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TO	REMARKS (No each separate entry in a single series beginning with 1, and encircle the no. Draw a line completely across sheet immediately below each entry)	FROM DATE, NAME, SECTION
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*Chief
TRD*

*These lectures were prepared by
Belmont Brown -*

They may be of value in training

Jones

PRIMITIVE LAND TRAVEL

Advanced Lecture for Trainees

Duration - One Hour

Introduction

Primitive land navigation is based almost entirely on experience, and experience is acquired only by actual physical performance. However, experience may be acquired to a lesser degree through the intelligent application of certain practices, or through observation and instruction. As an example, travel routes may be established by observing the way a bird flies, the actions of wild animals, the way a tree grows, or even the shape of a snowdrift which would indicate the direction of prevailing winds. Compass bearings, or the use of the sun and stars implement these observations and confirm original headings. All these aids are influenced by the location and physical characteristics of the territories where they occur and by the seasons during which observations were made. Successful primitive "Land Navigation" presupposes the ability of the individual to survive, therefore the main concern of this lecture will be that of presenting actual travel problems and some of the principal rules related thereto. Never forget, however, that primitive travel depends on efficiency in a closely interrelated number of primitive skills and crafts.

Just as a foundation to build on, let us list them here: Hunting, Fishing, Pathfinding, the use of Primitive Tools in Building, Fires, Shelters, Rafts, Snarcs; mending equipment and making emergency clothing, and other needed articles.

Once possessed of the above abbreviated skills, their proper use will demand caution, courage and the patience of the savage who will

remain motionless for hours in heat or cold in order to secure his prey.

Wilderness travel is likewise based on evasive procedures and an intense and intelligent application to the study of signs, tracks, trails and natural features.

Most of you possess many of the above listed qualities or abilities without knowing it, ^{but} for the pressing demands of a civilized life may have caused them to lie dormant. Under survival pressure your minds will react to your needs as your body reacts to the physical demands of a primitive life.

Our past history is filled with examples of men who have adjusted themselves to savage surroundings in a short space of time. Wietzell, a German boy, became the greatest Indian killer in the "Dark and Bloody Ground". "Yellowstone Kelly" on his first arrival on the Missouri River as a youth, fought a duel, single handed, with two Sioux warriors and killed both of them. A few years later he was Chief of Scouts under General Miles. The list is endless.

1. Land Travel, as stated, requires knowledge of various skills but no man can travel without possessing a general idea of the location of his ultimate destination. No man should have to travel without having been briefed on the country he will travel through and the character of the people he will meet, for if the population is hostile, his entire method of travel and existence must be adapted to these factors.

2. Wilderness travel requires continuous use of eyesight. A novice will briefly view the landscape from the top of a hill with what he considers is care and interest and then say, "Let's go". The experienced man will clean his binoculars, settle down comfortably and start surveying

the surrounding countryside carefully. A distant blur of mist may be smoke; a faint winding line on a far off hill may either be caused by man or be an animal trail; a blur in the lowlands may be caused by a herd of caribou or cattle and the travel route for the next day may be planned after carefully reconnoitering the terrain. Distant landmarks must be studied carefully for characteristics that will insure their recognition from all other points or angles. A famous Indian hunter once pointed to his binoculars with a grin of satisfaction and said: "sit down little time -- look in dis glass an' you walk one hundred miles".

3. Before you leave, study your back trail carefully. You should know your travel route "forwards and backwards", as game may move out of cover, after you have passed, to watch your future movements. A professional plains hunter once said, "An antelope's eyes see everything, but his eyes don't tell him much". Careful and intelligent observation will train you to interpret correctly the things you see, whether they are distant landmarks or a broken twig at your feet.

4. Topography.

a. Mountains. Mountain ranges frequently affect climatic changes which in turn influence vegetation, animal and bird life and the character of people living in these areas. To illustrate this point, the ocean side of mountains will have more fog, and be subjected to more rain or snow than the inland side of a mountain range. So while forests may grow on the ocean side, the inland side may be semiarid. Therefore, when crossing a mountain range, a complete change in route finding procedures and survival techniques may be required. Travel in a mountainous country is simplified by conspicuous drainage landmarks but is complicated by the

roughness of terrain. The mountain traveler can readily determine the direction rivers flow. However, he will have to reconnoiter to determine whether a river is safe for rafting or a snowfield or mountainside can be traversed without danger. Mountain travel differs from travel in rolling or level country, as there are certain cardinal rules governing climbing methods. A party descending into a valley that becomes increasingly steep and where walls become progressively perpendicular, may be obliged to climb upward again and follow one of the ridges until easier descent is made. In such a situation, rappelling with a shroud line rope may save many weary miles. Avalanches of earth, rock and snow must be guarded against as well as crevasses on ice fields. The survivor must use great caution in crossing "passes" or low spots leading across hills or mountains, for, even in sparsely inhabited regions natives will occasionally use them. Even if it is far more arduous the survivor should climb well above the valley floor in order to overlook the travel route for a long distance and thus secure ample time to seek cover in case of need. When indications of the use of a pass by natives are found, the survivor should seek and use some other and safer route. Here we find the first example in wilderness travel of the vital need of disregarding mileage in favor of safety; of disregarding compass lines and traveling frequently by topographical features and evasive precepts.

Pace: Thick forests, brush, hills and swamps all play their part in the speed of travel -- but the need for regulating pace exists at all time. The movement of a traveling party should be disciplined. Scouts should work on both wings. They will study the areas coming into view from each ridge for evasive, game and travel route possibilities. As they must travel light, much of their loads will be carried by the main

party. The pace of the party will likewise be regulated by that of its slowest man and the slowest man may at times be the most valuable man -- the best radioman, fisherman or marksman.

b. Trails. In all cases where an easy trail lies invitingly before the survivor, but calm judgment decides against its use, there will be individuals in every party who may complain bitterly against what they will term "unnecessary hardship". In survival every effort to escape discovery is NECESSARY. It will be the leader's stern duty to enforce this rule.

c. Forests. Forests grow in humid areas. If forested areas are dense, river trails and ridges will be the easiest to follow. In open forests land travel is easy and provides for a greater choice of direction, but may be deficient in concealing cover. Along rivers, isolated homes, villages and towns will be found, and these may dictate changes in travel methods. Where populations are unfriendly, it will be necessary to travel at night and remain securely hidden during the day.

d. Northern and Arctic Prairies. In certain parts of the northern prairies, the direction of streams will be difficult to determine. Countless lakes with poor drainage may add to travel difficulties. Rain or fog may hide the sun, and at times the experienced traveler will be obliged to orient his course by observing landmarks caused by prevailing winds on vegetation, sand or snowdrifts. Travel under such conditions is difficult and will continue to be so until streams, hills or a sea-coast running in a definite direction come to his aid. Some of the principal landmarks to be observed by travelers are given below:

In

(1) Seacoast. /THE enemy held country, seacoasts will be a danger area. Natives follow the beaches and villages will be situated

where streams enter salt water. Furthermore, the mouths of rivers will be difficult to cross. Beach sand will preserve the tracks made by a survivor. Ranges of hills lying well inland will provide safer, and in most cases easier travel. Lake travel likewise may prove dangerous for the same reasons.

(2) Vegetation. Near a seacoast where prevailing winds blow inland from the ocean, thicket growth will be dead or stunted on the windward side, slowly increasing in height towards the lee. Individual trees will lean away from the prevailing wind and their branches will be thicker and longer on the leeward side.

(3) Sand. Sand contours are affected by wind, but less than snow. Old drifts formed by strong winds will be more firmly packed than recently formed drifts and sand will lie deeper on the leeward side.

(4) Snow. Under the heading "Telling direction by snow-drifts" Stefansson lists the following rules: "You should have learned the traits of drifts by studying snow surfaces after storms. The force, duration and other characteristics you know. Failing that, common sense (if you don't get into a panic) will tell you a lot. You can tell the direction of the wind by the fact that the drift is lower and narrower to windward and gets higher and wider to leeward before dropping down abruptly to a general level" -- "Traveling by night, if there is diffused light, (so there are no shadows) or, in the event that it is so dark that you cannot see the drifts, stop and feel the drifts carefully with your feet, or drop on all fours and examine them with your hands".

(5) Polar Ice. On polar ice, the traveler should proceed according to last known observations, based on the location of the nearest land and seasonal influences (See Survival on Ice). This subject is broad in scope and there are very few men experienced in travel on the

polar sea. "References", basic lecture on wilderness travel, you can pick up additional information on this form of primitive travel.

(6) Glaciers. Many glaciers offer possible travel routes. Their main contribution to emergency travel is that they serve as avenues across and over mountain ranges. Glacier crossing demands special knowledge and techniques, such as the use of the life line and poles for locating crevasses. Shelters requiring a minimum number of tent poles and artificial heat such as gas stoves are desirable. There are, however, numerous places in the north, where mountain ranges could be negotiated on foot in one day, by following glaciers.

In enemy country river travel will be most dangerous as all waterways except the small streams will be in constant use by natives for travel or fishing operations. Even crossing streams must be done with care in order that no foot marks are left in the sand or mud banks to be noticed by a keen eyed native.

5. Requirement for the conservation of strength by proper use of clothing, equipment and the ability to improvise.

Almost every survival procedure should be adapted to snow conditions. Methods for procuring food, types and use of shelters, clothing, fires and travel under arctic conditions become highly specialized. Here again experience is of the utmost importance, and the most valuable advice that can be given to a novice is to use extreme caution when traveling in sub-zero temperatures. Leonidas Seppala, one of the most experienced Alaskan trailmen, refused to travel when temperatures fell to thirty below zero, unless there was some very important reason for doing so. "It is not that traveling in thirty degrees below zero may not be comfortable or pleasant", he stated, "but if anything goes wrong in these

temperatures, you will be in for a bad time". "While children may play outdoors in sub-zero temperatures, children can retreat indoors at any desired moment." A strong wind, springing up even when the temperature is only a few degrees below zero, may place a man or party in a serious predicament if they are far from shelter. Use of snowshoes, making emergency snowshoes, "breaking" of winter trails, and other winter procedures will be taken up separately as they require individual treatment. The most dangerous situation for a man is to be caught out at night when a blizzard is blowing. For if you struggle on aimlessly to the point of exhaustion, until your clothing is wet with perspiration, you are unwittingly committing suicide. When you fall down in a stupor, you will freeze. The first thing to do, if caught in a blizzard, is to make a shelter. A hole or cave hollowed out with a snowshoe will do. If possible, line the floor with boughs. Then roll up in your chute, tarp or extra clothing, putting most of it under you. "If you fall asleep you will freeze to death", is an old wife's tale, because when you get too cold you will awaken unless you are completely exhausted, and by steady movement you can restore body heat and sleep again. Sleep will remove your worries, shorten the passage of time and strengthen you. The main thing is to see that you do not get caught without shelter. Long before the arrival of darkness you should have a comfortable snow cave hollowed out, lined with some brush and all other steps taken to insure your safety. A common human weakness is the objection to retracing steps once taken, but when caught in a sudden blizzard it is safer to return to a sheltered spot than to push on into the unknown.

6. Seasonal Influence on Northern Travel.

a. Winter is considered the best time for land travel because rivers, lakes

are filled with snow.

b. Spring is usually the most difficult time for travel. Melted snow and spring rains, swollen rivers and lakes convert flat country into impassable marshes. With a good raft, experienced men can navigate swift flowing rivers or flooded areas in friendly country. However, during the period when ice-jams form, river navigation is dangerous.

c. Summer. During the summer season travel by night is preferable to travel by day. Land will dry out and rivers have returned to their normal levels. Under these conditions land travel will be excellent. During this season big game is dispersed, as the cows are in the process of dropping calves and insect pests disturb them. Wildfowl and their eggs will furnish an inexhaustible food supply, particularly along the cliffs of northern beaches where the seafowl gather and inland marshes. Small game as well as beds of edible shellfish in the shallow bays will free the traveler from the necessity of constant hunting. This of course reduces the time required for foraging and allows an increase in travel time. (See basic Lecture No. F.S. 12). The long hours of summer sun will reduce the need for fires. Mosquitoes and other insects will be bothersome, in fact can become one of your greatest travel irritations.

d. Autumn. Northern natives prefer winter for travel which permits the use of dog sleds, but the survival traveler will find autumn the season that affords the best travel. Streams will be low and clear, fording and rafting will be easier. Swamps will have dried and become hardened by night frosts. The departure of the wild fowl and the hibernation of rodents will increase dependence on large game but autumn heralds the rutting season with wide movements of caribou and moose.

This aids the hunter in his foraging. Heavy crops of berries in sheltered localities will add variety to the food supply. The Indian Summer may lull you into the belief that winter is still far away, but no man should be drawn into a false sense of security as heavy snows may fall at any time. Every precaution for the approaching winter should be completed down to the last detail.

7. Fuel. (For information on Fire Building see Diagrams and Lecture on Outdoor Fires.) Fuel may play an important part in the selection of travel routes. The timberline traveler will descend to the spruce groves for overnight camping and the seacoast traveler will watch for a good supply of driftwood. On the southern coast of the Bering Sea outcrops of seal are common. Many northern grasses make excellent fuel, not only as fire starters but also as a staple fuel. Green willow and alder generate hot fires and if laid in the form of a grill will aid in starting a coal fire. Green willow branches thrown on the fire at night will form coals that last until the morning. Plenty of good wood makes a happy camp, but while a fire constitutes the survivor's best friend, it can develop into a dangerous enemy when it burns important equipment or clothing. Never leave a fire without first taking every precaution to put it out. A safety measure followed by old Indian scouts was to remain on watch at some distance from their fire until darkness had fallen. Dry stream beds with high banks will furnish good fire protection. Hiding the remains of a fire can be difficult. Sod can be cut and replaced and remains of fires made on rocks can be eradicated with water.

8. Shelters. (Influence on Travel). Except for the presence of mosquitoes or for an occasional storm, summer shelters do not call for the requirements of winter shelters and could be roughly built. But even in summer, a poorly built camp never pays. The difference in time taken for a good or poor shelter and campsite is negligible. The proper care of equipment, clothes, and food depends on proper shelters and an orderly camp. In the fall, when the last mosquito has departed and a sky full of stars presages a clear night, fold your sleeping bag under a tarp (to keep off the dew), and sleep in the open; but such nights are usually rare. There is one rule in camp making that never fails -- stop early enough to insure a good night's rest. If you find everything you need to make a good camp, a half hour or so before you intend to stop traveling, -- stop anyway, for complete rest predicates an early start the next morning. Details for construction of shelters will be found in lecture No. T.3.5.

9. The Requirement for Patience, Caution and Determination. Rivers will always offer the easiest and fastest avenue of communication through the wilderness in friendly country. In the summer the use of rafts will insure speedy travel while in winter the frozen level river surfaces will afford easy walking. Large lakes or connecting systems of smaller waterways likewise provide good travel avenues. "Overflows", caused by river water flowing over the ice, are very dangerous in low temperatures. There is always danger from thin ice on both lakes and streams. If travelers will guard against this danger the level surfaces will allow of rapid traveling.

CONCLUSIONS:

1. The novice is prone to follow a compass line, the experienced man follows the lines of least resistance and recognizes at a glance that a curved route may be shorter and easier; that an apparently innocuous stretch of forest may be filled with windfalls or that a smooth, green meadow is in reality an impenetrable line of beaver ponds.

2. Game trails can be used when they follow your projected course. Trails made by migrating caribou are frequently extensive and useful. On scree or rock slides, mountain sheep trails are very helpful. Moose and bear trails are almost always unreliable and frequently lead into almost impenetrable thickets or swamps. Equally promising routes may offer varying prospects, such as the chance of securing game or of locating water holes. In other words, route finding in wild country requires the highest degree of mental concentration, knowledge of wilderness "road signs", common sense and judgment. Fortunately, path finding practices develop progressively and instinctively with time, and a clear mind will register observations and form deductions almost subconsciously.

3. The characteristics of calmness, self-confidence, constant observation, courage, caution, and unlimited patience which are possessed by the best types of outdoor men, will also develop.

4. One last word of warning. In every traveling party there will be at least one individual who will not conform to travel rules. He will lack patience and the wisdom of the trained outdoorsman in the selection of trails, in the location of game, or in solving some of the countless problems that will develop during travel. He is the type of man who, if allowed to, will endanger the entire party. Your mission may be one that requires great skill in order to avoid the slightest error in judgment.

By breaking a survival rule, a man may destroy the opportunity for securing the meat that may be desperately needed, or he may place the lives of the party in jeopardy. After a day or two in wild country you should begin to recognize which of your companions possess the necessary qualities for survival leadership. Your wisest move will be to back up their decisions with loyalty and the courage of your convictions.

3. In practice you will find that wilderness travel is not travel in the accepted sense -- but survival while moving. Among all the many procedures entering into a day's travel, the number of miles you push behind you may well be the least important.