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Moderator: CECIL D. BYKERK
Panelists: JEFFREY A. BECKLEY
ROBERT L. BROWN
Recorder: MARTA L. HOLMBERG†

Summary: The actuarial profession faces new challenges and opportunities in the future—within traditional areas of employment and in new and emerging areas. Anticipating such developments, the SOA's Board of Governors named a task force to determine how, within the context of basic education, the SOA should respond to the challenges of the changing professional environment. The recommendations of the Board Task Force on Education focus on underlying principles to govern the SOA's basic education program. The recommendations of the task force were approved by the SOA board in January 1995. This session is intended to provide you with up-to-date information on the redesign effort and the governing principles that guide the design process. Equally important, the session also offers an opportunity to provide your input and ideas. It is critical that the SOA's basic education system be the best possible, and we want your help in attaining that goal. Suggestions made by participants at earlier sessions have already affected the design.

Mr. Cecil D. Bykerk: Rob Brown, Jeff Beckley, and Marta Holmberg have been a key part of our process, as well with keeping me on task over the last few years. Many of you have probably seen parts of this presentation before, but we'll give you some general background before we go into some of the recent developments that may be of more immediate interest.

The first thing that we have to report that's new is the fact that the Board of Governors recently approved proceeding to implementation. There are still a

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†Dr. Holmberg, not a member of the sponsoring organizations, is Education Executive of the Society of Actuaries in Schaumburg, IL.

number of issues that we have to resolve, some of which will have to go back to the board. Many of these issues are just details that we have to work through in the normal course of events with the Education and Examination Committee as well, but we'll try to address some of those issues, and perhaps some of you will come up with other issues that we need to consider.

In this session, I will do a quick overview of the principles and objectives for the redesign and, again, for most of you, you've probably seen these several times, but we, on the board task force, have tried to keep going back to these touch points throughout the time we've worked on this. We really have started at the top and worked down to the syllabus. We constantly go back to our principles and objectives to make sure we're staying on track. I'll quickly run through those principles and objectives. Jeff Beckley, who heads our design team and is also a member of our board task force, will explain the current state of the design, and Rob Brown will cover issues and results of the survey. The survey we're referring to is the survey that was in the 1996 Report to the Membership. Finally, we will end with your questions, answers, and comments which, from my point of view, is the most important portion of these sessions. Again, our goal, or definition, is to develop an education system that will produce an actuary that is the professional who assesses and manages financial aspects of risks and uncertainty. That was our working definition. Pete Hepokoski, a member of our board task force, speaking at an earlier session used this definition and pointed out the significance of the terms used in the definition.

In trying to enhance the distinctive competencies, we must demonstrate the value added to move successfully into new roles and new markets. I'm going to focus on the enhanced development of the central mathematical capabilities with broader business applications enhancing the core competencies.

You may recall that there were four principles of design, and if you keep relating back to these four principles you will see how we have woven those into the redesign of the syllabus. The first principle is to examine only those subjects that cover essential elements of an actuary's education.

The second is to provide a business context with rigor consistent with that of the current mathematical education. When we were working through this two years ago, we observed that the SOA does a very good job in educating and examining the mathematical parts of our trade. However, we felt there was a need to introduce a business context early in the process, but with the same kind of rigor that we have given to the mathematical portion.

The third principle is that our actuarial education include all kinds of contingencies, not just life contingencies. By not looking at all types of contingencies, we felt we were narrowing our focus too much. That leads right into the fourth principle: to include models from outside the insurance and pension fields. The sense was that by always using insurance and pension examples we set a mind-set, or a paradigm, which keeps us focused on those applications and doesn't allow us to broaden our jobs, our roles, and so forth.

The next principle we kept coming back to was we wanted to obtain each category of education from the best available source. Now what are some of the implications of this statement? We, as actuaries, always feel that we can do things better than anybody else, and in some cases we can. In some cases there are others who can do certain things better, and there are certainly categories of education that other institutions and individuals can provide much better than we can. That is certainly the case on the front end, with general math subjects and materials. We also feel that, on the back end, some of the professional development topics and material may be best provided by someone else, but we'll continue to provide material and education as well.

We then divided the material into four categories, but ultimately we realized we should have five categories. The first category is preliminary education. This is defined as necessary, but not really actuarial and it's generally taught in universities or colleges: calculus, algebra, and similar subjects. Again, as we begin to look at some of the specific courses and examinations of the syllabus, you'll recall we initially went further in moving material into this category. After the 1995 Report to the Membership, and survey results from that report, we retrenched a bit, but Jeff will comment on that.

The second category is basic education. This is actuarial, encompassing significant mathematical rigor along with business context, and all actuaries need it. This actuarial material is the heart and soul of actuarial education. Most of you are aware that we ended up with eight courses. This category encompasses the first six courses. It also happens to be where we've drawn the line for Associateship, at the moment. There are still issues being evaluated regarding professionalism, and the possibility of adding an ethics course, but right now when basic education is completed Associateship is awarded.

The third category is advanced education. Actuaries in a particular field need this. If we compare advanced versus basic, you'll see that we're starting to talk about practice areas or specialty areas. We're still saying it's relatively stable over time, and we're saying it's not primarily country-specific. That doesn't mean that you won't see any country-specific material or examples in this area. It doesn't even

mean that you won't see country-specific examples back in the basic category, but students will be learning through examples and case studies. You won't be learning that material specifically for the purposes of learning the country specific information, but they will be used as examples. I think this is an area that's important to recognize, because I think people felt that we were stripping out everything possible that sounded like it was country specific, and in the case of the basic education stripping out everything that was practice specific, but that isn't the case. There will be such examples used as learning tools.

The fourth category is professional development. I should mention that Courses 7 and 8 are advanced material. Our working definition for professional development is topics that are highly specialized, primarily country specific, and/or can change quite rapidly. Regulations and how they work, would fit into this category. Even though you can access regulations via the computer, CD ROM, or through the Internet, you still need to understand their application. This doesn't mean you won't see regulations used as case studies and learning tools in the earlier education and examination material.

As I previously mentioned, we started out with four categories of education, but realized we really had five, because we always intended to have the Fellowship Admissions Course (FAC) continue. That is our fifth category, and right now it's not anticipated that the FAC would significantly change. If we do develop a professionalism course for the Associateship level we would still anticipate having the FAC primarily as it is today.

Mr. Jeffrey A. Beckley: I'm going to talk about the four categories. The first category was preliminary, and there were a number of subjects that we envisioned to be preliminary. Examples would be calculus and probability, introductory micro and macro economics, linear algebra, and differential equations. Some of these, as you'll find out in a minute, will be explicitly tested. We consider them preliminary even if they do end up on the exams. Additional preliminary subjects are numerical analysis, statistics, principles of marketing and management, introductory accounting, business law, and applied computer skills.

In retrospect "preliminary" may not have been the best descriptive word for some of these subjects, such as marketing and management, introductory accounting, and business law. The knowledge of those subjects will not necessarily be assumed on the early exams, and you would not be expected to have taken, or know, that material before you take Course 1, but they do fit the description in that they're probably necessary. The actuary should know that material, but they're not actuarial in nature and we don't intend to test directly on those subjects.

I'll explain each of the six basic courses that would cover Basic education. The first one, Course 1, is "Mathematical Foundations of Actuarial Science," and has evolved into a calculus and probability examination, but with the questions posed in a risk management context. This is not what we had originally envisioned. This course has evolved to its current state because of the SOA membership expressing discomfort with not rigorously testing calculus and probability. We have agreement with the Casualty Actuarial Society (CAS) that Course 1 will be jointly administered. Where applicable, I'll try to give you a status report on where we are with the CAS. This is the only course at the moment where we have, I would say, concrete agreement that it will be jointly administered.

The second course, "Interest Theory, Economics, and Finance," is envisioned as using an integrated approach, and would not be three separate topics tested separately. We envision integrating interest theory, finance, and economics to show how they interrelate, and how the different disciplines rely upon each other. The other thing I'd like to point out, related to the coverage of economics, is that macro and micro economics were listed as preliminary subjects and we would envision that economics in Course 2 not be introductory, but would be more of an intermediate level of economics. That's basically the level that's currently tested on the SOA core examinations, and on CAS courses.

For Course 2, we currently have a joint CAS and SOA group working on this exam to see if we can arrive at a compromise. I think it's important that actuarial students not be forced to make a decision too early as to whether they're going to take the CAS exams or the SOA exams. I think it's important to try to reach a compromise with the CAS, but there are some real issues that have to be addressed, and at least from my standpoint, it has to be an acceptable compromise. We can't sacrifice our principles to arrive at a compromised examination.

Course 3 is "Actuarial Models for Contingencies" and, as Cecil mentioned, this will cover not just life contingencies, but will expand beyond that to cover other contingencies. This exam, as is currently envisioned, includes survival models.

Course 4 is entitled, "Methods of Actuarial Modeling," and, basically, it's envisioned to cover a brief overview of the modeling process, and then a discussion of various mathematical tools used in modeling, including regression, forecasting, risk theory, credibility theory, loss and frequency distributions, and simulation techniques. We are working with the CAS on both Courses 3 and 4 to see whether we can arrive, once again, at an acceptable compromise. I would say that, personally, I would like to see us reach agreement, but I'm not really optimistic. Perhaps most of the Course 4 materials would be of interest to both the CAS and the SOA, but the CAS currently believes that there is too much material for one exam. It also wants

to add some statistics, which we do not plan to include. There is ongoing discussion, and I'm still hoping that something can be worked out. The CAS currently splits the material differently and may not want to consider alternatives, but a cooperative effort continues, but with less likelihood of a joint exam.

The fifth exam is entitled, "Application of Basic Actuarial Principles," and this course would cover core education on design, risk classification, pricing or funding (depending on the term to be used), marketing, distribution, and valuation. It would also cover financial security programs, employee benefit programs, casualty programs, government insurance, and nontraditional areas such as product liability, warranty evaluation, and environmental costs as well. People may not think of things such as life and health insurance as being financial security programs, but those are all meant to fit into that category. It would take a broad view and, once again, remembering that we're emphasizing principles within this, I would envision, even at this level, using examples to illustrate those principles. Those examples would be country specific, probably concentrating on, but not restricted to, the U.S. and Canada.

The sixth exam is "Investments and Asset Management." This would cover capital markets, investment vehicles, derivatives, portfolio management, and asset/liability management. As Cecil mentioned, at the end of Course 6 is where we currently envision Associateship being granted. There is considerable interest within the AAA and the SOA board, on requiring some sort of professionalism course or seminar prior to granting Associateship.

In the advanced category there are only two courses required, although there are options for Course 8. Course 7, as currently structured, is an "Intensive Seminar on Applied Modeling." This intensive seminar would cover models, design and selection, analysis of the data that go into the model and come out of the model, validation of the data, and communication of the results. It's envisioned that at the end of this seminar there would be an objective evaluation of the students. We anticipate using something like a case study, requiring a report to be written by the students at the end of the seminar. The pass rate for something like this would probably almost certainly be higher than on a normal examination, but it's not going to be a free ride either.

Course 8 is "Advanced Actuarial Practice." Right now we envision six practice area examinations, of which you would take one. Those areas include managed care group life and health (I should emphasize that's group life and health. It's not group health necessarily. It would cover individual health coverages). Actually there would be a seventh practice area, because we envision a separate course for retirement systems for the U.S. and Canada. Because of the fact that the retirement

systems (pension) area is so driven by regulation and the EA exams, and for various other reasons, we have decided that it is impossible to not have country-specific courses in the retirement systems area. That's certainly a violation of our principles, but we felt, from a practical standpoint, it was necessary. The other areas covered are individual insurance, finance, and investments and, over time, there would be potentially other specialty areas if the need developed.

The fourth category is professional development. This is an area that as yet is less defined than the other areas. As currently envisioned, professional development would require approximately 50 hours of participation in professional development programs, of which half would have to be approved by the Society. You would probably have some sort of adviser and would be required to either discuss your plan of professional development with that adviser, or perhaps even have approval from the adviser. If your company is going to pay for you to attend professional development programs, your supervisor is probably going to want to approve your plan. Track specificity: there's a good possibility that at least a portion of your professional development would be in your area of practice. It's anticipated that the Society will provide additional guidelines as to what would be appropriate. In the end there will probably be some sort of validation required, possibly a written report required from the student.

With regard to ASA, we've already discussed what's currently anticipated. Completing the first six exams would be, as we the board task force and the board envision, equivalent to where the current requirement is for Associateship. As I previously stated, there is still concern as to whether some professionalism course should be required for Associateship.

"Cooperation with other actuarial organizations." I've already, to some extent, tried to tell you where we're at with the CAS. We are also looking at Course 6, which is the investment and asset management course, as a possible joint course with the CAS. Course 1 is definitely going to be a joint exam, and Course 2 probably will be. Courses 3 and 4 are potential candidates to become joint exams. Course 6, I would say, is somewhat less likely than Course 2, and more likely than Courses 3 and 4, to become a joint course at the CAS. I'm less optimistic about Courses 3 and 4. I think Course 6 has probably a 60% chance of being a joint exam.

The CIA and the AAA have been kept abreast of this. Cecil and various task force members, along with President Sam Gutterman, have made presentations several times to the boards of both organizations. There is a possibility that either, or both, may require an additional examination beyond our examinations before you become a member of the Academy, or a Fellow of the CIA, or before you're qualified to sign certain opinions under Academy or CIA guidelines. If the CIA or

the Academy decides to do that, the additional exam would be accepted toward professional development and would probably count for about half of the professional development requirement.

Mr. Robert L. Brown: I want to continue by giving you information on the feedback we received from the August mailing to the membership. The very first question was what you thought of the proposed system. Did you think it was going to be an improvement? Based on those responses, we believe we have strong endorsement for the direction that the new syllabus is intending to take. We received overpowering response from those who agree somewhat or agree strongly that the proposed education system is, in fact, an improvement. This made us feel much more at ease, and allowed the Board of Governors to feel at ease as well. Certainly they were concerned that the membership support the proposals, and we do have relatively broad support.

The next question we asked was, "Do you think actuaries educated under the new system will be well equipped to serve their publics and to fulfill their professional responsibility?" Again, a very strong response that the new syllabus will provide the right kind of actuary for the 21st century and the business demands of the 21st century.

We also asked the membership if the courses in the basic category, that's one to six, cover the fundamental subjects and tools needed by all actuaries. Very strong agreement here, so despite the fact that the new syllabus looks quite a bit different than the old syllabus up to the Associateship level, the membership feedback is that we have not left anything out that is of fundamental importance.

Moving into the advanced category, we wanted to know whether we had covered the issue of practice specificity. Have we built the foundation that we need? What about the professional development part of the syllabus? We then asked, "Do the courses in the advanced category cover the fundamental subjects and tools needed by actuaries in a specialty area?" We expected some backing off here, and part of the reason for that is this is the area where we have not dotted all the i's, nor crossed all the t's, so that people reading the report would not be able to have as firm an understanding of exactly what is intended in the advanced category as they could have had of the basic category. However, from the response again we have strong support to move ahead with the principles developed for this area.

The biggest area of change between our first draft and second draft of the design was with the early exams. We wanted to learn, from the membership, whether you think we will attract diverse candidates, and good candidates, with the selector/attractor program as represented by the first two courses. Let me point out that

we believe those first two courses are independent, and that some will write Course 2 first. More particularly, we might find business, economics, and commerce students writing Course 2 first, and math majors writing Course 1 first. The answer, again, is strongly agreeing that these attractor/selector courses will do the job necessary to get the right people entering into the process of qualifying to become actuaries. Data regarding the existing syllabus indicated to us that maybe we weren't currently doing quite as good a job as we would like. There's a very large number of people who write the first two exams and never write another actuarial exam. Actually, I should say, there's a significantly large number of people who pass the first two exams and never write another actuarial exam. We are hoping that by adding the business context immediately, and by giving students real actuarial questions on the very first page of the very first course, we will be able to give them a better feel for what they will be doing as actuaries. We do not want students to have written nine purely mathematical exams and suddenly find that they're also expected to be business people. We want to eliminate that kind of confusion. Again, we feel we have the support to move ahead.

We also asked, "Should Course 1 cover preliminary subjects even though that is inconsistent with the principles that we laid out for the redesign on the syllabus?" Jeff mentioned that Course 1 now explicitly tests mathematics. We received strong feedback that we needed to make sure that people who came through the screen had good foundations in calculus and probability. The message was really for us to help candidates recognize the level of mathematics they need to proceed into this profession. This is a service to the student entering the system as much as it is to the actuarial profession in attracting the right people.

There was a solid proportion of respondents who disagreed with the question. It might mean that there are many people who really agreed very strongly with our principle as espoused in 1995 and wished that we hadn't backed off a little bit. In fact, all of these people might be supportive of the philosophy of the board task force, but we certainly have a majority of people saying, yes, we understand what's going on here and we think you should go ahead. So we will certainly proceed. We're continuing to accept feedback, and I can tell you that these courses will continue to evolve with time, and will probably look somewhat different in 2007 than they will look in 2001.

How about the intensive seminar? This is a tough one. There are all kinds of issues here. What's going to happen for people taking the exams in Taipei? How will they be able to write Course 7? What about rigor? If you attend and exist through the lack of sleep for four days, do you then pass? Are there alternatives? Can we do it through interactive modes? Can we send out a CD ROM and somehow either

shorten the length of the intensive seminar or make it more easily available to some of our students offshore? There are many practical issues here.

The board task force really feels strongly that the intensive seminar is a good way to get into some of the skills that you can't address in a correspondence mode, as through a process with a published list of readings where you then walk into a room and write an exam. We think we can tap into skills like critical thinking, problem solving, but, in particular, team project work, communication skills, and interactive learning. Somewhere in the process the board task force felt that it was important to expose our students to these alternative learning skills that we believe are preferable and superior.

So the statement was "The intensive seminar format is an effective educational method for the subject of applied modeling." Again, more diversity of opinion, with "no opinion" showing up fairly strongly, and, again, this is one area where we haven't dotted the i's and crossed the t's. We're not exactly sure what the intensive seminar will look like. Will we have a preseminar test to make sure that the people coming are actually ready to sit down and do some intensive modeling?

Will we send out the data set in an electronic way, CD ROM, or e-mail it out and say you make sure you're familiar with this data set before you show up? Will we offer it on-site in Taipei? Will we ask people to go to central locations, or will we try to make it internationally available? As yet, we don't have the answers to those questions, so it isn't surprising that there's a diversity of opinion. But, again, more support than disagreement and I think measurably so.

The eight identified exams in the basic and advanced levels are clearly going to be larger. We're talking about starting with perhaps two 3-hour exams for Courses 1 and 2, four 5-hour exams for the other basic courses, and certainly 5-hour exams in the Course 8 material. This is a difficulty for some people. People have a diversity of needs and activities, such as those who have small children, and may wish to remain home with those children. How are they going to be able to proceed through the syllabus material relative to what we have, where we have some very small blocks, so that if you want to, you can proceed through much of the process ten credits at a time. What are the advantages and disadvantages? Well, one of the advantages to the larger courses was the idea of integrated education. You take these different subjects and you integrate and synthesize the material. By the way, that is the intent. We're not going to have separate exams in the subparts or even separate material on the subparts. It's meant to be integrated. So we asked what do you think about the larger integrated approach, and we've received, I think, very strong agreement with the integration and synthesis of these topic areas. We don't test graduation, and then you walk away from it and don't think about it again, then

you do risk theory and you never understand that, in fact, they're all part of model building. Now you're going to see it as building actuarial models.

What about the issue of the people who are going to have larger struggles with these larger integrated courses? Should we work really hard to find ways to accommodate candidates who cannot pursue the demands of the larger integrated courses? The response was interesting. There are obviously many people who say, "No, you don't have to. I like the integrated courses. I think it's the right way to go. There may be some difficulties, there may be some pain, but proceed." Then there are some who say, "Yes, you really need to work hard to accommodate these people, there's a reason to do that, go and see to it." So we have some work to do here to determine how to proceed, given this diversity of opinion.

Regarding the professional development component, we asked whether the guidelines strike an appropriate balance between emphasis on practice-specific topics and offering candidates an opportunity to round out their individual pre-FSA education. The respondents were strongly in agreement, but, again, a considerable "no opinion" group, probably because this is an area that's still a little fuzzy around the edges. We hope that there will be some candidates who, in their professional development phase, will pursue new and different things. They may go to a university and take some courses that are off the beaten track to round themselves out in ways that aren't possible in today's syllabus. So we have some interesting opportunities here, but, again, I think with this response we have been given the go ahead to proceed and then report back to you as the details become available.

All you have to date are the principles for the transition rules. Let me point out to you, and remind you, what those principles are. The courses in the current new system will not be offered concurrently. We are anticipating a target date of January 1, 2000, when the old syllabus will end and the new syllabus will begin. There will be transition credit, but we will never have two syllabi in existence at the same time.

The next principle is where courses do, in fact, correspond, the transition credits will identify that correspondence. I can tell you that in the early going if you have passed old Courses 200 and 210 you will get credit for new Course 5. Where there is a strong correspondence, it will be seen in the transition. We will inform students about the details of the transition at least two years in advance of the change and at least three sittings in advance of the change. At the moment, it is our intent to have transition information out before the end of January 1997. We are still working hard with the CAS, the CIA, the AAA, and the joint board to finalize the content of all these exams. You can't finish off the transition rules until you know, in some detail, what's where.

Mr. Beckley: Rob, can I point out one thing? At least three sittings means at least three sittings for each exam. So if an exam is only offered once a year, and we don't give three years of lead time, we would offer the exam twice in one year. So it's not three sittings, but it's three sittings for each exam.

Mr. Brown: Right, so every candidate would have three attempts at the exam before the transition date. We will, in the transition, provide credits toward professional development, or other course requirements, where there is no direct correspondence to new courses. I'll just use an example that may prove to be a bad one later on, but I'll stick my neck out. Graduation, as it now exists, may not have an absolute correspondence in the new syllabus. So, if you have graduation, what may happen in the transition is you'll get credits comparable to dollars that you can use to earn part of your professional development requirements, or other course requirements.

So are the principles established reasonable? The answer is fairly positive, strongly enough so that we're going to be able to proceed.

Mr. Bykerk: Just a couple of other things that I want to touch on. First, the tentative timetable. It is anticipated that the first exam would be given in May 2000. It's not a given that we're going to stay with May and November, but we have no reason to believe we won't. You're aware that we currently have a February sitting for Course 100/110. We're not sure yet how often we'll offer Courses 1 and 2.

I did want to step back for a second and talk about two additional issues, the first being that the board resolution that was passed was actually a page-and-a-half long and contained five sections. I want to describe briefly the five sections. The first section basically says go ahead and implement this and, of course, implementing means getting the blueprints together, pinning everything down, and so on. We know there are several issues. We have mentioned that there are issues with the CAS. There are issues with the seminar course, Course 7. Additionally, there are issues regarding the health specialty exams. There's some feeling that we need to take another look at those exams, and we will do that with health experts. We want to be sure that they are structured properly and have the right content.

Another issue, and area of concern, has to do with pension actuaries. There's some feeling we have pension actuaries who don't sit for the Society exams but are practicing actuaries. That's partly a consequence of the fact that the federal government in the U.S. has a designation called enrolled actuaries. How do we entice those people back into the fold? How do we get them to take exams and complete their Fellowship? That's not an issue that's specifically related to our redesign, but in the process of the redesign is there a way we can demonstrate value added to

them so that they find it desirable to finish their exams? There are other specific things that we'll be taking back to the board as we go through the implementation.

The second part of the resolution had to do with professional development and, as has been mentioned here, we're still pinning that down. We're still looking at issues like validation, what do the candidates have to do to demonstrate that they've met their requirement in appropriate ways? There were two changes that should be noted that we made since the report was published in August. One is that the two-year time limit for professional development fulfillment does not apply to something that actually was tested, so if you're going to take credit for having written investment (CFA) exams those would retain their eligibility longer than two years, or if you took a second Course 8, that's another way you can fulfill part of your professional development. There would be no time limit. That was always intended, but it wasn't explicitly stated when we wrote the report.

The second thing Jeff mentioned was that if the CIA or the Academy decided they needed some kind of a test on regulation, of course, the Society will offer to be the provider. In addition, if that's done, those would be time enduring and, also, would apply to the professional development requirement.

The third part of the resolution had to do with the transition rules, which we've talked about a bit and, of course, were approved. Modification to the transition rules might be needed if changes in courses are made from our work with the CAS, or other adjustments are warranted.

The fourth area directs us to communicate to the membership by the end of the year. We should have said by the end of January. Our intention is to distribute a communication to the membership regarding the design and some of the transition rules.

Finally, the fifth part of the resolution has to do with material that will be effectively deleted from the syllabus. A good example is U.S. federal income tax for the life insurance companies. There was some concern regarding the study note material covering such topics. Those study notes are very important to our membership, and we want to continue providing the material/information. So the resolution commits the board and the president to make sure that those materials continue to be developed. We may not call them study notes, maybe we'll call them monographs, or something else.

The other thing I wanted to mention has to do with a totally different organization, and those of you that were at the general session in which Sam Gutterman spoke, will recall him mentioning the International Forum of Actuarial Associations (IFAA).

Rob is the CIA representative on the education subcommittee, and I am the SOA representative on the subcommittee. We're actively developing the requirements for education that a member organization must have in order to qualify to be a member of IFAA. It's interesting as you look at the core subjects across the whole world and how well our syllabus corresponds. It is gratifying to see the SOA, the Institute in Australia, and the Institute and Faculty in Great Britain all coming together with regard to requirements for education. We're charged with presenting to the IFAA council a final set of requirements in Birmingham, England in June 1998, and I think that we'll be able to meet that deadline without any trouble.

From the Floor: I was an associate professor of mathematics for 11 years before plunging into an actuarial career. I wanted to make a few points about what I thought might be lacking. One, and what I think is a very important procedural point, is that the SOA does not return graded papers to the students at any time during the exam process. That's a fundamental pedagogical tool. I couldn't imagine ever having taught a course where I didn't grade papers and return them so that students could understand what they'd done wrong and what they'd done right. I feel the SOA is deficient in its approach. Tell the students what was lacking and what they need to master. I know it's a huge logistical problem, but I think it's the single best thing you could do to improve the quality of education.

Second, I wanted to say that the transition rules, as I hear them being envisioned, are massively unfair. I have a couple of assistants under me and I don't envision either of them finishing their FSA by the year 2000. I feel it's unfair to ask students to work hard to take very tough exams and not know if they're going to get credit for them. It sounds to me if you take 200 and 210 and pass them both, then they'll be in a good shape. But what if they just pass 200 or 210, both of which are hard exams, what will they get credit for? This is a major change and I wonder if there shouldn't be some sort of transitional stage so that students aren't punished. By not starting until 2000 is evidence to me that you have a captive student body. You wouldn't dare do this if they had elsewhere to go.

Mr. Bykerk: I'd like to comment on that. As to the first statement, I'll let somebody else comment if they choose. Perhaps we're not saying things very well. When we started out we all said we wanted to err on the side that would most benefit the student. We want the transition rules to be student friendly. In past transitions, the SOA has tended to err on the side of exactitude, making sure that everybody has covered everything, so that somebody can't get through without having passed something that somebody else had to pass. These rules, I believe, need to be seen to be appreciated. We will be announcing the rules as soon as we pin down issues with the CAS. We're going to issue these transition rules. That means people will have at least three full years to complete pieces and parts to maximize their credit in

the transition. Somebody the other day asked a question that implied if you weren't done with your FSA you'd lose everything. That's not going to happen. You will get credit for everything that you have passed. If there is not specific credit, if it doesn't translate directly like the example that was given for 200 and 210, and you can't apply the credit anywhere else, it eventually falls into the professional development category and you get credit for it there. Now someone could criticize this saying, well, wait a minute, that's not professional development. Graduation isn't professional development, but you're going to give somebody ten credits for it. That's how we tried to structure the transition rules, to err on the side of the students. We're not taking away Associateship and we're not taking away Fellowship. I think we've come up with some very student-friendly transition rules. Jeff, do you want to add anything?

Mr. Beckley: The transition rules are very fair to the students, and I think once people see them in detail the vast majority of people will think they're fair to the students, and even the vast majority of students will also feel that way. Is every single person going to feel that way? No, probably not, but we've actually taken these transition rules, looked at the population of existing students and where they are in the exam process, and have not found any real anomalies, and that's without giving people three years to try to game these rules. Students are brilliant at figuring out ways to play the rules, and once the rules are available they'll have three years.

Mr. Bykerk: I'd like to finish up with one last comment. Some might say why aren't you sharing what you have. Students, two years ago, were inquiring whether they should take this, or should I do this, and so forth. We're saying, just go ahead and do what you were doing before. Forget about the new system. You can work it out. It will be fine in the end. We put principles out there, but we didn't want to put rules out there that would cause somebody to change directions, write this exam versus that exam, then later come back and say I did this because I thought you were going to do that. Then we would have a problem.

Mr. Steve J. Kopp: First of all, let me say I support the direction the Society is taking with the exams. I think it's much better than the current system, simply because we're going to have better educated actuaries. The one question I do have is regarding statistics. Currently, we have two exams on statistics, Course 110 and Course 120, which is Applied Statistical Methods. In the proposed design, statistics will be one of the subjects a candidate should know, but will not be tested on it, other than probability, which will be in Course 1. I never thought much about this until I went to some Actuary of the Future sessions at this meeting. In those sessions, they were talking about nontraditional roles for actuaries: commercial banking, investment banking, and even actuarial aspects of loan guarantees. All stated that actuaries will be up against professionals who have a good statistical or

econometrics background. I'm not saying that we should test it, but I am asking what type of statistics courses should we be suggesting our university level students take? Is it just an introductory one? Should it be mathematical statistics? Should it be two or three courses?

Mr. Brown: We have Course Four, "Methods of Actuarial Modeling" and Course Seven, "Applied Modeling Intensive Seminar." They could both be called statistical modeling with actuarial applications. When I teach material on risk theory, credibility theory, loss distribution, and severity distributions, I tell my students who, in fact, are in a department of statistics in a faculty of mathematics that they are learning how to apply statistical modeling to actuarial problems. I don't do that apologetically. You will not graduate as a new Fellow with less statistical capability. In fact, you will graduate as a new Fellow with more statistical capability.

Mr. Brandt T. Brock: I don't know if something like this has been done, but what would help me to understand the changes is a comparison to what's out there now. Is there something like that available?

Mr. Beckley: We have prepared a preliminary mapping between the old courses and the new courses for the board. It's preliminary at this point. Other than the first couple of exams, it's hard to do a very detailed mapping, but there is a general mapping that we did do for the board.

Mr. Brown: I wanted to add something. We forced ourselves to not start with the existing syllabus. I believe very strongly that one of the reasons you think this is good is because we didn't start with an existing syllabus and tinker with it. We started with a blank page and said what do we need for the actuary of the next century. We've never thought in terms of what's in the old syllabus, and where is it in the new syllabus. Jeff's right, until we actually sit down and say this particular discipline is going to fall into this area, we can't do a legitimate mapping. So, in a sense, I don't feel apologetic in telling you we don't have a good answer to that question.

Mr. Brock: I guess from a user/consumer perspective it's hard for me to evaluate what's not there, or what is there, without a comparison. I can appreciate you starting from a blank page, and that's probably the thing to do, because you don't want to be encumbered by what's already there, but as far as communicating that to your user, that may be a good tool.

Mr. Beckley: I would envision that perhaps in the communication to the membership in 1997 there would be such a mapping or something similar.

Mr. Brock: The other question I wanted to ask was alluded to a little bit earlier, and that is how frequently will these exams be offered? What's the thinking there?

Mr. Bykerk: We haven't determined that. I would envision that certainly the first couple are going to be offered at least as often as are offered now. The other ones, I don't know if they're going to be offered twice a year or once a year. We haven't gotten that far. We may be able to give all exams at least twice a year. We don't know that for sure yet.

Mr. Brock: I would encourage that, so people don't get stuck having to wait a year. Sometimes that happens.

From the Floor: A couple of comments on communication, one on content, and one with regard to methodology. A couple things to consider in your next communication to the membership is dredging up some of the old issues, such as travel time. I think travel time can possibly be enhanced. The other is to place the new syllabus in the context of continuing education, not with the professional development section. It certainly allows someone to segue into a lifetime learning process. I think that would be very positive.

One comment on content. I see, and have noticed, that ethics is a portion of the Course 8 investment section. There are also specific ethics issues related to each of the practice areas, or at least multiple practice areas for Course 8, and I would encourage the design team to consider this issue.

As far as methodology, one of the things that I'm aware of is there is a dearth of relevant research work in the North American continent relative to the number of actuaries, certainly in comparison to what exists in other international organizations within the actuarial profession. I would like to suggest expanding professional development to include components used by those organizations, such as a Fellowship paper which would address issues of being able to organize thoughts and how to communicate those thoughts.

Mr. Thomas J. Hruska: I feel a little bit like the young child who had yelled out that the emperor had no clothes. I am one of the folks who is fairly far over on the strongly disagree side on most of these questions. I've been recruiting actuaries for close to 15 years and as I look at this proposal, particularly the first exam, I believe it's going to seriously reduce the size of the recruiting pool. I think, in part, the task force has misunderstood the pool of candidates from which we draw. As the report says, the mean age of those first taking the exam 100 is 24.3 while the median is 22.5. This suggests that there are many adults who are entering the actuarial

professional well after completing their formal schooling. This approach would cut those off.

I was one of those late bloomers who took the first actuarial exam at 31. I don't think that I would even consider the actuarial profession under this new program. While I could go back and review calculus, it would be utterly intimidating to be required to review calculus, learn probability, and then begin studying for an exam.

One of the professed goals of this new program is to produce a profession with broader backgrounds. If we're going to do that we should continue to encourage career changers to consider the actuarial profession. Because of the accessibility of the first exam, my company has a former political scientist, former high school math teacher, and an M.B.A. on staff. Let's continue to make the actuarial profession attractive to those who need to make a career change. Even students who are still in college will be discouraged from considering the actuarial profession. The present system allows people considering the actuarial profession to take an exam without making an overwhelming commitment of time and effort. They've taken calculus somewhere in the past and they can manage time to review that. We will lose many bright students who simply don't have the time to review calculus and probability and study unfamiliar material in order to see if they might be interested in an actuarial career. If we also expect them to know micro and macro economics, marketing management, accounting, law, and we do like computer skills, then this is not going to be an attractor exam, it's going to be a repeller exam.

Let me also suggest one other thing. It seems to me that this program is designed to be a full employment program for the faculty of the actuarial schools and it will discourage mathematics majors. It will discourage mathematics majors who are not among the privileged few who attend those schools. Yet it seems unlikely that it will attract many business majors, because they lack the necessary mathematics background. By largely limiting access to the profession, we will further shrink the pool of candidates and reduce the diversity of the profession.

Mr. Bykerk: I certainly appreciate your thoughts. We don't feel we have favored the actuarial schools. We are saying there are a number of subjects people should have as part of their preliminary education, which is why we are not going to test those areas in Course 1. With respect to Course 2, we have looked at this exam as a second attractor for the business student who is sophisticated in mathematics and economics. I certainly appreciate that you have your viewpoint, but would disagree that's going to happen.

Mr. Beckley: I would comment on never taking another exam. I think the percentage is 55%. That's who pass and never take another exam, not ever pass another

exam, never take another exam. The student who takes our Course 1, as proposed, basically has to know calculus, has to have had one course in probability, and has to be willing to spend the time to read a 10- or 20-page study note, or read a few pages in a risk management book that describes risk management terms. Basically anyone who knows what a deductible is and coinsurance is, is going to be able to take the first exam without going out and studying a collection of risk management terms or risk management. The person who emerges is going to have a better feel for what he or she is going to be doing as a professional than someone who takes a current Course 100, 110, 120, and perhaps 130 and 140. I would seriously disagree that the direction we're heading is the incorrect direction. Someone who is interested in the actuarial profession, but who is not willing to spend three or four or five hours to read a short study note that describes the risk management terms, and who doesn't have calculus and one course of probability, is 55% of the time going to be one of those people that never takes another exam after the first two. I just disagree.

Mr. Brown: One of the things that I tried to work on in the design and principles of the new syllabus was to create a syllabus where the people that I have in my program at the University of Waterloo would want to stay. We lose some really good people with the existing syllabus. We lose creative people. We lose people who, in fact, like math, but don't want to spend the length of time that is now necessary. They want to get to integration, creativity, and business applications sooner and faster. Maybe Steve wants to talk about Western, or somebody can comment from another campus, but I can tell you that right now we are losing some of our best candidates because of the existing syllabus.

Mr. Joseph Paesani: Having worked with the Actuary of the Future Task Force, I'm very pleased with where we are with regard to education on this principle-based approach. I think it makes sense. The materials that are going to be behind this syllabus are going to have to be a little more inclusive and absorb some of these principles that underlie the exam. One of the areas where I think flexible education fell short was many of the exams were still a textbook here, a study book there, pieces put together as opposed to a comprehensive package to really drive home the philosophy behind the exam. I'm just wondering how you see those processes changing as this new syllabus comes in to provide that kind of material.

Mr. Bykerk: It's not going to be easy to develop material, and it's not going to be easy to develop exams that do not contain pieces and parts. There is still the tendency to want to take a piece or a part.

Mr. Brown: That's one of our toughest challenges. We obviously have three years of hard work ahead of us. One of the goals, which is a top priority, is to have

synthesis and integration. We're going to work hard to attain that goal, and we'll probably be calling upon you, and others, to help us.

Mr. Michael Gerard DeKoning: We employ probably about 50 students in the Toronto and Waterloo area, and one of the advantages that we find in the 1990s, when resources are crunched, is the flexibility of the system that we have. I think the integration of the material, the fundamental principles, everything that you're talking about makes a better actuary, but the reality of the business world is that the flexibility of the present system has many advantages to the employer. One thing that was discussed, that was interesting was the percentage of people who actually employed actuaries versus the people who didn't employ actuaries. I'd like to suggest the board task force do a comprehensive survey of employers of actuaries, because they are our bread and butter. I would strongly encourage you to survey heads of consulting firms, heads of insurance companies, and chief actuaries of companies, so that we obtain a strong voice.

Mr. Bykerk: If I could just comment on that for a second, we didn't set out in the beginning to put all the exams back together. It happened when the design team sat down. When the team had finished it went to the board task force with this design which contained eight exams. We were surprised that was how it ended up, but, in any case, it had to do with some of these things that we talked about, the integration and so on. When we exposed it to the Executive Committee in Baltimore, a year-and-a-half ago, there was this collective applause from members who are employers and who sit on the board, because they have seen many problems develop. Travel times slowed down. The average number of hours taken has gone down and travel time is lengthening. Someone who might be inclined to take 30, 40, or 50 hours will think I'm going to be competing against this guy that's only writing 10 hours. So it has created other problems. When we exposed this to the full board we got exactly the same kind of response and these are employers of actuaries. Now I'm not saying there might not be other employers that feel exactly like you do, but to the extent that we've done surveys, we have not encountered anything of significance from the employer segment. Where we have encountered disagreement is from individuals who have chosen different lifestyles and have been able to progress and pursue the exams, but while still maintaining parental responsibilities and other commitments unrelated to their profession. That's probably where the most significant opposition to it comes from. It has not come from the employers.

Mr. Brown: I want to assure you that your point is very well taken. We have worked very hard to keep in touch with employers. In particular, there's an entity called Actuarial Circles that is made up of chief executive officers (CEOs), not all of whom are actuaries, but CEOs of companies who employ actuaries, not just

insurance companies. We specifically went to them, exposed our ideas, called them, and spoke to them, so we have worked very hard to keep in touch with the employer side of the equation.