VKØEK Heard Island 2016

Part 6 - PERSPECTIVE: The Last DXpedition?

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AudioLog. 10 April 2016. *An astonishing sight: the campsite is packed. The campsite is completely clean and we are leaving. VKØEK is QRT. The 2016 Cordell Expedition to Heard Island is (almost) a wrap.*

After returning from the Heard Island DXpedition, I came to a conclusion: I probably won't be doing any more–this was likely my last. Of course very few people will care about this decision, but over the years there have been literally thousands of persons involved in, supporting, or interested in the projects I have organized and led, so a decent respect to these people, and the DXing community at large, motivates me to explain my decision. Please indulge me for a moment while I explain…

I have done a lot of expeditions. Starting in the mid-1970s, I organized and led dozens of scientific expeditions to remote oceanic sites, mainly for marine biology and geology, and for documenting the oceanic environment, collecting specimens, making charts, and accumulating a body of knowledge to help with the rational management and preservation of remote, and often fragile, sites. The expeditions my teams and I carried out are responsible for the establishment of the Cordell Bank National Marine Sanctuary, for a permanent exhibit in the Oakland (California) Museum, and for more than a thousand new records: range extensions, first observations, and new species. My nonprofit organization, Cordell Expeditions, has enjoyed collaboration with hundreds of specialists, and dozens of publications have resulted from our field work. I have written eight books covering the operations and results of the expeditions.

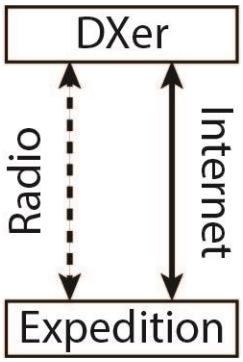
In the early 1990s, I started including amateur radio in the scientific expeditions. Partly this was because of my long-standing enjoyment of the hobby (first licensed in 1962), and partly because it is a community with interest and support. The combination of radio and science seemed, and still seems to me, perfectly natural—both are technically intensive projects and both can be carried out with limited budgets and volunteers. More than that, the hybrid radio/science expedition provides a means for getting both radio operators and scientists to an otherwise inaccessible location: when neither activity is enough, putting them together has often enabled the project.

My first such hybrid expedition was to Easter Island in 1995, for which we used the callsign XRØY. Over the next 20 years I worked hard to carry out similar expeditions, with varying success. You might well have been involved in one or more of my expeditions: Cordell Bank (1977-86); Schmieder Bank (1987-89); North Farallon Islands (1989); Farallon Islands (New IOTA, NA-178); Guadalupe Island (New IOTA, NA 179); Roqueta Island (New IOTA, NA-183); Northern California Group (New IOTA, NA-184); Central California Group (New IOTA, NA-197); Rocas Alijos (1990, 1993); Peter I (3YØPI, 1994); XRØY (Easter Island, 1995); Heard Island (VKØIR, 1997); San Felix Island (XRØX, 2002). Kure Atoll (K7C, 2005); Clipperton Island (TX5K, 2013); and finally Heard Island (VKØEK, 2016). The Central Arizona DX Association honored me with Life Membership, and in 2012 I was honored by CQ Magazine with membership in the Amateur Radio Hall of Fame.

Among all these exotic locations, Heard Island stood out as the one place to which I wanted to return. It lies in the Southern Ocean, at 53°S 73°E. It's an awesome island, with a 9000-ft. live volcano, the world's largest colony of king penguins, and *no known human-introduced species*. Discovered in the early 19th Century and exploited for seal oil, it is now a World Heritage site, protected by thousands of miles of open and violent ocean and dozens of procedural and legal barriers to visitors, together with colleagues, we carried out a DXpedition there in 1997, VKØIR, and I became obsessed with this fascinating place. In 2012, I made the decision to go back, with full

knowledge that it represents perhaps *the* single most difficult destination in the world, if you factor in the requirements of permits, logistics, duration, transportation, insurance, cost, and outreach. I have always been attracted to the hard ones, but I must admit I underestimated the difficulty of this one. It would prove to be a doozy.

Let me back up a bit: My personal obsession began when I was returning from my first major DXCC DXpedition (Peter I, 3YØPI, 1994). Lying on my bunk on the Akademik Federov, I had an epiphany: *Most DXpeditions miss the point*. In the late 20th Century, the most prominent DXpeditioners defined the task of the DXpedition to be a "show", a "performance". The purpose was to fill DXers' logbooks with QSOs so they could get their certificates. Returning from Peter I, it suddenly became clear to me that that's not *all* the DXers want. Yes, they want that QSO, but they also want to be part of the action. Ride along with the team. Experience it. Identify with the adventure.



Not only that, but the standard DXpedition plan was *not* the best a DXpedition could do. Hundreds, maybe thousands, of DXers were losing out because DXpeditions were failing to incorporate readily available technology. One of the more obvious examples was that there was no immediate feedback to the DXer. While he may have thought he made a QSO, it wasn't until months later he found that the call was broken, or never logged, and the chance to snag a rare one had evaporated. If only he had known that his QSO was with a pirate, or was logged incorrectly, he might have had an opportunity to make another before propagation deteriorated, or the team went QRT.

This problem had an easy solution, which I recognized immediately: If the DXpedition made use of a separate communications channel that is completely reliable, it could significantly help with successfully logging QSOs on the relatively unreliable ham bands. What was needed was a communications tool that could give timely feedback to the DXer: "You're safely in the log" or "You worked a pirate—you should make another QSO", or "Sorry, your call was broken by the op." Like a bolt of lightning, it was instantly obvious to me: *the tool is the **internet***.

Surprising as it may seem now, in 1994 no DXpedition had made any significant use of the internet. Around that time the use of FAX machines for planning the operations gave way to email, but no DXpedition had integrated the internet in the project. It was immediately obvious that incorporating the internet was a good idea. DXpeditions would be an ideal place to incorporate the myriad functions and options provided by the internet. I resolved to do something about it. I made the most basic sketch of this idea (cf., figure below).

The simplicity of this idea is transcendental. I was astonished that it wasn't already part of the DXpedition scene. Of course I'm not the first to think about introducing the internet into DXpeditions, but in hindsight, I may have been the first to *do something* about it. I resolved right then (and wrote it in the 1994 3YØPI book) to do another expedition, attempt something radically new, with the explicit goal of changing (=improving) the DXpedition procedure and the quality of the DX experience for all DXers. I was not (and still am not) interested in filling logbooks with the maximum number of QSOs (I expect flames here!). Rather, I wanted (and still want) to change DXpeditioning to be more responsive and rewarding to the DXers.

Almost from the moment I returned home I sat down with my friend Carlos Nascimento NP4IW and we began to brainstorm. The options and opportunities presented by the internet were sensational—there seemed to be an unlimited number of new functions that could be done rather easily by simply adapting existing software.

My first step was to write a website, apparently the first for a DXpedition (you can still see it at http://www.cordell.org/EI/index.html). We thought of uploading the radio logs once a day, posting the logs openly online, automatically sending a "Congrats" message to the DXers, putting barcodes on QSL cards, sending out QSLs the next day after logging a QSO, processing email, audio recording the QSOs, providing an online search tool, and many other ideas. Over many weeks the innovations seemed to flow in a deluge, like a herd of stampeding buffalo. The most significant idea we had was the online log server, a dialog box into which you entered your callsign, and which immediately confirmed the entries in the DXpedition log. This quickly became a regular part of the DXing world.

Once we had a large inventory of internet-based innovations, we chose a destination: Easter Island, callsign XRØY. We chose Easter Island not because it was rare (it wasn't), but because we were doing experiments and a demonstration. The DXing community ridiculed us for not picking a more needed

location, but that didn't matter. We carried out the DXpedition, which was really a hybrid radio/science expedition. The results of all the experiments, and the evaluation of the effects of bringing the internet into DXpeditions, are fully recorded in my book DX-*Aku: Messages from the Easter Island Expedition.* In 1997, many of these ideas were validated by the very successful (world records, DXpedition of the Year, etc.) VKØIR Heard Island DXpedition. That project is documented in my book *VKØIR: Heard Island*., which you can download in entirety from our website www.heardisland.org /DOCUMENTS/.

As convincing as XRØY and VKØIR were that *it's good to have the internet on a DXpedition*, something critical was missing: **real time**. Suppose the logs were uploaded once each day (as almost all other DXpeditions still do!). Yes, it's good that you can learn whether you are safely in the log within a day, but what if the propagation disappears, or worse, what if the DXpedition goes QRT? No second chances. Few things are more frustrating than finding that you have no chance for a QSO.

The solution to this problem is obviously to provide feedback in real time. That way, you can see immediately whether QSO is in the log, and if not, you have a chance to try again. It's easy to visualize: A web page that is automatically updated "immediately" after the QSO, so within a minute you know what to do. All we needed was a *real-time online log server*.

For me it proved relatively challenging to implement, and I worked on it for a full year. I was motivated by an invitation to help organize a DXpedition to Kure Atoll, the last island in the Hawaiian chain. We selected the callsign K7C (C=Cordell), and when we were ready to sail I had the system ready. It consisted of an application that ran on a local (DXpedition) computer tied into the logging computer network, a satellite terminal to upload packets of log data to a server, and software for parsing the packet and updating a database with the new log information. To use it, the DXer simply watched a web page on any browser, which displayed the automatically updated log information. I went to a lot of effort to design the web page, intentionally making it difficult to take your eyes off it. I called it DXA, where the "A" stands for Anything-You-Want-It-To. It was a success, and for the first time DXers were able to get "instant" confirmation of their QSOs.

As important as real time internet log display was, it still lacked an important element: How would anyone *know* about DXA? How would they know to watch it? Yes, there are the usual announcements in the usual channels about DXpeditions. But even after two uses on major DXpeditions (K7C and TX5K), I was surprised by how many DXers had not even *heard* of DXA. The strategy came slowly, but clearly: the internet is increasingly moving to ***Social Media***!

I have to admit I am a foot-dragger about social media. I still don't do Facebook or Twitter. My excuse is that I'm too busy writing things like this classic essay to waste it with online bits and pieces. However, I was savvy enough to recognize that it provides the vehicle for reaching, and entraining, thousands—no millions—of people, among whom are tens of thousands of obsessed DXers, many of whom *are* into social media. Unfortunately I had (and still have) no ability to play efficiently in this space—it requires too many details for a person of my tender age (should I say experience?) to handle.

Salvation arrived in the person of Rich Holoch KY6R. Like Carlos, Rich lives just a few miles from me, and we became fast friends, joined at the social media hip. Rich provided just what was needed: the ability to implement a whole range of social media applications, and an obsession to do so that matched my obsession to improve DXing. Soon we were doing what Carlos and I had done: inventing all kinds of ways to reach people and get them involved in the project using social media.

This time it was harder, because the landscape was evolving as we stood in it. We found that what we *wanted* to do often depended on what we *could* do, but the outcome was similar: over the course of a year or so, we assembled a large inventory of new functions and processes that we believed would make DXers' lives happier and more rewarding.

The inventory of experiments involving social media was comparable to those provided by the original inclusion of the internet, but this time it was person-to-person, real time, adaptable, and with a much larger audience. We embraced Facebook, Twitter, a Help Desk (based on Freshdesk), an AudioLog, team Skype conferences, the Weak Signal Propagation Reporter (WSPR), the Reverse Beacon Net (RBN), GPS trackers, and Skype interviews with TV stations, schools, and conferences.

The expedition website www.heardisland.org was kept updated, especially acknowledging the steady stream of donors, and Rich developed a blog that became the radio website www.vk0ek.org. Rich did most of the development of these services, a huge task that sometimes threatened to grow out of control. By the time of the VKØEK expedition (March/April, 2016), we were confident that we had implemented far more outreach to the DXing community than any previous DXpedition.

So having completed the VKØEK project, I am faced with a challenge: "What shall I do next?" And this is when I came to the answer in the title of this essay: Perhaps …nothing. Perhaps I am finished. But indulge me for a few more words…

The table below shows the progress of DXpeditions partitioned according to the type of technology used. I claim that the three rows labeled "Internet …" were stimulated my epiphany in 1994, and they have been fully vetted by several demonstrated successes. But clearly the evolution of technology is not over. The last line names several activities that I think are very likely to become part of the mainstream of DXing and DXpeditions. Among these, remote operation, software-defined radio (SDR), and new modes, seem to me the most immediate and also inevitable. But of course it would be foolish to claim that we can foresee all the technical developments a decade or more in advance. I hope the last line (marked ???) will be motivating.

Era	Tools	Dates
Pre-internet	Mail • FAX • Manual Logging • Post-Expedition QSLing	Pre-1995
Internet batch	Websites • Online log server • Daily log uploads • Email • Next-day QSLs	1995 Easter Island XRØY
Internet real-time	Real time website (DXA)	2005 Kure Atoll K7C
Internet social media	Blogs • Facebook • Twitter • Helpdesk • AudioLog • GPS tracking • WSPR • RBN	2016 Heard Island VKØEK
Systems integration	Remote operation • Software-defined radio • Adaptive signal processing • Automatic (unattended) logging • Integrated station operation • Signal optimization • Cooperative activities • New modes (e.g. • JT65) • Evolution of program rules (e.g., DXCC) • Event-wide optimization • Coordination with other activities (e.g., • research, remediation) • Active offsite team members	???

You might reasonably ask: Why don't I and my group tackle the last line in the table? My answer is that I want to hand this quest over to the new–younger–generation of tech-savvy nerds who will get the same thrill I did by inventing new ways to reach people and entrain them in the adventure of an expedition.

Maybe it would be of value to remind you what we mean by "systems integration", and to do that I provide the insert.

Systems integration:
The process of bringing together the component subsystems into one system and ensuring that the subsystems function together as a system. [Wikipedia]

Systems Integration sounds just about right for a big, hard DXpedition, yes? Since the big, hard ones now cost about a half-million dollars, it suggests that an informal approach to design and management of such projects would be irresponsible. Increasingly, I have incorporated formality in my expeditions, and I believe it has paid off. Indeed, for VKØEK we were able to secure corporate partners (HDT global, Inmarsat, and others) that saved raising and spending perhaps $100k, probably a first for any DXpedition. This resulted from the project formality, including both the radio and science operations, and implementing a lot of social media outreach. Now we have an opportunity to embrace the next generation of design.

Nothing would please me more than to see the DX community extend the trend we started more than 25 years ago. You can add your own great idea to the last line of the table, and go for it. Or you can design your next DXpedition using the last line above. Regardless of your personal position, I do hope that you will embrace and advance *Systems* in DXing, and let the last century Rest in Peace.

***AudioLog 24 Feb. 2016**. OK, until the next report, this is Bob KK6EK. Thanks for listening, and I hope you'll come back now and then.*