

RECORD OF SOCIETY OF ACTUARIES 1986 VOL. 12 NO. 4B

FUTURE EDUCATION METHODS

(Open Committee Meeting for FSAs)

Chairperson: GODFREY PERROTT

- o This session is intended primarily for FSAs who are interested in learning more about the future education methods under consideration or would like to provide their input to the Future Education Methods (FEM) Implementation Task Force.
- o The FEM Implementation Task Force will discuss all future education methods currently under consideration, including:
 - Acceptance of equivalent credit for college courses
 - Acceptance of equivalent credit for exams of other bodies
 - Acceptance of equivalent credit for research papers
 - Acceptance of equivalent credit for intensive seminars
 - Management simulation
 - Finishing course
 - Ethics and legal course
 - CompuServe drills
 - Greater use of universities
 - Tutorial kit

MR. GODFREY PERROTT: The members of the panel are members of the FEM Implementation Committee. They are Allan Brender, University of Waterloo; Linden Cole, Society office; Roy Goldman, Prudential; Stuart Klugman, the University of Iowa; and Reg Yoder, Principal Financial Group.

Various committees have been studying FEM and working on it but our thoughts are still unformed. The purpose of this meeting is to explain some of the things that we have been considering and to get your questions and your

OPEN COMMITTEE MEETING

feedback so that we can modify our thinking accordingly. Please tell us what you think. Don't be afraid to ask questions. We're going to cover each topic.

Our objective is to publish a White Paper early next year that will probably cover six major topics. The most controversial topic we've been considering is allowing credit for college courses and so we have deliberately kept that last.

FES stands for the Flexible Education System. It is primarily a project of replacing the current multi-topic exams with shorter single topic exams. It is implemented for the ASA Syllabus in 1987 and it will be implemented for the FSA Syllabus in 1988.

FEM stands for Future Education Methods and it's a wider, longer-term consideration. The premise that we're working under is that the current Society exams as they're structured are not always the best way of educating students in the topics they cover. We are trying to look at any other ways that we might incorporate into the syllabus at some point. Below is a list of what we've looked at.

- o requiring the use of PCs, particularly in the statistical exams;
- o allowing credit for college courses;
- o allowing credit for exams of other bodies;
- o having intensive seminars in some topics;
- o allowing some credit for research papers; and
- o trying to involve management simulation and participative case studies in the actuarial education process.

All of these except requiring the use of PCs will be a panelist's subject. The key reason for FES is to eliminate transitions. The second reason is to improve the pension and health tracks and integrate better with the EA exams. A benefit of FES is to the extent that any FEM ideas get developed, they can be implemented easier under FES.

One thing I wanted to get clearly in mind is the committee's objective in considering FEM:

FEM OPEN COMMITTEE MEETING FOR FSAs

The objective of FEM is to allow actuaries to achieve their FSA through the most effective education means possible without endangering the value of the FSA.

I know that some of the ideas we're looking at are controversial. I'd like you to keep in mind that everyone on the committee is a Fellow and is very proud of that designation; we don't intend to do anything that makes us any less proud of what we are.

Following are several of the reasons that we are looking at FEM.

1. Students are not learning some current materials well. Survival models, risk theory and professional ethics are three areas of the syllabus that are just not getting learned through the methods that we use now.
2. FEM allows a diversity of educational methods which should lead to richer actuarial populations. (When I wrote that I was thinking of richer in a diverse sense, but when I showed it to students in Seattle, they just applauded.)
3. Society examinations do not test students on unstructured problems. If you were to predict the future from the Society exams (sort of the old driving by looking out of the rear window analogy) you would conclude that all of the problems in your business life would be small, highly structured and have right or wrong answers. We would very much like to change that view.
4. FEM offers the possibility of integrating multiple diverse topics, particularly through some sort of case study or participative approach. (Even though the current exams claim that they do that, they almost universally do not. Each question is set on a specific topic and the only way it integrates multiple topics is by accident, which confuses the graders.)
5. FEM might shorten the travel time to Fellowship, provided it does not threaten the quality of Fellowship. That's a valuable objective.

OPEN COMMITTEE MEETING

The current possibilities under discussion are:

- o credit for college courses;
- o credit for designations of other professional societies (designations is deliberate);
- o intensive seminars; and
- o a Fellowship admissions course.

I want to introduce the next panelist, Allan Brender.

DR. ALLAN BRENDER: My role is to talk about an idea that has emerged from one of our previous committees. That is the idea of some sort of course to mark the transition from student to Fellow. The idea rose partly from seeing what some other professions do and partly out of a perception that two areas are really being missed in a very crucial way in our professional education. One is the question of professionalism, ethics and professional conduct. I think under the circumstances we see today, a lot of people are beginning to have some doubts about whether this stuff is getting across and have some concern that people should understand that we are a profession. The other problem is that traditionally our education has been done in parts, in pieces. We have learned about assets on one side, we've learned about liabilities on the other. The problem that we see today is that the two somehow fit together and we never get a chance to tell people how they fit together. We also never really considered many of the problems which, in fact, are the crucial problems that are facing the profession today. We feel that a lot of this can't be discussed simply by a mail order approach and so what we'd like to propose is a Fellowship Admission Course. This admission course will be concerned with professionalism, ethics, the questions of how you write reports, what you say in reports, your responsibility in writing actuarial reports, your responsibility in to and for work done by others which you're presenting in a report on questions of discipline. When it comes to these matters, first of all, I think we're convinced that a proper understanding of these things can't be done just by reading a list. At the present time, people are required in Part 10 to read the code of conduct and then read rules pertaining to financial reporting. The first problem is that somehow ethics just seem to be identified with financial reporting and nothing else. The Canadian students are not even

FEM OPEN COMMITTEE MEETING FOR FSAs

required to read the code of conduct. All they're required to know is how to choose evaluation assumptions correctly. It would seem that one really needs to discuss this stuff when one really needs case studies. One has to understand. Before you can understand what ethical conduct is, you sort of have to understand what ethical conduct isn't and you can't teach the Ten Commandments without explaining the crimes. That's a difficulty. We seem to think that you need case studies. You need discussion by experienced actuaries. You need a lot of discussion among the participants, to try and see whether people can draw things out from their own experience and above all, you need a fair amount of maturity before people can really understand the implications of some of the problems and some of the guides to professional conduct. Whatever type of course we're talking about, it is something that we would do at the very end of the Fellowship process immediately before someone becomes a Fellow. We feel that there are a number of subject areas which require people to put many different pieces of their actual education together in a package and understand how they interact. It's difficult to see how this future concept of evaluation actually can work unless people can put an awful lot of things together. For example, pension actuaries are faced with an asset/liability problem every bit as much as insurance company people are. We're proposing a required course which would run for approximately three days and would be offered twice a year, probably a month or two after the final exam results were available. All prospective new Fellows would gather in one central location, which would not be a downtown hotel. We're serious about this and we would want it to be somewhat removed. We want this to be a three-day intensive program. There will be a number of large lectures, and discussions led by experienced people. People would then break up into small discussion groups. There would be lots of use of case studies.

When it comes to this integration of material, we have in mind that another important method of instruction might be management simulation games. We've investigated a number of these. We could imagine people breaking up into teams and running these games. We would have to, therefore, provide a significant number of PCs or some reasonable computer network. We don't imagine that we would have a pass ratio for this sort of thing. We're talking to mature individuals who supposedly have leaped all their hurdles and have gotten through all the exams. We would expect that any such person would normally get

OPEN COMMITTEE MEETING

through this course. We would, though, not make it completely automatic. Anyone who comes for an obvious three-day holiday with no intent of doing anything other than partying could be dismissed, or their completion could be put off and the people running this course would have to have that option as a last resort. The expectation is that people would come, participate willingly and pass through. We also see this as an important way of bonding people to the Society, and to the graduating class. I think that this would have an important psychological element to it. It would really mark the transition from student to Fellowship and our intention, I think, is very well indicated by the name we've chosen. Fellowship Admission Course would be a definite path where one is admitted to full membership and full professional membership in this Society.

MR. JOHN G. NADER: I'm little bit confused as to why this topic is suddenly arising. Is there some perceived problem with ethical conduct in the Society or is there some other background that we should know?

DR. BRENDER: I'm not sure that I can speak for what's going on in the Society. From the Canadian point of view, we've had the evaluation actuary idea for a while and there are rumblings. The job hasn't always been done right and there's a general reluctance to blow the whistle. Beyond that, it's arising because we are professionals and this subject has never really been treated well within the syllabus. It's just been one more study note and it's much too important for that. The professionalism aspect is arising because we're saying it hasn't been done well in the past. The integration of materials question is one that also has probably always been there in the background, but it's clear if you look at the problems, they are mostly issues which don't fit neatly in one little examination sub-part. People are spending a lot of time at workshops and I'm going to a lot of asset/liability type workshops. A lot of times, in their mutual ignorance, everybody's groping and we definitely need to encourage people to become broader and to think about the relationship between things.

MS. NORA E. MOUSHEY: I assume that there would be a cost associated with this seminar. Do you have any idea; ball park numbers? I'm sure it would vary by

FEM OPEN COMMITTEE MEETING FOR FSAs

location. Would you more or less expect companies to treat it the way we treat exam fees?

DR. BRENDER: I don't know that we have any specific number. We imagined that the location won't be a major hotel. That would probably drive cost down on one hand and help run the seminar on the other. For example, we could imagine holding these seminars at university campuses if they were reasonably close to major airports, and those are cheap, compared to everything else. We've definitely taken cost into consideration when we've considered the length of the program. There are some professions which have the equivalent of two-week programs, but I can tell you that in the province of Ontario, the Bar Admission course is five months.

MR. PERROTT: I agree with Allan. We haven't determined concrete numbers. Clearly it's something that would have to be sold to the employers because it would not be workable unless the employers were willing to pay the cost and saw value in so doing.

MR. ROY GOLDMAN: Consider this might supplement or even replace the trip that many companies give to students (some to students and their spouses) upon completing Fellowship. One possible idea is to have the banquet, which is normally held at one of the meetings, where the Fellows are awarded their degree at the end of this Fellowship Admissions Course, so that if the company pays for this but not the annual meeting, there may be some offsetting costs.

MR. CECIL D. BYKERK: Have you considered hardship situations? Would we require people writing from other countries to come absolutely or would there be some alternative to this final course?

MR. PERROTT: We haven't considered hardship situations within North America and that's a very good question. We talked briefly about the foreign applicants we have. We have very few that go on to FSA and the committee's feeling is if they want a North American designation, they should meet the same requirements as anyone in North America.

MR. PERROTT: Next I'd like Reg Yoder to talk about intensive seminars.

OPEN COMMITTEE MEETING

MR. REGINALD C. YODER: Before I talk about intensive seminars for obtaining credit for the Associateship level, I'd like to go back and talk briefly about a couple of things Godfrey said to introduce some rationale for this kind of a project. We feel that the education system we have is a good one and education is one of its several characteristics. We have other things that we would like for it to do also, but we're focusing on the educational part. One is the student. Another public is our sponsors, so to speak, the people who employ us. With some of the Associateship topics, the exam system as set up doesn't really deliver the best product possible. Godfrey mentioned, I think, survival models, risk theory, and operations research perhaps. There are a couple others where, at least in some cases, a mathematical background is produced through the self-study procedures a student goes through, but I think Godfrey was right on when he said that sometimes the student is rewarded by being able to learn how to answer very narrow, short questions that kind of peck around at the topic. We do the best we can to cover the topic, but the student really isn't able to handle the more unstructured problem he's going to face in reality. Oftentimes, computers are involved in this solving of an unstructured problem. You just don't get the kind of background through the self-study procedure that is necessary to learn about softwares to learn how to identify which method to use with which variety of data. That's where we're proposing to supplement the exam system with some seminars. We thought initially that we might actually substitute a seminar for a topic but we backed off that pretty quickly and decided it was going to take too long and obviously cost too much and we wouldn't be able to provide as rigorous a product as we have right now. We're going to suggest that we allow the exam process to do the screening for us, to build the mathematical background necessary and we'll follow through with what we think is a superior educational method, technique and actually lead the student through the available hardware and some realistic insurance and pension problems and show them a little bit how to handle some unstructured situations. In the seminars that we are proposing, initially at least, the topic is applied statistics. We thought about applied statistics and operations research, which are Parts 3 and 5 on the current syllabus, as places where we really aren't delivering as good a product as we could to our public. The initial proposal is for applied statistics. We envision the seminar being approximately one week in length. A shorter seminar would be less costly. We didn't think it would allow an efficient educational gain that

FEM OPEN COMMITTEE MEETING FOR FSAs

would allow us to have enough units of credit for the seminar to make it attractive to the student and to the employer. We'll propose increasing the credits for the applied statistics series to 20 units. If you recall, right now the exam on the FES concept is worth 15 units and we'd like to split that equally; 10 units for the exam, 10 units for the seminar.

We'd like to have the faculty be made up on one actuary and one statistician. We would anticipate handling about 20 students at a crack, so we could have a manageable size. Again, there are a few things we haven't worked out yet, such as the travel arrangements and how we produce enough facilities to handle the students who might desire to take this course. It's going to be an elective and we don't know until the first pass or two whether everybody who passes the exam will take the course or whether only a handful will take it. We have done a little bit of research on the cost. I looked at some university settings where relatively inexpensive hotel and dormitory facilities and conference rooms with computer support would be available. We could probably cover room, board (which includes food) and the seminar cost for about \$350 or less for a week. You'd have to add to that transportation and time off of work, which makes this not one of the least expensive methods of obtaining educational credits, but I believe it is one of the ways that we might be able to bring some of these subjects into a little bit more of the mainstream of usage.

DR. BRENDER: *There's an analogy that perhaps you could relate to. There are people taking a college chemistry course and you know that if you take the chemistry course, the course is one thing and then very often there's an optional lab. The lab supplements the course and very often carries an extra little bit of credit. I think that this is the intention in this case. You have the exam, you have the course and then you take this lab as a practical implementation of material learned in the course.*

MS. MOUSHEY: What would the timing of the seminar be? It seems that if you wait until Part 3, what's now Part 3, grades come out and of course, there's a lag there and when you offered the seminar, you might be interrupting study time and preparation for the next exam.

MR. YODER: When do the grades come out for Part 3?

OPEN COMMITTEE MEETING

MR. PERROTT: The grades for Part 3 normally come out right at the end of June and December. A logical time to hold it would be in July or January; very few people are studying for the next exam at that point.

MS. MOUSHEY: I doubt that you could get very many companies to allow their students to take off in January.

MR. PERROTT: That's true.

MR. YODER: January would be a tough time. I know there are some of the schools that have break time in August; if we wanted to get some inexpensive facilities, that would be a time. I don't know that we have solved the January problem. We'd like to have timely follow-up to the exam so that the students wouldn't forget the mathematical theory that they've learned before they take the seminar.

MR. NADER: Is this going to be required or elective 10 credits for the applied statistics seminar?

MR. YODER: This would be an elective whether or not the applied statistics on the current syllabus is required.

MR. NADER: Can I restate the question then? Is it possible for someone to take the exam and not take the seminar?

MR. PERROTT: Yes, it would be possible.

MR. NADER: You may have a problem where the employer might not support the seminar and you will be giving an unfair advantage to students whose employers do support the seminar because it will be easy to pick up that 10 credits towards the Associateship.

DR. BRENDER: There would be other electives (under FES) that students could take to earn the same units. They all have to earn the same units one way or another.

FEM OPEN COMMITTEE MEETING FOR FSAs

MR. NADER: My concern is not with the FES system, it's the fact that you may have a course such as this that will be an easy way to pick up 10 credits. Therefore, someone who has the advantage of an employer who's very understanding would be more able or more easily able to pass the examinations as opposed to someone who has a hard-nosed employer.

MR. PERROTT: I think there's a misconception in our intent. It's our intent that this course would have a high pass rate, but it's also not intended that it be easy. In other words, it would be an intensive week. It would represent at least as much as the average study time needed to pass 10 units and if it doesn't do that, then I think all of your concerns are very appropriate. I would like to have it hard enough that it can stand or fall on the market. If there isn't enough support, it would go away.

MR. EDWARD W. FREES: Right now, applied statistics is on Part 3 of the Society of Actuaries' examination syllabus. It's about halfway towards that Associate benchmark. It's also a good idea to take Part 3 or do applied statistics before you go on and take later exams. I realize that this elective is just the first of what you hope to be many things, but would it be possible to consider this seminar as the last thing that a student might do before achieving Associateship? Thereby you could try to do the same thing that you're thinking about doing for the Fellowship Admission Course.

MR. YODER: I don't believe we've really thought about that. Is part of your concern the fact that Part 3 will be taken by quite a few students who do not have employer sponsorship and the cost would be out of sight for a student?

MR. FREES: Since this is an initial step, it might be easier to sell it to employers if all I have to do is go sit on this course for a week and then I've done my Associateship. Students at the Part 3 level are still very much students and there's still a high drop-out rate at that point. You're not really an actuary when you pass Part 3, except perhaps in employers' minds. It might be an argument that you could use for an employer.

MR. YODER: I guess it doesn't seem to me that it fits the same kind of thought that Al brought to us. It fits well with the exam and doesn't really fit well

OPEN COMMITTEE MEETING

with Associateship. Your point about the employer support on the Part 3 level might be well taken.

MS. MOUSHEY: I would be concerned about the equivalent level of difficulty from a seminar to an exam. If you're going to have certain required exam credits and certain optional or seminar credits, you should require so many exam credits and so many seminar credits from each student so that you would not have someone who got a total of 100 credits all by exam competing with someone who had done it with 60 exam credits and 40 seminar credits.

MR. YODER: I agree, there needs to be some kind of limitation. We haven't talked about that yet. For example, if we had seminars that supported five different topics, we would have to have an overall limit for seminar credit.

MS. MOUSHEY: I also think companies that are in effect going to give credit for Part 1 and Part 2 by reason of college records, would be extremely reluctant to send a new student away for a week at company expense. They really don't have any idea at that point whether he's worth the investment or not.

MR. PERROTT: I'd like Allan Brender to come back and talk about research papers.

DR. BRENDER: One of our purposes is that at the Fellowship level, some credit could be earned by writing a significant, and I want to emphasize *significant*, research paper. This profession has many people who have got a lot of practical experience by the time they finish the Fellowships. I can think of one or two who have and myself in particular, but there are many people approaching the last of their exams who are quite expert in some particular area; in fact, they know considerably more than is in our current study notes. A symbol of this is the fact that the Society has a research prize, which it awards, I think, once every three years. The condition is that the paper has to have been written, within five years of obtaining Associateship, not Fellowship. The implication is that there are people who can write very significant papers within five years of Associateship and very often before completion of Fellowship. The requirement to take an exam in an area in which people know considerably more and are able, in fact, to

FEM OPEN COMMITTEE MEETING FOR FSAs

contribute to the profession's knowledge of its field, is perhaps redundant and perhaps we should be encouraging them to develop this expertise and to share it with us and to do more original work.

Our proposal then is aimed at precisely this idea. We see that in fact there are, again, many problems central to the sessions of this meeting, which involve unknown ends, for which we don't have the right answers, but we sure have the real life problems. I think a lot of these could get the younger people in better shape to start thinking. It would do us all good to encourage people to do a little bit more creative thinking and innovative and to try and find some of these answers. We'd like to encourage this and we would like to, therefore, say that under the Flexible Education System, it might be possible to earn 30 units out of a total of what would be somewhere between 250 and 270 units required for Fellowship. The number of units required between Associateship and Fellowship will, we think, be something between 250 and 270 units. We have proposed that it should be possible to write a significant research paper and get 30 units of credit for it. When I say significant, the parallel that I draw is with a very solid master's thesis. I'm in the business of doing this sort of thing. We have a graduate program in actuarial science and what we mean by a significant thesis is one which involves a significant research of topic, has lots of references to the literature of the topic, description of what the problem is, who had done what; it has a certain amount of original research, a definite synthesis of the problem and will offer some sort of solution. It's not PhD thesis. I mean, people build careers on a PhD thesis. A PhD thesis can take three or four years of full-time work and it is certainly not reasonable to ask that in the sort of system that we have, that anyone devote three years of full-time work for 30 units of credit towards Fellowship. But a significant master's thesis, I think, is something which would produce a paper which is equivalent to some of the best papers that we see, in our literature and the *Transactions* for example.

In doing this, I want to emphasize, we're trying to turn the Fellowship into a research degree. We, again, want to maintain standards. We don't intend to give anything away. I'm in the business of offering master's degrees, and I certainly want to maintain my university standards every bit as much as I want to maintain the standards of the Society of my Fellowship, for precisely the

OPEN COMMITTEE MEETING

same reasons. There's no way that I want anyone coming from our university with sort of an easy piece of paper which they can then go and peddle for dollars. I have the same kind of professional standards to uphold as an educator that I have as a Fellow of the Society and I think that this is precisely the spirit into which we are entering this proposal.

We would propose, for example, an idea of how something like this might work. We propose that E&E would establish some small committee which would be in charge of supervising this sort of an option. The students who really wanted to enter into it would, first of all, have to find some supervisor who's knowledgeable about the area who would supervise him. This person would have to be a Fellow. They would have to present a proposal for the topic, the research, which would have to go to this committee, which would have to then approve it. I would assume that the committee would have fairly rigorous standards. Once the proposal has been approved, we think that a paper would have to be produced within a year. That paper would then have to be refereed by a committee appointed for that purpose. It wouldn't make sense to have a standing committee because you would want to have the paper reviewed by people who were experts in their field. We think that there would have to be at least three people reading the paper, one who might be the supervisor, one who would have to be refereeing in a double-blind situation. That person would not know the identity of the candidate nor would the candidate know the identity of the referee. There would also be the possibility that one of the referees, at least, could be someone who's not in the Society. If for example, someone produces a significant statistical application in actuarial science, then it would seem that one should have, a well-qualified statistician examine that. We happen to have well-qualified statisticians who are Fellows, but depending upon the area of their expertise, they may or may not be the appropriate people to choose. It should be possible to bring in at least one outside expert, if it's warranted. I would assume that the same standards would be applied, as I would apply it or a committee at a university would apply to a master's thesis.

I would not require that the paper be published either in the *Transactions* or as a study note or anywhere else. The quality should be publishable quality, but you should bear in mind that whether a journal, the *Transactions* or anybody else decides to publish the paper is the editor's decision. Whether

FEM OPEN COMMITTEE MEETING FOR FSAs

the subject matter is of interest and whether the editor has enough pages in that particular year to devote to that paper isn't necessarily a reflection on the quality of the work. The editorial decision is reflecting the editor's fiscal resources and his opinions about the interests of his readership. We would have these papers on deposit. They would be available for circulation through the membership. I imagine that once every few months or year, the Society's library might issue a list of papers that have been approved and are now on deposit and available.

We can imagine that most of these papers would be an outgrowth of people's work. Some of them might involve confidential material. We would have to make arrangements so that confidentiality could be respected and we would imagine that we would restrict circulation for up to three years, but there would still always have to be conditions that a paper, in order to be approved, would have to be able to be refereed by the regular process and that the employer or owner of any of proprietary material would at least have to allow a limited number of outside readers to access it, but we would then restrict circulation to maintain proprietaries for the proprietary material for a limited amount of time. That seems to me to be reasonable.

I think that covers most of the main points. The one point I want to make is what we're proposing is that we let somebody take fewer exams and substitute some other original work and that, to some people, might sound like we're giving something away. I don't want to suggest that we're not, but for example, at my university, we require, for a master's degree, normally eight semester-length graduate courses plus some essay which is a fairly insignificant survey. If somebody wants to do a real thesis, we allow them to substitute half of the course work. They can take four courses and do a significant thesis. The idea that a paper can substitute for standard courses is fairly well established in many settings other than the Society. It's perhaps new to the Society, but I think it's well grounded and we are interested, at the university, in maintaining that kind of quality. I would propose that this system would operate exactly the same way here. The fact that we do it contains the assumption that if somebody can do a significant piece of research, then they are more familiar with the field in which they are working than they

OPEN COMMITTEE MEETING

would be by just taking these ordinary courses and it's in that spirit and following that same assumption that we offer this proposal.

Finally, we're under no illusion that this is going to be widely used. It's not the kind of thing that I think many people are going to do, but I think some of us have met people in the past who would have taken advantage of it. I think these people are often of the caliber that you can imagine that the results they would provide would be useful to us all. One last comment is that the presence of such an option within the syllabus, I think, would say something to the outside world about our profession and the Society being open to new ideas and open to doing research and valuing these new ideas. It would be a significant public relations move and I think it might help in attracting a few people, probably not of the same profile as most of our membership, but people who I think we could well use within our profession.

MR. G. CLINTON MEYERS: Allan, why do you need all the administrative overhead before they do the paper? Why don't you just let them submit the paper and then judge it?

DR. BRENDER: Doing this paper is a significant investment of time and effort and a person would be taking an awfully big gamble to do this unless he was sure he could pull it off. It's fair that people get some guidelines at the beginning that what they want to do is reasonable.

With a PhD, you have a thesis defense, but you also have a proposal. Some proposals are stopped at that point. The candidate is told, "You're going down the wrong road."

MR. ROY MURPHY: Would you expect that a masters student in an actuarial science program would submit essentially the same paper as a master's thesis and as a paper to obtain Society credit? Have you considered that?

DR. BRENDER: The double credit for the same piece of work?

MR. MURPHY: They're doing it anyway.

FEM OPEN COMMITTEE MEETING FOR FSAs

DR. BRENDER: I'm not sure that there's something terribly wrong about it, assuming that this thesis had gone through, that this person had pushed his proposal through the Society's procedures and gotten the approval that it's acceptable to the Society. It's not clear to me now why my students take master's degrees if they intend to go out and work as actuaries because the profession doesn't recognize it and doesn't give them anything for it. I don't see that this would really be giving anything away.

MR. STUART KLUGMAN: Allan, on that same topic, our proposal considers granting of Fellowship credit. We presume that the kind of research would bear some relationship to the Fellowship syllabus, and there would be some practical aspects to the research. That by itself might eliminate a number of typical master's projects. Someone developing a few new discreet probability distributions for a risk theory model probably would not be approved by our committee but might well have material for a satisfactory master's thesis.

MR. BYKERK: With regard to the prior approval of the research paper topic and all of the requirements that one would be required to meet, there were several comments that were made. In response to the FES White Paper, people are concerned with originality. If you go through the process of a proposal and a sponsor and referees, there is much greater control over making sure that it is the person's own work and not someone else's work.

I would say that in the university's perspective, you're really substituting four courses for a thesis.

MR. ROBERT B. BROWN: I have a couple of minor points. They don't detract from the main thrust of what you're saying but they do need to be addressed carefully. First, a paper could do double service in a degree granting university and for the Society. The universities frequently have rules requiring original submission. If the paper was submitted to the Society first it would not be acceptable as a master's thesis.

DR. BRENDER: There's a timing difference though. You know that you submit it to the university first. All you're doing at the Society is getting the idea approved.

OPEN COMMITTEE MEETING

MR. BROWN: There could be potential problems there. The other problem is papers that include proprietary information. A paper is supposed to stand the test of scrutiny from all angles; a paper with a restricted audience or which has to be censored in some way before it can be scrutinized automatically can't pass this test. Universities also are concerned about this when research is done with money from the Department of Defense, for example.

MR. PERROTT: The sense of the committee is that the employer of the candidate could not pre-screen the referees but could demand that the paper be withheld for up to three years from the general public. If someone cannot write a research paper that can be screened by a limited number of referees operating under the Society's professional conduct, they wouldn't be eligible and that would come out at the proposal stage.

MR. NADER: You talked about double dipping in the area of the master's thesis and the thesis for the Society credit. I'm talking about taking an examination on risk theory and writing a paper on risk theory and receiving 60 credits, whereas if you took the examination you would receive 30 credits and if you write the paper you get 30 credits.

DR. BRENDER: We haven't exactly considered it, but I personally don't see anything wrong with that little bit of specialization. It's a point we should consider perhaps.

MR. LINDEN N. COLE: When you talk about two different kinds of credit for exams of other bodies, the first is for exams of other actuarial organizations. This is in a way easy because we've been doing it for decades. We've been giving exam-for-exam credit to students from England and Scotland for Institute and Faculty exams. We propose to keep on doing this on a subject-for-subject basis. There are a few other professional organizations now in countries that give exams like ours -- Japan, Philippines, Australia, and Taiwan. We get very little request to consider those and we are proposing, I believe, that we'll simply do that on an ad hoc basis as we always have. If someone did apply, we would look at the actual exam given, we'd look at how hard it was, and we'd look at how many students they passed. In addition, we propose that we continue giving a courtesy ASA to Fellows of the Institute of Actuaries and

FEM OPEN COMMITTEE MEETING FOR FSAs

Fellows of the Faculty of Actuaries. There aren't too many of these but you'll see them in the yearbook occasionally with an asterisk by the ASA and that's what that means. Also, it will now be given for FIAA, where the second A means Australia.

Another kind of credit, which would be new for us, would be to consider exams of the Casualty Actuarial Society for some elective credit toward Associateship and Fellowship. For example, a Casualty Actuarial Society exam on credibility theory might be very relevant to work that an FSA might be doing someday. I could see that someday in the Associateship Catalog, there would be a course 15X or something like that. That would be the Casualty exams, which would simply be to encourage breadth in the the Society of Actuaries, and to give some limited credit, perhaps 10 credits, for any Casualty Society exam. This is all still in the discussion stage. We're just brainstorming at this point.

A completely different kind of credit would be for exams of other professional organizations related to the actuarial work and subjects that we test now, but where they test more thoroughly than we do. The thing that brought this to our attention was the CFA exams for people who manage investment portfolios. CFA people have a series of three exams, I believe. They're very good. Our exam is good too, but they test more comprehensively than we do. If you want to make a career in investments and you know soon enough, if you take the CFA exams instead of ours, you've covered the same material, and you've covered it more thoroughly. Why shouldn't we give you credit for that particular subject in our exams? The same would apply for the HOLUA exams. Ours is a good exam. Theirs just simply covers more than ours does because they're specializing in underwriting. We've talked about the possibility of giving 10 units of credit for the marketing exam if you go all the way to a CLU or something like that. That's also still in the discussion stage.

Another kind of professional training is going to accounting school and getting a CPA or going to a law school and getting a law degree. We're still uncertain about our approach on that. If we end up with a basic law course in our Fellowship Course of Reading and someone comes out with a law degree, maybe they know enough to be given credit for the basic law course instead of having to take it. On the other hand, maybe it would be easy for them to pass it

OPEN COMMITTEE MEETING

anyhow. The advanced specific law courses cover pension law and life insurance accounting law. Presumably, your law degree doesn't cover that and there's no way we would even consider credit for that for your law degree. For accounting, I doubt that most accounting courses touch life insurance accounting because life insurance accounting is an exceedingly strange animal. A CPA doesn't give you the life insurance accounting course and I doubt that it would give you the pension accounting course either, but perhaps we do teach corporate finance now -- what a balance sheet is and how companies raise money and how securities are sold and so forth. You might have had a course on that in your accounting school, which would be as good or better than our course, so we might consider that.

These are all still in the consideration stage and we would consider your opinions. The educational reason for giving credit for these other professional organizations would simply be that their exams are more comprehensive than ours and if we can encourage you to take a broader look at the area that you really mean to specialize in, we might as well give credit for our exams unless you get the bigger picture.

MR. PETER S. KREUTER: When you speak of giving credit for other organizations' exams, would this be for anybody who has passed the exam or would you look into the issue of what the passing level was? What grades would someone have to achieve in comparison with the grade that the Society would consider on one of its own exams?

MR. COLE: We're still thinking tentatively, but we wouldn't just give credit for the exam, only for the entire professional designation. We would not look at grades because what you've studied is comprehensive enough and you've got to pass all of our other exams anyhow. If there is a professional group and the word gets around that they're very easy exams to pass, then they have to come off our list.

MR. PERROTT: I'd like to add to that. Most of the thrust for giving credit for exams of other bodies is more professional courtesy to people who have either changed country or changed career. We would give credit for the small part, where their previous designation overlaps the actuarial syllabus. In no

FEM OPEN COMMITTEE MEETING FOR FSAs

case other than actuarial exams would I expect the credit to amount to more than 20 or possibly 30 units out of 250 units in the FSA Syllabus. It does seem somewhat insulting to test a lawyer on the fairly trivial law exam we have on contract and agency.

MR. COLE: One of our Board members said at the Board meeting on Saturday that he has taken, just by chance, four separate courses in professional law or business law. Ours is far and away the worst of the four, for whatever that's worth.

SPEAKER: I'd be hesitant on some of the other professional examinations to assume that just because the exam was comprehensive, the level of knowledge was very high. I've had personal experience with some of the people in my own company who are extremely surprised that they passed an exam. I don't want to get into details.

MR. COLE: We appreciate that because we have to look at every course and get some feedback on how hard it is. This is not an attempt at all to let people find a back door out or an easy route to getting anything.

MR. PERROTT: The last two speakers we have are both going to speak on the credit for college courses, because we have divided it into two different areas. I'd like Roy Goldman, first of all, to speak about what we've described as Level I and then Stu Klugman to speak about Level II.

MR. GOLDMAN: We have just discussed several Future Education Methods that you may not have heard of or thought much about before. We are now going to present a topic that has generated a lot of discussion already, and that's the acceptance of equivalent credit for college courses. The immediate reaction of many Fellows and Associates of this idea has been negative. Indeed, several of us on the task force were skeptical at first. However, after thinking about and discussing the proposal, after considering the rationale and after structuring its implementation, we feel that the idea has a tremendous amount of merit and I would like to convince you of that. I think we all realize that the examination structure of the Society is much more than a 10-hurdle initiation rite of membership. It is an educational system with a methodology of

OPEN COMMITTEE MEETING

self-study and short answer examination that has remained virtually unchanged for decades. As an educational institution, we compete for students against other graduate and professional schools. As with these other schools, our aim is to attract the best possible candidates and train them to function effectively in today's world and give them the tools and the background necessary to cope with changes over the next 30 to 40 years. As with the competing graduate and professional schools, there are prerequisites for actuarial training. As with these other schools, we find that the background can be obtained in other institutions that have the required experts or your superior educational methods.

The task force has considered accepting equivalent credit only for those exams that test background or prerequisite knowledge and where either other institutions have the experts or they use superior educational methods. We divided the subjects on the syllabus that meet these conditions into two levels. I'll talk about Level I, which is comprised of subjects that are extensively applied elsewhere in the actuarial exams, so that credit can be fairly freely given to those people who demonstrate that they can pass Society exams. The two Associateship level courses that meet these criteria are calculus and linear algebra, currently Part 1 and probability and statistics which is currently Part 2. Each of these courses is worth 30 units in the ASA course catalog. Both of these courses are taught in many institutions, and calculus especially is considered a prerequisite for a host of majors in professions from business to medicine, from archaeology to zoology. Approval would be generally available to courses taught in colleges and universities meeting basic criteria. They must award at least a bachelor's degree and be accredited in the U.S. or Canada. The courses would have to be those taken by students majoring in mathematics or actuarial science although the individuals may major in any curriculum. The colleges, of course, must offer courses that cover the entire syllabus. Normally, it will require at least a full year of calculus and a semester of linear algebra to cover Part 1, and a full year of probability in statistics to cover Part 2. The student must obtain at least a grade of B in each course required to satisfy the syllabus.

The task force wrestled long and hard with this minimum grade requirement. We felt that a grade of A was too restrictive and that grades of A- and B+ are not

FEM OPEN COMMITTEE MEETING FOR FSAs

universally used. We consider B- to be too low. We settled, therefore, on a grade of B in each course, recognizing that this is a lower standard than the Society exams, but it is a reasonable standard that would probably cover 20% to 40% of the class. In order to give us a greater comfort level that students were deserving of credit, we added validation requirements that I think you will agree are quite demanding. First, the candidate may not have failed the exam for which he is requesting credit. Second, for each of the 30 units for which the candidate is requesting credit, he or she must obtain 30 ASA units by passing a higher level Society exam or exams. Third, he must have obtained the required 30 or 60 units by examination before failing exams worth more than 40 units. In other words, within five years of starting the first college course needed for credit, a candidate may apply for equivalent credit. Only calculus and linear algebra and probability and statistics are eligible for Level I credit. The candidate needs at least a B in all relevant courses and must pass effectively on no more than two tries, 30 units by examination for each 30 units for which he is applying. The exam units will necessarily be in such courses as advanced statistics, operations research, numerical analysis, compound interest, life continuancies, risk theory or survival models. It is not our intent to imply that credit for college courses is equivalent to passing SOA exams. Rather, we are trying to say that topics that are essentially prerequisites to the syllabus can be satisfied either by good performance in college courses and then higher level SOA exams or by passing the lower level SOA exam. We are simply recognizing that colleges can adequately prepare students to train for an actuarial career. Other professions recognized this a long time ago.

MR. KLUGMAN: Level II credit for college courses is concerned with those situations in which self-study is not the optimal form of education for a well-defined subject area. In particular, it addresses those syllabus items for which (1) the subject can be taught in ways that provide a superior educational experience and (2) the subject is of essentially a background nature. The goal of item one is to replace educational methods that promote puzzle solving and memorization with applications to relevant situations and an appreciation for the advantages and limitations of the various techniques. The reason for item two is to put a restriction on this flexibility. We do not want to continue to

OPEN COMMITTEE MEETING

maintain strict control over those topics that are central to actuarial practice.

At this time, we envision three subjects that are potential candidates for Level II. They are the current Part 3 topics of applied statistical methods, operations research and numerical methods. The first two each carry 15 credits. Numerical methods is a 10-credit course. By using college courses, we will achieve some other important benefits. One is that the material will be taught by instructors who are experts in that area. It is likely that the course will contain far more material than that appearing on the corresponding exam syllabus. Even if the applications are to other areas, the students are likely to gain a significantly better feel for the methods.

Another benefit is diversity. There is an advantage to having our members exposed to differing approaches and interpretations. What does continue to be important is that high standards of high quality and breadth be maintained. However, it is not necessary for every actuary to use the same text in order to achieve his goals. Our committee did not think that it would be possible to create an all-encompassing definition of superior education. The forms it might take are much too dependent on the subject matter of the particular course. It is clear that the usual lecture, homework, exam format will not qualify. Computer-based analyses of real data, case studies and the writing of reports are likely to be components of an acceptable proposal.

The mechanism for administering Level II credit for college courses is relatively simple. We propose an E&E accreditation committee to oversee this process. Application for Level II accreditation is to be initiated by the institution offering the course. It is their responsibility to provide evidence that their course does indeed offer a superior education. Regardless of the quality of the proposal, accreditation will not be granted until the course has been taught at least twice under the proposed format. A history of grades given will be provided so that the accreditation committee can set the minimum grade required in order to earn the credit. It is possible that this standard will differ from institution to institution, but in no instance will grades less than B be acceptable. After each term, the institution will certify that the course was taught according to the approved format and then the actual

FEM OPEN COMMITTEE MEETING FOR FSAs

credit will be granted when a student requests such credit and provides an official transcript certifying that the required grade was earned. There are also a few technical considerations. Students who have failed the corresponding exam will not be allowed to earn Level II credit through college course work. For vitality purposes, the credit will be deemed to have been earned at the time of the start of the approved course. Finally, the total number of credits that a student may earn through Levels I and II combined will be no more than 75 and we might recall that for the ASA designation, a total of 200 credits are required. In summary, we believe that through Level II credit for college courses, we can produce actuaries who have a significantly better appreciation and understanding of some of the analytical tools that are useful, but not central to actuarial practice.

MR. I. EDWARD PRICE: I have a concern about Level I and it may reflect just a misunderstanding. I certainly support the validation of the 30 credits per exam. The concern relates to the requirement that a student not have failed the exam in order to get credit. It seems to me that it's fairly typical, particularly with Part 1, for students to take Part 1 in college as they are finishing the college course and this tends to discourage that, unless I'm not getting the timing straight with regard to how the credit is earned. I would not want to discourage a student from taking a Society exam.

MR. PERROTT: The target group of the Level I credit is non-actuarial students. The target group is really aimed at mathematicians, engineers, economists, MBAs -- people that we would like to attract into the profession who either have not attended an actuarial school or didn't take an actuarial science program.

We tried to make it as rigorous as possible because we're aware of the sensitivity of the issue. That was why we included the requirement that if you ever failed the exam, you can't sneak around it. Level I is a high risk approach. If a candidate decides to apply for Level I credit, they start taking what are now the Part 3 subjects and as soon as they have failed more than four hours of exam, they're no longer eligible; if they haven't validated Part 1 by that point of time, they have to go back and start with Part 1. We tried to craft it to appeal to the fast-track, top quality people and not the the borderline.

OPEN COMMITTEE MEETING

MR. GOLDMAN: In the case of Level I, they won't know whether they've met the qualifications until they try to validate. I think you understood it correctly. If the individual took the examination and failed it, he's no worse off than he is now. He still has to take it again, so he might say it's worth a try.

MR. PRICE: Let me just try a follow-up. Given that the later exams, as have been described by a couple of the speakers, really build on the Parts 1 and Part 2 material, have you given much consideration to doing away with Part 1 and Part 2 altogether as a requirement, to take the extreme?

MR. PERROTT: That has certainly been suggested by some people. Our long-range thinking is that Part 1 and Part 2 should become a prerequisite as opposed to part of the qualification, but the Society should continue as long as there is a demand to offer alternate means by which the prerequisite can be satisfied. There are FSAs who are not college graduates and they are very proud of that fact; it does distinguish our profession from most of the others.

MR. GOLDMAN: One other thought about the individual who takes an exam and fails it is that it will be looked on as a diminution of the standards, if the Society gives credit for college courses to an individual who took the exam and failed it.

MS. MOUSHEY: I am concerned about some administrative difficulties. A student coming out of college would get credit conditionally for Part 1 and Part 2 and be offered salary and benefits comparable to a Part 2 student and then have difficulty with the Part 3 material and not qualify. At that point he would have to go back and start all over. The first actuarial exam for any student is kind of a shock no matter what material is covered, especially for someone who's done very well in college and who's tackling the Part 3 material.

MR. PERROTT: We've talked about that a little bit. First of all, we hope that employers will see that this is a high risk approach and counsel their students appropriately. Secondly, if anyone asks me, I would encourage them not to give the salary or other benefits of having two exams to someone who had conditional

FEM OPEN COMMITTEE MEETING FOR FSAs

credit. I would load all of the benefits on validating and give them more incentive to really hit the later exams and hit them hard.

MR. NADER: I'd like you to clarify my own understanding. You said that for the Level I courses you would have to pass a certain number of succeeding courses in order to retain your accreditation. Is there anything similar to that for Level II?

MR. KLUGMAN: No. For Level II, we are trusting that the pre-approval of the courses where a careful investigation has been done to certify the course under consideration is legitimate and meets our high standards.

MR. NADER: Then I suspect that you will have an administrative nightmare of continuously monitoring these courses to make sure that they haven't changed. There's no reason that your initial accreditation will maintain itself as far as the level of the course is concerned, especially when colleges may have an economic advantage to loosening up their standards so they they can attract more students.

MR. COLE: We're counting on the fact that there aren't going to be very many universities that are going to apply for courses that need careful pre-approval and monitoring. They'll usually be actuarial programs where we know the professors already and we plan to keep close track of those. Granted, if we have hundreds of universities applying for a Level II of credit, that's going to be a lot of work.

MR. MARTIN J. THOMAS: Given that this is a very important proposal and that there's been a lot of negative reaction thusfar, will it be put to a vote of the membership in order to get it implemented and if not, why couldn't it be?

MR. PERROTT: It's not within the E&E Committee's prerogative to decide what gets put to a vote of the membership. That's strictly a Board prerogative. The Board thinking, as I understand it, is that nothing should be put to a vote unless it clearly is a single issue. The Board's job is to lead the Society and work through these type of questions. If you look at how you

OPEN COMMITTEE MEETING

become a vice-president or president of the Society, you conclude that all but three of the Board members probably have higher office in mind; no one on the Board wants to be party to a railroad. On the other hand, just like the Congress does not put the tax act to a plebiscite, the Board sees its job as determining what the membership thinks and what will fit and then following through on it.

MR. BYKERK: I think you characterized the Board's thinking correctly. One comment I would like to make in reference to Marty's question is I think that almost all of the negative feedback was based on almost no facts, because there were almost no facts in the FES White Paper. That is part of the purpose of the FEM White Paper. Before the Board were to get to the position of determining whether or not a vote should be taken, it would feel that its constituents should have had in front of them a concise definition of what it is that we're talking about, so that the written comments that came back were, in fact, based on facts and not impressions.

MR. KREUTER: I must admit to a kind of heavy skepticism about the alternate educational methods. It's been stated a number of times that there are superior educational methods, or such and such topic can be better taught by other than the exam process. But it hasn't been explained, at least not in a way that I can understand, why that would be the case? My own experience, and it seems to be similar to that of other Society members I've spoken to, has been that the exam required you to study any topic more deeply and thoroughly than was required by our experience in college. That included even some of the ancillary topics, such as economics. Not having been an economics major, I took only the required economics course in college and found that it consisted of a semester worth of drawing graphs on a piece of paper. The topic, even though it was not a main topic on the examination, was nevertheless covered more thoroughly by the exam and I had a better understanding of economics after taking the Society examination. It's difficult for me to see why we feel that the education of the students will be improved by these other methods; why we even talk about possibly sacrificing some of these examinations.

MR. PERROTT: The first field where the false assertion that the Society exams educate well is the field of statistics. The first inkling I had of this was

FEM OPEN COMMITTEE MEETING FOR FSAs

about five years ago when my wife took an MBA program and she was having trouble with some of the statistics classes and I tried to help her. I learned much more from that process than I ever learned from passing Part 2. When I passed the early exams, Part 3 didn't include statistics. We have talked with some people teaching the high caliber MBA programs, and they're turning out people who are well ahead of the average actuary in their ability to recognize when statistical methods are appropriate, their ability to determine which method to use and their ability to use and draw conclusions from it. I for one am convinced that a well-structured program that involves manipulation of real data and drawing conclusions from it educates much better than the current Society system.

MR. COLE: That was well spoken, but to add another perspective on it, what is our present method? Our present method is to give you a book and you know that at the end of a certain period of time, you will be given a series of cute little puzzles to solve. The puzzle-solving exams (multiple choice exams) do test very well whether somebody who has not studied for the exam knows the subject or not; when you're confronted with that exam, then instead of studying the subject, you study how to solve little puzzles and pass the exam. Some subjects are not conducive to that as an educational method. For statistics, you've got to get down in the trenches and interact with data and slop around and put them in the computer and see what comes out and write your report and then have that critiqued in a group before you understand what's happening. I would say survival models is the same kind of thing. It's a very important subject; very important to the actuarial profession's future. Our students are not understanding survival models at all, or not enough, from the present Part 5. They don't get the big picture and they don't really see what it's about. Those are my particular concerns on quantitative subjects. I would limit Level II to that type of subject.

DR. BRENDER: Many of the books that the Society uses for the types of courses we're talking about are well-known standard books used as required texts in university courses. If all I had to do to teach that course was to assign the text and tell my students that they had to read the text and that my function was just to give the exam, I wouldn't be in the occupation that I'm in. I assume that by showing up and trying to teach them what the subject is about,

OPEN COMMITTEE MEETING

I'm adding something and that they're getting something out of it. This is in addition to reading the book. They're getting a perspective on the material and they're learning which things in the book are important and which things aren't. Under the present system that we have, we give people the book with no guidance. We're relying solely on hope that the person who has written the book has been a good expositor. There's no guarantee of that and it's not clear that we've ever chosen a book in which that's been a fundamental criteria.

MR. KREUTER: I believe that the proposed FEM system would have certain topics that could be passed only through examination. Now, wouldn't those comments about the value of a course and an instructor and not just reading the book be equally applicable to those other topics as well? Should we perhaps require all topics to be by the course?

DR. BRENDER: If you want my honest answer, sure. For example, we're not proposing anywhere to offer credit for the courses that are taught at my institution by the actuaries. The actuaries in my department only teach the actuarial subjects; I think that we add considerably to the material and to the student's understanding of it. I think we should give credit for these courses but that's not part of this proposal.

MR. KLUGMAN: We're in a worse situation. We teach numerical analysis. We give our students exactly what they want, which is for us to lead them through the approved textbook. In the same building, often at the same time, there is a recognized expert in numerical analysis teaching good courses in which students could take and learn something. Instead, they take it from me or one of my actuarial colleagues because they know they will pass the test. When I need advice on numerical analysis, I go to an expert. At Allan's institution and at mine, we both teach risk theory. Our courses are vastly different. They're both significantly superior to the material on the educational syllabus. Our students can come out and use it, which you can't do if you read the study notes. Unfortunately, we're not even proposing that students have the opportunity to make that substitution.

FEM OPEN COMMITTEE MEETING FOR FSAs

MR. GOLDMAN: I can speak as an exam chairman. I covered the exams when the life contingencies was life contingencies only and then it became life contingencies and risk theory and then life contingencies and interest theory. When we introduced a new actuarial mathematics textbook, it was first introduced just for risk theory and then later on for life contingencies. We would have been lost if we didn't have enough people who had graduated from the actuarial schools who really knew what risk theory was about to handle life contingencies from a non-deterministic point of view. It proved to me that they do learn more in these courses. Everybody would agree that taking a Society exam is quite a different experience from passing a college course and we probably agree with your comment about having to study hard. The hard work may not be in the right direction. Clearly, topics like advanced statistics, numerical methods and operations research, can be taught much better with non-textbook techniques and do not really relate very well to a short answer or multiple choice exam.

MR. JAMES DRAKE BROFFITT: Being an educator, I would hope that I'm using superior educational methods. If I'm not, I would like to know what the committee considers a superior educational method. I agree with somebody else who said that the problem of monitoring these courses that have been approved will be a tremendous headache. Even within the same university, in the same department, two different professors can teach the same course and have quite different standards. A student getting an "A" from one professor may know less than a student getting a "C" from another professor.

MR. KLUGMAN: I can start. We intentionally left the definition of superior educational methods void because we're going to rely on superior educators such as yourself to convince the committee. The basic goal would be to convince us that you're doing something to help your students understand and apply the methodologies being discussed as opposed to being able to do the algebraic manipulations associated with them. It's relatively clear in an applied statistics course what's superior; what's superior is analyzing data and writing reports describing that analysis.

MR. GOLDMAN: On the question of an individual getting an "A" from one professor and a "C" from another, I think that's a rather extreme case and

OPEN COMMITTEE MEETING

unlikely. We're all talking about courses that are the math major or actuarial science courses; if the individual is one of the unfortunate ones to get such a bad break, he can always take the exam to prove that he knows the material.

MR. PERROTT: But we also are demanding actual and expected grade distributions and that would presumably point out your problems.

MR. KLUGMAN: Even with pre-approval, if at the conclusion of a Level II course, it turns out that the grades were 100% "A," we do have a provision that allows for the removal of accreditation after the fact. Before credit is given, but after the approved course has been completed, if we don't like what was done, we do retain the privilege to take that accreditation away.

MR. MEYERS: I'm probably one of the people here who has spent a significant amount of time on both sides of the fence, both in industry and in academics. The thing I would really hate to lose is the side-by-side; learning the material to become a Fellow and working in an insurance company. The two of those done separately is not worth anywhere near as much as doing both simultaneously.

MR. PRICE: Speaking from the perspective of one who is responsible for the development of one of the largest actuarial staffs in North America, we are facing a severe crisis as we go forward in hiring enough qualified people to fill the kinds of positions that we have opening up, not only in the Prudential but in the profession generally. We need to have these kinds of flexible programs if we're going to fill those positions effectively, so I applaud your work. I can argue with some small details, but I very strongly applaud the work you're doing and urge you to continue.