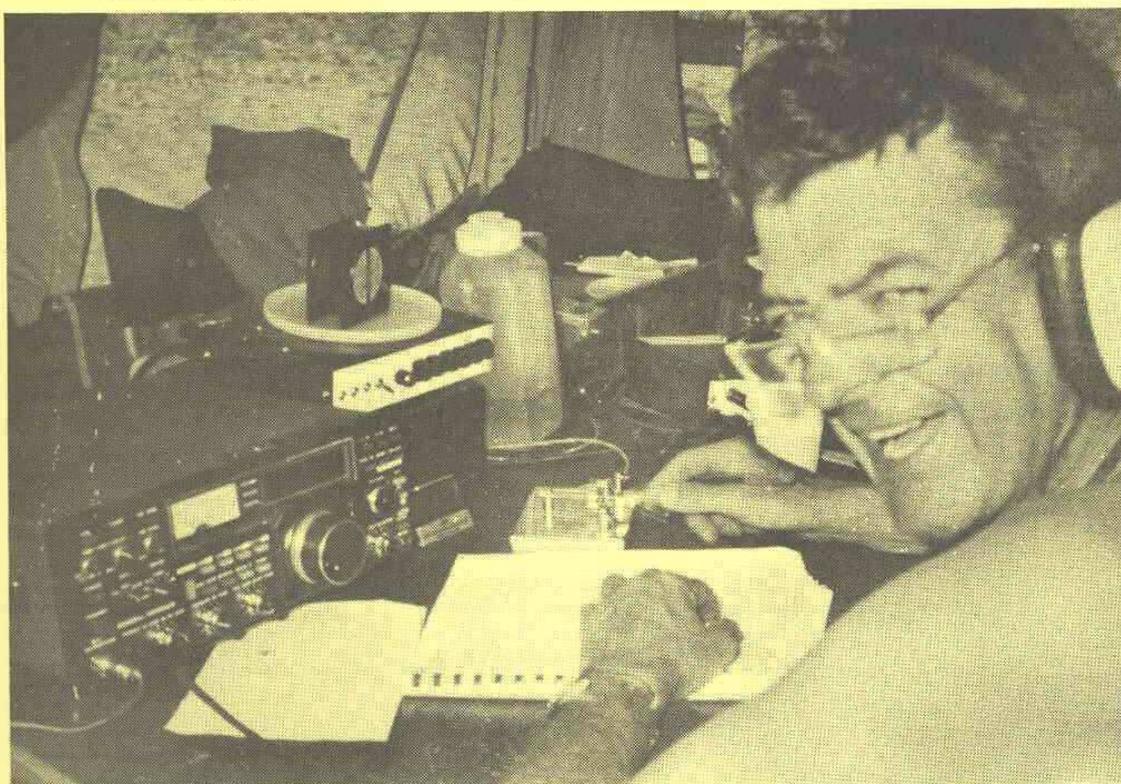


DXPEDITIONING BASICS



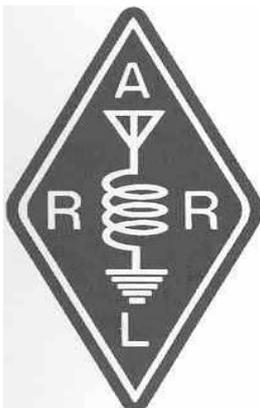
Wayne Mills N7NG

DXPEDITIONING BASICS

by
WAYNE MILLS
N7NG

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About The Author

Wayne Mills was born in October, 1942 in Palo Alto, California. He obtained his first Amateur Radio license in March, 1953. He was given the callsign KN6ALH. Since then he has held: K6ALH, W7JFG, N7NG, ZL0AFZ, ZL0AFZ/9, 3D2NG, T32BT, HB9/N7NG, HB0/N7NG, OH2/N7NG, ZS/N7NG, V5/N7NG, ZA1A, P40NG, P4/N7NG and FO0MWA. In addition, Wayne has operated from: 4UIITU, 4U0ITU, P40V, FO0XX, 3D2AM, AH3C/KH5J, XF4L, ZS9Z/ZS1, 9M0S and V51Z. He knows what it's like to be on the DX end of a pileup. Those of us who have worked him in those pileups know that he is one of the best!

Wayne understands both sides of a pileup. He started DXing in late 1956, while in Junior High School. For nine years his DXing was limited to 20 CW only. That's because his home-built gear didn't operate on any other bands. His school friends, K6ZJU and WA6AUE, were fellow participants in the DX chase. Wayne spent most of the sixties studying electrical engineering at the University of California at Davis, California. He found some time to work the occasional DXpedition. He observed the deeds and misdeeds of the DXpeditioners of that time, and met the major players at meetings of the Northern California DX Club which he joined in 1965. Wayne is still a member of the NCDXC--and the Northern California Contest Club.

In 1965 Wayne married his wife Margaret. (They have a son Arthur, 17, and a daughter Katie, 13.) Wayne and Margaret moved to Wyoming in 1972 to start a business. Today he is owner and manager of Motorola Two-Way Communications sales and service centers in Jackson and Pinedale, Wyoming.

It was 1977 when Wayne applied for and received his present callsign, N7NG. His new business demanded most of his efforts and attention, but he found time for his DX passions. Then in 1983, he saw an advertisement in the West Coast DX bulletin for operators to go to Clipperton Island. He thought he might like to do that. Then he thought otherwise and forgot about it. During a Christmas visit to California, Wayne talked with Bob Vallio, W6RGG. Bob asked if Wayne wanted to go to Clipperton. Wayne had thought about this before and immediately answered, "yes." That trip ended in Manzanillo, Mexico. Wayne eventually made it to Clipperton with the FO0XX DXpedition in 1985, and a return visit in 1986. That gave him a taste of "the other end." Wayne wanted more of the same. A trip to Auckland Island (ZL9) with Ron, ZL1AMO, and Roly, ZL1BQD, followed in 1988, and he was invited by Martti Lane, OH2BH to join the Revilla Gigedo (XF4) group in 1989.

1990 was a big year for Wayne. He made two trips to the Pacific, Jarvis Island (AH3C/KH5J) and Conway Reef (3D2AM). In November he made his way to Africa on the DXpedition to Penguin Island (ZS9Z). The next year, 1991, Wayne was nominated by ARRL to be the American representative to the ZA1A education and operation project in Albania. (Since that time Wayne has always kept a bag packed for a quick getaway.) In 1993, he went with the DXpedition to the Spratly Islands (9M0S).

Today, Wayne is now a member of the DXCC Number 1 Honor Roll. After he returned home from the teaching and operating project in Tirana, Albania, he worked his last needed country. That was on his birthday in 1991. The last country? Albania, and the station was ZA1A.

In recent years, Wayne has made his mark in contests. He was part of the group at P40V that set the world record CQWW SSB Multi-Multi in 1988. In 1990 it was a WPX world record Multi-Single. He set the Single Operator 20 meter world record in 1991. Wayne says that he enjoys operating in the ARRL CW DX contest from Wyoming, but he considers himself much more of a DXer than a contester.

What are Wayne's plans for the future? In his own words, "My wife and I are planning to start sending the kids to college, and will probably be a little more selective when it comes to traveling, but I intend to keep at it for the foreseeable future, especially during the winter months..."

-- Chuck Hutchinson, K8CH
January 1994

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FOREWORD

As Albert once said, "All things are relative...some more so."¹ And so it is with DXpeditioning. From its beginnings in the late forties and early fifties, DXpeditioning has grown tremendously with the Ham population and technology. In the beginning, DXpeditions made at most several thousand contacts with the faithful. Today a major expedition to a rare country can make fifty to seventy thousand contacts with over thirty thousand *different* stations. Further, the advent of five band and CW DXCC has increased the demand for band and mode countries, resulting in large numbers of DXers occupying all bands during an expedition. If the DXpeditioner is inexperienced, this increased DXing activity can lead to greater disarray and disorder.

Most DXpeditioners want to put on the very best show possible. When the skills of the operators on both ends of the pileup are up to the task, the operating is a joy to hear. When skills are lacking, maybe it's better to turn off the radio and heat up the sauna. As experience is gained in DXpeditioning, however, all facets seem to become clear as crystal.

Any method of operating which accomplishes the desired results is probably acceptable. When an individual (or a group of individuals) is entirely self supported, he has a large amount of latitude, and little can or should be said about how he operates and whom he works. But when DXpedition organizers accept contributions and support, there is an implicit, and maybe even an explicit obligation to conform to certain operating criterion. Specifically, organizations which funnel money to DXpedition groups for the benefit of the DXing community have become more particular about whom they support. Their assistance often demands minimum standards of operating proficiency, and may depend on the track record of the group.

Following a few simple rules can go far in assuring the success of a DXpedition effort. The following information is not new or unique. After reviewing this material, some will feel that much of it is obvious or superfluous. It has been observed, however, that many of these principles are constantly forgotten or disregarded even by experienced DXpeditioners. Inexperienced expeditioners are oblivious. It is apparently not sufficient simply to present these concepts in a summarized form as has been done in the past. For this reason, considerable discussion is presented so that it is at least possible to proceed beyond simply agreeing or disagreeing with a particular concept.

¹Notes can be found on page 26.

Of all operating activities, with the possible exception of contests, DXpeditions have the greatest potential for disruption of the HF amateur radio bands. And while contests may cause general bedlam as viewed by non-contesters, their protests are somewhat diluted, falling mostly on a few deaf ears. DXpeditions, on the other hand, are focused, centered on specific frequencies within the ham bands, increasing the likelihood of hostile reactions. Because of this potential, other groups are constantly watching with an eye toward possibly regulating DXing activities. On several occasions even DXers and others within the DXing community have called for guidelines to help control undesirable situations. It is important, therefore, to consider those whose interests differ from ours. Though the participants in DXing adventures are often found only listening rather than transmitting, not even using a fraction of their share of the spectrum, only making their presence known when DXpeditions begin operating, those whose normal activities are displaced by the sudden bedlam of a DXpedition can and often do become greatly incensed.

So DXpeditions can be accompanied by extremely disagreeable situations on the bands. These situations run the gamut from jammers on the DX frequency who are generally frustrated by the actions (intentionally and otherwise) of other participants or the expeditioners, and their inability to make a QSO, to disaffected amateurs who are angry as a result of the disruption of their activities. Those DXers who are frustrated by their inability to work the DX may or may not have a valid complaint. Those non-DXers who suffer often do have valid complaints. DXers, in their selfishness often call on any frequency they wish without listening for anyone already using the frequency. As a result, many have called for better operating procedures on the part of those wishing to contact a DXpedition. DXers have been admonished for their lack of courtesy, for their inability to operate their radios correctly and for their intolerance of those who suffer lapses in these areas.

In the past, some have sought to remedy these problems by directing attention toward those DXers wishing to contact rare DX in pile-up situations, trying to educate these DXers mostly through the written word. In some cases this is effective, but for the most part, it is a random process. Making even the best advice simply available to large numbers of DXers is probably not very effective. Perhaps more effective would be peer pressure exerted by those associating with the offending operators, but there are few people who possess the necessary stature within their circles who are at the same time willing to exert this pressure. Some examples do come to mind, however, and this type of control can be effective.

Others, however, have recognized that counseling the masses can be less than fruitful. For every DXer who faithfully follows the published DX media, the weekly bulletins, the excellent magazine articles on the subject, and many books detailing "how to do it" in order to be more aware of how to work DX effectively, there are many more budding DXers who are blithely unaware of these intricacies of the DXing art. The situation worsens when these poor budding DXers encounter the DX police who seem to expect that everyone know all there is to know about these matters. Certainly, the more inexperienced DXers are put off by these experiences, perhaps not to return to DXing for some time and at least harboring ill feeling toward everyone involved.

(This is an idealistic view, of course. Between the experienced DXer and the neophyte there exists a class of somewhat experienced DXers which is aware of the generally accepted procedures for working DX but simply refuse to cooperate. While this behavior results from social problems beyond the scope of amateur radio, it is necessary to consider this class of operator when analyzing the DXpedition operator's performance.)

If directing our educational efforts toward the large numbers of DXers will not yield the desired results, perhaps there is another way. Since there are many fewer DXpeditioners than DXers, it might be more effective to direct toward the DXpedition operators a number of suggestions which have been found effective in helping the operator control the operating performance of those calling the DX. In fact, many have said that the DXpedition operator is responsible for the conduct and outcome of an expedition, and that, indeed, the pileups in a sense mirror the DXpedition operator.² The DXpedition operator must be in command, but just how is that accomplished?

It is my purpose here to discuss a selection of techniques and methods which will help control a DXpedition situation and therefore preserve the positive aspects of DXing activity. Most of these techniques are not new. They have been used by DXpeditioners on innumerable occasions over many years and have generally worked well. DXers have usually endorsed these ideas, and many publications have listed them. In the following material, however, a detailed discussion will be presented in the hope that a more complete consideration and understanding of the problems and solutions can be achieved.

OBJECTIVES

HAVING FUN

We will start with the premise that the overall objective of the DXpedition is for DXers around the world simply to have fun. With rare exceptions, no expeditioner ever expects to profit from his DXpeditioning activities. Rather, considerable expenses are incurred primarily in transportation costs and loss of employment income. This is a fact; chiseled in stone! Note, therefore, that the DXpeditioners will also be trying to have fun. Putting as many QSOs as possible in the log is an important goal, but I will not concede that it supersedes having fun as an overall objective. Certainly putting a QSO in your log is not more important to me than someone else's enjoyment. But I'm sure that many DXers in the end determine that the objective of getting their QSOs recorded in the log is more important than someone else's enjoyment, so this needs to be kept in mind. When a DXer from a target area compliments you on a great expedition, he's having fun!

MINIMIZING DISRUPTION

Assuming that the DXpedition will be to a somewhat rare location, we can expect that there will be a considerable effect on the normal operations of several amateur bands. Another objective, therefore, will be to minimize the impacts on the bands due to DXpedition operations while making as many QSOs with as many different stations as possible. This can be accomplished primarily by controlling those frequencies, both calling and listening, on which the operation takes place.

SETTING GOALS

After having fun, the most important objective will be to work as many stations as possible. One measure of how well an expedition has succeeded in meeting its objectives will be the total number of QSOs it records in its logbooks. But this measure alone is meaningless. It may be that the country is very rare, in which case it will be important to work as many *different* stations as possible. If the location is less rare, it might be more desirable on CW, the WARC bands or some other band/mode combination. It may well be that the country being activated is particularly rare in one part of the world or another. In this case it is important to *target* certain geographic areas or population centers for a concentrated effort. It is important to clearly define the goals for the expedition: To work as many different stations as possible, to target difficult areas, or something else. Goal setting is fundamental.

In planning the operating for the 1990 Penguin Island trip, knowing that we were limited to eight days of operating, two stations and four operators, we decided to limit our operation to as few bands as possible. In fact we had a TH-5DX antenna high on the top of the island and a ten-meter monobander. The plan was to operate as much ten meters as possible during the entire trip, thus minimizing as many "band dupes" as possible. Since this was only the second operation ever made from this potential country, and since only about twelve thousand QSOs had been previously made, we felt that there were still many DXers who were awaiting their first QSOs.³ In the end we were able to boast a two-to-one total QSO to different call sign ratio, and more DXers were able to claim a Penguin Island QSO even though some might not have been able to make their customary thirteen band-mode QSOs.

OBJECTIVES - SUMMARY

1) HAVE FUN

"Good grief! It's a hobby!" OK, it's only a hobby, but it's also pretty serious competition when an opportunity exists to work your last country, which hasn't been on for ten years, and won't be on again for ten years. Therefore, the argument is not really useful in persuading DXers to behave in a more satisfactory manner. It is important to have fun, however. DXpeditioners want to have fun, and generally they want the DXers to have fun as well.

2) MINIMIZE DISRUPTION TO NORMAL OPERATING ACTIVITIES

- a) Although no formal band plan exists to designate frequencies for DXpeditions, it is possible to make good decisions concerning the best DXpedition frequencies.
- b) It has been traditional for the DXer to transmit on a frequency just outside of the US. phone band, for example. Although this tactic is intended to minimize transmitting by calling stations on the DX frequency, it has almost no effect. This is because most transmissions on the DX frequency are inadvertent, and intentional transmissions on the DX frequency will occur no matter where the DX is transmitting.
- c) Listening frequencies should be selected to avoid frequencies which are often occupied by groups, such as the international slow-scan net frequencies. Of course these groups have no exclusive right to these frequencies but it is simply unnecessary to create a conflict by using them. Some investigation should be done prior to the expedition since we are not always aware of what is happening at certain places on the bands in other parts of the world.
- d) The range of frequencies used (width of the pileup) should be kept to a minimum (See Pileup Dynamics.) Regardless of what some have said about the necessity of using one hundred or even two hundred kilohertz, it is possible to work effectively even weak signals in a pileup situation without excessive spreading. Experience has shown that no more than 30 kHz will ever be necessary on SSB while 10 kHz is more than enough on CW. Well thought-out techniques will allow confirming a large pile-up even when conditions are poor.

3) SETTING GOALS FOR THE EXPEDITON

- a) Determine the areas, which have the greatest need for this country and pay special attention to propagation to these areas. Work them whenever propagation permits.
- b) Depending on the rarity of the country in question and the length of the operation, it may be desirable to minimize the number of different bands on which operation is conducted. This will maximize the number of different callsigns in the log. (Two QSOs per callsign is an acceptable ratio.)
- c) Properly executed QSO mechanics and pileup management will optimize the number of QSOs in a given period of time.

ORGANIZATION

PLANNING

Preparation for an expedition should start with a management plan established by the organizers. This plan should assign responsibilities for transportation, logistics, and operating to specific members of the team. Those assigned these responsibilities should be particularly capable of performing their duties. In addition, it is important that all of the team members be aware of who is responsible in each area.

The next and nearly as important function of the organizers is the selection of operators. This will be crucial to the success of the DXpedition. Ideally, two operators should be available for each station planned. The operators selected must be capable of operating in an acceptable manner as well as being able to perform other important logistical functions. Equally important, the operators must be capable of working as a team rather than as a group of individuals. For the most demanding DXpeditions, *no person should be selected who cannot perform both logistical and operating functions unless there is no limit on number of people in the group*. Once the operators are selected, the necessary transportation and logistical plans can be made. This is the most desirable of situations.

If an expedition is being designed around a particular transportation opportunity, it will be necessary to tailor operator selection and logistical considerations to this opportunity. This may be a less than desirable situation, but it may be preferable to no opportunity at all. While the size and duration of the effort may be defined by the available transportation, the other considerations still apply, and the operator selection will still be the most important decision for the organizers.

It should be noted here that an expedition can involve too many people. A large group may be necessary if the available operating time is short. In this case, many operators, large amounts of equipment and supplies will be involved. Be aware that large groups of people may lead to personality conflicts and will require careful personnel management. If too many operators are present for the operating requirements, additional problems may arise related to how much operating time can be allotted to each operator. If the expedition duration is controllable, more time, with fewer participants may be desirable. It is probably true in most cases that transportation costs for expeditions to rare locations will depend on the overall size of the effort. More operators will require more supplies, more radio equipment, more antennas, etc. Therefore, a balance should be struck between the number of operators, the number of stations needed, and the available funds. A longer duration will also allow for variations in propagation, helping to ensure that solar flares and other propagation anomalies will not adversely affect the outcome.

But the best made plans are worthless if they cannot be executed effectively. Therefore, once operating has begun, it is important that the responsible team member take an active role by making an operating schedule, monitoring the team's progress, and putting together an overall view of the operating. He should track the number of QSOs made with the various population centers and adjust the operating schedule accordingly. He should make certain that the proper operators are working each opening while balancing the operating time for each operator.

OPERATING STYLE

Led by the operating manager, a discussion should take place among all of the operators, prior to any operating, to consider how to handle the situations, which will define the operating style for the expedition. This is often done on the boat enroute to the rare DX destination when many hours of free time are available. "In the beginning, it is important to invest the best resources and throw them into the battle to gain the overall confidence of the audience. As time wears on, after several days of successful operating and the pile-ups get thinner, the operators with a more leisurely style will be needed to relieve the operators weary from the early days." This quote from the operator's handbook for the South Sandwich Island Expedition of 1992 suggests the type of operations management, which is necessary for a successful effort. Despite terrible environmental conditions, this expedition was a success because of proper management.

Often, expedition personnel may be of different skill levels. Therefore, the operators must share ideas concerning how to handle DXpeditioning basics. The basics include who to work at different times of the day in

terms of target areas which have been defined, where to transmit on each of the amateur bands as well as where to listen, and how best to handle the pileups. *These considerations have a major impact on the perceptions of the audience.* In this respect, it is important that the operating be managed as a system since it is extremely difficult to accomplish the expedition objectives with all of the operators acting independently. Operators should not be left to their own individual resources even if they are all highly skilled. A coordinated approach is absolutely necessary for best results.

Special attention should be paid to what has been termed pileup management. Pileup management generally refers to the organization of those operating techniques which work well toward controlling the operating situation. Mention should be made of how identifying and QSLing information will be handled, as well as how dupes and unruly calling will be managed.

QSO mechanics is another topic which must be addressed during the operator discussion. Proper QSO mechanics refers to the procedure which should be used to ensure that each operator contacted by the DXpedition is *sure that he is in the log*. This is a crucial issue, and addresses the very reason DXpeditions are conducted. These issues are discussed more extensively in succeeding sections.

FREQUENCIES

Operating frequencies for the various bands should be determined and publicized prior to the expedition. *These frequencies should be selected according to the requirements dictated by the area of the world in which the operation is taking place.* For example, in the United States, only Extra Class operators are permitted to operate CW below "025" on eighty, forty, twenty, and fifteen meters, so listening frequencies should be designated accordingly. In other areas of the world, frequencies as high as "025" on eighty and forty may be useless. In various parts of the world, authorized eighty and forty meter transmitting frequencies differ. The expedition transmitted signal must be heard, and therefore its frequency on each band should be the best choice based on listening conditions in the most important areas. This information is not easily obtained, but a diligent effort should be made. Once the frequencies are selected they should be adhered to rigidly. Operating consistently on advertised frequencies helps others identify the DXpedition, minimizes questions about "who is the DX," and adds to the air of confidence around the operation.

OPERATING MANUAL

In laying the groundwork for a successful operating effort, it is advisable to prepare an operating manual for the expedition. The operating manual should outline the methods of operating considered appropriate for the expedition and contain many of the suggestions considered in these pages. In addition, it will document material specific to the expedition's destination which the operators will find useful during the operation. Information such as a great circle chart, propagation prediction charts, and statistics describing the relative DXer populations in various parts of the world should be included.

EQUIPMENT

Several aspects of logistical planning can significantly impact the operational character of an expedition. Prior to embarking upon an expedition, special attention should be paid to determining what equipment will be needed. Particular attention should be given to those logistical areas which will yield the greatest signal strengths to the major target areas. As one famous DXpeditioner has noted "you have to be loud." Good antennas are an important factor in being able to work the smaller stations, and as much power as permitted should be used. They (the small station operators) will be proud of themselves for being able to work the expedition with their peanut whistles and dipoles, and, no one will tell them that it was really the expedition planners who mandated big amplifiers and large antennas that deserve the credit.

Proper antenna placement and spectrally clean radios may also allow several signals on the same band, or even several signals on the same mode, taking advantage of limited propagation to certain areas. High power, where possible, leading to a dominating signal, can also be an aid in controlling pileups. The 1993 9M0S expedition to the Spratly Islands was able to overcome the expected poor propagation to the eastern USA by placing two Yagi antennas side-by-side while facing the USA. This orientation minimized the interaction

between the two stations and allowed the two FT-1000Ds to operate on twenty meter SSB at the same time. In 1989, the XF4L operations from Revilla Gigedo showed one night with several signals on twenty meters at the same time! Reports of pirates were heard, but station placement had allowed four signals on the open band with no interaction, leading to just under fifty thousand QSOs in less than eight days.

OPERATOR COMFORT

During the planning phase, operator comfort should be considered. It's not much fun sitting on a driftwood stump, writing on a makeshift table. It doesn't promote effective operating, either. Wherever possible, adequate furniture and housing facilities should be provided for best results. Remember, the expedition operators expect to have fun too! Bedding should be provided for each operator for maximum productivity. On Penguin Island, no beds were provided and only blankets were brought. The floor of the operating house became very hard, and the very limited sleeping time was poorly used.

ORGANIZATION - SUMMARY

1) PLANNING

- a) Make a management plan. Pay particular attention to operator selection. Pick operators for operating skills and other necessary logistical attributes.
- b) Don't include more people than necessary. Too many operators increases expenses and may cause additional difficulties.
- c) Once underway, monitor the progress and make sure the objectives are attained.

2) DISCUSS OPERATING ISSUES and tactics in the context of a managed system. *Do not allow even the best operators to proceed in their own directions.*

3) SPECIFY FREQUENCIES

- a) Specify the operating frequencies according to the area of the world, and honor them as though they were chiseled in stone.
- b) Select bands which will facilitate contacts with the target areas. If propagation is limited, use several stations on the open bands.
- c) Consider license class restrictions and available frequencies for various regions such as the extra class only below 7.025 and 3.525 in the United States as well as the limitations on 80 meters in Region I.

4) PREPARE AN OPERATING MANUAL based on the current destination.

5) EQUIPMENT

- a) Define the necessary equipment and from where it will be obtained. Use the best transceivers available. Use amplifiers if allowed.
- b) Allow for the best possible antennas for the biggest signals.
- 6) ALLOW FOR THE GREATEST OPERATOR COMFORT: good operating tables, chairs, and a bed for *each* participant. Be aware of the environment and provide adequate shelter for operator comfort and safety.

WHO TO WORK

POPULATION CENTERS

The DX world can be thought of as consisting of three major population centers: Europe, Asia (Japan) and the United States. For any DX location, at least one of these three population centers is likely to be difficult to work simply because of its geographic location. Because of this, one or more of these areas will have a greater need for this DX location. It is important to know where these population centers are, and what the relative DXer populations are within these areas. After identifying the target areas and determining where the DXers are, the propagation to these areas should be studied in order to maximize the effectiveness of the operation. *The operation should take advantage of all openings to the target areas with all of its resources.* It has been found that this is an extremely effective method which almost never lessens the chances of DXers in other areas of the world. Since propagation to the target areas is by definition poor, with relatively short openings, the desired number of QSOs with the target area is not always reached even with strict adherence to targeting.

PROPAGATION AND OPERATING SCHEDULES

Propagation predictions can be used initially, but observations of actual conditions should be made after operation has begun. Often, operators unfamiliar with the propagation to expedition destinations will miss important openings and thousands of QSOs to difficult areas. Inputs from experienced DXers in the target areas can be used, but take care in evaluating real time feedback from DXers still needing a QSO. As the openings are identified (and more openings may be found as the operation progresses) an operating schedule should be made which will assure not only that the operators are active during the necessary openings, but that *the most qualified operators will work those openings.*

Late one night during the 1990 Jarvis Island expedition (AH3C/KHSJ), Martti, OH2BH came running to the CW operating site yelling that ten meters was open to Europe. We didn't believe him at first, but since we were targeting Europe heavily, we checked and found that indeed ten meters was open to Europe. We set up quickly and worked several hundred Europeans during that opening. Martti had been using a spare radio and antenna looking specifically for additional openings. When the QSL cards came, one from a YU station noted "it was noon and there was nothing on ten meters except noise and AH3C/KH5JI"!

One of our biggest challenges was attempting to work the east coast of the US from Layang-Layang, 9M0S in the Spratly Islands in 1993. Preliminary propagation predictions indicated that openings to that area would be few and quite short. As a result, we considered several options to maximize the number of east-coast QSOs. One option was to be prepared to operate several stations on an open band. I also considered making greater use of the WARC bands than had been done in the past. The propagation on thirty meters looked particularly good, but as I promoted this idea prior to the expedition, a question was raised among several DXers about whether there were enough DXers on that band to make a big effort worthwhile! Well! I guess if I am in a rare country, and the best band is thirty meters, maybe several resourceful DXers might even erect a dipole (or even better, a vertical) in order to make a QSO with the rare one! An open band is a resource to be exploited, and in fact the WARC bands produced a significant percentage of the thirty five thousand QSOs from Layang-Layang.

DEFINING THE PILEUP

When the pileup is large, it may be best to work call areas or some other identifiable subdivision. Working call areas tends to increase the penetration to a desired area since it allows a specific pileup to be worked down to a level where low power stations can compete successfully. It is important, however, to work all subdivisions which have been identified. If numbered areas are being worked, all of the numbers in an area should be completed before a major change in operation occurs. Stations signing portables constitute a minimal problem. The issue of portables is discussed in the PROBLEMS section.

It should be noted that it is possible to work call areas or other subdivisions on CW as well as SSB. It is necessary, however, to repeat the instructions at the end of nearly every QSO, since some will assume that one omission will be a signal that the designated area is being abandoned. This is necessary on SSB as well as on CW, but it is particularly important on code.

Preconceived ideas of certain groups of DXers should be suppressed. Since the operator's approach to the pileup may be the most important factor in how a situation is handled, a serious problem may result from a poor attitude on the part of the DXpedition operator. Europeans can be worked just as easily as the Japanese if proper techniques and attitudes are displayed.

WORKING EVERYONE

An assumption has been made to this point; that everyone interested in working an expedition will be able to do so if the expedition operators are efficient enough and manage the operation properly. There is another concern, however. There exists a group of DXers who are simply inexperienced or lack the necessary equipment to work a rare DXpedition under the usual circumstances. Therefore, some thought should be given to what might be done to accommodate as many of these participants as possible.

Perhaps the most important consideration is the total amount of time allotted to the expedition. If time is limited and even experienced DXers will have difficulty making a QSO, then it will be necessary for the inexperienced to fend for themselves. It makes little sense to slow a CW operation to twenty words per minute to accommodate those who are not capable of copying thirty five words per minute if it is at the same time possible to work nearly twice as many stations in the same amount of time. Alternatively, however, those who lack the skills to work a split pileup or simply prefer to work in a net environment might be accommodated in situations where sufficient time, operators and equipment are available.

In any case a complete DXpedition should consider the needs of all interested DXers and attempt to provide QSOs for everyone. CW QSOs can be made in the General-Class segments of the US. CW bands, especially on forty meters. Slower code can be used later in the expedition when the overall rate drops. SSB QSOs can be made with general class DXers by listening in the appropriate band segments. However, the overall goal should be to contact the largest number of different stations possible, and under no circumstances should the DXpedition management allow less than the most efficient form of operation.

As mentioned earlier, this discussion presumes that the large DXpedition will usually be relying on at least partial support from a DX oriented group or groups with responsibility to contributing DXers, in which case certain rules apply. It goes without saying that if a DXpedition group is entirely self-supporting, it is responsible to no one and may proceed accordingly.

WHO TO WORK - SUMMARY

- 1) DEFINE THE AREAS WITH THE GREATEST NEEDS WITH SURVEYS, FORMAL AND INFORMAL
 - a) Define which population centers will be targeted. There are three major population centers in the amateur radio world, North America, Europe and Japan. From most locations on Earth, one or possibly two of these will present a greater demand. These areas should be targeted for concentrated activity.
 - b) A rough idea of the number of DXers inhabiting each of the countries in these population centers is important so that one knows how to allot the time within each area. For example, from the Pacific it is not enough to work only several thousand Europeans out of fifty thousand total QSOs.
 - c) Work all possible openings to the target areas.

2) PROPAGATION AND OPERATING SCHEDULES

- a) Use propagation predictions as a starting point and determine actual propagation as the expedition progresses.
- b) Use real time feedback from selected amateurs in key areas to help determine how propagation is being handled by the expedition operators.
- c) Make an operating schedule based on the observed propagation and determine which operators are most qualified to work each opening.
- d) Work only the target areas when the propagation permits. Every opportunity to work the target centers should be used in that effort. This is the most effective technique for balancing QSOs to all of the population centers. Those in the areas with better propagation will take care of themselves.

3) DEFINE THE PILEUP

- a) Work call areas whenever the resulting pileup exceeds the desired band space. This technique does not diminish the challenge to the DXpeditioner, and it increases the perception by the DXers (especially those with smaller stations) that they will be able to make the desired QSO. When working call areas, however, one should try to include all areas within a given operating period, assuming propagation permits. If propagation permits, maybe only certain areas should be covered during a particular session. Do not try to work an area despite poor propagation. Return to that area during a better opening. It is also imperative that the operator permit no noticeable exceptions to working the current call area. To make exceptions is to invite and actually sanction calls from other areas.
- b) There is no good pileup or bad pileup. Working the Europeans just as smoothly as working the Japanese is possible since the pileup's behavior accurately mirrors the DXpedition operator who runs the show.⁴ The most experienced operator knows that it is he who is ultimately responsible for the character of the operation.

PILEUP MANAGEMENT

SPLIT OPERATION

When many stations are calling, it is virtually impossible for the DXers to hear the DX return a call to one of them if they are all calling on the DX frequency. Therefore it is necessary for the DX to listen on a frequency different from that upon which he is transmitting, This is called *split operation*. Split operation gives rise to several problems which will be discussed later. Same frequency or simplex operation is possible and even desirable under certain conditions if the pileup is not large.

Some time ago, a DXpeditioner, perhaps on his first expedition, wrote at length in the subsequent article that he thought working split was entirely unnecessary. He noted that it was unnecessary to disrupt a large space in the band as he was entirely successful working the DXers on his own frequency, Quite simply, *if you are able to work a pile on your own frequency with a decent rate, the pile is not large enough to need split operation*. Working a pile on your own frequency is indeed preferable; it is simply not possible with a large pileup!

PILEUP DYNAMICS

When it appears that the pileup is going to be large and split operation has been selected as the operating mode, the methods by which the stations will be selected from the pile should be considered. Some methods are more effective and lead to higher QSO rates which in turn leads to fewer policemen and jammers. These methods also lend themselves to greater satisfaction on the part of the callers than others. The method or pattern of this change in listening frequency is called pileup dynamics.

Generally, it will be necessary to move the listening frequency following each QSO. Otherwise a large number of stations will find the frequency of the QSO and call there, making identification of the next callsign difficult. Working stations on the same frequency one after the other is very difficult because the signals all seem the same strength, usually very weak. It is always amazing to me how much louder a station sounds when it is in the clear compared to when it was part of a pile of nearly equal strength signals.

Initially, the DX station operator should inform the callers of the range of frequencies over which he will listen. *Under no circumstances will it ever be necessary to listen to more than 30 kHz on SSB and about 10 kHz on CW*. Then, it is extremely important that the operator actually move his listening frequency according to his own instructions. If he simply asks the pile to spread out, and then continues to listen on the same frequency, the pile will not disperse. The operator, therefore, must change his listening frequency in a manner which will define the range of his pileup. He may then move his listening frequency up or down following each contact until he finds a station calling on a relatively clear frequency. Whatever the method, the operator should follow some sort of pattern which can be discerned by the calling stations. A wide ranging, random selection of receiving frequencies only leads to frustration. After the pileup is properly defined the operator should frequently announce the listening range.

RHYTHM

Often it appears that no one in a pile is even listening to the DX station. Everyone seems to be calling continuously, making it extremely difficult for the DX station to complete a QSO. The reason for this difficulty is usually a lack of *rhythm* in the operation of the DX station.

At the first CQ, we might assume that everyone is actually listening. Following that first call, everyone calls, and then listens. If the DX station operator is successful in picking a call and begins the first QSO, a high percentage of those who were calling will hear the first QSO and not call until a second call is solicited. If the DX operator can continue this procedure, those calling will be somewhat synchronized, calling and listening, calling and listening.

At some point, however, if a call sign is not quickly identified, those calling will probably initiate another call. Considering the different length of various call signs, and the different times between calls, the pileup will diffuse in time until eventually there will be continuous calling with little chance for the DX station to be able to complete a QSO with the station he finally selects.

It is therefore extremely important that a DXpeditioner be capable of picking a call from the pile and getting the QSO underway (by sending a report) within the time it takes for a caller to send an average call and think about calling again. This is so important, that an experienced DXpeditioner will sometimes pick a dummy partial that he doesn't even hear, just to preserve the rhythm. Frequently this procedure will even result in a QSO.

CONVERSATIONAL STYLE

Another unique method which has been used successfully in managing an SSB pileup is the *conversational style*. Using this method of dealing with the pileup, the expedition operator establishes a friendly relationship with the pile by speaking to it and is able to control the situation by communicating important information to those calling. By knowing what the DX operator has in mind and what he is likely to do, the DXers are made to feel at ease and to sense that their expectations of working the DX will be fulfilled. To some extent, this technique also addresses the issue of excessive questions by answering them in advance. No amount of conversation will answer every question when it arises, of course.

Bits of information such as how long the expedition operator will spend on each call area, why he is working a particular area, to what frequency he will QSY, or when he will QRT, can be easily conveyed. Primarily, however, this technique establishes a positive relationship with the pile, and that is its main feature.

TAIL-ENDING

No doubt about it, tail-ending is an art. With experience, a DXer can determine the exact instant at which to insert his call during the last segment of a previous QSO in order to "jump the queue." If this technique is properly done, it works very well, but if it is poorly done, it can make the caller look bad and can temporarily disrupt the operation. Proper tail ending technique is described in detail in "Where Do We Go Next," Appendix I.⁶ I personally relish a good tail-end and encourage it, but each DXpeditioner must decide for himself whether or not to allow the practice, realizing that if tail-end calls are accepted, callers who are not familiar with the proper procedure will try to use it, with poor results. The DXpeditioner must be prepared to handling the resulting situation.

PILEUP MANAGEMENT - SUMMARY

1) SPLIT OPERATION

a) Split operation is necessary whenever the pileup is large enough to make it impossible for those calling the DX to be able to hear the DX. It should be noted that an expeditioner may not always be able to hear the congestion on his frequency and it should not be assumed that there is no QRM on the other end.

b) Simplex (same frequency) operation is possible, and sometimes desirable (to minimize disruption) but can be used only when the number of stations calling is relatively small. Recognizing that one cannot always hear the pileup as it appears in other areas of the world, perhaps the best measure of success is the QSO rote. When the rate drops to an unacceptable level, a problem exists. If simplex operation is being used, a change to split operation should be made.

2) PILEUP DYNAMICS

- a) When working a large split pileup, it will be necessary to move the listening frequency after each successive QSO. If this is not done, the pileup on the listening frequency will become congested and the rate will diminish substantially.
- b) Establish tuning patterns which maximize the QSO rate. This may vary according to the signal conditions. *Under no circumstances will it be necessary to listen to more than 30 kHz on SSB (10 kHz on CW).*
- c) Initially, the pileup may be established by working stations at the limits of the desired range. It is important to mention the frequency limits often. This will keep the pile within the desired limits and properly dispersed.
- d) Perhaps the best technique is to establish a frequency range, ten kilohertz on CW, for example and then move from each QSO frequency up as far as necessary to locate a signal in the clear, continuing this until the upper limit of the range is reached. It is amazing how much stronger a signal sounds alone instead of in a large group of signals of similar signal strength. Generally it will be possible to move far enough between QSOs and still maintain a relatively small calling window.
- e) When signals are strong, it is possible to work most stations within several hundred Hertz of each other, minimizing disruption and maximizing the QSO rate. This has the disadvantage of selecting the stronger signals over the weaker ones and tends to make even strong stations seem weaker.
- f) It is not good procedure to move randomly across the pileup range. Without a pattern to work with, many DXers will become frustrated.

3) RHYTHM

- a) In order to minimize continuous calling it is necessary to quickly pick another call from the pile following each QSO. This will tend to keep each caller calling only once. If a caller finishes his call and hears nothing, he will call again. Soon, the pile is one continuously calling entity, rather than an orderly group calling and then listening.
- b) Rhythm is considered so important that many experienced DXpeditioners suggest responding to a non-existent partial and getting the QSO underway if a callsign is not identified within the calling window.
- c) It is important to initiate a QSO by sending a signal report even if responding only to a partial.

4) CONVERSATIONAL STYLE

Maintain a friendly dialogue with the pileup. Pass information from time to time and generally keep those calling in the loop.

5) TAIL-ENDING

Accept tail-ending if you feel comfortable with it, but be prepared to handle those callers who are unable to do it properly.

QSO MECHANICS

CORRECT CALLSIGNS

The objective of those calling a DXpedition is to get their callsigns in the log in order to be able eventually to receive a QSL card verifying the contact. Therefore, the DX operator must take care to see that he has the correct callsign in the log and that the station worked *knows that his callsign is correct in the log*.

Accomplishing this requires only that the DX operator follow the proper format for a good contact (never say "good contact"). When listening, the operator picks, at worst, an incomplete "partial" from the pile. When the station repeats his callsign, and the DX operator has copied it correctly, he must send the corrected callsign back to the station. It is totally inadequate to simply say "QSL," even if you have copied the callsign correctly, since the station worked can't be sure his call has been correctly logged. In extreme cases where accuracy is most important, a second confirmation might be required by the DXpedition operator. That is, the DX operator can ask the DXer if he has heard his call repeated correctly. Failure to follow these procedures will result in an excessive dupe rate. Those expeditioners who complain of unnecessary dupes should take a close look at their operating procedure. Often they are practicing defective QSO mechanics.

PARTIAL PERSISTENCE

Among other aspects of successful QSO mechanics is persistence. If the DXpeditioner is generally responding to partial callsigns, it is imperative that he persist with a partial until he has the complete callsign. If he does not persist, he is inviting others to call out of turn during his efforts. DXers have been very clear about how they feel on this issue; if the DX does not persist, calling out of turn is justified—even if it is their calling out of turn that prevents the DX from being able to copy the desired callsign!

IDENTIFYING

At this point we should also discuss station identification. It is clear that DXers can become very vocal over infrequent identifying, and it may be that this leads to difficulties for the DXpeditioner.^{7,8} It is not necessary in all cases to identify your station during each QSO. It is, however, reasonable for most of the stations calling to know whom they are calling. Therefore, the question is how often the DX station should send his own callsign.

There are a number of options. If he dislikes responding to queries, he can send his call frequently. If the callsign is short, it will take little time to do this and it can even be a personal signature. A DXpedition is not a contest, however, and no one really needs the callsign immediately. If the expedition is a major one, it is likely that even the neophyte DXer will know who he is calling (especially if designated frequencies are adhered to) and relatively infrequent IDs will suffice.

If another expedition is in progress, it becomes very important to identify frequently since there is often confusion over just which station one has worked.

QSO MECHANICS - SUMMARY

- 1) Consistent with keeping a good rhythm, a DXpedition operator may need to respond to a partial callsign, but in responding to a partial, the operator should always initiate a QSO by sending a report rather than a query. This tends to keep those with other partials from calling at this time.

- 2) When a partial is identified, the operator *must persist with the partial* until a complete callsign is copied, unless it is decided that no such station actually exists. The operator must be firm on this issue.

- 3) Once a complete callsign is copied correctly, *it should be repeated to the calling station in its entirety*, although completing the callsign may suffice for some operators. Failure to do this will result in excessive duplicates.

- 4) The callsign of the DX station should be sent often enough so that most of the stations calling know whom they are calling.

FRUSTRATION MANAGEMENT

POSITIVE EXPECTATIONS

An important issue related to successful pileup management is frustration. Those who feel that, for reasons related to the operation, they will never be successful in making at least one QSO are a potential source of problems for a DXpedition. A few who feel that the DX is not giving them a fair deal may create QRM on the DX frequency consisting of derogatory comments, carriers and various other obnoxious forms of interference.

It is therefore important to create conditions which will lead to a high degree of positive expectation on the part of those participating in the pileup. Several methods are available to accomplish this end.

STAYING POWER

One of these methods is simply staying power. That is, remaining on a band for hours at a time and showing the callers that when conditions are right or when the pileup diminishes, they will have their chance for a QSO. Staying on the same band has the added advantage of minimizing band-dupes, and maximizing the number of different stations worked.

RATE

A tool useful in minimizing the overall frustration potential is simply keeping the rate high. There is no question that one senses that the chances are good to be able to work a DX station that is working other stations at a rapid rate. Not only is it true that more stations can be worked in the allotted time, but one receives a feeling that the operator is competent and will work everyone before the expedition is over. In addition, many DXers report that the amount of jamming decreases as the rate increases. Distractions such as conversations with friends should be minimized.

CALL AREAS

Another method for managing large pileups which also tends to reduce frustration is working by call areas. This method might only be used when the pileup is very large, but in any case, it has the advantage of regionalizing the competition making the playing field more level for those calling. In this way, even those with small antennas and low power will have a chance earlier on. Several considerations are important, however, when working by call areas.

When working by call areas it is most important that consideration be given to the existing propagation. It is generally useless to attempt to work areas where propagation is poor *unless that is the only propagation that you expect*. It is important to recognize such cases, and to pay special attention to these areas. It is extremely important to work all of the areas within the subdivisions you have defined, assuming propagation exists. If the band is open to the whole of the USA from Africa and areas one through five are worked after which the DX goes QRT for the evening, those callers in areas six through zero will not be impressed. There are variations, however. In some situations, where plenty of time is available, the DXpedition may decide to work only fours during a particular opening, there being ample opportunities for working the fives and sixes on other occasions. Care must be exercised to make certain that all areas are treated fairly in the end, however.

On twenty meter SSB from Albania, ZA1A, the pileups were enormous. Most of the time, call areas were worked. It was desirable, however, to break the call areas down to even smaller subdivisions. One evening in fact, about one hundred W4s were worked followed by one hundred K4s, followed by one hundred N4s, etc. When we reached the western US on several occasions, the propagation was relatively poor, and we skipped them entirely. At the time this was not very popular among the fives, sixes and sevens, but there was plenty of time, and when we did work the west, the rate was considerably higher, and the resultant QSO quality was higher.

PORTABLES

A nagging problem that comes with working by call areas is stations signing portable. That is, when the expedition is working threes, some stations in other call areas are prone to call "portable three." This problem seems to be overrated, and drastic solutions are not necessary. This situation is discussed in the "PROBLEMS" chapter.

INFORMATION

Information which DXers consider important concerning the details of the operation such as which stations are active, what frequencies they occupy, when each will be on the air and when they will QRT should be provided from time to time. This information will allow the DXers to plan their own personal strategies for getting into the DX log. While such information is useful for the DXer, he should not *expect* to be informed to the point that he can arise from the couch in front of the television to work the DX at the appointed time and return in only a few minutes missing only the Bud Lite commercial, and he shouldn't ask for such information either.

FRUSTRATION MANAGEMENT - CREATING POSITIVE EXPECTATIONS

- 1) POSITIVE EXPECTATIONS are the best deterrent to jamming and QRM on the DXpedition frequency.
- 2) STAYING POWER AND RATE
 - a) A continuous presence on the bands will reinforce positive impressions of the performance. Activity should continue for long periods on the same frequency when the band is open.
 - b) Keeping the QSO rate high will tend to create the feeling for the DXers that a QSO will eventually result, and indeed, it will most likely come sooner if the rate is high.
- 3) QSO format (QSO mechanics) should fulfill the DXers need for a QSO; that is, the calling stations should be able to hear their callsigns before the QSO is complete.
- 4) Working by call areas can increase the expectation of the DXer for making a contact with the expedition.
- 5) Consistent with proper QSO mechanics, the DXpeditioner should be extremely persistent with partial callsigns. To do otherwise will only encourage others to call during the QSO.
- 6) Home traffic, secret frequencies and other information:
 - a) Home traffic should be conducted on the regular operating frequencies. The pile will standby as long as the traffic is not excessive.
 - b) No operation should *ever* take place on secret frequencies. Everyone should have an equal chance at working the DX. Most of those who might be privy to secret frequencies would be able to work the DX easily.
 - c) Information concerning when the various stations will be active and what frequencies they will occupy and when they will QRT should be provided.

PROBLEMS

DUPES

When DXers persist in making duplicate QSOs, it becomes more difficult for others to make a QSO with a rare DX station. Operators who persist in making these redundant QSOs have been criticized regularly, with some expeditioners threatening to withhold their QSL cards and others advocating publishing their callsigns. There is no question that the practice exists. The reasons why some DXers make duplicate QSOs, however, vary.

First, let's put the problem in perspective. It has been found that relatively few DXers persist in making large numbers of duplicate QSOs. A statistical analysis on one large DXpedition log showed that the vast majority (over 94%) of DXers who made duplicate QSOs made only *one* such QSO.⁶ Another analysis indicated that out of 50,007 QSOs (about 24,000 different callsigns), 420 stations made 2 or more duplicates (less than 2%), while only 42 stations made 3 or more duplicate QSOs.⁷ In each study, the percentages of stations making excessive QSOs were about the same. Obviously, only a small number of DXers made what might be called excessive duplicates.

What is an excessive number of dupes? If the caller feels that he has not had a good QSO, he should be entitled to another. It is the responsibility of *both* operators to complete a contact satisfactorily. If the DXpeditioner practices faulty QSO mechanics, resulting in poor quality contacts, then a large number of second or third QSOs should not be considered excessive. Since there is reason to believe that the DXpeditioner operator is at least partly responsible for duplicate QSOs, it is unwise to announce any type of sanction that will be invoked if duplicate QSOs are attempted.

In cases where excessive duplicates are encountered, the operators involved should not be chastised on the air. This behavior will reflect poorly upon the DXpeditioner especially if it is recognized by those calling that his procedure is faulty. Since the problem is not a great one, it is best to handle it after the operation, if at all.

PORTABLES

When working by call areas, it is usually my objective not only to subdivide the pileup, but more importantly, to work certain specific areas in order to take best advantage of the propagation. Unfortunately, there are always a few DXers who can't wait for their call areas or attempt to gain an advantage by calling with other call areas.

Additionally, a large percentage of DXers feel that if they are truly portable (operating in an area not indicated by their callsign), it is permissible to call with both areas. I find this extremely disappointing. In response to this practice, some individuals have recommended that DXpeditions refuse to respond to callsigns with portables.

Unfortunately, this policy has the effect of unduly penalizing those innocent DXers who are actually located in call areas other than those indicated by their callsigns. If a W1 is located portable in W6, he will be terribly handicapped, in certain situations, if he is not allowed to call with the sixes, and I will lose some control over how I conduct the expedition.

Actually, the problem is probably overstated. There are, indeed, a number of DXers who practice signing with incorrect portables. On the other hand, many DXers in call areas other than those indicated by their callsigns normally don't use the portable designator, and it is only when a DXpedition is working call areas that we hear these portables seemingly violating the rules, when in truth they are not. In addition, since propagation characteristics often reveal their attempted deception, stations indicating portables other than their correct areas are often very obvious to the expeditioner and can be avoided. *The wise DXpeditioner will not refuse to log stations signing portable.*

QUESTIONS

Perhaps a more serious problem is that of callers asking endless questions. It seems everyone wants to be personally informed of the band operating plans, the QSLing information, the QTH, and all manner of additional information during the operating.

Obviously any such explanations detract from the operating efficiency and result in fewer QSOs. What is more perplexing is that it seems that few ever listen to what the DXpeditioner has said in answering one of these questions. It seems incredible, but often one question will be followed immediately by the same question by the next caller. In any event, once a question is answered, another will surely follow.

Perhaps the best solution to the problem is simply to ignore most questions. The operator should give the necessary information from time to time, but should avoid responding to individual requests. This will require callers to listen occasionally to what the operator is saying.

JAMMERS

Jammers on the expedition frequency can be a serious problem for any DXpedition. The wise operator should listen occasionally for jamming on his transmitting frequency. An obvious solution to the jamming problem is simply to be louder than the jammer. If callers can hear the DX station, the jamming will be ineffective, and in fact, propagation will generally be such that QSOs to some areas of the world can be made no matter how serious the jamming. If ignored, the jammer will himself become frustrated and soon disappear.

Beyond simply overpowering the jammers, however, operating procedures can be implemented which will minimize the causes of jamming. Perhaps this is the most effective technique. Maximize positive expectations, optimize QSO mechanics, and minimize disruption to unrelated activities elsewhere in the band, as this will go far in eliminating jamming.

No matter what the causes of jamming, under no circumstances should the DXpeditioner confront the jammers, nor should he change his operating frequency significantly. It will generally be possible to continue operation to some areas of the world until the jammer tires of his lack of success.

PROBLEMS - SUMMARY

1) DUPES

- a) Most duplicates occur because the caller is uncertain that a good QSO has been recorded in the expedition log. Of the stations who make duplicate QSOs, the percentage that make more than one additional contact is very small. Several statistical studies have shown that the magnitude of the problem is not large, and that the reaction is out of proportion to the problem.
- b) The DXpeditioner should consider that many of duplicate QSOs that he logs may be a result of inadequate QSO mechanics leading to additional attempts by DXers to get into the DXpedition log.
- c) Comments about those who do make excessive contacts should be made in private and not made to the DXing public over the air during the operation. In some few cases, peer pressure would be an appropriate action. Sanctions, such as threatening to withhold QSL cards from offenders should not be invoked as it puts those with valid concerns in a difficult position if they are unsure of their contact.

2) PORTABLES

- a) The objective when working by call areas, is not simply to subdivide the pile, but to subdivide it in such a way as to take advantage of the existing propagation.
- b) Therefore, it is desirable to ask the calling stations which must sign portable, to indicate their true location and to call when their geographic call area is being worked.
- c) Abuse of this rule is possible, of course, but is generally insignificant. Alternate procedures requiring stations to call with their natural call sign districts are unfair to those who follow the rules. Those who abuse the rule are often very obvious due to propagation characteristics, and can be avoided.

3) QUESTIONS

- a) The solution to the question "what is your call sign," is to identify adequately. There is really no reason not to do this, and the benefits far outweigh the bother. It is simply a matter of remembering to do it.
- b) It is a fact that questions are always followed by more questions. Many times the same question is asked immediately after it has been answered. Incredible as it seems, many DXers today fail to listen adequately. In addition, there is no incentive to learn to listen if there is no need because we answer the questions, every time they are asked. Nobody has a right to have their particular question answered. The best policy concerning questions is to ignore most, if not all of them.
- c) It is perhaps best to give the QSL information, and information concerning where other stations are operating periodically and ignore questions pertaining to these issues at other times.

4) JAMMERS

- a) Jamming by those unhappy with the DXpedition's progress can be minimized by designing the operation in such a way that most DXers will be confident they will be able to make a QSO eventually.
- b) Jamming which results from non-DXers displaced by the pileup can be minimized by restricting the space occupied by the pile, and by avoiding specific frequencies. The DXpedition operator has complete control over these parameters.
- c) Jamming which arises from irrational sources can be dealt with by following the rule which dictates, "You have to be LOUD!" Being loud is the most effective solution to eliminating jamming. If the jammer cannot compete with the DXpedition signal, there will be no harmful effect. Being loud should not eliminate the need for a good operating strategy, however.

FOLLOW-UP

FEEDBACK

Following an expedition, many DXpeditioners are very interested in learning how the expedition was received by the DXing public. In some cases the operators are greeted at home as heroes and they believe they are indeed heroes.

Eventually, however, every DXpeditioner learns that someone is unhappy with his operation. Obviously, it is very difficult to please everyone. It has been said that if you worked it, it was a great operation, if you didn't, you might be ready to disagree. When some people are unhappy it doesn't necessarily mean that the expedition was a failure. It is possible, however, that some improvement in performance might be possible.

If an expedition with two stations operating twenty four hour per day, averages three QSOs per minute, it will take about three or four days to work everyone even once. Since it is impossible for everyone to work the expedition immediately, it is reasonable to ask if the playing field is level. Does everyone have an equal chance *when considering their operating skills and station characteristics in the equation?* The answer is obviously no. Therefore, the operating techniques of the expedition operators should probably be such that the experienced DXer is able to determine the best way to work the expedition and get quickly into the log. This of course leaves the less experienced DXers for later in the operation. It seems difficult to make a case for a style of operation which is so random that no one can determine a pattern or method of working the operator more quickly than anyone else.

Some of the criticism heard following a relatively successful DXpedition will be from those operators who lack these skills. But often, valid criticisms are heard, and an objective self-evaluation is in order. Criticism should be evaluated in view of conditions on each end of the discussion and alternatives studied.

QSL POLICY

Much has been said and written about QSL policies of various groups and individuals. Generally speaking one should be free to do whatever one wishes concerning QSLing. If, however, support is sought from clubs, foundations or the general DXing public, it is incumbent upon the DXpedition group to comply with certain accepted standards.

One facet of QSLing policy which relates to the operating aspects of a DXpedition is that of how to resolve problems over calls found "not in the log". It is possible to analyze one's operating procedure from the point of view of errors made by the operator as confirmed by QSL cards received. Many errors follow a pattern and discovering their nature can improve an operators skills.

Most mistakes in the logs are handwriting problems leading to erroneous data entry, actual data entry errors (which usually number about one percent of the total), or errors by the station worked. A consistent set of rules can be followed which will allow DXers a sort of "due process" in trying to resolve their QSL problems while affording the operators an insight into their own operating procedures. If only a computer log is available when trying to resolve a "not in the log" situation, the manager or the operator must seek out a chronological listing and look for the call that was placed in the log representing that of the DXer requesting the card. Whether a computerized chronological listing or an original handwritten log is used, it may be found that a similar (enough) callsign is found in the chronological listing to justify sending a card. In many cases the operator or the manager can feel comfortable that the entry really represents the QSO in question.

If a reasonable facsimile of the requesters callsign is found, perhaps one simple rule can be applied: *Will anyone else request a card for this QSO?* Maybe the requester will be asked to contact the holder of the actual callsign in the log and see if he, indeed, did make the QSO in question. On CW one can examine the error and see if it is a reasonable error to be made in copying the code. For example, if a character is found which varies from the apparently correct character by one or two dots, we may apply the "one dot rule." This is an indication that the operator is adding or deleting dots mentally and an indication that he might be better off using a slightly lower CW speed. In this case the claimant probably deserves a card. *In no case should the DXer be deprived of a QSL card as a result of an obvious error by the DXpedition operator.*

Frequently, no callsign can be found in the log at any time near the QSO in question. In these cases, one must simply advise the requester that no QSO was made. Often, QSLs are claimed on the smallest evidence of a QSO. Many DXers record QSOs based only on partials hoping a QSO took place. Care should be taken in these cases as relatively few errors are made by the DXpedition operators themselves. This procedure not only maintains the integrity of the QSLing policy for the DXpedition, but as importantly, it serves to assist the operators in improving their operating procedure by revealing the nature of errors they have made.

There is another aspect of QSOs "not in the log," and this is what exactly constitutes a valid QSO. This problem arises mostly on the low bands, eighty and one sixty, where ESP (extra sensory perception) is sometimes found in its enthusiasts. Many of us have heard some of the low band faithful working the DX long after it has QSYed to forty meters.

From the DX end, it is usually quite easy to determine whether a valid contact has been made. Frequently, the DX station is running low power, and can more easily hear the DXers than can the DXers hear them. When one station cannot determine when the other station has stopped sending, no claim can be made for a valid QSO. If someone has to say "over," the QSO is definitely suspect. Some DXers fail to realize that a valid contact must be a two-way exchange of information (the callsigns at least). Knowing that a DX station is on a given frequency from a cluster spot does not constitute hearing a DX station. On occasion a QSL manager will see an entry in the original handwritten log which has been crossed out or erased. This may have resulted because the expedition operator could hear the calling station but sensed that the calling operator could not hear him and subsequently voided the QSO.

ETHICS

Perhaps the last chapter is not the appropriate place for a discussion concerning ethics, but make no mistake, this issue encompasses all other issues in DXpeditioning. The DXing community is keenly aware of ethical transgressions. Eventually support for DXpedition groups and individuals, whether direct or through the DX foundations is affected.

Situations arising from licensing, QSLing, and even questions concerning an actual presence at the location under discussion all affect the integrity of the DXCC program itself. It is not my intent to prescribe what is right and what is wrong in DXing. The DX community, through its representatives on the DXAC as well as magazines and bulletins will decide these issues. It *is* my intent, however, to *emphasize* that these issues will be decided by the DXing community. It is in the best interest of any DXpeditioner to consider not only his actions but the *perceptions* of his actions by DXers. Unfortunately, image *is* everything.

POST SCRIPT

The DXpeditioning concepts presented here flow in part from one of the most accomplished and prolific DXpeditioners now active. While the author has observed expeditions dating back to the fifties, and participated in expeditioning for almost ten years, it would be wrong not to credit Martti Laine, OH2BH, with inspiring much of the foregoing material. Throughout the last thirty years, Martti has continually expanded the boundaries of the DXpeditioning art while insisting on the highest degree of operating procedure and ethical conduct. Always wanting to try something new and innovative for each expedition, the resulting performances have set high standards for the DXing community and contributed to the definition of successful DXpeditioning.

Our activities in recent years have resulted in a very close relationship and seemingly endless conversations relating to DXpeditioning principles. These years of expeditioning culminated in the first operation from Albania in many years. This operation, which virtually established an amateur radio service in Albania, may well have been the ultimate experience in DXpeditioning.

The ZA1A program called upon all of the concepts covered here and more. Licensing ethics, operating procedures, QSLing policies and all of the other issues covered in these pages were part of the successful ZA1A operation. Through this and other DXpeditioning experiences, it has become clear to me that careful planning and adherence to sound principles can almost guarantee the success of any DXpedition effort. Too often we have heard of expeditions which have ignored one or more of the most important principles and paid the price with unnecessary difficulties. Careful planning can avoid such difficulties.

I want to emphasize again that most of these ideas are neither new nor unique. But for those who seek to build on the successes of the past, I hope these pages will become a focus for expedition planning. From those who will create future success, I solicit ideas and comments. I know I speak for Martti and myself in thanking INDEXA and the ARRL for their joint effort in publishing these guidelines.

APPENDIX I

It is difficult to overemphasize the importance of knowing the relative number of DXers in the various areas of the world. This information is needed to ensure that all DXers are given a fair and equal chance to work an expedition. For example, to work twenty stations from each call area in the United States is to ignore the fact that the fourth call area contains nearly *twenty percent* of the total ham population of the US. This method of dividing the call areas is unfair to areas with large DXer populations.

The following information will give the DXpeditioner an idea of where the DX population is located, and how to apportion the available QSOs in a fair manner. The data is only approximate and represents *all* amateurs in each area. But assuming an equal percentage for the purpose of deciding how many stations should be worked in each of the areas.

CONTINENTAL LICENSING STATISTICS*

AFRICA	8,723	0.4%
ASIA	1,111,660	48.7%
EUROPE	395,306	17.3%
NORTHERN EUROPE	243,994	10.7%
SOUTHERN EUROPE	151,312	6.6%
NORTH AMERICA	600,417	23.3%
SOUTH AMERICA	105,928	4.6%
VK/ZL/PACIFIC	30,376	1.3%

*Source: Radio Amateur Callbook, 1993, p. 6A

UNITED STATES CALL AREAS STATISTICS*

CALL AREA	TOTAL	PERCENTAGES
1	33,715	6.0
2	47,401	8.5
3	33,888	6.0
4	104,469	18.7
5	60,125	10.8
6	85,589	15.3
7	54,006	9.7
8	49,027	8.8
9	42,882	7.7
0	47,023	8.4

*Source: Radio Amateur Callbook, 1993, p. 4A

JAPANESE CALL AREA STATISTICS*

JA1	338,943	33 %
JA2	112,981	11 %
JA3	133,523	13 %
JA4	71,897	7 %
JA5	38,813	3 %
JA6	92,439	9 %
JA7	92,450	9 %
JA8	82,168	8 %
JA9	38,802	3 %
JA0	51,355	5 %

*Source: "Where Do We Go Next," p. 133

NOTES

- ¹ Charles T. Allen and James M. Allen, *DX IS!* [San Diego, CA], p. 91.
See also Hugh Cassidy, *The West Coast DX Bulletin*, various.
- ² Laine, Martti J., *"Where Do We Go Next?"* (Long Beach, CA: KTE Publications, 1991) p. 114.
- ³ Note: Penguin Island had not been added to the DXCC list when the 1990 ZS9Z Penguin Island trip was made.
- ⁴ Laine, Martti J., et. al., *"The VP8SSI Operator Handbook"* (unpublished)
- ⁵ See Appendix I
- ⁶ Laine, Martti J., *"Where Do We Go Next?"*, (Long Beach, CA: KTE Publications, 1991) Appendix I, p. 279.
- ⁷ Letter from Dave Church, WA2HZR, *The DX Magazine*, February, 1991, p. 26
- ⁸ Letter from Roger Western, G3SXW, *The DX Magazine*, April, 1992, p. 38
- ⁹ Western, Roger, unpublished statistical analysis of his H44 log.
- ¹⁰ Kritsky, Ed, Duplicate Contacts, *The DX Magazine*, Nov. 1992, p.28.
- ¹¹ Charles T. Allen and James M. Allen, *DX IS!* [San Diego, CA], p. 45.

