

The Minutes of a Special Meeting of the Faculty Council of Science held on Friday, January 18, 1980 at 3:30 p.m. in Room 207 Buller Building.

Members Present: Dr. C.C. Bigelow, Chairman; Professors P.K. Isaac, B.D. Macpherson, R.A. Usmani, H. LeJohn, C. Chow, G. Klassen, P. Maeba, N.E.R. Campbell, J.A. Wright, J.C. Jamieson, D. Burton, L. Graham, R.A. Johnson, D. Kelly, G. Krause, T. Wiens, A. Dick, R.S.D. Thomas, P.W. Aitchison, J.G. Eales, M. Samoiloff, D.A. Young, A. Gerhard, T.A. Osborn, S. Standil, J. Svenne, F.M. Kelly, P. Gaunt, N.S. Mendelsohn, A. Chow, D.M. McKinnon, S.K. Sinha, D.H. Hall, A.H. Morrish, W.G. Baldwin, J.C. Rauch, T. Dandy, N. Losey, G. Woods, C.M. Laucht, T.G. Berry, J. Bate, B. Zarnke, F.J. Burkowski, L. McMillan, D.H. Scuse, A.N. Arnason, W.A. Hoskins, J.P. McLure, G. Smith, P.D. Loly, K. Mount, D. McCarthy, J.H. Loudfoot, G.G. Hickling, J.J. Williams, D. Punter, P.L. Ellis, G. Robinson, A. Olchowecki, M. Sumner, J.M. Stewart, J.F. Brewster, G.I. Paul, H. Halvorson, P.N. Shivakumar, B. Johnston, G.O. Losey, C.K. Gupta, I. Suzuki; Students B.R. Jones, A.R.W. Timlick, F. Penkava, C. Bahde, G. Marino, H. Christianson. (77) Sheila Catt, Secretary.

Regrets: Professors L. van Caesele, M.R. Parameswaran, R. Dowling, D. Johnson, H. Finlayson, J. Gee, J. Reid; Ms. P. Ramlal.

Visitors: Students of the Department of Computer Science.

The Chairman explained that this meeting had been called at the request of the Executive Committee of Senate to discuss a proposal for the establishment of a School of Computer Science submitted by the Computer Science Department. The Faculty Council by-law requires that any issues of substantive importance such as this must be discussed at two Faculty Council meetings. This meeting will hopefully be a wide-ranging discussion but without motions being passed on the actual issue of the separation. A second meeting is to be held on January 29, 1980. A sub-committee of the Executive of Science Faculty Council will prepare a motion for discussion at that time, which will represent the comment of the Faculty Council to Senate.

The format recommended is that the issue be discussed in an unrestricted way. It is important and potentially emotional, and the Chairman asked that speakers restrict themselves to facts, be polite and as brief as possible, identify themselves, and try to avoid repeating discussion already heard from a previous speaker. He noted the presence of the visitors and welcomed them, and pointed out that they were not entitled to take part in the discussion. The Chairman then opened the meeting to the floor.

Prof. Aitchison asked if the ad hoc committee would conduct a formal study or whether the Faculty response would be a simple motion. Dean Isaac said it would depend largely on this meeting; it could be a simple motion forwarding comments from individuals and departments or a more lengthy document built upon them. The committee would take notice of what was said here today.

Prof. Mendelsohn welcomed the appearance of members of the Computer Science Department and hoped to see them on many more occasions for many years to come. He addressed himself to the document prepared by Computer Science and what he felt to be the irrelevancies of some of the statements made therein. He referred to the fact that one of the concerns of the faculty, not yet resolved, is the restrictiveness of the Computer Science Honours Program, where a student can only take four courses outside the department. He felt the interests of the University and not necessarily only those of members of a single department are at issue. He referred to a resolution of Senate made on Dec. 13, 1977 by Professor M. McPherson, Chairman of SCCCC regarding the "narrowness of the program", and another motion by Prof. Braid that Senate request the Dean of Science to look into the matter. This "narrowness" is one of his own main points, relating it to the wishes and needs of students who want to become Computer Scientists and not merely programmers, which need could be filled by Red River Community College. Graduates from Computer Science Honours program would be able to get better positions if they had a range of knowledge of other subjects. In this connection he read a letter from the Vice-President of Corporate Planning and Personnel at Great West Life. He also had contacted the Toronto office of IBM, who said they found the education of Computer Science graduates from Waterloo employed by them too narrow in Maths, Physics and such subjects, and too wide in computer science in that they had learned several different computer languages whereas the company used only one; and the graduates were mainly employed in programming. The people employed in Research and Development had broader backgrounds. At present our Computer

Science graduates don't know a lot of physics or maths, or what they do know has been taught in the Computer Science Department. He blamed the faculty for not doing more about this narrowness but felt that if the Department leaves the faculty there is no chance anything can be done about it; if they remain in the faculty much can be done and perhaps also there is a tendency for other departments to want to do all teaching to their students. One of the points made in the brief was that if the Department becomes a School, they can give their own degree and this would carry prestige. No institution in North America currently gives a degree of Bachelor of Computer Science. Apparently in Germany there is a degree corresponding to a degree in Computer Science. It is a graduate degree given to students who studied a wide range of subjects including mathematics and physics and nothing in it corresponds to Computer Science studies here. Dr. Mendelsohn read a list of subjects studied, some of which are complex mathematical ones.

The Computer Science brief refers to the fact that computers are proliferating; a large number, however, will be of simple design operable by high school students. Computer technology in future will depend much on microprocessors, the theory and development of which is taught in the Faculty of Engineering and which is heavily dependent on a knowledge of complex analysis, control theory, etc. His point was that students need this mathematical knowledge and should have the opportunity to acquire it from the departments qualified to teach it. With Computer Science within the faculty there is a chance they can, outside the faculty they will be isolated.

Prof. Doyle responded by pointing out that Great West Life employs as many as 200 Computer Science graduates in the Corporate Systems group, and the subject of a need for more mathematics has not been a subject of discussion between Great West Life and the Department of Computer Science, so evidently they are satisfied.

Mr. Laucht, in referring to the German degree, noted that the purpose in mentioning it was to illustrate that the disciplines of mathematics, engineering etc. were large enough to be areas of study on their own; there was no intended comparison between that degree and the Computer Science program.

Prof. Krause pointed out that in most German universities the subjects are part of a unit, faculties as such do not exist.

Prof. Gaunt questioned whether a certification body exists for computer science as a professional degree. The purpose of a certification body is to examine the qualifications universities give their graduates and ensure that they meet a certain standard. Until such a body exists, he felt it unreasonable to expect a school on its own to do this. At the moment the Science faculty does exercise some supervision over the syllabus acceptable in Computer Science but in a school there would be no outside body overlooking what the Department is doing.

Prof. King said certification has existed in the U.K. for more than 10 years, some universities award Computer Science degrees and others are looking for accreditation. In North America the Institute for Certification of Computer Professionals was incorporated in 1973 and a Canadian chapter formed in 1979. 43,000 candidates had submitted themselves for certification, of which 20,000 were certified.

Prof. Doob felt that the discussion was getting away from the major issue, which was the academic quality of the proposal and not employment prospects; he asked if motions were in order and the Chairman responded that the matter under discussion could not be voted on until it has been considered at two meetings of Council.

Prof. Duckworth had read Dean Macpherson's response to the brief, which had made the point that it should be possible for Computer Science to achieve the same goals within the faculty as outside of it, and asked what harm would be done by Computer Science remaining in the faculty and contributing to its academic programs. Prof. Doyle referred to the Computer Science members' feeling that theirs was a unique professional orientation and that they are substantially different from other scientists. Prof. Duckworth expressed the view that in proposing to take away our experts from the faculty, resulting in our having to deal with them as we do Engineering, etc., reasons rather than emotions were required. Prof. Mendelsohn referred to a quotation from "Omni" in the Computer Science brief saying anyone not knowing Computer Science in the future will not be educated. He said the interests of all students are involved and not just Computer Science students; the issue is broader. Prof. Hall felt being a professional is not a reason for forming an independent unit. Earth Sciences students can be and are professionally qualified but that doesn't cut down the need for them to be close to other sciences. Mr. Christianson asked

how separation would help Computer Science students academically, what a school could do that the faculty could not. Prof. Doyle quoted from the report of the Committee to consider a separate Faculty of Science; referring to differences in outlook and aims and differences of opinion, and said they were considered to be a suitable rationale on that occasion. Prof. King responded to Mr. Christianson's question, saying there were two broad principles involved, the first being that they have a unique professional orientation and felt that by becoming a School of Computer Science their students would benefit by having a Computer Science degree rather than a degree in Science with Computer Science. Computer Science also felt their students would benefit from having the flexibility of being able to modify existing regulations which, while suitable for other departments have become unsuitable for Computer Science students. Their students could participate in a wider range of programs but it would not necessarily mean they would decrease the relationship with Science. They are looking for development rather than change and the regulations of a school could be directed towards this. Prof. Sinha referred to Recommendation A of the Computer Science brief and said that in his opinion no two departments are identical, each is different with respect to the points mentioned, and the Statistics Department is no less professional or no less different than Computer Science. Prof. Duckworth felt that to some extent it was Computer Science's own fault they felt frustrated by Science regulations as they have not participated in such bodies as Faculty Council; they have apparently not wished to come and talk and debate. The brief referred to more computer projects students in a school could undertake and Prof. Duckworth asked if it was true they would need a larger computer than the University now has. Prof. Doyle said this was not true, most time spent on projects is not spent actually using the computer but doing systems analysis and design. The capacity of the system is not a problem. Prof. King said that when he spoke of difference of Computer Science he was not being critical of other departments or critical of regulations as they pertain to other departments, the Computer Science Department felt the differences had polarised to the point where they have so many students that it is unacceptable for them to be "special cases". In a school they would be normal cases.

Prof. Kelly wondered why, if Computer Science wanted to separate, they used the word "Science". He wondered how many in the faculty would agree that in a separate school, administration would not increase. The first law of administration is that it increases! This is an important topic and it is being left in the background.

Prof. Osborn noted that in his work he has to use aspects of several disciplines and that diversity is vital for progress. Fragmenting means we become more incapable of resolving problems and he thought that a strong reason for the Faculty to remain as it is. Prof. King referred to the interdisciplinary nature of Computer Science and thought that as a separate school it would be a focal point for many disciplines.

Prof. LeJohn asked if there were members in Computer Science who disagreed with the proposal; Prof. Muzio's response was that the vote in Department Council had passed nem. con.

Mr. Penkava said the point he felt was that Computer Science would not gain much in terms of academic value, students would not get a better education he could see no difference in someone having a degree in Science with Computer Science or having a Bachelor of Computer Science degree. He personally could see no justification for a split, and felt students had much more to gain by staying in Science and taking a Computer Science program.

Prof. Ellis felt separation would result in less communication, as had happened after Science separated from Arts, and a loss in interdisciplinary matters.

Prof. H. Williams noted concerns that the Computer Science service component would deteriorate and assured Council that Computer Science had no plans to diminish service teaching. Prof. Rauch asked how many courses Computer Science students would be allowed to take outside the school; Prof. King envisaged no change in course regulations, the number would remain as at present. Mr. Christianson felt this was not guaranteed and any arguments about what will happen in future cannot be discussed in a reasonable or logical manner. Prof. Mount noted there has been concern expressed in the Executive Committee about the narrowness of the present Honours program where students take as few as one course outside the Department. Prof. King said Computer Science is very aware of a concern in Senate and the Department has a committee looking at it; however this will be done whether they are a Department or a School so the argument is irrelevant. There seems to be some confusion about the number of courses a student may take and the number he may choose to take. He may take 7 or 8. Prof. Jamieson pointed out that as Senate is the academic watchdog of the University, it is a serious matter when Senate makes a comment such as it has done. Prof. King said Computer Science is cognisant of the importance of opinions of Senate and his argument was not that it was irrelevant

to the Department but to the specific question of separation from the faculty. Computer Science would respond to Senate whether or not it became a school. Prof. Samoiloff thought that from Dec. 13, 1977 to now was a bit long to respond.

Prof. Svenne asked, in connection with service teaching, whether in a situation of tight financing where a decision had to be made to cut back, would not the service teaching go first. Prof. King said this situation could come up whether they are a school or a department. Prof. Svenne felt that if they remained a department, the faculty could put restraint on what programs are cancelled. Prof. Gaunt wanted Computer Science to give an example of the frustrations they have had and show how it was different from those every department has. Prof. Muzio referred to Incompletes and the ineligibility of students taking project courses and not being able to finish them in the prescribed time to place on the Dean's Honour List. The Department has a large number of students in this situation. Prof. Gaunt felt this indicated something wrong with their planning if they could not fit into their timetable.

Prof. Macpherson said the Dean's Office response to the Computer Science brief had dealt with Incompletes. The Dean's Office had become aware of the problem many years ago and had pointed it out to Computer Science, and the Student Standing Committee had considered it. The faculty was quite prepared to look at the problem to see if it could alleviate its effect on students in all departments. The Dean's Office had pointed out to Computer Science that it was possible to attach a grade to an Incomplete and students could then be on the Dean's Honour List. The response received from Computer Science was that Computer Science liked the regulation because they could use it to encourage students to complete their projects within the time prescribed.

Prof. Kelly said that regardless of any assurances given now, if Computer Science became a school they could change their regulations if they wished. Prof. Muzio repeated that no program changes were anticipated. Regarding projects, it is not possible to complete them in the time allowed - to get terminal time, the students work evenings and holidays. Prof. Rauch felt that if this is the only issue it is not a reason to separate. Projects could be timetabled to last two years instead of one.

Mr. Penkava asked if the observers from Computer Science (the students) could be allowed to speak so that Council could have their views. A motion to open the floor to the observers was made by LeJohn/Jamieson, and Carried. The

floor was opened to the observers, and the first speaker was Mr. Roscoe, who said a feeling had filtered down to him that Computer Science professors would feel more comfortable in a School and he thought he would benefit personally if his teachers were happy.

Prof. LeJohn asked if one of the reasons for wanting a school was the problem of Incompletes and the Dean's Honour List, and what list would the students of a school appear on, and what would happen about Incompletes. Prof. Muzio said there would be a "Director's Honour List".

Mr. Penkava referred to remarks by a student that they were not sure why Computer Science wanted to separate. Mr. Roscoe said part of the problem was students didn't have enough information. He didn't have time to read more than a page or so of the brief, he had come to this meeting to find out what was happening. Mr. Pawley said he had discussed it with Prof. Stanton several times and he liked the idea more and more. A degree of Bachelor of Computer Science would clearly indicate what he had learned, so he saw a certain advantage in having a separate school. He does projects and knows they are long. Entrance requirements also could be changed. At present Maths and two of Physics, Chemistry, Biology are required and though Computer Science is taught in high school, it cannot be used for admission.

Prof. Svenne said students are probably not aware that in any project using computers it always takes longer than expected to iron out the bugs and that's why they don't complete their projects. Mr. Kimelman said it is easy to underestimate the time a project may take and he could see no way of getting around it. He referred to unstructured labs in Computer Science and said they were not allowed to compete in the same way as other departments for lab facilities. Mrs. Bobbie agreed that Computer Science labs were not considered labs in the same sense as in other departments. She also felt she could benefit from some interdisciplinary courses and it would be easier to get them if Computer Science were a school, she would like to have the opportunity.

Prof. Rauch felt that the faculty needs each department. Biologists had to know the basic principles of Physics, Chemistry, they needed Mathematics and Statistics, and they need Computer Science. She felt this was reason enough for staying together.

Mr. Penkava said there were several distinct areas in Computer Science and it was also possible for a person not to want to be a professional computer scientist but to want some knowledge of the field. Computer Science has eliminated the 3-year Major so students have to take the Honours program and devote all their time to it, and the Department has not demonstrated any desire to change this. If they had said they could now establish different routes that would be good, but that's not happening. The Department doesn't want to diversify and it seemed to him they needed to be regulated by another body. If they separate it is possible Science is going to have to develop a way to teach some computer science courses.

Mr. Buhr referred to a co-operative program which he had taken part in and benefitted from. He noted it was a limited program, the Department had tried through the faculty to have it expanded, with no success, and he thought a school might have a better chance. Prof. Svenne pointed out that the reason the program was not in place was financial; Prof. Samoiloff added that the adoption of such a program had been recommended to Senate by the faculty. Prof. Doyle said a school would continue to try to implement a co-operative program, as the Department had attempted to do, so the financial question did not really relate to separation.

Mr. Ellis said it had been his experience that Computer Science does encourage its students to take only Computer Science courses but there is a great deal to learn about it; it is a rapid growth field and there are many areas, each of which is a program of study in itself. However, it is possible to take other things - he has a double honours program in Computer Science and Philosophy. He felt students should bear part of the responsibility for their own education. On the subject of Incompletes, he said that sometimes they are necessary.

Prof. Svenne felt there should never be an intention in any science program to teach only the field and everything in that field. That produces technicians.

In connection with Mr. Penkava's reference to Computer Science dropping the three-year major program, Prof. King said that the department did in fact offer a three-year general program and said that when they become a school the courses available to science students will remain the same. In regard to channelling, in a three-year general degree program it is not possible to teach

enough Computer Science to call a graduate Bachelor of Computer Science or a Bachelor of Science in Computer Science. The three-year general course is less worthwhile than the two-year diploma program at Red River Community College. Channelling requires a four-year program. Mr. Pawley said the reason he was in Computer Science here was because he couldn't get a concentrated program in his home university in Saskatchewan. Another student referred to courses from other faculties available and felt separation would give Computer Science students the opportunity to go in other directions. The faculty had regulations preventing students from taking courses outside the faculty. With respect to changing courses and course materials, Senate oversees the material whether it is a department or a school. With respect to projects, the reason for them is to get the students out of purely technical and into higher levels of Computer Science. If they had their own school, projects could be treated differently and be more complex.

Mr. Ellis didn't think that being a school would make it easier or any more difficult to engage in multi-disciplinary studies.

Prof. Macpherson pointed out that in the Science honours program there is no restriction on the Department in regard to approving courses from outside the faculty; however, in the general program there is a faculty-approved list.

Prof. Doyle concluded by saying the Computer Science Department is one of the top three in Canada as illustrated by the amount of NRC grants received. He felt school status is appropriate now and would have advantages.

At this point Prof. Jamieson moved, seconded by Prof. Svenne, that the meeting adjourn.

Meeting adjourned at 5:35 p.m.

Inter-Departmental Correspondence

DATE January 9, 1980.

TO Faculty Council

FROM C.C. Bigelow, Dean of Science

SUBJECT: FACULTY COUNCIL MEETINGS

Friday, January 18, 1980 - 3:30 p.m. - 207 Buller Building

Tuesday, January 29, 1980 - 3:30 p.m. - Senate Chamber

AGENDA

Proposal for the Formation of a School of Computer Science.

Submissions on the proposal received from the departments, the dean's office, and from individual members of Council will be circulated to department Heads before January 18. The first meeting will be a general discussion of the proposal with the intent of identifying the key points that will be incorporated into Council's opinion for Senate.

The second meeting will discuss an Executive recommendation for the final opinion.

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