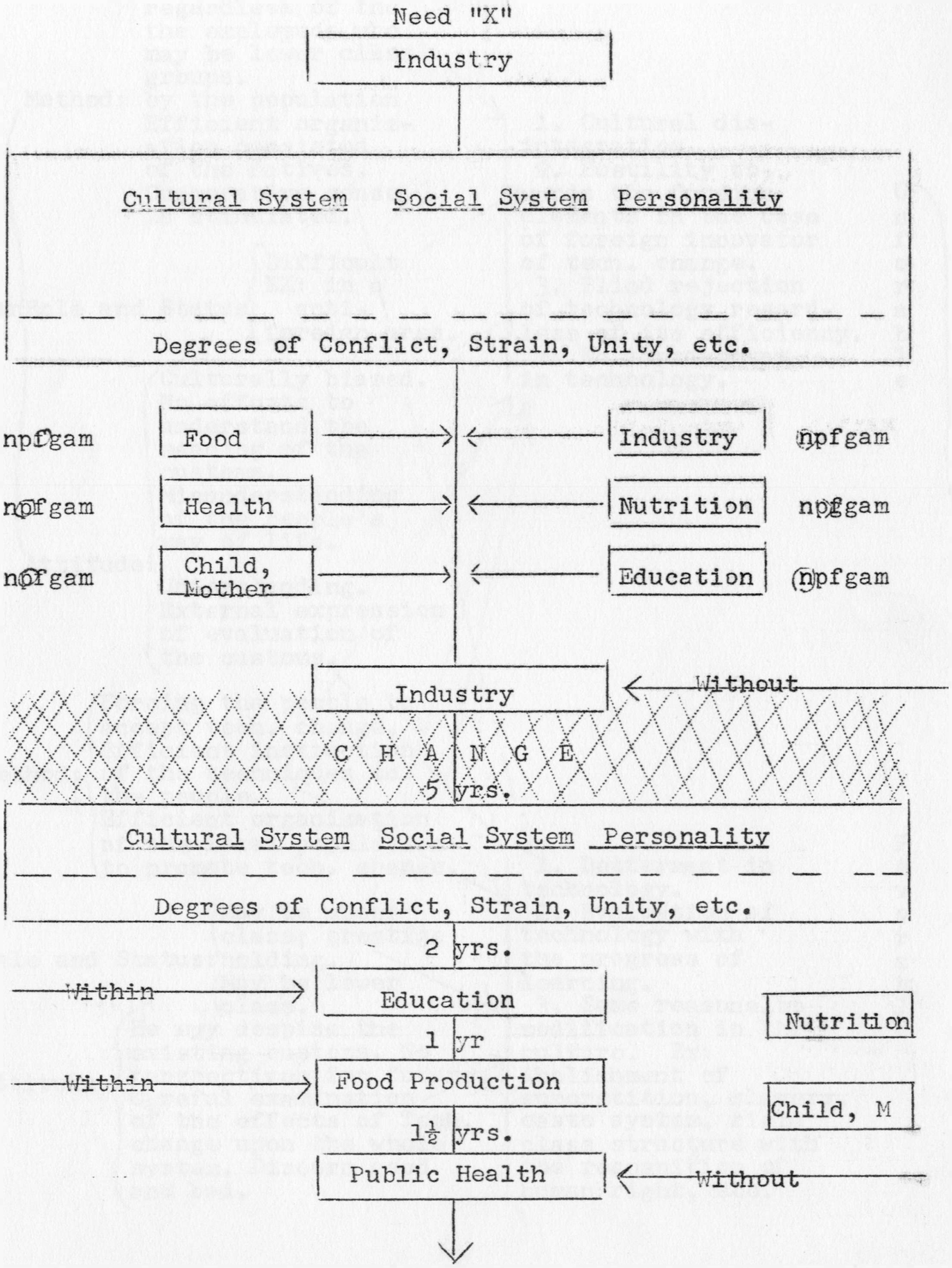
AN EXAMPLE APPLICATION



AN EXAMPLE OF A DETAILED CONSIDERATION OF CHANGE

Foreigner:

Method:
- Commanding people to accept T.C. regardless of the the employees who may be lower class groups.
- by the population Efficient organization consisted of the natives. Cooperative sense is stimulated.

Role and Status:
- Difficult EX: in a anti-foreign area.

Attitude:
- Culturally biased. No efforts to understand the meaning of the customs. Misunderstanding of the people's way of life.
- Understanding. External expression of evaluation of the customs.

tive:

Method:
- Forcing the people to accept tech. change. Efficient instruction of the techniques to the people. Efficient organization of the local population to promote tech. change.

Role and Status:
- May be upper class; prestige holding.
- May be lower class.

Attitude:
- He may despise the existing customs. No perspectives for future. Careful examination of the effects of Tech. change upon the whole system. Discern good and bad.

Unfoorable:
1. Cultural disintegration.
2. Hostility towards the foreign elements in the case of foreign innovator of tech. change.
3. Blind rejection of technology regardless of its efficiency.
4. No improvement in technology.

Favorable:
1. Betterment in technology.
2. Evaluation of technology with the progress of learning.
3. Some reasonalbe modification in the culture. Ex: Abolishment of superstition, slavery, caste system, rigid class structure with the recognition of human right, etc.

SOCIO-CULTURAL CHANGE