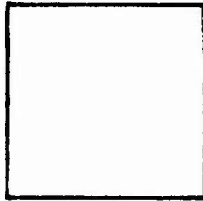


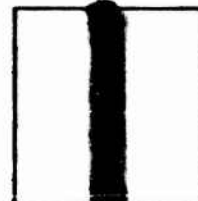
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July '55

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ADAPTATION TO LIVING AND WORKING
IN THE ARCTIC

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Laboratory Note CRL-LN-55-217

July 1955

By E. Paul Torrance

SURVIVAL RESEARCH FIELD UNIT
Crew Research Laboratory (AFP&TRC)(ARDC)
attached to the
USAF SURVIVAL TRAINING SCHOOL

DISTRIBUTION STATEMENT A

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This paper on ADAPTATION TO LIVING AND WORKING IN THE ARCTIC

should interest all personnel concerned with training Air Force units to live and work in the Arctic with maximum effectiveness.

Although it may be regarded only as a preliminary statement of basic principles for adapting to life and work in the Arctic, it brings together from a variety of sources information about the way others have learned to adapt under Arctic conditions.

THE SURVIVAL RESEARCH FIELD UNIT is a part of the Crew Research Laboratory, Air Force Personnel and Training Research Center, Air Research and Development Command. It is attached to the 3635th Combat Crew Training Group (Survival), which conducts the USAF Survival Training School, Stead Air Force Base, Reno, Nevada.

The Survival Research Field Unit's mission is to conduct research and development in support of Air Force survival training. Major areas of study include:

- Problems involved in learning proper survival behavior
- Personnel assessment in survival and survival training
- Psychological aspects of survival

Most of the unit's research and testing are conducted at the USAF Survival Training School, in cooperation with its staff and instructors. The average student attending this school is a combat aircrewman from a USAF tactical command, but classes also include personnel from other commands and other services.

ADAPTATION TO LIVING AND WORKING IN THE ARCTIC*

E. Paul Torrance

THE PROBLEM

For several years, Air Force leaders (19, 41) have been pointing out two deficiencies in connection with Arctic operations which may become critical in any future war -- "materiel failure and human inefficiency when equipment and men are exposed to extreme cold." There are some fairly obvious reasons for this state of affairs and a number of rather convincing indications that these deficiencies can be overcome.

The Arctic and sub-arctic have rarely been chosen by nations as theaters of war. Thus, the problems of cold-weather operations have never received the same intensive study as have those of other climates. Adjustment to living and working in the Arctic has been hampered by preconceived dislikes for such an assignment and dread of the cold and supposed isolation. True, once a man has been assigned, his effectiveness soon becomes similar to that found elsewhere. Initial adaptation, however, has frequently been unsatisfactory. This is one of the problems facing Strategic Air Command personnel deployed to the Arctic for short periods of temporary duty (30). It will also be crucial in the event of war. Quick and almost immediate adaptation is required. The Air Force cannot afford to have the adjustment of its personnel hampered by preconceived false notions and force its personnel to learn to adapt "the hard way."

Much progress has been made in the development of knowledge about problems of physical adaptation to living and working in the Arctic. Many valuable cues have been taken from the working and living habits of the Eskimos and from the experiences of explorers. Much of this information has not yet been widely applied by those participating in Arctic operations. Only casual attention has been given to the psychological problems of adapting to the Arctic, yet many cues can be taken from other Arctic research. In this paper, an effort has been made to bring together from a variety of sources these cues which may help Air Force personnel adapt more readily and effectively to living and working in the Arctic.

Two types of difficulties are faced in adapting to the Arctic -- the real and the imaginary. In this paper, positive action which can be taken to deal with real difficulties will be discussed. Imaginary difficulties are somewhat more difficult to deal with and frequently even more handicapping. There are a number of understandable psychological reasons for these imagined difficulties. The first is misinformation. Stefansson estimated that if the college graduate "has ten ideas about the North, nine of them are

* This paper is an informal note and is subject to modification or withdrawal at any time. If referenced, it should be described as an "unpublished draft."

wrong" (34, p.20). Another student of the Arctic (34) has proposed the establishment of institutions where you might go and unlearn some of the things that are not so.

Psychologically, the problem is something more than misinformation. The mind craves simplicity. It is easier to say that the tropics are always hot and that the polar regions are always cold. It is easy for the teacher to get this across. The trouble is that the idea is not correct.

Thus, it has been with many ideas about the Arctic. Then there is another principle: you like what you are used to and nothing is so horrible as the absolutely strange. If you have been led to expect that something is going to be unpleasant, this is the way it is probably going to appear to you when you experience it.

Sixteen tentative principles of adapting psychologically to living and working in the Arctic have been formulated. An effort will be made to explain the meaning of each of these and to discuss some of its consequences for the adjustment of Air Force personnel in the Arctic. Insofar as possible, evidence will be cited in support of each of these principles. If you have a desire to examine the evidence more closely, you can refer to the reports which have been used to document this paper.

PRINCIPLE NO. 1: THE ARCTIC IS DIFFERENT

The concept that "the Arctic is different" need not be frightening and can form a sound basis upon which to approach the whole problem of adapting to the Arctic. Recognition that it is different should awaken the unwary to the fact that they need to change certain behaviors or habits to adapt to the situation. This recognition should also "cure" the over-anxious person who expects something horrible -- the Arctic is different but this does not mean that adaptation is more difficult.

Apart from numerous superstitions about the so-called frozen North, and apart from man's fear of the unknown, there are some very hard facts about Arctic winters which you must accept and to which you must adapt. If you do this, many of them are of no consequence. Just how are winter Arctic conditions different from those we normally experience? One authority (44) lists the following:

1. It's killing cold.
2. All forms of life (man included) are few and far between.
3. Apparently mild sunlight can blind you for weeks.
4. You need more food, particularly fats.
5. Overland travel is laborious.
6. If you work up a sweat, you are likely to find yourself in a sheath of ice later.

7. During one period the sun never comes up and at another it never goes down.

Most of the items in this list stem from the first -- it is killing cold. That is, it is killing cold unless you accept this fact and live accordingly. Some individuals are shocked when they step outdoors and face the quiet, intense cold. A rubber-lined trench coat freezes stiff as a board before you can shut the door. You will find it hard to believe that something is frozen if it is not hard. You see kerosene or gasoline and notice that it is still liquid. This has led to such things as the deliberate immersion of a partly-frozen foot in a bucket of kerosene which had just been brought from outdoors in weather 40 degrees below zero. The man's foot was frozen solid by the kerosene, and had to be amputated. Things like this do not happen, if men know what happens at 40 degrees below zero.

The "windchill factor" must also be understood. It combines the cooling effect of two variables -- average wind speed and average air temperature (45). Thus, with high wind speed the weather may be more dangerous than would be indicated by the temperature. You have to size up the situation differently.

You also need to understand the effect of cold upon you and your efficiency. Here are some things we know about this from research. The dexterity of your fingers and your hand strength are decreased (15). Reaction time of visual stimuli is not altered (15). Exposure to cold at 15 degrees below zero does not appear to affect tactile stimuli but windchill does (3). Sweating can take place even when you are shivering and may result from emotional or mental causes as well as from physical exertion (11). This means that dehydration can "slip up on you." It also emphasizes the importance of job competence, feeling comfortable and at home on the job, and the like. Research has also shown what methods are most effective for rewarming men after exposure to extreme cold. Men were exposed to 40 degree below zero temperature for one hour. Seven methods of rewarming proved to be efficient in the following order:

1. Strenuous exercise
2. Room temperature of 90 degrees Fahrenheit
3. Sleeping bag
4. Room temperature of 40 degrees Fahrenheit
5. Moderate exercise
6. Irradiation of face
7. Irradiation of hands

What are some of the other adaptations which must be made as a consequence of the cold? First, the Arctic is no place for low quarter shoes and baseball caps. Second, clothing that is wet either from water or perspiration should be removed and dried. "Old man Arctic detests moisture, and converts all he can find into ice." Be sure that cold doesn't turn your pers-

piration into an icy union suit" (44, p.20). This is why you will hear so much harping on the theme of "keep dry." Nature keeps dry in the Arctic through the freezing process. You may be puzzled in the Arctic by the itchiness of your scalp. This is because of the dryness of the atmosphere.

These are just a few of the facts established by research and by experience which make psychological adaptation to the Arctic easier. Others will be discussed in relation to the other fifteen principles.

PRINCIPLE NO. 2: ADAPT TO THE ARCTIC: MENTALLY AND PHYSICALLY

There is no point in either fighting or enduring the cold. You can't win either way. You win only by adaptation and avoidance. One explorer (33, p. 606) remarked about his irritation with the inquiring public who always know how dreadfully cold it is in the North and marvel that any man can live through it. A usual question was, "How can you stand the dreadful cold up there?" As most of his inquirers were women, he used the standard reply, "Madam, we do not endure the cold, we protect ourselves from it."

One familiar principle of adaptation is the old maxim, "Do in Rome as the Romans do." If you accept this maxim and try to "do as the Eskimos do, you have a good model of adaptation. In the Arctic, you will meet a culture which has ceased to fight environment and instead deals with it by adaptation. No energy is then needed for a struggle with the cold, because there is no such struggle.

Many people have the mistaken notion that the Eskimo is better equipped physically for withstanding cold than we. They only know so much better than most of us how to deal with the cold. They give the newcomer the impression of great hardiness. If you keep your eyes open, you can soon acquire all the winter lore that is of great value and become the equal of the Eskimo in taking care of himself. There is no art in keeping your hands and feet from freezing. It is merely a matter of dress. You will have some aids that the Eskimos do not have. Learn to use the warm aids ducts provided for this purpose and other aids to protect you from the wind while working on aircraft.

Food, clothing, and sleep are three matters about which some adaptation may be required. Research (17) indicates that voluntary caloric intake increases with a decrease of environmental temperature. There is particularly an increase in the consumption of fat. Fat serves as an insulator against cold and as a source of stored energy (42). This adaptation tends to be somewhat automatic unless you have a strong prejudice against fats and are overly rigid about your eating habits. Many Americans, however, do have strong prejudices against fats and erroneously believe them injurious to health. This problem will be discussed in greater detail in connection with Principles 3 and 15. Many (2, 8, 27, 33) have remarked about changes in food preferences resulting from only short periods of living in the Arctic. For example, De Poncins (8, p. 261) remarked after a short time, a joint of beef would not have made his mouth water. Instead, he loved the taste of frozen fish, particularly if it had frozen

instantaneously and retained its original flavor all through the winter.

You can learn something about adapting your clothing practices to Arctic living and working from the Eskimos. Observers of Operation Pokerhand and other Air Force operations in the Arctic have remarked that many of our personnel wear too many clothing and haven't learned to continue adapting to meet changing temperatures and other conditions. The Eskimos dress pretty much as follows (13): "The body is rubbed with seal or whale oil to condition the skin and form a thin barrier to the vapor generated by the heat ...Next a short-haired shirt and trousers, made from the summer skin of the reindeer, are put on skin side inside to form the first partial vapor barrier. Over this suit of skins, another suit of winter furs is worn with fur side outside. The feet are dressed much the same - - succeeding layers of fur socks and innersoles and the outside fur boot or mukluk." The layer system enables you to keep changing to meet changing conditions.

Some Arctic newcomers have unnecessary concern about being able to adapt their sleeping habits to the strange light conditions of the Arctic. A study of the sleep-wakefulness pattern in the Arctic (18) revealed that the inhabitants of Tromsø, Norway (69° 39' N, 18° 58' E) follows the same daily sleep-wakefulness pattern as inhabitants of middle latitudes, despite the fact that the sun does not set in Tromsø in the summer and continuous darkness reigns in the winter. That there should be no concern about this adjustment should be obvious from life in 24-hour-a-day towns such as Reno.

PRINCIPLE NO. 3: THE ARCTIC IS A HEALTHY PLACE — MENTALLY AND PHYSICALLY

An Air Force study conducted a few years ago (22) showed that approximately 50 per cent of our personnel assigned to duty in the Northern latitudes believe that the Arctic is injurious to health. It is rather amazing that this fallacy has persisted so long. Explorers, scientists, and others long ago discovered that the cold of the Arctic deprives no one of either health or comfort, if he understands conditions, realizes necessary conditions, and, making good use of his common sense, governs himself accordingly. This fact has also been demonstrated under controlled experimental conditions. In one such study (24), 18 men lived outdoors under simulated survival conditions, and on differing diets. The results showed that "young healthy men who lived in a severely cold environment for 10 days on a high dietary allotment, maintained or even improved their ability to do strenuous work."

Let's take a look now at some of the more specific health problems of living and working in the Arctic. Many of the past difficulties of living and working in the Arctic have been, and still are, due to lack of information about proper feeding. For example, many trappers have complained of a lack of initiative, feeling lazy, and other symptoms of weakness. Rodahl (28) has suggested that this may be due to a lack

of vitamin C. Many have stressed the importance of eating fresh meat. More recent research has yielded even further support for this advice. Originally, many thought that the Eskimos have a biologically superior ability to tolerate cold weather. When the Aeromedical Laboratory (19) started studying this problem, it was discovered that the Eskimo's basal metabolism is higher than the white man's. Even then, it was thought that this might be a racial characteristic, acquired through many generations of living in cold climates. The Laboratory has now established beyond much doubt that there is no essential difference between the races in this respect. Eskimos eat a great deal of meat and little else. When they are placed on the white man's diet, their basal metabolism falls. Conversely, when the white man goes on a diet of Eskimo food, his basal metabolism rate increases and he does not feel the cold as much. It might be that adaptation would be easier and quicker even if you started increasing your consumption of meat a couple of weeks before your scheduled departure for the Arctic. You will also find that the importance of hot foods will increase with life in the Arctic. Most people will tend to make these adaptations in a natural manner, but this doesn't always work. You have many prejudices which slow down or even prevent this adaptation. Even animals do not always select foods in keeping with their bodily needs (43).

The problem of obtaining adequate sleep has already been mentioned. This is primarily a psychological problem. Men worry themselves into a state of nerves by their fear of inability to sleep in daylight. This fear has created the real inability to sleep, which naturally has its effect upon his disposition and health.

Perhaps more widespread has been fears of depression or "Arctic hysteria" resulting from the continuous darkness. This, too, is an erroneous idea. There appear to be no mental symptoms which result from darkness as such (31, p. 309). There is, however, the possibility that through powerful suggestion, either just your own belief or your own supplemented by that of your comrades, you may become mentally depressed. Stefansson (31, p. 310) established, at least to his own satisfaction, that no depressing effect is felt by the newcomer during his first Arctic winter, if it is explained to him that the cause of depression, if any, will be his own imagination and if he is willing to believe this explanation. Stefansson (33, p. 23) divides the ordinary ship's crew into three groups with regard to reactions to the Arctic night. The first, the most intelligent such as young college graduates, can have the fear of Arctic darkness explained away completely and they will pass their first "winter night" without depression. The second, such as the typical sailor or miner, have heard much talk about how depressing the darkness is and "you can explain yourself black in the face" without their believing you. They only remember that Jones went crazy and they know they are going to be depressed. The third group, composed of such men as Hawaiians and Southern Negroes, have never heard of the depressing effects of winter darkness and are quite ready to believe the local Eskimo or

the captain of the ship who say that the gloom of the winter is imaginary, as to believe the sailors who are in dread of it. Usually these men were not depressed by their first "Arctic night."

De Poncins (8, p. 116) points out that many people imagine that the sun is necessary to human happiness and that the South Sea islanders must be the gayest, most leisurely and most contented folk on earth. Again, there is much convincing evidence that this is a fallacy. Apparently, happiness has little or nothing to do with climate. Many students of Arctic life (8, 10, 14, 23, 27, 32) insist that the people of the Far North are the happiest people they have ever met. These observers have found a cheerful people, always laughing, where by our standards they would have expected to find melancholy people, men despondent and suicidal. A man is happy when he is doing the kind of work and leading the kind of life that suits him; neither warmth nor comfort has anything to do with it.

At least since 1821, workers in the Arctic have been offering solutions to the problem of maintaining health during the Arctic winter (36, p. 114). On his 1821-23 voyage, Parry listed the following as the best means of preserving health in the Arctic winter: theatrical performances, magic lantern shows, the formation of an orchestra, and a school for teaching the crew to read and write. Although some of these methods of entertainment are somewhat dated and limited by the educational level of the personnel involved, the basic idea is still sound. A recent issue of Air Force Times (4 June 1955) described the enthusiastic reception extension courses offered at Thule Air Force Base are receiving. Men get up at 3:30 in the morning to attend them. An important thing is to keep busy doing interesting things, doing things that you enjoy and consider worthwhile. Some Arctic workers have held that it is almost impossible for healthy men working outdoors to remain despondent long. For this reason, they tried to spend as little time as possible in winter camp. Some observers of Arctic Air Force operations feel that one difficulty in adjusting to life and work in the Arctic is what they term "barracks fever" which results from too much idleness and not being outdoors enough.

PRINCIPLE NO. 4: YOU CAN DO YOUR JOB AND STILL AVOID FROSTBITE

Reports of Arctic operations seem to indicate that attitudes either of lack of concern or of overconcern prevail in regard to frostbite. Reportedly, in some operations there has been such overconcern that the mission was not accomplished. The objective should be to train personnel so that they can accomplish their jobs and still avoid frostbite. According to the testimony of many Arctic workers, this would appear to be a realistic goal. For example, Stefansson (33, p. 490-491) reports only one very mild incidence of frostbite during his nine winters of active, aggressive polar exploration.

There is considerable evidence to indicate that the frostbite problem has its psychological aspects. It appears that an individual's personality may be more of a determiner of frostbite than the severity of the cold. A study carried out by a medical research team in Korea during the winter of 1951-52 indicated that the frostbite case tended to be a passive, negativistic, hypochondriacal individual. The passive individual is likely to

engage in less muscular activity in situations permitting activity and are relatively inattentive about carrying extra footwear. Such individuals are also less likely to go to the trouble of drying out wet footwear. The negativistic individual tends to do the opposite of what he is told, especially if he is dealing with someone in authority. If he is told to wear woolen socks, for example, he is likely to wear silk ones. He is also likely to ignore other instructions concerning the prevention of frostbite. The hypochondriacal individual obtains satisfaction from illness because it brings him sympathy and understanding. Thus, the hypochondriacal airman may, consciously or unconsciously, permit himself to become exposed to extreme cold and become frostbitten. He may obtain sympathy and understanding, but he may also lose his fingers or toes as the price. A study of frostbite casualties occurring during Operation Sweetbriar in the winter of 1949-50 (7) showed that the frostbite casualties as a group tended to be depressed or low in morale, lacking in caution, and low in activity drive. These men were also typified as more resistant to change and relatively indifferent to their work environment. These findings give clues about the kind of behavior which leads to frostbite and about procedures which can be used to prevent its occurrence.

PRINCIPLE NO. 5: THE ARCTIC IS INTERESTING

A number of observers of Air Force operations in the Arctic report that personnel enter the Arctic convinced that it is a desolate, barren, uninteresting place. This no doubt affects profoundly their adaptation to living and working there. That this is a fallacy is attested to by the testimony of the many who find it an interesting, even exciting place, not to mention the many fascinating books which have been written by Arctic visitors of their experiences. Apparently, some people see much of interest in the Arctic, while others expect to find nothing of interest and succeed.

If the barrenness of the Arctic could have been shed earlier, many of the tragedies of the Arctic would probably have been prevented. The writings of Stefansson and others have done much to dispel the popular belief that the Arctic is a dread icy desert. Yet, the notion still persists in the minds of many people. To many who go there, it is just that. The fault is not the Arctic's however. One has to develop eyes that see. One Arctic newcomer (8, p. 31) commented that where he saw space devoid of life, his Eskimo guides saw life. With the proper attitude, this newcomer soon began to see the interesting life all about him. Regarding this psychological principle, Stefansson (33, p. 135) commented that it is possible for a business man to cross by boat from New York to Liverpool and to New Foundland without ever seeing a codfish or any evidence that codfish are present. A fisherman on the banks would have no doubt of their presence and no trouble in getting them.

Find out as much as you can about the Arctic and what you can expect to see there. This will help you to develop eyes that see what is there.

PRINCIPLE NO. 6: THE ARCTIC CAN BE SAFE

Experience in both military operations and explorations have demonstrated consistently that the Arctic can be a safe place in which to work and live. For example, Major General Whitten wrote the following about the annual resupply of the far-flung Arctic weather stations: "Though never a 'milk run,' this airlift project can through research, careful analysis, thorough planning and enlightened leadership be made operationally sound with a minimum of risks" (41). General Whitten emphasized the importance of thorough indoctrination, pre-operations training, and a nucleus of personnel experienced in such operations. Much of the danger in the Arctic results from lack of competence. In a less exacting situation, a man can make mistakes and do a sloppy job - - not so in the Arctic. The penalty for incompetence is usually severe. Maybe this is why the best trained and most competent in their jobs make the most satisfactory adjustment to the Arctic (5).

"Better safe than sorry" is another maxim of Arctic workers (31, p. 329). An action which is showy and looks daring and sportsmanlike has a strong appeal but can lead to distressing results. Equally disastrous results, however, follow the too conservative course. You have to take such risks as come but do not go out of your way to invite them. You can, of course, reduce the risk by superior skill and know-how.

PRINCIPLE NO. 7: LEARN TO FEEL SECURE

To live and work effectively and happily in the Arctic you must learn to feel secure and "to sleep the sleep of the unworried." You must, of course, be ever alert, and, as one Arctic observer has put it, be ever ready "to get on your horse and go." He must be competent in his job and in his ability to take care of himself. When the storms come, you will be able "to sleep the sleep of the unworried."

Let us look now at some of the reasons for feelings of insecurity. Some blame the low temperature, but this argument does not "hold water" because cold can be avoided with proper clothing and shelter and by the exercise of common sense and foresight. Sir Hubert Wilkins (5) and others maintain that it is the fear of being unable to protect themselves from cold rather than the cold itself that disturbs some people. Wilkins also maintains that a "secure and friendly feeling is in some measure associated with viewing habits." People accustomed to seeing things at close range, such as buildings, trees, hills, and the like are often bewildered when confronted with imperceptible horizons such as is frequently the condition in the Arctic. To the healthy individual, if he

is protected, the stormy periods should afford feelings of pleasure at being able to avoid the fury of the storm, something akin to what might be felt when listening to the rain pattering on a roof.

A number of possible approaches to learning to feel secure seem to flow logically from the above rationale. Some of the more obvious include such things as: Know the characteristics of the Arctic country; be prepared -- know how to do your job well and know how to take care of yourself; know how others have done things in the Arctic; know what others have done in the Arctic; obtain experience or contact those who have had experience in working and living in the Arctic.

PRINCIPLE NO. 8: IT TAKES INTELLIGENT APPLICATION TO ADAPT TO THE ARCTIC

It has frequently been said that the Arctic is "no place for the subnormal, a difficult place for the supernormal, and impossible for the super-sensitive man who lacks control" (5, p. 449). In other words, it takes "intelligence" in its "true, all-around" sense to adapt to the Arctic. It takes men who are able to learn from their experiences and from the experience of others, not just individuals who are able to memorize facts. Many scattered bits of evidence support these conclusions. Marshall administered one of our most dependable individual intelligence test (the Stanford-Binet) to a good sample of the inhabitants, both Eskimos and whites, in one Arctic village (23). In spite of handicaps, such as language and cultural differences among the Eskimos and long separation from American culture among the whites, both Eskimos and whites were found to be definitely superior in intelligence in comparison with general population norms for the test. Stefansson (33) consistently found that it was the intelligent, college-type young men -- the type we have in the Air Force -- who make the best adaptation to Arctic life and work. To be miserable and unhappy in the Arctic is no mark of the intelligent man. To be able to live and work effectively in the Arctic is.

PRINCIPLE NO. 9: KEEP UP MORALE

From studies of combat behavior, survival behavior, and Arctic operations, it is well-known that morale can have a tremendous effect on fatigue and on performance. Usually, advising a man "to keep up his morale" is like telling a boy "to be good." We have some fairly good ideas, however, about some of the factors which affect morale in the Arctic. One of the first is a number of fallacies which men have about the Arctic -- the belief that it is a barren and uninteresting place, injurious to health, a dangerous and unfriendly place, and so on. Another is idleness which always breeds discontent, personal animosities, and bickering of all sorts.

It is also known that lack of a plan, lack of a goal, frustration, and the like can lower morale and produce fatigue (38). The remedy, of course, is to set for yourself interesting goals -- a hobby, study

of a certain subject, mastery of certain skills, etc. -- and master your job and perform it well, never forgetting your mission.

PRINCIPLE NO. 10. THINGS ARE ALWAYS CHANGING IN THE ARCTIC

All things everywhere change, of course, but the Arctic is "preeminently the land of instability and change." This is why you have to be "ever ready to get on your horse and go." Yesterday a thing was possible. Today it cannot be done. There are sudden changes that make a big difference. There are little changes that add up to big changes rather rapidly. De Poncins (8, p. 55) has compared it to sailing a boat: nothing seems to happen at sea in fair weather, yet if you said so to a sailor he would look at you pityingly. A sailor is always busy and seems to be making work where there isn't any. Let him doze off for an hour or two: on waking, he has a hundred things to do.

If you "gear yourself" to the fact that you can expect rapid and dramatic changes, you will soon find that you are surprised by nothing -- and, ever ready, "to get on your horse and go."

PRINCIPLE NO. 11: SOP'S ARE NECESSARY FOR SURVIVAL IN THE ARCTIC

SOP's or routine ways of doing certain tasks, are necessary for survival in the Arctic and make your adaptation easier. In the maintenance field, some of the top men have studied other Arctic operations and have figured out the best sequence of doing things. This saves you some of the difficulties and "foul-ups" experienced by your predecessors. Following them can even mean your survival or that of someone else in your outfit. In ejecting from a jet aircraft, there is a certain sequence which must be followed. In doing your job in the Arctic, doing certain things according to a sequence is just as crucial, even automatism is necessary on some tasks. You will also find that the establishment of certain other routines or order in your living in the Arctic will make things easier for you.

PRINCIPLE NO. 12: ISOLATION IS "WHERE YOU MAKE IT"

Isolation has frequently been mentioned as one of the important factors affecting the adjustment of Air Force personnel on temporary duty in the Arctic (30). Isolation, however, is as much a psychological phenomenon as a physical one. Many USAF personnel learned to make fairly good adaptations to solitary confinement. He may still feel the support of his fellow POW's, his outfit, his friends, his family. A man may be in a large city and feel completely deserted, without support from any of these sources. Which is the more "isolated"? You will have to sever some of your social contacts, at least temporarily, but you should be accustomed to that by now. Use this as

an opportunity to become better acquainted with some of the men in your outfit. You may find them interesting and stimulating. Many combat personnel on some of the most isolated bases in Korea considered this as one of the most satisfying aspects of their Air Force careers -- working with and getting to know better the other men in their outfits.

PRINCIPLE NO. 13: DON'T LET FRICTION SPOIL YOUR LIVING AND WORKING
RELATIONSHIPS

You cannot afford to let interpersonal friction spoil your living and working relationships. Cooperation in the Arctic may well be a life and death matter. This does not mean that you have to like all of the people with whom you work and live. It does not mean that you cannot have disagreements with them. It does mean that you have to be willing to work and live on a cooperative basis and to learn how to work together with them.

In preparing for a trip in the Arctic, Stefansson (33, p. 434) would have his men build an experimental snowhouse to give them experience in working together. He knew that "when the chips were down," much would depend upon the prompt and intelligent cooperation of every man involved. He found, however, that whenever the party was in danger or living by getting every seal and polar bear, or when there were excitements and uncertainties, everybody was cheerful and no friction developed. It was when they were safe in camp that friction developed. De Poncins described a similar principle in his own experience in the following words:

"I might be filled with grievances against Shongili: a blizzard would rise, and on the instant everything would be forgotten; it would force me to forget myself and to remember that only Shongili and I were two men fighting together in the same cause ... This man whom I admired while he built the igloo, whom I loved like a brother in the storm, so that I was almost proud to feel that sentiment of fraternity in me -- as soon as it was over, as soon as all was well again, this man became for me a stranger, all but an enemy, a being so odious that I could not bear the sight of him" (8, pp. 223-225).

There are experiences of this type as well as those of men who go through an extended experience involving much stress and never speak a cross word to one another. You are, of course, fortunate if you are associated with men whom you admire and who "wear well" when the going gets rough. You do not need to feel disturbed, however, if you feel hostile toward a member of your living or working group and if you have disagreements with one another. The danger is when you try to ignore these things and try to pretend they do

not exist. Boag and Wilkins (5) both maintain that the axiom "least said soonest mended" is not always successfully applied in the Arctic. Wilkins, for example, believes that in small groups of Americans frank and open discussion of points and personalities is a necessary flood control. Individuals living close together should agree to discuss and disagree amicably as to their likes and dislikes. This will eliminate indirect expression of hostility which you can not hide. Definite rules can also eliminate the need for argument about duties and observances of cleanliness and tidiness in living and working situations.

PRINCIPLE NO. 14: TAKE CARE OF THE IMPORTANT THINGS FIRST

Under any type of environmental or psychological stress, it becomes very easy to focus attention on non-essential things. Frequently, this is because we feel more competent and secure in dealing with some of these little unimportant things than in dealing with the things which really count. This can mean disaster or discomfort in the Arctic. This principle is illustrated in the old folk saying, "Don't bother about mice while elephants are stomping around."

First, do the things which must be done for survival -- to get the job done -- and then do the other things when time permits. This does not mean that little things are unimportant in the Arctic. This is a feature of the Arctic; things which would be unimportant in other places can be tremendously important in the Arctic. An open vent on an aircraft which would ordinarily do no harm may let in several feet of snow in an Arctic snowstorm.

PRINCIPLE NO. 15: MEAT IS NOT INJURIOUS TO HEALTH

Arctic experts appear to be fairly well agreed that increased consumption of meat favors adaptation to the Arctic. The drawback to this is that many Americans have some very false ideas about meat. For example, a national survey conducted by Roper for the meat industry showed that 21 per cent of the people think that meat is hard to digest; 50 per cent believe that some or all meat is fattening. Thirteen per cent thought that beef, if eaten more than once a week, will cause high blood pressure. Only 16 per cent said that meat contained some vitamins. Evidence to the contrary is pretty strong. In addition to the fact that explorers and Eskimos have lived for years on almost exclusive meat diets (23, 31, 32, 35, 36), more controlled laboratory studies (20, 21, 42) also indicate that excellent health can be maintained on exclusive meat diets. Even in studies conducted in temperate regions (20, 21), excellent health was maintained and individuals worked just as well in hot as in cold conditions and in sedentary as in active work. Actually, some of Stefansson's studies in the Arctic were as well controlled as any laboratory studies (20). In spite of all of this evidence, there

still exists the false idea that eating a good deal of meat is supposed to cause rheumatism, hardening of the arteries, high blood pressure, and kidney trouble.

PRINCIPLE NO. 16: WHEN DANGER STRIKES, DON'T RUN

When a man is lost or frightened by danger, his natural impulse seems to be to run. Usually, running is the worst thing a man can do. If he is lost in the Arctic or in a blizzard, it makes him perspire and when he stops he freezes. He also expends a tremendously large amount of energy and soon becomes exhausted. Then, too, he may become more and more hopelessly lost. The same principle operates in any other kind of situation in which there is danger or physical or psychological stress. The panic, or frenzied effort, which is a kind of natural impulse in such situations, is equivalent to running when you are lost. Fall back on your knowledge of what to do rather than upon impulse.

CONCLUSION

Finally, make up your mind to learn all you can about the conditions which are necessary for successful adaptation to the Arctic. The following principles or rules, if followed intelligently, should be of some help:

1. The Arctic is different.
2. Adapt to the Arctic; don't fight it.
3. The Arctic is a healthy place -- mentally and physically.
4. You can do your job and still avoid cold injury.
5. The Arctic is interesting.
6. The Arctic can be safe.
7. Learn to feel secure.
8. It takes intelligent application to adapt to the Arctic.
9. Keep up your morale.
10. Things are always changing in the Arctic.
11. SOP's are necessary in the Arctic.
12. Isolation is "where you make it."
13. Don't let personal animosities or friction spoil your working and living relationships.

14. Take care of the important things first.
15. Meat is not injurious to health.
16. When danger strikes, don't run.

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