

RECORD OF SOCIETY OF ACTUARIES 1975 VOL. 1 NO. 4

FUTURE EDUCATION OF THE ACTUARY

Moderator: EDWIN B. LANCASTER. Panelists: HAROLD G. INGRAHAM, JR.,
PETER W. PLUMLEY, ANNA MARIA RAPPAPORT, WILLIAM H. SCHMIDT

1. Structure of education committees of the Society
2. Basic education
 - a. Restructured Fellowship examinations -- purpose and background
 - b. The Alternate Route
 - c. The actuarial clubs' contribution to basic education
 - d. Associateship examinations -- need and relevance
3. Continuing education
 - a. Purpose and current status
 - b. The academic community's contribution to continuing education
 - c. The actuarial clubs' contribution to continuing education
 - d. Comparison with continuing education programs of other professional organizations
4. The future outlook
 - a. Changes in environment that demand changes in educational needs
 - b. Education committees' ability to respond to change

Structure of Education Committees of the Society

MR. PETER W. PLUMLEY: Education has always been viewed as one of the most important functions of the Society of Actuaries. Article II of the Constitution, which gives the origin and purpose of the Society, states in part that the Society's objects are "to advance the knowledge of actuarial science and to promote the maintenance of high standards of competence and conduct within the actuarial profession." The Society has always held its education committees in particularly high esteem, and I hope will continue to do so in the future.

The Society of Actuaries was created in 1949 by a merger of the American Institute of Actuaries and the Actuarial Society of America. Prior to the merger, the examination systems of these two organizations had been combined. By the late 1950's, it had become apparent that there should be a thorough review of the education and examination system in order to bring it into line with changing conditions. A committee headed by Gilbert W. Fitzhugh studied the system and made certain recommendations which were implemented in 1963. With minor changes, the 1963 syllabus is still in existence but, beginning in 1976, it will be changed extensively at the Fellowship level.

The need for unity in the actuarial profession, which resulted in the merger of the educational and examination systems in the 1930's, recently has been recognized again, with the result that the Society's examinations now are sponsored jointly by the six North American actuarial bodies. It seems certain that these six bodies will have an increasing voice in the education of actuaries in the future.

As the education and examination system has developed over the years, the committee structure has expanded and become more complex. When the Society was first formed, there were about 70 people serving on the Education and Examination Committees. Today, about 300 people serve on four major committees, two of which have numerous important subcommittees.

The Education and Examination (E&E) Committee is charged with administering the Society's examination system and developing the educational material to go with it. To do this job, it has, in addition to the seven general officers, a Part Committee for each of the Parts, as well as numerous consultants and multiple-choice item writers.

Some years ago the Society formed an Advisory Committee on education and examination in order to provide the E&E Committee with an independent perspective on educational matters. One of the advantages of having this Committee is that a number of persons from the academic community, who are disqualified from serving on the E&E Committee because of their contact with actuarial students, have been able to serve on the Advisory Committee to very good advantage. The Committee also includes former General Officers of the E&E Committee, and others who are in a position to make a contribution. This Committee has no responsibility for day-to-day management of the education and examination system, but its advice carries considerable weight with respect to recommendations made to the Board of Governors by the E&E Committee.

A relatively new education committee within the Society is the Committee on Continuing Education and Research. This Committee, which includes eight sub-committees, is charged with providing members the opportunity to further their actuarial education beyond that required for attainment of Fellowship. This Committee has held research seminars, sponsored teaching sessions, published reading lists, and sponsored the various special purpose spring meetings held by the Society in recent years.

The final committee listed among the education committees is the Committee on Standard Notation and Nomenclature.

Today, our education committees face numerous challenges. The continuing increase in the complexity of the world around us has brought challenge both to the E&E Committee and to the Committee on Continuing Education to keep their courses of reading and other educational materials up to date. We have seen an increasing number of challenges by those who seek actuarial education for us to make our education relevant to them in their work. The emergence of the American Society of Pension Actuaries (ASPA) is an indication of some of the problems we face in this regard.

Another problem we are faced with arises from the emergence of the American Academy of Actuaries and the use by it of our examination system. We are presently in a state of flux with respect to the structure of the actuarial professions in North America, and the education and examination system is one of the keys in resolving this matter. To create a system that will satisfy Canadians without overburdening Americans, and that will satisfy pension actuaries without overburdening life insurance actuaries, is a challenge to the sharpest minds.

Finally, we are faced with the challenge that the world around us is changing significantly in many different ways. Unless the Society of Actuaries is to be merely another insurance organization, it must be recognized that actuarial training can be valuable not only for the purpose of calculating insurance premiums, non-forfeiture values, and the like, but also can be used in many of the emerging disciplines in the increasingly complex world of today. The challenge facing the education committees, therefore, is to provide educational materials to members of our profession which will enable them to apply their science to the broadest possible areas of endeavor in the future. This is what we are here to discuss today.

Basic Education

MR. HAROLD G. INGRAHAM, JR: The present Fellowship examination structure was implemented in November, 1963. Over the past 12 years, the syllabus topics within each examination have been altered to only a very minor degree; no fundamental changes have been made.

About five years ago, the then General Officers of the E&E Committee re-examined the Fellowship examinations to evaluate the degree to which they were fulfilling their original goals and to identify certain problems that had emerged with respect to the examinations. For example, examination administration was somewhat cumbersome. In many subject areas students were compelled to study material twice--once at the basic level and then later at the more advanced level. Also, it was felt that subject matter could be grouped more logically by function, which would then permit students to concentrate more on actuarial principles and less on memorizing extensive details.

In addition, one specific objective of the 1963 restructuring was to reduce "travel time" through the Fellowship examinations. It was decided that the re-introduction of twice-a-year examinations would help achieve this result. However, over the past decade studies of travel time from attainment of Associateship to Fellowship show no evidence of reduction, except perhaps for the very best candidates.

Four new Fellowship examinations will be implemented beginning in the spring of 1976. The philosophy underlying this restructuring can be summarized as follows:

1. The syllabus has been oriented to principles, with illustrations of these principles drawn from the various types of coverages--life insurance, health insurance, and annuities, both individual and group. The focus on principles is also in direct response to the justifiable complaints relative to the current plethora of "nit-picking" questions.
2. The restructured examinations will enable the student to commence immediately after completion of the Associateship examinations to pursue in depth the subjects most relevant to his chosen field of actuarial science. At the same time, however, the student who changes his specialty will have the opportunity to reflect such a change in his selection of remaining Fellowship examinations.
3. A principles-oriented syllabus should avoid the repetition inherent in the present Fellowship examinations.
4. The syllabus is intended to follow a logical pattern of development. This was addressed in developing the system of four examinations. Part 6 deals with Assumption of the Risk (types of coverage, underwriting, marketing). Part 7 is concerned with Maintaining the Risk (investment of assets, valuation of liabilities). Part 8 consists of syllabus material relative to Paying for the Risk (gross premiums, distribution of surplus, and pension funding). And, finally, Part 9 might be best described as an examination on the World Outside (law, taxation, life insurance accounting, and social insurance).
5. Placing the emphasis on principles has permitted the syllabus to be so constructed that new topics can be absorbed more easily.

One of the paramount goals in developing the new Fellowship examinations has been to improve the course of reading and, specifically, to de-emphasize detail. For example, the syllabus on social insurance has pruned out much of the history of the various social insurance programs, now focuses heavily on the theory and principles underlying these programs and directs the student's attention to current and future problems and issues. Also, in the investment area, the textbook on money and banking has been removed from the syllabus and subjects such as macroeconomics, security analysis and portfolio management have been added. A new study note tying together financial reporting principles has been prepared. Law and accounting material applicable to both the U.S. and Canada has been developed so as to provide students in both countries with sets of material covering basic principles, in addition to specialized details with respect to their particular country.

Each of the examinations will consist of one set of general questions and two sets of specialized questions. For Parts 6, 7 and 8, one set of specialized questions will cover individual insurance and annuities, and the other set will cover group insurance and pension plans. This has been described as the "I" and "G" routes (abbreviations for Individual and Group).

Part 9 will be structured differently than Parts 6-8. For Part 9, there will be a "common core," with study material and questions thereon, and separate sets of specialized questions relating to U.S. and Canadian study material.

It is important to keep in mind that under this new examination structure and syllabus there will be no requirement that students take exclusively the "I" or exclusively the "G" route through Parts 6, 7 and 8.

Transition arrangements will be in effect beginning with the May, 1976 examinations and extending through the November, 1978 examinations. Fractional credits toward the new examinations have been determined and granted for Fellowship examinations already passed under the present system. Candidates with fractional credits must make up the missing fractional credits during the 1976-1978 transition period. Beginning with May, 1979 only full examinations will be given, and any credit for fractions of examinations will be forfeited.

Three fractional parts are applicable to Parts 6 and 9, and two are applicable to Parts 7 and 8. Parts 7 and 9 will be administered in the spring; Parts 6 and 8 in the fall.

The Part Committees essentially are staffed to full complement--currently (October, 1975) 138 committee members. This compares with 120 Fellowship examination committee members (including multiple-choice item writers) listed in the 1975 Yearbook--a 15% increase.

There are, of course, a number of interesting challenges as yet unfaced. For example, the Canadian Part 9 examination will be given and graded in French, as well as in English.

We cannot assert conclusively that the new Fellowship examinations will truncate materially the aggregate "travel time" from Associateship to Fellowship--although it is a fact that there is one less examination to take. Probably the answer will not be forthcoming for another ten years. However, I think it is fair to state that the new syllabus is responsive, that it does update actuarial education to current practice, does possess a more logical arrangement of material, and does provide a greater degree of flexibility for appropriate future changes.

MR. WILLIAM H. SCHMIDT: When the American Academy of Actuaries was established in 1965, two of the sponsoring bodies which did not then require the passing of any examinations as a condition of membership agreed to keep pace with the Academy's requirements in this regard. The Fraternal Actuarial Association resolved this problem by limiting future entrants to Fellows of the Society of Actuaries. Early in 1969, the manner in which this problem would be resolved by the Conference of Actuaries in Public Practice came under discussion. In due course, the Academy Board authorized their then president, Wendell Milliman, "to appoint a committee which shall, in co-operation with an appropriate committee of the Conference, study the feasibility of allowing applicants who hold Masters' Degrees in Actuarial Science from 'accredited' institutions to sit for a comprehensive examination in lieu of taking the individual examinations now required for Associateship in either the Society of Actuaries or the Casualty Actuarial Society." Thus the concept of the Alternate Route was born.

The Society membership received their first official notification of the "Alternate Route" concept in a report presented by Edwin Lancaster at the annual meeting in 1969. At that time, Ed mentioned that the so-called Alternate Route would produce relatively few new members at the outset. However, in order to introduce more experimentation into the education and examination process and as a first step in achieving greater involvement of institutions of higher education in the actuarial education process, the development of the Alternate Route idea was felt to be worthwhile.

In the Fall of 1970, it was realized that the Alternate Route would not be wholly successful unless it was adopted by the Society. At the same time, the work of the Academy Committee was being publicized in the Society. A panel presentation on the Alternate Route concept at the annual meeting in Denver was followed up by panel and floor discussions at the 1971 Spring meetings. There were also numerous discussions on the pros and cons of the proposal at actuarial club meetings.

Subsequently, the Advisory Committee concluded that the Alternate Route would be a desirable development if practical solutions could be found for the many problems foreseen. Accordingly, an ad hoc committee, under the chairmanship of Harry Garber, was appointed early in 1971 with the rather unusual charge of ignoring the pros and cons of the Alternate Route and concentrating on how best to implement it, if the decision were made later to proceed with the approach.

The Garber committee submitted its report to the Board of Governors in the Fall of 1974. It was then referred to the Advisory Committee, which met for two days in March of this year to discuss the entire matter. This meeting was attended also by the liaison representatives of the various actuarial bodies--who, in recent years, have been added to the Advisory Committee for just such a purpose.

In the course of this discussion, the major arguments in favor of the Alternate Route seemed to be:

1. At the present time actuarial science programs are geared largely to the current Society of Actuaries examination structure. An Alternate Route might free faculties to try innovative ways of treating the subject matter and innovative techniques in solving some of the problems.
2. The Conference of Actuaries in Public Practice includes an Alternate Route to membership in its by-laws.
3. The Canadian Institute of Actuaries properly is concerned with the problems of its French-speaking students. The Alternate Route might help in solving such problems.

The Garber Committee Report confirmed the feasibility of the Alternate Route, and recommended the following approach:

1. College actuarial programs would be "qualified" by the Society based on overall quality of, and commitment to, actuarial education, the size and composition of the staff, the courses offered, and the adequacy of the library and computer facilities. Programs leading to bachelors' degrees as well as programs leading to masters' degrees would be eligible for "qualification."
2. Persons who (a) attained a degree at a college with a "qualified" program, (b) completed a minimum prescribed list of courses, and (c) achieved a grade point average (GPA) in these courses at or above a level prescribed by the Society would be eligible to take a six-hour Comprehensive Examination. The minimum GPA in (c) will vary from college to college and could vary over the years for a given college.
3. The Comprehensive Examination would be given once each year, in May or June. Persons passing the Comprehensive Examination would receive credit for Parts 1 through 5 of the Society's examinations. Anyone who failed the Comprehensive Examination would have an opportunity to take it a second time.
4. The Society would establish two committees to administer this program. The first committee would be responsible for the qualification of actuarial programs; the second would be responsible for the maintenance of comparable standards under the Alternate Route and the traditional route.

The Advisory Committee, after much discussion, passed two resolutions: (a) approving "in principle" the Alternate Route to the Associateship degree, (b) recommending consultation with other actuarial bodies, and establishment of the two committees mentioned in the Garber report.

These actions were then referred to the Joint Committee on Review of Education and Examinations. In the meantime, in order to determine current interest in the Alternate Route, the Advisory Committee went ahead with three questionnaires which were sent, respectively, to recent Associates, employers of actuarial students, and the academic community. Returns are still coming in, and, although not yet completely analyzed, they do not seem to indicate any tremendous enthusiasm for the Alternate Route.

On the first of this month, the Joint Committee met in Chicago, with the Alternate Route as the principal item on its agenda. Several interesting points were brought out at this meeting:

1. The Casualty Actuarial Society is upgrading its ACAS degree to require 7 exams. It is, therefore, no longer interested in the Alternate Route for its ACAS degree.
2. For new members, the Academy, Canadian Institute, and the Fraternal Actuarial Association each require the passing of all the Fellowship examinations in the appropriate professional society.
3. In the UK, the Institute is upgrading its Associateship degree to require all of the examinations, with the Fellowship degree being granted later, after some years of experience.

4. Both the Institute and the Faculty will waive exams, depending on attainment of acceptable grades in certain courses at certain schools. However, "membership" (except perhaps with a "Student" designation) is not so granted. The maximum waiver would cover roughly the subjects that are contained in our first 5 examinations.

To sum up, then, the current status of the Alternate Route is:

1. It is again under active consideration, though no decision has been requested of the Board.
2. My own feeling, a personal one, is that something will evolve though it may be less than the full Alternate Route, i.e., perhaps waiver of certain exams with satisfactory grades in appropriate courses.
3. Another feeling, again, strictly personal, is that the Society of Actuaries should re-examine its ASA degree in the light of current practices in our sister societies.

MRS. ANNA MARIA RAPPAPORT: Our discussion of the involvement of actuarial clubs in education for students might best be started with a question: Should the clubs have a role and why? I believe they should have a role because most actuaries take all or most of their examinations while employed full-time. Education must be tailored to fit an employment schedule. The clubs, as the local professional organizations, can most effectively provide educational opportunities for the student in the local area.

In order to find out what programs are being sponsored, the Executive Director of the Society sent a questionnaire to all actuarial clubs, asking for information about their programs that are designed to assist students who are preparing for the examinations.

Of the clubs responding, only one indicated that it is involved in organizing study groups. The New York area club has tried to organize study groups for a number of years but the program was discontinued several years ago for lack of interest.

A number of clubs hold classes, or work with universities in the local area. The following is a summary of the programs reported to us:

New York - classes are run by the club for Parts 2-5. In addition, there is a review session on pension mathematics.

Boston - classes are run by the club for Parts 2-10.

Hartford - the University of Connecticut runs classes for all Parts. The club cooperates with the university and helps them to secure instructors for the classes.

Philadelphia - Temple University runs classes for various Parts of the Associate-ship examinations, and the Wharton School has a class on life contingencies. The club does not sponsor these programs, but provides information to the membership regarding their availability.

Atlanta - the area needs are met by the Georgia State program.

Minneapolis - The University of Minnesota provides a course in life contingencies. The club maintains liaison with the university.

Los Angeles - The club sponsors a program at Claremont College. The program involves a class in compound interest and life contingencies. (The Occidental runs classes for their own employees.)

Southeastern Club - this club was instrumental in setting up the Georgia State program although they have no formal involvement with the program today. Georgia State offers one and two week seminars for Parts 1-7.

MR. INGRAHAM: The purpose of the Associateship examination syllabus has always been to equip actuarial students properly with the appropriate mathematical techniques needed to solve practical insurance or pension problems requiring the application of these techniques. However, the shifting mathematical needs of our profession seem to reflect a continuum of change, whereas the Associateship examination syllabus appears to some to reflect these changes sluggishly and belatedly.

Affirmative action has been taken by the E&E Committee during the past few years, relative to the Associateship examination syllabus. Risk Theory was moved from Part 10I to Part 5. Numerical Analysis was substituted for Finite Differences on Part 3. Increasing emphasis has been given in Numerical Analysis and Graduation to applications of Matrix Theory and basic concepts of Linear Algebra.

The feasibility of including Data Processing as an Associateship syllabus topic remains a moot question. To the extent that Data Processing can be regarded as an extension of the overall discipline of handling and interpreting numerical information, a strong case can be made in favor of inclusion--possibly involving knowledge of an actual programming language such as APL. Those against inclusion generally state that Data Processing training is essentially vocational, and its inclusion would conflict with the philosophy that a professional education should be based on principles and theories, rather than on methods and practices.

In recent years there has been considerable passionate discussion among those in E&E Committee services, as well as actuarial academe, relative to the elimination or retention of Part 1. Those in favor of retention argue that it serves as a valuable recruiting, screening and public relations vehicle. Those in favor of its elimination argue that its inclusion increases travel time, the examination is basically irrelevant to the actual work of the profession, and appropriate selection can be achieved on what are now Parts 2-4. Currently there seems to be about a 50-50 split in opinion on this subject.

In 1974, a review of the Associateship examination structure was begun by a study group consisting of FSA's and FCAS's appointed jointly by the then General Chairmen of the E&E Committees of both Societies. The approach used by this study group has been to classify the mathematical content of the existing syllabus of Associateship examinations of both the Society and CAS, and to identify other topics that might be suitable for inclusion, according to the following categories:

1. a common core of basic actuarial mathematics
2. mathematical and other applications in life actuarial topics
3. mathematical and other applications in casualty actuarial topics

One important consideration in this regard would be whether or not the Associate-ship examinations should be structured so as to include all the basic mathematical topics on the earliest examinations, with subsequent branching into life and casualty examinations. Alternatively, should a number of examinations be developed with a common core of basic topics and with life and casualty specializations--for example, a common morning examination session on Theory of Interest and Elementary Contingencies with separate afternoon specialty sessions involving Life Contingencies for Society candidates and Rate Making and Non-Life Contingencies for CAS candidates.

The principal advantage of the first approach is that it would permit the candidate to defer, to the latest possible point in the examination process, the decision as to whether to elect the Life or the Casualty route. Another important advantage would be the much simpler administration involved in including only common subject matter in examinations given on a joint basis, as opposed to the joint administration of a common core and specialty branch combinations. The only significant disadvantage of including all the basic mathematical topics in the earliest examinations is that it could result in certain examinations being comprised of dissimilar topics--as is the case currently on Part 3 with Numerical Analysis and Theory of Interest.

With respect to the subjects of life contingencies and rate making, it might be desirable to attempt the development of a generalized theory of risk contingencies, on a probabilistic rather than deterministic basis, to which life, pension and casualty would represent particular applications. I suspect that implementation of this concept would represent an extremely ambitious undertaking.

Continuing Education

MR. SCHMIDT: The need for continuing education is self-evident in every profession. The qualifying requirements for admission invariably constitute a minimum standard for permission to practice as a professional. As "professionals," it is incumbent on each member to stay abreast of his field, particularly in his area of specialty. Further, he will often wish to acquaint himself with developments in allied specialties within his field.

The pressing need for more emphasis on continuing education for the actuarial profession culminated in the creation of the Committee on Continuing Education and Research in 1969. It should be mentioned, however, that the Committee on Research, under the original leadership of Ed Lew, had been then in existence for several years.

The Committee on Continuing Education and Research consists of the Chairmen of eight principal committees, each of which is "responsible for the development of continuing education and research within its area of interest, including literature research and revelation, encouragement of new literature, and the planning of appropriate seminars and meetings." The eight committees are, respectively: Committees on Computer Science, Economics and Finance, Health Insurance, Life and Health Corporate Affairs, Life Insurance and Annuities, Retirement Plans, Research, and a brand-new one responsible for Social Insurance.

Each Committee works closely with the Program Committee as required, to assist in planning topics, concurrent sessions, and workshops in the area of their special oversight. Also, most of the committees have planned Teaching Sessions at the general meetings of the Society.

For the last five years, one of the three Spring meetings of the Society has been

a specialized one, planned by the Program Committee and one of the Continuing Education committees, to meet the specific needs of the profession. In this way, Adjusted Earnings, Retirement Plans, Marketing, Health Insurance and (for the second time) Pensions have been given in-depth treatment over the past five years.

The Committee on Research has the most formal, on-going "continuing education" program among all the committees. Annually, for many years past, it has teamed up with some university - and, in some cases, other professional societies - to sponsor a seminar on a specific topic.

In addition, the Committee on Research produces ARCH, the informal, relatively unedited, publication which seems to fill a genuine need for many members of the Society.

The various committees contribute occasional articles to The Actuary. Each committee also has prepared a Reading List in its field, and keeps it updated. These are available from the office of the Society. Some committees also have reviewed papers, periodicals and books for the Transactions, and a few special papers have been prepared for submission to the Committee on Papers.

The executive officers of the Society of Actuaries have, without exception, seen the need for continuing education, and have been pushing the Committee on Continuing Education and Research to become even more involved.

For example, our committees could be doing more in:

1. Production of literature in the form of papers and/or textbooks.
2. Research - e.g., by the Committee on Economics and Finance on the impact of the long-term investment outlook on reserves and pension funds.
3. Sponsorship, with the aid of universities (and perhaps other professional organizations) of seminars in areas other than mathematical ones.

However, part of the problem lies in the fact that we really do not feel the need to continue to be educated. Moreover, it is extremely difficult to get busy people who have the knowledge of the latest professional developments to find the time to share this knowledge with others - particularly if it means writing a paper.

If the Committee on Continuing Education and Research is to continue to grow towards the goals of its originators, it will need a constant inflow of experienced members like those now serving in the various committees, - people willing to share their knowledge and expertise with their professional associates.

As to the academic community's contribution to continuing education, we really should find additional ways to tap this vast resource. My feeling is, however, that its help will be principally in areas parallel to, or supportive of, our professional specialties. Although I am sure there are exceptions, in my opinion the frontiers of knowledge in most professional actuarial areas - e.g., the impact of GAAP, pension or group practice, new products, etc. - will continue to be the province of the practicing actuary. Speaking from personal knowledge, (and I think I am at one of the better insurance academic institutions in the United States) I know how far out of touch I have become in the five-plus years since I left corporate actuarial work.

What the academic community does best is: (a) to educate and (b) to engage in basic research. For example, the Program Committee has frequently tapped the academic community for key speakers to make significant addresses to the entire membership at Society meetings. On the second point, the Actuarial Research Fund will, I am sure, be looking to the academic community to submit proposals for basic actuarial research that needs funding.

Probably the biggest contribution should come from a cooperative effort at continuing education through the arrangement of seminars on a variety of topics. At Georgia State, for example, our Division of Continuing Education puts on seminars fairly frequently for the general business community, and these usually involve a faculty drawn from both the university (including other campuses) and from specialists actually practicing in the business world. As I mentioned above, this type of endeavor should be one of the things to which the Committee on Continuing Education and Research should be addressing itself over the next several years.

MRS. RAPPAPORT: I believe that actuarial clubs should be involved in continuing education as well as student's education. Continuing education is one of the more valuable services which a club can provide for its members. When we surveyed the actuarial clubs, requesting information concerning education for students, we also asked them about their continuing education activities.

The major sources of most educational activity at actuarial clubs are the speakers and panel discussions at regular club meetings. These allow relatively short coverage of current subjects, but preclude in-depth coverage of either actuarial or non-actuarial topics. The New York Actuaries Club has had an extensive program of workshops and seminars, and now is exploring a program which will provide continuing education in non-actuarial areas at the New York University (NYU) Graduate School of Business. Two clubs other than New York reported holding special meetings--a two day seminar on ERISA, and a full day special meeting on GAAP.

The New York club activities have been of three types--a series of evening lectures with an instructor, a full day workshop on a specific topic, and a full day teaching session. These activities have been very successful, and in several cases the programs have been repeated. Topics for the courses have been:

1. Fundamentals of Pension Mathematics - offered in 1971, 1972, and 1974, to be repeated in 1976. This course led to the book on pension mathematics by Barnet N. Berin, first published under the sponsorship of the Continuing Education Committee of the New York Actuaries Club, later published by the Society of Actuaries.
2. Risk Theory - a series of five two-hour lectures by Hilary Seal in 1972 and 1973.
3. Property and Casualty Insurance - offered in 1973.
4. Group Dental Insurance - offered in 1973.
5. Marketing the Life Insurance Product - a series of five lectures, offered in 1973.
6. Investments - a course on the actuarial aspects of investment taught by Irwin Vanderhoof in 1974, scheduled for a second session in 1976.

Three all-day teaching sessions have been held:

1. Federal Income Taxes - session oriented to taxes from the viewpoints of running a business, and engaging in business planning.
2. GAAP - session on implementation problems of GAAP, run by actuaries from a company that had pioneered in implementing GAAP.
3. Mass Marketing - session designed to introduce various ideas about mass marketing and the potentialities in that area. Conducted by a consulting actuary, a marketing consultant, and an actuary of a company that specializes in mass marketing.

The all-day workshop sessions were on agency profitability, expense control, actuarial aspects of agency problems, management information systems, and persistency.

The agency profitability workshop was followed up by a study group that met periodically under the auspices of the club to discuss approaches to profitability measurement. The group met over an extended period of time, and various members worked on designated assignments.

The New York Actuaries Club has an active Continuing Education committee, and plans to continue to offer programs similar to those outlined above. Club members are surveyed periodically as to their interests, so that programs are responsive to the current needs of the club. Usually there is a requirement that a similar program should not be available elsewhere.

To date, the continuing education activities of the club have centered on specific, limited actuarial topics. They have not provided opportunities for actuaries who wish to expand their horizons to new areas, or for actuaries who want in-depth education in related areas. Recently it has come to the attention of the club that a university program available in the New York area is well suited for that purpose.

NYU Graduate School of Business offers an Advanced Professional Certificate program. This program was designed for the MBA or other individual with an advanced degree who may want further specialized training in either a new or related area. The certificate requires taking six related courses in the Graduate School of Business. The Continuing Education committee of the club currently is having discussions with NYU faculty members regarding adaptation of the program to the needs of actuaries. We expect within the next year to announce the availability of this program to our members. Areas of concentration will include advanced statistics, information science and operations research, marketing, economic forecasting, business planning and accounting, and finance and taxation. The course combinations can be customized to the needs of the individual.

MR. PLUMLEY: Comparing the continuing education programs of the Society of Actuaries with those of other professional organizations is a bit like comparing apples with oranges. The continuing education needs and capabilities of an organization vary directly with its size. It is very difficult to find any other professional organization that is comparable to the Society in size, and in the type of continuing education needed.

Being a lawyer, I started my research on this subject with a phone call to the American Bar Association (ABA). As a starting point, it is worth taking a moment to summarize the continuing education effort of the legal profession.

Continuing education for the lawyer can be found at various levels. Generally, a lawyer may belong to three bar associations, the ABA, his state bar association, and a local bar association. Each has its own continuing education programs. Each year the ABA has 10 or 20 one or two day seminars. State and local bar associations each have their own programs. In addition, the Practicing Law Institute holds some 300 seminars each year throughout the country. Many law schools have continuing education programs of their own. Finally, there are proprietary organizations which also hold programs.

Similarly, the American Medical Association has extensive programs of continuing medical education which are available to doctors of all specialties. I think we would agree that such programs are essential for the continuing maintenance and upgrading of skills of the medical profession.

I would like to discuss a couple of developments in the field of continuing education which could have implications for the Society of Actuaries sometime in the future. Both are already taking place in the legal profession and in other professions as well.

The first is mandatory general continuing education. Two states, Minnesota and Iowa, have a requirement that if a lawyer is to continue to be allowed to practice law there, he must meet a minimum requirement of continuing legal education. In Minnesota, he must have 45 hours of continuing education, spread over a three-year period. In Iowa, he must have 20 hours per year. In Minnesota, the State Board approves the courses, and the ABA seminars, for example, are approved as meeting a certain number of hours of continuing education.

It should be emphasized that neither of these states require that the continuing education be in any particular field of law. The expectation is, however, that most people will use the required hours to sharpen their skills in the fields of their specialty.

California and Florida, on the other hand, recently have set up a requirement that in order to be listed as a specialist in a particular field of law, a certain number of hours of continuing education in that particular specialty are required. In California, three such specialties have been established--criminal law, taxation, and workmen's compensation. In Florida, there are 22 such specialties, plus the category of "general practice." You do not lose your right to practice law in those states if you do not meet the continuing education requirements, but you do lose your right to be listed as a specialist in a particular field of law if you do not continue to maintain your skills in that field.

A representative of the ABA told me that in many professions there was a general trend toward mandatory continuing education programs of one type or another. I think that this is a very interesting development, one that has implications for the Society of Actuaries. As our profession becomes more complex, and as the body of knowledge continues to expand, it could well be that at some time in the future we should require individuals who are to continue to call themselves actuaries to meet some minimum requirement of continuing education.

First, however, we must establish sufficient continuing education programs so that any such requirement actually could be met. Although attendance at a Society meeting might be one way to meet a portion of such requirement, I doubt that we could ever justify expelling people from the Society just because they did not attend some of our meetings. At the same time, I think that someday we may want to question whether or not the businessman who has long since lost

interest in actuarial work should continue to consider himself qualified as an actuary unless he meets some requirement for a continued association with the profession through continuing education.

The Future Outlook

MR. EDWIN B. LANCASTER: The changes in the exam syllabus over the years, especially the most recently announced changes, and the expanded efforts of the Committee on Continuing Education and Research, are no more than a reflection of changes that have taken place within our profession and within the insurance and employee benefit plan area. The dynamic nature of the insurance-pension-employee benefit plan area guarantees a steady stream of future changes and this, of course, will present quite a challenge to all those who will be devoting their time to the education and examination activities of the Society.

Since we are dealing with the financial security of individuals, we must keep a close eye on developments in society at large so that we can detect trends that might have an impact on our profession.

It would be interesting to trace the effects of one of the major developments of the '70's - some people might call it consumerism but I prefer to characterize it as the right of individuals to be informed about what affects them - on the insurance business, our profession, and education.

Of course, the most obvious and immediate effect of this consumerist movement was the various cost comparison methods and indexes for individual life insurance policies. A substantial amount of debate has taken place on this subject and we have witnessed a gradual change to different cost and payment indexes by just about the entire industry. A great deal of information about individual companies' practices on dividend illustration and dividend calculation methods has surfaced and some of the information that has been made available is being scrutinized carefully by both regulatory authorities and members of our profession. It is likely that all of this is going to have far-reaching effects for the insurance industry and our profession, and there is no doubt that at some point the exam syllabus will have to include significantly more material on this subject than it does now.

The demands of individuals to know more about their pension coverage led to the Employee Retirement Income Security Act of 1974 (ERISA). Certain aspects of the Act have already found their way into the syllabus of our Fellowship examinations, but I am sure that, as the Act goes through its evolutionary stages, even more material on ERISA will trickle into the syllabus or later phases of the actuaries' education.

The desire of individuals, as investors, to know and understand more about the financial conditions of stock insurance companies led to Generally Accepted Accounting Principles (GAAP) and a whole new area of professional interest. GAAP, in turn, led to a close examination of the entire area of Financial Reporting, an examination that is still going on very actively at the highest levels of our profession. The fundamentals of GAAP have found their way into the syllabus, but aspects of all the work currently being undertaken on valuation of liabilities, minimum levels of surplus, financial reporting principles for Canadian companies, etc., will ultimately end up as part of the future education of the actuaries.

On a more indirect note, consumerism, by making more information available to

individuals, and in combination with the forces exerted first by inflation and later by recession, has led to more intense competition for insurance and pension funds. This, in turn, has tended to open up the investment world to actuaries. The ability of actuaries to communicate with investment people has become all-important. Some revisions already have been made on the syllabus in the area of investments and a great deal of work in this area is being done by the Committee on Continuing Education and Research.

So we see how one development in the '70's - admittedly major by any standards - has led to a host of new areas of activity for our profession, and how it has changed (and will further change) our educational needs.

It is evident that more changes are imminent.

With ERISA and actuarial certification, the word "actuary" has come to the forefront. We must make sure (by making it part of our educational program) that future actuaries understand better than ever before the heavy burden of their responsibilities to the public and the need for integrity and independence.

As companies engage in all-lines business, whether directly, through reinsurance or through subsidiaries, life actuaries will have to expand their horizons beyond life and health insurance and pensions. The entire question of surplus accumulation, retention, and distribution must be examined differently than in the past.

The entire area of equity should be re-examined in light of new and different forms of investments, increased competition, and new kinds of products. Allocation of investment income and expenses will take on added importance in our everyday activities and this will necessitate additional efforts in this area.

Continuation of inflation at its present high rate will require a brand new outlook on the make-up of our products and methods of their distribution.

I am sure there are many other areas that will be opened up as an extension of developments in the outside world.

MR. INGRAHAM: One's response to the question of changes clearly depends on what one expects the actuary's future role to be. Let us assume that this role will broaden substantially rather than retreat toward the narrower, classical definition of actuarial work.

There are two diverse trends in motion--a need for increased specialization in an expanding number of fields, and a broadening of the actuary's areas of responsibility. How can we meet these needs simultaneously through our educational system? I believe the restructured Fellowship examinations take a long stride forward in this regard, since the split route approach helps to meet the need of increased specialization while flexibility for broadening and adding to topics and areas covered is increased.

There are a number of areas that are not covered or are covered inadequately in our syllabus and they will require attention sooner or later. For example, to name only three:

1. Life and Health Insurance

Actuaries must become increasingly involved with the complexities of business insurance marketing. Employee Stock Ownership Trusts, Jumbo Split-

Dollar cases and Section 79 situations are just three current examples. There will be an increased use of test-marketing programs and a need for sharper analysis and quantitative measurement of results.

The long-range impact of continuous inflation requires better quantification. This places an increased importance on long-range planning relative to product pricing and marketing.

2. Investment of Life Insurance Funds

This is an area where the new Fellowship examination syllabus has been improved materially. Tomorrow's actuaries must be equipped to analyze the corporate impact of various investment strategies and portfolio mixes on surplus, cash flow and yields.

3. Social Insurance

There never has been a time when the influence of actuaries was more needed in the management and long-range cost implication analysis of social legislative programs.

Numerous additional examples are set forth in the Plumley/Rappaport paper, "The Education of the Actuary in the Future."

The authors have made a number of important suggestions for consideration. They recommend more cross-studying of material using generalized models and I believe this is the approach that will be given intensive study by the MacGinnitie committee.

The authors also perceive the possibility of additional Fellowship examination options at some future date (for example, inclusion of new product lines such as variable life insurance and casualty insurance). The structure of the new Fellowship examinations will facilitate this more easily. They further recommend consideration of a new research-oriented course of study, available to either A.S.A.'s or F.S.A.'s who wish to specialize in certain specific areas. It would be geared particularly to actuaries in essentially interdisciplinary fields and would significantly involve the universities.

While I completely endorse this latter recommendation, I hasten to point out that, for the foreseeable future, the thrust of educational change within the Society education and examination framework comes from an "in house" volunteer commitment of many F.S.A.'s. The professional rewards stemming from such service are incalculable and obviously redound to the benefit of one's employer. Nevertheless, it should be pointed out that this "in-house" system does exact a rather heavy toll on the time of the actuaries involved, many of whom also shoulder major responsibilities with their firms.

Perhaps Walter Miller best synthesized my concerns in this regard in his remarks in 1972 on a panel discussion of "The Future of the Profession," where he stated:

"As far as the actuary's later education is concerned, I believe that our present in-house system is excellent. We should try hard to continue it on the present basis, but I am frankly quite pessimistic as to whether we will in fact be able to do so. If we are to succeed, we must have more involvement among our own membership. The people who have participated in efforts to get our new study notes written and adequate material prepared in connection with our continuing education program know that this is a very difficult process indeed. If we continue to have these difficulties, I fear for the future of the in-house system."

Comments

MR. HENRY E. BLAGDEN: I started my actuarial career in Great Britain and am an Associate of the Institute of Actuaries. I am aware that, unlike the U.S. where the demand for actuaries exceeds the supply, in Great Britain there has been for years a surplus of actuaries which prompted the Institute to explore other fields of endeavors in which the analytical training of the actuary would make him eligible to make a contribution. In exploring alternative routes, we might profit from the experience the Institute of Actuaries has had along similar lines.

MS. ELSBETH T. ERBE: Bentley College in Waltham, Massachusetts has developed over the past year and set into operation this September our country's first para-professional program for training actuarial support personnel.

This program is sponsored by Bentley's Center for Continuing Education, which meets the specialized educational needs of the general public and the nontraditional student. It was established in cooperation with practicing Boston actuaries and attorneys and is designed to meet employment opportunities in both pension and life insurance areas. The stimulus for development of the program was passage of the Employee Retirement Income Security Act of 1974, which has created a need for support personnel to help the pension actuary meet his greatly increased professional responsibilities.

The program is expected to attract persons already at work in the field who may need formal education in certain areas, as well as mathematically-oriented persons otherwise employed or unemployed and considering career changes.

Prerequisites are two years of college, or two years of work experience, or the recommendation of one's employer and a solid grasp of fundamental algebra.

Foundation courses being offered this fall are: Fundamentals of Pension Administration; Fundamentals of Life Insurance & Annuity Administration; and Elementary Actuarial Mathematics. Actuarial Mathematics for Pension and Life Insurance is to be added in the spring.

Advanced courses scheduled for next spring are: Pensions - Employee Retirement Income Security Act of 1974 (ERISA); Pensions - Actuarial Funding Procedures; Life Insurance - Accounting & Related Aspects; and Life Insurance - Advanced Life Insurance Administration.

The faculty has been selected from professionals in the pension consulting and life insurance fields, and from the Bentley College Department of Quantitative Analysis.

Successful completion of six courses (four foundation and 2 advanced) will qualify the student for a Para-Actuary Certificate. It is expected that graduates will be involved in technically oriented activities and in the interpretation of these activities into language that can be understood by a wide variety of employees.

