Chapter 4: Failing—By the Book, 1995

Straight man: "How's your wife?"
Comedian: "Compared to what?"

4.1 The Volunteers

On January 1, 1995, SEEPP still had almost eleven months to complete its work. If it worked at the speed Anderson's committee had, it could easily hand the Joint Steering Committee the document promised by the date promised in the schedule drawn up the January before. SEEPP also seemed to have the resources to complete the work on time. The Call for Participation had brought in at least thirty volunteers.[1] Those, combined with the seven members of the task force, amounted to four times as many volunteers as Anderson had had (or, at least, officially recognized in the published code). And, as a group, the volunteers seemed as impressive in their credentials and as serious as Anderson's—and a good deal more varied.

Of the 29 who had filled out the application, only 17 were academics (and three of these were graduate students).[2] The remaining 12 were a mix of independent consultants, (high ranking) employees of large corporations, senior officers of smaller software companies, and a few miscellaneous enough to list individually. One was a full-time employee of a government laboratory completing a graduate degree at the same time. (One of the academics was also employed in a government laboratory while on leave for the year.) There was one philosopher (Fodor), one lawyer (from a major DC law firm), one business ethicist (Ernest Kallman, Bentley College, an ACM member), and even one "retiree". Fourteen volunteers were members of both IEEE-CS and ACM. Four were members of IEEE-CS only; two, of ACM only; and the remainder who answered the question (seven), of neither. (Two of the 29 ignored the question.)[3]

There was also considerable geographical diversity. The American addresses range from Louisiana to Minnesota, from Alaska to Florida, from Massachusetts to California. Tennessee, with two (*not* counting Gotterbarn), seems overrepresented. (The only other locales with two volunteers are: California, Texas, and Washington, DC—counting its Virginia suburbs.) Three of the 29 volunteers were British (English, Scot, or Welsh), two Irish, one Egyptian, and one Canadian (that is, nationals of the country *and* resident there). The diversity runs a bit deeper than the addresses suggest. So, for example, one of the British volunteers (Narayana Jayaram), though long resident in Scotland and England, begins his description of himself as "hailing from India" (where he had been born, raised, and received his first degree in engineering). Perhaps the British would count him as an Indian (though he was then Chair of the IEEE-CS Chapter in the United Kingdom). There is similar hidden diversity in those counted as Americans. One, for example, describes himself this way (and so might offer more of an international perspective than the simple description "American" suggests): "I grew up in a developing country (the Philippines) and set up a computer science program under the mathematics department in my alma mater (Ateneo de Manila University) back in 1981. I have gone to school both in France (University of Paris VI) and here in the US (Johns Hopkins University) so I have a unique perspective."

Most give their reasons for volunteering, along with their qualifications, in response to the application's question about "interests". Their reasons for volunteering vary a good deal but generally combine experience of software engineering with a commitment to certain standards. So, for example, one of the graduate students (Florida Atlantic University) explains:

> I am currently a Ph.D. candidate in Computer Science specializing in software measurement and software quality. Reliability and Safety are important quality factors. I also have personally studied the Challenger disaster in depth from the perspective of ethical issues. I have about 20 years of software engineering experience in industry (military systems and health care data processing).

Some of the applicants echo specific worries about competence described in Chapter 2. So, for example, one employee of a large company (in Missouri) explains:

> My interest is in the furtherance of SW Engineering as a professional activity. My observation is that ANYONE and EVERYONE seems to believe they can develop SW applications. Many of these follow no consistent process or provide any supporting products to aid in maintaining these applications. This gives legitimate SW professionals a bad name. I believe that ethical standards may provide an approach to solving this problem. I have 20 years' experience in developing real-time applications for visual simulation applications. I have dealt with a number of these semi-SW professionals and believe that this experience will be useful to the ethical standards effort.

For those applying from outside the United States, the reasons offered seem much the same. Here, for example, is the explanation offered by the one Egyptian (Amr El-Kadi, about whom we shall hear more later):

> I deal with the education of future SEs and I believe that it is of great importance to teach them RIGHT early on. I used to teach Doctoral level courses back in the states and many of my students were part timers working for big organizations. Many of them did not believe in SE and were still relying on "ad-hoc" techniques not only in civil applications, but in mission critical applications as well! I also do private consultation for industry. So, I see both ends: academic and practice. Enforcing acceptable ethical/professional standards on SEs I feel is part of my duty as a scholar and a practicing SE.

As a group, the volunteers seem to have a strong commitment to SEEPP's work.

4.2 "Documenting"

All this suggested that SEEPP would soon complete its work as successfully as Anderson's committee had. Against this hopeful reading must be set at least two negative signs. The first was that the working groups, though now organizing, still lacked the "Operation Guide" that the IEEE required for developing technical standards. That is, they lacked guidance concerning how to proceed. Since the Call's 3.3 declared, "The conduct of each working group shall follow the same written procedures as govern internationally recognized IEEE Standards

Activities", the working groups could not (officially) begin work until they had the Guide to follow. Melford was working on the Guide. He would have to complete it much faster than he had the Call—or SEEPP would certainly miss the scheduled November date for delivery of its "product".

The second negative sign concerned what was to be delivered. The November 1994 meeting of the Joint Steering Committee revealed some confusion (or, at least, an unresolved difference of opinion) about that. Some on the committee wanted a "standard practices document", that is, a document that would consist of relatively specific directives: "When you are faced with this particular situation, this is the technical approach you should take." (Standards documents can be dozens, even hundreds, of pages long.) Others wanted a short general document (a conventional code of ethics, a few pages at most).[4] This confusion was not new. It was already present on January 29, 1994 when SEEPP was named. Adding the "PP" for "and Professional Practice" had suggested something more than a code of ethics without defining what that "something more" might be (and, indeed, perhaps suggesting no more than that the code was to guide *professional* practice). The same confusion about what to deliver seems present in the Call. The general Scope statement 1.0 spoke only of "accepted principles for identifying and resolving ethical conflicts" (presumably, a conventional code of ethics) but the Global Application section 1.1 concluded with what sounds much more specific—"these standards shall also document various recommended practices and guidelines when no clear consensus can be established." "Practices and guidelines" certainly sounds like "this is the technical approach you should take".

Related to this confusion about specificity is another: what does it mean to "document" a practice? On one interpretation, documenting might be a descriptive undertaking, something requiring large surveys or other detailed investigation of what people actually do, say, and think as they work on software (the sort of survey that the body of knowledge task force was just then undertaking). A few of the applicants seem to have understood "document" in this way, mentioning their own empirical research in their description of "interests". So, for example, Kallman points out that he is "currently performing empirical research [on privacy] with Jeff Smith at Georgetown". Another academic (from Utah) does much the same: "I have been conducting research into ethics attitudes and practices among information systems professionals for about five years."

Most applicants, however, say nothing to suggest that they need look any further than their own experience to "document" (or at least set down) appropriate standards. So, for example, an AT&T vice-president (in New Jersey) simply states his "interests" this way:

> I have managed software projects for twenty-five years and written and spoken on software ethics and project management as well as network management. I am interested in how we may certify software managers, global development software, software safety and software stability.

Most of the academics presented themselves in much the same way, for example:

> As Chair of the Electrical and Computer Engineering Department at the University of Texas at Austin, I have a considerable interest in this topic. Further, I have implemented

an undergraduate and graduate program in SE over the past two years and we are presently implementing an executive M.S. program in SE, for industry.

Another Texan (a grad student) also offers his interest and experience as his qualifications for the work of "documenting":

> I have been involved in computer security since 1986 when I was assigned to the US Air Force's Computer Security Office in San Antonio, TX. I served there as the chief of the R&D Branch and as chief of the Network Security Branch. I was then assigned to the USAF Academy where I taught in the Computer Science Department. I am currently a Ph.D. candidate at Texas A&M University working in the area of computer security. I have been the author of several papers on computer security as well as a recent paper on ethics. I am currently working on a textbook on computer security with a tentative completion date of 15 Jan 95.

4.3 Another Plan

About the time this Texan was supposed to deliver his textbook to the publisher, the first of the two negative signs disappeared. Melford delivered a draft of the operating guide to Gotterbarn. Gotterbarn sent back a few suggestions for improvement and then emailed the guide to his own working group (Professional Competence) on February 22.[5] The email takes the form of a letter beginning with the date followed by "Dear SEEPP Volunteer". After thanking the volunteers for their interest, Gotterbarn admits that "[the] work of the task force has been slow to start due to some of our unfamiliarity with this process". After apologizing "for the delay", Gotterbarn takes a paragraph to describe how the working group fits into SEEPP's work and that of the Joint Steering Committee's two other task forces. Part of the description justifies the division of the task force into working groups as an instance of "good computer problem solving technique" (divide the task into several subtasks that can be distributed so that no one has a task too large to handle). Gotterbarn then identifies a "problem that has caused some of the delay", that is, resolving "the question of how to mange and organize the working group process", and (at last) announces, "I have a plan."

The plan has two parts. The first, briefly described, is simply a "small email list" (ProfComp@ETSU-east_tenn_st.edu, a "manual listserv"). The list was to allow each member of the Professional Competence working group to communicate with the rest of the group without revealing the writer's individual email address. Located on a server at East Tennessee State, the list would not resend automatically (as a true listserv would). Gotterbarn would "moderate" it, that is, pass on any messages properly directed to the list after screening out "spam" (junk mail) and "other irrelevant activities". Any mailings to the list address would go only to the list. Gotterbarn also wanted members of the working group willing to yield a little of their privacy to be able to communicate with each other without going through him. He therefore promised to circulate a list of all current members of the working group. Anyone who did not want to be on that second list could notify him "within two weeks". He would send out the preliminary list on March 5, asking for corrections. He also promised that this second list "will not be circulated to any other organization nor will it be made available by me to any other group."[6]

The second part of Gotterbarn's plan was more substantive, a "general outline for the development of our standards of professional competence". This outline, "written in Jello", had three steps: 1) gather information, 2) analyze it, and 3) synthesize it in a "statement of scope". The information would take the form of digests of "other profession's standards of *practice*" (my italics). Each member of the working group was to send to the "LIST" the name and address of any organization known to have standards of professional practice, as well as an indication of willingness to get copies of the standards (preferably in electronic form) for the working group and willingness to write a "short abstract" of that standard "indicating the scope of application of the standard, means they use to update it, how practitioners are educated about that standard, and the methods of standards enforcement, if any." Given this information, Gotterbarn suggests, "[we] should be able to abstract a model of professional practices for our use." This "model" is, apparently, the "synthesis". It must then be put into in a "Scope" (a statement of "what it is we think we are doing") and a "structure" in which the working group would "organize our suggestions and conclusions." Once the model is ready, it should be possible to "subdivide the problem" and ask for volunteers to write rough drafts of the sections of the document (with all drafts circulated to all members of the working group, an "electronic meeting").

There are three features of the plan worth noting now. The first is that Gotterbarn has switched from talk of "professional *competence"* to "professional *practice*". Gotterbarn has, it seems, invited his working group to do what SEEPP (as a whole) was supposed to do. Unable to "divided and conquer", he was now trying a more holistic approach. Second, the holistic approach was to be temporary. Once the working group had a "model" to work with, it (not SEEPP) would divide into several drafting committees (one for each section of the code). Third, Gotterbarn continues to be a "hands-off" manager. He is still trying to delegate the work of drafting to others.

Following this "plan" are ten single-spaced pages, the long-promised "Guide to Operations". Divided into a page-long table of contents and five numbered sections, beginning with "Overview" and ending with "Style", the Guide is a document of imposing detail. The details provide evidence that Melford had learned from the advice the experts had given him. For example, the Overview begins by observing that the "IEEE-CS/ACM standards for software engineering ethical and professional practices…are *not* being formulated under the auspices of a formal IEEE Standards Project Authorization Request (commonly known as a 'PAR')." The standards need only be "developed in accordance with *appropriate* IEEE and Computer Society Standard's Policies and Procedures." (Italics mine.) The IEEE Standards process was not to be a straightjacket. SEEPP could have the advantages of the IEEE Standards process without the disadvantages.[7]

The IEEE process nonetheless weighs heavily on the document. Six of the ten items in "References" (section 2) are IEEE publications concerned with IEEE Standards. (The remaining four are generic: *Robert's Rules of Order*, *The Chicago Manual of Style*, a *Handbook on Nonsexist Writing*, and *Webster's New Collegiate Dictionary*.) Section 3 (immediately following the references) consists of "definitions". Subsections 3.1-3.3 are concerned with defining "IEEE standards", distinguishing between "standards" (with a small "s"), "Standards" (with a capital "S"), "recommended practices" (marked by a "should" rather than the "shall" of a Standard), and "guides" (more than one practice can be recommended). They also relate these distinctions to ACM practice. Section 3 concludes with a list of fourteen acronyms (including "WG" for "working group"). Section 4, by far the longest (about six and a half pages), sets the procedures

for working groups (meetings, quorum, voting, the first draft, Scope, outline, appropriate title, membership requirements, expiration or revocation of membership, elections of chairs and vice-chairs, balloting, and resolution of comments, objections, and negative votes). The Guide's procedures are, more or less, the IEEE procedures for writing standards. They are quite detailed. Consider, for example, "4.1.4 The first draft":

> After establishing a draft Scope (see clause 4.1.4.1), the WG should outline the important issues and sub-topics it thinks the standard should address (see clause 4.1.4.2). The WG should also establish the nature of the standards it is to develop (i.e., standard, recommended practice, guide, etc., see 4.1.4.3). Although it does not have to be included in the text of the standard, the WG should clearly and concisely define the purpose of the document. This generally describes "why" the document is being developed. For example:
>
> > "Purpose: Full-range current limiting fuses are not currently covered by standards. In fulfilling this need, the working group will also define and recommend an overall action plan to clarify and improve industry understanding for all types of fuses."
>
> The WG Chairperson should then identify an individual to author an initial draft. The author should be permitted to prepare the draft with or without additional input or assistance from any other WG members, at his or her discretion. The consensus of the WG membership should then be evaluated to determine if the complete draft can subsequently serve as the foundation for an iterative process of refinement.[8]

4.4 Too many meetings

Since this memo went out on February 22 (with that date), Gotterbarn and Melford had substantial progress to report to the Steering Committee when. five days later, it met in Nashville (where the ACM was also meeting). The working groups had been set up. The Guide was (more or less) complete and distributed. At least some of the working groups had begun work. There was still plenty of time to complete a draft of the code of ethics before the November deadline. No surprise, then, that the emphasis of the Steering Committee's half-day meeting was not SEEPP but (again) the Body of Knowledge Task Force (now officially so called). What is surprising is that, after the three task forces had reported, the Steering Committee moved into an hour-long executive session—an executive session that excluded the ex officios. Though we lack minutes, we know something of what happened.

Late in 1994, Pat Douglas, chair of the Body of Knowledge Task Force, had presented the Joint Steering Committee with a rough draft of her task force's initial report, the plan for a survey of practitioners to see what knowledge they thought necessary to be a competent software engineer. The Steering Committee had to review the plan before the survey could begin. Some members of the Committee found the plan potentially controversial enough that the chair scheduled the executive session after the plenary meeting. Douglas thought the executive session, though unusual, was understandable. Her task force was to decide what should be taught to would-be software engineers and (in effect) who should teach it. For academics, that meant

student enrollments (jobs) for some and loss of enrollments (and perhaps loss of jobs) for others. What Douglas did not find so easy to understand is what happened during the executive session. From questions asked of her later, she concluded that, in her absence, the Committee had assumed that the survey would be 60 pages long, a survey so detailed that nobody was likely to fill it out. Somehow her presentation the hour before, and the questions that followed, had not prevented the Committee from confusing her written report (seventy pages long) with the survey it discussed. Secrecy has a price, a price SEEPP never had to pay.[9]

On March 25, 1995, Gotterbarn, Melford, Barber, and Miller met in Washington, DC. They completed the Operations Guide and also started on the task force's "Scope" (which they hoped would serve as a model for the Scope each working group would also have to write). Gotterbarn and Melford also agreed to meet again, in April, during the meeting of the SEI's Faculty Development Workshop in New Orleans. At that meeting, they did no SEEPP work but agreed to meet again at the National Education Computing Conference (NECC) in June.

But once home, Gotterbarn changed his mind. Of the twenty-two months SEEPP once had to write the code of ethics, it now had only six, much less time than Anderson's committee had needed to write the ACM code. At this rate, SEEPP could not meet its November deadline. Early in June, Gotterbarn wrote Melford to explain what he had decided.[10] The letter began (after the simple salutation "Bob") by announcing that Gotterbarn had cancelled the June meeting because there would have been only four in attendance (Little and Barber in addition to himself and Melford). Gotterbarn then turned to what was really bothering him ("a major problem"): "We are just plodding along and have not given adequate direction, advocacy, or leadership by example to the group." What Gotterbarn meant, he said, was that "We schedule meetings but the preparation is not complete…and we leave with tasks to work on between meetings [that] are not completed by the next meeting. With the exception of the draft CFP and the draft guide to operations, work seems to be done ONLY at the meetings." To support this claim, Gotterbarn summarized the major events in SEEPP's history, taking almost a single-spaced page, beginning with the meeting of April 30, 1994. He then returned to his main point:

> We have meetings and articulate great plans but very little happens. We have many volunteers from September-November of 1994 who are complaining [—] wondering when, if, we are going to get started. Some of those who originally volunteered for working groups have already abandoned ship. I am afraid the same is happening with the task force itself.

Gotterbarn concludes by asking Melford to email "the material we worked up in Washington", promising to write a cover letter to the volunteers "with some directions on how to get started, a plea to contact their groups, etc."[11]

A few days after he wrote that letter, Gotterbarn emailed a list of the working group's members, including mail and e-mail addresses, asking recipients to "check for accuracy" (June 10, 1995). There were twenty-four names on the list. Two were new. Eight of the originals were gone. Among the first corrections to come in were three from the Illinois Institute of Technology (IIT). Behind these corrections lay a sequence of events extending back six months, events that offer a foot-soldier's perspective on SEEPP's work.

4.5 An idea for research

On a cold but bright Chicago morning early in December 1994, Vivian Weil, Director of IIT's Center for the Study of Ethics in the Professions (CSEP), sat at her desk reading a photocopy of the three-page Call for Participation printed in *Computer and Society*. Someone in IIT's Department of Computer Science had sent it to her because CSEP, one of the oldest ethics centers in the world, was one of the few with a focus on engineering. It was also one of the few with an enduring interest in codes of ethics. CSEP has two external functions: 1) to do research concerning professional ethics; and 2) to aid the professions by making its knowledge of professional ethics, its research, and its teaching available to the professions. From its beginning in 1976, CSEP had collected codes of professional ethics more or less systematically. By 1994, it had several hundred on file. Those files might be useful to software engineers trying to write a new code of ethics. (Recall that one of SEEPP's first plans, never carried out, was for a depository of relevant codes.)

Then CSEP's Senior Research Associate, I had written a half dozen or so articles on codes of ethics.[12] I thought a code of ethics was central to organizing an occupation as a profession. Weil, on the other hand, was less certain. She tended to think of codes as a means of education in already existing obligations. That morning, though, she was wondering what those who write codes think they are doing. It might be interesting to find out. Here was the opportunity, an opportunity for CSEP both to do interesting empirical research and to make itself useful to a new technical profession. Weil did not know much about software engineering, indeed, until reading the Call, she had, she believes, never heard the term. But, after almost twenty years doing professional ethics, she no longer worried about starting out ignorant of a discipline. What was important was having the resources to learn what one needed to know. For software engineering, the resources to learn seemed readily available. IIT's Computer Science Department taught several courses in software engineering. A phone call had given her the names of the two faculty who taught the courses. So, Weil decided to put her thoughts on paper. The result was a concept statement of about 500 words, "a Project on the Creating of Software, Professionalism, and Responsibility."[13]

Over the next few days, Weil phoned people she knew who might know something about software engineering generally or the joint IEEE-CS/ACM project and repeatedly rewrote the concept statement to take into account what she had learned. By the second week of December, she felt ready to bring together the people she had identified as interested, locally available, and potentially helpful. On December 15, they met: Ilene Burnstein (Computer Science, IIT, an expert in software development process); Barry Weiss (a Chicago lawyer interested in liability for software failure); Ullica Segerstrale (Social Sciences, IIT, with an interest in science studies); and me (expert on codes).[14] What became clear at the meeting was that there was interest in doing something related to the concept statement but no agreement on what in particular. Burnstein seemed to be interested in technical standards; the lawyer, in issues of responsibility; and I, in writing a code of ethics; but we eventually agreed to focus on Miller's working group on Reliability and Safety. Weil revised the concept statement accordingly. There were several more meetings, with Bogdan Korel (a colleague of Burnstein's with an interest in software testing and debugging) making the research group six. The three with enough time (Burnstein, Weil, and I) became "the research group"; the other three (Korel, Segerstrale, and Weiss) became "consultants".

By the middle of January, Weil thought the concept had developed far enough that she asked me to contact Gotterbarn, with whom I had shared a stage once or twice, to see whether SEEPP might be able to use CSEP's resources and whether CSEP could study SEEPP's work. Gotterbarn responded enthusiastically, even putting me on the Professional Competence list (as a courtesy because he thought my interests closest to his own). I therefore received the long email of February 22 that delivered the "plan" and Guide. The day after that email, CSEP submitted a proposal to the National Science Foundation (NSF) for a fast-decision Small Grant for Exploratory Research. The proposal was fast-tracked because SEEPP's schedule did not allow for NSF's normal six-month review. SEEPP was supposed to complete its work before a normal review could have determined that IIT's would-be participant-observers deserved support. (By February, CSEP had also received Miller's enthusiastic invitation to participate in the Reliability and Safety working group.)

Since the proposal was funded two months later, it is worth noting that it contained some significant errors. The first is in the Project Summary. It explicitly uses "SEEPP" as the acronym for the Joint Steering Committee. This suggests that IIT's research group had a poor grasp of the distinction between Joint Committee, task forces, and working groups. I certainly did. The body of the proposal contains other evidence of that. So, for example, the fourth item under "outcomes" is:

> Because the Joint Committee has adopted an open process, allowing everyone to read the committee debate (on e-mail) and to respond, we hope to participate in that debate as well as monitor it, not only asking questions both substantive and procedural (for our benefit) but asking or answering questions for the benefit of the important work the Joint Committee is engaged in.

There would be little to object to in this sentence if it had referred to "SEEPP" rather than to the "Joint Committee". SEEPP had indeed adopted a (relatively) open process. Anyone in the world with an interest could join one of SEEPP's working groups and the deliberations of a working group were open to all its members. That was, however, not true of the Joint Committee. Neither its membership nor its emails were open to the world; indeed, some of its deliberations were closed even to its ex officio members. How many other volunteers were as confused about SEEPP's organization as IIT's research group?

This confusion may explain in part why the IIT volunteers sought to "correct" Gotterbarn's June mailing list for members of his working group (Professional Competence). Gotterbarn had not made a mistake. IIT's volunteers (Burnstein, Weil, and I) did not belong on *that* working group's mailing list (as members). We belonged on the mailing list of Miller's working group (Reliability and Safety). Even though I was on the Professional Competence email list, I did not (technically) belong on the list of members. I had been added to the list as an observer. I too had joined only Miller's working group.[15] Four months of silence (February to June) had been enough to wipe out all memory of Miller's working group.

4.6 Out of nowhere

Confusion about SEEPP's structure, while explaining part of the reason for "correcting" Gotterbarn's June list, is probably not the whole explanation. Underlying the confusion was a

growing unease (akin to what provoked Gotterbarn's "Bob" letter). IIT's research group had officially begun monitoring Miller's working group's email in April, as soon as it was clear that NSF would fund the research. There had been nothing to monitor. The first SEEPP email to arrive in over two months was Gotterbarn's on June 10. Our research group assumed we had to be on the June 10 list of volunteers to receive the emails we were supposed to monitor and that we would not have received this email unless we were members of the working group in question. We had (I think) confused SEEPP with one of its working groups. We did not realize that we (or, rather, I) had received the members list because, and only because, Gotterbarn had put me on the Professional Practices list as a courtesy (even though he had not put me on its members list).

Encouraging this misunderstanding was another email that came the same day (June 10, 1995)—and, indeed, was printed as if it were continuous with the first. Again, it was another form letter and again I was the only one in the IIT research group to receive it. While the emailed list had been titled "Volunteers to the professional competence working group", this email addressed its readers as "Dear SEEPP Volunteer".[16] It promised action:

> Sometime back I sent a kick-off letter for our effort. The letter, appended below [email of February 22, but dated February 16 and without the Guide], gave a complete approach for the development of our standard. It was probably not a good idea to list all of the tasks at once. No one knew where to start. To start we need to have some folks jump in and pick up particular tasks. I have listed them below.

There were three "tasks" on the list. The first was to develop a "straw man", that is, a model of a "professional competence standard" that can be presented to the working group for comment. "Do we have a volunteer or two?" The second task was to "examine and summarize other professional standards." Attached to the end of the document was a list of examples of these "standards" (with contact information): "BRITISH COMPUTER SOCIETY CODE OF PRACTICE, 1 SANFORD STREET SWINDOM, WILTSHIRE SN 1HJ; PROFESSIONAL STANDARDS—ACCOUNTING AMERICAN INSTITUTE OF CERTIFIED PUBLIC ACCOUNTANTS, INC. COMMERCE CLEARING HOUSE, INC 1997….[and so on]" Most were codes of ethics of professional societies (whether titled "code of practice" or "code of ethics"). The third of the tasks Gotterbarn set was "be original". Anyone with a specific idea about what should be a professional practice should "write it up and send it in to the list". The letter concludes, "This is the first step in item A below ["Gathering information" in the February 22 email]. I look forward to hearing from you. Don Gotterbarn".[17] (Since the only SEEPP volunteers likely to have this list of codes would be those in his own working group, addressing this email to "Dear SEEPP Volunteer" may have added further to confusion of task force and working group.)

The hoped-for action was slow in coming. The first evidence of it arrived at IIT on August 31—from Egypt. Eight pages long (single spaced), Amr El-Kadi's email summarized two codes of ethics and also reviewed Microsoft Certification for engineers. This email was not only the first evidence of the hoped-for action to arrive at IIT but also the last until early November—when suddenly one email after another came in. By then, of course, it must have been obvious to everyone that the task force would miss the November deadline. But the emails that began to arrive in November suggested something more serious. The first (November 3,

1995) bore the subject heading "Are We Still Working?" It was directed only to the Professional Competence working group:

>Volunteers,
>
>I haven't received any messages since July. I have sent a couple without response. Are we still working??
>
>I hope I got your names correct.
>Ed

For the research group at IIT, this email was full of mysteries. The first was that only Weil and I were on the list of recipients. For some reason, Burnstein, the third member of the research group, was not. The second mystery was that "Ed" had sent "a couple" of messages "since July" without response. No one in IIT's research group had received any of them. Indeed, with the exception of El-Kadi's code analysis, Ed's email was the first that IIT's research group had received from SEEPP (or anyone involved with it) since June.[18] What had IIT's research group missed in July? What had it missed in August, September, and October? Had "Ed" used the same email list he was using now (and had IIT's computer or the ether eaten the mail) or had he changed his email strategy? Third was the identity of this "Ed". His name had not appeared on the list Gotterbarn circulated in June. That was odd because the mailing list "Ed" was using (23 names along with the profcomp listserv and the task force's se_ethics listserv at the Software Engineering Institute) was otherwise familiar. Why should we know everyone but "Ed"?

After a meeting during which the research group meditated on all this, Weil emailed "Ed" (November 14, 1995):

>We have a small NSF grant to study your process of developing/formulating standards. We have seen no messages since July. Please let us know if we have missed any. Also please let us see any replies to your message of November 3.
>
>Vivian Weil and Michael Davis

A response came the next day "From Ed Mechler, CCP" (November 15, 1995). Mechler was plainly someone not to waste words—or to fail to say what needed to be said:

>Vivian and Michael,
>
>Are you members of this Working Group in SEEPP?
>Is NSF the National Science Foundation?
>Why weren't we informed of your observations?
>
>So far out of 26 listed members with a possible 2 or 3 cc to other groups, I have received 3, including yours, that don't belong to the working group and 3 from members wondering the same thing I am. I will send you copies when I find out more about you, ethics you know.

How is the weather in Chicago? I have a son who just graduated Penn State as an Arch Engr and is working for Turner in Chicago.

Talk to you later.

Ed

Mechler's first question came as a surprise. IIT's research group thought it did "belong"—and it had received Mechler's email because it did belong. Of course, as explained earlier, the research group thought it belonged because it thought it had joined Gotterbarn's working group (because it had joined SEEPP, because it had received emails sent to Gotterbarn's working group, because Gotterbarn-co-chair-of-the-task-force and Gotterbarn-chair-of-the-working-group were hard to keep straight, and because Miller's working group—which it had originally signed up for—had been so inactive that it had disappeared from memory).

The second question (about NSF) told IIT's research group that Mechler was probably not an academic. The third, however, added to a worry that Mechler's first email had engendered. SEEPP now seemed much less organized than Gotterbarn's emails had made it seem. IIT's research plan depended on SEEPP's organization, especially on most communication going through ETSU's profcomp list and being available to everyone (including the IIT participant-observers). It also depended on everyone in our SEEPP working group knowing we were monitoring its emails. Clearly, Mechler was now receiving emails about the working group that were not going through the ETSU list. That was why Weil had asked him to share with our research group the emails he received in response to "Are We Still Working?" Had he shared the emails at the time (instead of several years later), the research group would have been even more worried. The emails that Mechler received between November 3 and November 15 suggested considerable disorder in SEEPP communications.

The first, sent almost as soon as Mechler's arrived, came from "Manny Norman, Sr. Sys. Progmr, LT" (staff, Eastern Michigan University): "I'm still here, but you are the only person I ever hear from."[19] El-Kadi responded the next day: "I really don't know what to say except that I share your worries: Are we still working, or did someone simply decide to terminate the task force without informing the people who were willing to work?!"[20] Pat Sullivan responded: "didn't get previous message—will go back through what's come from SEEPP (I haven't received anything since last summer, either). Otherwise, as far as I know, yes, it seems but slowly."[21]

The other two responses were even more worrisome. One, from an assistant professor (and Major) at the Air Force Institute of Technology at Wright Paterson, denied membership in the working group: "I was helping Pat Douglas on the Body of Knowledge work. Did that get me on your list?"[22] All Mechler could reply was "your name and address has been on the mailing list for the Software Engineering Ethics and Professional Practices, the Professional Competence working group since June. We just have not heard anything since July so I sent the message below to inquire."[23] Mechler sent the same response to Ernest Kallman (November 14) after he wondered why Mechler had written him (November 11). Now able to appreciate the point of Mechler's question, Kallman wrote back immediately (November 14): "I understood that I was in the privacy group under the direction of Patrick Sullivan and have communicated this to Don

Gotterbarn. I would prefer the privacy group to this area as I feel I have more expertise in it. If you communicate with Don, feel free to repeat this."[24]

Mechler now had six volunteers out of six responses.[25] But the IIT response had brought in three volunteers for two addresses (addresses not supposed to be for the Professional Competence working group at all). Two out of the six responses had denied having anything to do with Professional Competence (even though their names were on the members list). That was troubling enough. How many others listed as members had never been members? Were there others, like the IIT research group, who (it seemed) should have been on the printed list of members but weren't? This question about the printed list would not have been important if the ETSU list worked properly. But it did not seem to. Mechler had sent out his original message through the list as well as using individual addresses culled from Gotterbarn's lists and addresses from headers on emails. All responses came from individual addresses.

By November 9, Mechler had concluded that the ETSU list was not working—and may not have been working since July. He emailed Gotterbarn directly: "I have sent two e-mails plus ask other volunteers the state of the group since I have not received any mail back from the group e_mail address. I thought I would try to contact you from your original address since no activity since July. Please let me know."[26] Gotterbarn responded on November 14 (without acknowledging Mechler's concern that the ETSU list was not working): "There has been no activity because I have not been pushing it. I have some concerns with things that are going on and I want to be sure your efforts are going to bear fruit before I start to push. Thanks for hanging in there. I will get back to everybody as soon as I can."[27] Two days later, Mechler responded: "What are the problems with our project? Can I help?"[28] Mechler also quoted Weil's request to be allowed to see "replies" and asked, "Can I honor the request?" The archives contain no answer to this email. (Chapter 13.4 will deal with the ethical issue Mechler raised—as well as several others that developed later.)

4.8 Gotterbarn's Prison

On November 27, 1995, the official deadline for completion of SEEPP's work, El-Kadi emailed again, apparently copying his list from Mechler's or from Gotterbarn's, neither of which had Mechler's address or Gotterbarn's. Though the email is largely addressed to Gotterbarn, his name appears only on the "cc". Discontent till now smoldering had burst into flame:

> I think that Don does owe us all a response this time. As chair of the SEEPP Committee, you have contacted us and we have "volunteered" to work on this committee because of our strong belief in the cause.
>
> Since the time this activity started, everything has been so slow?! We don't even have a mailing list that works?
>
> Is there such a committee (SEEPP) or has it been terminated? If it still exists, what is going on? If it has terminated, then who did take that decision, why, and how come he/she never notified the volunteers as any professional would do?????
>
> Don, we are all waiting for your response.

Gotterbarn apparently appreciated El-Kadi's complaint, but took two weeks to respond. The two week delay seems to be explained at least in part by a December 11 email to Melford, SEEPP's co-chair, that begins much as the El-Kadi's had:

> I have had trouble contacting you. I hope this email gets through. I am sending it to your computer.org address and home address. Below are two messages I will send out by the end of this week so people can start to get some work done. And make plans for attending a meeting of the task force. Let me know what you think.[29]

Apparently, communications between SEEPP's co-chairs had also become a problem (quite independent of any list). Gotterbarn was now ready to solve the problem of Melford's veto by treating silence as consent ("will send out") rather than as "I forbid".

The first of the documents Gotterbarn put "below", a letter beginning "Dear SEEPPers", seems never to have been sent. It consists of six numbered paragraphs describing the steps by which the working groups should "get started" (a more detailed version of instructions sent out February 22).[30] The six are preceded by two introductory paragraphs worth quoting in full:

> I am concerned by our lack of progress. I am not aware of any working groups starting work. I know you have all been quite busy but we need to get started.
>
> In March several of us met in Washington and wrote a statement defining the scope of the task force and reworked the formal procedures of deliverables from the task force. Bob has these documents and will forward them to the group.

The message implicit in these two paragraphs is bleak indeed. None of the working groups is working—or ever had. (For some reason, Gotterbarn chose not to mention El-Kadi's August email or other work that his own working group had performed since July.) The deadline is passed for delivery and all that Gotterbarn can think to do is to plead that "we need to get started". How do "we" get started? Gotterbarn's only answer, the second paragraph (and the six steps to follow), is to continue to go by the (IEEE's) book. He will distribute the documents drafted on March 25, 1995, and (apparently) finished a few months later. How important are these documents? Not important enough for Gotterbarn to have a copy of his own to work from. Melford will have to provide them.

Gotterbarn did not send this email to the list because Melford never responded to the request for approval. Gotterbarn still held back from actually treating Melford's silence as consent.

The other document "below" is a draft letter to the Professional Competence working group. Gotterbarn begins that one by acknowledging El-Kadi's letter "expressing concern about the lack of progress…of our group". Gotterbarn then apologizes for the lack of progress "especially to those who have already done work for the group". These preliminaries take two short paragraphs. The much-longer third paragraph tries to explain what went wrong:

> I have been concerned about the activity of the SEEPP task force. The last task force activity took place in March, when several of us met to finalize the task force guidelines

and set the direction and scope of the task force. This material has not yet been distributed to the SEEPP working group leaders. As one of the co-chairs of the SEEPP task force, I have tried to motivate it from the bottom up by developing a plan of action for our working group and sharing that plan with other members of the SEEPP task force. Although you all started the work of our working group, there is very little happening from the task force and I did not feel right asking any more from you until I see some positive indications that your work will ultimately bear fruit.

At the time, this explanation seemed unhelpful for at least two reasons. The first concerned the factual premise. Gotterbarn said that the task force last met in March, completed the guidelines, directions, and task force scope, but "this material has not yet been distributed to working group leaders." Why, I wondered, weren't they distributed? Gotterbarn does not say. More important—at least for those of us with a good memory or an email file (whether paper or electronic)—was that what Gotterbarn said raised questions about the status of what *all* SEEPP volunteers had received by the email dated February 22, 1995 (and presumably had been trying to follow ever since). That email contained—beside yet another copy of the Call—what looked like "directions" (the second part) and "guidelines" (the third part). Was Gotterbarn referring to these documents or something else? What were these documents? What was their relationship to those completed at the March meeting?

Gotterbarn's explanation was also unhelpful because what happened to the guidelines, directions or scope *in* March, however confusing, could tell the working group nothing about why so little happened *after* March. "Some" members of the working group had (according to Gotterbarn himself) been able to do something. Why not others? Indeed, Gotterbarn's own June 10 email showed that, even after March, he could set "direction", specifying particular jobs to be done. The cause of the working group's current sad state certainly did not seem to be his method, "motivating from the bottom". The one fact he cited that did seem relevant, that there was so little going on in the other working groups after March (or, perhaps, after June) that he did not "feel right asking any more of you", would be relevant only once he explained why so little was going on in the other groups . He offered no explanation of that. I think ordinary decision theory does offer an explanation (or, at least, a hypothesis worth investigating, especially for those thinking of learning from the mistakes of other code writers).

SEEPP's general strategy had been "divide and conquer". The strategy works well when one can "conquer" a domain piecemeal—when, that is, the whole consists of (more or less) independent tasks, each a worthwhile objective in itself. When, however, the tasks are mutually dependent, so that none is worth doing unless all are completed successfully, and the work is divided among several different people or groups, then "divided and conquer" creates (what decision theorists call) an "assurance problem" (a certain kind of coordination problem of which the "prisoners dilemma" is a close relative). The parts gain their value (in large part at least) from their being included in an organic whole. Half a code is not (much) better than none. If nothing anyone does will be worth much unless all succeed at their individual tasks, doing anything until all can (as Gotterbarn put it) "see some positive indications that [their] work will ultimately bear fruit" becomes irrational. Each must have assurance that others are doing their share before it is rational for him to do his.

There are at least three ways to provide that assurance. One is to make it rational for each person to do her part even if others do not do theirs. The easiest way to do that is to pay for the

work piecemeal, an option not open to a task force of the IEEE-CS/ACM Joint Committee without external funding. So far, all SEEPP's attempts to get a grant from the National Science Foundation or some private philanthropy had failed. The second way to provide assurance is to take a chance, that is, to do a little work oneself, see if others reciprocate, and then act accordingly, quitting if others do not but taking another chance if they do reciprocate. Gotterbarn's working group had, in effect, been trying to solve the assurance problem this way since June ("motivating from below"). The other working groups had not reciprocated—perhaps because they did not know that anyone in Professional Competence had done anything. (In this respect, Gotterbarn's failure to boast to the other SEEPPers about what his working group had done was a tactical error.) This second way of solving the assurance problem requires good communication between groups—or the ability of each group to observe the progress of the others. Individual members of SEEPP had a very poor idea what other members of SEEPP were doing. The listserv was not designed to track work—and, even today, it is hard to imagine how it could be. The third way to solve the assurance problem is to reformulate the task so that coordination across groups is no longer necessary.

Gotterbarn soon showed that he had chosen a fourth option (a "technological fix"): "Please have patience, I am taking a more direct approach to the problem." He had set up a new mail list "for our group" (PRFCMP-L@UTKCM1.BITNET). He would now be sending emails through a server at the University of Tennessee, Knoxville, rather than through a server at ETSU. The server seemed to be working: "This is the way this message was circulated." The list would transmit messages automatically: "Messages sent to the list will be forwarded immediately to all members of the group….A reply sent to this message will be sent to everyone in the group." The working group would have a listserv rather than a mere list. (Apparently, Gotterbarn was no longer worried about spamming or other abuse of the list.)

With only the evidence Gotterbarn had before him on December 15, we cannot be sure what caused SEEPP's work to come to a near halt after March. What we can be sure of is that, given the cause Gotterbarn himself offered (the need for "positive signs that [their] work will bear fruit"), his "direct approach" had no more chance of success than his old approach—for a least two reasons. The first is that in fact it *was* his old approach (except that the list was now automated). The problem existed even when the old list worked. The second reason his "direct approach" had little chance of success was that, even if it were new, it would not have solved the assurance problem. That problem could not be solved without visible progress in the other working groups—or their dissolution (or some conviction that completing a part of the work was worthwhile even if the whole work was not completed). Gotterbarn had no plan to improve the visibility of progress in other working groups, not even a common list for all of SEEPP, no plan to get the other working groups started except to try again to get his own group working, and no thought at all of dissolving the other working groups. Gotterbarn had, it seems, run out of ideas.

The paragraph announcing the automated list, when combined with his other emails for the year, suggests that Gotterbarn may have run out of steam as well. The paragraph concludes: "Three members of the group have already done some work in response to my July message. I will forward the material to you shortly."[31] Who were the three who had done something—or, rather, who beside El-Kadi had done anything? The material Gotterbarn promised to forward would have answered that question, but he seems to have sent no more emails to SEEPP or his working group in 1995. The next Gotterbarn email to arrive at IIT would be dated March 3, 1996 (and would not contain the promised material). The first SEEPP-related email to arrive at IIT

after Gotterbarn issued his promise is dated December 28, 1995. While it was the sort of thing Gotterbarn had promised (extracts of the "AICPA Standards Manual"), it was not forwarded but seems to have come directly from its author, Manny Norman, passing through the new listserv— two weeks *after* Gotterbarn had counted to three.[32] Gotterbarn's never-sent "Dear SEEPPers" letter of December 11 contained a diagnosis of his own failings: "You have got to be ready to follow through. I have started my group TWICE but each time I did not follow through." Here, it seems, was a third failure to follow through.

Criticizing Gotterbarn's performance is not hard: He had a problem he did not know how to solve. He tried his best but his best clearly was not good enough. It is therefore worth pointing out that none of the other SEEPPers (that is, the chairs of the various working groups) had offered any alternative to Gotterbarn's plan though he invited alternatives by initially describing it as "written in Jello". Gotterbarn seems anything but a dictator. In addition, he had his own coordination problem. As one of SEEPP's two *co*-chairs, he had (he supposed) to work with the *other* co-chair. In the first year and a half of SEEPP, the two had worked together pretty well. Melford had done much. He had recruited about half the chairs of SEEPP's working groups, led SEEPP through the IEEE's serpentine procedures (preparing first drafts of the Call, Operations Guide, and Scope), and attended all but one of SEEPP's meetings (and shared with Gotterbarn in planning all of them). But, as 1995 wore on, Melford had become increasingly hard to reach. Perhaps Gotterbarn should not have been so quick to give up on the face-to-face meetings even though they seemed to accomplish little. One thing they had assured was that every month or two, Gotterbarn would get to consult with Melford face to face, disposing of whatever business had not been completed by email. Melford's own explanation of why he had become so hard to reach is that his consulting practice had becoming increasingly "crazy" (as the high tech boom of the mid-90s developed).[33] Whatever the reason, Gotterbarn was finding it increasingly hard to do anything as SEEPP's co-chair. He never sent his "Dear SEEPPers" letter to SEEPP because he believed that, according to IEEE procedures, he could not properly do so without the consent of his co-chair. On his own, he could only communicate with his own working group.

4.7 Nadir

December 21 is the darkest day of the year. We can easily imagine Gotterbarn looking out on the gray round-tops of east Tennessee on that day's late afternoon wondering whether he was presiding over a disaster. He was, after all, no closer to having a first draft of a code of ethics than he had been a year before. Indeed, given the dwindling of enthusiasm among the volunteers, he was, it seemed, further from a first draft. And there was nothing more he could do about it. He had tried everything he could think to do. Nothing worked. He was now repeating himself, unlikely to succeed this time with fewer resources when he had failed earlier with more.

December 21 is not only the darkest day of the year but the day on which the darkening ends. For the next six months, the days get longer, not shorter. December 21 is the ancient holiday of renewal. It would have been convenient for this history of the Software Engineering Code of Ethics if the crucial event in SEEPP's renewal had occurred on December 21, 1995. Instead, it occurred one week earlier.

NOTES

¹   There were actually thirty-two responses by early January, but three are not counted here because the respondents simply asked to be kept informed and did not fill out the standard form (or otherwise provide the information requested). Gotterbarn's first list of volunteers contains only twenty-four names (five less than the total number of respondents even after these subtractions). Most of missing respondents applied before the November 5 deadline, but some did not. It is unclear what the criteria of selection were. Gotterbarn no longer recalls.

²   One respondent simply sent in an email answering most, but not all, the questions, informally. He is counted in the 29.

³   Though SEEPP's ratio of academics to practitioners is less lopsided than that of Anderson's committee, it still seemed lopsided to at least one observer: "I was somewhat concerned about the relative lack of practicing computer scientists and software engineers on the task force– it seemed to me that while ethicists could perhaps catalyze and facilitate discussions about software engineering ethics, there needed to be a stronger component coming from actual engineers who faced and ultimately had to deal with the ethical issues that arose in practice." Interview of Steven Barber, April 24, 2002.

⁴   Gotterbarn\SEEPP1994-95\Problems with SEEPP 6-8-95.

⁵   Gotterbarn\Steering Committee\early essays\Workgrp (2\13\1995). Typical of the ten suggestions is the first:

> Our—the seep—schedule has to be revised and made known to the working groups so that they have some type of target. The balloting process will consume a significant amount of time which I don't think we planned for. 4.3.2 has the task force conduct[ing] a ballot—we don't seem to have any provisions for consensus other than the ballot. Shouldn't consensus be achieved in the wg before something gets sent to ballot?

⁶   Gotterbarn did not exclude other ways of carrying on the work. After describing the second part of his plan, he returned to the subject of logistics. Though "for the present" meetings will be "electronic", there are "some national meetings that several of us will be at and we can gather in subgroups [there]". Further, if there is a "consensus" of the working group that "we need to discuss something together", he can arrange a conference call (though these are hard to organize, expensive, and therefore to be kept to a minimum). Gotterbarn\SEEPP1994-95\Problems with SEEPP 6-8-95.

⁷   Gotterbarn (comments on Chapter 3, June 5, 2003) believes that "the operations guide was of absolutely no help—which part of it did we have to pay attention to ???—Look at the letter again. It says here is what we are doing—my plan and then attaches the 'Guide to operations'." Whether or not SEEPP had to pay any attention to the Guide, there are certainly obvious ways in which it did (or, at least, seems to have). For example, the Guide calls for division of the task force's large project into smaller assignments for working groups. Gotterbarn

would later ask his working group to develop a Scope, just as the Guide required. In February 1996 (as we shall see in Chapter 6), he recommended that Keith Miller be "the scribe" to combine the documents expected from the working groups. And so on. Gotterbarn may not have taken the Guide seriously, but he said nothing then or later to indicate that; nor do his later actions so indicate. Gotterbarn is, I think, reading into the past a hard lesson learned only later, that is, that the IEEE Standards procedures, even in Melford's simplified form, could be of no help until someone had prepared a first draft of the code.

[8]   Archive, February 22, 1995. The use of "fuses" as an example suggests how much of the document may be IEEE boilerplate.

[9]   Phone interview of Patricia Douglas, March 4, 2003.

[10]   Gotterbarn\SEEPP 1994-95\Problems with SEEPP (6-8-95).

[11]   Gotterbarn archive\SEEPP 1994-95\Problems with SEEPP (6-8-95). Gotterbarn does not recall whether he sent this letter.

[12]   My most important publications on codes were then: Michael Davis, "The Moral Authority of a Professional Code", *Authority Revisited: NOMOS XXIX* (New York University Press: New York, 1987), pp. 302-337; and Michael Davis, "Thinking like an Engineer: The Place of a Code of Ethics in the Practice of a Profession", *Philosophy and Public Affairs* 20 (Spring 1991): 150-167. I have published a good deal more on codes since 1993.

[13]   Archive, December 12, 1994.

[14]   Burnstein received a Ph.D. in chemistry in 1969 from IIT. She also has a masters in computer science from IIT (1984) and a masters in chemistry from the University of Maryland (1965). She was encouraged to enter the field of software engineering by a colleague in chemistry (apparently impressed by her facility in programming). However, her first formal involvement in computer science teaching had another origin. She was volunteering as a "computer mother" in her children's elementary school. She enjoyed working with children and thought teaching them a great opportunity to use the programming she had learned as part of training in chemistry. That experience was one of the factors that got her interested in going back to graduate school in computer science and in teaching in that field. Burnstein had been programming (software) since the 60s. Interview of Ilene Burnstein (May 14, 2002).

[15]   The confusion may run deeper. Gotterbarn's archives include a list of 23 under the heading "MEMBERS OF THE INFORMED CONSENT MAILING LIST". Informed Consent is not one of the original eight working group. But among its members are IIT's three (Burnstein, Weil, and me) as well as Gotterbarn, Melford, and Miller—and many others familiar from the lists Gotterbarn drew up of the members of other working groups.

[16]   Though the list itself had a title clearly identifying it as the list of the working group, there are two reasons why that clarity may have been lost. One is simply that the format in which

the email was printed (all the routing codes) made overlooking the title easy. The other reason the clarity may have been lost is that the email's Subject is "current list of volunteers", not "current list of Professional Competence volunteers".

[17]   Archive, June 10, 1995.

[18]   A review of the addresses on Gotterbarn's June 6 memos seems to explain why we did not receive those. Only my name is on the list and my address had become corrupted, that is, been mixed up with an ETSU address (CSEP@IITVAX.EAST_TENN_ST.EDU). Explaining why we did not receive the July 1 memo is more difficult. Weil is back on the list (though Burnstein is not) and both her address and mine now seem correct (@CHARLIE.ACC.IIT.EDU). Mechler Archive, E950610, E950610A, and E950701. Mechler had sent his own summary directly to Gotterbarn, not to the list, allowing Gotterbarn to distribute it.

[19]   Mechler archive, E951103B.

[20]   Mechler archive, E951104.

[21]   Mechler archive, E951106A.

[22]   Mechler archive, E951108.

[23]   Mechler archive, E951114A.

[24]   Mechler archive, E951114B.

[25]   The Englishman who "hailed from India" would respond on November 22, bringing the total of "live" volunteers (including Mechler himself) to eight: "I also sent a message to chair without any response. When Mario Barbacci was here in September he was hopeful that this exercise would be completed and that volunteers are working on it. I am not sure that we are progressing." Mechler archive, E951122.

[26]   Mechler archive, E951109A.

[27]   Mechler archive, E951116.

[28]   Mechler archive, E951116.

[29]   Gotterbarn\Prfcmp-l archive\BOBOUT.ASC

[30]   Gotterbarn\Prfcmp-l archive\BOBOUT.ASC. The title of this part of the document is "MESSAGE TO BE SENT TO MY TASK FORCE ON PROFESSIONAL COMPETENCE". Apparently, even Gotterbarn had trouble keeping terms straight: he should have said "WORKING GROUP". But, of course, this is a draft, not a final document.

³¹ Gotterbarn must mean "June", not "July". While there is a July 1 email (that IIT did not receive), it does not fit the description (an email calling for work). Apparently, Gotterbarn is working from memory (miscued, perhaps, by Mechler's reference to "July").

³² Who then were Gotterbarn's "three"? Even if we count Manny Norman as the second, we have a third to account for. One possibility is Mechler. By then, he had done "some work" (as we shall see in Chapter 5). Another possibility is Nayarana Jayaram (the Englishman who hailed from India). As he recalled (interview, February 25, 2003): "I collected British codes and did a comparison….I sent the results to Ed Mechler in Pittsburgh, Amr El-Kadi in Egypt, and some others who were doing something similar. We wanted to see what the state of the art was." While Jayaram's memory places these events two years too early ("at the end of 1993 or the beginning of 1994"), I think it reasonable to add two years to his memory. (After all, he did not volunteer for SEEPP until the *end* of 1994.) Even so, for Jayaram to be the third, we must suppose that one of the "others" to whom he sent his work was Gotterbarn (or that someone else relayed the work to Gotterbarn). Gotterbarn's archives provide no evidence that he received Jayaram's work (or Norman's or anyone else's but El-Kadi's). So, we have a mystery. Indeed, the mystery runs further. Jayaram's work does not seem to have survived at all. It may be another victim of the ETSU list. Gotterbarn has no explanation. Those of us who have lost files as we moved records from one computer to another can sympathize.

³³ Interview of Robert Melford, October 31, 2002. Apparently, it took Melford almost a year to realize the craziness would not soon go away: "I had to discontinue my involvement in late 96, early 97, because my own work had gotten too crazy."