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	X3J16/97-0022
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Project:	Programming language C++
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X3J16 Record of Discussions for Nashua, NH
X3J16 Meeting no. 23 / WG21 Meeting no. 18
10-14 March 1997

Crowne Plaza Hotel
2 Somerset Parkway
Nashua, NH USA

Secretary's note: This document is usually submitted as the formal minutes but due to the widespread distribution of formal minutes, I have been asked to make those more concise, omitting the majority of the full committee discussions. The formal minutes are in N1059 = 97-0021. The full committee discussions are present in this "Record of Discussions" document.

1. Opening activities

Clamage convened the meeting as chair at 9:25 EST on Monday, 10 March 1997. Miller was vice-chair, and Corfield was the secretary.

Digital (represented by Meyers) hosted the meeting.

1.1 Opening comments

Clamage welcomed everyone to our 8th year of deliberation.

1.2 Introductions

Corfield circulated an attendance list each day, which is attached as Appendix A of these minutes. Miller circulated a copy of the membership list (SD-2 = 96-0001) for members to make corrections.

1.3 Membership, voting rights, and procedures for the meeting

Clamage reminded the attendees that this is a co-located meeting of WG21 and X3J16. (The joint membership is denoted WG21+X3J16 in these minutes.)

Clamage explained the voting rules:

- In straw votes, all WG21 technical experts may vote, even those who haven't attended previous WG21 meetings. An X3J16 attendee may vote only if he/she is the voting representative of a member organisation that has met the X3's meeting attendance requirements. (The voting representative is the principal member, or an alternate if the principal is not present.) A WG21 technical expert who is also an X3J16 voting member still casts only one vote in a straw vote.
- In WG21 formal votes, only the head of each national delegation may vote.
- In X3J16 formal votes, only one representative from each X3J16 member organisation may vote, and only then if the organisation meets the attendance requirements.

1.4 Distribution of position papers, WG progress reports, WG work plans for the week, and other documents that were not distributed before the meeting

Work plans were discussed under 1.6.

1.5 Approval of the minutes of the previous meeting

Corfield said that he had not received any corrections for the minutes.

Motion by Lajoie/Miller:

> Move we approve N1041 = 96-0223 as the minutes of the previous meeting.

Motion passed X3J16: lots yes, 0 no, 0 abstain.

1.6 Agenda review and approval

Clamage explained the proposed changes to the agenda. Because we are in the middle of the ballot process, we are not voting on changes to the WP. Wednesday will therefore be WG sessions, Thursday will be General Session, Friday will be US TAG. This will be to decide the US position in the CD Ballot. [Note: in fact, the US TAG met on Thursday afternoon.]

There will be no new WP before London. The intent at this meeting is to review the US Public Comments and any additional comments from X3J16 members. At London we will review the NB comments and produce resolutions for them. The New Jersey (November) meeting will be to produce the DIS.

Motion by Lajoie/Glassborow:

> Move we adopt the proposed agenda.

Motion passed X3J16: lots yes, 0 no, 0 abstain.

1.7 Report on the WG21 Sunday meeting

Plum summarised the WG21 meeting discussions. He said it is important that all issues that we want to address should appear on some NB comment list, i.e., issues should not go direct to the project editor. After the close of the ballot, only issues that are unanimously agreed by the attending WG21 representatives can be fixed. Anything not on an NB list may not be allowed to influence the document.

Plum said while the choice of “yes with comments” or “no with comments” ultimately rests with the NB, if the list of issues contains only “bugs”, it will show better consensus if the NB votes “yes with comments”.

Schwarz expressed concern about how the US TAG will formulate its list of comments. Clamage and Lajoie explained that the WGs would attempt to formulate that list from the existing issue lists and the public comment list. On Thursday this would be presented to the committee as a whole.

Clamage discussed the proposed schedule. He said the November meeting would involve production of the DIS to go into the two month ballot and the result might be available by the France meeting (March ‘98). Plum noted that after successful DIS we go into Defect Report mode.

Ball asked what would happen to any ANSI public comments received after 28 February. Clamage said we would deal with them in London. Plum clarified that such comments would likely be held on file in case of future revision, i.e., CD3, unless they are obvious bugs that all NB representatives at London agree should be fixed.

1.8 Liaison reports

Benito gave the WG14 (C language) liaison report covering the Kona meeting in February:

- implicit `int` has been removed (in line with C++),
- proposals to add classes and member functions to C will no longer be discussed,
- a `bool` type will be added but will not be a builtin type (it will be declared in a header)
- extended identifiers and literals will be added

Benito said there was interest in adding `inline` as a compatible subset of the semantics of C++. He said the WP was submitted as a CD. WG14’s schedule is to publish the new standard in 1999. No further proposals for the preprocessor or language will be accepted. The next meeting will be the last opportunity for new proposals on the library.

No other liaisons were present.

1.9 New business requiring actions by the committee

There was no new business.

2. Working Paper for Draft Proposed Standard

Koenig said that there was no report because there had been no change since Kona.

3. Organise subgroups, chapter editors, and chapter reviewers. Establish working procedures

Lajoie explained there would be three Core WGs:

- Core I; Lajoie; conformance model, linkage, name lookup,
- Core II; Adamczyk; default arguments, conversions, overload resolution, access, expressions,
- Core III; Gibbons; templates, exceptions,
- Library; Dawes; splitting into subgroups as necessary.

Stroustrup asked which WG would discuss the relaxation of the rules for `void`. Library & Core agreed to meet jointly on Tuesday morning. Koenig asked about template default arguments. Dawes said this would be discussed in Library first then Core. Koenig thinks it should be discussed in Core first. Both WGs agreed to discuss it independently and then jointly.

The committee recessed at 10:30am.

4. WG sessions (Monday, Tuesday, Wednesday)

The committee reconvened at 10:10am on Thursday morning.

5. General session

5.1 Library

Dawes presented the results of the Library WG's review of the Public Comments and issues lists. He said that 54 Public Comments were considered to be library related. The WG had decided to reject 12 of these, mostly because they were previously considered on the Library WG's issues list and have already been rejected.

- 9/Owen previously considered except #5 which is an issue,
- 10/Owen previously considered,
- 11/Owen previously considered,
- 18/Ward undesirable, [Note: see below, much later.]
- 23/Parker (18-14 18.5.1) previously considered,
- 23/Parker (20-5 20.2.1) previously considered,
- 28/Robison/Nelson (21.6.1.3) previously considered,
- 29/Shaffer (#5) previously considered,
- 30/Kuehl (#7) incorrect, [Note: see below.]
- 30/Kuehl (#10) duplicate of 30/#1,
- 30/Kuehl (#12) request for extension.

Myers asked for clarification on comment 30/#7: he said it became part of library issue 22-011 and is being handled. Dawes agreed to strike 30/#7 from the rejected comments.

Dawes said there were 11 editorial items under one library issue, which left 31 issues that were considered substantive. Dawes thanked Rumsby for all his hard work in preparing the issue list during this meeting. That document is N1064 = 97-0026. Dawes corrected the document to remove mention of editorial boxes. Dawes said there are about 95 library issues in the document. Many of these are closed with no action and do not need to be added to the US comments. Schwarz noted that clauses 22 and 27 were handled slightly differently within the list and he will explain this later. Nelson wanted confirmation that issues marked "Core" really had been transferred to Core issues lists. Dawes and Lajoie confirmed this.

Vandevoorde asked for clarification of issue 18-003: is the WG not recommending that the return value from `type_info::name()` at least be null terminated? Dawes said this would be written up for adoption by another NB.

Dawes noted that five issues are marked "Pending". All these were received late (i.e., at this meeting) and there has been no time to discuss them. These will be discussed further for other NBs to pick up.

Myers asked about Brück's proposal regarding default arguments. Corfield said this was referred to by 17-001. Myers does not think this deals with it properly. Dawes said the issue was discussed but perhaps the issues list paper does not reflect the discussions entirely.

Dawes said 71 issues remain open and that the highlighted recommendations in the paper indicate thorough discussion and consensus on the recommendation. Non-highlighted ones need more discussion in London. Schwarz asked that we discuss issues from clauses other than 22 and 27 first. Dawes agreed.

Stroustrup clarified that for issue 20-003, only part of N0849 = 96-0031 is being recommended. Dawes corrected the recommendation to "Relax language rules for returning `void` as described in...".

Corfield asked about issue 17-003. Dawes said it was not discussed but some people felt very strongly that it should be on the US comment list – this has been discussed before. Nelson clarified that the actual US comment would not show a proposed resolution.

Spicer said issue 17-002 addresses only part of the problem. Dawes and Schilling said there are more details to be investigated in this particular issue.

Unruh raised a concern about issue 18-001. Dawes said the public comment had not been correctly incorporated into the list and so the issue was slightly misleading.

Schwarz described how comments were dealt with for clause 22. In all but one case (issue 22-002) the proposed resolution is the consensus of the WG. Issue 22-002 is substantive and the WG were not certain about the recommendation. Plum asked for clarification of issue 22-002. Schwarz said that the issue is still open and the proposed resolution needs feedback from the Japanese experts amongst others. Schwarz will discuss this offline with the relevant technical experts. He said issue 22-019 should be highlighted as "Take no action".

For clause 27, the highlighted resolutions indicate consensus and even the "Take no action" items should be raised as US comments. There were no questions.

Clamage called a straw vote in favour of adopting N1064 = 97-0026 as modified as the library section of the US comments:

Straw vote passed X3J16: lots yes, 0 no, 0 abstain.

<u>*5.2 Core I*</u>

Lajoie presented her WG's review of Public Comments and other issues. She said there were 16 public comments and the WG had rejected five of them:

- 23/Parker (3-20 3.5) request for explanation,
- 24/Moore (#b5) request for explanation,
- 29/Shaffer (#4) request for an extension,
- 29/Shaffer (#6) request for explanation,
- 34/Miller the WP is sufficiently clear.

The Core I WG recommendations for inclusion in the US comments are listed in N1066 = 97-0028. Lajoie said this is a combination of core issues and Public Comments. She said 11 issues were substantive and there were many editorial issues.

Gibbons noted that on page 8 the change to 3.5 [basic.link], paragraph 10 needs to mention C linkage objects as well as functions. Lajoie agreed.

Lajoie explained issue CD2-core 1-11. She said the WG felt the example should be undefined but that it was not possible to produce wording to describe it. O'Riordan feels it is not possible to outlaw this sort of behaviour. There was some discussion and Lajoie said she would remove the proposed resolution and we may drop the issue altogether at London.

O'Riordan asked about issue CD2-core 1-9. He said there seemed to be some contradiction in the issue. Miller explained the intent but O'Riordan did not think the issue was clear.

Corfield asked for clarification of issue CD2-core 1-8. Lajoie said the intent of the change was to provide an alternative to `static` for anonymous unions, i.e., to declare them in an unnamed namespace.

Stroustrup said the resolution for issue CD2-core 1-2 did not clarify which `f()` got called. Corfield asked how `f()` was visible and Lajoie explained how Koenig lookup found it. Corfield muttered something about remembering voting for that change.

Clamage called a straw vote in favour of adding N1066 = 97-0028 as modified to the US comment list:

Straw vote passed X3J16: lots yes, 0 no, 0 abstain.

Lajoie next presented Miller's paper on clarifications to the conformance model, N1061 = 97-0023. She said the WG reached consensus on part 1 with a majority also in favour of part 2. Koenig asked if we are just adding it to the list or proposing a resolution? Miller said that the part 1 resolution should go on the US comments and part 2 should go on as an issue without resolution.

Clamage called a straw vote in favour of adding N1061 = 97-0023 as modified to the US comments list:

Straw vote passed X3J16: 21 yes, 0 no, 5 abstain.

Unruh asked where was Meyers' comments about the type of decimal literal? Lajoie said these would appear on Plum's C Compatibility list.

5.3 Core II

Adamczyk presented his WG's review N1063 = 97-0025. He said the rejected Public Comments are listed in the paper:

- 29/Shaffer (#7) WG disagreed with the comment,
- 29/Shaffer (#8) WG disagreed with the comment.

Ball was concerned about the proposed resolution of Public Comment 28 regarding `nothrow`. He felt this was a change to core language semantics based on use of a library type. Ball said an alternative is to change core semantics for all allocation such that initialisation is done only if a non-zero pointer is returned. Stump thought existing implementations already have to deal with this. Ball thought the issue is too specific and objects strongly to the proposed resolution. He could live with "library function" but not with the specific use of the `nothrow` type in any signature. Colvin also felt this issue needs more work. Stroustrup also objected to extending this check to all user replacements involving `nothrow`. There was general agreement that we need to make a change here to fully support the `nothrow` semantics but no consensus on what the resolution is. Adamczyk agreed to drop the proposed resolution from the comments.

Adamczyk discussed the `?:` issue. He expected a resolution in London based on implementation experience.

Clamage called a straw vote in favour of adding N1063 = 97-0025 as modified to the US comments:

Straw vote X3J16: lots yes, 0 no, 0 abstain.

5.4 Core III

Gibbons presented N1065 = 97-0027. His WG rejected the following Public Comments:

- 2/DeRocco request for extension,
- 12/Girod (items b-f) the WG considered the comments to indicate a misunderstanding of the draft,
- 15/Horwat this was passed to the Library WG,
- 23/Parker (18-14 18.5.1) request for extension, [Note: this is also on the LWG rejected issues list.]
- 24/Moore (#b2) the draft is sufficiently clear already,
- 26/Clark (b) this was considered informative only.

Gibbons went through issues closed with no change. Schwarz asked if Gibbons planned to prioritise the issues – there are rather more than we would normally close one meeting. In particular, he felt that 1.19 needs a resolution because it is critical to the library. Stroustrup asked for controversial issues to be highlighted. Gibbons indicated that 1.8 is important but the WG had no consensus. 1.12 is also important but the WP does not match Core III's intent. Ball raised the issue of template conversion functions (1.16) – this is very important but there are no rules at all in the WP. 1.13 (status of rethrown exceptions) needs further investigation. Stump raised 2.11which clarifies when base class destructors are called during stack unwinding. Spicer asked what level of problem we are willing to leave unsolved? Stroustrup feels we need some clear resolutions by London with WP changes. Corfield asked if Gibbons had some feel for the destabilising effect of making lots of changes. Gibbons said the WG would consider this once the full list of WP changes is on the table and he is concerned about it. Spicer asked which was more destabilising: a broken feature or a small change.

Clamage called a straw vote in favour of adding N1065 = 97-0027 to the US comments:

Straw vote passed X3J16: lots yes, 0 no, 2 abstain.

5.5 C Compatibility

Plum presented Meyers' paper N1067 = 97-0029 (which will be allocated a public comment number). There are some lexical issues to be resolved for universal character names in source code. The proposal is that UCNs below hex 20 are ill-formed and so are UCNs that map to the C++ basic source character set. This is after consultation with WG14.

The second issue concerns the type of a decimal constant (another WG14 issue). The proposed change would match WG14's resolution that anything above signed long needs an explicit U suffix (to allow for long long types etc).

Plum said Meyers' paper resolves two public comments and a newly raised issue. Unruh asked if the wording was taken from the C9X draft. Meyers said yes. Unruh had a concern about hex literals and L suffices. Plum said the intent is to keep C++ synchronised with C.

Clamage called a straw vote in favour of adding the C compatibility issues from N1067 = 97-0029 to the US comments:

Straw vote passed X3J16: lots yes, 0 no, 3 abstain.

Unruh asked about Public Comment 22 concerning the preprocessor. Has this been addressed? Lajoie said no but she and Plum will work on this since this is a C compatibility issue and present a solution later on.

[Note: there was a 90 minute break for lunch at this point.]

Plum said Public Comment 22 asked three questions about the preprocessor and the draft could be clarified. Since we are trying to retain effectively a copy of the C standard in clause 16, we should take no action and perhaps refer the comment back to WG14.

Clamage called a straw vote in favour of taking no action:

Straw vote X3J16: lots yes, 0 no, 0 abstain.

5.6 Other issues

O'Riordan presented the issue of default arguments on template member functions. The library relies on the construction of the default argument not being needed, and hence not being instantiated, unless the default argument is actually used. The language states that such arguments must be checked at instantiation time. Unruh has produced a paper describing the impact of changing this, N1062R1 = 97-0024R1. Spicer noted that a workaround in the library could use a static member function. O'Riordan said the WG felt a core change better suited the likely future direction of C++ usage.

O'Riordan wrote up the following suggested library workaround:

```
// add new library function:
template<typename T>
  T default_arg() { return T(); }
template<typename T>
struct X {
  // change const T& = T() to:
  void f( const T& = default_arg<T>() );
};
```

Plum said the main argument against the "Plum patch" wording added to clause 17 in Kona is that the documentation of the library contains code that doesn't actually work and this will hinder users. Stroustrup thought it would be most unfortunate if the specification of the library headers in the standard were not written in (valid) C++. Spicer thought the intent of the Kona patch was that if we had editing time and the core change were not made then we could just make the signature changes. Koenig said the patch arose from Plum's discomfort at submitting CD2 with so many last minute changes.

There was some disagreement over whether the suggested library workaround would actually work at all.

Unruh discussed the details in his paper. He said on investigation he didn't feel that the WP actually specified that default arguments really are instantiated at the declaration point. The two clarifications in the paper specify when a default argument expression is instantiated and what the point of instantiation for a default argument is. Miller wanted clarification on the wording for when default arguments are "required to exist". Unruh agreed this needed wordsmithing. Corfield asked for confirmation that no previous wording added to the WP needed removal, i.e., as a result of the clarification from Core II that started all of this. Gibbons explained the exact change that Core II previously made and said that wording would not need to be removed if Unruh's proposal were adopted.

Gibbons said Core III had concerns that this introduces the concept of "expression instantiation" which we currently don't have. Some of the related issues are separate compilation and instantiation and explicit instantiation. Stroustrup spoke in favour of making the language change – the ARM assumed that default arguments in templates worked this way, the library assumed the same for a long time. He went on to list several problems with the suggested library workaround. Gibbons and O'Riordan disagreed over whether the workaround works at all. Austern feels that enshrining this technique in the library is a bad encouragement for users. Corfield asked whether any current implementations defer such instantiation. O'Riordan said no. Corfield stated that not making the core change could not break user code. O'Riordan agreed that the change simply broadens the spectrum of acceptable programs. Spicer feels this is an extension and it's too late to fix this sort of thing. Myers said that the distinction between library vs core is not helpful: we have a problem that we simply have to fix. Glassborow said we should be wary of pursuing this issue in any particular direction before knowing what all the NB comments are on this.

Much discussion about how to move forward on the lack of consensus. After much wrangling, Clamage called a multichoice straw vote in favour of making the core change:

Strongly favour	5
Favour	9
Don't care	5
Oppose	7
Strongly oppose	4

Clamage then took a WG21 only straw vote:

Strongly favour	0
Favour	2
Don't care	3
Oppose	1
Strongly oppose	0

Clamage said that the people who care about this now need to work on producing convincing cases in favour of their respective positions. Plum asked for clarification of the status quo. Unruh said he could only find text that indicated default arguments were checked early, i.e., the library code doesn't work (which is why we introduced the "Plum patch" wording in clause 17).

Schwarz discussed Public Comment 18. This is a request to be able to access the underlying file from a `filebuf`. It is currently specified that the underlying file is "the equivalent of" a stdio `FILE`. Schwarz thought the issue had been discussed and closed but changes to the library mean we should reopen the issue.

Stroustrup voiced concern about the number of issues on the US comment list and wondered if we should prioritise them? Clamage said we have already made a decision to add every issue that we want dealt with to an NB list, no matter how trivial. There was some discussion about whether we are being too relaxed about adding pretty much any issue we feel like to the list. O'Riordan suggested that we try to prioritise issues between now and London, possibly on the reflectors. Clamage agreed.

Austern asked if Public Comment 18 was a bug or a choice. Schwarz said a choice. Plum said many implementations provide something similar as an extension.

Clamage called a straw vote in favour of adding Public Comment 18 to the US comments:

Straw vote passed X3J16: lots yes, 0 no, 9 abstain.

Gibbons raised two issues that are editorial but ought to be made clear to everyone:

```
int f();
template<typename T> struct A {
```

```
    static int x;
  };
  template<typename T>
    int A<T>::x = f();
  A<int> a;
```

If `A<int>::x` is not used, it is not instantiated and `f()` is not called. This is just like a template member function. Koenig asked whether the initialisation is type checked? (i.e., if it read `int f(int);` then is the definition of `A<T>::x` ill-formed?). Gibbons said yes. Gibbons thought we need an issue to add an editorial clarification, perhaps to add this example.

```
  int f();
  void g( int x = f() ) { }
  void h() { g(0); }
```

Gibbons said "is `f` used?" The WP says yes, many people think no. At present, `f()` must be defined. The issue is whether this should be changed. Koenig said that generalising this example leads to the template default argument issue. O'Riordan said they are different issues.

Ball noted that these two are already on the Core III issue list as items 3.31 and 3.32.

6. Review of the meeting

Clamage said the committee had successfully reviewed the US Public Comments and WG issues lists to produce a recommended list of US comments for the Ballot response. The US TAG would meet later to decide what to do with this list of recommendations.

6.1 Formal motions

There were no formal motions.

Motion (to thank the host) by Schwarz et al:

> Move we thank Meyers and Digital for hosting the meeting.

Motion passed WG21+X3J16 by acclamation.

6.2 Review action items, decisions made, and documents approved

None.

6.3 Issues delayed until Friday

None.

7. Plans for the future

7.1 Next meeting

The next meeting will be 13-18 July in London, UK, hosted by Programming Research Ltd.

The WG will review NB comments and begin addressing the issues raised.

7.2 Mailings

Miller announced that Friday 28 March is the deadline for the post-meeting mailing. [Note: this is a Public Holiday in some countries so the effective deadline is Thursday 27 March.] The deadline for the next pre-meeting mailing is Tuesday 3 June.

7.3 Following meetings

The following meetings are planned:

- 9-14 November '97, somewhere near Murray Hill, NJ, ANSI/AT&T
- 8-13 March '98, Sophia Antipolis, France, AFNOR/Ilog
- 12-17 July '98, Rochester, NY, ANSI/Xerox
- 8-13 November '98, somewhere near Menlo Park, CA, ANSI/Sun Microsystems

Motion by Lajoie/Dawes:

> Move we adjourn.

Motion passed WG21+X3J16: lots yes, 0 no.

The committees adjourned at 16:00 on Thursday.

Appendix A - Attendance

Name	Affiliation	M	T	W	Th
Dawes, Beman	self	V	V	V	V
Gibbons, Bill	self	A	A	A	A
Myers, Nathan	self	A	A	A	A
O'Riordan, Martin	self	A	A	A	A
Koenig, Andrew	AT&T	V	V	V	V
Stroustrup, Bjarne	AT&T	A	A	A	A
Rousseau, Ben	Centerline Software		A	A	A
Charney, Reg	Charney & Day	V	V		V
Comeau, Greg	Comeau Computing			V	V
Swan, Randall	C-Team Inc	A	A	A	A
Stump, Mike	Cygnus Solutions	A	A	A	A
Meyers, Randy	DEC	V	V	V	V
Phillmore, Coleen	DEC		A		
Ward, Judy	DEC	A	A	A	A
Whitman, Sandra	DEC	A	A	A	A
Plauger, P.J.	Dinkumware Ltd	V		V	V
Adamczyk, Steve	Edison Design Group	V	V	V	V
Anderson, Mike	Edison Design Group	A	A	A	A
Spicer, John	Edison Design Group	A	A	A	A
Jonsson, Fredrik	Ericsson Austria AG	V	V	V	V
Vandevoorde, David	Hewlett-Packard	V	V	V	V
Klarer, Robert	IBM	A	A	A	A
Lajoie, Josee	IBM	V	V	V	V
Colvin, Greg	IMR	V	V	V	V
Nelson, Clark	Intel	V	V	V	V
Suto, Gyuszi	Intel	A	A	A	A
Schwarz, Jerry	Intrinsa	V	V	V	V
Andersson, Per	Ipso Object Software AB	V	V	V	V
Abrahams, David	Mark of the Unicorn	A	A	A	
Stanchfield, Scott	Metaware Inc	V	V	V	V
Hsieh, Chih-Hung	Microtec (Mentor Graphics)	A	A	A	A
Wellander, Patrick	Microtec (Mentor Graphics)	A	A	A	A
Kumoluyi, Akin	Motorola	A	A	A	A
Losoff, Alan	Nations Bank	V	V	V	V
Braatz, Brian	Oak Tree Software	A	A		A
Corfield, Sean A.	Object Consultancy Services Ltd	V	V	V	V
Benito, John	Perennial	V	V	V	V
Plum, Tom	Plum Hall	V		V	V
Southworth, Mark	Programming Research	V	V	V	V
Glassborow, Francis	Richfords	V	V	V	V
Sreekumar, Natarajan	Rogue Wave	A	A	A	A
Saks, Dan	Saks & Associates			V	V
Rouse, Jack	SAS Institute	V	V	V	V
Schilling, Jonathan	SCO	V	V	V	V
Austern, Matt	SGI	V	V	V	V
Unruh, Erwin	Siemens Nixdorf	V	V	V	V
Miller, William M.	Software Emancipation Tech	V	V	V	V
Ball, Michael	Sun Microsystems	V	V	V	V
Clamage, Steve	Sun Microsystems	A	A	A	A
Scian, Anthony	Sybase Waterloo	V	V	V	V
Welch, Jim	Sybase Waterloo	A	A	A	A
Rumsby, Steve	UK	A	A	A	A
Crowfoot, Norman	Xerox	V	V	V	V
Total Attending		**49**	**49**	**50**	**51**
Total Voting		**28**	**26**	**29**	**30**