

NETWORKING ON THE NETWORK

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The Internet and other digital networks are currently undergoing explosive growth. Several million people employ electronic mail for some significant portion of their professional communications. Yet in my experience few people have figured out how to use the net productively. A great deal of effort is going into technical means for finding information on the net, but hardly anybody has been helping newcomers figure out where the net fits in the larger picture of their own careers. These notes are a first attempt to fill that gap, building on the most successful practices I've observed in my fifteen years on the net. I will focus on the use of electronic communication in research communities, but the underlying principles will be applicable to many other communities as well. Everyone's life is different, cultures and disciplines have their own conventions, and it's all just my opinion anyway, but perhaps my suggestions will be useful. Do not interpret them as rules of etiquette or morality, but rather as a resource in figuring out your own personal way of getting around in your particular professional world. And definitely do not turn them into any kind of ersatz social identity or value system. Instead, make sense of them within some larger set of values that you develop as you live your life.

Section 1 introduces the rationale behind professional networking and explains why it is not just "politics". Section 2 provides a simple six-step model of the networking process without reference to electronic media. Section 3 introduces the use of electronic media for building a professional identity, focusing on some common

mistakes. Section 4 then revisits the six steps of networking and explains how electronic media can (and cannot) assist with them. Section 5 considers several advanced topics: noticing emerging themes in your area, using consultation to organize things, ensuring that you get proper credit for your contributions, learning to engage professionally with people from different disciplinary and cultural backgrounds, and pursuing your professional networking when you cannot raise the funds to travel adequately. Section 6 concludes with a few words on the role (and limitations) of electronic media in community-building, together with some general philosophical exhortations. An appendix provides an annotated bibliography of books and articles on the topic of professional networking.

//1 Networking: What and Why

The first thing to realize is that net-world is part of reality. The people you correspond with on the network are real people with lives and careers and habits and feelings of their own. Things you say on the net can make you friends or enemies, famous or notorious, included or ostracized. You need to take the electronic part of your life seriously. In particular, you need to think about and consciously choose how you wish to use the network. Regard electronic mail as part of a larger ecology of communication media and genres: telephone, archival journals and newsletters, professional meetings, paper mail, voice mail, chatting in the hallway, lectures and colloquia, job interviews, visits to other research sites, and so forth, each with its own attributes and strengths. The relationships among media will probably change and new genres will probably emerge as the technologies evolve, but make sure that you don't harbor the all-too-common fantasy that someday we will live our lives entirely through electronic channels. It's not true.

One might engage in many different professional activities over the net: sharing raw data, arguing about technical standards, collaborating on research projects, chasing down references, commenting on drafts of papers, editing journals, planning meetings and trips, and so on. Underlying all of these disparate activities, though, is the activity of building and maintaining professional relationships. All of the capacity and velocity of electronic communication is wasted unless we use it to seek out, cultivate, and nurture relationships with other human beings. Unfortunately the existing mechanisms for electronic interactions, by seeming to reduce people to abstractions and codes (like "c2nxq@loco.thrust.com"), make it difficult to keep this deeper dimension of interaction in mind. Still, there's no escaping it:

if you aren't consciously building relationships, you're probably getting lost.

At the most fundamental level, then, most of my advice has nothing intrinsically to do with electronic communication at all. My real topic is not (technological) networks but (professional) networking. Therefore I'll discuss networking in a general way before describing how electronic mail can accelerate it.

In the past, the only ways to learn networking were to be born to a socially well-connected family or to apprentice yourself to a master of the art. And even though the term "networking" became fashionable during the 1980's, it is only recently that decent books on the subject have begun to appear. (Some of these are listed in the appendix.) Many people resist the idea of networking because they associate it with the greasy connotations of "knowing the right people", because of a distaste for "politics", because they've learned that useful knowledge about how the world works is necessarily "cynical", or because it supposedly takes time away from "getting real work done". Indeed, many people will accuse you of all sorts of terrible things if you admit to having worked-out ideas on the subject. Even when the practical skills of networking are explicitly taught, it is usually done over coffee or beer, in hushed tones, as if there were something illicit about it. Many people, watching the real networking experts in action, assume that they must know some dark, inaccessible secrets that make it all easy (they don't). This is all most unfortunate.

The truth is that the world is made of people. People out of communities are like fish out of water or plants out of soil. Research of all kinds depends critically on intensive and continually evolving communication among people engaged in related projects. Networking cannot substitute for good research, but good research cannot substitute for networking either. You can't get a job or a grant or any recognition for your accomplishments unless you keep up to date with the people in your community. Establishing professional relationships with particular people and involving yourself in particular professional communities will change you: not only will you internalize a variety of interesting points of view, but you will become more comfortable in your writing and speaking because you will be engaged in an ongoing conversation with people you know. And if no community is waiting for you, you will have to go out and build one -- one person at a time. This "overhead" can be a nuisance at first, but none of it is terribly difficult once you get some practice and really convince yourself that you cannot sustain your professional life without devoting about a day per week

to it.

//2 The Basic Steps

Here, then, are some of the fundamentals of professional networking. They will sound cumbersome and abstract. You'll be able to skip some of the steps as you get established in your field (or if, unlike most of us, you are able to charm rooms full of strangers in twenty minutes), but if you're starting from zero then the process really is this complicated.

(1) Know your goals.

Getting tenure? Being invited to conferences overseas? Filling your life with intelligent conversation? Developing leadership skills? Getting and keeping the resources to do the work you choose without artificial constraints? Clear goals will help you maintain focus. Do not, however, use your professional networking to achieve personal goals such as finding friends and lovers. It's just great when professional relationships happen to develop into personal relationships (assuming that you're clear about the conflicts of interest that professional power differences can bring), but always keep in mind that professional relationships and friendships are different sorts of things, no matter how friendly they might both seem on the surface.

(2) Identify some relevant people.

Awful as it might sound, "relevance" here is reckoned in functional terms: given how your particular professional world operates, with whom do you have a mutual interest in making contact? In the world of research, mutual interest is almost always defined through the content of your research: you wish to contact people whose research bears some important relationship to yours. This is the case I will assume here. How do you identify these people? Most of the methods are wholly mundane: asking people with good networks, chance mentions of people in conversation, and habitually scanning bibliographies, abstracts, and conference proceedings. Get used to these mundane practices before you explore anything fancier.

(3) Court these people individually.

The right way to do this is not entirely obvious. Unless you are already well known in the person's field, you should NOT simply approach them and say, "hey, I hear you're interested in XXX". The reason for this is profound, viz, whereas ordinary social life calls

on you to simply be yourself in this way, professional life calls on you to construct and maintain a complex professional persona that is composed largely of your research, writing, and professional activities.

Therefore, in approaching possible professional contacts, you should let your research articles be your emissaries. (If you haven't written anything yet, let your networking wait until you have. Unpublished articles, conference papers, and research reports are all okay. In writing your first articles, you will want to lean heavily on your local system of advisors, mentors, and peers; the skills involved in this process are a subject for another time.)

Here is the procedure: (a) choose someone you wish to approach and read their work with some care; (b) make sure that your article cites their work in some substantial way (in addition to all your other citations); (c) mail the person a copy of your article; and (d) include a low-key, one-page cover letter that says something intelligent about their work. If your work and theirs could be seen to overlap, include a concise statement of the relationship you see between them. The tone of this letter counts. Project ordinary self-confidence. Refrain from praising or fawning or self-deprecation or cuteness or making a big deal out of it -- you're not subordinating yourself to this person; you're just passing along your paper. Don't make it sound like you're presupposing or demanding that you'll get a response.

And don't drop dead if you don't get a response right away. Anybody who isn't wholly egotistical or seriously famous will appreciate your taking the trouble to write them. In my experience, most everyone in the world of research is desperate for someone to actually understand what they're saying. If they don't reply, the most likely reason is laziness.

(Warning: Do not use citations as a form of flattery. This sort of thing fools nobody. Instead, think of a research paper as a kind of open letter, with the people you cite included among its addressees. The research literature is a conversation, and your paper is a way of starting new conversations with people in your area. When in doubt, get advice.)

(4) Meet this person face-to-face at a professional meeting.

Research people normally go to great lengths to attend conferences and other professional meetings, and computer networks are unlikely to change this. Go ahead and attend the research presentations,

especially the ones that specifically seem likely to be valuable to you. But spend most of your time tracking people down and talking to them. Unless you really know what you're doing, you should keep the conversation to safe, professional topics. Ask them intelligent questions about their work -- that is, questions you genuinely want answered. Ask them about the people they work with. Figure out who you know (that is, professionally) in common. If other people, projects, or laboratories come up in the conversation, say whatever positive things you honestly have to say about them -- avoid criticism and negativity. If the conversation doesn't seem to be going anywhere, that's not your fault; just say "nice chatting to you" in a pleasant way and let it go. If the interaction leaves you feeling bad, go get some fresh air, acknowledge the feelings, and be nice to yourself.

If the person you wish to approach is significantly more powerful than you then the prospect of conversing with him or her will probably make you uneasy. That's okay. Concentrate on meeting people who intimidate you less and your courage will grow. Your single most important audience is actually not the power-holders of your field anyway, but rather the best people of your own generation. These people share your situation and will usually be happy to talk to you.

Nonetheless, you should always give full and respectful attention to anybody who approaches you, no matter how junior or marginal they might be. If you find yourself talking to a space cadet or a jerk, have compassion. It's up to you which relationships to pursue in depth, but everyone you meet shapes your reputation -- and justly so. It really is imperative that you conduct your professional activities ethically -- and not just within the bounds of a legalistic interpretation of ethical principles, but with an active and creative solicitude for the well-being of the individuals and communities around you. You don't have to be shy or let people walk on you, and there's nothing wrong with being first in line if you've earned it, but if you get ahead at the expense of others then it will catch up with you -- in your heart if not immediately in your paycheck.

(5) Exchange drafts.

The next step, I'm afraid, depends on the hierarchy. If someone is qualitatively more senior than you, your goal is simply to get on their radar screen -- one chat per year is plenty. (That's mostly because they already have a full network and have begun to reckon relevance differently from you.) If someone is more or less equal

to you in the hierarchy, and if they still strike you as relevant, worthwhile, and trustworthy, it will probably be time to exchange pre-publication drafts of new articles. Again, keep it low-key: pass along a draft that you're ready to circulate and invite "any comments you might have". (Make sure you've run your draft through a spelling checker first.)

Upon receiving such a draft yourself, take the trouble to write out a set of comments on it. Make sure your comments are intelligent, thoughtful, constructive, and useful. If you are uncomfortable writing critical comments, frame them with positive comments ("this is obviously an important topic and you've made some valuable observations"), develop a lexicon of hedges ("I'm not clear on ...", "maybe"), emphasize what's possible instead of what's wrong ("maybe you can build on this by ...", "perhaps you can further clarify this by ..."), own your feelings and judgements ("my sense is that ...", "I had trouble with ...", "this felt vague to me", "I'm worried about the assumption that ..."), and keep to specifics ("how does this step follow?" as opposed to "woolly and vague"). These rhetorical devices may seem baroque at first; their purpose is to let you express yourself honestly without fear of giving offense. Indeed, you may well realize that you've been spending your whole professional life saying what you think you're supposed to say, as opposed to inquiring into what you really think and feel.

More generally, this draft-exchanging ritual is tremendously important, but nobody ever seems to teach you how it's done. When in doubt, ask for help. And if somebody comments a draft for you, thank them, include them in the paper's acknowledgements, and be willing to reciprocate. (You don't need to make an explicit offer of reciprocation, though, any more than you need to express your willingness to pass the salt -- it's simply understood.) Doing so, even once, will almost certainly cement a long-term professional relationship -- a new member of your network.

(6) Follow up.

Keep coming up with simple ways to be useful to the people in your network. A few times a year is plenty. Pass things along to them. Mention their work to other people. Plug them in your talks. Include them in things. Get your department or laboratory to invite them to speak. Put them up when they come to town. And invent other helpful things to do that nobody ever thought of before. None of this is mandatory, of course, but it helps. And I can't repeat this often enough: keep it low-key. Never, ever pressure anybody into anything. Never heap so much unsolicited help on someone that

they feel crowded or obligated. Don't complain. Don't approach the whole business as a matter of supplication and begging, but rather as an ordinary exchange of favors among equals. Likewise, make sure you're exchanging these favors out of courtesy and respect, and not as any kind of phony politicking -- people can spot phonies a mile off. Build relationships with personal friends outside of work so you won't be unconsciously trying to get professional contacts to play roles in your personal life (for example, the role of sounding board for your troubles). If you don't hear from someone for a while, let it ride. If you feel yourself getting obsessive about the process, go talk it out with someone you regard as wise.

This step-by-step procedure is obviously oversimplified and somewhat rigid. And it omits many topics, such as the claims that effective networking makes on numerous other activities: giving talks, mixing at receptions, formulating research results, working with people at your home institution, choosing where and when to publish, and so forth. Nonetheless, some basic points about the networking process should be clear enough:

- * It takes time -- you have to be patient and let it happen.
- * It focuses on particular individuals and particular relationships.
- * It produces bonds of reciprocal obligation through the exchange of favors.
- * It calls for a significant but manageable up-front investment.
- * It requires you to cultivate a realistic awareness of power.
- * It involves a variety of communication media.
- * It forces you to develop communication skills in each of these media.

None of this, obviously, is etched in stone. You should keep reflecting on your professional life as you go along, continually trying to come up with a better way of explaining it to yourself. No doubt I've left out some important dimensions of the process.

//3 Electronic Media: Some Cautions

Having surveyed the basics of networking and professional relationships, it's time to consider the role that electronic

communication can play. The most important thing is to employ electronic media consciously and deliberately as part of a larger strategy for your career. It's okay to use the net in other parts of your life: hunting for people to correspond with, organizing political movements, joining discussions about sex and child-rearing, and so forth. But so long as you have your professional hat on, every message you exchange on the network should be part of the process of finding, building, and maintaining professional relationships. I cannot emphasize this strongly enough, because electronic mail seems to provide endless temptations to the contrary. I succumb to these temptations regularly, and I invariably regret it. They include:

- * The temptation to react.

Most on-line discussion groups consist largely of people reacting to things they've seen, acting on impulse without thinking through their own agenda in the situation. (One kind of reacting is called "flaming", but many other kinds of reacting are equally insidious.) E-mail encourages this kind of reactive behavior by making it easy to respond to a discussion with only a few rapid keystrokes. Keep your cool. The more impulsive you are, the more you're using the network to find friends as opposed to colleagues, and the greater your unmet needs for affirmation and attention, the more you will be led into reaction. One slip-up will not bring your career to a halt, but you should definitely be aware of the phenomenon.

If someone abuses you in an e-mail discussion, hang back. Get the useless anger out of your system by hyperventilating and screaming a few times (I'm completely serious -- breathe in and out through your nose for about thirty seconds, really hard and deep, then take a really deep breath and scream it all the way out with the energy flowing from the bottom of your guts; use a pillow if necessary). Sleep on it overnight. Talk it out with someone. When you do respond, go ahead and reveal your anger ("I felt angry when I read your message"), but then take care to paraphrase your interpretation ("I took you to be accusing me of trampling on your area of expertise"), admit the (usually very real) possibility of misinterpretation ("Perhaps I wasn't clear, or perhaps I've misinterpreted your response"), outline the facts as you see them ("The facts as I understand them are as follows"), and politely invite a response ("I'd greatly appreciate hearing your perspective. Thank you."). Part of you may be howling for revenge the whole time you're typing this stuff, and the howling will be all the louder because you're sitting alone in a room with just a computer terminal to inhibit you. But definitely resist the howling and you'll be

surprised how often you can rescue a bad situation and even gain the respect of your antagonist. Very few people in net-land are really as awful as all that.

* The temptation to treat people like machines.

One consequence of the intangibility of e-mail is that basic politeness often erodes. It takes real work to remind myself that the person behind the e-mail message is an actual human being and not, say, another name to add to my network. You can help keep network interactions on a human level by taking special care about the basics of politeness. Most particularly, if somebody on the net helps you out (for example by providing some information in response to a query on a discussion group), say "Thank you" and perhaps give a brief account of how their help was helpful.

* The temptation to pretense.

Electronic communication affords the illusion of semi-anonymity: since people only know you by what you type, you may tend to lose the inhibitions that normally keep you from pronouncing on matters that you are not really informed about. The chatty informality of most e-mail discussion groups, which is certainly capable of being a force for good in the world, nonetheless also tends to wear down these inhibitions. Besides, everyone else is doing it. But pretending to know things is just as bad an idea on e-mail as it is face-to-face. Phrases like "I think I recall that ..." and "my understanding is ..." are red flags -- indications that you're probably about to do more harm than good. Keep focused on your own unique professional contributions and let the random chatter slide.

Beware: many people revile this injunction against pretense, based on a false conception of community and a misguided fear of elitism. I am certainly not promoting the reign of experts here; I am simply applying to electronic communication the everyday injunction to know what you're talking about.

* The temptation to paranoia.

Along with your own near-anonymity goes the frequent difficulty of knowing who exactly is receiving your discussion-group messages. As a result, you may just listen in, terrified to say anything for fear that you will be dumped on by powerful experts -- an experience sometimes stigmatized (or even celebrated, as if it expressed some kind of power) as "lurking". This phenomenon is not exclusive to e-mail, of course (much hype to the contrary), but it is real.

The solution is to focus on the careful, step-by-step process of approaching individuals, leaving group participation until you feel more comfortable -- which you will, eventually. Don't feel pressured to participate before you are ready.

* The temptation to get overwhelmed.

It's easy to sign up for everything that sounds interesting, or to pursue dozens of people in every direction, only to find yourself swamped with messages to read and favors to return. If you're getting more than about twenty messages a day in your mailbox then perhaps you should review your goals and prune back accordingly.

* The temptation to get addicted.

Addiction means getting overwhelmed on purpose. Few people take e-mail addiction seriously, but it is a genuine addiction and it can be a self-destructive waste of time. Ask yourself: Can I just decide to give it a rest for a few days? Am I doing this because I get some identifiable value out of it, or am I doing it to distract myself from my feelings? Do I use other things to distract myself from my feelings -- drugs, sex, food, alcohol, television, work? If you start thinking that any of the answers to these questions might be "yes", go find a twelve-step recovery group in your community (Alcoholics Anonymous or the many other programs that have been modeled on it) -- or maybe start one on the net.

Getting help doesn't mean you're crazy; quite the contrary, it means you're one of the saner people around. And taking care of yourself doesn't make you selfish; quite the contrary, it is a prerequisite to being any genuine use to anyone else.

* The temptation to waste time.

Exploring the net is a tremendous way to avoid writing your thesis. The net goes on forever these days, and you can waste a great deal of time playing with it. Unfortunately, random exploration will rarely yield network information resources that are actually useful to your real career goals. Useful information is always bound up with useful people. Therefore, your explorations of the network will most usefully be guided by your goals and structured by the search for people to add to your network.

If you really do care about on-line information resources, develop a good relationship with a librarian. Librarians are almost uniformly wonderful people who enjoy helping you find things, whether on the

net or elsewhere. (If you're shy about asking people to do things for you, instead tell them what you're trying to accomplish and ask them for advice about how to do it yourself and for suggestions about who might be able to help you.)

* The temptation to blame e-mail for your problems.

If you're a beginner with electronic communication, you will probably have a few mishaps at some point: getting put down by somebody, acting on an impulse that you later regret, inadvertently sending a message to the wrong person, violating the obscure protocols of professional communication, getting overwhelmed with marginally worthwhile messages, finding yourself trapped in long, complicated correspondences, or whatever. When this happens, you might be moved to blame the medium; you'll find yourself saying that e-mail is dangerous or worthless or overwhelming. But ask yourself: do similar things happen in group meetings or conferences or over the telephone or in paper mail? E-mail has its shortcomings to be sure, but it's just a tool like any other. You'll have to learn how to use it, what to use it for, and when not to use it.

Of course, a little messing around won't kill you. And it's just as bad to go to the opposite extreme and become a compulsive machine for scoring points and making connections. What matters is understanding whatever you're doing within the bigger picture of your life and career.

//4 The Role of E-Mail

So, assuming you've been duly admonished against these temptations, what ARE the most constructive uses of electronic communication? Let's review the six-step networking process I outlined above and look for opportunities to use electronic mail to ease the various steps:

(1) Know your goals.

Electronic mail can't help you much here. Indeed, you'll need to make sure that your goals are not defined narrowly in terms of electronic mail. Once you've begun corresponding with people you consider wise, you can begin to seek advice from them. Asking for advice is an art in itself, and other things being equal it's best done face-to-face, but once you know someone fairly well on a face-to-face basis you can move some of the discussion to e-mail.

(2) Identify some relevant people.

Listening in on discussion groups is one way of finding relevant people, especially the ones who aren't so famous. If someone in a discussion impresses you, fight the temptation to approach them right away. (It's obviously okay to answer routine functional requests on the order of, "does anyone know ...?", provided you simply answer the request and leave the networking for later.) Instead, consult your library's card catalog and periodical indexes (which are probably on-line anyway), look the person up, read a sample of what they've written (especially any books they might have published -- at least skim them), and proceed with the next step. Only if you cannot find any relevant publications should you consider sending the person a concise note saying, "what you said about XXX is interesting to me because of YYY; if you have an article on the subject ready to distribute then I'd much appreciate a copy".

Or, having listened in on a discussion group for a while and observed its customs and conventions, you might consider contributing something yourself. Don't just react or chat. Instead, write a really intelligent, self-respecting, unshowy, low-key, less-than-one-page message that makes a single, clearly stated point about a topic that's relevant to both their interests and your own, preferably but not necessarily as a contribution to an ongoing discussion. Since your message might be read by people all over the world, avoid any slang or jokes which might not travel well. Sit on this message overnight to make sure you're not just reacting to something or repeating a familiar point that happens to make people in your community feel good. If you're feeling uneasy or compulsive about it then get comments from someone close to you whose judgement you trust.

Having thus refined your message, contribute it to the discussion group and see what happens. If nothing happens, don't sweat it. If it starts a discussion then listen respectfully, constructively acknowledge all halfway worthwhile responses, and be sure you're not just reacting to things. This process might flush out some people worth adding to your network. Or it might not. In any case it will get your name out and will, with remarkable efficiency, establish your reputation as an intelligent and thoughtful person. Remember: don't bother doing any of this until you've written up some work and are ready to actually start building your network.

(3) Court these people individually.

In the old days, the article and letter you sent to approach someone

were both printed on paper. Should you use electronic mail instead? I actually recommend using paper. At least you shouldn't use electronic media just because they're fun. For one thing, paper is much easier to flip through quickly or to read on the subway. It's also much easier to write comments on. Use your judgement. If you do decide to employ electronic mail for this purpose, use just as much care as you would on paper. Remember that first impressions count. And don't try to use e-mail for the get-to-know-you type of chatting that should logically follow at this point. Instead ...

(4) Meet this person face-to-face.

I believe firmly, notwithstanding all the talk about "virtual reality" and "electronic communities", that electronic communication does not make face-to-face interaction obsolete. Instead, as I said at the outset, you should think of e-mail and face-to-face interaction as part of a larger ecology of communication media, each with its own role to play. In particular, I honestly believe that you do not really have a professional relationship with someone until you have spoken with them face-to-face at length, preferably in a relaxed setting over a social beverage. Call me old-fashioned if you will, but make sure that any aversion you might have to face-to-face interaction isn't based on inertia or fear. Inertia and fear are normal feelings, but they have to be worked through and faced.

Having said that, the availability of e-mail will nonetheless bring subtle changes to the ecology of communication in your field. This is particularly true with regard to the telephone, whose uses change considerably in e-mail-intensive communities -- so much so, in fact, that many people nearly stop using the phone altogether (or never learn how) and try to use e-mail for unsuitable purposes like asking discussion groups for information that could have been gotten more easily through resources listed in the front of the phone book. (It's amazing what you can accomplish over the telephone once you learn how. And long-distance really is not that expensive unless you're planning to settle in for a long chat, which you usually are not.) But the role of face-to-face interaction will change as well, particularly since many kinds of routine work can be conducted almost as easily at a distance electronically as in formal meetings face-to-face. Electronic communication might even allow face-to-face interaction to shift its balance from its practical to its ritual functions. In any case, the general lesson is to pay attention to the relationships among media so you can use the right tool for each job.

One more note: when you go to a professional meeting, take a minute to flip through your e-mail correspondence and make a list (ideally on paper) of all the people you've "met" on-line who might attend the conference. Few things are more embarrassing than drawing a blank when someone at a conference approaches you and tries to pick up a conversation begun on e-mail.

(5) Exchange drafts.

Once again, you should decide whether to use paper or electronic mail to exchange drafts of articles. My own practice, usually, is to highlight passages and write brief comments on a paper copy of a draft, take a moment to clear my mind and ask myself what the overall point was and what my overall constructive response is, and then use e-mail to send the author longer and more intelligible versions of those comments. Since I do this quickly after reading the paper (within a couple of days) while my impressions are still fresh in mind, the resulting e-mail messages are limited primarily by how fast I can type. As a result, they can be unusually helpful even though they don't actually take that long to prepare. If necessary I'll also offer to paper-mail the author the marked-up draft for the sake of minor proofreading details that are too much trouble to type in.

Notice the fairly complex interactions between paper and electronic forms of communication. You may find different practices more convenient; the point is to be aware that you have a choice. I even know people who tape-record their comments on a paper while they're reading it and then send the author the tape. Keep your real goals in mind and be creative.

(6) Follow up.

This is one area where e-mail makes a qualitative difference. Once you've established a professional relationship with someone, e-mail provides a convenient way to maintain a steady, low-key background of useful two-way interactions. You might wish to forward things to people (abstracts, interesting messages, conference announcements, press releases, book reviews, whatever) depending on their interests. Or you might wish to recommend their papers (in a low-key way, with a concise summary and a complete citation, and only if you really mean it) to e-mail discussion groups. Don't overdo it, and pay attention to whether the gesture is being reciprocated.

After a (long) while you might consider building an electronic

mailing list of people who share your interests and would like to get interesting stuff forwarded to them routinely -- including, of course, your own abstracts and shorter papers. Never add anybody to such a list (or any list) without asking them, and never pressure them or make a big deal out of it.

E-mail is also obviously useful for a wide variety of other purposes, for example scheduling and organizing professional events. Make sure that some purpose is actually being served; don't engage in e-mail correspondence simply for the sake of it.

And don't do any of this stuff with someone unless you've gone through the previous five steps and established a real, functioning relationship with them. Finally, double-check that you're keeping track of the difference between a professional relationship and a personal relationship. A good test is, would I call this person up on a Friday night and suggest going to a movie? Even then, give any such transition in the relationship a little time to sink in before you start to rely on it.

//5 Some Advanced Topics

The steps for making contact with people that I've been describing obviously do not exhaust the social skills that are necessary to get along in the professional world of research. But they do provide a necessary foundation -- the 60 Hz background hum of the professional circuitry, the basic strokes of the professional combustion engine. Having gotten your network going in this way, the obvious question is what to do with it. Well, maybe you do nothing with it. Having people to talk to about your research might be plenty. But if you'd like to do good in your field, or do well in it, or both, you'll want to try organizing something: a workshop, a journal issue, an e-mail discussion list, an approach to a funding agency, or whatever. This is not the place for an encyclopedic account of such activities, but perhaps it will help if I introduce two of the more important concepts around them: the "emerging theme" and "consultation".

Most everyone regards the notion of an "emerging theme" as hype, and no doubt I will be thought cynical for explaining it, but it's tremendously important anyway. Research, of course, is about new things -- and not just individual new results or ideas, but whole new fields of research and whole new ways of doing research in a given area. Popular science writing to the side, new ways of doing research rarely spring full-blown from any individual's head. Rather, somebody who has been keeping up with many

different research projects starts to notice a trend. Perhaps it's a previously unnoticed analogy among various new concepts; perhaps it's a metaphor that makes sense out of a range of seemingly unrelated results; perhaps it's a pattern that appears to underlie the work of several different groups; or perhaps it's a method that several groups have independently found useful or necessary. Fame and fortune justly attach to the people who notice such things, put names on them, and gather together the people whose research appears to fall within them. Such people typically have four qualities: (1) their own research is an instance of the patterns they are noticing (unfortunately, this is usually a prerequisite to being taken seriously in the role of pattern-seeker), (2) they care enough to actually think about other people's research (this quality is often in short supply, thus creating abundant opportunities for those who possess it), (3) they communicate intensively enough with other people to actually keep up-to-date with them (this is where e-mail helps), and (4) they are smart enough to notice the patterns in the first place (this is sometimes the least important factor). You can work wonders if you cultivate these qualities.

As a practical matter, you'll work these wonders through consultation. Research people, especially in academia, generally insist on being consulted beforehand on any matter that affects them. Consultation is the fundamental protocol of all academic life -- both within institutions and within disciplines. So, for example, if you have noticed a hot new theme emerging from the research in your area, you should not immediately announce a workshop or a mailing list on the topic and expect people to flock to it. (In general, never try to organize a group activity just because you think, in an abstract way, that it would be a nice idea. It doesn't work that way.) Instead, you should decide who the affected parties are and communicate with them. One way to get started on this is to write a (short or long) survey paper that describes the pattern you see emerging, puts a name on it, sketches in a sympathetic way how various projects (your own and others') seem to fit within it, explains what can be learned by looking at things this way, extracts a set of axioms or principles or methods or organizing concepts, and outlines some suggested lines of future research. Another approach is simply to write a paper that explains your own research in terms of the emerging pattern and then, as a secondary matter, explains how the other projects fit in. And a third approach is to attempt to organize a workshop or other small-scale professional meeting around the theme you've begun to articulate.

To do this, write a draft announcement for the meeting that explains

its unifying concept -- the "emerging theme". Clearly label it as a draft. Then -- and this is consultation -- send this draft *individually* to each of the ten people whose participation in the meeting is crucial. Include a cover letter/message soliciting their perspectives and their guidance. (The phrase "I'd like to ask your advice" causes miracles the world over.) Ask them if they think the time would be ripe for such a meeting, and ask them if you have articulated the emerging theme in the best way. Do not present anything as a *fait accompli*. When you get responses back from these people, take the responses seriously. Modify your draft to take them all into account. Rewrite it from scratch if necessary. Get lots of advice and really listen to it (even if you don't follow it). You will probably fail at this process once or twice before you succeed, but more importantly you'll learn what it's like to internalize other people's opinions -- the basic mechanism of socialization into a community. And remember that consultation, like most things, works much better if you have gone through the six network-building steps I've described above, at least with a majority of the people involved.

These concepts, I hope, further illuminate the remarkably complex structure of professional relationships within the institutions of research. As with any social system, the point is not that some infinite power imposes these structures on us from the outside, but rather that we recreate them ourselves every time we interact with another person. And these numerous local accomplishments are all the more remarkable given that, structures and systems notwithstanding, people really are different from one another. If you are carrying around an overly rigid view of institutions and their workings (say, for example, the view you probably got from your experiences of undergraduate education) then you might not even notice the real and rewarding work of exploring the differences between yourself and your professional acquaintances. The skills of recognizing human difference -- not in the abstract, but concretely, within particular interactions and particular relationships -- are growing more important as research communities in all fields lose their national and cultural boundaries. Yet a common mistake is (usually unconsciously) to use networking skills to seek out people who seem identical to you, either by ignoring differences, putting easy labels on the differences, or blowing the differences out of all proportion. This might have worked alright when research worlds were heavily segregated by gender, culture, discipline, research "school", and everything else, but it doesn't work now. Just about everyone is being forced, for example, to reflect on different national traditions' remarkably different ideas about the relationship between theory and evidence. And we are likewise

learning to develop professional relationships with people who don't already speak the same disciplinary language that we do -- it no longer suffices to detect potential allies simply because they talk the same way. Nobody yet knows how the practices of professional networking might evolve under the pressure of these increasingly prevalent types of professional difference. My sense, though, is that e-mail is poorly suited for the initial stages of establishing a shared context for discussion between people with different cultural or disciplinary backgrounds. If this is true then my emphasis on careful mixing of electronic and face-to-face communication takes on new importance.

Another dimension of the institutional structuring of professional relationships pertains to credit. If you do something new, of course, you ought to get credit for it. Credit resembles money in the sense that you can "buy" certain things with it -- for example further research funding. But it differs from money in other ways. The most important of these is that nobody is keeping any kind of objective ledger of who gets credit for what; it's much more an evolving consensus that only becomes formalized years after the fact. Many people get neurotic about credit and invest tremendous amounts of effort into manipulating others into giving them the credit they think they're due. But the actual keys to getting due credit for your work are simple. The first is to publish promptly. When you do something good, write about it and get it out there. And the second is to do your networking. I have already explained one reason why writing helps with networking -- it gives you something to talk about. A second reason is that if you talk about your work without having circulated it in written form then you will be (perhaps justifiably) paranoid that someone else will (perhaps innocently) publicize your idea before you and therefore get the credit for it. Don't get yourself into this demoralizing rut. And understand where the danger comes from: when two people are doing research in the same area, their relationship is inevitably structured by a tension between a natural alliance (helping one another, organizing things together, jointly publicizing the shared area of research) and natural competition (over credit for new ideas). This tension will be much easier to manage if you continually put sane amounts of effort into both your writing and your networking.

Finally, let me try to summarize some advice for people who have a hard time traveling to face-to-face meetings:

- * Follow the basic six-step outline I described above, more or less omitting the steps that involve face-to-face contact. This

is better than trying to undertake those steps using e-mail, since e-mail really is not very good at some things.

- * Spend lots of time writing intelligent, thoughtful letters to people about their manuscripts and papers, along the lines I've described.

- * Publish. And then make it a priority to get reprints into the hands of people who might be interested in them. If postage is a problem, make a postscript file (or something of that sort) available on a network server.

- * Join the conversation. You might be isolated geographically, but you don't have to isolate yourself intellectually. Make sure that your letters and papers are part of a conversation. That is, formulate your professional papers as responses to the existing literature, and to particular contributors to that literature, and make clear the nature of your debts to those authors and the nature of your own contribution. If you're not clear how this is done, use existing papers as a model.

- * Relentlessly promote your own work. Mention your ideas and publications in messages to appropriate electronic discussion groups. But always keep it low-key. No fanfare, no hype, no big claims. Cultivate an attitude of quiet, confident intelligence, and then consciously and carefully project that image.

- * Make yourself useful. When you read something you genuinely respect, send a brief review and recommendation to the appropriate discussion groups. Pass along useful items you encounter on the net. Invent some useful network facility, if only an annotated bibliography or guide to resources.

- * Be systematic. Once you've gotten accustomed to the whole process of networking, take a few days out to search all available resources, both on the network and on paper, and make list of all of the people you want to approach using the six-step process and all of the e-mail discussion groups you want to publicize your work on. Then slowly and systematically, over several months or a year, approach them all. The process takes lots of time, but it does work.

- * Keep trying to raise travel funds. The professional contacts you develop on the net ought to be able to help with this, since the world is full of travel grants and exchange programs that are relatively easy to set up once you have willing parties on both ends. But wait until you have a fairly strong relationship going

before you try this.

- * Don't spend your hard-earned money on travel unless you're going someplace where you can meet with several people you already "know", if only through e-mail correspondence and the networking process explained above. Unless you're an unusually sociable or charismatic person, don't attend a conference in the abstract hope that you'll meet someone useful there.

- * Share your experience. Help build the electronic networking community by getting involved in Local Civic Networks and the like. Reach out to people in your area whose interests in computer networks might be different from yours, and do some community-building among them. Reflect on how your relatively marginal position in the world's research system conditions your work and your life. Write down your experiences and advice for the benefit of others.

//6 Conclusion: Community-Building

Let me conclude with some comments about community-building. Electronic networks provide a number of technical means for assembling groups of people into semi-structured forms of communication. Most of them are modeled on paper-mail mailing lists, though many people have been experimenting with other mechanisms. And no doubt some of these mechanisms will prove useful. My point here, though, is to ensure that you view community-building in a broad context. A community is made of people, not computers. It is tempting to simply announce a new mailing list, gather lots of names, and hope that something good happens. I've done this myself. Unfortunately, it rarely works very well. Even when you do start feeling good about some of the interactions you've had on the net, human possibility really does run deeper than abstract network-interaction is likely to afford any time soon.

In short, I see no substitute for the hard human work of building community one person at a time, on the basis of openly explored shared interests, through interactions in a variety of media. Communities built in this fashion hold together because they are fastened with the real glue of human relationship, not just the technical glue of codes and files. This is not to say that electronic media are useless. Quite the contrary, I've just explained several ways in which e-mail can accelerate the already existing process of building professional relationships. And just as relationships are conducted through a variety of media, so are communities. To whatever extent is practical, a community has to

meet in person (preferably somewhere nice), eat and drink as a group (preferably in a memorable way), discuss various formulations of the shared vision that brings them together (without trying to force a false consensus), engage in concrete collective projects (editing books, running workshops), and so forth, and suitably constructed electronic media will often have a useful role to play in these activities. This is not the place to explore this process in detail, but I hope the first principles are clear:

- * Maintain a steady background of network-building interactions.
- * Keep trying to articulate emerging themes.
- * Cultivate an understanding of the social logic of community-building.
- * Use electronic media as part of a larger ecology of communication.
- * Try out new mechanisms, but don't make them substitute for human contact.
- * Consciously improve and evolve existing ways of doing things.
- * Let it take time.

You may be overwhelmed at this point by the degree of structure I seem to be placing on your electronic interactions. But while these guidelines are not set in stone, neither are they arbitrary. They are simply an application to electronic communications of the larger, preexisting social logic of professional communities. I've restricted my attention to one kind of community, namely research communities based on publication. But every other kind of community has its own social logic and therefore its own particular structured ways of using various media. If you don't like the structures you encounter, please go right ahead and start changing them -- just make sure you're changing things down here on earth, amidst your actual relationships with actual people, and not in an abstract technological head-space. If the structures do sometimes seem arbitrary, that's because we're all accustomed to thinking of electronic media as a world unto themselves, sealed off from the ordinary corporeal world. Where did we get this idea of cyber-reality as a wholly separate sphere? We got it from the fantasy system that underlies a great deal of technical work: the masculine transcendentalism that identifies technology -- and especially computers -- with a millennial escape from imperfections

and bodies and the accidents of culture and history. By learning to use electronic media wisely, we do more than help our own careers -- we also contribute to a vision of community that acknowledges human life as it actually is.

//* Appendix: Some References on Networking

Here are some general guides to professional networking, without any special reference to electronic mail:

Wayne E. Baker, *Networking smart: How to build relationships for personal and organizational success*, New York: McGraw-Hill, 1994. A fairly comprehensive book on the networking process, with greater emphasis than most on strategy.

Donna Fisher and Sandy Vilas, *Power Networking*, Austin: Mountain Harbour, 1992. This is probably the best all-around book on the subject. It abstracts a long list of guidelines that apply just about as much to research people as to the corporate people who are their main audience.

Robert K. Mueller, *Corporate Networking: Building Channels for Information and Influence*, New York: Free Press, 1986.

Ronald L. Krannich and Caryl Rae Krannich, *The New Network Your Way to Job and Career Success*, Manassas Park, VA: Impact Publications, 1993. Another worthwhile networking book, aimed more at job-seekers, with a fair amount of useful concrete advice.

Ann Boe and Betty B. Youngs, *Is Your "Net" Working?: A Complete Guide to Building Contacts and Career Visibility*, New York: Wiley, 1989. Another book in the same spirit, based on stories about mistakes people make in their networking activities. I find it less useful than the others, but it may well help those who regard themselves as complete beginners.

Tom Jackson, *Guerrilla Tactics in the New Job Market*, second edition, New York: Bantam, 1991. An inspired book on the networking that's involved in finding a job through the "hidden job market" of hiring referrals.

The modern project of articulating guidelines for networking originates (more or less) with feminist authors circa 1980. Their books still hold some interest:

Carol Kleiman, *Women's Networks: The Complete Guide to Getting a Better Job, Advancing Your Career, and Feeling Great as a Woman Through Networking*, New York: Lippincott and Crowell, 1980. Aimed at women professionals and executives who wish to set up relatively formal networking organizations.

Betty Lehan Harragan, *Games Mother Never Taught You: Corporate Gamesmanship for Women*, New York: Rawson, 1977. Although not centrally concerned with networking, I mention this book because of its cultural influence as the first hard-hitting how-the-world-really-works book for professional women. Its ideology, which has shaped many feminist discussions of networking since then, reflects both the strengths and weaknesses of the feminism of that era. One of the weaknesses is its inattention to social class; it explains that men learn how the world works through playing football, even though this would predict that working-class men would be as successful in business as their wealthier brothers.

And here are a few references for mostly business-oriented literature on contemporary patterns of networking:

Edward O. Laumann and David Knoke, *Policy networks of the organizational state: Collective action in the national energy and health domains*, in Robert Perrucci and Harry R. Potter, eds, *Networks of Power: Organizational Actors at the National, Corporate, and Community Levels*, New York: Aldine de Gruyter, 1989. A really interested empirical study of shifting alliances within networks of people trying to affect policy-making in Washington.

Constance Perin, *Electronic social fields in bureaucracies*, *Communications of the ACM* 34(12), 1991, pages 75-82. Some ideas about the informal networks within organizations that get connected together with electronic mail, often scaring their managers in the process.

Mark Granovetter, *The sociological and economic approaches to labor market analysis: A social structural view*, in George Farkas and Paula England, eds, *Industries, Firms, and Jobs: Sociological and Economic Approaches*, New York: Plenum Press, 1988. Presents evidence demonstrating that people get jobs because of who is in their professional networks, and argues that simple economic ideas about supply and demand do not suffice to explain such things.

Linda M. Harasim, ed, *Global Networks: Computers and International Communication*, Cambridge: MIT Press, 1993. An edited volume in which several of the usual suspects in the Internet world (and

related network worlds) offer mostly brief rundowns of their respective projects.

Howard E. Aldrich and Mary Ann von Glinow, Personal networks and infrastructure development, in David V. Gibson, George Kozmetsky, and Raymond W. Smilor, eds, *The Technopolis Phenomenon: Smart Cities, Fast Systems, Global Networks*, Lanham, MD: Rowman and Littlefield, 1992. Approaches to rationalizing and managing the networking process through social psychology, network mapping, and systematic development of networks.

Lee Sproull and Sara Kiesler, *Connections: New Ways of Working in the Networked Organization*, Cambridge: MIT Press, 1991. A general study of organizational uses of electronic mail.

Nitin Nohria and Robert G. Eccles, eds, *Networks and Organizations: Structure, Form, and Action*, Boston: Harvard Business School Press, 1992. A big collection of papers about networks in industry -- mostly in the sense of "social networks", with little reference to computer networks. I find this kind of work to be somewhat sterile in its foundations but occasionally revealing in its observations. Its attention to questions of power is refreshing, up to a point anyway.

Bernard Michael Gilroy, *Networking in Multinational Enterprises: The Importance of Strategic Alliances*, Columbia: University of South Carolina Press, 1993. The economics behind ongoing changes in the workings of global companies, in which the boundaries of the enterprise are less clear and employees' own networks have increasing economic consequences.

Thomas J. Allen, *Managing the Flow of Technology: Technology Transfer and the Dissemination of Technological Information within the R&D Organization*, Cambridge: MIT Press, 1977. A scary book of experimental and quantitative studies of information flow in groups of research and development people. Many of the results are things that you've always known but that hardly anybody acts as if they really believed, for example that the most productive groups enjoyed a steady flow of ideas from other groups and other disciplines.

Sharon M. McKinnon and William J. Bruns, Jr., *The Information Mosaic*, Boston: Harvard Business School Press, 1992. An interview-based study of how managers get information. One conclusion is that they use a wide variety of sources in a patchwork fashion, and that their queries are largely aimed at verifying or elaborating things they've already observed in some other fashion.

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