Environmental Stresses on Human Behavior

Summary and Suggestions

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THE FIRST of the several statements on which our speakers agreed is that today the important environmental stresses come from the social rather than the physical environment, since technology ameliorates the effects of climate and other physical factors (Chance, Gunderson, Vallee). Even Gunderson, whose subjects lived—at least temporarily—in the most severe environment, was not concerned with variations in the environment, but in the subjects themselves—the nature of the material being stressed. He has had a beautiful research situation in which all his subjects were exposed to the same temperature, altitude, lack of natural light, and other physical factors. Students of such situations are forced to look elsewhere to explain observed differences in behavior.

Another important conclusion was that the physical environment must be reckoned with not in its direct but in its indirect effects. Isolation from the remainder of the world (ie, reduction in range of communication), crowding (lack of indoor space and privacy), and inaction are forms of deprivation imposed by climate.

Arctic communities present many more complex, indirect environmental influences on individual and societal life, for example, the very high cost of industrial use of resources and importation or construction of new necessities due to the immense size of area, permafrost, seasonality of heavy transport and the other characteristics of the North.

There are few or no "normal" communi-

ties. There are none in the Antarctic, where there is no commerce or industry, and where governments are in complete control; and few in the Arctic. The characteristics of the ethnically "mixed" communities in northern Canada are an abnormal age-distribution, no permanency of the white population and permanency in any given settlement of only a few Eskimo families, no balance of private and public development, little self-support (certainly no self-support of the white population in most settlements), and community control by the nonpermanent white group.[1] These are some of the peculiar demographic, economic, and political characteristics of the new northern towns. These demographic, economic, and political characteristics of the new northern towns, which would be considered peculiar or extreme in most parts of the United States and Canada, are becoming the norm for northern communities, as extremely low winter temperatures are normal in the Arctic climate.

It is preferable to speak in terms of measurable traits rather than the dichotomies that some anthropologists have said are especially characteristic of Americans and to some extent of all Western peoples; such dichotomies as normal and abnormal, or sane and insane in regard to reactions to stress. Perhaps we have gone to the opposite extreme in phrasing so many interrelated elements of the environment instead of simple opposites. A recent article was well-titled: *Environmental Psychology: A Bucket of Worms.*[2] We know immediately what the author means. There are so many factors moving in intertwined coils that we see no beginning or end, no pattern, no dominance. The author also gives us a useful Nordic adage: "The man is twice-warmed who chops his own wood." The lesson is that the man is warmed not merely by the exercise, but by the satisfaction of doing something for himself, on his own initiative (alterna-

tively, he might be warmed by anger at having to chop wood).

Let us review the types of stress and the types of reaction to them presented by our speakers.

In this connection, we might find useful a more careful, more strict use of the concepts *stress, tension,* and *strain.* Let us consider briefly how engineers and physical scientists define these: Stress is the force applied to a material per foot or per pound or some other measure. Tension is the balance, the relationship of the external force and the internal resistance, that is, the balance of forces as in the tension of a rope. Strain is the distortion resulting from stress. Often in our discussions, although, commendably, not much in our papers here, we get the pressure or the pull and the reaction to it, and the resulting permanent distortion all mixed up like the can of worms. My task of separating them here is fortunately not so difficult.

Regarding types of stress, we have seen, first, persecution of a people by outside ethnic or political entities, specifically in taking land, physical dislocation of the people, taking away their identity as given by their language (all cited by Vorren); other factors producing identity crises and ethnic segregation (both mentioned by Vallee), and miscellaneous discriminations (Chance).

Second, devaluation of oneself or one's work was cited (Gunderson regarding Navy men vis-a-vis professional men); and depersonalization and formalization, especially noted by Goldschmidt in his discussion of the removal of criminal law from the community control in West Greenland. The latter brought a notable loss of primary interaction between citizens and legal authorities, a decrease of individualization in application of the law. Chance's discussion of the depersonalization of the patron-client relationship among Canadian forest Indians also involves specialization, which often precedes or accompanies depersonalization, and the incongruence of old and new.

Third, there was disjunction or discontinuity, discussed especially by Vallee, but implied by Goldschmidt and possibly by Chance as "inappropriate cognitive organization." One would have to look at examples to see whether it is disjunction or incongruence that is involved in Indian societies.

Fourth, incongruence was cited by Vallee; incongruence between aspiration and achievement, between social roles, between two statuses—the incongruence between the Eskimo's or Indian's high status in the old society and his low status in the new one and, conversely, the high status of the white man in the northern community and his lower one in the community of his origin.

Fifth, social isolation was mentioned by Chance. This amounts to social deprivation. In recent years there has been considerable research on sensory deprivation and talk about cultural deprivation. Social deprivation experienced by the young is known chiefly from research on monkeys and apes. We do not hear so much about decline or absolute loss in interaction by adults as a cause of behavior rather than a response, but it was mentioned in these papers.

Sixth, there is sociocultural complexity confronting people from a simpler, more isolated social environment (Chance). This is likely to comprise a combination of discontinuities, incongruences, and conflicts. That there was so little reference to conflict is good and encouraging. We need to be more careful, more diversified in use of concepts.

Seventh, under the general heading of stress from a new culture, Chance cited different ways of thinking, inadequate cultural opportunity for personal expression, and conflict of religious and other belief systems.

Eighth, possibly separable from sheer loss or denial of identity and the assumption of a new identity is the stress of confusion and conflict regarding identity (Vallee). This should be regarded as a reactive tension instead of an external stress, but it can be in turn a cause. It may produce what the engineer calls a strain, that is, a distortion in the person or in the whole society.

Finally, there are the crises described so well by Vallee: the communal crises of epidemics, with separation of family members and undoubtedly others; and the personal crises in the reactions required to new, unexpected situations, and unexpected behavior. This is an exemplification in the person of the stress that comes most often from the new culture, but which may come from other sources.

Other stresses were mentioned in passing,

descriptively rather than analytically, one of which was increased mobility of both native populations and white. Mobility itself is seldom the stress. It is the lack of mutual understanding between people who have not been associated for a long time, the cognitive dissonance that Chance emphasized, that usually causes the tension.

Let us now review the types of reactions to stress, remembering that all are efforts to adapt, although they may be poor efforts that cause more problems than the original problem:

1) Loss of identity is both cause and effect. One special form of this was mentioned by Chance, namely, absorption into another group.

2) A reaction occurring in an effort to preserve identity was cited by Vorren: isolation and encapsulation. This might be subsumed under the larger heading of group flight or mass flight.

3) Nativism of the traditionalistic-type instead of the civil rights-protest-type, a return to tradition, which is another form of flight, a behavioral separation rather than a physical geographic separation, and religious revivalism or fundamentalism, with or without nativism, appeared especially in Vorren's and Chance's material.

4) Ethnic assertion, in the development of pacific political power (Vorren) or of revolutionary movements, political or other, must be seen as a dynamic effort to change the whole stressful situation even though only one source of stress may provide the slogans.

5) Difficulties of communication are both causative and reactive. The difficulty can cause immediate frustration; the misunderstandings in poor communication can cause an immediate or delayed misreading of the demands of the situation so that the receiver of the message makes what he thinks is the required response, but it is not. Chance dealt especially with this in terms of different cognitive patterns or different systems of concepts. Other problems of communication might be mentioned, some of which result from stress.

6) Feelings of inferiority and self-disparagement, conflicts between individuals, personal disorganization even to psychosis are examples of tensions within individuals,

which may or may not be tolerable. These difficulties may be expressed in drinking, hallucinatory trances, or extreme religious behavior as mentioned by Chance. The syndromes were listed by Vallee.

Gunderson's work reminds us that what the individual is as a personality and what his activities, especially his work, mean to him and his significant reference group are very important when the external stresses are constant for the group and not differentially applied on one man or one little group in contrast with another. The professional men at the Antarctic stations who could tolerate present discomfort for the future satisfaction of approbation by their colleagues, an important reference group for them, and who could routinely sublimate some emotional problems in their impersonal tasks, fared better than craftsmen, even though the latter were essential to the total project.

Groups as well as individuals can develop positively adaptive reactions, listed impressively by Chance: delimitation of territories, assurance of privacy, formation of patterns of dominance and submission or patterns of politeness (distance-defining mechanisms), temporary withdrawal, joking relationships, and avocations. There can be rejection of the new and a flight into the past or rejection of the old and complete acceptance of new forms, which Vorren mentioned in regard to some coastal Lapps. All of us have seen these reactions in individuals and families although rarely or perhaps never in whole populations. There is more often a blending or what the anthropologist calls syncretizing of the old and the new (Chance).

If I have overlooked any important stresses or types of reaction to stress that the speakers presented, I apologize to them and to the reader.

In regard to the speakers' approaches, just as they rejected explanation of behavior in terms of physical stress alone as too simplistic (Vallee), so they also rejected culture-conflict as a stress because this is a too simple, too general term. Physiologists, psychologists, and anthropologists are becoming more sophisticated.

There was no explicit attention to conflicts of values. Vallee said that values

are too undefined to be dealt with now, and we suspect that the other speakers have the same attitude. Chance seems to approach the question of differences in values of terms of patterns of thinking and related aspects of culture, implying an evaluative element.

It undoubtedly is good to think in terms of more specific problems, and to do research on them. We need to study, first, behavior rather than personal and social needs implicit in such terms as "basic personality" and "cultural values" which provide the motive-power of behavior. Yet people undergoing stresses feel that there are basic differences between them and accuse each other of basic differences, usually expressed as faults and inadequacies. We need to deal with such ideas if there is to be any social therapy. In short, we need to operate on at least two levels.

On one level, for example, none of the authors of this group of papers has discussed poverty as such. It was suggested by Vallee in discussing incongruence between aspiration and realization, and was mentioned by Vorren in regard to the Lapps. The North, like other underdeveloped areas, is experiencing a crisis of rising expectations. Cultural deprivation, mentioned by Chance, may be dependent on economic deprivation. Yet people may have adequate income without having adequate self-esteem or the respect of their fellows. In regard to the Euro-American cultures in which self-support is rated highly, we must consider economic stress and such stresses deriving from it as nutritional inadequacy. The anthropologists want to get at the basics of the present subject, but perhaps they are not yet sufficiently basic.

Some understanding of stress has come from research on disasters. The direct effects of physical environment still must be reckoned with in crises. In the North, there are storms and ice conditions causing loss of men and boats, preventing hunting or transport of supplies and communication. Sometimes these reach crisis proportions. Environmental attack (flood, fire, or other disaster) and the threat of such an event induce, according to the sociologist, Robert Merton, either acute stress or chronic stress. Acute stress usually follows the experience of severe disturbance of a system—an economic

or a personal system. Chronic stress occurs when there is prolonged threat to a system—threatened loss of persons or resources thought to be essential to the system, or threatened disruption of the system itself. In actual disaster, the system breaks, even if only briefly. In prolonged disturbance or threat of disturbance in the equilibrium and stability of a system, it must bend and accommodate. Sometimes the system, for example a family, will be pulled nearly apart, then will return to its normal state. In other cases, it may be permanently changed or, in the engineer's terminology, strained so much that it cannot resume its former shape.

We must not try to apply these concepts too broadly. The ecologist's and the psychologist's distinction between *adjustment*, which involves internal relationships, and *adaptation*, which occurs in external relations of human individuals and societies, is conceptual and probably without other reality. Robert Murphy, anthropologist, in a paper on acculturation, says that the elements involved in intersystemic relationships are also involved in intrasystemic relationships.[3] For example, a person who modifies his behavior to adapt to sedentary town life instead of the isolated herder's or hunter's life is being or is becoming a different person (this suggests that a person can be described completely in behavioral terms, a fundamental question that we need not discuss here).

William Caudill says that stress is the interplay between the inputs to systems and the mechanisms designed to receive, assimilate, or control the input[4] (we have noted previously that tension is a better term than stress for such interplay). Contemplating this definition, one must ask the following: What if there is no mechanism for handling the input? In current popular terminology, what if people simply cannot cope? Is this what we are seeing in too many cases in the North? Without cultural strength, are many simply turning away and escaping with bottle in hand? Most of the writers here mention alcohol not as a primary, but as a secondary, yet very large, problem in the North.

Jon Anderson, in a paper to be published in *Human Organization,* writes,

A stressful input is, then, one that is beyond the range of usually assimilable, or normal, in-

puts for that system; so that the processes of adjustment and adaptation consist basically of extending the capacity of the system to include that particular input within the normal range.[5] There are, in other words, processes of normalization of threat: We need to think of the continuing threat of economic, cultural, personal disaster, not the actuality but the threat. This constant threat of loss, of disorganization, of breaking down has to be normalized. It must be incorporated in some ongoing system.

Many stresses that have been mentioned here can be classed as "causes" of prolonged, chronic frustration, in contrast with the acute fear or anxiety response to a momentary crisis. We are not talking about the person who feels inadequate for the present situation but expects to leave this dilemma—this job or whatever it may be—for example, the white man who expects to leave the Arctic or Antarctic for "home." One of the three types of Lapps described by Vorren, is resigned and apathetic, and the comparable Eskimo or Indian, in contrast, feels that he never will have the education necessary to earn more, never will be fully accepted in the dominant, racially different society; never will be fully self-supporting, never self-determining, or his own boss. In less extreme cases, he has some hope and makes a little progress, but there is the constant threat of social rejection and loss of employment. There is, then, a tension between this stress and whatever strengths he possesses for resisting the stress; perhaps strength in the family or the strength of the ethnic peer group, political or non-political, or strength in the dominant society into which he tries to penetrate. This tension, to be bearable, must be normalized somehow.

Many of the stresses mentioned in the papers presented have a common element: loss of autonomy, actual or threatened. Vorren especially illustrated this: the Lapps' loss of control over territory; the physical dislocation of people (they could not live where they wanted to live, as in the case of so many American Indians); loss of choice regarding language spoken, with loss of ethnic identity. In principle, a Lapp could choose to be Lapp rather than Norwegian, but in reality he could not, in some places, so choose if he wanted to survive economically and socially.

Goldschmidt described the loss of control over legal sanctions and over the administration of law. In many cases, people apparently relinquished willingly the controls that they formerly held in their own hands. The fact remains that they no longer control the system of punishment and rehabilitation.

Vallee mentioned loss of the designation of status, with one's status—usually low—assigned by outsiders. Gunderson presented the problem of the Navy men's status reckoned in terms of the professional scientists' system instead of the Seabees' own internal status system. Vallee cited the loss of the individual's primary social support from the family in the forced separation from home, as well as the implied loss of family autonomy. He did not spell out what we all know: that usually in the past there has been no real choice between staying near home or going far away if one wanted to get well or get an education.

Chance implied the loss of a rating system within the local society when he cited external attacks on the person's, in this case, the Indian's self-esteem, even attacks on his identity. This evaluation of personal inferiority offers the individual no choice. He fears that no matter how hard he strives, he still will be rated inferior by the dominant society of whites.

All the speakers could have mentioned for their respective areas, including the Antarctic, the lack of authority over the institutions that control their lives which has heretofore characterized the inhabitants of the Arctic and Antarctic.

To get down to cases and practicalities, let us consider the lack of opportunities for local groups to make basic decisions. In regard to education, at least in Alaska, the location of schools, selection of teachers and materials for instruction, language of instruction, payment of teachers, and length of the school year are all decided outside the community served. In regard to the church, the selection of missionaries and initially (in the past) the location of churches was beyond local authority. According to the former gentlemen's agreement between denominations, the regions of Alaska were assigned so that there would be only one denomination in a settlement. Thus, there was no choice of denomination. Today, many Alaskan villages

have two or more churches, not always with happy results, one must admit. In medical care, the selection of personnel again is outside the patient's and community's hands. The Eskimo and Indian cannot choose between physicians as his Caucasian neighbor does unless he has as much money as a white man, and lives in a white town. In employment, the native person has some choice, but the alternatives are severely limited.

Alternatives are important to people unless they are utterly dependent. Although in modern life there is much improved physical care, there often is untreated trauma to the personality. In medical terms this means a loss of function, namely, inability to make choices. Too many people in the North in too many aspects of life are offered no choice or only the choice between simple acceptance and rejection: "You take what we offer you or you get nothing." This is not true in everything, but it is too often true.

A graphic figure of speech used by one of the young Indian leaders in the "lower 48 states" in a recent conference on Indian education may help us understand the problem of minority races. He said to the white government officials and university authorities on the subject of Indian education:

The trouble is that I want to be the driver. You're in the driver's seat. You own the automobile. You have decided where we are going and how we're going to get there. I'm just riding along, a passenger, but that is not what I want . . . I want to be the driver.

For some very passive-dependent people, the above situation may actually be comforting. Decisions, for them, are threatening. They want someone else to lay out the route, buy the gasoline, and do the driving. Increasingly, young people are restive in this situation. We can be thankful that they have not lost the need or desire to make decisions.

At this point someone may ask, "What choice did they have in the old days?" In many communities, for example, people could choose between shamans. In large villages in Alaska, in the large houses in East Greenland, in many camps in the central Arctic, Eskimos could associate themselves with one strong hunter one year and with another the following year. The respected hunter himself could decide on one hunting

ground or another. Today, many choices must be made quietly and in a manipulative way. If Doctor B has out-patient clinic on Tuesday, Thursday, and Saturday while Doctor N holds clinic on Monday, Wednesday, and Friday, patients are full of stratagems for getting the physician they want. Anyone who has lived in the North can provide examples of ways in which the white heirarchy is manipulated and exploited.

The reader may be thinking, too, that the lives of many people in the modern world outside the Arctic are controlled and they can make few fundamental choices. One must remember, however, that they do have compensations for loss of autonomy, notably all the elements of physical well-being. It has been true of many Norwegian Lapps and some Eskimos and Indians that they, too, have accepted the comforts of well-settled village life or the security of welfare payments in exchange for autonomy in major decisions, especially those decisions ensuring mobility. Others have kept their independence, as Vallee showed in his study of Nunamiut and Kabloonamiut (People of the Land and People of the White Man) at the cost of lack of physical and economic protection.[5]

In the normalization of stress, people supposedly can do two things: 1) They can control, reduce, reshape, if not eliminate the outside source (the agent) of stress. In most natural disasters in the North, one usually cannot do anything. Presumably, however, a society can do a lot to control social disasters. 2) People can strengthen or reshape the receiving system. Today, by technology and expenditure of large resources, societies resist rather than give way to natural hazards, such as a too early freeze-up that catches boats in the ice, or a social hazard like unemployment.

People from the Temperate Zone are so accustomed to think of the Arctic in terms of its natural hazards that they may be startled by the suggestion of possible social disasters in the North. To Eskimos or Indians, however, some modern social demands are like a storm that never ends, and they cannot control the new stresses any more than they can control wind storms. It is possible, though, for the "outside" sources of social stress to modify themselves as no cold front can mod-

ify itself. The input can be changed as well as the reactive mechanism. We need not flatten, tear up, or cast adrift the indigenous communities. Any people from the dominant society who are in positions of responsibility in the arctic and subarctic regions must realize that whereas a large ship can put to sea and ride out a storm, small boats must have a breakwater, man-made if a natural one is not available.

To understand the present stresses in order, further, to plan for control of them or resistance to them, we must learn, as disaster research has demonstrated, first the characteristics of the stress and second the characteristics of the stressed society in its steady state. Regarding the stress, the "disaster," we must ascertain the following:

1. Scope of impact: Are only or chiefly the community leaders, or the young or the women under stress? Is only the wage-earning function of some individuals or is the whole economy under stress?

2. Severity or intensity: The last preceding question probably can be repeated here as an example of severity from the standpoint of the whole society. A campaign to eliminate use of a language also exemplifies severe stress.

3. Time in the life of the social unit: Does the stress affect a family, an organization, or a community that is new, or one that is disintegrating already?

4. Suddenness: for example, locally unexpected loss of an industry, and

5. Type of disaster agent.

Regarding the society in its steady state, we need to learn the following:

1. Prior experience with this type of stress: For example, an enforced political innovation by the central government, or internal rebellion.

2. Preparation for it: If a community must be moved, what mechanisms for planning the move are available?

3. Types of alternative or emergency resources available: For example, if the old extended kin-group is weakened, what alternative group can assume its functions for the protection of the individual?

4. Community organization and power structure.

5. Hierarchy of functions: Does the group have a realistic idea of the relative impor-

tance of various social, political, or economic functions so that it knows which ones to assure first in a time of stress?

The last-mentioned qualification for survival is especially important. Both offensive and defensive groups must consider realistically and must state operational priorities. Although everyone will agree with this in principle, usually each institution tries to assure its own survival regardless of others. Hopefully, a better understanding of the nature of the stress will yield feasible plans directed to the most important sources of stress.

Suggestions for Future Study of Personal and Social Problems and of Symptomatic Reactions.—1. Residents in the American north consider "alcoholism" a major problem. Whether there is much genuine alcoholism has been questioned, since most Eskimo and Indian drinking appears to be "spree drinking," that is, occasional heavy party-drinking rather than steady and individual use of alcohol. Until recently, for example, cirrhosis of the liver has been rare among these peoples. A participant in this conference has stated, however, that this ailment is appearing in some Indians of northwest Canada. In any case, heavy sporadic or heavy steady drinking must be regarded as a symptom of personal difficulty, probably of broad social origin.

For police officers and missionaries, drunkenness appears as an immediate social problem. To public health personnel, uncontrolled use of alcohol appears as contributor to the first cause of death in the North; namely, accidents (Alaska is the only one of the 50 states in which accidents constitute the largest category of deaths). For the psychiatrist and behavioral scientist, it appears to be a symptom of a deep personal (individual) or a deep social problem of other origin than the immediate satisfaction in use of alcohol. We need, therefore, research in depth on family relations in all types of northern communities and on wider interpersonal relations in the biracial and triracial communities that have appeared in modern times. A better understanding of family and community is likely to explain other symptoms besides heavy drinking.

It is not implied here that there has been no research in the Arctic on this subject,

One of the studies in Greenland directed by a Symposium speaker, Prof Verner Goldschmidt, surveyed the "alcohol situation,"[6] and this subject was included in Clairmont's survey of deviance at Aklavik, Northwest Territories, Canada.[7] With the dimensions and overt characteristics of the problem known, more intensive studies can be undertaken, based on such surveys.

2. Dependency is even broader and more difficult to study. Very basic questions must be asked and answers sought: Does either the old or the new culture in its socialization (child training) produce adults with a tendency to dependency, economic or social? Are the people caught in conflicts between ideals of self-sufficiency or self-direction and of dependence upon strong leaders and providers? Is dependency an accepted way in local cultures of avoiding or removing oneself from stress? Or is dependency a new phenomenon, promoted by public policies?

3. Incidence surveys of psychoses are needed so that the magnitude and nature of the more serious mental health problems can be seen. We already have interesting hints of differences in prevalence of specific psychoses. A Norwegian psychiatrist at this Symposium has stated informally that depression seems to be rare among mountain Lapps living the more traditional, isolated life. In contrast, depression has been reported to be common, compared with other types of psychosis, among Baker Lake and Mackenzie Delta Eskimos (Vallee). There is so little "hard" information, however, that we are reluctant to try to state the research problems indicated by incidence—we are not yet sure of the incidence. Nevertheless, the following are suggested: Are the various psychoses simply alternative reactions to the same types of stress in different regions or different ethnic groups? Or is each appropriate to a type of external threat as well as a physiological and personality constitution?

4. Personal and social effects of the current population pressure in contrast with the former fear of loss of population deserve attention, even though population increase was not given in these papers as a current major source of stress. Governments in Greenland, Canada, and Alaska already are trying to cope with the serious shortage of housing in Eskimo settlements. Provision and acceptance of birth control is a relatively new public health concern in the North. An administrative interest, especially in social welfare, is the possible change in family attitude toward adoption, formerly so common in Eskimo society, and in women's attitudes toward childbearing and child-rearing.

5. The stress of communication difficulties between ethnic groups needs attention. The forced use of English in Alaska, for example, appears to have been stressful. At any rate, accepting criticism on this, the US Bureau of Indian Affairs is training and hiring bilingual teacher aides as a policy of instruction, not only occasionally hiring such aides—as was formerly done—to meet unusual needs. All three national governments in the American Arctic have been recently modifying their practices in language instruction and in the choice of language.

6. Finally, application of the disaster-research model is urged. It has been found adequate for research on acute stress. Now it should be tested in studies of chronic stress.

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