Plasticity, Achievement and Adaptation in Developing Economies

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ONE OF THE MOST significant theoretical problems in the behavioral sciences today is the capacity of indigenous peoples to meet successfully the requirements of a developing economy. The issue is critical because of its practical implications and has concerned all of the applied behavioral sciences; it has generated a wide variety of approaches, insights, hypotheses, and theories. The problem is of unusual interest also to the more academically inclined for it offers an opportunity to compare the responses of distinct cultural groups to similar stimuli under an approximation of laboratory conditions. It should be particularly fruitful to examine the responses of different ethnic groups within the same economic context since this would give a greater measure of control over the character of the milieu in which the development opportunities occur.

Such conditions exist in a number of places, including the Colony of Fiji, where two indigenous groups, the Fijians and Rotumans, compete for positions in a developing economy with Europeans, East Indians, Part-Europeans, and a sprinkling of other ethnic groups. The purpose of this paper is to analyze the differential adaptations of these two groups to the urbanized market economy introduced by the British under colonial administration. Evidence is presented indicating that the Rotumans have been somewhat more successful than their Fijian counterparts. Possible explanations are examined and an attempt is made at formulation of a general theory to account for the differential success of various indigenous peoples in adapting to developing economies. Since I worked only among the Rotumans the study does not meet all of the requirements for adequate comparison, and the inferences and conclusions must therefore be viewed as suggestive rather than conclusive.

The Rotuman Economy

The Fiji Islands consist of some 300 islands in the South Pacific, of which approximately 100 are inhabited. In 1874, the islands were ceded to Great Britain and have been administered as a British colony ever since. The sugar industry developed shortly after Cession, and the need for labor led to a large scale immigration of East Indians. Fijian labor was tried, but the islanders were not well disposed to the the rigorous demands of plantation life. As a result of rapid natural increase, accompanied by a decline in the native Fijian population, the Indians now out-

number the indigines and constitute the Colony's largest ethnic group. Population figures for 1956 show the following distribution by component groups:[1]

Indian	169,403
Fijian	148,134
Part-European	7,810
European	6,402
Other Pacific Islanders	5,320
Rotuman	4,422
Chinese and Part-Chinese	4,155
Other	91
Total	345,737

The island of Rotuma, which lies some 300 miles north of the Fiji group, was included in the Colony in 1881. The Rotumans, who are racially, linguistically, and culturally distinct from the Fijians, constitute a separate ethnic minority.

The current economy of Fiji is agriculturally based, with sugar, coconut products, and bananas as the chief exports. Until recently the Colony's dependence upon sugar as a source of income was almost complete. Since World War II, however, industry has expanded and diversified, and the processes of urbanization have begun. Urbanization has been accompanied by rapidly increasing population with corresponding land shortages, leading to an excess of available labor and stiff competition for wage employment. Within this highly competitive job market, Rotumans appear to have fared much better than Fijians in obtaining employment and also in upward mobility.

Although precise statistics on unemployment by ethnic group are unavailable, what information there is supports the above assertion. The situation at the Vatukoula gold mines on Viti Levu provides an example. As compared to most other industries in Fiji, employment at the gold mines is considered desirable. The wages are high and housing is available to workers at a nominal rate. In addition, supplementary income can be earned in the form of incentive bonuses and overtime wages. There are invariably a number of applicants for each job vacancy. Despite the fact that the ratio of male Fijians of working age to male Rotumans of working age is about 35 to 1,[2] the ratio of Fijians to Rotumans employed at the gold mines is less than four to one.[3] This apparent favoritism reflects the expressed satisfaction of the mine's managers with Rotuman workers. In interviews, the managers were unrestrained in their praise of the sense of responsibility displayed by Rotumans and the quickness with which they learned to carry out tasks. In virtually every instance when comparisons were made with Fijians, Rotumans were favored. One mine official summed up his feelings with the statement, "I just wish there were more of them to employ." Such attitudes are by no means unique to the mine management. Employers all over Fiji were nearly unanimous in their praise of Rotumans. As a result, Rotumans have little difficulty in obtaining employment despite job shortages.

The ability to obtain employment and please employers is only one part of the competition. At the mines, jobs are ranked hierarchically and mobility up to the level of sub-foreman is possible on a merit basis. Here, too, the Rotumans enjoy an advantage: 6.3 percent have risen to supervisory positions, while only 3.2 percent of the Fijians are supervisors in spite of the fact that the history of Rotuman employment at the mines is shorter. In addition, although exact figures are lacking, that Rotumans are more mobile at the sub-supervisory level is indicated by the fact that they make up the majority of leading-hand miners (i.e., those in charge of work teams).

An even more dramatic indicator of occupational mobility is seen in the relatively high proportion of Rotumans who have achieved professional status. The 1956 census of Fiji showed that the proportion of the male population in professional and allied roles was 84 per 1,000 for Rotumans compared to 48 per 1,000 for Fijians in the 30-44 year age category, and it was 102 to 36 per 1,000 for the 45-59 age category.[4]

Still another indication of Rotuman success is their ability to accumulate capital resources. The Rotuma Cooperative Association, with a membership in 1961 of 485, listed their subscribed capital at £23,754 for an average subscription of £49 per head. The combined Fijian societies for the same year had a membership of 1,293 and listed a capital of £5,797 for an average per capita subscription of only £4.[5] The Rotuman Development Fund, which is supplied by a self-imposed tax on copra earnings, has accumulated well over £100,000. The money is invested and the Rotumans seem so enamored with the idea of making a profit that the Administration is having a difficult time getting them to use the money for its avowed purpose of development. Finally, where the Fijians are notorious for their inability to succeed in private business ventures, the few Rotumans who have tried their hand at private enterprise have been moderately successful.

Racial and Historical Influences

What explanations can be offered for this differential response to a developing economy? In this paper the explanation is sought in interrelated sociocultural and psychological variables. But first it is necessary to discuss some racial and historical aspects.[6]

Race is not easily disposed of in this case. Although both populations manifest a range of physical types, the Rotuman mode more closely approximates the Polynesian type, while the Fijians are generally classified as Melanesian. Recognition of this difference constitutes the primary "folk" explanation of Rotuman superiority by Europeans in Fiji. Therefore, whether or not race has anything to do with biologically inherent capabilities, local definitions of race may have provided the Rotumans with a social advantage. It is possible that the darker-skinned Fijians are sufficiently discriminated against to block their social mobility, while their Polynesian neighbors are considered Caucasian. This alone cannot account for the facts presented here. Racial discrimination does not seem to account for the superiority which the Rotumans have exhibited in accumulating capital resources. Furthermore, if there is greater discrimination against the Fijians it is not extreme; and certainly it is not institutionalized in the economic sphere. The Europeans regard the country as belonging to the Fijians, and their major prejudices are directed toward the Indian segment of the population. The Rotumans enjoy no legal advantages; in fact, they are not even represented in the Fiji Legislature. As for the biological capabilities associated with race, it can only be asserted that the explanatory power of race has not yet been adequately tested, although the bulk of the accumulated evidence appears not to lend this factor much support.[7]

Anthropologists have long pointed out that the context of acculturation, or to put it differently, the nature of the interactive field between cultures in contact, can have a significant effect on the adaptation of indigenous peoples.[8] It is evident that when a group is overwhelmed, exploited, or openly discriminated against, it is at a disadvantage just as much as a people who have so little contact that they have no opportunity to learn necessary skills. Between these extremes lies a wide variety of more permissive circumstances, and differential responses must be accounted for in other terms. Despite this general limitation, it must be acknowledged that in the particular case under consideration, historical accident may have played a prominent role. Certainly it should not be overlooked.

In general it appears that Rotuma has had, if anything, a less favorable history for promoting individual and group achievement than the rest of Fiji. While much of Fiji experienced long and intensive contact with Europeans, Rotuma remained relatively isolated. All the major industries and sources of large scale employment are in Fiji; there are none in Rotuma. Furthermore, except for a handful of missionaries, a few traders, and government officials, there have been virtually no resident Europeans in Rotuma to serve as appropriate models.[9] Rotuman schools, at least until recently, have been markedly inferior to those in Fiji.[10] From the standpoint of opportunity, then, Rotumans have certainly not been favored.

But opportunity is not everything. It is possible that Rotuma's isolation had a beneficial effect. If colonialism has negative effects upon the ability of indigenous populations to achieve, as numerous scholars assert, then the advantages of isolation may have outweighed the lack of opportunity. Isolation slowed the pace of change on Rotuma to the point that such innovations as appeared have been absorbed without creating undue stress.[11] The result has been, on the one hand, a strong sense of conservatism, but on the other a sense of integrity and control. What may be important is that Rotumans have not felt overwhelmed by European culture. They do not seem to feel that their Rotuman-ness is an insurmountable barrier to individual success within the Western urban market complex, an attitude that contrasts with those expressed by Fijians.

Even if such an historical explanation is correct, however, it accounts for success only in a negative way; it does not define the positive attributes that lie behind achievement. That these positive attributes are the result of acculturation is doubtful, for even the very early evaluations of Rotuman character are nearly unanimous in their praise.[12] Rotumans were prized as sailors and were eminently successful as pearl divers in the Torres Straits before the turn of the century. It seems, therefore, that the character traits which lie behind achievement were present prior to European contact. If this is the case, then the variables underlying Rotuman achievement had their basis in the precontact culture and must have been of a sociocultural and/or psychological nature.

Following McClelland, who offers a compelling argument for the salience of psychological variables

in economic development,[13] an explanation is sought that explicitly relates sociocultural variables to psychological constructs. The rationale is simply that success or failure in adapting to a competitive market economy is ultimately a matter of individual behavior. It would be fallacious to presume that every Rotuman is more capable of adapting to market conditions than every Fijian; rather, it is a matter of statistical incidence. At most one can assume that one type of culture facilitates economic achievement while another hinders it, but it seems clear that the "efficient" mechanisms leading to successful or unsuccessful participation operate at the psychological level.

McClelland distinguishes two psychological factors which are associated with rapidly developing economies. He terms these "other-directness" and "achievement motivation." Each is associated with aspects of the sociocultural order.

Associated with other-directedness are anti-traditionalism, specificity of role relationships (contractual relations), and collectivity orientation. Interpreting these findings, McClelland suggests that in rapidly developing societies,

> rigid prescribed ways of relating to others have begun to give way to more flexible ones which are seen as arising out of the specific needs or demands of particular others, especially peers. Society is somehow less "fixed" and more open. Individuals enter into relationships with others for specific reasons and the relationships are generally controlled by the opinions and wishes of the "others."[14]

This proposition supports the contention of many observers that egalitarianism fosters economic achievement, while rigid stratification is a deterent; and the evidence from the case under discussion supports this thesis.

In most parts of Fiji social relationships are highly ritualized and prescribed. Status differences are marked and breaches of etiquette are strongly sanctioned. Writing about the Southern Lau portion of the Fiji group Laura Thompson states:

> Social life in Lau conforms to strict rules of etiquette based on rank. The same pattern of behavior, with variations in degree of elaboration according to rank, is used down the whole social scale. Each individual observes the main rules of the polite . . . etiquette towards persons, whether related or not, of higher rank or toward persons who stand in the avoidance relationship. The rules are learned by children before the age of seven or eight, and the infringement of them causes a loss of social prestige.[15]

The severity of sanctions is indicated by Thompson's statement that in the past

> infringement of chiefly etiquette was punished by clubbing or death, depending upon the rank of the chief and upon the offense.[16]

In Rotuma, by contrast, rank is less important and the rules governing social relations are far less ritualized. Restraint is appropriate in the presence of a chief under most conditions and with certain relatives such as in-laws, but relationships are not *prescribed* in the same way as in Fiji. Correspondingly, breaches of etiquette are weakly sanctioned. they are generally regarded as personal rather than social affronts. To relate this contrast to McClelland's assertion, it can be said that in Fiji social relations are sanctioned by tradition while in Rotuma they are sanctioned by public opinion; the Fijians are "tradition-directed" while the Rotumans are "other-directed."

In general, the ethos of Rotuman society is secular and egalitarian. In Fiji it is sacred and hierarchical. This difference is perhaps nowhere more apparent than in the performance of the *kava* ceremony, which in Fiji is an event of considerable drama. A great deal of restraint is exercised by all participants, and the ritual is prescribed down to fine details. It is a highly sacred event, and the penalties for breaking protocol are severe. In Rotuma, on the other hand, the ceremony is performed in a casual manner. A certain portion of the ritual is prescribed, but it is hardly sacred. The people present are generally relaxed and moderately unrestrained. During the ceremony they often talk to one another, and mistakes are more likely to be laughed at than punished.

Associated with a strong need for achievement are certain childbearing patterns such as parental pressure for and reward of early achievement, an affectionate relationship between parents and children, early encouragement of independence, and low father dominance.[17] Most aspects of childrearing in Rotuma are consistent with these conditions. Parents and parent surrogates of both sexes are extraordinarily warm and indulgent, not only during infancy but throughout childhood. In most cases overt demonstrations of affection do not significantly diminish in later childhood, even after siblings are born. Fathers are not dominant; discipline is usually carried out by the mother. Although parental pressure for early achievement is not pronounced, achievements are noticed and rewarded. More significantly, independence is encouraged in children,

particularly with regard to task performance. It is commonplace to see a child of four or five years swinging his father's bush knife in an imitative fashion. As long as he is handling it reasonably well, no one is apt to interfere. By seven or eight years of age boys are climbing the highest coconut trees, and only rarely does an adult admonish a youngster for doing something dangerous. In more general terms, it appears that the Rotumans have very little sense of impending danger; they seem to be incorrigible optimists. Children appear to develop a pronounced sense of mastery and, in fact, they have remarkably few accidents. Even at the level of conscious ideology, independence is valued by Rotuman parents. Out of 49 mothers who were asked during a structured interview session what ambitions they had for their children, 32 explicitly mentioned the ability to take care of themselves as a major concern. This was the second most frequently named desire; getting a good education occurred 34 times.[18]

It is in school that the differentiation between achievers and non-achievers becomes apparent. One negative consequence of childhood indulgence is that Rotuman children have to endure few frustrations; hence they are ill-equipped to handle problems not readily mastered. During the school years this trait is manifest in two ways. While performing work assignments in school, most students appear to maintain effort only so long as they do not encounter much difficulty. When problems are not readily resolved, the overwhelming tendency is for efforts to be withdrawn, and it is not unusual for children to burst into tears at such times. A second manifestation of the inability to endure frustration is the usual response of children to falling behind in a competitive event. In such circumstances, when peers rather than adults (i.e., persons commanding respect) are the sources of frustration, the tendency is for children to respond with anger and aggression toward the opponents.

Although this characteristic is an obvious hindrance to scholastic achievement, the teaching level in Rotuma is generally adjusted so that a fair proportion of students are able to achieve mastery over most of the tasks they are required to perform. As a result, the better students have their sense of mastery reinforced in the scholastic domain and are encouraged to maintain high aspirations. The less able students tend to withdraw effort and to drop aspirations of scholastic and occupational success. According to teachers' reports, there is a clear tendency in almost every class for students to divide quite sharply between achievers and non-achievers, as distinct from a gradual continuum reflecting differential ability. Correspondingly, there is a distinct tendency for good students to better their performance through the school years, and for them to crystallize an image of themselves as potentially successful in terms of European socio-economic norms. The performance of poor students tends to deteriorate through time, accompanied by a shift of normative orientation (reference group) toward traditional Rotuman values and cultural patterns. The latter do not demand competitive achievement in the same sense and are within the scope of mastery of most persons. Hence a positive self-image can be maintained even in the face of academic failure. This is significant, for it means that Rotuman culture does not develop an ethos of failure and disillusionment to pass on to children, even though only a limited number of persons go on to fulfill their educational and occupational ambitions. A further contributing factor toward the maintenance of positive self-imagery is the fact that in Rotuma all of the children and most of the teachers are Rotumans. The division between successful and unsuccessful students does not correlate with a cultural distinction between "European" and "native" as it might in a mixed community in which European children enjoy a cultural advantage. This means that Rotuman cultural identity remains a constant and is not recognized as differentiating good from poor students.

For a description of parent-child relations in Fiji we turn to Marshall Sahlins' excellent ethnology of Moala, an island approximately 95 miles southeast of Suva:

> Obedience and respect are demanded of the child by the father. After infancy the child is constantly taking orders, doing tasks relegated by his parents, from whose command there is no recourse save fleeing from the house.
>
> Punishment by the father is the outstanding disciplinary mechanism in the family. The father's anger is proverbial; younger children he whips, older children he lectures harshly. . . . The child should accept either punishment stoically.[19]
>
> The mother is more indulgent toward the child than is the father. Particularly for boys and men, the relationship with the mother is freer than that with the father. After infancy intense social relations with sons and mothers are confined primarily to mealtimes where the mother appears as giver and server, and it is this image that becomes characteristic.[20]

It seems that at least in Moala the family is father-dominated. There is little overt affection expressed

by parents for children, especially after the period of infancy; and dependence rather than independence is encouraged. All these conditions would militate against the development of strong achievement motivation, if McClelland's findings are accurate.

How well this picture of parent-child relations fits other parts of Fiji cannot accurately be determined, but other ethnographic accounts such as Thompson's for the Southern Lau group and Quain's for a village on the island of Vanua Levu are consistent with Sahlins' description.[21] That this family pattern does not produce high *N* achievement is attested to by the more general descriptions of Fijian character, such as those contained in the Burns and Spate reports.[22] Almost unanimously these accounts stress the dependence and self-derogation displayed by Fijians.

In accordance with McClelland's findings that high *N* Achievement suits men particularly for the entrepreneurial role, the Rotumans appear to have produced a substantially higher proportion of capable entrepreneurs. The Rotuma Cooperative Association, to cite one outstanding example, has flourished under the guidance of a few men whose managerial talents epitomize organizational efficiency. Without these men, whose skills are matched by their dedication to the Rotuman community, the cooperative endeavor might easily have failed.

Discussion

In a paper addressed to the subject of stress in the human organism, Howard and Scott[23] suggest that human behavior can be conceived of as problem-solving, with "problem" defined broadly enough to include any condition (internal or external to the organism) that stimulates it to action. In order to resolve problems successfully, an organism must meet certain demands. It must generate sufficient energy and resources to cope with the condition; and it must make an assertive, as opposed to a divergent or inert, response. In addition, the problem confronting the organism must be capable of resolution. When an organism has successfully resolved a problem, it can be said to have achieved mastery. After having successfully mastered a set of problems in a given domain, whether they be physiological, psychological, or sociocultural in character, the capacity of the organism to resolve like problems is ordinarily enhanced (as is implied in the concept of *conditioning*), provided that it has otherwise remained intact. If this proposition is accepted, it follows that in general an organism's problem-solving efficiency is increased to the extent that strong demands, which have been successfully mastered, have been made upon it. To carry this chain of reasoning further, it can be asserted that the flexibility with which an organism can deploy its energy and resources is more likely to be lost when the environment (i.e., the types of problems being confronted) is substantially altered. Failure to achieve mastery over a particular set of problems can have a wide range of repercussions, depending on the nature of the problems. At one extreme, failure may result in the death of the organism; at the other, in only a moderate increase in tension level. In general, failure to achieve mastery results in an increased commitment of energy and resources to maintenance activity, thereby limiting the potential of the organism to deploy its energy and resources in confronting new or unanticipated problems.

At the level of sociocultural behavior, the problems confronting a group of people are rendered symbolic and become part of the cognitive environment. The methods for solving recurrent problems are transmitted culturally and are in large part standardized and sanctioned. In other words, problem-solving behavior is organized into *activity systems* which consist of "a set of goal-oriented actions involving two or more persons, in which a particular set of cultural and structural principles operate, such that behavioral decisions achieve a high measure of predictability."[24] In order to participate effectively within an activity system in a particular culture the participants utilize cognitively congruent (not necessarily identical) *decision-making models*, by which they generate appropriate behavior.

Decision-making models range from the acutely specific such as a prescribed ceremonial sequence to the highly generalized as when a group of friends meet for entertainment. If we allow the above postulate regarding adaptability in problem solving, it seems clear that a group whose decision-making models are characteristically specific will be less adaptable to changed conditions than a group whose decision-making models are generalized. The reasoning here is similar to that in evolutionary biology. Thus an organism committed to a specific genetic solution of an environmental problem is in trouble when the environment changes. Perhaps an even more significant parallel is found in the philosophy of science. It is usually held that a simple general theory is more viable than a theory applicable only to a special case; and much scientific advance is characterized by reducing a number of specific theories to a single general theory, thereby paving the way for comprehending and predicting phe-

nomena not accounted for within the scope of any one of the previous theories. If one takes the point of view that each person's set of decision-making models constitutes his personal "theories" of behavior, then the parallel is striking.

This brings us to a key question: how does culture, including social organization, affect the capacity of individuals to adjust to a developing economy or to acculturation circumstances in general? The answer appears to lie in the type of socialization, and hence learning, associated with different types of culture. In a culture characterized by highly specific solutions to recurrent problems, one expects rote learning to predominate and behavioral prescriptions to be explicitly and mechanically taught. To the extent that this is true, the product of learning will be an alloplastic cognitive structure, or "mazeway,"[25] i.e., one which cannot easily be altered to accommodate unusual experience or observations contrary to those previously made and incorporated. This in turn constitutes a barrier to learning new skills in acculturation circumstances. In a culture which is characterized by generalized solutions to recurrent problems, rote learning is of less value; instead, children are taught, or learn implicitly, a set of principles with which to generate appropriate behavior. This mode of learning favors autoplastic cognitive development which results in a mazeway more easily readjusted to accommodate new or contrary experience, and constitutes less of a barrier to relearning. The psychological evidence on this point has been summarized by Berelson and Steiner:[26]

> In general . . . the more general and abstract the previous learning, the more help and the less barrier it is likely to prove in future problems. A general principle—by the usual principles of transfer of training—is appropriate to more situations than a specific, mechanical procedure; and a principle that is understood is more easily modified to fit new situations than a formula learned only by rote.

While receptivity to learning is a necessary condition for economic achievement, it is not a sufficient condition. People must be motivated to achieve if they are to overcome obstacles and temporary frustrations. In terms consistent with the general theory stated above, the *N-Achievement* syndrome described by McClelland can be conceived as an attitude-drive set in which the relevant attitudes are a high level of aspiration (i.e., remote but highly valued goals) and a positive sense of mastery. The drive corresponds to a mobilization of energy and resources into an assertive response. A high level of aspiration is apparently encouraged by parental demands that are close to, but not beyond, a child's capabilities. When the interaction is warm and affectionate as well, so that the child comes to identify with his parent(s), he tends to internalize their aspirations for him, thereby giving these aspirations persistence.

A strong sense of mastery implies the expectation that an anticipated series of problems can be resolved in the pursuit of a specified goal. An individual's sense of mastery is subject to wide variations, since it depends to some extent on the nature of anticipated problems. When the problems to be faced are similar to those which have been successfully resolved previously, a person's sense of mastery is likely to be enhanced. When they are similar to those associated with failure, his sense of mastery is likely to be reduced (or his expectation of failure increased). Despite short-range fluctuations, however, a history of mastery tends to encourage a positive anticipation in the face of new problems, while a history of failure encourages a negative anticipation. The nature of a child's environment during his period of socialization is thus apt to have a profound effect upon his sense of mastery. Where independence is encouraged in an environment within which the child is successfully able to resolve the problems or tasks that confront him, one expects optimal conditions for developing a strong sense of mastery. The latter is an inducement to achievement inasmuch as it facilitates an anticipation of success, thereby enhancing motivation and stimulating an assertive problem-solving response, while a sense of failure tends to diminish motivation and produce divergent or inert responses.

To summarize: The more rigid the sociocultural prescriptions of an indigenous group—that is, the more ritualized and inflexible its decision-making models—the more difficult it is likely to be for them to replace old behavioral patterns with new ones. In such a society, as in traditional Fiji, children are taught the specifics of behavior and are led to develop an alloplastic cognitive mode. In a society like Rotuma, on the other hand, where behavioral specifics are not often prescribed, children learn a general set of decision-making principles from which they can generate a wide range of acceptable behavior. These conditions are favorable to the development of an autoplastic cognitive mode, permitting the Rotumans to learn more easily than the Fijians the skills that are necessary for success in a Westernized economic market. *N* Achievement can develop within either cognitive mode, but the degree to which it can be transferred effectively from an indigenous context to a developing economy depends either upon cognitive flexibility or sufficient initial similarity

between the skills required for success in the acculturating society and in the Western economic market. Since the necessary skills are rarely that similar in the two kinds of society, the explanatory potential of the latter is severely limited.

It is proposed, therefore, that successful adaptation by indigenous peoples to a developing economy—as measured by upward occupational mobility and the capacity to accumulate capital resources—is a direct function of cognitive plasticity and *N* Achievement. Furthermore, successful adaptation is an indirect function of such factors as degree of social stratification and those family interaction patterns conducive to plasticity and achievement drive.

NOTES AND REFERENCES

1. Norma MacArthur, "Report on the Census of the Population, 1956," *Council Paper No. 1 of 1958*, Government Press, Suva, Fiji, p. 4.
2. Alan Burns *et al*, "Report of the Commission of Enquiry into the Natural Resources and Population Trends of the Colony of Fiji 1959," *Council Paper No. 1 of 1960*, Government Press, Suva, Fiji, p. 8.
3. "Report on the Economics of the Gold Mining Industry at Vatukoula," *Council Paper No. 26 of 1960*, Government Press, Suva, Fiji, p. 8.
4. MacArthur, *op. cit.*, p. 44-45.
5. "Registrar of Cooperative Societies Annual Report for the year 1961," *Council Paper No. 23 of 1962*, Government Press, Suva, Fiji, Appendix VI.
6. Economic factors which might differentiate the growth potential of economies are intentionally not considered since both Fijians and Rotumans are competing within the same economic system.
7. The factor of somatotype, which might be considered as racial, and has been asserted by Sheldon and his associates (1940) to be associated with achievement, can be discounted on the grounds of insignificant variation between Rotumans and Fijians.
8. Cf. Fred Voget, "Culture Change," in B. J. Siegel, *Biennial Review of Anthropology*, Stanford, 1963, pp. 255-261.
9. During the early part of the 19th century large numbers of European castaways remained on Rotuma but they were hardly models conducive to achievement. cf. H. E. Maude, "Beachcombers and Castaways," *Journal of the Polynesian Society*, Vol. 73 (1964), p. 262.
10. The inferiority of schools in Rotuma was the theme of a master's thesis submitted in 1958 at the University of New Zealand by Mamao P. Managreve, a Rotuman. Its title is *A Critical Examination of Education in Rotuma.*
11. cf. Alan Howard, "Non-traditional leadership and conservatism in Rotuma," *Journal of the Polynesian Society*, Vol. 72 (1963), pp. 65-77.
12. cf. for examples, Horatio Hale, *The United States Exploring Expedition 1838-1842*, Sherman, Philadelphia, Vol. VI, 1846, pp. 104-105; and William Allen, "Rotuma," *Report of Australian Association for Advancement of Science*, 1895, pp. 556-579.
13. David C. McClelland, *The Achieving Society*, Princeton University Press, Princeton, N.J., 1961.
14. *Ibid.*, p. 192.
15. Laura Thompson, *Southern Lau, Fiji: An Ethnology*, B. P. Bishop Museum Bulletin 162, Honolulu, 1940, p. 64.
16. *Loc. cit.*
17. McClelland found other variables associated with achievement motive, including a temperate climate, absence of slavery, "positive mysticism," absence of mother-child families, mesomorphic physique and middle-class status. These are ignored here, not because they are regarded as less important, but because they do not constitute significant dimensions of distinction for the case in point.
18. Following these were: good job (27), behave well (24), be happy (8), have good luck (7), live comfortably (7), be loved by others (4), be healthy (2), remember what they were taught by parents (2) and to be looked after by God (1).
19. Marshall Sahlins, *Moala*, University of Michigan Press, Ann Arbor, Mich., 1962, p. 113.
20. *Ibid.*, p. 114.
21. Thompson, *op. cit.*, p. 61; Buel Quain, *Fijian Village*, University of Chicago Press, Chicago, 1948, pp. 280-281.
22. Burns, *op. cit.*, pp. 15-16; O. H. K. Spate, "The Fijian People: Economic Problems and Prospects," *Council Paper No. 13 of 1959*, Government Press, Suva, Fiji, pp. 5-9.
23. Alan Howard and Robert Scott, "A Proposed Framework for the Analysis of Stress in the Human Organism," *Behavioral Science*, Vol. 10 (1965), pp. 141-160.
24. Alan Howard, "On the Structural Analysis of Interpersonal Relations, *Southwestern Journal of Anthropology*, Vol. 20 (1964), p. 264.
25. A. F. C. Wallace, *Culture and Personality*, Random House, New York, 1961, pp. 16-20.
26. Bernard Berelson and Gary A. Steiner, *Human Behavior: An Inventory of Scientific Findings*, Harcourt, Brace and World, New York, 1964, p. 206, footnote.