DATE: December 3, 1973

TO : SUMEX File

FROM : T. Rindfleisch

SUBJECT: Notes on First AIM Executive Committee Meeting (11/26/73)

ATTENDEES: (NIH) W. Baker, C. Brewer, M. Oxman (arrived mid-morning), R. McClure (arrived late morning), W. Raub (arrived afternoon)
(Rutgers) S. Amarel (arrived afternoon)
(Stanford) E. Levinthal, T. Rindfleisch

ADDENDA: A - First draft AIM organization document from NIH-BRB (10/15/73)
B - Revision to BRB AIM organization draft by J. Lederberg (11/25/73)
C - Revisions to BRB AIM organization draft by BRB (11/26/73)

ECL and TCR arrived at BRB at approximately 9:00 a.m. after delivering a letter of interest to a contract office of the NCI (see separate summary memorandum). Drs. Baker and Brewer were present and we awaited Dr. Amarel. We learned late in the morning that Dr. Amarel had been invited for 2:00 in the afternoon by Dr. Raub whereas we (ECL and TCR) had been invited for the meeting to start at 9:00 and to end at 3:30. Arrangements were made for Amrel to come at 1:00. We attempted to delay our departure but the airlines were booked up and both of us had meetings the next day. Thus the AIM Executive Committee session was compressed to 1:00 - 4:00. In general the arrangements lacked coordination in terms of scheduled meeting times and in terms of the prior distribution of material to be discussed. None of the facility loading or configuration rationale had been distributed to Amarel and only Attachment A of Addendum C had been distributed to him for consideration relative to AIM organization.

The morning was spent informally discussing a number of topics between Baker, Brewer, ECL, TCR, and later Oxman.

1. Grant Status - The SUMEX award statement has apparently cleared the NIH signature steps and our congressman is in the process of being informed. We should hear soon about the award. The budget is as previously discussed although we did not see any paperwork to verify that the changes (4th year personnel budget error by McClure, sales tax for the computer added in year 4, and communications increase for ARPANET reorganization) we previously proposed were implemented. As a footnote, Baker indicated he did not think the ARPA divestment of the network would proceed as fast as ARPA anticipated because of the extensive delays typically involved in getting FCC approval.

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2. AIM Organization - We exchanged copies of the Lederberg and BRB revision to the draft organization and noted, without a detailed review of the documents, that the primary changes were in labelling of the sections of the resource and in the previously agreed upon boundary (SUMS) for the "Stanford User Community". BRB favored calling the overall resource AIM with SUMEX referring to the SUMS half. We can change the ARPANET name for the facility from SUMEX to SU-AIM. The only possible confusion is that McCarthy's lab is titled SU-AI.

3. Schedule - Baker proposed and pushed an unrealistic schedule for implementation of the resource with external users. He wanted to see the facility up and with new users by July 1974. We pointed out that equipment delivery couldn't occur before April and that check-out, bringing up the system, installing knowledgeable existing groups (DENDRAL and Rutgers), and recruiting new users could not reasonably be done in that time. He would not give in then but during the afternoon session, Raub outlined a much more satisfactory schedule.

   *** Because we did not want to discuss other detailed subjects relative to AIM without Amarel, we discussed other topics related to Stanford activities.

4. Bioengineering Resource - Baker indicated he still thought Stanford should put together a Bioengineering Resource proposal based on Meindl's microelectronics work and the IRL under ECL. The difference between a Biotech. Resource and a Bioeng. Resource is that the former acts as a focus for developing "new" technology and the latter acts as a focus for applying "existing" technology. Baker emphasized that such a resource must have contact with a large medical community to be able to select the most important application problems. We pointed out that one could never get the medical community at large (whatever that is) to agree. Baker suggested that surgical applications for implantable sensors and controls would be a good area since there were many surgeons actively interested in this area with many ideas they would like to try.

5. DENDRAL Proposal - We got Mike Oxman to enter the meeting at this point and talked about the DENDRAL proposal to see if BRB had any new perspectives. Oxman reviewed the two alternatives discussed previously and summarized the pros and cons:

   a) AI-centered proposal (Resource-Related Research) - This approach has received good AI support for Parts A and C but weak support for B and weaker yet for D. The arguments Oxman quoted are that sufficient data exists in the literature or from other sources to form the basis for a significant AI demonstration in mass spectrum analysis and Part D complicates the picture because not everybody understands it and it would detract from making an early and recognizable impact on the mass spectrometry problem (It appears that Oxman himself sees the logic of the C^{13} NMR work).

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b) Mass Spectrometry-Centered Proposal (Biotechnology Resource)
This approach builds upon the existing GC/MS expertise and instrumentation but requires a demonstration of a user community and a convincing case that the AI work will benefit the resource. This must include a rationale that the AI work will come to fruition "soon" and that it is worth the effort to replace the human being.

Baker defined his view of the differences between the various types of project structure:

Research Project - Conducts research and publishes results for the research community at large (this type of effort is not funded by BRB).

Resource-Related Research Project (R-24) - Conducts research which is useful to and coupled to existing resource operations whether or not funded by BRB. Published results are valuable but demonstrated ties to operating resources are the distinguishing feature. It is necessary to demonstrate existing resource-related character.

Resource (P-07) - Proposal to operate a resource for a local and external research community and conduct core research enhancing the operation of the resource.

We suggested the formulation currently in preparation: an emphasis on resource-related research with some element of resource operation growing out of the portion of the existing hardware facility not needed for DENDRAL research. After saying we were limiting the resource component primarily to reduce the funding required, Baker indicated that we shouldn't worry too much about that and that $50K over our current budget was not unreasonable.

Oxman said he felt the "resource" approach was stronger than "resource-related research" but that it was our problem to sell the one we wanted to pursue. He also recognized the possibility of proposing both ways since the resource proposal would probably have to go through the Feb. 1, 1974 submission cycle whereas the resource-related research will be reviewed in January. It was pointed out that this presented the danger of unfavorable reaction to having too many similar proposals under review simultaneously. This issue was not settled as to whether to submit two proposals but Oxman indicated (without commitment) that an administrative extension of the current grant could bridge the delayed review by a Feb. 1 resource proposal submission.

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Baker felt that our model of resource-related research with resource-like fall-out could fit within BRB charter guidelines.

They said they were willing to comment on our proposal in draft form when we had it ready.

*** The afternoon session convened with all attendees and we distributed copies of the addenda as well as the descriptions of the machine configuration rationale and loading summary. Because of the shortened meeting time we did not cover all of the agenda items outlined in Addendum C.

6. SUMEX-AIM Management Policy - Amarel had seen Attachment A of the BRB management plan and had no problems with the organization shown. The various alternatives related to who was included in the Stanford half of the facility were not discussed; the subdivision diagrammed in Lederberg's plan (first page of Addendum B) was pointed out as our proposed approach and no objections were raised. Amarel raised a question as to the authority of the Executive Committee in approving new users and allocating money to get them on the system. Baker and Raub responded that the money would come out of the BRB budget and that BRB would have to be able to justify these expenditures to its council (NARRC). Requests for money short of personnel and major equipment purchases can be handled directly with Council and Baker feels it is desirable for the AIM Committee to make the Council pitch directly. More substantial requests will have to go through the Study Section cycle for approval.

   It is possible that a "small" pot of money could be set up with Council approval to allow rapid AIM committee response to support feasibility efforts for potential users if required. This would require firm justification to Council - the issue being why a more rapid funding response than would be possible with normal Council meetings (Nov., March, and June) is required. Baker and Raub felt such a fund could be desirable if a good justification could be documented.

   An action item for future meetings was proposed to formulate specific guidelines as to reasonable user expenses to be funded by the AIM committee. Raub indicated that PROFIT supplies machine time, communication costs, a terminal loan, and preliminary travel and hand-holding. Other costs (personnel, subsequent travel, operating supplies, etc.) come from each user's budget.

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7. Public Announcement and User Solicitation - There was agreement that a formal NIH solicitation of new users should take place after the initial problems of bringing the computer system on-line and establishing a reliable service are overcome. A less formal announcement by Stanford (with NIH and AIM approval) is desirable soon after the grant award to make the facility objectives known and to gain informal expressions of interest. A tentative schedule was proposed by Raub and accepted:

January 1974: (At time of award) Informal announcement

April 1974: Equipment delivery and installation

September 1974: Initial user group installed and operating effectively.

October 1974: Formal announcement of AIM and RFP

December 1974: First deadline for user proposals

January 1975: Review of prospective users

February 1975: Follow-up of review

a. Installation of new approved users.
b. Deferral of some proposals (require additional AI or medical collaboration)
c. Denial of some proposals

S. Amarel felt that the new user group would come primarily from AI research groups seeking liaison with medical researchers rather than medical groups seeking cooperation with AI people. Baker mentioned two user candidates: Adey at UCLA and Pople at Pittsburgh (Pople was connected with PROFIT but had too broad a computer science interest for continued support there. He is now interested in problems of medical diagnosis.)

8. Facility Configuration - We summarized our rationale for the hardware and software system, primarily to S. Amarel who had not seen the written material we sent BRB in early November. Saul raised questions primarily about the software choice of TENEX. Given this choice, the proposed configuration is acceptable. We discussed the pros and cons of TENEX for some time including:

a) TENEX is being pushed as a standard and is being used increasingly on ARPANET machines, particularly in AI applications. This makes software transfer easier.

b) Development and extention efforts on TENEX are active but not well coordinated at present. BB&N is taking a primary role but work is being done at other places as well.

c) The existing TENEX system is purportedly more bug-free than the DEC system but is not so well protected (file system) against hardware failures.

d) DEC development plans for their monitor are not clear, particularly in regard to paging. The most recent release provides paging as a user controlled option and responsibility. For simultaneous large program users it is more desirable that the system take this responsibility such as in TENEX.

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e) TENEX has the ARPANET protocols integral to it - these must be supplied on the DEC system.

f) TENEX performance on the KI-10 is not well documented at present for comparison with DEC system performance.

After the discussion, Amarel felt that the selection of TENEX/and our hardware configuration was a good choice in view of the AI orientation. Also he felt SUMEX had budgeted an adequate systems staff to maintain reliable operation. Raub agreed with this view.

I contacted Amerel subsequently (11/30) by telephone to verify his agreement with our approach after he had a chance to think about it further. He reaffirmed his agreement. I discussed other configuration ideas with Saul Levy on his staff. These support the plan we have evolved.

9. Resource Allocation - We discussed the initial user loading projection and Amarel pointed out that average loading statistics do not tell the whole story. We agreed and indicated that one could expect peak loading, such as at midday, by about 1:1 but that the reduction in responsiveness would tend to encourage users to use less loaded periods. Saul indicated that the responsiveness of the ISI machine has been terrible recently. We relayed that part of this was because they were operating without a good paging device but more importantly that ARPA had exercised no constraint over letting people use the machine. It was agreed that no matter how SUMEX was configured that it was possible to saturate it unless the AIM committee, in conjunction with operating performance data, controls the user load to assure adequate responsiveness for those admitted.

More detailed discussion of these questions will take place in future meetings.

10. Action Items:

a) Stanford-prepare informal post-award announcement of AIM.

b) Stanford /BRB - complete integration of Lederberg and BRB management plans.

c) Prepare for next AIM Committee meeting in January. It was agreed that network communication and mail service could reduce travel and meeting requirements.