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DIGEST OF DISCUSSION OF SUBJECTS OF SPECIAL INTEREST

GROUP LIFE AND HEALTH INSURANCE

1. *Disclosure*
   A. Will the new disclosure forms increase company costs substantially?
   B. What criteria are appropriate for a breakdown of retention?
   C. What effect will the new requirements have on future new-business specifications, on company record-keeping, and on the allocation and determination of general overhead? Are they likely to create more interest in self-insurance?
2. *Interest*
   A. Have higher interest rates stimulated policyholder interest in the level of claim reserves?
   B. Is there increased demand for new-money credits on claim reserves or that interest credits be paid directly to the policyholder?
3. *Group Life Maximums*
   A. Has Section 79 lessened the demand for amounts of group life insurance in excess of $50,000?
   B. Have the final regulations developed increased interest in removing amount limits from state laws or in absolute assignments of individual certificates?
4. *Disability Income*
   A. Is the liberalized social security disability definition compatible with that in outstanding disability income plans? Is the definition being adopted by new plans?
   B. Is there a tendency to take social security disability benefits into account by basing plan eligibility on earnings?
   C. What changes in benefit design are in prospect for disability income?
5. *Title XVIII*
   A. What has been the effect of the elimination or reduction of coverage for those 65 and over on loss ratios? What methods have been used for adjusting premium rates on (*a*) in-force cases and (*b*) new business?
   B. Are "supplement" plans or "co-ordinated" plans more popular when providing medical expense insurance for employees over age 65? How are benefits being provided for dependents under 65, for those not electing Part B of Medicare, for those traveling or residing outside the United States, and for those receiving treatment in nonqualified hospitals?

C. For coverage on those under age 65, is there a demand for service-type hospital expense benefits, for nursing-home expense benefits, or for "reasonable and customary" fee plans patterned after Medicare?
D. How are coverage and claims administration affected by the change in billing practices for hospital-based physicians?
E. What effects are Medicare coverage and pricing practices having on hospital and medical care cost trends?

6. *Title XIX*
A. How will the implementation of Title XIX affect the market for group health insurance? In the future, will eligibility provisions under private plans tend to be consistent with those adopted by a state for Title XIX?
B. How can policyholders and the public best be educated about the cost and other implications of Title XIX expansion?

MR. DONALD D. CODY: Under current regulations for the Welfare and Pension Plans Disclosure Act, a revised U.S. Department of Labor Form D-2, providing annual financial information, must be filed by administrators of plans covering 100 or more participants at some time during the year. The revised D-2 is required for plan years ending on or after December 31, 1966. For smaller plans, a shorter Form D-3 is used, unless the Department of Labor specifically requests a D-2.

Insurance companies must provide certain new information to administrators so that the D-2 can be completed and filed within 150 days after the end of the plan year, which usually is the policy year. The insurance company does not have to supply information for the D-3 form.

Strong objections have been raised with the Department of Labor with regard to the scope of retention information on the grounds of irrelevance and expense. The thrust of the objection is that the policyholder buys benefits guaranteed by the insurance company, that the proper concern of the disclosure legislation should be with the premiums paid reduced by dividends or rate credits, and that the reporting of confidential, technical information regarding insurance company operations is of little real value to policyholders and participants and is likely to add serious confusion. Nevertheless, the Department of Labor has promulgated the new D-2.

The expense of providing detailed information depends greatly on the manner in which claims and transaction information is routinely developed for each case for dividend and rate credit purposes. In our case, we believe that our new D-2 routine procedures will add less than a clerk annually, because we develop all the necessary detail for dividend pur-

poses. We supply D-2 information to about 1,000 policyholders having at least 75 employees insured in the last month of the policy year.

Our procedures were developed with the intent to respond earnestly to the purposes of the regulation but, at the same time, to keep our expenses to a minimum by using dividend-calculation data and commission records as presently available. The information required for D-2 is similar to that which we routinely give our policyholders on request. We felt that there was no reason in cases of this size to use Section D, which was apparently designed for carriers keeping no claims information by case.

As to certain details of items for Part III of the new D-2 form, the following summary of what we now plan to support may be of interest to those directly involved in their own company planning:

1. Commissions in Section A. Table 2 will, as before, be on a cash basis for the period.
2. Premiums in Section B, on line 4(d), are on an earned basis directly from our dividend calculations. No amounts will be entered on lines 4(a), (b), and (c), since they are not readily available.
3. Claims on line 5(a) are those paid, including state statutory cash sickness assessments and cash value payments to group paid-up life terminating employees.
4. Changes in Claim Reserves on line 5(b) will be footnoted to include the amount of change in other reserves, such as cost-stabilization reserves and actuarial reserves.
5. All items in line 6(a), Retention, are on an accrual basis, as they are credited or charged in our dividend formula. Commissions, both first-year and renewal, appear as charged. Expenses include both administration expenses and amortization of acquisition expense. Charge for Risks and Contingencies includes realized risk charges. Other Retention Charges, which may be negative, balances the sum of the items to produce Total Retentions, which is equal to the Premium minus Claims minus Dividends. Other Retention Charges, therefore, reflect the effects of interest, claims-pooling, and recovery and incurral of deficiencies.
6. Thus, lines 4, 5, and 6 will balance.
7. We note, in connection with line 7 items, that the reserves are not policyholder reserves but simply represent charges for outstanding future liabilities in the dividend development.
8. Our reporting form contains only such lines as are on the D-2 form, so as to facilitate transcription by the administrator.

As to the final question under the topic of disclosure, it is probable that some policyholders not already requesting a sophisticated breakdown of retention will have questions concerning the more detailed information furnished. The extent of this additional service is problematical at this time. We hope that our group field men, who will be given detailed in-

formation regarding the new D-2, will be able to handle many of these questions as a part of routine service.

I expect that specifications for new plans may frequently be more sophisticated in the area of smaller cases, but, for larger cases, much of the D-2 type information is already requested.

We do not expect that any further record-keeping will be necessary in our case. I doubt that any implications with regard to self-insurance will develop.

Interest

Several years ago, there was much interest in cost-plus-no-claim-reserve arrangements, minimum premium arrangements, and self-insurance arrangements, because of the desire of employers to keep their working capital at a maximum. Insurance companies, with the aid of the NAIC and state insurance departments, undertook with considerable success to justify the reasons and necessity for proper claim reserves, reflecting the true liabilities for the outstanding claims.

However, although claim reserves are no longer generally looked upon as being unnecessary deceptions, policyholders, who must pay over 5 per cent for money, are naturally concerned about interest credit given for such funds in dividend or rate credit formulas and frequently raise questions about such credits.

To put this problem in perspective, one must consider the net investment income (after federal income tax) earned on assets held against claim reserves. It is impractical for insurance companies to use investment-year methods for each group insurance case. The investment income available is thus based on investment income allocated to the group insurance line as a whole. If this income, before federal income tax, is at a rate of about 4.75 per cent, federal income tax would typically be about 2.00 per cent, so that the net rate after tax is about 2.75 per cent.

Insurance companies generally appear to credit claim reserves in dividend formulas with interest in the area of 2.75–3.00 per cent, but, on the face of things, this does not impress policyholders. One wonders why, because our policyholders must borrow today at 5.5–6.5 per cent, which, after tax deductions, reduces to about 2.75–3.25 per cent. I think that we have not brought to our policyholders' attention the fact that our credits and their borrowing costs are in the same ball park.

It might also be noted that, although dividends and rate credits are computed in many ways and with various specific factors by companies, aggregate rate credits and dividends determine the gain or loss of the group insurance line. We are not free to grant interest credits directly or indirectly in excess of net investment earnings after federal income tax.

Title XVIII

Prior to Medicare our medical care average rate reflected the age distribution of the group; after Medicare we merely adjusted the age factors for age 65 and over to reflect the savings anticipated from integrating with Medicare.

Some of our small cases are actually billed in age groupings or even age by age, and we reflected Medicare savings in the rates for persons in the higher age groups. Rate reductions on in-force cases were scheduled for July, 1966, premium statements. We, of course, took account of the ages of the spouses, because most active employees aged 65 or over had wives under 65 who are not covered by Medicare.

Our rate-adjustment program was designed to produce the same loss ratio after Medicare as before Medicare, but it is too soon to know whether we have attained that objective.

Our basic design is an integrated plan, rather than a supplementary benefit plan, for co-ordinating with Medicare. In the Part A area, the benefit design applies our formulated policy benefits to the reduced hospital charges after Medicare payments, with, however, a control on private-room charges. In the Part B area, we subtract the Part B Medicare benefits from our benefits and pay the balance. In this, we are somewhat different from most companies. We wanted to give our field men a program under which employees would get at least as much with Medicare and our benefits as they did before Medicare from our benefits alone. We have had a rather remarkable result from this planning. We have received signed riders from 92 per cent of our group and baby group policyholders. Among those from whom we have not received riders are negotiated groups that are not yet free to reopen bargaining. We have very few policyholders who chose an elimination approach or a supplementary plan approach, which are also available for certain classes of business.

Our integration approach continues normal coverage for dependents under 65, for Medicare eligibles traveling or residing outside the United States, and for persons receiving treatment in hospitals not qualified under Medicare but otherwise fitting our policy definition.

We do not yet know what the nonqualified hospital cost will be, but we feel in the long run that it probably will not be significant.

There has been some increase in service-type hospital benefits since Medicare. Also, since July of 1966, we have received requests for nursing-home expense benefits at a 13 per cent higher rate than earlier. In August we introduced a new major medical plan patterned after Medicare, Section A, on a spell-of-illness basis, and Section B on a typical major medical

basis, and this has received some attention. There have not been many sales, but there have been some. We think that this is a part of future planning.

In the area of billing practice for hospital-based physicians—anesthesiologists, radiologists, and so forth—we are continuing to pay for them under the hospital coverage except in the major medical area, where all professional fees are in the doctor-fee area.

It is apparent from medical care cost trends that an increase is imminent, as a result of several factors:

1. The traditional effects:
   a) Increased desire of the public to utilize medical care.
   b) Inflation in the dollar affecting wages, fees, and costs of equipment and buildings.
   c) Increases in general industrial productivity affecting costs through wage increases in service organizations, like hospitals, where efficiency is not improved in any marked degree from such improved productivity.
   d) More expensive medical equipment and procedures inherent in medical progress.
2. Increased bargaining power of nonprofessional medical personnel.
3. The changed hospital cost-accounting procedures under Medicare, which will lead to increased room-and-board charges without appreciably offsetting reductions in other charges.
4. The examination of pricing practices by professional medical personnel as a result of Medicare, which will probably lead to higher fees.
5. The extensive construction of hospital and nursing-home facilities, leading to availability of more beds that must be filled at the expense of the public and their insurance companies.

The important question is how fast and where these increases will come? No doubt the increases, though countrywide, will appear locally, city by city, and group case by group case.

The pattern of annual increase in claim costs in recent years has been perhaps about as follows:

	Per Cent
Basic medical care plans (with dollar limits)	4
Basic medical care plans with supplementary major medical	6
Supplementary major medical alone	10
Nonsupplementary major medical	8

We hear about 30 per cent increases in hospital room-and-board rates effective at one time. Such increases would cause considerable increase in claims levels in insured plans. I hope that there will be discussion from the floor in this area.

MR. WILLIAM W. KEFFER: The questions proposed for our consideration today illustrate the broad range of the factors currently having significant impact on the conduct of the group insurance business. I would like to comment on the matters of higher interest rates and the economic conditions causing them, disability income benefits, and briefly on the new disclosure requirements.

Higher Interest Rates

These higher interest rates need to be considered in the broader context of the economic climate giving rise to them. In fact, for the group insurance business, it seems to me that they are a relatively less important factor than a number of the other elements of this economic climate.

We are essentially in a war-economy situation, not unlike the World War II days in the forties in its effect on group insurance, although I was otherwise occupied at the time and cannot make the comparison from direct experience.

There is a strong demand for goods pressing on production capabilities, with resultant pressure on prices and expansion of production facilities. One economist's figures show an operating ratio in manufacturing at 93 per cent, which is very high and comparable to the highest level reached during the Korean War.

There is a demand for workers exceeding those available in many categories, with the resultant pressures on wages and costs and ultimately on prices. The most recent seasonally adjusted unemployment rate that I have seen was 3.8 per cent, and you do not have to tell anyone in Hartford that this is low. We are competing with a major plant in the aviation industry and a major producer of firearms for Viet-Nam, and they tell me that ten words a minute will get a typist a job. Help-wanted advertising nationally is running 25 per cent ahead of a year ago and 85 per cent higher than 1958.

On health insurance, we are also told to expect substantial increases in the costs of medical care under the influences of this inflationary economy and the new government programs that have been introduced.

Most of us are contending, then, with a greater volume of business as a result of inflation and union and management efforts to obtain more adequate coverage, we have increased costs, and we have the problem of maintaining adequate standards of service in the face of the help shortages generated by these same conditions. We also have the real challenge of attempting to project the trends that we are seeing into the future as we make our business decisions. I think that the average group insurance actuary would say that he is spending a great deal more time on these matters than he is on the impact of higher interest rates.

In fact, I was talking with an investment man from one of the major companies a week or two ago. He was explaining to me that, in his younger and more outspoken days, he had horrified his actuarial colleagues by saying that he did not see how the average young man could buy anything like the amount of conventional permanent life insurance needed and that there ought to be a greater variety of term insurance plans and higher amounts of group insurance available. His point was that, in the intervening thirty years or so, this has, in fact, occurred—a considerable expansion of term insurance and group insurance—and that, in these days of tight money with such things as severe drains on policy loans, the term and group products are relatively unaffected, and the companies are fortunate that they have them in the volume that they do. It was nice to be able to agree with this gentleman on the value and importance of our group lines, but I did quickly explain that these coverages were, in fact, very greatly affected by the current state of the economy.

We are not, however, currently seeing any unusual policyholder interest in the level of claim reserves. I think, perhaps, that the attention paid to claim reserves in the last year or two, as a result of proposals for avoiding them by one means or another, may have resulted in a considerable degree of education on this point for our policyholders, at least the larger and more sophisticated ones.

The previous proposals have been discussed at some length in actuarial councils, and I do not propose to go over that ground again. Whatever their values may have been, however, they must be categorized generally as reducing the value of the insurance plans to the customer and his employees. In turn, this may have been a basis for seeking reductions in what the customer paid for the insurance. The trouble with this is that, if this road is taken, the ultimate is *no* insurance plan, for which the customer obviously pays *nothing*. None of us are in that business.

My impression is that this activity has died down and has not been significantly reactivated by the high-interest situation. I attribute this to the relative success most of us in the group business have had in explaining to our group clients and prospects the need for these reserves and the value of the guarantees provided by them.

Of course, higher interest rates and "tight money" tend to focus attention on any funds in the insurer's hands. But our experience to date has been that this attention has taken the form of seeking assurance that the amounts held were properly computed and not redundant with respect to the liabilities and contingencies against which they are set aside. In other words, there does not seem to be any significant question about the principles involved in establishing such reserves, merely some checking of method and computation. This is a normal part of the continuing trend

in our business, as in others, in the direction of knowledgeable buyers' wishing to be sure that their money is working hard for them.

We are seeing some occasional inquiries from brokers and employers on how we can help with cash-flow problems. Here again, these people have seemed to me generally to appreciate that, when it comes to tight money, we are all pretty much in the same boat, and insurers have no magic source of cash contrary to the general trend. They also seem to accept that group insurers are dependent on investment income for a portion of the funds necessary to operate our businesses and to provide for risks and contingencies and that our charges in premium rates and experience rating take this investment income into account. We have not felt that a "year of investment" approach made a great deal of sense in considering investment yields on the types of funds generally held under group insurance policies, and I do not know of anyone who has really quarreled with us on this as yet.

Disability Income

The liberalized social security definition of disability in effect replaced a program requiring total and permanent disability with a temporary disability approach. Instead of requiring that disability be of long-continued and indefinite duration, the definition now refers to "inability to engage in any substantial gainful activity by reason of any medically determinable physical or mental impairment which can be expected to result in death or has lasted or can be expected to last for a continuous period of not less than twelve months." There is a six-month waiting period for eligibility.

Taken literally, this definition remains somewhat more restrictive than that generally applied by my own company and most other insurers. It is customary to provide a period of perhaps one or two years during which an employee may be considered disabled if unable to perform the duties of *his* occupation, even though he may be able to engage in some other occupation. I understand that, in practice, we are not finding any significant incompatibility with the new social security definition. On the other hand, there is no significant demand that the new definition be used rather than our own, probably because of the more liberal occupation interpretation available under a strict interpretation of the insurance company language. In practice, it is recognized that disability is difficult to define and to determine, and insurers have historically administered these definitions on the basis of reasonableness.

For the usual long-term disability plans, social security benefits now provide continuance of a very significant portion of the income lost by

lower-paid employees. An extract from the Health Insurance Association's *Medicare Bulletin*, of November, 1965, shows the following:

Average Monthly Earnings after 1950	Primary Disability Benefit	Maximum Family Payment
$399–$403.........	$135.90	$309.20
$549–$550.........	168.00	368.00

Although the maximum benefits will not generally be payable until persons establish eligibility under the new higher wage base, a person earning $400 per month could get a family benefit while disabled of as much as 75 per cent of this amount. The recent proposal by the President would presumably further increase these benefits.

Since it is customary to integrate benefits with social security and since benefits provided by the plan would often be quite low at the low end of the earnings scale, it is common to base eligibility on earnings, or on occupational classes, which will limit coverage to those for whom it can have a significant value. There may alternatively be provision for a minimum plan benefit regardless of the integration, where this seems reasonable from an underwriting point of view. It is also common to make sure that the portion of premium paid by the employee, if any, is reasonable in relation to his expectation of benefit under the plan after integration with social security.

Regarding changes in benefit design, we are finding an interest in higher maximum benefits as a proportion of earnings—70 per cent or more, including social security, not being uncommon. There is also interest in special provision for rehabilitation programs, where a portion of the benefit would be continued during the rehabilitation period, perhaps determined by integration with a portion of the rehabilitation wages. There is a trend toward integrating benefits with the full social security benefit, primary and family.

Disclosure

Briefly, on disclosure, we are hopeful that, if reasonable interpretations can be placed on the new Section B, costs for complying with the new requirements will not be greatly increased. The breakdown of data, particularly with respect to the remainder of premium, or retention, is often not appropriate to the purpose of the form, and, in fact, not available from present records on a case-by-case basis. The retention may not be determined in accordance with the breakdown set forth in the form.

This is illustrated when we consider a deficit situation on a particular case; it would seem impossible to complete the form in the prescribed manner. As yet, we find no interest in self-insurance as a result of these form changes.

MR. RICHARD J. MELLMAN: With respect to the effect of the group life taxation regulation, it may still be too early to detect any trends as yet, because, although the law was passed in 1964, the final regulations were released only a few months ago—in July—and many policyholders, brokers, and insurance companies are probably still studying them.

Thus far, we have seen no evidence of lessened demand for amounts of group life insurance in excess of $50,000, and I do not expect any. The cost tables in the regulation are quite reasonable, and it would appear that employees will still be just as much interested in receiving insurance amounts that are realistically related to their earnings. I do think that we may see increasing interest in reallocating employer and employee contributions among the various coverages of a benefit plan. By reallocating contributions, the employer may be able to achieve a more advantageous tax position for his employees. However, in most cases there will not be any simple solution that will help each and every employee, although it may be possible to improve slightly the total tax position of all employees, considered in the aggregate. The reason why there is only limited latitude for reallocating contributions is that all benefits do not vary proportionately by earnings. Medical benefits, for example, are generally the same for all employees. Loss-of-time benefits, accidental-death and dismemberment benefits, and life benefits, even when they are provided under an earnings plan, may truncate at different levels of earnings. In general however, a trend appears to be indicated for employee contributions to be shifted from the life insurance coverage to the other coverages to some degree.

Because amounts of group term life insurance in excess of statutory limits do not qualify for the exemption, there has been increased interest in, as well as increased justification for, removing or increasing amount limits in state laws. However, it would be naïve to expect that all state limits will be increased to at least $50,000. We can still expect some opposition to any liberalization of state group life maximums.

We have seen no increased interest in absolute assignments of individual certificates. This whole area of absolute assignment seems to be one that has little substance, although it is discussed quite a bit. The situation is very cloudy at both the federal and the state levels. Back in 1964, the LIAA had some discussions with the IRS about it and submitted

a brief at that time. A definitive IRS ruling has been expected, but nothing has as yet appeared. There are, at the present time, a few court cases pending in the federal district court. The problem seems to be that some people in the IRS feel that there are certain inherent incidents of ownership in group insurance which cannot be assigned; for example, the employee always has the right to quit his job, in which case his coverage may be terminated. The situation with regard to state laws is also cloudy.

Turning to the disability income topic, I would like to discuss this very briefly, because much of what I have to say agrees with what Bill Keffer has already told us.

1. Our claim people make exactly the same comment that Bill made regarding the compatibility of the two definitions.

2. I do want to deplore the trend toward richer and richer benefits, which I am sure many of us have noticed developing in specifications. Today we see many requests for plans that will provide benefits greater than 100 per cent of take-home pay and, in fact, sometimes greater than 100 per cent of gross pay. You do not have to be a Fellow of the Society to recognize that such a plan is unsound. We have seen requests for 70 or 75 per cent of earnings; for no nonduplication with social security disability benefits or for nonduplication with only the primary benefit; or for a minimum benefit of $50 or $100 a month, regardless of other benefits. The net effect for certain earnings brackets can be excessive insurance.

One of the reasons for such requests is that a conventional plan provides relatively small benefits to employees earning less than $6,600. A better solution to this problem, however, would be to use a scale of employee contributions which steps up for earnings in excess of $6,600.

Our program lists two questions regarding Title XIX. First, in respect to its effect on the market for private group health insurance, it is important to distinguish between the natures of Titles XVIII and XIX. Title XVIII is a social program, under which the government pays benefits first as a matter of right and under which private insurance, if provided, supplements the government coverage. However, Title XIX is a welfare program, under which people who are needy receive medical assistance from the state. Thus, in a Title XIX program, any private insurance pays first. Dr. Ellen Winston, U.S. Commissioner of Welfare, Department of Health, Education, and Welfare, has stated (in Goldsmith's *Washington Insurance Newsletter* [August 29, 1966]):

> While Medicare is an insurance program, Title XIX is a social welfare program. The people who will benefit from the latter are those receiving public assistance and that portion of our population living on marginal incomes. These people usually do not have hospital or medical insurance—and aren't likely to have it—simply because they cannot afford it.

The problem arises when a state establishes a definition of medical indigency that sweeps in a large proportion of the insured working population. In New York, for example, it is not permissible to establish eligibility provisions under private plans that are consistent with the Title XIX eligibility provisions. However, under a contributory plan the employee can still decide whether he wishes to continue to contribute or drop out of the plan.

In answer to the second question, "How can policyholders and the public best be educated about the cost and other implications of Title XIX expansion?" informing the policyholders seems to me to be far simpler than getting the message across to the public. The HIAA Actuarial and Statistical Committee has a Subcommittee on Evaluating Cost of Government Plans. This subcommittee, chaired by Dick Hoffman, has been very active in recent months. It performs an extremely valuable service in furnishing cost estimates to state legislators.

The tough problem is how to get the story across to the public, because the emotional appeal is concentrated on the other side. If you live in the New York area, you have no doubt seen the television spot announcements on the New York Title XIX program. These television programs compare free government-paid-for medical care with out-of-pocket medical care. You would never realize that much medical care is paid for by insurance benefits. Let me illustrate the point this way. In New York State, approximately eight million people are eligible for Medicaid under the Title XIX program. If we look at the upper four million of this eight million group, we see that over 92 per cent now carry some private health insurance. Our problem is to demonstrate to the people who have the resources to buy private health insurance that they are better off with private health insurance than with a government program.

MR. WILLIAM A. HALVORSON: I am going to limit my prepared remarks to the future of group long-term disability plans. The framework for these remarks must be set for historical purposes on this pre-election eve of 1966.

1. Social security benefits, including Medicare, are very likely to expand, and these benefits are, or will be, extended to disability claimants under social security. (Those of you who saw a five-minute interview with Representative Ford, the House minority leader, and Senator Long, the Senate majority whip, on a morning television show less than two weeks ago probably heard Representative Ford quote Senator Mansfield, Senate majority leader, as saying that the 1965 Congress passed too much

legislation too fast, with many holes and inconsistencies, while Senator Long said that never in the history of the United States has any Congress done more for more people. After criticizing hasty action by the 1965 Congress, Representative Ford expressed his regret that the 1966 Congress did not act on increasing social security benefits following a flurry of such suggestions made by both parties during the final week of the 1966 Congress.)

2. As social security benefits for disability claimants expand and the definition of what qualifies as a disability for social security administration purposes is liberalized, as it was in 1965, it becomes more difficult for an employer and his insurer to maintain his own plan as an independent entity because of the necessity to reduce the employees' plan benefits by social security benefits and because of the constant conflict between the definitions of disability at various durations of disability as desired by the employer and insurer and as used by the Social Security Administration office.

Against this background, it seems to me that there are several important things for employers and insurers to do, as outlined below:

1. Their long-term disability plans should be expanded to provide reasonable benefits to all regular employees, whether such employees are currently insured and eligible for social security disability benefits or not. Such benefits for short-term employees might bear a reasonable relationship to the length of service of the employee prior to disability, as has been recognized in most pension plans and many large employer short-term disability plans. Obviously, such benefits should be co-ordinated with all other sources of income due to disability or retirement available to the claimant, so that total benefits received meet at least minimum requirements under the circumstances but are not excessive.

2. The employer and the insured should be firm and also intelligent in maintaining their own definition of disability, irrespective of what awards might be made under social security. This has both short-term and long-term importance:

a) During the initial stages of a disability, the employer might very well want a broader definition of disability than that of social security, and most contracts reflect the employer's wishes to provide benefits during the claimant's inability to perform each and every duty of his regular occupation, while the social security office probably could not, and perhaps should not, approve many of these disabilities.

b) In the long run, the employer and the insurer should be primarily interested in meeting real needs of the totally disabled employee, but their emphasis should also be on making realistic efforts to rehabilitate the employee to a productive capacity. It is in the rehabilitation area that I believe the employer and the insurer must take and maintain the lead, because they are in the unique

position of best understanding the total personality and circumstances of the claimant and can similarly provide the personal and financial incentives needed to accomplish rehabilitation.

Why do I believe that broadening of benefits and eligibility, while maintaining independence in defining disability and rehabilitation claimants, is needed? I must sidetrack here a bit to quote from the 1939 discussion of "The Changing Economic Functions of Government."[1] "The aim of society," according to one of the participants, "is the promotion of the common welfare." Government is a most important and powerful agency in achieving this result and has positive and beneficial contributions to make. He continued: "If political democracy and economic liberalism [or free enterprise] are to survive, it will be because they can prove their capacity to meet the problems of today." His clincher was: "Government must be admitted as a partner if it is not to be a master."

In view of the expanding role of government with respect to long-term disability benefits, we might conclude that we have no choice but to let it be our master. But we should never forget that, with respect to administration of liberal and long-term disability benefits, government is going to find that it needs the employer and the insurer as its partners and, perhaps, as the actual administrator of its own programs. Private industry can provide the maximum of efficient and intelligent administration. The competitive nature of our insurance business and of the employers' businesses demands efficiency of administration and the elimination of abuse as much today as in the late thirties (when this fact was recognized by the recommendations of the TNEC). Dr. Howard Rusk, chairman of the Department of Medicine and Rehabilitation at the New York University Medical Center, recently commented that the employer is an "unbelievably important member of this rehabilitative team." Wendell Milliman said the same thing at a 1946 symposium on responsibilities for national health, when the subject of governmental plans was also a hot subject. Thus, I believe that insurers and employers can and must lead the way in administration of long-term disability plans.

I would like to turn our attention now to the question of what professional actuaries can do and what our responsibilities are with respect to long-term disability benefits:

1. We should tell employers what the probable future cost of long-term disability benefits will be and give them at least some crude idea of how high costs could get, if past experience is any guide. (It has occurred to me that many long-term disability (LTD) plans are designed and even priced by

[1] Ernest L. Bogart, *Annals of the American Academy of Political and Social Science*, CCVI (1939), 5.

nonactuaries and purchased by employers with no real appreciation of the cost potential, somewhat reminiscent of early comprehensive major medical days.)

2. We should insist on sound underwriting, including a financial commitment and involvement by the employer. A slight decrease in employment could cause the beginning of the old "assessment spiral" on employee-pay-all LTD plans, which seem to be so popular currently. The threat of such a spiral is always present on benefits with age-cost curves as steep as those for LTD, but the danger is heightened by the fact that lower-paid employees (usually the younger employees) might find little benefit from the plan after benefits are reduced by the social security benefit offset.
3. The actuary can design plans and contracts with reasonable financial incentives for rehabilitation of claimants.
4. We should construct experience-rating formulas that give the employer at least some financial interest in his own LTD experience, since he is probably the most important member on the team of administrators.
5. We should use our best actuarial abilities to develop proper risk-spreading pools and reserving techniques to protect our companies' surplus.

It should be obvious that the result of the next breakdown of long-term disability experience and the companies providing such protection will be the government's becoming our master and not our partner in this venture. As one possibility for activity, perhaps major and smaller companies should develop an intercompany reinsurance and rehabilitation pool, although a discussion of this possibility is probably beyond the scope of this panel.

Finally, let your conscience be your guide in this contest between the right hand of rate adequacy and sound underwriting and the left hand of more sales, even though your lack of hard facts puts you at a disadvantage in such an emotionally charged atmosphere. Your profession, and, I believe, your company's partners, employers, and government want your company to succeed in providing long-term disability benefits. In fact, if private insurance succeeds, you may also find that it has given valuable assistance in administration to the social security disability program, through properly co-ordinated rehabilitation programs.

MR. DONALD M. PETERSON: I have prepared some remarks relative to Title XVIII. As to whether "supplemental" or "co-ordinated" plans are more popular, we feel that the supplemental approach not only is more convenient administratively for the company but is more easily understood by the policyholder. Of almost 500 groups, which, prior to July 1, 1966, provided coverage through Benefit Trust Life for people over age 65, 44 per cent of them, on our recommendation, have selected what

we refer to as the "Medicare Pool." This coverage may be written for employees and dependents, as well as retirees and their dependents. Benefits provided are:

1. The $40 deductible under Part A of Medicare
2. An indemnity of $10 per day of hospital confinement from the 61st through the 90th day
3. An indemnity of $30 per day of hospital confinement from the 91st to the 180th day
4. The $20 outpatient diagnostic deductible under Part A of Medicare
5. The $50 deductible under Part B of Medicare, payable for surgery only

For those in the pool who are not yet eligible for Medicare, the following benefits are provided:

1. $14 per day room and board for a maximum of 31 days per calendar year
2. $200 miscellaneous fees
3. $10 ambulance service
4. $200 surgical schedule

Premiums and claims for persons covered under the pool will be excluded from the experience developed by the coverages for persons not in the pool as far as dividends and experience refunds are concerned. There are no participation requirements for the pool, and the employer will be required to pay the entire cost or to remit it to the company. We have one flat rate for the employee, retiree, and covered spouse and another flat rate for dependent children.

As to the question of whether there is a demand for service-type hospital expense benefits, or "reasonable and customary" fee plans patterned after Medicare, we have always felt that there has been a demand and a need for such plans. We have been writing full payment service-type coverage for almost twenty years, have geared our operation to handle such coverages, and have amassed sufficient data to be able to rate it properly—at least until the advent of Medicare.

We also feel that there is a need to provide nursing-home expense benefits and are taking steps to provide such coverage.

MR. ROBERT J. MYERS: I understood another speaker to say that the definition of disability under social security was significantly liberalized by the 1965 Amendments. I would take exception to that statement, because I think that the liberalization made was a relatively minor one. The bill that was passed by the House had some very significant liberalizations, and it might have had some effect on some of the short-term disability business. You might say that, although the insurance business lost a big battle in regard to Medicare, which was contained in the same

amendment, it won this one because most of the liberalization provisions were by the Senate, and the conferees agreed to it. As to the former definition of disability, it was total disability for a long-continued and indefinite duration. In actual practice, doctors would generally not say that something was going to be permanent but were willing to make a prediction for some specific period of time. What we actually used in practice as a meaning of long-continued and indefinite duration was that the doctor would estimate it to last for at least eighteen months from the inception.

The change that was made in the law was a liberalization and moved this period down to twelve months. I estimate that this would be about a 3 per cent liberalization in the disability program. Experience indicates that this estimate is high.

Some of you no doubt know that the reason for the recent flurry of discussions about increases in social security benefits arose because of the results of new cost estimates. These were made public and showed that over the long range the cost of the program was lower than that of previous estimates. However, the cost estimate of the disability insurance program has increased. We do not know all the reasons for this. One of the reasons is that we are getting some adverse court decisions. The problem also seems to be associated with people in their fifties or early sixties who have done hard manual labor all their lives and who had only a small amount of education. For these people, the courts say that if they cannot perform their usual occupation (hard manual labor) they will qualify for disability benefits, even though they might be able to perform some lighter type of work if they had the proper education or training.

On another point, I disagree with a statement made earlier that private industries or private insurance companies are more efficient at administering benefit programs than is the government. I thought that everybody was aware by now that our administrative expenses were quite low, 2¼ per cent of outgo.

Now, regarding Title XIX, I am not certain that everybody is familiar with the fact that the Ways and Means Committee took action on this. It reported out a bill, and even had a rule on it to take it up in the House, but decided not to do so because the action came at the end of the session. Many members wanted to tighten up Title XIX, so as to prohibit certain states from going too far.

The bill itself would have cut back in two ways. First, in essence it would have made any expenses that are now payable under Supplementary Medical Insurance of Title XVIII not matchable under Title XIX. This would have made somewhat more "compulsory" what is really a volun-

tary program. Another thing the bill would have done was to take out all federal matching for medical assistance given to adults between ages 21 and 64 unless the adult himself were blind or disabled. Parents of children who might get medical assistance would not get any medical assistance as far as federal matching was concerned. I think that the Committee is quite intent on taking this matter up next year.

As to Title XIX itself, there are many social security students who believe that social insurance should be basic and any welfare or public assistance program should be on top and should play a purely supplementary role. A guideline can be that if more than 10 per cent of the people getting social insurance need supplementary assistance there is something wrong with the program. With OASDI, about 7 or 8 per cent of the people get public assistance. I think that this is acceptable. If the proportion were to rise to 20–40 per cent, then there would be something wrong, and the benefit level should clearly be raised so as to bring the proportion down.

In a situation like that in New York State, according to estimates that I have made, there are about 7 million people out of 18 million total population, or 40 per cent, who are eligible for medical assistance. This clearly violates the philosophy that I have just stated.

In making actuarial cost estimates for a medical assistance program like this, there is a more difficult problem than applies to social insurance. Under social insurance the people come in and get the benefits, and there are very few people who will not do so, as a matter of conscience. On the other hand, in a welfare program, it does not depend so much on the provisions of the program as on how it is administered and how it is presented to the public. If the authorities make it difficult to get assistance, the cost might be very low. On the other hand, the same program administered more or less as an insurance program as a matter of right can be very costly. When I made the cost estimates, it was my best judgment that the New York plan is gradually going to move away from the "stigma of public assistance" approach to one that is based on an income basis, so that everybody within that income limit would take the benefit. This would mean that costs would increase very much over what they would be in the early years of operations.

I was a bit distressed by the wording of the program in one reference to Title XVIII, namely, "nursing-home expense benefits." I fear that the public has the idea that these benefits are for custodial care, when in fact they are really for convalescent recuperative purposes. We will have difficult problems when these benefits become effective in January if many people think of them as nursing-home benefits.

MR. DAVID LANGER: A major topic on the agenda is Title XIX. As programed in this meeting, the following question is raised: "How can policyholders and the public best be educated about the cost and other implications of Title XIX expansion?"

I am especially interested in taking a close look at the basis of what is widely alleged to be the extraordinarily high cost of the New York State Medicaid program, which, I think, is overstated by as much as 100 per cent.

Let us examine the cost. New York State's Medicaid program has aroused the most interest, so I will concentrate on that. The basic ideas involved in cost-estimating New York's program can, of course, be used elsewhere, too.

I will review now the cost figures of the four organizations that have made public their figures: New York State; the insurance industry through a joint publication of the American Life Convention, the Life Insurance Association, and the Health Insurance Association; Blue Cross–Blue Shield Plans of New York; and the Social Security Administration. The last one was prepared by Robert J. Myers of the Society and presented to the House Ways and Means Committee.

Mr. Myers made a useful distinction between the cost for the current fiscal year, which he called an "actual experience" basis, and the annual cost of the program in some future year, such as 1970, when it is being fully utilized, which he called the "all eligibles" basis.

Here are the figures on the "all eligibles" basis to the nearest one-tenth of a billion and before administrative expenses:

New York State	$1.0 billion
Insurance associations	1.6 billion
Blue Cross–Blue Shield	1.4 billion
Robert J. Myers	1.4 billion

(The first three estimates were made before a deductible feature was added, so I deducted out the same $40 million that Mr. Myers worked up.)

As to the "actual experience" cost for the first fiscal year, which started last April 1, the state calculated $532 million. Mr. Myers felt that this would be substantially exceeded, depending on how rapidly the lag in the development of the program wears off and how rapidly the eligible persons make use of the program, but in any event it would definitely not be at the "all eligibles" level. The insurance associations and Blue Cross–Blue Shield implied that the "all eligibles" basis would exist even in the first year.

I telephoned the Director of the Office of Social Research and Statistics

in Albany about ten days ago to check on actual experience in the first half-year, and he said that he sees no reason to change the state's first-year estimate of $532 million at this point.

It will be highly instructive for us to examine the methodology used by the insurance associations, since their analysis makes the claim that "The approach utilized is similar to that employed by health insurance actuaries in developing the costs to provide benefits for various health care plans."

Briefly, the arithmetic follows this pattern: Determine an annual per capita for health services and supplies, multiply by the number of eligibles under Medicaid, subtract out the cost that will be picked up under Medicare for the over-65 group, subtract out the portion of cost that will be reimbursed by any private insurance arrangement and further offset by the cost value of the deductible feature.

I will make comments on each item as I go along, because I differ considerably from the associations' results.

In working up the per capita cost, the associations first determined a national per capita of $174 and then adjusted this upward 35 per cent to $235, since New York's per capita appears to be that much higher. The figure of $174 was obtained by dividing the national total expenditure of $33.4 billion in 1964 for health services and supplies by the population of 192 million. The source of the $33.4 billion was an article in the January, 1966, *Social Security Bulletin*. On studying this article, I discovered that the associations had made a sizable overstatement of $6 billion, because it included the cost of items which were totally irrelevant, such as:

1. Direct federal payments on behalf of members of the armed forces and their dependents, veterans, and Indians.
2. Payments made under workmen's compensation and other separate laws.
3. The cost of industrial in-plant health services, school health services, and federal public health services.
4. The net cost of insurance. This was included erroneously because, as you will see later, the associations' analysis assumes that *all* private insurance carried by Medicaid eligibles will be dropped.

With these extraneous amounts eliminated, the national per capita becomes $144 instead of $174, and the New York per capita is then $194 instead of $235.

The number of eligibles in New York according to the associations is 8 million. Mr. Myers, after taking into account the assets test as well as the net income test, estimates the number at 7 million.

This figure, I believe, should be further pared down at least another million because of the natural repugnance of people for welfare programs.

For example, the Commissioner of Welfare in New York City recently estimated that only one of two persons eligible for welfare *subsistence* payments comes in to apply. It seems reasonable to assume, therefore, that there will not be any mad rush to enroll for Medicaid, and this has been borne out by the minute number of persons not on the welfare rolls who have in fact enrolled in the state to date.

As an offset for amounts reimbursable under Medicare, the associations derived $250 million and Blue Cross-Blue Shield $217 million. My own rough estimate is $211 million.

Under New York's law, any medical costs that are covered by private insurance are to be deducted from any Medicaid payments. The associations and Blue Cross-Blue Shield both assumed that all the private insurance on eligibles would be dropped completely. This, to me, is completely unrealistic because of several incentives to hold on to such insurance:

1. There will be a large number of eligible persons who would rather keep their insurance and self-respect than to have to rely on welfare medical payments.
2. The net income formula permits deduction of health insurance premiums.
3. Health insurance premiums may be used to meet the Medicaid deductible.
4. The state is cautioning eligibles not to drop any health insurance.
5. Employers and unions are going to have an extremely difficult time persuading their people that they should permit themselves to be dropped from the insurance rolls and to go down to the local welfare office to apply for a Medicaid card.

According to the associations, private health insurance carriers in New York paid out nearly a billion dollars in 1964 for hospital and medical care. I estimate that, of this total, $305 million would be payable on account of Medicaid eligibles, assuming that 5 million of the 6 million persons who would make use of Medicaid had average coverage and would present average claims. A conservative guess as to the amount of insurance that might be dropped is one-half, or about $152 million of claim value.

Table 1 is based on the "all eligibles" calculations and summarizes the preceding discussion. As you will see, my own estimate is $0.8 billion, or about half that of the associations.

There are other factors affecting costs which have been ignored here and elsewhere for the reasons that they may have been too difficult to measure, or too slight in their impact, or they offset one another. For example, the eligible group of 8 million considered to meet only the net income test has probably been diminished because of general wage increases in the last few years. Per capita estimates were based on 1964 data, which have since suffered inflation; on the other hand, utilization rates and

medical expenses for the low-income groups are lower than the national or state average.

Further, the per capita rates are overstated because the welfare stigma will probably keep many potential eligibles from coming in for a Medicaid card until unusual medical costs develop. In this connection, opponents of Medicaid have asserted that there will be no stigma at all because the program will come to be regarded as a matter of right, and they point to the publicity that it is receiving in New York. I think that this is an inaccurate appraisal. Applicants still have to undergo a degrading means test at their local welfare offices and carry a card that has stamped on it, in big bold letters, BLANK COUNTY WELFARE DEPARTMENT," which is hardly the equivalent of having a Blue Cross card or a Diners Club card.

TABLE 1

SUMMARY OF "ALL ELIGIBLES" ESTIMATES

	New York State	Life Insurance Associations	Blue Cross-Blue Shield	Myers	Langer
Annual per capita..	N.A.	$235	$206	N.A.	$194
No. eligibles.......	N.A.	8 million	8 million	7 million	6 million
Gross cost........	N.A.	$1.9 billion	$1.6 billion	N.A.	$1.2 billion
Medicare offset....	N.A.	$250 million	$217 million	N.A.	$211 million
Health insurance offset...........	N.A.	0	0	N.A.	$153 million
Deductible offset...	N.A.	$40 million*	$40 million*	$40 million	$40 million*
Net cost..........	$1.0 billion	$1.6 billion	$1.4 billion	$1.4 billion	$0.8 billion

* Myers' figure used.

There are indirect savings that will materialize even if they cannot be measured precisely at this point:

1. Medicaid recipients hopefully will be encouraged to apply for care at an earlier stage of illness, thus reducing the cost of treating more serious illnesses.
2. Families not on relief will be able to avoid going on relief during a period of unusual medical expenses.
3. Persons in middle-income and higher brackets are no longer responsible for their aged parents' medical care and, as a result, the chances of their being able to provide higher education for their children are not placed in continual jeopardy.
4. No dollar value can be placed on the reduction in anxiety of a large segment of our population because of such programs as Medicaid and Medicare, but obviously people do function better in a healthier psychological climate, and this is of considerable value to the entire country.

It is perfectly true that there will be further considerable inflation of medical costs, but this only serves to emphasize the importance of Medicaid for our low-income groups. If they cannot afford medical care now, what is it going to be like for them next year and the year after? One has only to look at the erosion of buying power in the last twelve months.

I do not think that I have enough time to discuss the implications of Medicaid, but at least one was covered indirectly. This is the frequently raised cry by the opponents of Medicaid in the insurance industry and medical profession that the program will bankrupt city, state, and country and that Congress never intended such an expense.

This outcry is based largely, though, on the associations' cost estimate, which I believe is not accurately constructed.

MR. RICHARD H. HOFFMAN: For the record, I would like to comment on some of Mr. Langer's statements. First, the 8 million figure for the number of people who would be potentially eligible for the New York State Title XIX program was developed by New York State's own welfare department. The department had estimated that 9 million would be eligible based on the income test alone; it reduced this figure by a million to allow for the effect of the asset test.

The 8 million figure does not provide for persons above the test limits who would become beneficiaries under the program after using up their excess income for medical expenses. Every family in New York State is potentially eligible regardless of income, because, if a family spends enough on medical care not covered by insurance, it becomes eligible for benefits to the extent that it falls below the income and asset test limits.

Mr. Langer referred only to the joint Health Insurance Association, American Life Convention, and Life Insurance Association cost estimate, which was $1.6 billion. Blue Cross–Blue Shield independently came up with $1.5 billion, and the HEW came up with a figure of $1.4 billion. (The latter figure includes expenses of administration, while the other two figures do not.)

There is no question in my mind that this is going to be a very costly program.

MR. KEFFER: It disturbed me very much, in these discussions on New York Medicaid, to find the extent to which private insurance seems to be ignored. You can probably prove that a person with $6,000 could not pay certain medical bills, but repeatedly we see people making an analysis of this type and not taking into account all the functions that private insurance is performing. I know a number of people with incomes of $6,000

who are well protected through private insurances and in some cases pay nothing for it because their employers are paying for it. Each of us who has an interest in this field can make a contribution, if we could just get people to start thinking in terms of what private insurance is doing today whenever these discussions come up.

MR. JOHN H. BIGGS: I have a comment on Topic 2—interest—particularly on the new-money credits on claim reserves. We have seen pressure for higher interest credits on claim reserves, and we have had to give reasons to our policyholders why we do not use the new-money method to achieve higher credits.

I believe that there are several reasons why the new-money method is inappropriate for claim reserves, in addition to the one that Mr. Cody mentioned. For any but the very large policyholders, the reserves are small, and the expenses of the new money calculations would not be warranted.

The claims reserve is not an investment fund, which is probably more important, and not subject to investment selection by the policyholder. It should be fairly stable for a stabilized group. It is set up quickly out of the first year's premium and does not have the steady accumulation feature of a pension plan.

I think that the new-money method does have valid applications in nonpension group lines—in investment-type funds used for continuance benefits, for example—but I suspect that we will have to draw the line with regard to where we are going to use this investment-income-allocation device and then defend this line.

I have one comment to make about Title XIX. Medical care is probably one of our greatest issues in the 1960's and will probably be an even greater one as our society moves from the basic poverty-type problems.

Unemployment was the major social issue in the 1930's, and the unemployment insurance laws that were then enacted provided not only a set of benefits comparable to what is being done now for Title XIX but also a financing method. The financing is through a payroll tax with experience rating credits back to the employers who had few unemployment claims. I wonder if something similar would not be possible for Title XIX plans. We have had many discussions of what benefits should properly be included and who should be eligible under the state Title XIX laws, but I have seen very little exploration of different ways in which these benefits could be financed. I suppose that in most states general revenue sources will be taxed. As a result, all taxpayers pay for the benefits, and companies with liberal medical care plans pay just as much in corporate taxes

as those with thin plans or no plans. As a result, there is no incentive in Title XIX for maintenance of private insurance on Medicaid eligibles (except under the "CalMed" proposal). If an employer did get some sort of tax credit, we would not see an automatic shifting of Title XIX eligibles out of the private sector.

MR. DAVID R. KASS: In determining an interest rate applicable to claims reserves, the actuary must consider whether the funds in question represent "new" or "old" money. He must further take cognizance of the federal tax applicable to investment earnings attributable to such funds.

Perhaps five years ago, when the spread between new-money and old-money rates was as much as 1 per cent, the practical effects of one's decision were marked. Today, the gap between the two rates has narrowed to perhaps ½ per cent, and the theoretical discussion as to "what kind of money this is" becomes somewhat academic. This becomes even more true if I am correctly informed that all investment earnings attributable to claims reserves are fully taxable at the 48 per cent corporate tax rate; in this event, the distinction between the two modes becomes a mere ¼ of 1 per cent.

My own view, however, is that each year's claim reserve is established from that year's premium and is earmarked for claims incurred currently but reported later. From this, it follows that the reserves in question are temporary in nature, and that the appropriate investment figure to look to is the yield currently being realized on short-term temporary investments of a highly liquid nature.

In terms of order of magnitude, however, it is clear that the impact of federal income tax is far greater than the difference between the yield on new money versus old, long-term versus short-term, or what have you. It would, accordingly, strike me as most beneficial to all concerned if the Society were to develop an appropriate standard actuarial table for determining claim reserves under medical coverages, to make it perfectly clear to the Treasury Department that these reserves are properly and reasonably established; were this done, I should think that required interest on these reserves would be afforded the proper tax relief.

MR. JOSEPH W. MORAN: The arrival of Medicare has some implications that face insurance company actuaries with some practical problems.

As mentioned earlier, many hospitals are reallocating the expenses used as a basis for assessing charges against their paying customers and raising their charges or changing their billing practices. We have enough information to think that, over the next year or two, prevailing hospital

room-and-board charges may increase to as high as 30–50 per cent above charges prevailing at the beginning of 1966.

What are the implications of this increase? Some analyses of comprehensive major medical claims indicate that these higher charges will cause increases of 12–15 per cent in aggregate benefit costs on these plans.

For a current typical plan design of a base plan with scheduled limit, plus supplementary major medical that covers all the spillover of actual charges in excess of base-plan limits, it is our feeling that the likely upward trend will probably be an extra 10–12 per cent over normal.

Another implication of the arrival of Medicare is that hospitals, by having had to change their administrative systems to cope with Medicare, have fallen behind in preparing bills for patients. As a result insurance companies are probably generating bigger backlogs of incurred claims, which we will have to face in setting claim reserves at year end.

MR. GEORGE J. VARGA: With respect to allowing interest on claims reserves, I suggest that interest be allowed only on that portion of the reserve which was actually contributed by the policyholder to meet outstanding claims liabilities.

ELECTRONIC DATA PROCESSING

1. *Data Processing*
   - A. What should be the role of the actuarial department in consolidated functions?
   - B. What part, if any, of consolidated functions programming should be done by actuarial department personnel?
   - C. Are there any problems of co-ordinating the actuarial aspects of consolidated functions with the balance of the program? If so, what are they, and how are they best resolved?
   - D. What is the best way to resolve conflicts concerning priority for computer usage?
   - E. Does the use of the computer for more than one shift create problems for the actuary? If so, what are they, and how are they best resolved?
2. *Use of the Computer To Solve Actuarial Problems*
   - A. For what problems or types of problems has the computer proved to be most effective?
   - B. Are currently available programming languages adequate for the solution of these problems? If not, have any modifications been made in these languages to make them more suitable for this purpose?
   - C. For what problems or types of problems should we be using the computer in areas where little or no work has been done so far? What is needed to obtain a real breakthrough in some of these less conventional areas, and how can this need be fulfilled?
3. *Training of Actuaries in the Computer Age*
   - A. Should more emphasis be given in the examination syllabus to the computer as an actuarial tool? If so, in what form should this emphasis be given?
   - B. What steps do companies take to assure proper computer orientation among new actuarial students?
4. *A Look into the Future*
   - A. What changes can be foreseen or anticipated in computer facilities and the manner in which they will be used?
   - B. What will be the principal effects of these changes on the actuary's approach to the use of computers?

MR. EDWIN F. BOYNTON: Many of the questions posed do not have direct application to the consulting field, but, since Section 1 of the program relates to the organization of an E.D.P. department and its relationship to the actuarial department, this might be the best opportunity to describe how The Wyatt Company E.D.P. organization came to be established and is organized.

In attempting to find the best answer to our E.D.P. needs, we faced a somewhat different problem from that of most insurance companies and many of our competitors. We have sixteen offices spread around the country, of which ten are fairly autonomous and almost completely self-sustaining in terms of providing technical support. No single office has sufficient volume to justify its own complete computer operation, so that any computer organization within WyCo requires the support of several, if not all, of the offices.

In the past, each office with sufficient size generally handled its own E.D.P. problems, using local service bureaus in each of the cities. In recent years, there was some co-ordination of programming effort between offices to avoid duplication of effort, but still there was no centralized programming or machine organization. About two years ago we decided to take a look at the whole setup to see whether a centralized computer system was feasible. This seemed particularly pertinent with the advent of the third-generation computers, which would eventually lead to a substantial reprogramming effort on our part in any event. Although some offices were using similar or identical programs and systems, we then had at least six different pension-valuation systems in operation among our various offices. Each system was generally built around some type of generalized valuation program or programs, although in the Washington office we had two separate systems, one of them designed particularly to handle problems associated with very large cases. To add to the complexity, these systems were written for several different computers, including an IBM 650, 1401 card system, 1401 tape system, 1410, 7090, and a G.E. 225.

In addition to this programming maze, we had a more difficult problem to overcome if we were to establish a centralized computer system—the advantage of each office's having local service. The ability to have ready access to data-processing facilities is of real significance in providing adequate service to our clients when results are needed in a hurry, and local service is one way to provide this. In order to meet this need, it was necessary to find some way of expediting communications, data, and results from a computer center to the various offices and avoid the delays involved by relying on the mails.

What we finally came up with is a simplified telecommunications system that presently links several major offices together and ties in to our computer center in Washington, where we have a Honeywell-200 with four tapes. The computer center itself is organized as a separate division of The Wyatt Company, although it is within half a block of the Washington office.

Each of the offices in the network has a small card reader linked to a

dataphone. Punched cards are fed through the reader over long-distance wires at a rate of about 80 cards per minute; at the other end, in Washington, we have an off-line incremental tape recorder on which the data are recorded. It permits us to send data cards instantaneously without any fear of loss of data such as we would have in using the mails. The equipment itself is very compact, and having it off-line is less expensive and makes it more flexible, because we cannot really afford to reserve part of core storage of the computer in order to have on-line capabilities. The equipment, incidentally, is made by a small company in Washington and has not received much attention nationally because of the small size of the company and limited distribution. So far, however, we are quite pleased with its performance.

Coupled with this is a Telex setup, with each of the offices having a Western Union Telex for quick and easy communications dealing with E.D.P. problems; in addition, it serves as a medium for normal office intercommunications and communication with our clients. The other use for this Telex hookup is the ability to transmit computer results, in summary form, back to the office in a hurry when needed. Our valuation systems are set up so that, under parameter control, a sampling of individual data cards as well as a summary of the valuation results can be punched out as a by-product of the valuation run. These cards are then processed through a card-to-paper tape converter and from there directly to Telex, so that summaries of results plus a sampling of the data can be back in the originating office within a few minutes after coming off the computer. It is not unusual in a rush case for data to be sent in via the card reader from a distant office and to receive results back in the same afternoon.

The questions on the program relate specifically to various aspects of consolidated functions operations. The operations of our business do not lend themselves to anything resembling a consolidated functions approach.

Perhaps there are areas that we are overlooking as far as making E.D.P. an integral factor in the day-to-day operations of our business, but so far the computer has been used primarily as a replacement for a desk calculator. It has, of course, permitted us to increase our efficiency in processing work and to apply more sophisticated techniques to our problems, but it has not materially changed the day-to-day operations of our business to the degree that it has for the insurance industry.

One of the questions in the program relates to the types of actuarial problems for which the computer has proved to be effective. For our company the problem might be broken down into two segments—one related to the pension area and the other to life insurance consulting work.

The types of problems effectively handled by our computer setup in the area of pensions are described in the next few paragraphs.

1. *Pension-valuation systems.*—The overwhelming volume of work is in pension-valuation systems. In general, we have followed the approach of using highly generalized valuation programs or systems set up under parameter control. We have been able to develop systems that will handle efficiently almost any type of pension-valuation problem that comes along without development of a new program. Along the same lines are the demands for pension cost figures for collective-bargaining procedures, and our programs are designed to facilitate producing cost figures for a wide variety of benefits on each pass.

2. *Gain-and-loss analysis.*—The computer is also efficient at carrying out sophisticated gain-and-loss analysis, which could be quite cumbersome and only approximate under prior systems.

3. *Service tables.*—As a necessary supplement to the basic pension-valuation programs, we calculate all our service tables on the computer. Using generalized programs, we calculate either single- or multiple-decrement tables (with up to six decrements), including all the subsidiary C, M, and R functions. These may be either in aggregate or select and ultimate form. The output from these programs in either card or tape form is designed to flow directly into the valuation system.

4. *Benefit certificates and statements.*—For many years we have been turning out various types of benefit certificates and statements; most of these were fairly simple, one-page statements relating to pension benefits. However, we are now moving into the production of more comprehensive statements covering all fringe benefits, which seem to be becoming popular.

5. *Administrative record-keeping for pension and profit-sharing plans.*—In general, most clients have the responsibility for the basic record maintenance, although in some cases we do perform a record-keeping function, usually associated with producing a file for the following year's valuation. Also, we make benefit projections based on various assumptions to determine the adequacy of the ultimate benefits. A number of clients with a pension and profit-sharing (or savings) plan have found these of interest.

6. *Calculation of administrative tables.*—We have generalized programs to calculate all the various joint and survivorship option percentages, actuarial reductions for certain periods, and so forth. Again, we have a single program that we use to calculate almost all these functions set up under parameter control.

7. *Investment yields.*—The computer makes it more feasible to calculate accurately the yields of pension funds, particularly long-term yields

for five, ten, or more years. All types of yields may be calculated—on market or book, with and without realized or unrealized appreciation, and so forth.

I will not go into great detail in the life insurance area, since most of you present are familiar with the types of programs that are in common use, such as the calculation of premiums, dividends, asset shares, reserves, and cash values. Honeywell also is now developing a package that is similar to the IBM CFO, which we expect to use in the future.

In regard to the programming question, this has been a real headache for us, as it probably has been for many of you. When we made the switch to the H-200, we had a variety of programs—some written in SPS, some in AUTOCODER, some in FORTRAN for the 7090, and others in G.E. 225 language.

Although this does not bear directly on the question posed, I might comment briefly on the Honeywell "Liberator" package, which is a system designed to translate 1401 source or object decks into H-200 language. We did use this package to the extent feasible, but, even though it was of some help, it did not solve many of our 1401 conversion problems. We found that it was not of much value for a complicated program or for one written very "tightly" for the 1401. For example, one of our major valuation programs that was squeezed into 12K on 1401 increased in size to 22K on the first EASYTRAN try (EASYTRAN is the program system for handling 1401 *source* decks); we scrapped EASYTRAN for that program and rewrote it in Honeywell language. EASYTRAN has been useful, however, for a number of our programs, particularly those written for a card 1401, and it at least got us over the hump. Our biggest problem on these conversions, however, has been the difficulty of digging back into an EASYTRANNED program to shift from card to tape input/output. In some cases it was easier to rewrite the program for tape than to modify the EASYTRAN routine for tape.

As a program language on the H-200, we basically use the EASYCODER, which is generally similar to AUTOCODER on the 1401. Using a symbolic language on one-for-one basis is almost a necessity with complex programs on a small computer because FORTRAN, COBOL, and so forth, are just too inefficient and use up too much core storage to get the job done. We have made effective use of macros and subroutines that we wrote ourselves, particularly for input/output routines, decimal-to-binary conversions, calculation of social security benefits, and so on.

As I mentioned earlier, we have made great use of highly generalized valuation programs controlled by parameters (up to 150 or so in some cases), which, in a sense, are tantamount to specialized programming lan-

guage. We have one system that might best be described as a FORTRAN for pension-calculation purposes. It was originally designed as a valuation system for a card 1401 but has since developed into a more generalized program for calculating almost anything. This program does not require a programmer to set up a given case but does take a fairly well-trained person.

This "pension FORTRAN" system is very useful in the calculation of the oddball cases that come along. The system is built around a series of operators that may be coded in rather simple fashion to (1) control and designate the size of input and output fields; (2) carry out the usual arithmetic functions of addition, subtraction, multiplication, and division; (3) make logical comparisons and tests for minimums and maximums; (4) round results off to specified decimal position; and (5) make a number of other specialized calculations particularly useful for pension benefit calculations and valuations. The program is quite useful when exact benefits or values are needed, as, for example, when figures are being prepared for an employee benefit statement or certificate.

With regard to the next question, we have not had much time to sit back and speculate on the long-range uses of the computer in our operations, being more concerned with improving the efficiency of present applications. Because of the nature of our business, there is a limit to the foreseeable applications of a computer to it. We now have in the development stage two likely applications.

1. *Preparation of drafts or even final copies of actuarial valuation reports.*—We presently accomplish this in some of our offices through a combination of computer-prepared cost and statistical tables and a magnetic tape–controlled typewriter preparing the text of reports for certain small plans. For routine-type reports, particularly for smaller cases, computer output can be combined with magnetic tape for typewriter input to come up with a typed report or, alternatively, to prepare the complete report on the computer. For larger cases, the computer could at least prepare a draft of a report, including analysis of experience, comparison with prior year's figures, and so forth.

2. *An information library on tape or other type of mass-storage medium.*—The possibilities here are limited primarily by cost considerations. The biggest single problem involved in a reference library of this type, be it for actuarial, legal, accounting, medical, or other purposes, is an adequate indexing system. We have already started on this project in limited fashion; our first step is to try to build, probably on tape, a complete file of the pertinent plan provisions and certain other information for all the largest companies in the country.

There are other possibilities for the future use of the computer: (1) One possibility is the application of operations-research techniques to investment decisions, particularly in relating investment policies and programs to the future cash flow of a pension trust. (2) While preparing this, we received a letter from a college professor asking if we have ever developed anything by way of computer simulation of the collective bargaining of pensions. I must admit to being confused as to what he means by this, but, if he is contemplating using a computer to predict the probable outcome of collective-bargaining sessions, I think that he is in for a surprise. Using a computer to simulate the collective-bargaining process assumes that logic and rationality prevail in such a process, a decidedly risky assumption at best.

MR. ROBERT B. KOCH: Topic 1 is concerned basically with the organizational relationship between the actuarial department and the E.D.P. department. It might be helpful if I give some background on our organizational situation at the John Hancock and our mode of operation.

E.D.P. resides in a larger department called insurance operations which is responsible for all the functions associated with administration of an insurance policy, ranging from rate-making, underwriting, and issue to accounting, auditing, and claim payment. The E.D.P. department itself is headed by a full vice-president and enjoys equal organizational status with the actuarial department and other departments in insurance operations. Although E.D.P. is located in insurance operations, it serves *all* departments of the company, including those of outside jurisdiction.

In implementing a computer system, E.D.P. operates as a service department fully responsible for all programming work and computer operation. In the area of systems work, we generally operate jointly with other departments of the company in developing systems specifications. This requires people in other departments who have some knowledge of E.D.P. and people in the E.D.P. department who have some knowledge of the using department's operations. Needless to say, it has taken us some time to develop the required expertise on both sides.

With this brief organizational background, let me now embark on a response to Question A, "What should be the role of the actuarial department in consolidated functions?" My answer to this question, in line with the mode of operation previously outlined, is that the actuarial department should function in the role of adviser and developer of actuarial systems specifications with the E.D.P. department. In addition, the actuarial department must assume responsibility for checking actuarial output for accuracy. In developing systems specifications, it is, of course, necessary

that there be someone on the receiving end who can understand them. I am sure most people in this room could cite experiences in which actuarial jargon suffered somewhat in the translation to computer language. To ease the translation problem, we have three Fellows of the Society as a part of management in the E.D.P. department. In addition, we generally have two or three actuarial trainees working in the department at all times.

It is important in developing systems specifications that the actuarial department be rigorous without attempting to get into the areas of detailed flow charting and actual programming. In a consolidated or integrated system, programming details must be left to the unified group working on the entire system. In my opinion, only chaos could result if programming responsibilities were separated for the various functions performed in a consolidated system.

From my previous remarks, you may gather that my answer to Question B—"What part, if any, of consolidated functions programming should be done by actuarial department personnel?"—is "None." Later I will discuss what programming *is* appropriate for the actuarial department.

Question C of Topic 1 is, "Are there any problems of co-ordinating the actuarial aspects of consolidated functions with the balance of the program? If so, what are they, and how are they best resolved?" There are no problems different from those with respect to other functions in a consolidated system. The key to co-ordination seems to be communication. As long as we have people in the E.D.P. department who can discuss actuarial subjects intelligently with the actuarial department, there should be no problems of co-ordination.

In answer to Question D—"What is the best way to resolve conflicts concerning priority for computer usage?"—at the John Hancock the actuarial department does not actually use E.D.P. machinery, and there is no direct conflict on that score. With respect to service requests from the actuarial department, priorities for systems work, programming, and machine operation are established in relationship to requests from all other departments of the company and available resources. From our E.D.P. organizational vantage point, we feel that we are able to establish priorities on the basis of the greatest benefit to the total company rather than department affiliation.

I have not discussed earlier the fact that the actuarial department has its own computer for small-scale one-shot jobs. This machine, an IBM 1620, is programmed entirely by actuarial department personnel, but it is operated on a production basis by E.D.P. It has proved extremely use-

ful for asset share studies and even rate-book preparation, and its operation does not interfere with machine priorities in the E.D.P. department for systems passing millions of records per day. One answer then to a resolution of conflicts concerning priority for computer usage is to give the actuarial department its own machine. However, there are probably less expensive alternatives, and we are currently exploring them. For example, the actuarial department could write and debug programs on a "hands off" basis. This is the technique that we use in the E.D.P. department itself. Another alternative is a time-shared system employing remote terminal "hands on" service. IBM's RACS system looks promising in this regard.

My attempts to analyze Question E—"Does the use of the computer for more than one shift create problems for the actuary? If so, what are they, and how are they best resolved?"—and to determine what it is aiming at have been unsuccessful. At the John Hancock we run our large-scale computers three shifts per day. As far as I know, this has created no problems for the actuary. I suspect that the question is again aimed at conflicts over computer usage, and as long as the actuarial department has its own computer, no conflict should arise.

MR. CHANDLER L. McKELVEY: The thought occurs to me that, in contrast to the other gentlemen on this panel, I had better identify myself and my company. Sentry Insurance is the trade name for a large all-lines group of insurance companies. It might give you a clearer perception of our relative size to say that our premium income is roughly the same as the Connecticut Mutual or Bankers of Iowa.

Two of our six companies are life insurance companies—Sentry Life of Wisconsin and Sentry Life of New York. Less than 10 per cent of our income and processing activity comes from life insurance. This means that our primary problems in the life area—both actuarial and processing—tend to come in making sure that life insurance considerations are not slighted in our generalized all-lines programs.

I was impressed yesterday afternoon at the meeting for younger actuaries at the general realization and acceptance that something has changed in our actuarial world and that the change has been brought about by the developments in computer technology. I was also impressed, however, with our general inability to identify the change. I think that, as a group, we are very unsure of what these machines mean to us or how we should respond to their challenge.

There are many views of the nature of the responsibilities of the actuary of a life insurance company. No matter how you look at your job,

however, you cannot escape the fact that you are your company's fiscal officer, responsible for the financial soundness of the company's operation. It is also true that, because of the way in which companies function today, virtually all information relative to that financial operation is contained in data processing's master files. Decisions affecting the character and availability of that information are being made daily by data-processing personnel.

Under these conditions, I do not see how the actuary can allow the management of the information system, of which data processing is a part, to slip into other hands. In my opinion, the accounting, policy-billing, and processing problems that have occupied so much of our time and effort until now are well in hand. We now face problems far more difficult but far more challenging. The payoff for the successful solutions to these new challenges will be considerably more important than the very substantial payoff that we have already achieved with our clerical and accounting applications.

The new challenges should be particularly exciting for actuaries, since they relate to the transformation of data into useful management information. This is our business—and has been since the beginning. Our technical activities—producing annual statements, setting premiums and dividends, analyzing mortality results, and so forth—are valuable and sometimes difficult functions. Certainly, however, our eminence and exalted stature does not come from our ability to handle these chores. Others, beyond the actuarial pale, can do very well in these technical actuarial areas.

It seems to me that the central role that we actuaries have achieved in the development of life insurance in North America has come from our historical ability to convert data into meaningful management information and creatively, to plan the future, based on the patterns of the past. All the important steps forward in our life insurance world have been made possible largely because of the ingenuity of one or another actuary with a fresh outlook. The industry has always looked to the actuaries for its new insights and clearer viewpoints.

I fear, however, that we are slipping. We may be slipping badly and rapidly. The new technology has created whole new worlds of opportunity in our familiar old area of creating meaningful information. But who is leading the charge? I see economists, statisticians, psychologists, computer consultants, even accountants, but relatively few actuaries. I wonder how many here today are active in management-information systems, simulation techniques, linear programming, formal long-range planning, or even good old-fashioned operations research? I hope that we do not

allow ourselves to become spectators in one of the most exciting periods of insurance development.

I am afraid that I have taken a simple point and beaten it to death. This was a long way round to my answer to the question, "What should be the role of the actuarial department?" In my opinion, the role must be close and, if possible, dominant.

Now, from a practical point of view, what should we do? It is one thing to say, "We should be in charge," and another to implement that feeling. I wonder if the real reason why most data-processing installations are not run by actuaries is that as a group we are not really aware of the enormity of the technological changes. If this is true—and I think that it is—my feeling is that the only path to awareness and understanding is "hands on" computer experience.

With this in mind, I would like to make a proposal that should be practical for many companies. It is a rather slight extension of the system just described by Bob Koch. I suggest that, rather than having an actuarial computer off-line for actuarial-only problem-solving, the actuarial department's computer be connected on-line to the regular data-processing installation and that the actuarial department assume responsibility for the character of the management information contained on the master files, its integrity, and its availability. This would bring the actuary into a position of responsibility and control in our traditional areas, without necessarily getting into the billing and accounting business. Even more importantly, in my opinion, an atmosphere of actuarial involvement will be created—with its clear message to the younger men.

MR. KOCH: Perhaps our situation is somewhat unique in that we have two actuaries in prominent positions in our E.D.P. department and an actuary is in charge of insurance operations in which our E.D.P. department is located. We feel that our programming is very much under the guidance of actuaries without being in the hands of the actuary, and I think that this may meet some of Mr. McKelvey's requirements.

MR. PAUL D. YEARY: In the company with which I am affiliated, the actuarial personnel occupy staff positions. They were consulted only when those in charge of the development of the consolidated functions felt that their advice was needed. This led to some basic problems in development, since, in order to design and program a consolidated function system that will provide the information necessary in our work and to accomplish properly all the basic actuarial calculations, these requirements must be recognized, defined, and developed during the initial planning. Before I

offer our solution to the problem, I would like to trace the development that led to our current position.

Prior to consolidated functions and when the "650" was our primary computer, it was decided that the actuaries would write all their own programs for the computer. We still have a number of programs on this computer and are still called upon to provide the programming necessary for making changes and corrections to these programs. This is very undesirable from our point of view.

The next stage was to assign actuarial students to the E.D.P. area under the management of the E.D.P. personnel, none of whom were actuaries. After two and one-half years, we terminated this arrangement by mutual agreement. There were several reasons for this, one of the principal ones being the difference that then existed in salaries between actuarial students and programmers. A second reason was the high rate of turnover that is common in our profession. A student would leave our company, and we could not immediately provide someone to step in to continue the work that he had been doing. A third problem, from our point of view, was that the student had two bosses, which led to a conflict of interest. He did not know exactly which one to report to or to take directions from, which ended in our getting some important decisions made at a low actuarial level.

The next approach was to submit all our projects in writing. This meant that we had to write down every detail, as the people translating our requests had little or no knowledge of our language or needs. This led to problems in lead-time communications, since everything had to be in writing and frequently required many exchanges of information before the final specifications could be developed. The great amount of detail required in this form of communication proved to be a big stumbling block, since we found it almost impossible to cover every detail but, if we did not, E.D.P. could not achieve the right results.

The end result is that we are not involved in any consolidated functions programming but are represented on the committees that are working on the development or in working groups to make sure that what we need will be provided for. We do control and program all the basic actuarial programs, such as asset shares, gross premium calculations, dividend factors, and others.

MR. MANUEL R. CUETO: Assuming a company organization which provides for an E.D.P. department responsible for planning, programming, and operations, serving all other departments of the company, then the actuarial department's role is similar to that of other user depart-

ments. The actuarial department should assist in the design, including definitions and rules, of a consolidated functions system by assigning personnel to work with the systems analysts and by reviewing the system to verify the adequacy and accuracy of the actuarial aspects.

Normally, programming should be done only by personnel of the E.D.P. department in order to obtain the advantages of a centralized effort. Actuarial department personnel can work with the E.D.P. systems-analysis team during the design and check-out of the system. Ideally, actuarial students should be rotated to the E.D.P. department for perhaps two years to gain firsthand experience with computers; while there, they could assist in both the programming and systems-analysis work.

One of the problems is the conflict between theoretical actuarial accuracy on the handling of various policy accounting or annual statement items and the need for reducing program complexities to a manageable level. The same also applies to requests for extensive statistical data for actuarial purposes that would involve a heavy programming or machine-time burden on the E.D.P. department. Such problems are best resolved by discussion between representatives of the E.D.P. and actuarial staffs. Proper communication between the two departments is important in this regard. That is one reason why it is desirable to have actuarial department personnel assist in the design of the systems. Since no one has commented on this aspect of the problem, I would like to know what some of these companies do when something like that occurs.

MR. KOCH: I think that we have a good idea of the thing you were referring to in the calculation of reserves.

All of you remember our discussion of computer approaches. We were going to start with a table of l_x and go on from there. Many actuaries at one time wanted to do it that way. In our company, there was a meeting of minds between the actuarial people in the actuarial department and the actuarial people in the E.D.P. department, and we are, as a result, using a factor-tape approach instead. It is the only sensible way to do the job. There are other examples like that. I am quite sincere about the meeting-of-the-minds concept. I think that E.D.P. people have to communicate with the actuaries and vice versa. We send them to computer school and teach them about computers and how to program. We feel that it is very necessary that there be a common meeting ground where we can talk intelligently about computer problems.

MR. THEODORE E. BALEDES: A few years ago there were no actuaries working in the data-processing department of our company. In

this environment, the actuarial department found that communication was very difficult and that the understanding needed to perform various technical actuarial applications was not present. The actuarial department was, therefore, forced to do its own programming and development work. Since then, the actuaries have begun to play a more dominant role in the data-processing-department management. Communication has improved greatly and the actuarial department is now asking the data-processing department to do some of the programming and development work that Mr. Cueto might call "too finicky or too detailed."

We all seem to be in agreement that the actuary should play an integral role in the development of a consolidated function system. The question, as I see it, is, "What role should the actuarial department, not the actuary, perform in consolidated functions?" Where should we draw the line with regard to who does what program? I feel that the research and development, asset shares, and other nonproduction types of programming should still be done within the actuarial department but that mortality studies and the management-information-type project should be a data-processing-department function and should be designed, programmed, and scheduled by it as part of the consolidated function.

MR. WILLIAM C. HSIAO: We have been faced with many of the same problems, and we think that we have developed a workable solution. In systems work, those systems that organize on a project basis may have either an actuary or a data-processing man as the project manager. If the data-processing man is the project manager, he will have an actuary or an actuarial student on the project team if it involves any phase of actuarial work. The project team will continue to provide supervision and control to the project once it is operational. On those phases of the system that are purely actuarial, such as reserve calculations, and for the other purely actuarial programs, the actuarial staff does the development, programming, and debugging as subscribers to the computer.

MR. DAVID T. WARNER: We feel that the role of the actuarial department on consolidated functions should be threefold—consultation, liaison, and programming.

Consultation.—Some one person in the actuarial department, with a knowledge of data processing and actuarial experience, should be available for programmers and analysts to obtain information quickly. Many of the computer personnel have limited knowledge of insurance and practically no actuarial knowledge. If there is someone whom they can feel free to question, some of the "obviously ridiculous" results might be avoided. It

is apparent that no one person knows the answer to every question, but the consultant should know where to get the correct answer.

Liaison.—There should be some representative from the actuarial department who works closely with the group setting up the consolidated functions. He might be in a position to say what information could be combined or eliminated, but the more important task is to report frequently to the actuarial department as a whole to keep it informed as to tentative changes in reports and procedures. Sometimes what seems like an unnecessary bit of information may be critical to those in the actuarial department. The information once lost may be difficult to retrieve. Future embarrassment might be avoided by being aware of proposed changes before they occur.

Programming.—Many actuaries may feel that the whole job of consolidated functions could be accomplished more quickly and more accurately if all the programming were done by actuarial personnel. Obviously, this is not possible. We have used an actuarial student to create the dividend-rate tape and the cash-value and reserve-rate tape. We anticipate using a student to program the calculation of the actual nonforfeiture values. It seems to me that these applications are appropriately actuarial and the programming serves as excellent training for actuarial students.

Certainly there will be problems, of varying degrees, in co-ordinating the actuarial aspects of consolidated functions. These will vary with the individual companies. The actuarial department is accustomed to receiving certain information and reports from which it performs its work. These, in general, have been obtained from different sources and different files. Under consolidated functions there is basically one source of information. Certain information may have been dropped in the consolidation, some information which had different meanings in different files is no longer available, and special studies may be difficult or impossible. The goals in consolidating are to hold the record size to a minimum and to complete the job in a minimum of time. To avoid delay, decisions are often made quickly, some of which may be very difficult to reverse. Many of these problems might be avoided if a liaison man were to keep the actuarial department informed.

The question of computer priority has not caused us too much concern. In general, by explaining our requirements to the person responsible for scheduling the computer, we are able to work out a satisfactory arrangement. If no agreement can be obtained, then the difference is resolved at a higher level; the greater the difference, the higher the level required for the decision to be made.

Our experience with more than one shift has been an improvement, since much of the more-or-less-routine work has been moved to the second shift, leaving more time available on the regular shift for testing and running the actuarial jobs.

MR. ALAN B. GOLDBERG: I have some questions for Bob Koch with regard to the rotation of actuarial students in the E.D.P. department. How long is the rotation period and what jobs are performed? Further, assuming that they are indeed returned to the actuarial department after having their fingers in the pie, does this represent an infringement of your "hands-off" policy?

MR. KOCH: First of all, with regard to how long they stay, the average length of time is about eighteen months. When they are there, they serve more often as consultants rather than programmers. They are definitely involved in actuarial-type programs, but they do not do all actuarial programming themselves. They advise other programmers, and they are very much involved also in seeing that a trail of good documentation is left for their programs. We find that if they do not do this we are in real trouble.

When they return to the actuarial department or to other departments, you are right—they have their fingers very much in the E.D.P. pie. That is something that we encourage. Often they become involved in systems work—management systems, consolidated systems, and the like. Thus they continue to operate in the actuarial department as systems people but not as programmers.

MR. JOHN R. BRADLEY: The discussion up to this point has been about the relationship between the actuarial department and the rest of the company. This has been argued for the past hundred years, and it has very much to do with E.D.P. The short and simple answer, I have always been convinced, is to dispense with the actuarial department. This may sound frivolous, but, if you are organized more functionally, you can have your actuarial students and your actuaries scattered throughout the company, not grouped together, but scattered so that they have to work with other people. This keeps them communicating with other people.

MR. JOHN J. FINELLI: Perhaps we are increasing current difficulties by thinking in terms of organizations and classifications of activities that do not quite fit the emerging new ways of performing insurance work. We think and talk as though actuarial problems are matters quite separate and apart from administrative problems, from policy-service prob-

lems, from sales problems, and others. As we get heavily engaged with electronic systems, we find these are really not separable problems and that we must stop thinking of work separations by disciplines or by functions.

We should not be talking about the extent to which an actuarial division contributes, or runs the show, or stands aside and lets another department do it. Rather, we should be talking about how a comprehensive operating plan can be developed—for the company as a whole—how to collect the reactions and contributions of many different specialists—the actuary, the controller, the statistician, the systems man—and how to reorganize in a way that will permit use of operating practices that reflect all kinds of professional judgments necessary to effective processes. This seems to lead toward a new kind of division responsible for initiating changes to be reviewed and modified by many professionals, whether located in the new division or outside.

At any rate, electronics is not an activity that "belongs" to the actuary, or the controller, or the sales people, or any other group. When we get to it, I think that we will find it belongs, in part, to all of us and that we will need a pretty basic reorganization especially suited to the integrated character of new electronic systems.

For example, we have already found that the same set of processes that keeps a policy record on tape also produces policy reserve liabilities for the actuary, precalculated cash values and dividends for the policy service people, commissions and sales statistics for the sales people, and so on. Maybe we need to reorganize according to the different kinds of processes employed, with a fuller realization that in the future any one process will serve many different functions now being dealt with separately.

MR. JOHN M. BRAGG: The first topic dealt with consolidated functions, including the normal actuarial aspects relating to reserve calculations, and so forth. I will, therefore, assume that this second topic primarily concerns other problems and computer uses.

The first subquestion is, "For what problems or types of problems has the computer proved to be most effective?" Before trying to answer, I should state that Life of Georgia is a combination stock company engaged in ordinary, industrial, and group operations. We have about $2,500,000,-000 insurance in force. Our equipment includes an IBM 7070 and an IBM 1401.

Here are some of the special projects for which we have used our equipment:

1. Calculation of reserves and nonforfeiture benefits for a multitude of plans for which no published values are available.
2. Asset share calculations leading to the determination of gross premium rates for ordinary, industrial, and health insurance.
3. Determination of commutation functions.
4. Interpolation from quinquennial values, using Wells's formula.
5. Construction of tables known as "Claim Reserve and Liability Tables." (These tables are contained in a 1964 paper entitled "Health Insurance Claim Reserves and Liabilities." When we constructed the tables, we did not realize that the paper would ultimately be inflicted on Part 9E and Part 10I students!)

The next subquestion reads, "Are currently available programming languages adequate for the solution of these problems? If not, have any modifications been made in these languages to make them more suitable for this purpose?" The language that we have used for all the above projects is FORTRAN. I assume that most of you are familiar with it. It is an ingenious method admirably suited to the programming of mathematical formulas. The fundamentals of it can be learned in a day or two by a person who is unfamiliar with the machines. I would advise all of you to familiarize yourselves with FORTRAN—especially those who, like myself, are basically unfamiliar with the operation of the equipment. In addition to FORTRAN's inherent usefulness, it is a pretty good actuary's primer on how to run the machines.

Our data-processing people use AUTOCODER, but this has not generally been used on the special actuarial topics that we are discussing here. I am aware that there are other languages, such as COBOL and ALGOL, but we have not used them or any modifications of them.

The question, "For what problems or types of problems should we be using the computer in areas where little or no work has been done so far?" is being asked nation-wide in many industries. It seems in general that the equipment is now fairly well developed in the clerical, labor-saving, and bookkeeping areas; there is a tendency to turn now to other, and perhaps more fundamental, uses, such as production-control and marketing areas.

There are no doubt many areas in which we should be using these machines. I will only be able to suggest a few which seem fundamental. I believe, incidentally, that work *is* going on in some of these areas. The Society's meeting just one year ago included a panel discussion on "Operations Research," moderated by Mr. Lew. This discussion clearly reveals that some work, such as I will mention, *is* taking place. The extent of it is not clear to me, however.

The first area is that of investments. This, to my way of thinking, is a

vast unexplored sea, offering great promise. The fundamental problem is to determine the rules relating to the purchase, sale, and switching of particular investments and kinds of investments, in the light of the nature of the contracts that we have in force. At Life of Georgia, we have made only one hesitant voyage on this sea—a program which analyzed all our municipal bond holdings in an effort to pick out the ones which appeared to be good candidates for switching to another form of investment. You can imagine the variables involved, including capital gains and losses, book values, federal tax rates, amortization methods, and so forth. It was a good computer application.

Second, let me mention the new pricing and compensation methods. These were described in a paper entitled "Prices and Commissions Based on the Theory of Games," which appeared in the June, 1966, issue of the *Journal of Risk and Insurance*. I do not want to take time to go into all the implications of that paper. Suffice it to say that it prescribes a method for determining optimum prices; it also attempts to determine commission rates which are as fair as possible to the sales force and a "sales attempt quota" which is as fair as possible to the company. A "sales attempt quota" might also be thought of as a "prospect seeing quota."

At Life of Georgia we have used our computer to calculate tables from which an optimum price can be determined if certain necessary input data are available. Construction of these tables would have been impossible without the use of a large computer. The calculations, which proceed by trial and error, are far too laborious if attempted manually.

Let me identify the crucial encounter upon which everything else in our business depends—the encounter between the prospect and agent. It is essential for us to see, first, that enough of these encounters occur and, second, that the expectation of success is raised as high as possible. The problem of "prospecting" is too often left to the unaided resources of an agent (who is all too often a brand new recruit) or to catch-as-catch-can methods at the best. If we can use our computers to aid in the compilation of prospect files, the qualification of prospects, and the organization of methods of approach to prospects, we will have done much good for our companies and sales forces.

With regard to the last subquestion—"What is needed to obtain a real breakthrough in some of these less conventional areas and how can this need be fulfilled?"—I suspect that quite a bit of research is going forward in some of the less conventional areas. However, very little is being published. The *Transactions* are almost devoid of material in these areas. What we need is research and, most particularly, the publication of the results of that research.

MR. JULIUS VOGEL: I have prepared my remarks mostly from the point of view of a consumer of computer applications associated with ordinary life insurance.

In the Prudential, the main actuarial applications—actuarial, as distinguished from such data-processing applications as premium-billing—fall under five main headings. I will describe these very briefly in the hope that some of them may be of interest to others, although I am sure that many of us here are doing much the same things.

The first is the valuation of our ordinary life insurance business. This is a quarterly job in the course of which all transactions for the quarter just ended are summarized by valuation cell. The in forces are updated and the current reserve figures are produced. There is also produced an analysis of the increase in reserves for the quarter just ended. This procedure requires about 350 hours of IBM 705 time each quarter and is quite an elaborate affair. We are reprogramming the valuation for the IBM 360 and hope to make the conversion at the beginning of 1968.

The second major area of actuarial applications is what may be thought of as large-scale actuarial calculations. For example, we now have a 1401 program and are well along in developing a 360 program to do asset share calculations for ordinary policies.

Another large-scale calculation is the determination of dividend rates for the hundreds of thousands of dividend cells that we have in force. Applying the ordinary dividend formula to arrive at the dividend for each of several hundred thousand plan, age, and duration cells is a big job, which we have recently doubled by introducing separate dividend rates for Canadian dollar business.

Another large-scale annual job is our ordinary mortality study, which is currently done on the 705 and will be done on the 360 within a couple of years. It is essentially a by-product of the valuation.

I would like also to mention two jobs which are relatively small but were some of the first computer applications in our ordinary annual statement area. These are the determination of first commission rates needed to calculate field-expense limits for Schedule Q and the determination of the limits generated by newly issued policies under the Wisconsin expense-limit formula. We do these jobs by summarizing appropriately the policies dated in, and in force at the end of, the current calendar year and applying the statutory formula to each cell.

A third major area of computer application in ordinary life insurance in our company is the preparation of certain periodic publications. We use computer print-outs as the masters from which our rate-book pages are prepared. We also have a number of annual publications, such as books

showing the current year's dividend rate applicable to each ordinary cell. In these publications, the computer prints almost every word and number that appears on each page, and usually little but the ruling of lines has to be added manually before the output is reproduced.

A fourth area of actuarial applications is more or less one-time jobs, such as graduating a mortality curve or projecting the average interest rate of a portfolio, for which a FORTRAN program is developed which may only rarely be used again.

The fifth kind of computerized actuarial calculation is case work, such as calculating premiums at issue by combining the necessary rates (ascertained by table lookup) for life insurance, disability, term riders, accidental death benefits, or the calculation of reduced paid-up or extended insurance when premium payments are discontinued. I think that this area will probably be more extensively computerized in the future.

With regard to languages, our actuarial programs have been written in AUTOCODER, FORTRAN, and a variation of COBOL more or less unique to the Prudential. We find that AUTOCODER is not too suitable for our purposes. It seems to require a specially trained full-time programmer, whereas FORTRAN and COBOL can be learned by a technician who is not primarily a programmer but who is interested in putting a particular application on the machine. The version of COBOL that we use is something called PRUCOBOL. This is a subset of all the possible COBOL instructions that we consider flexible enough for our needs. Our 360 applications are programmed in PRUCOBOL.

As to new areas in which to exploit the computers' advantages, I can mention the following. Underwriting of new insurance applications by computer is something that we are just beginning to get into. We are developing a program which can recognize reasonably clean cases, which will then require no further underwriting action. The program will, of course, also identify what features of an insurance application cause it to spill out because it is beyond the computer's capacity to consider. The computer will also originate orders for medical or inspection reports in appropriate cases. This underwriting program is still in development, and we do not yet know what proportion of new business applications will be clean enough for the computer to handle completely.

An area in which we in the Prudential have made no practical headway is in projecting, by computer, annual statement results for a full calendar year on the basis of the actual experience of the preceding year or of the first six or nine months of the current year. When it becomes necessary to make such projections, we make extensive use of the output of our ordinary valuation program, which summarizes the transactions that have

actually occurred, but the extrapolation into the future is entirely manual and rather cumbersome.

Another and somewhat related area in which our company has made no headway—I would be glad to learn at this meeting if anybody else has been able to do this—is the integration of the annual statement actuarial liabilities into the accounting system. On the face of it, it would seem possible that, when a premium is received by the company, instead of crediting premium income, we could credit the reserve liability with the amount of net premium for each benefit and an account called, say, "available loading," with the excess of the gross over the sum of the net premiums. Similarly, when a death claim or surrender transaction occurs, one would think that the same entry which records the disbursement, or indeed the receipt of the claim, could also be used to reduce the reserves. This would make accrued earnings figures available during the year automatically and would, of course, simplify the preparation of the annual statement. I wonder if anybody here has such a system in effect.

Finally, as to what is needed to make breakthroughs possible, a number of things may be cited at various levels of significance. At the very lowest level, we could certainly use a printer that rules acceptable horizontal and vertical lines, because we sometimes have a girl spend a week or two at a time doing very little besides ruling lines by hand. Also, at this rather low level of significance, it would make our publications a good deal more readable if printers were available with, say, two sizes or boldnesses of type which could be used to distinguish headings from other parts of the printed output.

On a more general level, what are needed are better input devices. Keypunching is still an expensive way to get data into a computer system. More adaptable optical scanners would be of help.

When I discussed my appearance on this panel with some of the people who work in our research department, they expressed the opinion that the real breakthrough has to come in people's thinking of computer applications. They feel that the absence of suitable hardware is not the real difficulty. In their view, the difficulty is that people are still thinking too much of computerizing one or another aspect of a company's operations, such as valuation, premium-billing, mortgage loan accounting, and so forth. They feel that underlying all these applications is a certain unity of which full advantage has yet to be taken. A generalized programming approach may, therefore, make it possible to generate summaries and analyses of stored data almost as soon as the user knows precisely what it is he wants, without the need to wait weeks or months for a specialized program to be developed.

CHAIRMAN J. STANLEY HILL: I would like to ask Mr. Vogel a question. At this particular point, until we find some way to produce a machinable application for medical examination on part two of an application, it is difficult to justify the automation of underwriting economically. I can only assume that either you have a practical scanner for doing this or are going ahead with your experimentation in the hope that by the time you perfect your process there would be some sort of automated application.

MR. KOCH: Perhaps I can answer that question. At the John Hancock we have been issuing policies by computer for several years now, using keypunch input. I might be able to give Julius a clue as to how successful it will be and the number of applications that he is going to have going through the computer without being fired back at an underwriter. If he gets 50 or 60 per cent through the computer, he will be doing well. But one of the major benefits is not the clean cases that go through without further handling but the fact that an underwriter gets a complete analysis of the case after it goes through the computer, indicating what additional information he needs.

MR. YUAN CHANG: With regard to underwriting, we have done some study on it and find it economically feasible. We have not embarked on it to the extent that John Hancock has. I have several remarks on the first topic discussed this afternoon.

I would like to say that E.D.P. operations do not really need actuaries as such. But what they do need are the capability, the talent, and the knowledge that are generally found in an actuary, perhaps more so than in any other professionals or nonprofessionals in the insurance industry. Therefore we need not look for a practical way of defining an actuary's rule in E.D.P., because sooner or later each company, depending, of course, on the size, will find several actuaries getting involved in the E.D.P. operations.

On the second topic, I would first like to make a comment about the area of languages. We hear about languages being used, generally developed by computer manufacturers—COBOL, FORTRAN, AUTOCODER, PLI, and so forth. We began two years ago to plan a total system that we hope will carry us through for a number of years.

One of the things that we have done as a part of this plan was to research the development of a language. I will not go as far as to say that this will be the panacea of the problems in the language area. What we are doing is not confined to an actuarial language but rather to an insurance

language. We are defining terms most commonly used in the insurance industry that are also necessary for systems. This will give us essentially the vocabulary of the language. By identifying the elements necessary within the system and defining the interrelationship among these elements, we establish the syntax of the language. We hope someday to have the type of language which will result in our being able, as an example, to ask the computer to calculate a cash value at a certain rate without doing more.

Next I would like to discuss three areas as typical of computer applications to actuarial types of problems. They are valuation, which we have completed; simulation, which we are doing; and determination of profit potential of policies, which may be well into the future.

With regard to valuation, I would like to mention that we now have a valuation master file which is essentially a copy of our billing and accounting file. We do have consolidated input. However, the separate files give us a certain flexibility that a consolidated file cannot give us. It gives us the facility to carry reserves for all durations on the file. Annual valuation is then a summary job. Monthly valuations are performed by determining and reflecting the proper terminal reserve adjustments while handling the transactions to our file. We find that we do have to make some kind of adjustment at the summary level. As you are all well aware, if an ad interim type of reserve is used in a monthly calculation, we will run into inconsistencies in December and January, since mean reserve is used at the year end. We make a mathematical adjustment based on the same assumptions used in the mean reserve concept.

We are also doing some work in the simulation area. Instead of building a model office which involves combining common forms, you might say that what we have is a sample office. We use a portion of our in force by selecting policy numbers terminating in a certain number. This sample file with appropriate projections, we hope, will give us a forecast for the next ten to twenty years of gains or losses, not on a gross premium valuation basis but on a statement basis. This is being programmed right now, and we hope sometime next year to be able to use it.

I believe that one of these days we are going to get away from evaluating production performances in terms of volume or premium, as the case may be. I think that someday we will be able to do a better job of estimating profit on a particular type of contract or particular groupings. I also think that commissions or agent compensation may be directly based on a profit-sharing concept. If that premise is valid, then I do not think that it would be very far-fetched to say that we should tie the commissions to the profit potential as new cases are issued and maintained. I do not know

how long it will take, but I cannot help but feel that the technological advances in E.D.P. will provide the impetus.

CHAIRMAN HILL: I am sure that we all profited by your remarks. There is a small contribution that I would like to make at this point on another question of Mr. Vogel's regarding interim statements. We finished reprogramming from our 205 to an IBM 360 FORTRAN, a program which puts together the first fourteen pages of the annual statement. I might say that it is a wonderful labor-saver and really a joy to work with.

Our next step along that line will be to extend it to provide us with better interim statements than we have. I personally would like a twelve-months-running type of statement. I think that it will produce a much better insight into our operations during the current portion of the year than any attempt to project the year from the portion of the year that has elapsed. The reason for that is manifold. One is the uneven or seasonal distribution of our new business. Another is the problem, cited by the last speaker, of trying to deal with a reserve concept on interim statements. This should help to remove the aberrations that exist in interim statements because of different methods of obtaining such things as interest on bonds, mortgages, policy loans, and a great host of other items estimated on a basis different from the year-to-year inventory.

Another item may be of some general interest. We talked a little of simulators. While it is not a true simulator, we have prepared in our office a FORTRAN 1401 program for a life insurance–oriented management game which was used with considerable success at the Twin Cities actuarial club. If anyone would be interested in this at an actuarial club meeting or as a training device in your company, we would be glad to provide the program if it is compatible with your machines.

MR. SAMUEL L. TUCKER: I am responding to the comment about the interim statements, and I will make my comments brief. In Church Life, a very small company, we have determined both the terminal reserves and the mean reserves on a monthly basis, and this has not been done by computers.

Our computer was installed last year, and we had been developing by hand a system for determining our reserves on a quarterly basis by accumulating net changes due to transactions, which can become the final reserve at the end of the year.

Since we did not have it done by computers, we were not brave enough to use this in our statement, so we computed the reserves all over again at the end of the year. Once we get this on the computer, we will be reaching

our goal of a monthly determination of reserves accumulated through the year with various other supplementary results for interim statements. I will not go into this now.

MR. WALTER N. MILLER: I was most interested in Mr. Bragg's reference to the critical encounter, which, I think, he quite correctly describes as the key to the life insurance business. He went on to say, and again, I think, correctly, that this is an area in which a lot of work can be done. In particular, he described what we can do to help our field force to maximize the number of such encounters.

I know that it is a very widely held view, in fact it is almost axiomatic, that the key to success is this idea of maximization. The more people that you can get your field force to go out to see, the better off you will be. I want to suggest that perhaps another area in which we can look ahead and do a lot of valuable work is that of trying to find out whether this really is axiomatic. I have a feeling that maybe we should not be concerned so much with pure maximization but rather with the type of people our field force will meet and the quality of these people as prospects for insurance.

MR. BRAGG: I am glad that I struck a responsive chord with those remarks.

I would certainly hope that, if we can use computers in this area, it would not be just a matter of maximizing the number of prospects but it would also be a matter of "qualifying" them. This is a term that I believe agents use to describe how to sort out the wheat from the chaff in a prospect list. I would very much hope that we could improve the quality of the prospect list and not just increase the number of prospects.

MR. MEL STEIN: Computers can be of invaluable assistance to the actuary in the financial analysis of agency operations. This is probably the one area in which the overwhelming majority of life insurance companies are continuously experiencing their most critical problems. To date, the actuarial profession has generally tended to neglect this vital area.

The availability of today's powerful computers allows the actuary to use sophisticated mathematical models and projections in tackling such important projects as:

1. Financial comparisons of the general-agency and the branch-office methods of operation.
2. Analysis of the initial and ultimate financial effects of different methods of agency compensation and financing.

3. Projections of the incomes of various hypothetical agency field personnel under existing and proposed agency-compensation contracts.
4. Financial projections of proposed agency-expansion programs.

Agency projections involve consideration of such variables as production levels and slopes, agents' hiring and termination rates, vesting of commissions, and the amount of agency field expense in excess of that specifically provided for in the gross premium structure, as well as those variables normally used in the gross premium calculation. This requires numerous computations involving complex formulas whose completion would be extremely burdensome and time-consuming without the assistance of the modern computer.

Bowles, Andrews & Towne has a series of comprehensive gross premium valuation programs whose uses include valuing a company's insurance in force and agency plant. The results produced by these programs are applied in the general-agency mathematical models previously mentioned.

A financial agency analysis must take into account the increases in value of the insurance in force and the agency plant as well as the resulting changes in the annual statement, or book, profits.

The overwhelming financial effect of major decisions concerning agency compensation and expansion creates an urgent need for the actuary to utilize the modern computer to produce meaningful financial data for management to use in its decision-making.

MR. CUETO: Computers have proved most effective where either large volumes of data or very complex calculations and processing are involved. They are also very effective in areas which heretofore could not be undertaken because of prohibitive costs. It is essential in determining applications for the computer from an economic viewpoint that programming and machine costs be considerably less than the prior costs of operation or less than the "worth" of the job if prior operational costs are not readily measurable.

Present programming languages appear to be adequate, particularly the use of FORTRAN for problems concerned with actuarial mathematics. We have recently begun to use PL/L and hope that it will be better to use than FORTRAN or COBOL. The development of an actuarial computer language or our own language presents a formidable problem because of the necessary construction of a compiler, the difficulties involved in obtaining satisfactory results, and the tremendous expense of the entire undertaking.

Some of the problems for the future are investment analysis, greater use for producing specific marketing and management information, operations-research problems, model building in various areas of operation, and mathematical simulations.

Hardware improvements, such as much larger high-speed memories at less cost, and cheaper communications networks will be of help, but the main problem at present, which is not going to be easily solved, is the shortage of qualified personnel to tackle such projects.

MR. WARNER: We have used the computer extensively to test and to calculate new scales of premiums, dividends, cash values, and reserves. Special mortality studies have been made on the computers, because they are faster and much less card-handling is required.

Having used five different program languages, I have not found any of them inadequate. The specific problem may make one language more appropriate than another.

I think that most of our work has been done in the conventional areas. The move to the new and less conventional areas will come with time, experienced personnel, and imagination. The move can be hastened by publication of the results obtained by those exploring these areas.

MR. LESLIE MEZEI: The modern electronic digital computer affects many aspects of the work of the actuary. I will attempt to outline briefly some of the issues which this raises and, for the sake of discussion, to present definite opinions on them.

My basic approach is that whatever the actuary is—and I am not even clear on this point—he is not a computer scientist. This does not mean to say that some actuaries are not computer specialists as well and that some computer specialists may not be actuaries as well. From the point of view of the actuary, the computer is merely another tool, as is the slide rule, the desk calculator, the addressograph machine, the typewriter, and the library. The actuary's interest in the computer is in the ways in which it can help him to do his job better, faster, cheaper, more effortlessly. I shall limit my discussion to those items which interest the actuary as an actuary and shall leave the data processing and other administrative tasks for other organizations to discuss.

Conventional Actuarial Calculations

1. Does the actuary lose control over the methods of actuarial calculation when these are a part of the consolidated functions approach performed on the computer? He does not have to, but he usually does. The

formulas used, the number of significant figures, the frequency of calculations, and the number of exceptions allowed are frequently dictated by the programming staff rather than the actuary because of technical limitations of computer time and memory. Changes are allowed only at certain intervals and only if they are not too radical. The computer is in a very real sense a strait jacket. This situation is improving rapidly, with faster machines, more memory, and a greater realization of the need for more flexible systems. The changes usually require as much effort when added together as the initial installation! When the actuary does not understand the nature of the computer equipment, the systems of programs which perform his jobs, and the effort involved in making changes, he loses control even more. He may ask for changes which require a disproportionately large effort compared with the gain, but equally he may neglect to ask for something which is easy to produce but would have great value to him. The computer system is a limitation when viewed in this light, but a lesser one than the punched-card-oriented tabulating system which it replaced and an even lesser one than the manual data-processing systems. The difference is a psychological one. He has been through most areas of the company's operations before he became the actuary and is intimately familiar with the conventional equipment—such as desk calculators, with which he is probably painfully familiar from his student days—and its limitations. With that system he does not think to ask things which are difficult, and he knows which are the easy ones. He is disappointed that he cannot get changes in the computer system which he would not even dream of asking for if all record-keeping and calculations were done by hand. It is not his fault; he just was not informed about the system and its limitations and he was probably oversold on its flexibility. Without doubt he is getting information and calculations from the computer system which no one ever dreamed possible, but it is all a matter of expectations.

2. Have new methods of calculation, new formulas, been developed which are more suitable for computer use? Not to my knowledge. Either the commutation column—developed for the convenience of the desk calculator—is the best way of doing actuarial calculations, or there is simply not enough research going on in this area. Does anyone use the formulas of calculus with continuous variables, for example?

3. Have any new methods of valuation been developed? The only one that I am aware of is the monthly valuation formulas reported by J. C. Davidson and J. T. Birkenshaw in Volume X of the *Transactions* on page 539. All others appear to be machine adaptations of long-existing

methods. Could better and more efficient ways be found? Could not the machine develop both gross and net premium valuations without too much extra cost?

4. Can we achieve greater equity in the dividend formula by greater complexity, which the machine can handle? To carry this argument to its ultimate, each policyholder should be in a class by himself. This is a matter of philosophy. Certainly machine calculation allows you to use as complex a formula as you like, and as many dividend classes as you want, but you have to decide how far you want to carry this.

5. Are approximations of the past falling by the wayside? Many things are calculated with exact formulas that were only approximated in the past. This can be carried too far, and we must be sure that the actuary does not lose his almost unique ability of accurate approximation. Even the decision whether to approximate or not requires an approximation. On the whole, there will be a decreasing need for approximations, but they will always play a part.

6. Will the consulting actuary be able to do more consulting and less calculating? Without any doubt. He will either have his own computer, use a service center, or have a remote terminal to a central computer utility. A generalized program to do all pension valuations and quotation work could be easily developed, since the number of varying factors—such as valuation basis and method, funding method and so on—is rather limited. The employee data and a sheet showing the details of the plan will be all that will have to be fed into the machine.

7. Will we get more reports in the form of graphs rather than tables? The human mind can absorb graphic information more quickly and notice relationships and trends much more easily. The equipment is now here which will make this economical.

8. Will the computer enable us to design insurance policies in a "modular" way? We could tailor-make each individual policy. The elements would be so much term insurance, endowment, health, accident, so many pension payments, and so forth, with each element having a separate amount and a separate duration. Each quote would have to be presented to the computer, which would provide the premium, as well as check that all rules and regulations are met, within split seconds. The agent will be able to do this right from the client's telephone.

9. All expenses, as well as other accounts, can be recorded by area and line of business at the outset and more accurate expense rates obtained. The introduction of computer systems makes cost-control programs practicable in all companies.

10. The day is not far off when the actuary will have a remote terminal from the computer system into his office. He will then be able to use the computer as a very powerful calculator. Some service centers already offer this in the United States and Canada. Special conversational programming languages are emerging for this purpose, so that anyone without the training of a programmer can use it. In our type of work it should be possible to write formulas using commutation columns and the rest of the standard actuarial symbols. All the formulas in Jordan's *Life Contingencies* could be stored in the computer once and for all. In addition, other data may be available to this calculator, such as all standard mortality tables, a model office previously set up, and so on. All this available at the touch of a button!

New Techniques Made Available with the Computer

1. *Operations-research techniques.*—As intimated earlier, I do not think that we are utilizing these techniques as much as we should. There probably does not exist an area of operations research which could not be applied to the life insurance business and the work of the actuary. One of the reasons for not making more use of them is the lack of sufficient mathematical preparation. I also suspect that much of the work in this area is not being published. If this is really so, it is contrary to the co-operative spirit in which the use of the computer was originally explored.

2. *Forecasting.*—The actuary was probably the first to use simulation techniques for forecasting through the use of the life table and the model office. A new approach which allows for a less simplified picture of the situation is the selection of a random sample from the actual policies in force, which can be used to test the effect of particular proposed lines of action. A model of the whole life insurance company could be built as well, to test out other proposals. For purposes of market research, models of the whole economy, or parts of it, can be used. The limit is only our ingenuity in setting up useful models. They may require more powerful computers, but time on these can be rented as needed.

3. *Investment applications.*—In the United Kingdom the investment function is an integral part of the actuaries' domain. I am not suggesting that actuaries should buy and sell securities (except for their own account), but I do suggest that mathematical methods of evaluating investment performance should be explored by actuaries. What is the true loss or gain when you sell one security and buy another, for example? It is the difference between the present values of the expected total yield of the two securities over a long period.

4. *Computer-based information-retrieval systems.*—This approach will be a great help in keeping the actuary informed of new developments. It does not have to be a very fancy system to have immediate benefit. One method already in wide use is the selective dissemination of information, where each subscriber submits an interest profile and is alerted about new material which appears in the literature on the subjects in which he is interested. Normally we do not even manage to keep track of the literature of the actuarial bodies in the English-speaking world! A useful preliminary step is one used by the Toronto Board of Education, wherein each person gets a reproduced copy of the index page only of every journal in which he is interested. The development of these types of systems is too large a job for individual companies. Our actuarial organizations should begin to work on an actuarial information system now!

5. *Critical path methods.*—CPM, PERT, and the like are just as useful in controlling projects like the introduction of a rate book as they are in the construction industry. Let us use them. If nothing else, they force us to list all the tasks which must be done.

6. *An actuarial programming language.*—At one point it was my firm conviction that a special-purpose computer should be built for life insurance problems. At the time I was too concerned with the technical limitations of the then existing general-purpose computers. I thought that a machine which could do sums of cross-products at electronic speeds, for example, could do our work more efficiently. Recent developments in the equipment convince me that this is not necessary.

It is now my firm conviction that the first priority in this area is the development of an actuarial programming language (APL) which should be a subset of a life insurance language (LIL). General-purpose languages, such as FORTRAN and COBOL, are simply not the best answer. Every profession develops its own jargon, its own well-defined terms for a good reason. It saves having to define and explain the commonly used terms over and over again. I would go further to say that the more powerful a language we have, the more advanced problems we think up and solve. In a real sense the language that we have dictates the kind of questions that we ask—usually the more difficult task—rather than the other way around. This is similar to the fact that the equipment and techniques that we have govern the kind of results that we ask for rather than developing the equipment to do the things we would really like to do. What we want to do is governed, by and large, by the equipment and the language that we have.

Such an actuarial programming language must have as a minimum the standard International Actuarial Notation. To program this is really very

easy. It should include the better-known graduation and exposed to risk formulas as well. The formulas of probability and statistics, finite differences, and numerical analysis could be included. We should have to say only, "Form the second differences of this set of figures," and the result should appear automatically. The standard mortality and morbidity tables and others should be included. The various valuation modifications would be another example. We should be able to say, "Do this, using the Canadian modification," and see how the result differs from, say, the net level figure. We should be able to explore the effect of different interest rates, different mortality tables, and the like painlessly.

The language should be in a form close to the language the actuary understands without special programming training. It should be one which can be learned by a conversational procedure with the computer. Any errors in the way that we present the questions to the computer should be brought to our attention automatically. It should be easy to form new procedures and formulas of our own, to which we need thereafter refer by name only. This is not a pipe dream. It can be done today. It would be invaluable even for those who for the moment have to communicate with the computer by conventional punched cards.

The more general life insurance language could have commands like "Obtain the total gross premium," "Form the government statement exhibit amount," "Find the commuted value of all term riders." These should be applicable to one policy, to a selected block of policies, or to all of them. All policy provisions of a particular company could be stored and retrieved by this language, as well as all underwriting rules. Such a language would find applications in all areas of life insurance operation. Not only would this be helpful to the programming staff, but it would enable the line organization to formulate its "one shot" jobs in a language which can be presented directly to the computer. It would be useful even if it were only used as a language of communication with the programmers, a method of describing the "algorithms" to them. It would also serve as a publication language in which specific procedures could be published precisely in the actuarial journals. The programming department would still be necessary to control the regularly running data-processing systems.

I believe that the development of these languages is so important and the benefits would be so large that an immediate start should be made by the profession. Ideally, an international committee representing the various actuarial bodies, working under the International Congress of Actuaries, should do this. Alternatively, a Society of Actuaries committee could make a start.

MR. FINELLI: The subject that I have been asked to talk about is "A Look into the Future." Of course, one cannot say very much about the future in a few minutes. I can report, however, that studies have been made of the new hardware to be expected in the years to come and that one article appearing in the September–October, 1965, issue of the *Harvard Review* contains a good deal of material on that subject. I think that you will find it of interest.

Today, I would like to mention three developments that seem likely to make a significant contribution to the systems and procedures that we are likely to get into in the near future—and that have a significant bearing on many of the problems that we have been talking about today.

The first one is the emergence of the low-priced computer—a separate free-standing machine that can be used by the large companies as well as the small ones. The second item that I will be talking about also involves new hardware—image-handling equipment that deals with pictures rather than digital representations of data. The third has to do with software—the problems involved in planning and programming for computer systems.

With respect to the low-priced computer, it now seems possible to get computers at a price around 80–90 per cent less than the price paid for computers that were marketed in the early 1950's, without much, if any, sacrifice in capacity. This seems due to a combination of things—technical breakthroughs (integrated circuits, thin film memories, including plated wire), higher densities of recording of information (up to sixteen hundred bits per inch on tape or disk or drums), and a variety of improved methods of fabricating the machines and their components.

Computer operating costs, which used to run above $100 per hour some years ago, including the cost of the operator and various supply items, now seem to be in the range of $10–$15 per hour for new machines.

In view of such low costs it has been argued that the practice of custom designing programs can no longer be justified. Over-all ends would be better served, it is asserted, by fitting the procedures to be installed into standardized, ready-made programs. Doing so might increase "run time," but it would reduce the number of different programs needed and thereby reduce the lead time necessary to installations and ease the demand for skilled people.

A rough calculation was made to suggest the extent to which cost might be affected by increased "run time" (which is bound to result from use of general or standard programs) on an indicative problem. Comparative costs were developed for the scanning of a large-volume tape file of life

insurance policies. The results of the calculations indicated the excess cost for searching the records of a million policies according to a "loose" procedure (that is, a procedure that can be used on ordinary life insurance as well as for weekly account business, monthly account business, and health business—the same program to scan various lines of business) as opposed to a "tight" procedure (one that involves several programs, each specifically engineered for a line of business).

The excess "run time" cost, loose versus tight procedures, on a first-generation computer (the vacuum tube machines of ten or so years ago) figured to be about half a million dollars per year for procedures that updated the policy records every day.

The same calculation based on a third-generation computer produced a figure of only $30,000 per year as representative of the difference between loose and tight procedures. This suggests that the value of custom-designed programs may have been reduced by a factor of 15 or more, by the new machines now available.

At the present time, then, we can trade some efficiency in "run time" for simpler, more standard, and more general procedure designs. Doing so should permit installations with fewer programs that would be simpler and more easily learned and changed. This, it is felt, would materially reduce the elapsed time necessary to install electronic systems as well as the costs involved.

This point of view also argues that movement toward time-sharing of real time computers through wire linkages with remote locations is no longer indicated. The overhead attaching to time-sharing systems (i.e., need for scarce skills, for an executive routine, for data-transmission gear, etc.), it is reasoned, is large enough to make more attractive an alternative system with separate inexpensive computers, each located at remote points and operating as independent units. The lack of experience with wire data and with centralized random memories also argues for small separate computers in remote locations where the inputs originate.

Another point that is raised is that the task of extracting data from a reel of tape by the simple process of spinning the reel of tape until you find the particular item that you want is really a three- or four-minute job on almost any kind of tape computer. When you consider the high cost and the structure of things needed to extract data randomly, instantaneously, from a central memory, it raises serious questions about the use of large mass memories in a central location for policy service purposes. This point of view runs counter to the current line of thinking in many places and to my own as of nine months ago.

On the other hand, however, it has been argued that even at current low computer costs, "run efficiency" is valuable and a clear case against custom programming cannot be made at the present time.

Further, goes the rebuttal, reductions in lead time and in the demand for skilled people are likely to result from coming improvements in programming and development techniques regardless of the type of computer employed. The low-priced computer, therefore, may be merely enjoying a temporary advantage that would be completely offset as new techniques for using more powerful machinery evolve.

Also, the so-called overhead that attaches to the use of time-shared machines, some say, is probably not large enough to justify the use of many separate computers to do what can be done by one.

I do not have an answer to this controversy. All I can report is that last year I thought that my company should move in the direction of a centralized, large-scale computer with mass memories, wire-connected to our local offices. Now I am not so sure. I am much attracted by the idea of service with small computers operated as separate free-standing machines in many local offices.

Others are also considering the pros and cons of these two points of view. For a fuller treatment of the opposing views, I can refer you to an article by Fred Gruenberger appearing in the April, 1966, issue of *Datamation* under the title "Are Small Free Standing Computers Here To Stay?" and to an article in the same publication, appearing a month later, by M. B. Solomon, Jr., under the title "Are Small Free Standing Computers Really Here To Stay?"

The same magazine has a section labeled "Look Ahead." The man who writes it had this to say:

> One far out hardware salesman who labels himself a conservative says that the latest integrated circuits will make such a big breakthrough in the next three to five years that it could well spell the doom for time-sharing and multiprocessing. . . .
>
> Another hardware expert doubts that things will happen that fast; points out that reduction in data transmission rate could offset such effects of i.c. breakthroughs. "It is conceivable," says the second man, "that with your own satellite you might be able to achieve coast to coast transmission rates of five cents per hour."

All this adds up to the fact that technology is moving along in this area and that many of the plans that have been laid and some that we have still to lay will have to be kept flexible. If you commit yourself too heavily to one particular point of view, to one particular frame of ideas, you risk becoming locked into an obsolete structure even before you can install it.

Some of the companies not yet committed to a particular configuration of machines and procedures will undoubtedly have to resolve whether movement should be in the direction of real time computers equipped with random access devices, with wire linkages to remote input-output stations; toward a system of inexpensive computers located at remote points, operating as free-standing units; toward an arrangement under which the needed computer time will be purchased by remote stations from a computer utility company with equipment that can be time-shared by many users.

One such utility company is selling such service to a few companies in the New England area, and Western Union has announced as already in progress a plan to provide such service on a nation-wide basis.

Another important equipment development involves image-handling—machines that permit direct recording from computer to microfilm, that provide for miniaturized storage of microfilm (i.e., that store, amend, and retrieve film images in micro-micro form to reduce storage costs and to reduce facsimile transmission costs), and provide visual display units that permit a viewer to introduce a change in computer data by use of a stylus which marks the change on the image displayed. We see here the beginnings of a movement toward useful information reservoirs in combined digital and facsimile form micro-miniaturized to a degree that makes the same information, including original documents, inexpensively available to many widely separated users at the same time.

So far as input devices are concerned, magnetic and optical readers of characters, of marks, and of spot configurations and the coming machine reading of handwriting information bid fair to control significantly costs of input. Voice origination of input, however, seems still far in the future.

The remainder of my remarks have to do with the programming question. In view of the time limitation, I will just go through and pose questions. These will indicate the thoughts that I am trying to convey.

What programming system should be used: stylized English like COBOL; mnemonic assembly like AUTOCODE; module assembly like ALIS; or standardized packaged programs like CFO 62?

Now that computer costs are low, modular programming and standardized program packages can be used more extensively. Will doing so permit programming by nontechnical people, an expansion of programming staff, and an avoidance of burdensome exchanges of methods detail between technical and nontechnical people?

The problem of programming and system development, within a reasonable time interval, may not be adequately solved until the man who knows the work (its nature, its objectives, and its purposes) can do the

programming himself. This requires new programming systems that can be applied by lay people to displace existing systems that require highly trained technicians.

Also, will programming soon become a task that requires the fitting of the job to be done into an already available set of programs, rather than the other way around?

Pertinent to this discussion, also, is the fact that one insurance company purchased ready-made programs from another company and expects to use them with minimum change; also some years ago one group of companies jointly using the same computer started out with the idea that they had to use different procedures. They wound up, after a few years, using the same procedure, the same methods, and the same programs for several jobs, and by so doing were able to control somewhat the heavy burdens of initial development and the disadvantages of operating with unique systems.

The problems involved in translating intended procedures into machine language will probably move steadily toward acceptable solutions through standardization of programming languages and movements toward generalized and packaged programs. However, developing just what computers should be asked to do is still a major difficulty.

There is no way of avoiding the decisions as to what the computer should do, what company objectives are, what kind of input and output is wanted, and, finally, what is a fair price for the output.

It makes a big difference if you decide to limit electronic systems only to new business initially (thus avoiding past-history problems); it takes a high level in the management hierarchy to resolve such a question in an acceptable manner; it takes a high degree of insight into current and possible practices, as well as electronics, to deal with such a question.

Perhaps more effort in attacking such problems should be expended by industry associations and professional societies. The following thoughts come to mind.

Should industry associations and societies influence suppliers toward a larger degree of standardization, particularly in the order structure and word logic built into new computers?

To what extent should they promote the substitution of industry-produced software for that being supplied by machine manufacturers; promote the idea of applying the same standardized procedure in many companies, demonstrating in the process that co-operation does not impinge upon healthy competition; promote the idea of arranging for industry-sponsored pioneering, when necessary?

This almost concludes my remarks. There are, however, three points that I should emphasize before finishing: (1) Essentially similar problems are being dealt with separately and at large costs that might gainfully be solved jointly through industry associations and professional societies. (2) In this field, strong differences of opinion continue to arise, almost naturally, in view of the many ramifications that attach to most questions. This has been a very constructive force, right from the early beginnings of electronic applications and is something that we should continue to encourage. (3) The inclinations reflected in my remarks should, of course, be regarded as my own views. They should not be construed as reflecting my company's position. Some are so new and so different from my own previous opinions that I simply do not know whether they will stand up to severe analysis—and, of course, I cannot foretell whether or not another still-unknown technological breakthrough will cause me to change my mind again.

The only advice that I can offer today is, Stay loose; be ready to move quickly into whatever direction new technology turns.

MR. BRAGG: The first question relating to the training of actuaries in the computer age reads, "Should more emphasis be given in the examination syllabus to the computer as an actuarial tool? If so, in what form should this emphasis be given?"

It appears to me that the computer is now an essential actuarial tool. Substantial knowledge of it will be required by actuaries in the future. I believe that more emphasis *should* be given to it in the examination syllabus. This can be tackled in either, or both, of the following ways: (1) a specific syllabus topic dealing with the characteristics and abilities of the machines and with programming and operating methods and (2) attention to computer applications at *all* levels of the syllabus. In this way, emphasis would be placed on the *problems* that can be solved by computer applications and not just on the mere mechanical aspects of the equipment. Of the two methods, I prefer the second. Perhaps, however, both should be followed.

The final question is, "What steps do companies take to assure proper computer orientation among new actuarial students?" At Life of Georgia we give all our actuarial trainees an exposure to FORTRAN programming methods. Our data-processing department, which operates the machines, does not come under the actuary. We therefore have a practical situation in which no one in the actuarial department has an intimate knowledge of machine-operating methods. On the other hand, the data-processing folks

do not understand actuarial problems. We feel that FORTRAN has given us a successful means of bridging this actuary-computer gap.

Like most companies, we have a program of rotating actuarial trainees to give them experience in various areas such as underwriting, group insurance, and policy changes, in addition to the more traditional actuarial areas. We now include data processing in this rotation program and hope to give most of our future actuarial trainees a minimum of six months' full-time experience in this department. I am convinced that this will be invaluable to them and to the company in future years.

MR. KOCH: My thoughts on the subject of giving more emphasis in the examination syllabus to a knowledge of computers are divided. Certainly a knowledge of computers, along the lines I will discuss later, is desirable and would benefit every actuary. However, such knowledge would also greatly benefit *every* person who occupies a position in insurance management. In fact, it will not be long before some computer knowledge is indispensable for successful management.

Because much of the computer subject matter that should be acquired by actuaries and other management people tends to be company-oriented, I lean toward covering the material in company courses rather than the actuarial syllabus. At the John Hancock we are presently implementing such a course for top management of the company. Later, follow-up programs in greater depth will be presented for middle- and lower-level management. We feel that the subject is of great importance for successful use of E.D.P. facilities in the future.

In educating our actuarial students about E.D.P., we are trying to impart two kinds of knowledge:

1. Knowledge of how computers can best be used in actuarial work; for example, asset share studies, pension valuation, rate-book preparation, lapse studies, and so forth. Knowledge of this type is imparted mainly by training actuarial students to program the IBM 1620 and by having them actually produce actuarial results on the computer. Needless to say, this fulfills a production as well as a training need. The training is done in the actuarial department, either group or ordinary.

2. Knowledge of how to work with the E.D.P. department as a member of management in another department of the company. In this category we are trying to teach the student a number of things:

a) The difference between the "theoretically possible" and the "practically achievable."

b) What is meant by systems specifications for a computer job.

c) The interrelationship of functions performed by John Hancock computers and the ramifications an apparently isolated decision can have.

d) What is involved in getting a computer system "on the air," and why lead time is required.

e) What data base is available in machinable form and how it can be used for report generation and management decision-making.

To impart information of this type, E.D.P. participates in the actuarial student rotational program at the John Hancock. Students are brought into the E.D.P. department, generally before attaining Associateship, for a period of about one year. There they learn to program one or more of our large-scale tape computers and are assigned to work on a large computer system. They engage in both systems and programming work, and during their stay they obtain a good understanding of some of the "management" aspects of computing systems. We feel that the time is well spent.

MR. J. GORDON FLETCHER: It seems to me that any actuarial student who enters into the business today is going to be exposed to the electronic computer and its possibilities. Just as I started cranking a machine by hand, these gentlemen start with an electronic calculator. I think that my generation and the one after me need to understand the capability of computers, their decision-making powers, and their ability to draw information from storage. If we know what we are talking about when dealing with the E.D.P. division, there will be less breakdown in communication. The actuary, if he wants something done, needs to know how to lay out the problem in clear language so that the programmer can lay out his flow chart and make a program. I think those of us who have completed the examinations need the education more than the students, who are going to get it by exposure in their daily work.

MR. CHANG: I would like to make a distinction between programming and systems work. I think that programming is hardly the right kind of material for the actuarial syllabus. On the other hand, it would be desirable for actuaries to have a good knowledge of how a total system works in general and in a particular company, so that the processing relationships within the entire organization are understood. However, there might be a discouraging note here. As far as I know, there is no good formal systems material available right now. Perhaps this is something on which we should be working.

MR. FINELLI: A part of the remarks that I was going to make has just been made, but I can report that the British Institute of Actuaries also faced up to the problem of giving its, let us say, older men and those who

had no exposure to programming during their school careers, something in the way of an orientation as well as a training course. I believe that they have found an interim type of text that is available for this purpose and have made some instruction in programming and systems procedure available as a part of the training of actuaries.

CHAIRMAN HILL: In deciding how to go somewhere, it helps to know where one is going. I predict that everyone in this room will live to see the day when, just as actuaries now learn to read and write and do arithmetic, they will learn the field of computers as a part of their general education. Consequently, it will be incumbent upon the examination committee of the Society to make sure that the student's notes and examinations are computer-oriented rather than teaching computerology as a subject. I realize that the Society has a very difficult transitional problem in the meantime, and I do not even begin to think that I know the answers to all the problems of that transition that will occur.

MR. BALEDES: In the seventh Fellowship examination that I wrote some years ago, I remember a question having to do with determining certain unit expense figures missing from a given worksheet used to determine unit policy expenses. I feel that, since actuaries are using computers more and more in the solutions of actuarial problems such as these, in the examinations a "fill in the blank lines" type of question can very easily be replaced, to advantage, by stating the problem, giving a partial systems flow chart, and asking the student to fill in the missing logic steps. This would present the subject of computer application to the actuarial student and also demonstrate his ability to solve logically a total actuarial problem.

MR. JEROME M. STEIN: I think that we cannot lose sight, in talking about the syllabus, of the fundamental purpose it serves. Mr. Fletcher mentioned the use of a hand-cranking computer and then an electric computer; these things never come onto the syllabus. The important thing is still to know the fundamental problems that we face—to know Jordan, for example, and what the fundamental problems are, not how to get the book into a computer so that we can calculate everything by pushing buttons. Likewise, in valuation, the important thing to know is the fundamental problems of valuation. Today's computer systems and methods may become outdated, but the fundamental problems will remain the same. I think that the emphasis should be on what the problems are and not on the mechanical means of solving them.

MR. LOUIS WEINSTEIN: I would recommend that anyone who wishes to learn FORTRAN programming on his own read the IBM Fortran Programmed Instruction Course. The programmed instruction technique (immediate "reward" for the correct answer) may seem laborious but it is quite effective.

I am opposed to quizzing five hundred students on the subject of computer programming and failing two hundred and fifty because they do not program as well as the other two hundred and fifty.

MR. MEZEI: Should the Society of Actuaries curriculum include a course in programming? Emphatically no! It does not include other useful skills, such as business writing, public speaking, business management, and the like. The actuary is not a programmer. This is better looked after by having every actuarial student spend a year or two in a programming department.

Is the mathematical content of the Society of Actuaries curriculum adequate for the computer age? No, it is not. Even in the basic areas of probability and statistics we have fallen far behind. Some British actuaries find Markov chains useful. Do most actuaries even know what Markov chains are? Is factor analysis only for psychologists? Do we have the background for the more complex mathematics of risk theory, as developed by the ASTIN section of the International Congress of Actuaries? Do we have the basic tools to attack operations-research techniques? No. Linear algebra is a minimum; it should be on the syllabus. Do we have the basic techniques of numerical analysis? They should take their place alongside finite differences.

One cannot raise this issue without bringing in the whole question of what an actuary is. Many would be horrified at more mathematics in the syllabus. On one level the actuarial examinations are the best education available in life insurance principles and management. I am not suggesting that we do away with this; it is valuable. Yet we are trying to cover such a wide field that the danger is that we will end up making no real contributions to better ways of doing our work. The principle of a choice of different branches of the subject has been accepted. Should we have an option for concentration in mathematical techniques, in actuarial science? I think so. I am not suggesting that we should stop training life insurance executives, but we must also train "actuarial scientists."

The other issue that this raises is the relatively small amount of research that actuaries are doing. I am aware that we are a professional group whose primary function is the application of existing methods to

practical problems. So is the medical profession! It seems to me that closer association with the universities, which are primarily committed to the advancement of knowledge, not solely its application, is one answer. Maybe an Institute of Actuarial Science could be set up at one of the universities to conduct and encourage research, to keep an eye on developments in other fields of potential use to actuaries, and to assist in the continuing education of actuaries.

The need for education as a continuous process has been well established. The fact that the Society's Education Committee is so closely tied to the Examination Committee is unfortunate. I would suggest that the Education Committee should have the continuing education of the profession as one of its main responsibilities. It must help its members in the necessary updating of their education. It could run courses in programming, in operations research, in advanced statistics, and in other areas of interest to its members.

Since the education of the young actuary is a self-learning process, the Society should seriously explore the application of programmed learning techniques, computer-based or otherwise.

The impact of the computer on other aspects of the actuarial curriculum will make itself felt in a natural way. Insofar as part of each subject includes techniques of application (e.g., valuation methods), as new methods emerge these will find their way into the syllabus. With an ever increasing number of areas which the course could cover, the emphasis should be away from methods of application, with more concentration on basic, fundamental concepts.

It may well be that the only way that new subjects can be introduced into an already crowded curriculum is to remove the specific and the ephemeral entirely, retaining only the main principles of application illustrated by the major trends of practice in the United States, Canada, and the United Kingdom. The Fellowship in the Society would then serve as the basic academic qualification, which, in spite of the introduction of new material, would take less time to obtain. The ever changing facts could be gathered together into one professional examination, administered possibly by the American Academy of Actuaries in the United States and the Canadian Institute of Actuaries in Canada. The reading list and study notes for this examination would also be useful to keep already qualified actuaries up to date on current developments.

It is our responsibility to ensure that the actuarial profession does not fall far behind in the age of the information revolution and that it does not rest on a foundation of an outdated science.

MR. VOGEL: I asked to speak on this topic because I wanted to assure those attending this discussion that the Education and Examination Committee is concerned that the actuarial syllabus better reflect the use of the computer as an actuarial tool. To me, the most logical place in the syllabus to insert an introduction to computers appears to be in that portion of Part 3 which is now given over to finite differences. I would like to have an introduction to algorithms, systems, and flow charting that could be referred to in the later portions of the syllabus much as the compound interest in Part 3 is referred to later on in life contingencies and valuation.

Our problem is to find suitable educational material. Certainly the techniques in Freeman's textbook on finite differences are not particularly relevant to modern computing work. I must add, however, that I and others on the Education and Examination Committee have reviewed eight or ten textbooks in the last couple of years as possible substitutes for Freeman, and we have not yet found any that are suitable. Some appear to be too advanced mathematically, and some of them are more a course in the uses of FORTRAN than a general introduction to computers. We have so far been unable to find a satisfactory textbook.

We are open to suggestions with regard to textbooks, or, more generally, with regard to the computer-related content of the actuarial syllabus, and will give very serious consideration to any suggestion made at this meeting or by letter.

ANNUAL STATEMENTS OF LIFE INSURANCE COMPANIES IN THE UNITED STATES

A. What are the purposes of the National Association of Insurance Commissioners' annual statement? How well does it achieve these purposes?
B. What problems are encountered in preparing reports for shareholders and policyholders on the basis of NAIC statements? Are problems caused by (*a*) certification requirements of the accounting profession or (*b*) accounting requirements of the Securities and Exchange Commission?
C. What additional information, beyond the NAIC statement and the report to shareholders, should a stock company make available to financial analysts? Should interim reports be provided?
D. Are there changes that might be made in the NAIC annual statement which would make it better serve the differing needs of those who have occasion to use it?

CHAIRMAN GEORGE H. DAVIS: This panel discussion deals with the annual statements of life insurance companies. In that subject we mean to include not only the statements filed with the regulatory bodies of the NAIC form but also other statements prepared for shareholders, policyholders, financial analysts, and others. The statements are those of United States life insurance companies, which include the statements of the United States branches of Canadian companies. We do not intend to cover the Canadian annual statement form as such, but members of the panel may have some comments on it arising out of a comparison between the United States and the Canadian forms.

In addition to persons in life insurance companies who are concerned with annual statements, there are others outside life insurance companies who are very much concerned with the annual statements of life insurance companies. We have five members on this panel, which consists of two officers of life insurance companies and persons who represent three of the more important of the outside interests.

My name is George H. Davis, and I am with the Life Association of America.

On my immediate right is Harold Bittel, who will express the point of view of the regulatory authorities. He has been chief actuary of the New Jersey Insurance Department for more than twenty years and during all that time, I believe, has served on the Committee of Blanks of the National Association of Insurance Commissioners. He has been,

for quite a number of years, chairman of the Subcommittee on the Life and Accident and Health Blank of the NAIC Committee of Blanks and has also served at different times as chairman of the main committee. I cannot think of anybody connected with the state regulatory authorities who has had more to do with the present form of the NAIC annual statement blank.

On my far left is Bill Dreher, who is prepared to tell us the views of the accounting profession on the subject of life insurance annual statements. He is a partner of the firm of Arthur Stedry Hansen, Consulting Actuaries. However, he has been in that position only a short time. Until just a few weeks ago, he had been connected for six years with the public accounting firm of Lybrand, Ross Bros., and Montgomery. This is, as most of you know, one of the leading public accounting firms. It has a number of insurance companies as its clients and has taken an important part in the study which the public accountants have given to insurance accounting. Bill also had life insurance company experience before he entered this field.

In the middle, on my right, is Fred Townsend, who is concerned with life insurance stocks and investments and who will speak from the point of view of the financial analyst. He is actuary of Conning and Company of Hartford, a firm of investment advisers and brokers which specializes in life insurance stocks. He has been in his present position for three years; before that he had experience with two different life insurance companies.

The two remaining panel members are officers of life insurance companies, one in the United States and one in Canada. Both have spent their entire careers with their present companies, and both have been for quite some time concerned with accounting and with the preparation of annual statements in their companies.

On my far right is Gathings Stewart, who is vice-president and actuary of the Lincoln National. He has served on the Joint Committee on Blanks of the American Life Convention and the Life Insurance Association of America and has also served on the committee representing all branches of the insurance business, which was appointed to confer with the American Institute of Certified Public Accountants on insurance annual statements.

Ted Harland, on my left, is associate actuary of the Great-West Life Assurance Company and is concerned with the preparation of both the Canadian annual statement and the annual statement of his company's United States branch. He will have views on this subject arising out of

this position of responsibility for both Canadian and United States annual statements.

I suppose that the principal subject of discussion will be the NAIC annual statement. We are generally agreed, I think, that any of the other forms of statement have to start from the NAIC statement and would be based on it. I think, therefore, that perhaps the logical question to be asked first is, "What is the NAIC annual statement and how has it developed to its present form?"

MR. W. HAROLD BITTEL: The historical background of the NAIC or Association form of annual statement has been adequately described in papers and reference works with which all of those present should be familiar, so there is no need for me to repeat any of it at this time. It may be of interest to review briefly several developments in the form of the statement which have occurred in recent years.

The first of these was the revision of the Gain and Loss Exhibit, which was adopted for the year 1939 and which has been described by one writer as "the last major change in the annual statement blank." Some of my younger colleagues have kidded me a little about discussing developments in recent years and then going back to the year 1939, but I guess with those of us getting along in years this does seem like a recent time.

This exhibit, which was added to the statement in 1895, probably has been misunderstood and misused by more persons, including possibly some actuaries, than any other portion of the statement. The changes which evoked the most controversy were the elimination of certain ratios from the exhibit without changing materially the data from which these ratios could be calculated. It is of interest to note that, about six years after this change was adopted, several insurance commissioners of states in which many large insurers are domiciled personally appeared before the NAIC Blanks Committee in an unsuccessful attempt to persuade them to reverse these changes.

The drastic changes in the form and arrangement of this statement which were adopted by the NAIC for the year 1951 may not be considered of major importance by some, but I can assure you that they were accepted by the NAIC Blanks Committee only after thorough consideration and study extending over many years. Even though these changes as finally accepted provided additional useful information without taking away any essential data, strong and persistent leadership was needed to overcome the conservatism of those representing the in-

surance commissioners and their natural resistance to changes in the prescribed annual statement blank. This attitude on their part is understandable, at least to those familiar with their duties and responsibilities, because of their strong desire to preserve to the utmost degree the year-to-year comparability of annual statement data. The advantages and value of such comparability are readily apparent.

In addition to these 1951 changes, which did recognize the need for utilizing insofar as possible the form and arrangement advocated by accountants, comprehensive instructions for completing the statements were simultaneously adopted by the NAIC. While some instructions had always been included in previous statements, this action represented the first attempt by the NAIC to prescribe acceptable methods of reporting and allocating income and expense items in the Association statement. When the use of these instructions is required, greater uniformity has been observed in the reporting of certain statement items, and more reliable comparisons of the condition and operations of a specific company for different periods are possible. Continuing efforts are made to increase the usefulness of the statement data by revising these instructions.

The most recent statement change of importance was adopted at the December, 1965, NAIC meeting and applies only to a very limited extent to the 1966 annual statement, with the major changes deferred until 1967. Basic changes in the methods used for reporting the results of accident and health operations by type of contract are to become effective by this change. The analysis of results for different benefits will appear in an expanded policy experience exhibit for this year. The 1967 statement proper will contain a breakdown of individual accident and health operations by the renewability guarantees or the lack of any such guarantees in such contracts. Again, these changes were adopted only after a long period of study and discussions between industry and the regulatory authorities. In this instance, additional problems arose because of the need for extending this revision to include such business written by companies using the fire and casualty annual statement blank.

Admittedly the present form of the NAIC statement is far from perfect, even from the regulatory standpoint, because it cannot reflect changes in a company's condition or operations quickly enough to be of maximum value to the insurance department. However, it does provide a great deal of essential information regarding these factors among the regular departmental examinations.

MR. GATHINGS STEWART: Having associated with the Education and Examination Committee quite a bit lately, I thought that I would

look in the study notes for Part 6 to see if these notes dealt with the purposes of the annual statement. I did indeed find six purposes there:

1. To provide a convenient means of advising supervisory authorities as to the financial status of the company between the official department insurance examinations.
2. To provide supervisory authorities in each state with new business reports and various other statistical matters which can be compared from year to year.
3. To set up permanent records with respect to the most important phases of operations of the company.
4. To enable management to analyze the results of a year's operation and make comparisons with the results of previous years.
5. To provide a detailed analysis of the sources of profit and loss and thus assist management to anticipate or eliminate any sources of weakness.
6. To furnish policyholders, shareholders, and the public with information about the financial position of the company.

Are some of these purposes more basic than others?

Historically, the NAIC statement has been used primarily to advise supervisory authorities about the company. However, the companies themselves have published information periodically. Generally, this has taken the form of publishing a balance sheet showing the strength of the company and its solvency and its relative size.

In the past the balance sheet had a reconciliation of surplus attached. Generally a gain and loss exhibit was not given. In fact, it was not until the stockholder-information supplement came into being that a majority of companies started to publish the gain from operations in the same form as shown in the annual statement.

In the last decade or so, stockholders, the SEC, and investment analysts have become much more interested. Their viewpoints are different in many respects from those of supervisory authorities, and some areas of controversy have arisen.

I am not trying to get the Education and Examination Committee in trouble here, but I will quote the last part of their study notes regarding the purposes of the annual statement:

> The statement has often been criticized by public accountants and others as being incomplete and incomprehensible. Such comments often stem from the fundamental differences between the life insurance business and other types of business. The long term character of the life insurance business, and its foundation on the theory of probability, set it apart from other commercial concerns and provide the basis for different accounting practices.

MR. WILLIAM A. DREHER: I think that it might be appropriate to record that all study notes of the Education and Examination Committee state that the Society of Actuaries does not take responsibility for the statements made in those notes.

I, for one, question whether the annual statement as we see it prepared in the NAIC form gives management all the information it needs. And I know that the accountants with whom I have spoken question the NAIC statement's adequacy for purposes of investors. I recall a question on Part 7 that required one to explain why the NAIC statement does not do an adequate job for company management.

I might mention now that, as background for my role on this panel, I have tried to assure myself that my six years of experience with the Lybrand firm have not led to a distorted view of the opinions of the accounting profession as a whole. To that end, I have in the last two months spoken with the partners of three other large accounting firms for whom the insurance industry is an important segment of practice. I have also refreshed my knowledge of the position of the Lybrand firm on the matters under discussion.

MR. BITTEL: I think that I agree with Gath that there is a need for a revision of the purposes as described in the study notes. He also indicated that the primary purpose of the NAIC statement is and has always been to furnish state officials with the information needed by them to carry out properly their supervisory responsibilities.

In view of the fact that the form and content of the required annual statement are prescribed by the laws of many states, it appears that this purpose is more basic than any of the others. Even in those instances in which the statutes refer only to the NAIC form of statement, the nonadmissibility of certain assets in determining the financial condition of a company is frequently prescribed by law or regulation.

While it is true that this statement is designed basically for the use of the insurance commissioners, the fact that it is not a confidential report but is actually a public document makes the matter of its form of public interest. However, in this instance, it seems to me that our concern for this public interest must be primarily directed toward the needs of policyholders and potential policyholders rather than those of stockholders or potential stockholders. There would be no objection to the inclusion of information which would be useful to this latter group, providing agreement could be reached on the procedures to be used for its determination. As a matter of fact, some of this information is now disclosed in the

statement, although it is not and cannot be used in determining the condition of the company.

Statutory limitations on the use of financial statements which do not substantially conform to those on file with the insurance departments have the effect of extending these purposes beyond those previously described. However, this in itself does not require or even justify the inclusion in those statements of the types of information suggested by some of those seeking changes of this kind. Consideration will, of course, always be given to constructive suggestions for improving and increasing the value and usefulness of the annual statement, if the accuracy and reliability of the proposed changes can be established beyond any reasonable doubt.

MR. DREHER: With respect to the stockholder-information supplement, accountants express a considerable admiration for the political acumen of the NAIC in getting the SEC to agree not to require reporting by insurance companies, but they do not feel that the stockholder-information supplement gives sufficient additional information to satisfy the needs of investors, to whom they have a primary responsibility.

It might be worthwhile to identify more precisely what the accountant refers to when he mentions the NAIC statement. Those with whom I have conferred confine their interest to pages 2, 3, and 4, and put substantially less importance on the exhibits and schedules as well as on the line-of-business analyses that appear on pages 5 and 6. Those who comment on the supporting material question the reliability of the breakdown by line of business, particularly in areas of allocation of taxes and other expenses.

They tell me that the reason they tend to concentrate on the balance sheet and summary of operations is that investors, in whom they are primarily interested, do not have convenient access to the other material that is filed with the insurance department. Of course, this may not be a complete response to the issue, because the investment analyst, who is, naturally, also interested in stockholders, does have access to all the convention blank data, and, of course, the SEC has that information.

MR. H. EDWARD HARLAND: Some of the special rules to be followed by Canadian companies in completing the NAIC statement for their United States operations are: (1) They must enter the United States through one particular state, which then becomes their state of domicile; they comply first with the requirements of that state and second with

the additional requirements, if any, of the other states in which they may be licensed to do business. (2) They are required to make special deposits and maintain trust funds in the United States adequate to cover all their United States liabilities. This requirement is very similar to the corresponding requirement under which United States companies operate in Canada.

They report as assets, on pages 2 and 14 of the NAIC statement, only those assets held in the United States trust account plus the usual insurance assets. They must take separate account of all their United States operations, either directly or by means of allocation, and only the operation of the United States branch is reported in the NAIC statement. They must complete a special expense exhibit showing the proportion of each head-office expense item allocated to the United States, and they are required to complete a special exhibit which shows a development of trusteed surplus, that is, the excess of trusteed and insurance assets over the liabilities of their United States branch.

Because Canadian companies must complete the NAIC statement on the basis of United States operations only, and because assets to be reported are those in the trust account plus insurance assets, completion of the regular surplus account in the NAIC statement is not appropriate. However, Canadian companies must not only reconcile their total business surplus account annually, under Canadian reporting and examination requirements, but must make a careful and detailed separation of each and every item between Canada and the United States. In addition, they must complete a special exhibit of trusteed surplus in the United States, as I mentioned a moment ago.

MR. DREHER: The audit guide for fire and casualty companies was released earlier this year and concludes the auditor's review of that branch of the industry. It is an official position of the AICPA.

The AICPA Committee is now undertaking a study of life company statements, and I am informed by Mr. Arenberg, a partner of Arthur Andersen & Company and chairman of that committee, that he hopes to have deliberations completed sometime within the next twelve months and to have an exposure draft of the audit guide available for comment by other accountants, industry representatives, and, of course, the actuarial profession.

MR. STEWART: There has been an industry committee composed of both casualty and life insurance people working with the AICPA and dealing with this problem.

Bob Espie, vice-president of Aetna Life, is chairman of this committee. I think that Bob is here, and I hope that we will hear from him a little later. One year, when we had several meetings with the C.P.A.'s, I received a Christmas message from Bob which said, "Merry Christmas and happy accounting to all."

In any event, casualty companies registered with the SEC must file a reconciliation from the NAIC statement to a statement based on the principles of generally accepted accounting principles. The AICPA audit guide takes a firm stand in this area, and it is not likely to be changed, in my opinion.

As far as the life insurance audit guide is concerned, the situation is a little more complicated. I think that the accountants have less of a feel, perhaps, for adjusting a life insurance company's annual statement than they do for a casualty company's annual statement. As they come to grips with this problem, it may take quite a while for the C.P.A.'s to come to any unanimity of opinion. This is just a prediction on my part.

The SEC does not require a reconciliation from the convention annual statement to generally accepted accounting principles. This is an important factor in what may happen.

MR. DREHER: As I recall, Article 7 of Regulation S-X, dealing with casualty companies, does require supplementary information and covers several of the points identified by the C.P.A.'s in the fire and casualty audit guide.

MR. STEWART: That is right. I think that there is quite a bit of agreement between the SEC and C.P.A.'s on the casualty side. On the life side, SEC has taken no stand.

CHAIRMAN DAVIS: This brings up the subject of generally accepted accounting principles. The question whether life insurance annual statements adhere to generally accepted accounting principles is apparently an important one.

MR. DREHER: It is rather difficult to describe, with any precise historical accuracy, how generally accepted accounting principles have been developed. We cannot say that generally accepted accounting principles are graven on stone tablets. They have evolved over many years and, I suspect, are not the same today as they were fifty years ago. As businesses became more complex and investors more sophisticated, accounting principles have been revised to meet the changing needs of investors.

For example, about thirty years ago the accounting profession gener-

ally concluded that a company's statement of operations was more important than its balance sheet. Prior to that time, the balance sheet was considered to be of equal or greater importance than the summary of operations. This conclusion, as I understand it, was a reflection of the methods used by investors and analysts to value a company's stock. And, as we all know today, the primary yardstick currently tends to be the ratio of price to earnings. Far less importance is attached to book value. Accordingly, the balance sheet is now felt to be less important. Of course, in the small company the balance sheet is of critical significance, particularly to a company's backers.

But our discussion would not be complete if we assume that the accounting profession relied entirely on osmosis to determine generally accepted accounting principles. Their definition is one of the primary objectives of the Accounting Principles Board. This board, which is composed of leaders in the accounting profession as well as prominent businessmen and educators, has a full-time research department to which it assigns the investigation of particular problems. There are, as you probably know, a number of releases from the APB currently before the public. The one that has probably received the most attention by actuaries is the exposure draft of a prospective APB opinion on accounting for the cost of pensions.

The broadly based membership of the APB and the extent of its research activity indicate the seriousness with which the accounting profession views the problems of determining and communicating generally accepted accounting principles.

Two years ago, the council of the AICPA, which is comparable to our Board of Governors, gave further weight to the decisions of the Accounting Principles Board by declaring that members of the AICPA must, in reporting on financial statements for years beginning after 1965, disclose departures from accounting principles as defined by the APB or its predecessor committee, even though the individual accountant considers that the principles used in the preparation of related financial statements have other authoritative support.

In summary, then, we have to take this historical review and also recognize the continuing professional effort to clarify, identify, and communicate what in today's economic situation are deemed to be generally accepted accounting principles.

I think that the accounting profession recognizes that there are many parties at interest in the financial statements upon which it delivers an opinion and that therefore it has to be responsive to those other parties. One of those interested parties is client management. I believe that it

is fair to say that the realities of business life have produced accounting procedures which are responsive to the demands and the interpretations of client management.

It would not be, in my opinion, correct to delegate or, let us say, to defer exclusively to the accounting profession and say in effect that no other individual in the public is able to contribute to a definition of generally accepted accounting principles or the way in which they should be interpreted.

CHAIRMAN DAVIS: I believe that it has been said as a general statement, not with particular reference to insurance, that the purpose of accounting calls basically for cost and revenue allocation rather than asset and liability valuation.

Do the accountants feel that the NAIC statement gives significant recognition to this principle?

MR. DREHER: Perhaps I could go directly to our next question and comment on which specific accounting principles seem most significant for our discussion.

Those that appear to be most prominent, as judged by the emphasis of accountants in their conversations about life insurance company annual statements, are the following:

a) There should be a correct matching of revenue and cost.
b) Accounting should be reasonably, but not unduly, conservative.
c) Accounting procedures should be consistently applied to assure a comparability from one accounting period to another.
d) Accounting should reflect the business affairs of a going concern, not a company in liquidation.
e) Profits should not be anticipated.
f) The effect of taxes should be reflected in financial statements.

In the opinion of accountants, the NAIC statement is weak in three basic areas: (1) it does not provide a proper matching of revenue and costs; (2) it is too conservative in presenting the results of operations in anticipating liabilities; and (3) it does not properly reflect the effect of taxes.

MR. BITTEL: I was wondering whether or not the accountants feel that they are competent to determine these things. They appear to criticize our statement as being too conservative for this presentation, and they seem to feel that they are the ones who can make these determinations. They criticize us for not giving them better information, although we have established over the years bases which we feel are necessary and

desirable, taking into consideration all the obligations and responsibilities of the company. It just does not seem to me that it is appropriate for them to be talking about things which are primarily the responsibility of actuaries. I feel that this is one of the basic problems that we have with accountants generally in this whole area of so-called generally accepted accounting principles.

Off the cuff, I do not think that there is any such thing, particularly as applied to life insurance companies. I feel that the continued use of this expression by accountants is actually a smoke screen to cover up their apparent unwillingness or inability to understand the complex and technical nature of the operations of a life insurance company.

But, with regard to the other matter, it seems to me that, if there is ever to be any real progress in this area—and there is quite a controversy which has been going on for quite a few years and probably will continue for some time—there has to be a recognition by accountants that there are certain matters which are the responsibility of actuaries. If they are willing to let the actuaries take over these responsibilities, then perhaps we can make some progress in resolving this matter.

CHAIRMAN DAVIS: I suppose that there are some very broad generally accepted accounting principles that would have some application in almost every industry, but there must be somewhat less general but still fairly broad accounting principles applicable to particular industries such as the insurance industry.

MR. STEWART: I think that the life insurance industry might conclude that they have matched costs with revenues. It is a matter of viewpoint.

Also, in addition to the normal items of income and disbursements, one of the main factors in the summary of operations is the increase in reserves. Sometimes we get so enamored with our annual statement that we think that the reserves are absolute gospel and that, after deductions of reserve increases, we know exactly what the profits are. I believe that this is an area in which the accountants fear to tread. However, the financial analysts want to look further than just the question of how to amortize the first year's expenses.

Of course, the reserve valuation method gets involved in this, and it gets exceedingly complicated. But, in the insurance business, the liability side is the side on which there is a considerable uncertainty; therefore conservatism is important, particularly through different periods of economic stress and through periods of change in mortality or expense or

investment return. These items become fairly important factors in determining profits, so I hope we do not lose sight of the fact that, even at best, the profits for a particular year are based on many assumptions.

MR. DREHER: It appears to me that the position of the accountant has shifted considerably in the last several years. There was a time when it was fairly generally claimed that policy reserves were grossly overstated. But now the accounting profession recognizes that conservative measurement of liabilities is appropriate for life insurance companies and that management should have substantial discretion in stating the amount of those liabilities provided that the underlying assumptions are not unduly conservative. I do not believe, however, that this latitude is broad enough to include policy reserves computed on a 2 per cent interest rate; however, it would appear to remove any dispute over reserves based on one of the statutory mortality tables, with a 3 per cent or higher interest rate.

One common opinion among accountants is that reserves could be developed on an actuarial basis which differed from that included in the underlying contracts. However, they all agree that aggregate reserves should never be less than the aggregate cash values on the underlying contracts.

MR. HARLAND: The problem, again, is slightly different in Canada, because of the different bases on which we must report in the NAIC statement.

For instance, consider the generally accepted accounting principle that statements should place more emphasis on the cost and revenue allocation than on the balance sheet. If there is a feeling that emphasis is improperly placed in the NAIC statement for domestic companies, one might conclude that the emphasis is even more misplaced for Canadian companies because of the different basis of reporting, as I mentioned earlier, and because of the fact that the completion of certain reconciliations is not appropriate and not required of Canadian companies. As a result there is an increased emphasis on their balance sheets.

MR. DREHER: Could I come back to the question of whether there are accounting principles appropriate for one industry and not necessarily appropriate for others?

Accountants are unanimous in their view that generally accepted accounting principles, to the extent that they can be identified, apply to the financial statements of all companies. There are no principles which may be said to apply only to the insurance industry or to life companies.

There may be alternative practices in the application of these generally accepted accounting principles, but accountants insist on the universality of the principles themselves.

They also are aware, as all of us in this room are, that generally accepted accounting principles have not always been applied as consistently or as purely as one might like. This has been due partly to a continuation of practices, which may have been theoretically correct in the past but are no longer judged to be so. It is also due to pressure from clients to give financial reports which flatter current management or conform with certain of the company's policies.

Accountants are well aware that they are in business themselves and that their competitors are quite willing to replace them if invited. This tends to encourage a compliant attitude toward management preferences, which has sometimes led to accounting certifications of the results of operations which are rather inconsistent with what the more theoretical treatment would require.

CHAIRMAN DAVIS: Perhaps we have spent enough time now on the particular interest of accountants in the annual statement. Let us turn to the interest of stockholders. This probably is not actually a very different subject.

MR. FREDERICK S. TOWNSEND: Obviously, the NAIC annual statement contains much more information than is necessary to provide to stockholders. The information most pertinent to stockholders would be the company's balance sheet; income statement; surplus account; insurance written and insurance in force, broken down between whole life, term, and group; and premium income by line of business. It is my understanding that the accounting profession in general would like to see many of these items on a comparative basis for each of the last five years. A good many companies have gone further than this, presenting certain statistical information on a comparative basis for each of the last ten years.

With respect to presentation to the stockholder, the balance sheet and income statement can best be understood by grouping related items and by using nontechnical language. I doubt that companies consider this much of a problem.

MR. STEWART: I think that one of the problems that stock life insurance companies have in presenting material to stockholders is to get the right balance. If you give too much information to the average stock-

holder, he may not read any of it. If you summarize it for him, perhaps he will read it.

We get lots of suggestions from investment analysts as to the content of stockholders' reports. Often these are detailed items for the analysis rather than items for the average stockholder.

MR. TOWNSEND: Many companies try to do as much for their stockholders as they do for investment analysts, and they are doing a good job for both groups. But if you consider the stock life insurance companies as a whole, they communicate poorly with both their stockholders and with investment analysts.

In our firm, we are working with institutional clients. Therefore we concentrate our analysis on those stock life companies which have a sufficient capitalization to deal with in an institutional market. Among the thirty-odd companies falling into this classification, there is a noticeable trend of improvement in stockholder communications. Many of these companies released interim reports to stockholders in 1966, a relatively new development in the life insurance industry. There has also been a very substantial improvement in the content and usefulness of annual reports. The industry appears to be improving its stockholder communications, and I expect that stockholder reports in 1968 will be vastly improved over their 1965 counterparts.

MR. HARLAND: By now you will not be very surprised to hear me say that the situation is a little different for Canadian companies.

We report only our United States business in the convention statement. However, we require a statement of total operations for shareholders and policyholders. Generally this problem is met mainly by statements derived from and agreeing with those required annually by the Department of Insurance in Ottawa.

In addition to the usual problems of life company stock evaluations, shareholders and security analysts wishing to value the stock of a Canadian life insurance company must understand the operation of the various funds required under Canadian law and the nature of Canadian income tax law as it applies to life insurance companies. For companies which write both participating and nonparticipating business, gain and loss statements, surplus accounts, and perhaps placed and business in force, figures should be split between participating and nonparticipating accounts in order to arrive at a meaningful analysis.

MR. TOWNSEND: The stockholder-information supplement requires, in effect, that any publicly owned stock life insurance company must

publish its summary of operations. However, some companies publish an operating statement that looks more like a reconciliation of cash income and expenditures than the summary of operations as we know it. And, at the other extreme, one company used to present an income statement in simplified language that a layman could understand, but after the introduction of Schedule SIS the company told its stockholders that management was sorry but it was forced by new statutory requirements to dispense with its former type of report; the company now photo-offsets pages 2, 3, and 4 of the convention statement and mails them to stockholders.

MR. DREHER: There are a number of smaller companies that give no statement of operations in their reports to stockholders, and this is one thing which makes accountants turn green. They can see no alternative to a presentation of the results of operations.

Perhaps this is an appropriate time to mention some of the specific adjustments to the NAIC statement that accountants feel would be appropriate. I do not mean to suggest that there is unanimity in their opinions. I would agree with Gath's earlier comment that accountants still have substantial uncertainties and differences of opinion as to the items which should be adjusted. I personally feel that it will be a most difficult task, and one that will require extensive co-operation between our profession and the accounting profession, before the issues can be resolved.

The principal adjustment accountants seek derives from their belief that in theory the amount by which first-year expenses exceed expense levels in renewal years should, to the extent recoverable (and I emphasize recoverable, because it is a key phrase) be set up as an asset and amortized over the life of the associated contract. There seems to be no general agreement, though, as to what constitutes an excess first-year cost or what method or number of years should be used to amortize those costs.

The extreme views are that, on the one hand, acquisition should include only commission and that on the other hand, it should include not only commission but also the cost of medical exams, inspection reports, and MIB's, as well as the cost of maintaining both the underwriting department and the agency force. That is a range within which we ought to be able to find some solution.

Accountants are aware, of course, that, to the extent that the reserves are based upon one of the modified standards, there is an offset to the excess cost in the first year. Some accountants feel that the reserve adjustment on the commissioner's method, and its variations, is about

equal in magnitude to the excess first-year cost. In looking at the bottom line of the income statements, therefore, this group considers it a fair reflection of the year's results, and, accordingly, an adjustment of the statement is deemed unnecessary. Others feel that the reserve adjustment is only a partial correction and would insist on establishing an asset related to the net excess of these first-year costs.

With respect to the new life insurance companies, this qualification is more than theoretical—it takes on great significance, if you want to call the investment in new business an asset that can be recovered over a period of years. Accountants seem to be in agreement that there is sufficient uncertainty about the recoverability of the investment in new business that small companies should not be permitted to establish an asset related to these net excess first years' costs.

Other items, on which accountants call for the adjustment of statements, are the potential tax liabilities on amounts held in the policyholders' surplus account and the tax benefits arising from the net level election under 818(c) of the Life Company Tax Act. Accountants would prefer that these tax effects be reflected directly in the financial statements, but most would accept footnotes indicating the magnitude of the tax deferments.

Some accountants criticize the life companies' statement as not being sufficiently conservative with respect to the mortgage loan account. They feel that, to the extent there is a sound basis for establishing a mandatory security valuation reserve for stocks and bonds, there is also a basis for maintaining such reserves against mortgages, because historically there have been some losses on mortgages.

With respect to nonadmitted assets, their view is that furniture and fixtures, agents' debit balances, and loans to officers, to the extent recoverable, should be reflected in the financial statements.

MR. STEWART: All these exceptions and qualified statements of accountants, from the industry's point of view, seem to indicate that there is something wrong with the NAIC statement, that it is improper, and that it is not for stockholders. This destroys faith in the NAIC statement. I think that it was unfortunate when the AICPA came out with their pronouncement in the casualty field and worded their qualified statement in such a way as to cast doubt on the NAIC statement. This has caused quite a lot of problems. Apparently they were very rigid in their application of generally accepted principles to life insurance companies.

Do you feel that the statements of the accounting profession are

adaptable enough now to disclose information that might be helpful to stockholders, without condemning the NAIC statement or causing some of the problems that we had earlier?

MR. DREHER: It is difficult to make any meaningful generalization. We have talked about the two professions in the collective sense, and we should not forget that each profession is a collection of individuals. Some are practical in their bent and some theoretical, with some of each inclined to dig in their heels if they feel that the other side is not properly responsive to their position.

From my experience with the Lybrand partnership, I know that the accounting profession includes many intelligent and knowledgeable men who are seeking a practical solution to a complex problem, and I would certainly approach any discussion with the other profession on the assumption that such a solution could be reached.

The wording of the accountants' insurance company opinion letters appears to be one of the areas in which there has been the most misunderstanding. Some accountants with whom I have spoken feel that the opinion letters which they have been issuing effectively remove from the insurance company any stigma to the effect that the industry has been willfully violating principles that reasonable men would accept.

Perhaps we should refer at this point to what is called the "Lytle Letter." As you may know, in 1962 the AICPA's Committee on Auditing Procedure released Statement No. 32, which required accountants for the first time to relate their opinions on financial statements, including those of companies in regulated industries, to generally accepted accounting principles and to qualify their opinions or take exception with the companies' practices if the accounts were not prepared in accordance with those principles. Originally, there was vast confusion.

My own impression, from talking to Phil Defliese—at that time chairman of that AICPA Committee and now one of the senior partners of Lybrand—is that the paragraph related to regulated industries was put in as somewhat of an afterthought, in order to get a complete coverage of all the statements upon which an accountant might be required to give an opinion, and that the accountants regret that there was not more reflection given at that time to the insurance industry.

In an effort to respond to the demand created by SAP 32, Richard C. Lytle, administrative director of the Accounting Principles Board, published an article in early 1964 in which he suggested a form of statement which would be in compliance with SAP 32 but without the prior problems. He suggested a model opinion letter indicating that the financials

have been prepared in conformity with practices prescribed or permitted by regulatory authority, which practices are designed primarily to demonstrate "ability to meet claims of policyholder," but indicating also that these practices differ in some respects, which may be material, from generally accepted accounting principles.

In the last paragraph of that opinion letter, Lytle's suggestion was that the accountants could state that financial statements have been prepared in conformity with accounting practices prescribed and permitted by the appropriate state insurance departments. Those accountants that I have spoken to feel that this gets the industry off the hook by avoiding an implication of an industry-wide failure to follow acceptable financial-disclosure requirements.

MR. STEWART: My observation is that the accounting opinions have improved considerably in the last three or four years in that respect, particularly those of large national firms.

I agree with you. I think that the national accounting firms have gotten more consistent and are making statements which do not seem to condemn the NAIC statement as much as they did earlier.

CHAIRMAN DAVIS: Fred, you talked about additional information needed by average stockholders and also a little about that needed by financial analysts.

Do you want to tell us a little more about the additional information that you think a financial analyst would need?

MR. TOWNSEND: The NAIC annual statement contains more *quantitative* data than the financial analyst can make effective use of. But, stock life companies as a whole have done a poor job of providing financial analysts with *qualitative* data. Vital qualitative data should appear in annual or interim reports to stockholders. Examples of vital qualitative data contained in recent reports are:

1. Description of the policy constituting the bulk of ordinary life sales.
2. The effect of changes in the company's gross premium rate structure.
3. The effect of SEGLI on military business written by the company.
4. The effect of Viet-Nam on underwriting practices.
5. The trend of the company's first-year lapse rate on ordinary business.
6. The composition and trend of the company's accident and health business.
7. Group underwriting practices.
8. New marketing techniques.
9. Reasons for the increase or decrease in sales of either whole life or term insurance.

10. The company's philosophy with respect to participating and nonparticipating insurance.
11. Operating results by line of insurance.
12. The results of home-office expense studies.
13. The outlook for industrial insurance.
14. Changes in the company's agency system.
15. New-money yield rate and the company's current investment practices.
16. A review of the company's current mortality experience.
17. The acquisition cost of new business.
18. Changes in the agency-compensation scale.
19. Changes in the company's federal income tax situation.
20. Executive management changes.

This type of data is pertinent to investment analysis, but companies are often reluctant to release it. Is it because companies (*a*) do not want to make certain information available to their competitors, (*b*) are afraid that the investment public does not understand the significance or will overreact to the disclosure of such news, or (*c*) have other reasons for the limited release of qualitative data?

MR. STEWART: I think that you have hit the two main points all right. Some of the items are confidential information, or else they are withheld for competitive reasons. I suspect that investment analysts have the same problem with any type of company, not just life insurance companies.

Second, there is another problem involved. I have tried to interpret the affairs of the company to analysts. Despite the time spent, their reports sometimes reached conclusions that are not correct. There is sensitivity in trying to interpret some of the company's affairs.

I think that the average analyst who specializes in stock analysis does well to talk to the company's management face to face rather than trying to rely on any published material or any information which might be in the stockholders' report. As I said before, the average stockholder does not want all the details that the average investment analyst requires.

MR. TOWNSEND: Perhaps one additional reason for many companies' not presenting many qualitative data to their stockholders is that life insurance companies in general have a small capitalization compared to those of casualty insurance companies and other types of industries. Companies which are privately held or have a limited number of public stockholders may feel that there is no need to present qualitative data to the stockholders.

CHAIRMAN DAVIS: The financial analysts have used various rules of thumb for determining the value of life insurance companies, that is, for adjusting their earnings. These rules of thumb, I think, have been criticized quite a bit—probably validly.

Is there anything that can be done to obviate the need for the rules of thumb or to improve them?

MR. TOWNSEND: The basic conflict between the NAIC annual statement and the financial analyst is (*a*) the NAIC annual statement is said to be a measure of solvency and does not show the actual earnings of a company in any given year and (*b*) the financial analyst, as a basic step in his analysis procedures, wishes to determine a current price-earnings ratio by relating the current market price to the current actual earnings of the company.

While a company's insurance in force account is growing, the practice of charging all acquisition expenses against the first policy year results in a net gain from operations which is purportedly less than the actual earnings of the company. As a result of this feature of life insurance accounting, financial analysts refer to the net gain from operations as the operating earnings of the company and then use a rule of thumb to derive the company's adjusted earnings. The adjusted earnings are assumed to be the current earnings of the company. The difficulties involved are (1) there is no uniform definition of adjusted earnings and (2) there is no agreement as to the proper rule of thumb to use in deriving adjusted earnings. As a result, for a given company in any given year, ten financial analysts may derive ten different figures for the company's adjusted earnings and then each of the analysts will use his respective adjusted earnings figure to derive the price-earnings ratio for the company.

In my opinion, most of the rules of thumb currently in use are either too liberal or are improperly conceived. The only way to correct this situation is to eliminate the need for using rules of thumb.

Perhaps the necessary correction lies in making a single change in the NAIC annual statement. I would like to see column 3 of page 5 (the by-line income statement for ordinary life insurance) split into two columns (possibly cols. 3a and 3b) representing the respective income statements for first-year business and for renewal business. Thus, the first-year operating loss for ordinary life insurance, divided by the volume of new ordinary life insurance written, will give a surplus depletion factor per $1,000 of new business. Then, multiplying the surplus

depletion factor per $1,000 of new business written times the increase in ordinary insurance in force will give an approximate total surplus depletion created by the increase in the company's ordinary insurance in force account.

By using this method, adjusted earnings would equal the net gain from operations increased by the amount of surplus depletion incurred in increasing the company's in force account. Thus, adjusted earnings would approximate the statutory earnings which would have occurred if there had been no increase in the in force account during the year. Or, expressed in a different manner, adjusted earnings would approximate the statutory earnings which would have occurred if the company had written just enough new ordinary insurance to replace the total ordinary insurance terminating during the year by death, surrender, lapse, maturity, or expiry.

MR. STEWART: As an investment analyst, Fred tells us what the "actual" earnings are, and his earnings are different from those of the accountant and those of the NAIC statement. Thus, we have three sets of earnings to consider.

I see a lot of technical problems in trying to divide the gain from operations between the first-year losses and renewal profits. First, there may not be too much unanimity on how to allocate expenses. Second, there is the problem of new business dated back to the previous year. These policies involve the second mean reserve. How do you account for the first year's loss when the policy is now in its second policy year? Third, I do not know what consideration has been given to the federal income tax implications.

MR. DREHER: I think that Fred has given us an intriguing bone to chew on. His proposal has some basic merit, but it occurs to me that two problems would prevent it from having real value for many users. The first is that for some companies, particularly new ones, a third line might be needed, because a new company often sets its premiums at a level which will not enable it to cover the general overhead through the expense margins in those premiums. The rationalization for this practice is that an investment of surplus is needed to create a viable economic entity. I therefore do not think that it would be correct for a new company to consider all its losses on new business to represent a potentially recoverable investment.

A second consideration is that there should be some reasonable assurance that the prospective profits of the current year's business will be

at least equal to the amount that is identified as the cost of acquiring that business.

MR. ABRAHAM HAZELCORN: I would like to ask how we are going to measure the adequacy of premiums in this suggested method of gross premium evaluation.

MR. ROBERT G. ESPIE: I get the impression that, if you lower your premium, the first-year result will be worse. Would you get a bigger multiplying factor and bigger adjusted earnings?

MR. TOWNSEND: No. If the first-year premium is lowered, the statutory operating earnings decrease and the surplus depletion factor per $1,000 of ordinary insurance issued is increased. I propose adding back to operating earnings the product of the surplus depletion factor per $1,000 times the increase in the ordinary insurance in force. The net result is a slightly lower adjusted earnings because the operating earnings have been lowered for each $1,000 of insurance issued and the equity adjustment has been raised for only each $1,000 increase in the insurance in force account.

I am not asking companies to advertise their total acquisition expenses to the public; I am merely trying to find some factor to apply to the increase in the ordinary insurance in force account. Perhaps I should go back one step and ask some of the company representatives here, such as you or members of the panel, whether they feel it is really necessary to develop either a uniform rule of thumb or an adjusted earnings figure. Is the statutory net gain from operations sufficiently representative of a company's current earning power?

MR. HARLAND: I sympathize with your desire to get rid of rules of thumb, but I feel that an adjustment related to first-year losses may be simply a slightly more refined rule of thumb.

The chief reason for my distrust of such methods is that any that I have seen avoid the basic problem of life company stock evaluation. That problem, as I see it, relates to a determination of the earnings potential of business now being written. Prices that have been paid and are still being paid for life stocks suggest that the investor expects a very high rate of growth in earnings and market values in the future. If the favorable growth pattern does not continue as a result of obtaining adequate new business with acceptable profit potential, the market place will revalue the company or industry and the investor will be disappointed.

It is difficult to see how rules of thumb, not necessarily realistic even

for the past, can be expected to apply in the future. Unfortunately, it is even harder to see how any meaningful analysis of earnings potential can be made with an acceptable expenditure of time. Therefore, I suspect that rules of thumb will be with us for some time and will continue to be of very dubious merit.

MR. BITTEL: On this question of what changes might be made in the annual statement to accommodate these purposes, I think I can say that, unless there is some real value in changes of this kind to insurance departments or the public, they would not be adopted. I frankly doubt whether any such breakdown as has been suggested between first year and renewal would have that value except possibly in the case of newer companies for a limited period of years, and then only if you would add the breakdown for all the various lines of business in which they were engaged, not just ordinary life. Generally speaking, I am not sure that we could ever reach any agreement, as has been suggested, on an appropriate method for making such allocations, bearing in mind the difficulty that we have had over the years in trying to get acceptable and practical methods for allocating other income and expense items for the various categories of total business, not first year and renewal.

MR. MELVIN L. GOLD: One reason that very simple rules of thumb have revisions is that, by and large, stock analysts could not possibly cover everything. They are, by and large, an ill-informed group. I am completely unimpressed by the group and am not much more impressed by life insurance accountants either.

Bill Dreher made two statements—that we are not sufficiently responsive to their position and that we would get the industry off the hook. This puts us on the defensive. I think that we should be the ones who lead the way. I think that we should listen to what is important, but who are the investment people to tell us what to do?

There are a few changes that I would like to suggest here. One is that we have a line called the "net amount in force" in the policy exhibit. Analysts always seem to examine the amount of insurance in force instead of the net amount in force. I think that might be a good change. Another item might be agents' balances. New companies have tremendous increases in agents' balances, which, unfortunately, show below the line in the surplus account. I have a company which might show a profit of $100,000 this year but could have a debit balance increase of $200,000 and, therefore, a nice loss, but somehow it never gets shown to the stockholder. Somehow, I think consideration should be given to putting this increase in the agents' balance above the line.

Another change I would recommend is in the cost of collection in excess of loading. Instead of having it appear as a liability, it might be changed to a negative asset offsetting due and deferred premiums.

MR. BITTEL: Would the net amount in force have applicability to anything other than coinsurance? When it is yearly renewable term, it seems to me that would not be a correct way of reporting, would it?

MR. GOLD: What happens, of course, is that premium rates are becoming so low and are so competitive that generally when the business is reinsured there is little profit left; therefore, I like to get the net amount in force when I make a report to the company. Since we do not have lines showing the net amount of insurance in force, it gets lost.

MR. DREHER: I would like to comment on the question, "Does anyone have a responsibility to work out some better means of measuring results of operations?"

I am inclined to think that our profession is the group that has the responsibility. It has been suggested that accountants do not have sufficient competence to judge these matters, and accountants generally recognize the complexities of these matters and are prepared to concede that they need help. We have heard the criticism of the quality of the adjustments made by financial analysts, who clearly do not have the mathematical training or experience to make an adjustment of earnings.

It seems to me that we actuaries have been derelict in not coming forward and should now take the initiative by trying to define the question and narrow the range of alternatives as much as we can. It is incumbent upon us to have a role of leadership rather than passively to endorse the position of industry, which, of course, employs most of us either as consultants or as officers. We must be willing to take a role that we perhaps are unused to—to expose ourselves to controversy, to risk the challenge of our opinions, but to get to the root of some of these questions and try to develop better estimates, recognizing that whatever we do has to be surrounded by substantial qualifications.

MR. LOUIS WEINSTEIN: I agree that many stock analysts could use some enlightenment, and I would suggest that there are several firms of consulting actuaries well qualified to fill the need. However, no amount of enlightenment can overcome a lack of usable factual data. One possible solution would be to include in the annual statement a breakdown of the insurance in force by plan, year of issue, and broad issue age groups. The reader would then have factual data for his analysis, which would be independent of the allocations and assumptions of the staff actuary.

MR. STEWART: May I respond to that? You are beginning to ask for detailed information which management has not disclosed to everyone else and which, in many cases, management may not even have readily available. I agree that this is the area for actuaries, and yet those probably best capable of making these determinations are the companies' own actuaries.

Company actuaries would probably be very averse to giving any opinions on a gross premium valuation for their companies on a conservative basis or otherwise. Investors would tend to rely upon this information in buying their stock. If the market did not respond appropriately, there would be great condemnation of the company for giving information of this sort. I think, on the other hand, that independent actuaries would have difficulty in making such determinations because they do not have the necessary information. I do not imagine that the companies would be too happy about hiring consulting actuaries to make gross premium valuations for the benefit of the stockholders.

One other aspect is that we have discussed changes in the NAIC statement for the benefit of stockholders; many companies are mutual companies and do not have stockholders to consider. However, I hope mutual companies are giving some thought to the effect of generally accepted accounting principles on their particular companies, namely, the distribution of surplus and surplus limitations.

MR. DREHER: Perhaps I could go back for a moment to one opinion generally held by accountants. None that I have talked to feels that it is appropriate to make a gross premium valuation as a part of a determination of adjusted earnings. In their view this would constitute an anticipation of profits in violation of the generally accepted accounting principles described earlier. Their objective in adjusting earnings is to measure the cost of acquiring new business rather than to discount all the future margins in that business.

Even in the large company with a skilled actuarial department, the consulting actuary could serve a useful function. His role would not be to make a determination of adjusted earnings but to give an independent opinion on the reasonableness of calculations made by the company's actuaries, the same manner in which the auditor certifies to the work performed by accounting officers of his client.

MR. JOHN J. BYRNE, JR.: We have a running controversy with our accountants on the relative role of the consulting actuary in insurance accounting. It is my understanding that most accountants will give a qualified opinion, either relying on the consulting actuary, on the home-

office actuary, or in some cases on the insurance department for its valuation. There is at least one national firm which does this. I was wondering if Mr. Dreher would comment on whether the AICPA has any guiding principles along this line.

MR. DREHER: We do have some information on accountants' opinions collected by the Arthur Andersen firm which, I understand, is generally supported by similar tabulations prepared by Peat, Marwick. These tabulations relate to three aspects of the form of opinion given by accountants in recent years: references to generally accepted accounting principles; footnote explanations of variances from GAAP; and reliance upon actuaries.

References to generally accepted accounting principles range from statements that the financials were prepared in accordance with the generally accepted accounting principles to statements that they were prepared in accordance with statutory requirements without any reference to GAAP. (I might mention that the firm giving that type of opinion is not a member of the AICPA.) But within that range about 75 per cent of the opinions are of two types. Of the total, 24 per cent said that the statements were prepared in accordance with the practices prescribed and permitted by regulatory bodies and in all material respects conform with generally accepted accounting principles and 51 per cent used the Lytle form of opinion discussed earlier, which says in effect that they do vary, perhaps materially, but confines its opinion on the financials to a statement on their correctness in relation to regulatory requirements. Of the remaining opinions in the survey, 9 per cent said that statements were prepared in accordance with GAAP, except as modified by regulatory requirements, 7 per cent stated that the financials were prepared in conformity with GAAP, and 7 per cent stated that they were prepared in conformity with statutory requirements and made no reference to GAAP.

The references to variances from GAAP included in the sample of accountants' opinions were:

	Per Cent
Variances explained but no indication given of their financial effect....	8
Variances explained and an indication given that the financial effect was not readily determinable....................................	42
Variances explained and an indication given of their general effect on the statement of operations but no indication given of the magnitude of this effect..	9
No reference to the variances given, either in the footnotes or in the body of the accountant's letter..................................	5
No explanatory footnote given but variances identified in the body of the accountant's letter....................................	36

The third aspect of the tabulations' references to reliance upon actuaries also varied considerably. Of the sample, 43 per cent relied upon a consulting actuary's certificate and 7 per cent upon the certificate from the state insurance department; 20 per cent indicated that an examination of reserves and other actuarial items was made by either consulting actuaries or a state insurance department (but in the opinion paragraph the accountant accepted full responsibility for the correctness of the financial statement); 30 per cent made no reference to the actuary in either the scope or the opinion paragraph.

The fact that reference to the actuary is omitted in so many cases is a matter of serious concern. It seems to me that we have a potential conflict between the two professions on the question of the actuary's proper domain in certifications of life insurance companies' financial statements.

In my opinion, the public interest and our own professional interest dictate that we oppose the viewpoint that accountants are competent to verify life insurance company reserves and other actuarial items in financial statements. We need to obtain the accountants' agreement that there are some aspects of the statement about which only the actuarial profession is competent to express and form an opinion. I am genuinely impressed by the quality of the accountants with whom I have dealt, but the fact that there are a number of unusually capable and experienced accountants does not justify the accounting profession as a whole assuming actuarial competence. Furthermore, I think that the question of competency must necessarily rest in the hands of our profession and not in the hands of the accounting profession.

MR. ESPIE: I would assume that the smaller companies would rely more heavily on consulting actuaries to begin with and that those statistics include those companies using only consulting actuaries.

MR. BYRNE: I do not know what the answer is. Maybe the answer lies with the Securities and Exchange Commission.

A small company spends a lot of money on audits and also spends money on consulting actuaries. I am sure that many small companies feel as I do. I want a consulting actuary's qualification in an accountant's opinion. But, if the accounting firm says, "No, we are not going to use it," and the board of directors says, "We will not let you spend the double fee because it is useless," and the SEC does not insist, then it is just not going to be done.

The actuary speaks to the board of directors, trying to tell them of

these considerations that we are talking about today, but he cannot always get the point across.

MR. GOLD: I would like to make one statement. On Thursday I have a board meeting of a new company just starting out, and the question of whether we should have an audit has come up. I think that it is rather worthless; once you have one, it is very difficult not to have another one. If you have one in 1966, you will need a great deal of explanation for the reason why you do not want to spend the money to have one the following year.

MR. BYRNE: Even if you are sure that you will not need new money in 1966 or 1967, they can present a convincing story.

CHAIRMAN DAVIS: We have gotten into the question of the SEC's interest in life insurance annual statements. That is still a different entity—different from the stockholders, the regulatory authorities, and the financial analysts. Perhaps we had better consider just what companies are subject to SEC and what the requirements are.

MR. BITTEL: My comments will be limited to a review of the outcome of a conference several years ago between NAIC representatives and SEC accountants on their requirements as to annual statements of life companies. At that time, all these requirements could be satisfied by the use of notes to the financial statements except for their refusal to accept the mandatory securities valuation reserve as a liability in the statement.

During these discussions it became apparent that only a relatively small part of such a reserve, as it was then constituted or as it might have been subsequently changed by proposals under consideration at that time, would be accepted by the SEC as a liability in the annual statement shown in a prospectus. This problem was resolved by an agreement to omit the subtotal for total liabilities, except capital, in such a statement, so that this reserve would not be shown either as a liability or a part of capital and surplus. It had been my understanding that the SEC was accepting this procedure, but I recently came across a prospectus in which the mandatory securities valuation reserve was included as a part of capital and surplus, so I do not know what their current requirements may be.

From this experience and my participation in the work of the NAIC Blanks Committee over many years, I am convinced that no agreement between these two agencies on the content of the financial statements

of life companies is possible. Nearly all these differences of opinion can be resolved by the use of the notes to financial statements required by the SEC and insisted upon by many accountants in making their certifications of such statements. However, it does seem to me that more care and actuarial guidance are needed in the preparation of such notes, especially when they are used in connection with an attempt to determine the value of the stock of a life insurance company.

I feel that these problems are due to the fact that SEC accountants are regular accountants who are not at all versed in what we refer to as life insurance accounting. I may be wrong in my conclusions, but I became very discouraged after this conference with the SEC. We have had no further communications from them on this matter, although they apparently did not refer to this item specifically in Article 7A of their regulations.

MR. DREHER: It is not included, except perhaps as a technical footnote. I might mention the SEC's requirements regarding the companies which must register with the SEC.

The 1964 amendment to the Securities and Exchange Act requires that all companies with more than two million dollars of assets and more than five hundred stockholders submit to their regulation. However, life insurance companies that file stockholder-information supplements with the state insurance department are exempted from this requirement.

There are two exceptions, though, to this general rule. The first is that a company wishing to register new stock for sale to the public, or exchange with another enterprise, is subject to regulation S-X, the regulation that specified the financial reports to be filed with the SEC. Once a company becomes subject to regulation S-X, it must also agree to file forms 9 and 10 K (these are information reports of a company's financial results) and its reports to stockholders for a period of several years after the registration.

The second exception to the basic exemption is that a company offering variable annuities is subject to SEC registration—more precisely, the variable annuity branch of the company must register the offering. This is the only section under which a mutual company might be obliged to file with the SEC.

In Article 7A of regulation S-X there is a description of the detailed balance sheet and operating statement data required of a life insurance company that becomes subject to its reporting requirements. By and large, this information can be taken directly from the NAIC statement. In special notes to the financial statements other information is required, such as data on nonadmitted assets, restrictions on the amount of sur-

plus available for payment of dividends to stockholders, and the amount of deferred taxes on the policyholder's surplus account and on unrealized gains in the mandatory security valuation reserve.

The reporting company's notes must also identify the methods, mortality tables, and rates of interest used to calculate reserves and must give data about the reinsurance of risks.

MR. BITTEL: As I said, my understanding was that they would go along with what I described. But with regard to this exemption which you mentioned from the over-the-counter law when an SIS schedule was filed, they went a little further than that because, subsequently, companies were exempted from SEC regulations only if there were also proxy regulations promulgated in the various states and if an insider trading law was enacted that was also to be supplemented by regulations promulgated by the insurance commissioner. Even this exemption was to be granted only if every state complied.

There was only one state that I know of that did not comply by July 1 of this year, which was the deadline set by the SEC. Whether or not that state has yet enacted such a law, I do not know. It sent out a request for information on the desirability of having such a law about April of this year.

MR. HARLAND: In the past, Canadian companies not listed on any stock exchange in the United States have not been subject to SEC regulations. With regulation S-X, all Canadian companies having assets of $2,000,000 or more, whose stock trades over the counter in the United States, and which have five hundred or more United States stockholders would become subject to such regulations.

However, at the present time Canadian companies that would otherwise now be subject to this regulation have been granted a moratorium of the regular rules until April 30, 1967. In the meantime, SEC has requested and received certain information from these companies and is giving further consideration to the basis on which Canadian companies should report. Naturally, NAIC annual statement forms and the normal stockholder-information supplement would not be suitable, because they report on only our United States business.

MR. TOWNSEND: In my opinion, it is desirable for stock companies to prepare interim statements for the investment public. Companies on the major stock exchanges report earnings on a quarterly basis and also report significant news during the interim.

The *majority* of the major stock life companies, to the best of my knowledge, do not prepare interim reports for either their stockholders or for financial analysts. (However, in 1966, a number of stock life companies have published a semiannual report to stockholders for the first time.) On the other hand, they will boast of their achievements in various insurance trade journals.

I feel that many circumstances which will clearly affect the year's operating statistics for a stock life company are often known by management early in the year and should be uniformly disclosed to the investment public. As compared to other industries in the United States, once-a-year reporting in the life insurance industry seems inadequate, particularly when pertinent interim results are published in trade journals.

Based on the information available in our office, the reporting practices of thirty-four major stock life companies are:

	No. of Companies
Prepared a June 30, 1966, stockholder report	10
Prepared a June 30, 1966, financial analyst report	3
Prepared a June 30, 1966, trade journal report	8
Prepared no June 30, 1966, report	13

CHAIRMAN DAVIS: The Canadian annual statement is different from the United States statement. Are there any practices or procedures there that might be considered in seeking to improve the United States report or to make it more useful?

MR. HARLAND: There are a number of differences, and perhaps a brief summary of the major ones might suggest something that could constitute a useful revision of the United States statement.

Canadian statements require the reporting of assets at book value, that is, amortized cost less accumulated write-down. In the NAIC statement, bonds and mortgages in good standing are held at amortized value, and stocks are held at market value. Methods of asset valuation in the NAIC annual statement have been carefully reviewed in recent years, but I think that it is unlikely that they will undergo early revision.

In the United States, deferred premiums are carried on the balance sheet as an asset. In Canada they are held against policy reserves. The Canadian approach seems to me sounder theoretically, but viewpoints on this may differ, and for practical purposes one approach may be about as good as the other.

In Canada, federal income tax is relatively less important (nil for mutuals), and taxes appear as a regular item in the gain from operations.

Separate life and health statements are required in Canada. This condition follows from the complete separation of the two classes of business under Canadian law. No change in the United States statement seems necessary in this regard.

The Canadian statement includes special currency schedules. Here the company's surplus is recalculated using current market values and current rates of exchange. With assets valued as they are in the NAIC statement, a corresponding schedule does not seem to be necessary.

The Canadian statement does not contain an analysis of reserves as does the NAIC statement on page 6. I do not think that the absence of this analysis in the Canadian statement lessens the effectiveness of government supervision of the industry or of reporting to policyholders and shareholders.

The Canadian statement does not include any exhibits displaying the development of revenue figures, such as premiums and claims in the NAIC statement. I think the United States statement might be improved by simply reporting the end result of any necessary revenuing procedures.

Finally, the Canadian statement does not include a reconciliation of ledger assets, as does Exhibit 12 of the NAIC statement. This exhibit does not seem to me necessary from an accounting point of view, and I suspect that the detailed information contained therein is usually available elsewhere in the statement, often in more suitable form. If there are some items here that are not available elsewhere, I should think that those relatively few items could be reported separately and this exhibit eliminated.

MR. BITTEL: I might mention, for the edification of those who may not have been around at the time we worked on the revision of the annual statement in the forties, that almost all these items were considered at one time or another, including the Canadian method of treating deferred premiums. Actually, at one point, we considered going even further and trying to have the reserve netted for outstanding premiums and, I believe, even policy loans. I think that we were fortunate in getting through as many modifications as we did, even though these particular changes were all thrown out, for one reason or another. I doubt very much that there would be any possibility of getting any of them incorporated at this time in the United States statement form.

Exhibit 12 was only supposed to be retained in the statement for a limited period, as a transition, until the departments became accustomed to the new form of statement. However, as is frequently the case, it is

still with us. There is a certain amount of information in this exhibit which is not available elsewhere in the statement but which, of course, could be included elsewhere in the statement. The attitude of the members of the NAIC Blanks Committee toward this exhibit was such that the industry finally gave up asking for it to be deleted.

MR. DREHER: I think that I should perhaps clarify an apparent misunderstanding about the position of accountants.

The accounting profession tends to feel that the needs of regulatory bodies and the needs of policyholders, with respect to a company's solvency and ability to fulfil contracts, are adequately satisfied by the NAIC statement as it is presently constituted. Accountants' attention is focused on additional information for investors, either through supplementary schedules or footnotes or restatements of financials.

My own opinion is that it is necessary to come down to some bottom-line figure called "adjusted net earnings." As valuable as the supplementary material and footnotes can be, if we merely deluge the investor with all this information, I do not see how he can avoid being confused. This would lead to the defeat of the primary reporting purpose, that is, providing the holder of life company shares with reasonably clear and complete information. Accordingly, some basis for determining adjusted net earnings which will permit comparability among periods and among companies is necessary.

MR. ESPIE: It seems to me that we are in an area here where accountants are prepared to take the stand for the benefit of the investors, and we have heard from Mr. Bittel that it is unlikely that the NAIC will agree. We fall in the middle of the controversy.

You cannot possibly take a company which operates as some companies do, with both participating and nonparticipating business, and apply one set of accounting standards to its nonpar and another to its mutual business. This again smacks of irresponsibility.

Taxes are very important, and tax accounting seems to me to fall behind, generally. But it does not take very long for the IRS to catch up.

The industry has very patiently, and with a great deal of difficulty, worked out a solution to its tax problem. It may not be the best solution, but it is apparently better than a great many alternatives. The actions of the C.P.A.'s are going to endanger this, and they do not seem to care.

MR. STEWART: One other aspect is important. I think that the accountants' adjustments are premised on the idea that these are good times and good times are going to stay with us forever. If C.P.A.'s and

investment analysts had suggested some of these adjustments to earnings before our last great depression, they might be a little more sensitive about them now. The future may be uncertain in our business. Interest rates can change dramatically, expense rates through inflation can change, and so forth. The NAIC statement was developed over the years (through bad and good times), and it tries to hit a happy medium.

MR. TOWNSEND: The NAIC annual statement is the only uniform instrument of disclosure in the life insurance industry in the United States. Therefore, from the investment public's point of view, the NAIC annual statement should contain information on those items having a *significant* effect upon earnings. The present form, in my opinion, omits two vital pieces of information.

The first item I have already discussed, namely, disclosure of the ordinary life new-business surplus drain. The second item is also of major significance, and a good many companies will not release any information in this area. I am referring to stock life companies writing participating insurance. In several states, the earnings of the participating department inuring to the benefit of the stockholders are limited by law. Yet many stock companies do not appraise their stockholders of this fact, and in their annual reports to stockholders "represent" the entire net gain from operations as accruing to the benefit of the stockholders. This "representation" is often by omission of a statement to the contrary. However, when statutory earnings are presented on a per share basis, they should omit the earnings which do not inure to the stockholders.

Fortunately, dual-line companies file separate gain and loss exhibits with the various state insurance departments, thus permitting financial analysts to make expensive journeys to various states to discover just what portion of the total net gain from operations accrues to the benefit of the stockholder. (However, stock companies writing only participating insurance do not file separate exhibits.)

Because of these stockholder limitations on participating department earnings, the financial analyst is interested in the breakdown of the insurance written and insurance in force accounts, for both whole life and term, between the participating and nonparticipating departments. Such a breakdown enables the financial analyst to see in what portion of new ordinary business the stockholder will have a 100 per cent interest in earnings and in what portion he will have only a 10 per cent interest. Many United States companies will not divulge this information, in

contrast to the Canadian companies, who must file such information in Exhibits C and D of the Canadian statement form.

Our panel includes one actuary from Canada and one actuary from the United States, both representing dual-line stock life companies. What is their reaction to a proposal to disclose the participating accounts, for both whole life and term insurance, written and in force, in the NAIC annual statement?

Mr. Bittell represents a state which imposes a statutory limitation on participating department profits inuring to the benefit of stockholders. In view of such a statutory provision, does he feel that dual-line stock companies writing business in his state should present stockholders with a breakdown of the participating and nonparticipating statutory earnings and insurance written and insurance in force accounts?

MR. HARLAND: In Canada, we are quite used to the need to separate our business between the par and nonpar accounts. It is a part of life for us. It seems to me that for any company which writes a substantial volume of both participating and nonparticipating business and which operates in a territory which limits the extent to which participating profits may be distributed to the shareholders, a meaningful analysis of earnings for the use of shareholders and analysts should involve separations between par and nonpar accounts. I do not mean at all to imply that the same separation is needed in the NAIC statement. I think that is an entirely different matter and one to be judged by different standards.

MR. BITTEL: As many of you know, some of the departments have made valiant but futile efforts to have the United States form of statement amended to require the separation of accounts by par and nonpar —not even as far as our Canadian counterparts have gone but nevertheless to give some useful information. These have not been successful, and it appears that they may not be successful until a requirement is imposed by some other agency (which is a possibility) that this information must be furnished.

I do feel that there is merit in the change suggested requiring the showing of par and nonpar business written by first year and renewal, and I rather imagine that I will make such a recommendation to the Blanks Committee next year. The information on the total business in force is now shown, but this does leave a void for anyone trying to analyze a statement, even in cases in which you have the separation, as we do in New Jersey, without the comparable information on the writings needed by the security analysts.

I am giving advance notice that this change will be sought, possibly for next year's statement. I understand that there is an industry committee studying the possibility of modifying the policy exhibits in the annual statement. This information probably would have to be included on that page—taking it out of the general interrogatories following Exhibit 8A, where it now is reported, as far as total business is concerned. This will be my recommendation.

MR. STEWART: Why has the industry opposed par and nonpar splits in the NAIC statement? The reason is a practical one. About ten or so states do require this separation; such a requirement by the NAIC for *all* states seems to be an improper imposition.

I can certainly see why analysts would ask for the participating disclosure when there is a limitation on participating profits. Many of the larger stock companies are making such disclosures.

MR. T. P. FARMER: The jurat of the life and accident and health companies' annual statement blank has space for signatures of four officers, one of whom is the actuary. In it, these officers attest (1) that they are the officers of the insurer, (2) that the assets shown in the statement are the absolute property of the insurer free and clear from any liens or claims thereon, and (3) that the annual statement contains a full and true statement of all the assets and liabilities and of the condition and affairs of the insurer.

There is no specific instruction for completing this jurat, except that the general instructions state that titles of various items in the annual statement are self-explanatory and as such constitute instructions. This would imply that a consulting actuary should not sign this jurat except in the rare case in which he is an officer of that company. Furthermore, since consulting actuaries do not audit assets, they are in no position to attest that the assets are the absolute property of the insurer free and clear from any liens or claims thereon. While it is true that the designated company officers also do not audit the assets, there is more of an implication that an independent actuary has audited assets when he signs this jurat.

Despite this seeming inapplicability of a consulting actuary's signature on the annual statement, many consulting actuaries do sign them. Many client insurance companies expect it, and many insurance departments expect it or insist on it.

Earlier this year I conducted an informal survey of insurance department requirements and attitudes on consulting actuaries' signing annual

statements. Most states have no specific statute or written regulation on this point. When there is a statute governing signatures on the annual statement, it usually requires only those of the president and secretary, or sometimes signatures of other principal officers. However, many state insurance departments take the position that, by adoption of the NAIC blank, signatures of the four officers stated in it are required. In response to my survey, about one-third of the state insurance departments stated that they required an actuary's signature or preferred to have it and that it should be the consulting actuary's signature if there was no qualified staff actuary. Another one-third of the departments stated that, while they did not insist on a consulting actuary's signing the statement, they did not object to it. The other one-third, however, either stated that the consulting actuary should not sign the statement or that he should not sign it unless he accepts responsibility for the entire statement.

Most of our client insurance companies expect us to sign their annual statements when we take part in their preparation. We have done it traditionally and until recently did not give serious thought to its implications.

The general public is affected to some degree in this area. A consulting actuary's signature in the annual statement is often the basis for listing him or his firm as the company's consulting actuary in various insurance publications, newspapers, and so forth. In some cases such a listing may imply to the public that the consulting actuary has certified to any accompanying financial statements. In some cases such a listing may also imply responsibility for the company's rates, policy forms, and "actuarial soundness."

Consulting actuaries probably do not have uniform practices in this regard. In Nelson and Warren, Inc., we considered the matter recently and decided that we will sign an annual statement only when these requirements are met:

1. We determine, or do sufficient checking of, all actuarial items and are satisfied with their correctness.
2. We have no reason to doubt the substantial accuracy of any other asset, liability, or other annual statement items.
3. We are familiar enough with the company's operations to be aware of any unusual problems. In this regard, we believe that, by signing the jurat in its present form, a consulting actuary is accepting the role of the company's actuary.

Even though we have decided what our signature on an annual statement means to us, we would like to see a change in the wording of the jurat so that it is clear to all concerned what we are certifying.

Many small companies do not have a qualified staff actuary and rely on a consulting actuary to help prepare the annual statement. After they become established, about 90 per cent of their liabilities are actuarial items. These should be determined or checked by a qualified actuary and certified by him. The present annual statement jurat seems to me to be inappropriate for such a certification by a consulting actuary. I believe that a separate certification should be made a part of the annual statement when a consulting actuary has a role in preparing it. Perhaps it would be desirable to vary the form of certification with the individual case. In any event, I think that this is an area in which the Academy of Actuaries, the Society of Actuaries, and the Conference of Actuaries in Public Practice should work with the NAIC.

MR. HAZELCORN: In the case of one insurance department, we got approval not to sign the jurat.

MR. DREHER: We solved the problem of the jurat in the following manner. Instead of signing the jurat—which would have implied a responsibility for the condition of the company's assets—and instead of simply putting the word "consulting" in front of the word "actuary"—which would have associated us with the company—we recorded the title "Consulting Actuaries" beneath the recital of the names of officers and directors. We thus limited our responsibility to the actuarial items in the financial statement and identified our independence of the company and its officers.

I believe that this whole topic has been treated too casually by consulting actuaries. There is a definite exposure to legal action by dissenting stockholders in a merger or acquisition or by stockholders whose shares have declined in value after a public offering. As soon as the first litigation occurs, we are all going to be much more precise and cautious about the opinions that we express to the public.

MR. BITTEL: I think that it is possible that a different jurat might be devised for consultants, but, as far as my state is concerned, such a certification would have to include the preparation of the financial portions of the annual statement; it would go beyond the strictly actuarial figures that are in the statement, the so-called actuarial figures.

I might say that my state is also the only state of which I have any knowledge requiring that the statement of the life insurance company be signed by a qualified actuary. We have had quite a problem with that until recently and now will accept any member of the Academy of Actuaries as a qualified actuary. This will resolve that problem, I believe.

MR. JACOB S. LANDIS: "Adjusted earnings" are of interest not only to financial analysts. Section 51 of the New York Insurance Law proscribes statements which are false, misleading, or likely to deceive the public by any person who proposes to sell insurance securities through a public offering; New York Regulation No. 48 prohibits false or misleading statements by management in soliciting proxies, consents, or authorizations. On the other hand, Subsection 5 of Section 97 of the New York Insurance Law explicitly allows the inclusion of factual information with respect to a company's financial condition (in addition to the annual statement financial data) in announcements, such as annual reports, made by a company solely to its stockholders.

A statement to the effect that, by the very nature of the life insurance business, the growth of the company is unavoidably accompanied by a temporary loss of surplus is certainly a factual statement. Yet, when made in such purely qualitative terms, it may serve as a convenient alibi for surplus losses due to excessive spending, poor underwriting, and so forth.

With this in mind, some of us at the New York department have been looking for an acceptable method of calculating "adjusted earnings" which would eliminate the effect of the first-year surplus drain and nothing else. We rejected the current methods based on putting a value on future profits, whether such value is obtained by a rule of thumb or by a gross premium valuation. As Mr. William Dreher has pointed out, a "generally accepted accounting principle" requires that "profit should not be anticipated." There were other cogent reasons for rejecting this method which some writers (e.g., Hanson and Farney, *New Life Insurance Companies: Their Promotion and Regulation* [1965]) have hailed as the only "scientific" one.

From this point, our reasoning followed these lines:

1. The business on the books of a life insurance company is an investment, an income-producing asset, and should be recognized as such (outside the annual statement accounts).

2. Just like real estate or equipment, this (nonledger, nonadmitted) asset should be valued at initial cost, that is, the cost of its acquisition.

3. This asset should be written down to zero by the time the business has gone off the books; a simple method to achieve this would consist in writing off, in each following year, that percentage of the initial value of the asset that corresponds to the percentage of a prior year's issues which were terminated in such year. These "write-offs" would, of course, represent charges against current income.

4. The write-offs could be made either (*a*) at original cost or (*b*) at current replacement cost. Method *a* would necessitate, at the time when "adjusted

earnings" are first computed, a complete analysis of the business in force by year of issue and a computation of the acquisition costs incurred in each prior year from which business still persists. Method *b* commends itself by its simplicity; it is also more realistic, since terminating business must be replaced at the current level of acquisition costs. In each year, the terminating issues of all prior years are represented by the excess of the total writings of that year over the net growth of business in such year. The sum of the write-offs at current replacement cost is, therefore, the percentage of the total acquisition cost of that year corresponding to the ratio of this excess to the total writings. Hence the "adjustment" to the year's gain or loss is simply the total acquisition cost incurred multiplied by the complementary ratio, that is, the ratio of net growth to total new issues.

5. The difficult point, of course, is the proper definition of "acquisition cost." Theoretically, it would be the marginal cost of putting an additional policy on the books. This immediately eliminates overhead expense. "Uncontrollable expenses" certainly should be included (commissions and commission-related items, medical examinations, inspection reports, etc.). Should a portion of advertising expense be included? Should the unit cost of issuing and recording a new policy be recognized? These are practical matters which require a solution in the light of various practicalities, among which easy checkability of the "adjustment" is of no little importance.

The ratio of 4, *b*, above was also used by Mr. Frederick Townsend in his presentation to this session and in Volume XVIII of *Transactions* on page D244, but he applies it to the operational loss of first-year business. This recognizes items of income and expense (such as overhead expense) which pertain to all policy years, including the first. It also recognized certain offsets to acquisition costs, such as select mortality or modified tabular premiums. Most importantly, it includes "gains" from lapses which are in the nature of an offset to our "write-offs" of the acquisition cost of terminating business. Since these write-offs are a charge to current operations, there is no reason why the "gains" from lapses should not also be included in the current account. As for ease of application, the allocation of expenses to first-year and renewal business is certainly no easier, or more easily checkable, than the determination of "acquisition cost."

I was interested to learn from Mr. Dreher that one of the adjustments to the annual statement accounts favored by accountants is "the amount by which first-year expenses should, to the extent recoverable, be set up as an asset."

I may add that the foregoing does not, at this time, in any way represent the views of the New York superintendent of insurance. It is a

pleasant duty to acknowledge the contribution of Mr. Herbert Stern, associate examiner of the New York Insurance Department; discussions that I had with him helped me in clarifying and crystallizing the thoughts here presented.

MR. TOWNSEND: I do want to point out that there is a conflict between the needs of the financial analyst and the expediency with which some companies complete their annual statements. If you are responsible for preparing the statement in your company, please try to do the following:

1. Indicate whether contingency reserves are voluntary or represent true liabilities.
2. Properly allocate items between the income and surplus accounts.
3. Be consistent in successive years in completing the gain and loss exhibit.
4. Strive for accuracy in completing the policy exhibit.
5. Use the blank lines, or add a line where it would more clearly identify an income or expense item.
6. Do not label large items "Miscellaneous." If necessary, use an explanatory footnote.

MR. ARTHUR TEILER: The annual statement blank should not be changed to show separately first-year experience, age breakdown, profit projections, or other information of interest only to stockholders. This information, if provided, belongs in an appropriate stockholders' report and does not belong in the report to the superintendent of insurance. Whatever information is wanted should be furnished in a standard format by the company officers who are, after all, paid by the stockholders and are responsible to them. It seems to me that the company officers are the only ones knowledgeable enough to be able to apply the facts rather than arbitrary rules of thumb. Officers have generally felt that they could not ethically show adjusted statutory earnings; however, others have gladly filled the need (or created it) and have provided the information by whatever manner they easily could, often without regard to accuracy. I believe that only the company can provide appropriate information. Those groups who want this information, together with the companies, must first arrive at an acceptable general format so that (1) a company will not be accused of using a formula that is biased in its favor and (2) the results can be compared by investors. Once there is a standardized format, I am sure that most companies will provide such information.

To be workable, an approach must leave room for individual differ-

ences and be specific enough to be a good guide. I would like to see developed a general adjustment approach for earnings, book value, and growth rate, accepted generally by security analysts, accountants, actuaries, and other interested groups.

Once there is a demand for such disclosure, on a basis reasonable for companies to provide, I am sure most companies will provide the information to their stockholders, modified only according to the nature of the company and for special interests of its stockholders.

ACTUARIAL PRINCIPLES AND PRACTICES IN RELATION TO PRIVATE PENSION PLANS

The Society's Committee To Study Pension Plan Problems has been requested by the Board of Governors to develop a guide for pension actuaries (both consulting and insurance company), somewhat analogous to those used by accountants and other professional groups. This is visualized as a fairly detailed treatise that would be used as a reference by established pension actuaries, for the education of actuaries newly entering the pension field, and for the information of others who are concerned with private pensions. The following questions have been framed with the principal object of bringing out opinions, viewpoints, and practices which will be of assistance to the Committee in fulfilling its assignment:

A. What topics should such a guide cover to be of greatest value to:
   1. Consulting actuaries and their clients?
   2. Insurance company pension actuaries?
   3. Government authorities and legislators?
   4. Other professionals, such as accountants and lawyers?

   Could such a guide in the form of a published and acknowledged statement of recognized and accepted principles and practices serve as one to which an actuary can say that he subscribes and conforms in signing an actuarial pension report that is made to an employer and to a government agency, where called for?

B. A major objective of the guide would be to assist actuaries in making proper, reasoned choices of actuarial cost methods and assumptions. In this connection:
   1. To what extent and in what manner should the level and incidence of the employer's earnings and cash flow be considered in making a choice of cost methods and assumptions?
   2. Under what circumstances should an actuary make two or more simultaneous valuations of the same plan?
   3. Is it proper deliberately to exclude certain categories of employees, nominally "covered" by the plan, from the valuation? If so, what disclosure should be made to the employees affected?
   4. Under what circumstances should funding on the "normal cost plus interest" method be recommended?
   5. What short-cut or approximate cost methods are appropriate for valuing ancillary benefits, such as disability pensions, spouse's benefits, other death benefits, vested rights, and optional early retirement or survivor benefits that are greater than the actuarial equivalent of normal benefits?

C. With what special problems and pitfalls is the actuary confronted with respect to "cents per hour" or other "defined contribution" pension plans, and how should he deal with them?

D. What responsibilities should the actuary assume or accept in relation to the assets of a trusteed pension plan? Should he participate in the investment decisions? Should he value the assets or recommend methods for their valuation? Should he offer to make appraisals of investment performance?

E. What responsibility should the actuary assume for the accuracy of the employee data? Under what circumstances should known or suspected inaccuracies in data be reported as a qualification in the actuarial report?

F. What statements and exhibits should the actuary's report on a pension valuation contain?

MR. JOHN H. MILLER: In his Presidential Address yesterday morning, Mr. Fitzhugh stressed the importance to the majority of our population of the security of their pension expectations, the role that the actuary plays in the realization of these expectations, and the high order of responsibility which he bears.

In carrying out these responsibilities, the actuary finds some guidance in the Guides to Professional Conduct, particularly Guides 7, 8, 9, and 10. Another source of information and guidance lies in our study material and the many excellent papers in the *Transactions*. These the actuary can turn to for theory and technical methodology.

However, there are many questions for which answers are not found in either of these sources. In the judgment of our Board, the need for another kind of authoritative reference is indicated.

To fill this need, the Pension Committee has embarked on the preparation of a manual of actuarial principles and practices in relation to private pension plans. This manual, we feel, will not only be a guide to the actuary in his practice but will inform other professions, the managers of business, and government officials concerning the proper function and responsibility of the actuary. It should be a document of such form and character that an actuary can properly describe his work or his report thereon as having been done or prepared in conformance with this manual.

As I mentioned yesterday morning, we are hoping to get many helpful expressions of opinion, advice, comments, and questions with regard to what the manual should cover, and beyond what you can tell us here this afternoon we will welcome written communications while the manual is in preparation.

MR. FRANK L. GRIFFIN, JR.: Almost exactly three years ago, the same four individuals who are on this panel (plus one other) sat on a panel at the Society meeting in Atlantic City. At that time, John Miller was present not as a member of the panel but as an official of the Society.

However, the cast of characters was virtually the same, the subject was "Security of Private Pension Expectations," and I was cast in a familiar "heavy" role.

Despite my failure at the time to chalk up many points with certain "old-school" actuaries, it is interesting to note how frequently my sentiments have been echoed in the months since by an increasing number of persons opposing the rigidities of regulation, inflexible accounting rules, and so on. Yet, outside actuarial circles, the clamor for uniformity has grown. We are all faced with the very practical problem of how to head off a degree of governmental interference that threatens to remove the word "private" from private pensions.

The stated purpose of the proposed treatise on actuarial principles, as set forth in the printed program, implies that this work would bring together much that has previously been written on pension valuations and funding in a well-organized text on the subject. There is also an implication that one of its purposes might be to devise and encourage a system of standard procedures—a sort of Procrustean bed to whose measurements every actuary would be expected to conform. Therein lies the rub. I am afraid that the proposed work, by encouraging gross oversimplification, might run the risk of stimulating governmental regulation.

I view the work as having primary application in the education of younger actuaries and possibly in familiarizing other professionals with actuarial fundamentals. If this view should prevail, then there would appear to be less urgency about the project than some feel exists. If it is not the prevailing view, then what? Do we intend to substitute ourselves for the government in instituting regulation of actuarial procedures? That might be a real improvement, yet it would have many of the same pitfalls.

We are told that, if actuaries enforce self-discipline through the use of pension valuation guidelines similar to the well-known accounting Opinions, it might forestall governmental action to regulate pension funding. Whether or not this is true, it seems to me that we are treading on rather dangerous ground here. Is there only *one* right way to fund a pension plan? The right way for one company may be the wrong way for another. The passion for standardization, which seems to be overtaking us in every area of activity, will do much to stifle desirable innovation, it seems to me.

Just as I am opposed to rigid regulation of funding standards, which to be effective (in the sense of control) would require the stipulation of actuarial assumptions as well as cost methods, so am I opposed to the imposition of fixed standards by pressures otherwise brought to bear.

No standard could come close to fitting all plans at a given moment of time or even one plan at different moments of time. In writing such a book, therefore, we have to be extremely careful not to impose strait jackets through what might essentially become compulsory guidelines for the funding of pension plans.

One thing which distinguishes professional men from others is the exercise of judgment in the solution of problems; judgment is impossible when uniformity takes over. No other profession has seen fit to eliminate judgment or diversity. One can imagine the increase in mortality if surgeons were required to follow inflexible and often outdated routines on every patient, regardless of the special circumstances and conditions applying. One can also recognize the devastating effect on the practice of the legal profession of a ban on new approaches to a given problem.

Financial and employment conditions vary from employer to employer and from industry to industry. If we do not respect the rights of free choice of individual employers in implementing perfectly legitimate objectives, we shall be no wiser than, and every bit as dictatorial as, the "instant experts" among our public servants who attempt to reduce all lawful actions to predetermined formulas.

None of these remarks is intended to imply that a "textbook" or "actuarial study" on actuarial valuation techniques and practices should not be attempted. On the contrary, I believe this should be done. But it should be made clear to one and all that the work is not an attempt to induce adherence to a rigid set of rules. A statement of principles is, of course, an acceptable approach, so long as these are broad enough to encompass the multiplicity of situations which will be encountered in practice.

MR. RAY M. PETERSON: Perhaps a word of explanation about the Committee would be appropriate at this time. The Committee originally was selected to be a nicely balanced committee with five members representing the insurance industry, five members representing the consulting actuaries, and one member from Canada. I should note that there has been some change in affiliations since the committee was appointed.

MR. ROBERT J. MYERS: I would like to take the liberty of talking a little about social insurance and government-employee pension plans. Social insurance and private pension plans have both many similarities and many differences. The same is true for pension plans for government employees and for employees of private employers. I believe that, with respect to the provisions of pension plans, the posture of the government should be "what is sauce for the goose is sauce for the gander." Thus,

if private employees should be covered under social insurance and their pension plans adjusted accordingly, then the same principles should be applied to government employees. However, with respect to financing, I believe that there are significant differences between social insurance, government-employee retirement plans, and private pension plans.

Under a social insurance system which covers the vast majority of the workers in the country on a compulsory perpetuity basis, there is no actuarial need for full funding. From the standpoint of both economics and politics, it is probably not desirable to build up large funds under a social insurance system. By large funds, I mean their size relative to contribution income and benefit outgo. I also believe that long-range financing bases should be developed, along with the necessary long-range cost estimates.

The financing bases of pension plans for government employees should, in my opinion, be somewhat different from those for private pension plans, especially in the case of larger governmental units, such as the federal government, whose future lifetimes may be assumed to be infinite. Unlike social insurance, however, it seems to me that, for the sake of honest accounting and understandability to the general public, there should be established some minimum funding method, such as normal cost plus interest, or even a step-rate schedule for a decade or two that then moves on to a normal cost plus interest method.

In theory, I am heartily in favor of preparing more than one valuation of a given plan simultaneously. In practice, this may be impractical because of cost or time factors. Nonetheless, this approach is desirable since it points out to the policy-makers that actuarial cost estimates are, by their very nature, subject to significant variations. This approach might make the clients skeptical of the actuary's worth, but I am convinced that this obstacle could be overcome, with the resulting situation then being more desirable.

MR. BARNET N. BERIN: The Board of Governors' request for the committee to develop a guide suggests a basic educational work supported by papers on particular topics. Topics B–E readily lend themselves to papers prepared either by the committee or by individuals. Because individual papers will evoke diversified opinions in the discussions, this possibility carries advantages. Unless differences of opinion are brought out in the guide, it is difficult to see how "an actuary can say that he subscribes and conforms in signing an actuarial pension report."

Many of us in the pension field will greet this treatise on pension actuarial problems with enthusiasm, since the literature in the *Trans-*

actions offers inadequate aid in coping with these problems. Today the primary method with which pension actuaries must educate themselves is by grappling with problems that must be solved immediately. As a member of the Part 9E Committee and, for the last several months, the Part 8 Committee, my impression has been reinforced that many of today's problems can only be properly solved by a textbook. This textbook would not need to cover all the suggested items. A book on actuarial gain and loss analysis would introduce the correct theoretical base for many of the problems mentioned and would provide the new pension actuary valuable insight into the many pension problems that he will encounter.

The knowledge required by a pension actuary today can only be gained by intensive practical experience, supported by theoretical demonstrations to confirm the results. These demonstrations are often related to actuarial gain and loss concepts.

It may be possible to produce a book of the monograph type which would not be concerned with elaborate theoretical discussions but would cover such topics as the following:

1. Assets—their development at book value and at market value; the determination of expected interest and the interest gain.
2. The development of the aggregate gain by the unit credit and entry age normal methods and also by the so-called spread methods, such as the entry age normal, frozen initial liability method.
3. The development of the individual gains from experience, showing that they total to the aggregate gain.
4. The interpretation of the ensuing gain and loss table.

The work necessary to prepare this book could be farmed out to an interested subcommittee of experts and would represent a natural expansion of Mr. Dreher's paper on gain and loss analysis.

MR. PRESTON C. BASSETT: If our objective is to prepare a textbook, as Frank Griffin indicated, I think that this group has a worthwhile project. There is a need for a textbook in detail to educate young actuaries. My principal concern is that if we depart from this objective, the group may try to set forth guides that the actuaries should follow for valuation reports on pension plans.

First, we need to examine why we are doing any actuarial valuation. Many of us, I think, do actuarial valuations to justify tax deductions for contributions made to qualified pension plans. If this is our purpose, we may have a specified set of objectives. The Internal Revenue Service has already given us fairly wide guidelines in which to operate. Suppose,

for example, that next year we have a new excess-profit tax and corporations can take tax deductions for 80 per cent of what they put into a qualified pension plan. Does this influence the type of valuation that we do? Is it proper for this to influence our valuation? Are these the questions the committee hopes to answer? I would be interested.

Is it the purpose of the valuation to set up a set of cost figures for union negotiations? Is it the purpose of our valuation to tell the client, "This is what you should contribute in order to fund your plan soundly"? Sound funding of a plan depends on what a company can contribute in the future. Maybe a company can contribute very little now but feels that later it can contribute considerably more. Perhaps the reverse is true, and they can put away considerable sums today and less later. Should our valuation assumption be set up so that we can accommodate this financing proposition? Is this what the committee is going to look into?

Another alternative is that we should establish a contribution that is the level amount that should be contributed from now on to fund the plan soundly. This is a difficult definition which will be hard to attain even if we establish that this is the principle.

We might have a company that decides to fund its plan on a book reserve, internally, and expects to earn 12 per cent on its investment. Do we value it at 12 per cent? These are all tough questions to answer. All that I can say is that I can see a myriad of problems if we attempt to set guides and yet remain flexible to accommodate all the different things that have been mentioned.

I do not think that we have to go beyond our present code of ethics. If we get more restrictive, are we going to accomplish the objectives of the companies who want tax deductions, union negotiations, government contracts, and so forth?

CHAIRMAN JOHN K. DYER, JR.: I can assure you that we have given a great deal of thought to all these points. In fact, these are the things which have kept us from making more progress than we have. We are particularly conscious of the purpose for which the actuarial valuation is being made. I am sure that what we come up with will have more of a tendency to broaden rather than to narrow the areas of the actuaries.

MR. A. CHARLES HOWELL: As an insurance company actuary, I find myself in complete agreement with Frank Griffin and Pres Bassett. I think that the purpose of the guide or handbook should be for training

purposes and should not contain rules. The need for this type of guide is so acute that we have been trying to develop one ourselves for our young actuaries. There has been a suggestion that we follow the principles of accountants. Accountants really are not following a specific set of rules, but they do follow accepted accounting practices and principles. When we sign an actuarial valuation, we ought to say that we are following accepted actuarial principles, but, in doing so, it should not be one handbook but all the literature that is available to us as actuaries.

MR. FREDERICK P. SLOAT: It is interesting to hear Pres Bassett and others say that one purpose of this handbook would be its value to other professionals, such as accountants and lawyers. I have been working with the Accounting Principles Board on the development of the Opinion on pension accounting. It will state that valuations and other actuarial matters needed to satisfy it would generally be furnished by actuaries. It will also have a reference to actuaries in the Glossary. If the handbook is, in effect, a textbook, it might be of help to accountants, in that it would give them a general idea as to what goes into a valuation and a means of knowing what items should have been taken into account. If it produces a set of rigid guides, it may be such that some accountants could take them and do the actuarial valuation job.

MR. DORRANCE C. BRONSON: John Miller alluded to the Guides to Professional Conduct, reading two or three of them. Supplementing those, there is a certain amount of disclosure of what actuaries do already in the IRS filings and in the D-2 disclosure filings; for the latter, under the new printed form of the D-2, both in the insurance part of the form and in the trust fund part, self-contained homogeneous figures of liabilities are sought. Heretofore, they have been almost anything. No one could tell the exact basis of what the company set down, despite the fact that both comparative and statistical studies have been made, as if these D-2 entries were homogeneous.

Now the amended D-2 form is clearly trying to get the actuary to state the precise meaning and method of determination with respect to entries affecting the unfunded liabilities. That ought to help considerably in disclosing the actuarial bases of the plans.

We have here a proposal that an actuary sign his report as one who conforms to this textbook, or whatever you are going to call it. We have also accomplished the chartering of the Academy in Illinois. There are sixteen bills now in other states. I think that we have not given up entirely the federal-level idea, so that we are going to have the media, we trust, for country-wide "accreditation."

Consequently, in these governmental reports by the actuary, we would be signing the thing twice, as it were—as an "accredited actuary" and as a "conforming actuary" to the guidebook.

It occurred to me that we, the Society of Actuaries, are talking about this study to be prepared by a Society committee. I assume that the hope is that other actuarial groups, such as the Conference of Actuaries in Public Practice, would, in some way, go along with this study, subscribing to it formally, even though it carried the imprimatur of the Society of Actuaries.

Finally, what is the basic reason for this study and resultant publication? Is it to head off government intrusion, or is it merely an educational and unifying exercise for our own actuarial interests?

Mr. Dyer answered my other question, namely, that it would not be a wholly intracommittee writing but would take the form of some exposure draft type of thing that noncommittee members, as well as persons not members of the Society, could review and submit comments on for consideration before final printing.

CHAIRMAN DYER: We are visualizing something today which is more than just a textbook. We want a guide which would help actuaries, including the experienced actuaries. This guide should help them in making certain decisions with which they are faced. We feel that there is a lack of adequate guides for such things at this time. This guide would be, in a sense, an extension of the Guides to Professional Conduct and would help bridge the gap between the Guides to Professional Conduct and the more technical papers available in dealing with the purely actuarial aspects of these problems.

MR. MILLER: I want to clear up the misgivings that Mr. Bassett and others have voiced. This committee is not proposing to come down from the mountain with a new set of commandments, but we do feel that, in applying the basic principles that are set forth in the Guides to Professional Conduct, actuaries could be helped by the technical information and commentary which we intend to include in the proposed manual. We have discussed whether the manual should be sponsored by the American Academy of Actuaries, but, in the present stage of development, it would not seem to us that the task is one which the Academy could or should take over. By the time the manual is ready for release, this certainly can be reconsidered. We want this to be a product by actuaries for their use in the public interest, but it need not be exclusively a Society undertaking.

MR. PETERSON: As many of you know, the President's Committee Report recommended that the government set up certain standards for valuing pension plans. They suggested that we have an advisory committee, but it may well be that a guide would serve that purpose. This idea has been discussed informally with some of the government people, and, together with what the accountants are doing, there is a feeling that there may be some better disciplines or standards developed in the private sector as distinguished from the public.

CHAIRMAN DYER: Government intrusion is not the only thing that we have to fear. There may be some intrusion on the part of the accountants themselves if we do not stabilize our rules a little better than they are now.

MR. KENNETH P. VEIT: I feel that the greatest need is for something which would be a real guide to the young actuary who is coming into the consulting field with no prior pension experience. He has probably had very few significant decision-making opportunities, having been primarily involved, in most cases, with the implementation of decisions which were made by someone else.

The first few times that one sits down with a client and is asked to tell him what decision he should make with respect to a large amount of his company's money are quite an experience. This is not a matter of a 5 or 6 on an actuarial exam; it may mean saving (or losing) for the client a sum which represents more money than you will personally earn in your lifetime. Your client does not think within the same framework as you do. He may want to take a course of action which *seems* reasonable but which has adverse long-range-cost implications or which will run him afoul of IRS on some technical point. Your advice may be poor simply because you lack experience.

Young consulting actuaries are professionally educated but are often inexperienced as consultants. If this proposed guide is to be anything, I would hope that it would be a means of accelerating the accumulation of experience for the new consultant. While education is no substitute for experience, they are not opposites. "Education" is simply a massive mental injection of an organized body of facts, while "experience" is a protracted series of small doses of miscellaneous but significant items. Although it would entail a great deal of hard work, I believe that it is possible for consulting actuaries to summarize and organize their practical decision-making experience in the pension field to the advantage of both the young consultant and his clients.

CHAIRMAN DYER: I sympathize with your viewpoint that this document be of great help to the young actuaries. I also feel that the older actuaries would find this very useful in trying to persuade clients not to pressure them into doing things that their own judgment and experience teach them they should not be doing. If chapter and verse can be cited to say that this is contrary to the collective judgment of most actuaries who have studied these problems, it would help a lot.

MR. CHARLES B. H. WATSON: It seems to me that this guide will inevitably end up as having very much the nature of a textbook, since a textbook is essentially a description of those practices being followed and generally accepted, together with an exploring of alternatives.

We on the Education and Examination Committee are very much aware of a great need for textual or descriptive material in this area, as Mr. Berin mentioned. I would hope that this Committee would discuss with the Education and Examination Committee the extent to which the materials contained in this book could be used for the purpose of educating not only the new actuaries and the older actuaries but also those people who are trying to become actuaries.

DR. CARL H. FISCHER: I do think that the textbook idea is very good, but I would like to see it a little different from most textbooks; that is, the pros and cons which are so often omitted in textbooks should be included, so that we can see how decisions are made and the things that should be taken into account rather than simply giving some description of, "This is the way we do it." This should be a textbook plus.

MR. HAROLD GILBERT: After listening to the varied and occasionally heated comments in this session, one could reach the conclusion that one of the few points on which there is a consensus is that the pension field is not static. In fact, it is probably the most dynamic of the actuarial fields of specialization. These changes seem to fall in the general categories of law or regulation, technique, and information available. In such a context, and in spite of the best efforts of any committee, a guide or "detailed treatise" on the actuarial aspects of pension work is sure to be partially obsolete before it is even published.

Mr. Bassett and others here today have described the range of valid reports that could be made by competent actuaries in a single situation. In addition, we have heard some of the different points of view, all of which have a right to a place in our literature.

I suggest that this guide include in its format both provision for major and minor changes from the initial material and for the differences of

opinion that exist and are sure to arise in the future. With this object, I present the following specific format for comment and criticism:

1. There shall be a general section covering the professional guides and universal truths, many of which have been discussed here today. This section shall be in loose-leaf form, allowing changes ranging from minor revisions to the introduction of new topics. Pages shall be dated.

2. There shall be an appendix in which pages, or even short monographs, will be included. Unlike the general section, the expression of the point of view of individuals or minority groups of the membership should be encouraged and represented. As the subjects and points of view in this section change, there should be changes in its composition.

3. Finally, there should be a bibliography listing sources not included in the guide.

This flexible format will require a continuing committee to originate and screen revisions and to decide which papers are to be included in the second section.

The committee may find that it is far easier to compile the current reflection of a changing subject, when they know that their words will not be considered "deathless prose" and will be subject to change.

MR. RAYMOND F. HOUSEMAN: If we plan to adopt a guide which, like the accountant's guide, is confined to principles, it would need to include such basic topics as (1) a description of circumstances under which unrealized gains in assets must be reflected in pension plan costs and (2) rules covering situations in which death, disability, and retirement benefits must be insured under a trusteed plan to protect the trust fund and the equities of the participants.

Presumably the guide would also prescribe the form and content of an acceptable actuarial report. The requirement that an actuary conform to such a guide when valuing a pension plan would represent an attempt to replace judgment with a set of rules. The nature of our work does not lend itself to such a set of rules. In too many instances, good judgment would dictate a decision contrary to even the best-planned set of rules.

The relationship of a pension actuary to his client more nearly resembles the relationship of a lawyer to his client rather than that of a certified public accountant. The American Bar Association has not adopted a set of principles but has limited itself to its "Canons of Professional Ethics" and "Canons of Judicial Ethics." Our Committee should be interested in the fact that the American Bar Association has not found it necessary to adopt a set of "principles."

It would be more fitting for the Society to prepare a text for educational purposes and leave the preparation of a guide, if any, which is intended to have some sort of legal status, to the Academy of Actuaries.

MR. GRIFFIN: One of the most important things which this work should do is to bring out the interrelationship of various cost methods in evaluating a single retirement plan. To bring out all the important relationships about which an employer (or his employees) should be informed, more than one cost method will very likely be involved, and more than one set of assumptions. To imply a correctness about one particular method for a given type of plan—as some actuaries already do—may itself involve serious error. This work should also stress the wide variety of purposes which an actuarial valuation may be designed to serve. For example, let us look at a few of these:

1. *Accounting.*—To provide a proper reflection of pension costs in income statements of the company and in internal records of the company. Income statements to shareholders currently reflect as pension expense the actual company contributions to the plan. This is about to be changed, as most of you know, by action of the Accounting Principles Board, to a pension expense based on the costs accruing in the year.

2. *Contribution levels.*—To determine a level of contributions consistent with the company's funding objectives. A long-range funding objective generally involves the concept of termination of the plan, an objective usually best expressed as a relationship between plan assets and the one-sum cost of accrued benefits at some future date. If the chance of termination of a plan is written off as unlikely, then it appears that a company should have no long-range funding objective in terms of full funding of accrued benefits; its funding policy should then be the policy which will be most advantageous financially.

A paper which I presented at the Chicago meeting in June dealt with certain aspects of this dual funding concept. There are, of course, additional considerations in determining the most advantageous contributions from a financial standpoint, including:

a) The relationship between the earnings rate of the pension funds and the aftertax rate which can be earned on company funds or at which money can be borrowed by the company.
b) The possibility of a decrease or increase in the corporate income tax rate.
c) The possible effect of funding policy on union pension demands. For example, heavy current funding may delay demands for increased benefits because of the larger current cost but may make it easier for unions to demand increased benefits in the future.

3. *Benefit and coverage changes.*—To determine the cost effects of possible changes in the benefit provisions or coverage of the plan, both short and long range, possibly for union negotiation.

4. *Tax limits.*—To determine maximum deductible contributions to the plan and the minimum contributions required to maintain the plan as fully qualified (not curtailed) under the Internal Revenue Code. The actuarial methods and assumptions used for this purpose should provide as much flexibility as possible.

The foregoing indicates the possible scope of the many variable factors which bear on an actuary's choice of methods and assumptions—that is, if we can assume that his primary responsibility is to provide reliable and meaningful information to his clients. The existence of so many variables rules out inflexible guidelines in an intelligent textbook on actuarial valuation techniques.

As to what such a statement of actuarial principles should cover—in its so-called technical aspects—it would, of course, take more time than I have to cover this adequately.

CHAIRMAN DYER: Mr. Griffin is assuring each of you that the committee is unanimous on the fact that we have to cover the full range of all these questions. We are not going to lay down any fixed rules.

MR. CHARLES M. LARSON: One point on which I have rather strong opinions is the question of using more than one valuation method for one case. When I get involved for various reasons in doing the frozen initial liability calculation, I normally feel very uncomfortable if that is all that I can come up with, because all that I am really telling the client is that sometime in the next thirty years, if everything keeps going well, he is going to be in balance; I am not really telling him where he stands today. It is all a prospective valuation, and it leaves me with an uncomfortable feeling that there is a lack of control. Accordingly, I usually suggest that the client allow us to make two valuations, thinking of the first valuation on the frozen initial liability method as being a going-concern valuation, and of the second—a unit credit valuation on an entirely different basis—as a discontinuance unit credit valuation. With this latter valuation, I can tell the client, "If you terminate the company or the plan, this is where you stand. You are 30 per cent funded, or you are 40 per cent funded."

When you make this second valuation, just to mention two actuarial factors, you increase your reserves from an ordinary valuation because you use no turnover discounts, and you decrease your reserves because there would be no salary projection. The net of these items can be a substantial change from an ordinary conservative frozen initial liability valuation. Obviously, other actuarial factors may also have a significant impact. I feel much more comfortable after I make that second valuation.

With regard to the question, Is it proper deliberately to exclude certain categories of employees? I think that it is absolutely necessary to at least weight them differently sometimes. I have a particular case in which 25 per cent of the active members are part-time employees, and only one-fifth of these part-time employees qualify for retirement. In other words, many of them just do not qualify. It would be foolish to set up full reserves for that category, and we do not do so. We make liability adjustments on an approximate basis.

In the question, Under what circumstances should funding on the "normal cost plus interest" method be recommended? I am not sure about the word "recommended," but I know that there are arguments for it where there is a negotiated plan and the benefits are severely restricted if you use all the income that is available for maximum funding. When past-service funding is completed, there is suddenly a lot of money available to increase benefits. In general, it seems desirable to have benefits increase more gradually than that.

MR. BOYD S. MAST: In situations in which a plan is relatively mature in both funding and benefit levels, surpluses that arise from using conservative assumptions are no longer needed to form a cushion for subsequent benefit improvements. Under these circumstances, attention needs to be focused on avoiding an overfunded position. A second valuation (designed to identify funded status), which is based on "best-estimate" assumptions, is a useful actuarial tool in this regard. Sometimes it is also desirable to make a fund and benefit liability projection based on expected experience; this affords a means of identifying the dates on which critical funded positions may be reached.

MR. EDWARD H. FRIEND: I believe that the Guides to Professional Conduct provide us with the basis for making a number of decisions and that the suggested guide would perhaps be of help to us in defending our position with our clients, but I wonder if we really should have to depend on something like this. I would like to present to you a case history, since it is in this kind of situation that I think we need to rely on the Guides to Professional Conduct rather than on a published book of the kind about which we are talking.

Case History

1. A member of the Society is retained by the union and management trustees of a newly negotiated pension plan.

2. The plan instrument has already been drawn. It provides for monthly benefits of $5.20 × years of service (up to a maximum of 40

years). Negotiated contributions are 8 cents per hour for up to 40 hours per week.

3. Using what he regards as appropriate funding methods, factors, and assumptions, the member discovers that 8 cents an hour is deficient by at least 50 per cent. He recognizes that the plan is actuarially unsound.

4. The member expresses his concern to the trustees, either orally or in writing. Nevertheless, for reasons of their own, the trustees instruct the member to prepare his report in such a manner that the plan will qualify with the Internal Revenue Service.

5. The member realizes that in order to qualify the plan he must prepare a Revenue Ruling 55-681 certification. This certification requires a statement that "actuarial computations indicate the expected contributions will not be less than . . . the normal costs plus interest accruing on unfunded past-service costs for all employees under the plan during that (contract) period."

6. The member cannot make this blanket statement. He is able to state that contributions are "more than sufficient to meet the current costs and interest on the past service liability for all participants over age 45."

This poses the following questions:

1. Revenue Ruling 55-681 addresses itself to all employees under the plan. The member's statement can address itself only to participants over age 45. Is the member acting within the Guides to Professional Conduct, paragraph 9, if he submits his qualified Revenue Ruling 55-681 statement to Internal Revenue? Is the member correct in taking the position that it is the responsibility of the Internal Revenue Service to evaluate the qualification?

2. Following from the above, can the member feel that he has satisfied the Guides, paragraph 8, if he submits his formal actuarial valuation of the over-all plan using normal cost plus interest on unfunded past-service liability calculations evolving from the over-age-45 funding method which would be fully disclosed in the report? (NOTE.—The over-age-45 group represents a fraction [approximately one-fourth] of the over-all group of participants on behalf of whom the 8 cents per hour is being contributed.)

3. Finally, with respect to the matter as a whole, in embracing this approach, is the member "avoiding even the appearance of any questionable practice" (Guides, paragraph 2)?

MR. CHARLES V. SCHALLER-KELLY: I work for the UAW, and we do not do that sort of thing. I feel that any of the members here

should simply boycott such a plan and leave it to the union and management trustees to settle this with the Internal Revenue Service.

With respect to the question of making two or more simultaneous valuations, this can be useful in some situations, but I would like to point up a situation where this is, in my opinion, ethically improper. An actuary (who is a member of the Society) writes to his client setting forth cost figures based on 4 per cent interest and also 6 per cent interest. He says, "The 6 per cent assumption may be adopted as a basis for funding. This does not preclude your using a lower rate, such as 4 per cent, as a basis for negotiation and cents-per-hour credit with the union, so long as such an assumption remains the common basis for such purposes." I certainly believe that no member of the Society should encourage his client to take such a dishonest course of action.

I believe that we certainly have an obligation to disclose on the D-2 forms the employees who are actually not covered and are not in fact being funded for.

In regard to the circumstances under which funding on the "normal cost plus interest" method should be recommended, the problem is, of course, a question of security. If we can find some alternative means of providing security, I can see no problem in normal cost plus interest, and, in fact, we have accepted this in several cases in which the employer has pledged his assets against the pension plan. With regard to shortcuts, I am very partial to them, and I think that they are particularly appropriate for small plans, because the cost of a more elaborate method is not justified for a small plan, whose costs are necessarily less stable. It would be very helpful in negotiations and meetings with clients if someone would do a study on the average cost of ancillary benefits or the percentage which the ancillary benefits would be of the main benefits. I also wonder whether disability benefits for plans not funded by fixed contributions should be funded on a term basis since, when a pension plan does discontinue, disability benefits for persons who may be disabled after the date of continuance will no longer be required.

The problem of expressing cost in cents-per-hour comes to us very frequently and is, of course, subject to enormous fluctuation. Could normal cost be based on cents-per-hour or on some other well-defined term like hour, week, or year while past-service cost might be defined on an annual basis?

Regarding assets, I wish that there were some generally accepted way of taking into account capital appreciation. Some people take it into account very early, and some do not recognize it at all. This is something about which actuaries could well develop an accepted method.

When a fund has very, very bad investment performance, I think that the actuary has a duty to tell the employer that he is not getting the best service from his trustee. The actuary might also be consulted on the question of when benefits will be payable, so as to help the trustee judge how much liquidity is required. Apart from these items, the actuary is not an investment analyst, and I do not think that he should attempt to get into this field.

CHAIRMAN DYER: With regard to the suggestion of boycotting certain types of plans, I would like to mention that we are anxious to avoid any involvement with the Department of Justice, so whatever we may do here will not be mandatory upon actuaries. I do think that it would be quite helpful to have the ability to point to certain guides in discussing a problem with the client, so that you are, in effect, following generally accepted principles and practices in refusing to go along with his suggestion.

MR. SLOAT: I agree that actuaries are going to have to dig into many of the suggestions made by Mr. Schaller-Kelly. He also reminded me of the interrelation of the Committee on Professional Conduct and the Pension Committee. The idea of setting up some case illustrations to supplement the Guides to Professional Conduct was studied by this committee several years ago and initial steps taken to consider such an approach. While not much progress has been made to date, it does tie in well with the project now under consideration.

MR. GRIFFIN: Referring to Mr. Schaller-Kelly's remarks, I believe that he said that the normal cost plus interest method was just a matter of security. It is not just a matter of security, since the latter depends a lot on the maturity or immaturity of the work force with which you are dealing. Normal cost and interest payments on behalf of an immature group may actually establish substantial benefit security over a period of time.

With regard to his impugning the integrity of a certain actuary in the case history that he cited, I believe that most in the audience would agree that there is nothing whatever unethical about the statement made to the employer. The union has a right to assert its views in bargaining on the question, and I assume that it would do so if it should disagree with the employer's assumption. It is the professional man's responsibility, be he actuary, attorney, or whatever, to represent his client's interests to the best of his ability.

MR. GEOFFREY N. CALVERT: I think that it is a good idea to make two or more simultaneous valuations. I also agree with the idea of a test of the degree of funding which would apply in event of discontinuance of the plan. Next, there is a test of the degree of funding of the accrued benefits, discounting turnover and things of that sort and assuming that the plan will continue.

There is one other area that I do not think actuaries have given enough attention to but which will undoubtedly emerge in the future. This is the whole subject of making long-term projections. A study taking into account the projected growth of the fund and the inflows into and outflows from the fund under varying conditions can be very revealing. It is possible to include inflation allowances, and, of course, if you have a plan which makes allowance for social security benefits, I think that you must include such things as future increases in social security benefits. You can learn a great deal about where the plan is going if you do these things.

Another technique that brings out many lessons for the client as well as the actuary is to do this same projection with varying interest rates and various assumptions as to the composition of the assets in the fund and how you think equities may behave as compared to fixed-dollar or bond assets. These fields need much more discussion than they have had to date, and I think that a very valuable paper should be written covering this area.

CHAIRMAN DYER: There is no thought that these guides are intended to cut off the flow of papers on various aspects of pensions. I hope that Mr. Calvert will write the paper to which he referred and that all of you will write papers on anything you have on your minds on the subject of pensions.

MR. BRONSON: I am beguiled by the juxtaposition of the two comments here. Jack Dyer indicated that this book or this guide would be handled so that it could not or should not be held to be in "restraint of trade," and then Fred Sloat gets up and says that we, in connection with the fund, are going to have to take into account asset appreciation (and, I assume, depreciation) from now on because the accountants have so decided. I recognize that this is to obtain an "accounting charge," and perhaps the employer does not have to follow this in his actual funding. Nevertheless, I should think that it, being an accounting charge, would enter into the books of an employer and come out at the end in surplus or loss and thus enter into the pricing of the employer's

product. I wonder, therefore, if this mandatory basis for uniformity in the valuation of the assets may not be setting up procedures that fall within at least the fringes of "restraint of trade."

CHAIRMAN DYER: It is my understanding that in Canada there has been a tendency for some of the actuaries to do as the British actuaries do by way of taking a larger responsibility in the investment area and to introduce some rather different types of asset valuations, and so forth.

MR. JOHN G. IRELAND: I think that the actuary should not participate in investment decisions in the limited sense of whether to buy security A or security B. At the same time, the actuary has a responsibility to acquaint the investment manager with those characteristics of the pension plan and its degree of maturity which should affect his investment decisions. With regard to the question of valuation of assets, we have recently been involved on a number of occasions with plans which are approaching the fully funded status and in which those responsible are becoming interested in the question of equity as between generations of shareholders in the company. In these cases, asset valuation cannot be ignored. I do not want to suggest that the integrity of the pension plan should be compromised by such asset valuation. Contingency reserves should be established to protect that integrity.

With regard to investment performance, I have not seen nor have I heard reported any standard that is satisfactory for comparison of investment performance of different funds. I do think, however, that we can provide objective criteria for measuring the performance of any one fund from time to time.

MR. PETERSON: As has been generally recognized, no pension calculation is any better than the basic data on which it is based. Inadequate, incomplete, or inaccurate data can make a pension cost study worthless.

Although the actuary cannot assume responsibility for data that are coming from a source over which he has no authority, he should feel responsible for investigating the nature of records maintained and for everlastingly stressing the importance of an accurate and readily accessible system of records. Most employers may have adequate records for short-term purposes, such as group insurance term coverages, but may not have adequate records to serve the long-term purposes of pension plans. When pension benefits are based on career earnings and length of service, complete and accurate records are, of course, necessary for computing the specific benefits for an employee. Such records, together

with an accurate account of new employees and terminations, will be sufficient for the actuary.

In general, it seems that the actuary should draw attention to known or suspected inaccuracies in data. He certainly should be responsible for detecting self-evident errors, such as an employee reported as age 35 with 40 years of service or a female employee aged 17 receiving a salary of $15,000 a year. In this connection, note the following interrogatory in the actuarial report required by the state of Wisconsin:

In the opinion of the actuary signing this report, are there any facts or circumstances known which indicate that the census data used was not reasonably reliable and accurate? If so, please describe.

The actuary might recommend that each employee be identified by a number, perhaps the social security number, so that employees may be traced from valuation to valuation and an explanation of missing numbers can be secured. Control of the employee census may be achieved by an exchange of a set of cards with the employer each year with an identification of additions and terminations.

A special effort may be required to make certain that all former employees with vested rights are reported by the employer. Some employers may have no great interest in ex-employees. Indeed, as the number of such vested employees grows in the future, special measures may need to be devised to keep track of them and to secure information as to survival and death.

Where a calculation is made on the basis of a sample, the actuary will be concerned as to its reliability and will make clear that a sample was used and state any appropriate caveats.

Professional administrators have entered the pension field, particularly with respect to multiemployer plans. The actuary should be especially concerned with regard to having accurate data for plans of this type, since the individual employers may feel little responsibility to the employee once they have made their required contributions. The actuary should surely be interested in knowing how well the professional administrator is doing his job. He may like to have the reliability of the data verified by an audit by a certified public accountant.

Assuming that "data" should embrace all plan documents, the actuary should be entirely familiar with all such documents, including collective-bargaining agreements. By such knowledge, he will know of any funding commitments that the employer has made. The actuary should also be informed as to the employer's administrative committee policies and practices with respect to such matters as the granting of optional forms of retirement settlements, awarding disability benefits, and proof

of age, particularly for contingent annuitants and recipients of widow's benefits.

An actuary's report on a pension valuation may need to furnish information to satisfy as many as six different requirements. These are (1) a report to the employer, (2) a report for a union, (3) the Internal Revenue Service, (4) the accountants, (5) material for a report to employees, and (6) the Disclosure Act. In order to avoid furnishing *all* information to each of these, the actuary will be challenged to develop a flexible document, possibly in loose-leaf sectional form. The report to the employer will, of course, include a statement of the status of funding, some form of experience analysis, and a suggested or recommended basis of contributions for the current year. The actuarial assumptions and actuarial cost method will be described with, perhaps, some discussion of their significance. Also, a report should customarily include a description and some history of the plan. It may also be desirable, as a protection to the actuary, to include summaries of the data on which the calculation was made. I understand that some employers desire reports in such complete form that all information is available that another actuary would need to make a similar pension valuation.

What should be the *real* nature of the report with regard to the actuary's certification?

a) Merely a report of the results of a calculation on the basis of stated actuarial assumptions and actuarial cost method?
b) A recommended rate or amount of contribution?
c) A recommended range of rate or amount of contribution?
d) A recommended rate or amount of contribution corresponding to an accrued liability funding period and/or actuarial cost method selected by the employer?
e) A certification that, if the recommended contribution is made, the plan will be "adequately funded"?
f) A certification of the results of a calculation which the actuary declares was made on the basis of an actuarial cost method and actuarial assumptions that he considers reasonable?

A report may well show a separate figure for the value of vested benefits with respect to both active and former employees or for former employees alone with the liability for vested benefits of active employees included with other liabilities.

No doubt we all see ways by which current reports could be improved to serve their various purposes and to be more meaningful to those for whom they are prepared. However, the value of any "improvements" must be tested by the added expense.

Finally, may I ask, assuming that a set of guidelines is developed as contemplated by this discussion, what would be the form of a certification or affirmation that the actuary would make to the effect that a pension valuation has been made in conformance with such guidelines?

MR. ROBERT F. LINK: It seems to me that we are working at the problem of guidebooks from two ends. One end is the Guides to Professional Conduct, and the other is a gathering-together of the details of known practices, perhaps making judgments as to what is acceptable or unacceptable, and so forth.

What really is the actuary's responsibility when he does a pension plan valuation? Some of us wonder whether we are adequately recognizing responsibilities or are not clear as to what our responsibilities are in specific situations. For example, it is not clear that an actuary has any particular responsibility to inform an employer that a certain funding program, under certain assumptions, will achieve a certain level of benefit security for his employees. It is not clear that the actuary bears any responsibility for pushing the employer toward a program that is aimed at 100 per cent benefit security. It seems to me that the choice of what is acceptable or unacceptable could be made easier if we had a clear definition of what our objectives are, derived from the nature of the problem and the Guides to Professional Conduct.

MR. BLACKBURN H. HAZLEHURST: Presumably, actuaries are already responding to the need to help corporations prepare for retirement benefits in an orderly fashion and to the Internal Revenue's rather broad requirements for a tax-qualified retirement program.

Other needs are emerging, including the interest of stockholders in seeing the extent to which pension obligations are accruing and being met, as evidenced by the current activity on the part of accountants. Plan participants also have an interest in the extent to which their expectations are being met, which is reflected in the federal government's increasing concern over whether such expectations will be fulfilled.

These latter two needs seem to arise from the notion of pension benefit expectations. Perhaps rather than forcing ultimate expectations to come true, these needs could be responded to in part by making sure that current expectations are clearly understood, including any limitations imposed by currently available assets. For example, each actuarial report could include an over-all solvency test, that is, a comparison of assets to accrued benefits. Along the same lines, a simple notice could be sent to each employee each year (much as in the case of profit-sharing plans)

indicating the benefits earned to date and the percentage of these benefits which would have been funded had the plan shut down on the valuation date. In effect, each employee would be promoted to 100 per cent vesting, assuming plan shut-down, and the assets would then be allocated according to the priorities set forth in the plan related to plan shut-down. This individual benefit security ratio would involve less controversy in its determination than standards of funding on a going-forward basis.

The individual benefit security ratio would be consistent with the legal position of most plans in guaranteeing only those benefits supported by the actual fund and would allow employees to make intelligent decisions. The pressures of the market place should then reduce the need for government intervention, and the clarification of benefit expectations should reduce the need for forced accounting and forced funding.

CHAIRMAN DYER: I thoroughly agree and believe that if this kind of thing were done (particularly if the security ratio were reported to employees individually), it might take some of the government pressure off for minimum funding standards and that sort of thing. I believe that the real deficiency for which we are now criticized—that is, lack of adequate funding—all focuses in the question of whether there is really adequate disclosure and whether the employees know where they stand on the plan. If we could find some way of telling them that, it would answer all these questions.

MR. JOHN B. MOORE: Previous speakers have listed a number of objectives of actuarial reports. One additional objective that should be high on the list of our responsibilities is to keep our clients educated on the need for considering their pension problems in the event that they are contemplating either a merger or spin-off. Frequently it is among the last items considered when, in my judgment, it should be among the first. I hope that this manual or guide will develop appropriate procedures for this very, very complicated area.

MR. SAM H. HUFFMAN: The actuary's report should contain enough detail with respect to actuarial assumptions, employee data, and so forth, to enable any other knowledgeable consulting actuary to verify the correctness of the figures. If this is done and if the various limitations are noted, it seems to me that the actuary has performed the most essential part of his function.

I see nothing wrong with an actuarial report being submitted which contains valuations at one, two, or three different rates of interest,

whether or not a union is involved. In recent years I have done this consistently to show the employer how his cost can vary. In the case of union plans, I think that you might render a great service if you have a little hedge for the future years when the unions' demands are exorbitant and cannot be met by the employer if he is to remain in competition. If the employer suddenly finds that he can change his valuation rate of interest to 5 per cent, when he has been earning 6 per cent, and still stay in business, this is better than having the union demand a set of benefits that cannot be supported by 8 cents an hour and then expect the employer to be cudgeled into coming up with the required contribution at an earlier date. An employer who may be looking forward to a decreasing profit picture may wish you to load in some security for his employees right now, whereas this would not be true of an employer with an increasing profit picture.

I hope that these guidelines will not be so restrictive, severe, and inflexible as to prevent knowledgeable, reliable actuaries of high character from serving the real need of getting some money in a trust fund. It is better to fund the plan on a marginal basis for twenty years and have a few million dollars in the fund than to wait twenty years to start funding. I do not think that we should get a bunch of severe guidelines.

MR. CONRAD M. SIEGEL: Much of our discussion today has been about two concepts. The one concept is the teaching function, and the other is what I call the smell-test function. We all have seen cases where we, as individuals, feel that a particular piece of work by a particular actuary does not pass our own smell test. I think that a discussion of the extremes of conduct and a statement that conduct beyond a certain point does not pass the smell test would be desirable.

An accountant's certification to a financial statement is based on certain accounting principles which are, in many cases, specific, and a great deal of time, effort, and argument is devoted to these principles when they are devised. If an exception to the financial statement is made, management of the company will generally consider its statement to be tainted, since it draws the attention of the shareholder, the SEC, and other persons.

Rather than having a set of generally accepted actuarial principles which are specific, I feel that we should have a very broad set of guides, primarily to develop what reasonable actuaries feel are the boundaries of the smell test. Also, if our principles are so narrow, we may find actuarial principles in conflict with accounting principles, and this may present some very serious problems.

Mr. Huffman just mentioned the point that an actuarial report should contain sufficient information so that another actuary should be able to reproduce the results of the first actuary.

I have noticed in the last few years that some of the larger consulting firms are naming mortality tables and projection scales after themselves. While this may limit their use, I hope that those firms which have not done so will see fit to publish the bases on which these tables were constructed.

CHAIRMAN DYER: I want to assure everyone again that we are going to be just as broad as we possibly can within the limits of our collective conscience. We want to define boundaries as broadly as we can but indicate in the guide how the actuary arrives at his particular point when he lands between these boundaries.

MR. SLOAT: Having seen various drafts of the accounting Opinion and having witnessed the developments leading to the final Opinion, I can confirm the previous speaker's comments and vouch for the hard work and compromises involved before the Accounting Principles Board could come up with a set of accounting principles. If the actuaries have to follow the same road, there would have to be some compromises.

The section on disclosure in the latest draft differs from that in the Exposure Draft and reads as follows:

1. A statement that such plans exist, identifying or describing the employee groups covered.
2. A statement of the company's accounting and funding policies.
3. The provision for pension cost for the period.
4. The excess, if any, of the actuarially computed value of vested benefits over the total of the pension fund and any balance-sheet pension accruals, less any pension prepayments or deferred charges.
5. Nature and effect of significant matters affecting comparability for all periods presented, such as changes in accounting methods (actuarial cost method, amortization of past and prior service cost, treatment of actuarial gains and losses, etc.), changes in circumstances (actuarial assumptions, etc.), or adoption or amendment of a plan.

You will notice that they have deleted one of the items many actuaries object to, which was the inclusion of the amount of unfunded past-service cost or the unamortized amount. They recognized that this would be quite misleading because various actuarial cost methods and various assumptions would give quite different results for identical plans and situations.

If there is a change in the actuarial cost method or in the assumptions which has a significant effect, then the approximate effect of this change is to be included in a footnote.

The accounting Opinion has been completed and will be released very shortly.

MR. VEIT: There are two points that I would like to make in connection with the statements and exhibits that should be contained in the actuary's report on a pension valuation. First, the recent interest in employee benefit statements raises problems. I have had clients who insisted on having a salary scale included in benefit projections. We have insisted on a letter from the client in these cases. In any event, a carefully worded disclaimer is clearly needed on any certificates which are given to employees, and guides would be useful in this area. For example, the use of a salary scale creates fewer problems if, instead of showing a projected dollar amount of benefit, only the projected benefit as a percentage of projected pay at retirement is shown on the certificate.

Second, I am often dismayed at how pension cost figures are presented. A simple statement of the actuarial cost method employed has only limited utility. It reveals nothing to the layman about the future incidence of costs. I would like to see in general use a standard sort of statement, such as is used by accountants, which might read:

> Under the funding program being followed, costs theoretically remain level (increase, decrease, etc.) from year to year if all actuarial assumptions are realized. However, if, as has been the case during the last few years, the number of covered employees continues to increase (decrease), and actuarial losses (gains) due to inflationary compensation increases (excess interest earnings, etc.) are experienced, contributions may be expected to increase (decrease).

Naturally, guides for such a statement would have to be quite flexible due to the many possibilities.

INDIVIDUAL LIFE AND HEALTH UNDERWRITING

Retention and Issue Limits for Individual Life Insurance

A. What are the principal criteria for setting retention and issue limits? Is there any recent actuarial work that can be applied to assist in determining realistic limits?

B. What are the advantages and disadvantages of grading by age and substandard classification? To what extent is the cost to reinsure a factor in arriving at these limits for a particular company?

C. Should underwriters be given authority to limit retentions in individual cases to amounts below those in the company's published schedule on the basis of their judgment?

D. What is the justification for lower published retention limits for special risk classes, such as military, heart disease, foreign nationals, areas of experimental underwriting, and so forth? How are these special limits determined?

E. How can a company's actual experience be used to test its retention and issue limits?

MR. EDWARD A. DOUGHERTY: The general question of what calculations and tests we should make to establish limits of retention and issue for individual ordinary insurance is one that must be answered differently by different companies. I expect that many a company has established its limits largely by looking up other companies' limits in *Who Writes What*. Probably a small, new company would rely largely on the recommendations of its primary reinsurer or its consulting actuary or both. A medium-sized or large company might or might not engage in the mathematical approach indicated by the single reference in our examination syllabus—Mr. John C. Wooddy's scholarly monograph on risk theory.

The first basic assumption the well-established company must make in approaching the question of limits of retention is the assumption of how big a fluctuation in its net gain from mortality would be inconvenient in any one calendar year. This is a problem for which I know of no mathematical solution. The answer ultimately depends upon some decision-making individual's intuitive appraisal of a multitude of elements. Some of these might be:

1. The size of the company's surplus.
2. The true value of the company's assets, as distinguished from the book value.
3. The amount of cushion that is presumed to be in the company's reserve structure.

4. The margins that are thought to be in the business in force.
5. The margins (if any) that are thought to be in the business currently being offered for sale.
6. The distribution of business in force and of new business by size of policy.
7. The confidence the company has in its underwriters (which is in part a function of the confidence the underwriters have in themselves).
8. The company's recent mortality experience with large cases.
9. A long-range and short-range economic and political forecast.

I am sure that we could all add more items to this list from our own personal experiences. In view of all these considerations, there is the danger that the more mathematically inclined actuaries will be led down the primrose path of spurious accuracy.

Also, we might be wrong in our assumption about the basic mortality rate itself. This is the second assumption that we must make in tackling the theory of limits. The mathematical approach to risk theory by its own admission treats the probability of death as a random variable, which to a large extent it is. However, in some respects or at certain times, the probability of death is affected by causes, such as wars, depressions, or epidemics, that cannot be described as random. To put it another way, it does not do much good to know the extent of random fluctuations about a mean if suddenly the mean itself is going to move for a time to a different and unpredictable level. A pattern of limits of retention can reduce the fluctuations in our mortality experience, but it can never fully stabilize that experience. Aubrey White, in discussing Rosenthal's classic paper on limits of retention said, "Perhaps the most valuable contribution of the paper is his emphasis on the fact that, of all the aspects of the problem, the one susceptible of mathematical analysis is of comparatively minor importance" (*The Record*, XXXVI, 270).

I expect that a small, new company is concerned not only with inconvenient adverse fluctuations of the net gain from mortality within a calendar year but also with the possibility that a succession of adverse fluctuations might ruin the company. Thus the mathematics of ruin theory does come into the picture, but again the results of the mathematical analysis must be modified by some of the considerations mentioned above. Incidentally, I expect that as a company grows the emphasis in its theory of retention limits changes from ruin theory to inconvenient annual fluctuation theory.

Should a schedule of retention limits be graded downward at the higher ages at issue and by substandard classes? These subdivisions may have three characteristics in common: (1) they have a higher rate of mortality than the bulk of our business, (2) there are relatively few lives in these

classes, and (3) the underwriting classification is less certain than it is in the bulk of our business.

I think that most of us agree that it is fallacious for us to assume that we should grade our limits of retention downward on either of the first two characteristics mentioned, the higher q_x and the paucity of exposure. While it is true that a higher q_x gives us a greater absolute random variation about the mean, a higher q_x does not give us a greater relative random variation, and, human nature to the contrary notwithstanding, it is the relative variation with which we should be concerned, not the absolute. The paucity of exposure in a certain subclass does not justify a lower limit of retention for that class unless we are concerned about random fluctuation within that class, by itself.

But there does seem to be good reason to reduce our limits where our classification of the risk is uncertain, since we do not want to have on our books too much business of a class that can turn out to be worse than we thought that it was going to be. However, I have always felt that this should lead us to limits of issue rather than limits of retention, because in the long run we do not usually escape the financial consequences of uncertain underwriting by sharing the risk with a reinsuring company. The primary purpose of a pattern of limits of retention is to spread out over a number of years the financial effects of what would be an inconvenient fluctuation in net gain from mortality if concentrated into a single year. We must assume that in the end our own company will bear the full financial consequences of our selection and classification of risks, right up to the total amount that we issue, whether or not a portion of what we issue is reinsured. In other words, I assume that over the years the reinsurer will come out at least even on business that is ceded to him. He will charge the ceding company enough by way of his actual rates or his experience refund formulas to cover the risks that he assumes on its behalf. If you have discovered a reinsurance company that does not do this, please see me immediately after this session. I will buy its reinsurance and sell its stock. If we fear that a block of our business may be unprofitable, we should limit the amount in that block by limiting the amount that we issue in that block rather than by reinsuring a part of it. I think most companies' limits on military risks are based on this doctrine.

This reasoning applies also to heart disease, foreign nationals, and areas of experimental underwriting. In all these areas we are either uncertain of the classification or else we think that the mortality rate can radically change for the worse because of conditions beyond our control. Our limits should be limits of issue.

Another consideration that might, for certain plans of insurance, lead us to establish special limits of issue is the possibility that our margins might be too thin to support the cost of reinsurance. But there is a philosophical question here. Should the cost of reinsurance be thought of as (1) a charge against the portion of a policy that is reinsured, (2) a charge against the whole policy, (3) a charge against all the insurance in force in the company on that life, or (4) a charge against the ordinary line of business as a whole? Our answer to this question will determine our answer to the original question of establishing special limits of issue for certain plans with thin margins.

It might be mentioned that there is a third kind of limit that a company, even the largest, should be concerned about. Besides limits of retention and limits of issue, we should be concerned about limits for binding receipts. I have never seen any reference to this in our literature. There are many considerations, but surely the limit for a binding receipt should at the very outside be the limit of retention plus the amount we can *automatically* reinsure. I doubt if we would pick up much facultative reinsurance on an applicant already deceased.

The question whether underwriters should be given authority to limit retentions below the company's published schedule is also one that has no absolute answer. I expect that it depends upon what we think of our underwriters and how well we think they understand the theory of limits, especially how well they accept the principle that a company does not ultimately escape the consequences of its underwriting by reinsuring. The underwriter should never accept a case on a basis that he thinks is unprofitable. Reinsuring part of it will not make it any less unprofitable. Sometimes, when an underwriter is uncertain of his classification of a particular risk, he will seek reinsurance in order to obtain the appraisal of a good outside source. Also, this may sometimes help him to justify the substandard extra premium to the agent. In such a case the underwriter might wish to reinsure a part even though the total was within the company's limits of retention. If he proceeds along this line, he should reinsure the smallest part possible to obtain the desired underwriting opinion, because there is a cost to reinsuring. The ceding company at best shares a portion of its profits with the reinsuring company. In a recent discussion on reinsurance reported in *The Proceedings*, a well-known officer of one of the leading reinsurance companies said, "Companies seem to be establishing retention limits at levels that are realistic. This is as it should be, since it is in the best interest of a company to retain as much of its business as it can with safety." This should be the primary criterion in establishing

limits of retention. A company should retain as much of its business as it can with safety.

The subsidiary services performed for the industry and for individual companies by the reinsurance companies are of inestimable value. I understand that the reinsurance companies are of tremendous help to new companies just getting started, and I firmly believe that all of us are more sophisticated underwriters because of the influence that the reinsurance companies exert in this whole field.

MR. IRVING ROSENTHAL: I would like for Mr. Dougherty to comment on the impact of collective reinsurance. Recently we have been introduced to European risk theory and practical reinsurance propositions through Lloyd's and other reinsurance facilities.

I know of a small company that adopted a rather large limit of retention after working out a satisfactory stop-loss treaty. Other companies have considered stop-loss treaties, as we have, but could not get satisfactory rates or satisfactory certainty as to the terms.

I want to comment on Ed's remarks about reinsurance companies' always making a profit in the long run. Twenty years ago I probably would have agreed with him. Perhaps in the long run it might be so if a company had only one reinsurer who was in a position to employ 100 per cent experience rating and a cost-plus-profit premium formula. Today, because of the way companies place reinsurance, the long run may be very long. This vague concept of the "long run" along with the unjustified assumption that reinsurance companies always make a profit, no matter how bad their underwriting or rules of acceptance, is a logical defect in Ed's presentation.

MR. DOUGHERTY: Since you refer to the full collective stop-loss, reinsuring the excess over 110–120 per cent of normal mortality, let me add that our work with this coverage leads us to feel as you do—we could never bring it to an issue.

The reason why it can never work lies in my remarks about the mean varying unpredictably to a new level at certain times. All the variations are not simply random ones from a predictable mean. A company reinsuring mortality gain so that there is reimbursement if mortality is more than 120 per cent of some mean would have to have tremendous resources if this happened to all their clients in the same year. As far as I know, this method never has been accomplished, basically for this reason.

MR. WALTER W. STEFFEN: I will be the first to admit that one objective of being in the reinsurance business is to make a profit, just as all

of you are expecting your companies to do. I do not know why we are discussing this subject with what, to me, seems to be an overtone of evil connected with making a profit.

I hope that I never live in a society in which business is not interested in making a profit. In our present society, I expect businesses of which I am a customer to make a profit—a reasonable profit.

Mr. Dougherty referred to facultative reinsurance on a deceased applicant and said that such reinsurance is unavailable. A problem is developing in this area. It involves a conditional receipt problem to some extent and the application of the California rule that insurance coverage is effective under the receipt until the company refuses to issue. An insurer can suddenly discover that unforeseen developments have created a situation in which no reinsurance coverage exists on a risk written on a conditional receipt basis, through application of the California rule. This situation might arise when reinsurance is solicited from several carriers on a facultative basis.

CHAIRMAN CHARLES A. ORMSBY: There is another way of looking at this question of profits, which is that we are seeking a proper balance between our earnings and those of the reinsurers.

MR. COURTLAND C. SMITH: Whether or not an underwriter should be given authority to limit retentions is partly a matter of psychology. Do not give it to him if he is weak and apt to try to avoid tough decisions; grant it to him if he is strong and likely to use it sparingly. More precisely, give the authority to a good senior underwriter but deny it to any junior underwriter.

The "economics" and "politics" of underwriting tend to support this apparently oversimplified psychological assessment. Properly determined limits protect against two threats to capital and surplus. Unduly high retentions give exposure to a catastrophic concentration of claims; unduly low retentions can lead to excessive reinsurance costs. An overcautious underwriter should not be allowed to reduce the effectiveness of the retention schedule, but a responsible underwriter should be permitted occasionally to limit his risk of loss, as on cases in which there are too many unknowns or opportunities for speculation or concealment.

From the political viewpoint the underwriter stands between the expansive and aggressive agency forces, on the one hand, and the conservative forces represented by the actuaries and the accountants, on the other. He must continually balance these competing forces. A junior underwriter should have his range of discretion rigidly circumscribed so

that every decision is given maximum effect without threatening sales and control requirements. As he grows in capability and is given larger cases, the impact of his decisions on production and profit also increases and his anxiety regarding sales pressure and actuarial review grows in like measure. Giving him the right occasionally to limit retention provides much-needed protection against the cross-fire periodically encountered by underwriting personnel.

The principal justifications for the use of special inner retention limits for certain classes of risks include low credibility, as with experimental risks; the possibility of an unanticipated concentration of early claims, as with military risks; and also the possibility of concealment or speculation, as in certain large amount cases.

MR. DOUGHERTY: I agree with almost everything that Mr. Smith said, except that giving authority to limit the case under certain circumstances, in theory at least, leads to limits of issue rather than limits of retention.

MR. SMITH: That would be true if a reinsurer could always be assured of making a profit. I would agree with Mr. Rosenthal that, while the reinsurers can average out, through limitations of loss carry-forward under YRT reinsurance and other mechanisms, it is possible for a particular ceding company to make a profit on its reinsurance ceded.

MR. ALTON P. MORTON: Given an underwriting staff that justifies the confidence of the company's top executive and reasonable protection from undue agency pressures, there is no value in a low limit of retention.

Without these conditions, and perhaps also for any small company with a one-man underwriting staff, a company may get somewhat more objective case appraisal using a lower retention limit. A reinsurance company's appraisal of cases involving amounts in excess of such a company's limit is likely to be more objective and to be made in an atmosphere without undue pressures. But low limits in themselves can never serve as a substitute for proper risk appraisal.

More important variations in surplus arise from other sources—from changes in the market values of securities or from changes in the level of over-all company mortality—than are likely to result from a comparatively high limit of issue. The occurrence of several large claims in a particular year is one of low probability, and the total effect is unlikely to have such serious financial significance.

MR. BEN J. HELPHAND: I disagree with Ed Dougherty's suggestion that on highly substandard risks the issue amount should be limited rather than the retention. In a company of our size, we see some of these risks only occasionally, and by not limiting our issue but using the reinsurer's services we do have the benefit of their broader underwriting experience.

We prefer not to limit issue, as this drives some of our good agents to place the balance with another company. With no issue limit they submit the entire case to us, and we then use our reinsurance facility.

MR. DOUGHERTY: Ben's points are well taken. My remarks covered his point about using reinsurers on isolated highly substandard risks but, regardless of limit, we should pass part, at least, of such cases to the reinsurer to reimburse him for his assistance.

Without reflecting on Ben's statement at all, I have always wondered whether the risk of driving agents out to other connections really is valid or not. Although it is an often advanced argument, does it really happen?

MR. E. BRIAN STAUB: The impact of federal income tax on retention limits has not been mentioned. If a company was satisfied with its pre-1958 retention, it could conceivably increase it anywhere up to 50 per cent based on its particular tax position.

MR. A. NORMAN CROWDER: Short of mathematical analysis, what practical reasons can we give nonactuaries as to why we should go to a new retention schedule? Simply because everyone else seems to do it appears to be the most immediate reason, but it is not exactly all-convincing.

CHAIRMAN ORMSBY: In other words, after we set the retentions, how do we communicate with the nonactuaries?

MR. A. H. McAULAY: It has been indicated that retention schedules—for practical reasons—cannot be determined by actuarial considerations. If, as actuaries, we have little to contribute on the subject of retention schedules, it is not surprising that we find difficulty in communicating our thoughts to others.

MR. DOUGHERTY: This can be a real problem, but I return to the principle that a company should retain as much of its business as it can with safety. The way to convince others of this is to show that, at best, you do share some of your profits with the reinsurance company.

Underwriting Military Personnel

A. What are the main factors currently involved in the underwriting of applicants in or subject to military service? What considerations affect a company's determination of whether or not to use special inspection reports for military applicants? What has been the recent mortality and lapse experience on such applicants?
B. Has the introduction of SEGLI led to underwriting modifications by the companies? What are the underwriting implications of the proposal to increase the amounts of SEGLI to $25,000 for certain personnel?
C. What arguments exist for or against the formation of reinsurance pools by the industry for the military hazard?
D. What is the outlook for a marked change in the nature of the military hazard?

MR. EDWARD H. SWEETSER: The most difficult day-to-day problem that has faced home-office underwriting officials for the past several years has undoubtedly been the military hazard presented by young males.

Warfare

The main concern is, of course, the war in Viet-Nam. No one has yet come up with the ideal solution for handling new business on military risks in time of limited wars such as the one in Viet-Nam. Service in combat areas is an explosive risk, difficult, if not impossible, to measure and price. It is a risk that should be assumed by the nation as a whole—that is, by the federal government. Life insurance companies have no obligation to provide combat coverage. On this reasoning it could be said that a war clause applicable to the face amount should be made a standard policy provision, included in every policy issued by the industry. A generally used war clause, even if limited to a two-year period, would largely eliminate antiselection at issue.

For practical competitive reasons, however, companies have generally not seen fit to move in this direction. So, when hostilities break out involving American military forces, underwriting officials start watching daily for trends in the volume of new military business and its make-up as to agency source, geographic location, military specialties of applicants, and their potential assignment to war areas.

Several general approaches are followed to cope with the problem. One approach is to set substantially reduced amount limits: (*a*) applicable to all servicemen at levels consistent with normal peacetime purchases by men in service, *or* (*b*) applicable to those who expect to go to troubled areas in the foreseeable future; *or* (*c*) applicable to those who are located at specific military installations or who are engaged in specific military

specialties. These steps are designed to minimize, but not entirely eliminate, the volume of business received from potential war risks.

Another general approach, more drastic, is to use a war clause when the proposed insured is likely to go to troubled areas. It could be argued on moral grounds that it would be preferable to decline insurance on such war risks rather than to issue insurance with a war clause, inasmuch as the serviceman applicant could probably get insurance without a war clause from some other companies.

As a variant of the war-clause approach, some companies use an aviation clause. This approach probably provides the desired deterrent to the sale of insurance, but it has the drawback, already expressed, of issuing restricted coverage where some other companies would not impose such restriction. In addition, there is some legal opinion that a company would have difficulty in some jurisdictions in defending aviation combat claims under an aviation clause without an accompanying war clause.

Some solace can be given to those companies using war or aviation clauses in that almost every serviceman has $10,000 of Servicemen's Government Life Insurance, commonly known as SEGLI. Many servicemen with dependents have substantial additional government coverage, payable in the form of annuities to widows and children.

A final general approach is to refuse insurance on potential war risks variously described. A number of companies follow this path today.

In arriving at any decision as to an underwriting approach to the war hazard, considerable weight should be given to the effect the underwriting limitations adopted will have on company agents who specialize in military business. It is a tough decision, indeed, to take away all, or a substantial part, of the livelihood of loyal agents who have been producing acceptable military business for you for many years.

Special Inspection Rules for Military Personnel

The approaches mentioned generally take account of the likelihood of a serviceman applicant's going to a troubled area. Often direct inquiries on the application or in a military blank do not bring out truthful information about overseas assignment, and we must then look to the inspection report to get the facts.

A number of companies, however, have special, more-liberal inspection rules for military personnel than for civilian risks. In adopting our special inspection rules some years ago, we recognized two facts. First, there is in many, if not most, instances considerable difficulty in obtaining inspection information on a military installation, which means, of course, that we would be paying inspection fees for sketchy information at best. Second,

there are a number of underwriting factors usually covered in an inspection report on servicemen which are of little moment. Finances and occupation are rarely a problem. Servicemen have annual examinations coupled with free and convenient medical treatment as needed. Initial screening had been made for entry into service insofar as youthful moral and criminal activities are concerned. Uncontrollable spree drinking or drinking that interferes with military activities is largely nonexistent.

But, the need for information regarding overseas assignment in warfare could outweigh all these favorable considerations.

Mortality Experience

We have just studied the first- and second-year deaths among 1963, 1964, and 1965 standard military issues exposed to June 30, 1966. There were 47 actual deaths in the experience; war deaths were excluded. Expected mortality was based on the Male 1955–60 Intercompany Select Basic Table. The results, by amount of insurance, were:

1. The over-all mortality of 110 per cent was well within tolerable limits.
2. The highest mortality was experienced at issue ages under 25, with a mortality ratio of 159 per cent, but this translates into only 0.44 extra deaths per 1,000.
3. The experience by pay grade on all enlisted personnel showed a ratio of 130 per cent, with somewhat higher mortality for the lowest three pay grades than for the higher enlisted grades. Commissioned officers below field grade experienced a mortality ratio of 110 per cent. The limited data for field grade officers were quite favorable.
4. By cause of death, 48 per cent were due to motor vehicle, 30 per cent due to other accidents and suicide, and 22 per cent due to disease.
5. The first-year mortality in this study was slightly lower than that found under a similar study that we made of 1957–59 military issues exposed to 1960 anniversaries.

From the total experience, we separated 1965 issues exposed during the first policy year to June 30, 1966, and 1964 issues during the second policy year, again to June 30, 1966. The exposure period covered the interval during which the participation of United States forces in Viet-Nam was substantially escalated. We found:

1. With war deaths excluded, the 1965 issues demonstrated a high mortality ratio of 150 per cent, whereas the 1964 issues showed 124 per cent. The variation may have been partly due to paucity of data.

2. We experienced 27 war deaths during this period from 1965 anniversaries to June 30, 1966. These represented 170 per cent excess mortality, accounting for 1.45 extra deaths per 1,000. However, the war deaths among Army and Marine personnel represented about 450 per cent extra mortality, with extra deaths of

about $3\frac{1}{2}$ per 1,000. The war-death mortality ratio was significantly higher for enlisted men than for commissioned officers.

On their original applications two of them had indicated imminent service in Viet-Nam and nine others had stated that they were to be given an overseas assignment in the near future, with destination unknown. The 27 war deaths were among standard issues and, thus, did not include military aviators. However, our study showed that there were only 8 deaths during the 1965–66 period among servicemen insured under policies with aviation extra premiums; only 2 of these were war deaths.

Lapsation

It has long been known that lapse rates are higher on servicemen than on standard risks generally. This is largely due to the temporary nature of military service—particularly among draftees—with the consequent loss of interest in insurance upon discharge, and the lack of continuing contact between the policyholder and the agent due to frequent change of station.

Our recent review of lapse experience by amount of insurance under 1963 and 1964 standard military issues exposed to 1965 anniversaries showed:

1. The first-year lapse rate for enlisted men averaged about 25 per cent, which was about $3\frac{1}{2}$ times that for officers. Our corresponding over-all company first-year lapse rate on 1964 issues was 17.0 per cent. In the second policy year, the 9 per cent lapse rate for enlisted men was about twice that of the officer rate. The corresponding over-all company second-year lapse rate was 5.8 per cent.
2. There was a sharply decreasing first-year lapse rate by age, especially among enlisted personnel.
3. The first-year lapse rate for enlisted men among 1963 issues was virtually unchanged from the corresponding rates for prior years of issue developed in earlier studies. However, the first-year lapse rate for 1964 issues was somewhat lower, perhaps because of the storm clouds on the international horizon. A similar downturn in first-year lapse rates among commissioned officers was also noted on the most recent issues.
4. First- and second-year lapse data had similar characteristics for each branch of service.

Effects of SEGLI

SEGLI, which became operative in September, 1965, has had a substantial effect on the volume of our new paid military business. Prior to the large-scale troop movement to Viet-Nam areas in the middle months of 1965, our military business represented about $4\frac{1}{2}$ per cent of our total paid business. This percentage climbed to about $5\frac{1}{2}$ per cent during and shortly after the troop movement. The percentage has now leveled off this year at about $3\frac{1}{2}$ per cent of total paid business.

The distribution of our military business by military rank was remarkably constant over the period January, 1965, through June, 1966. This is contrary to the expectations that commissioned officer business would be a higher proportion of total military business after SEGLI was operative, since the $10,000 government coverage would conform more to the needs and ability to pay of enlisted men than of commissioned officers.

There was some effort made in Congress this year to increase to $25,000 the insurance provided by the government on servicemen. If the amount of SEGLI were to be increased to $25,000, I would expect that the commercial companies would largely be out of the military ball park. In this connection, the distribution by amount of our military business processed from October 4, 1965, to March 4, 1966, may be of interest.

Purchases for $10,000 and under represented 78 per cent of all new military business during the period covered. Amounts of $25,000 and less covered 99 per cent of the total business. Out of about 6,350 cases included in the study, there were 30 applications for an even $50,000 and 13 cases over $50,000.

These figures also give some general indication of the likelihood of antiselection where amounts over $25,000 are requested today, particularly among enlisted men, since such amounts depart so radically from the general pattern of purchases among servicemen.

If the government insurance were to be increased to $25,000, there would only be occasional instances in which amounts beyond the government insurance could be justified; for example, when the serviceman is independently well-to-do or is a relatively high commissioned officer. That is, military underwriting would take on a different nature in the aggregate, since financial underwriting considerations would then be of greater moment in all military business submitted.

I hope that my comments—necessarily somewhat general—have raised questions or stimulated thoughts which some of you might want to voice from the floor.

MR. WALTER A. MERRIAM: Many of the things Ed Sweetser has said describe fairly well what we are doing. To bring you up to date on this, I will have to give some background.

During the Korean War, we had few military specialists, we allowed no canvassing at points of embarkation, we used no war clauses, and the claims were not unduly severe. In the next fifteen years we added quite a few specialists, and our per cent of issue went up roughly 5 per cent. With the advent of SEGLI, it dropped to about half of that.

Now, let us look at the recent past, say, from mid-summer, 1965, to the present. Claims began to increase considerably as troops moved to Viet-Nam. We also noticed antiselection.

We did not want to use war clauses, we did not want to get out of the market entirely, and we did not feel that extra premiums were the answer. So, beginning in 1965, we set up issue limits of $10,000 for single men and $15,000 for married men. However, we still saw claims going up. Naturally, there were wide swings by months in the amount of claims, and policies issued in recent years were becoming much more important in the total picture.

Recently we reconfirmed that we did not want war clauses, nor did we want to get out of the market entirely. We decided to become more restrictive in a different way. Our agents in districts near the more important military installations, training men for combat in Viet-Nam, were told not to write applications on many categories of combat troops. We receive a questionnaire to check on this, and any application on one of these types is rejected.

This method affects, roughly, only 5 per cent of our districts, so we did not send out a general letter. It is a sort of meat-ax approach, but we estimate that it probably will cut down our claims by about one-half on issues of 1966.

MR. PATRICK L. HUMPHREY: We have seen a good many $10,000-and-up applications on premilitary business, that is, on those who are going to be in service before long. What sort of restriction is being put on these younger men?

MR. SWEETSER: We do not have any. We do insure along the lines mentioned by Walt Merriam as far as limits go and take a man slated for Viet-Nam for $10,000. We believe that our agents have been selective in not submitting the really dangerous risks in great volume.

With this limit for Viet-Nam personnel, we play the fellow coming out of college or in the ROTC, National Guard, or Reserve fairly liberally and try to limit the amount to what he would otherwise be purchasing. We cut back out-of-line amounts but do not decline applications for this.

I know, from attending the meeting of the Institute of Home Office Underwriters last week, that the smaller companies generally have very severe programs. They did not even discuss the possibilities of going in several directions. Everybody assumed that everyone else was not insuring these risks and discussed what to do to weed out those subject to the draft or otherwise exposed to war risk.

Effect of Social Security on Underwriting of Individual Health Insurance

A. What are some of the changes in issue and terminal age limits for hospital and major medical expense benefits which have been made because of the availability of Medicare for senior citizens by individual companies?
B. When underwriting disability income, to what extent should social security benefits be taken into account:
   1. In determining the percentage of earned income to be insured?
   2. As additional insurance in applying maximum participation limits?
C. Should Medicare benefits for persons over age 65 be supplemented by individual health insurance? If so, how are undesirable duplication of benefits and overinsurance to be avoided?
D. What changes in coverages and underwriting rules may be appropriate because of the implications of Title XIX? Should underwriting rules reflect income and family-size differences?

MR. NIELS H. FISCHER: As all of you know, the Social Security Amendments of 1965 have made great changes necessary in individual health insurance underwriting rules. Naturally, the effects of the amendments on any one company depend largely upon the benefit features of the company's health policy line, its marketing and agency setup, its distribution of business by age and income, and so forth. Therefore, in the interest of brevity, you will find me guilty of overgeneralizing. For the same reason, I will skimp on providing background information about the provisions of the amendments themselves. I am sure that you are all familiar with Bob Myers' recent paper, which details this information.

Issue Age and Terminal Age Limits

Prior to the Medicare amendment, most companies issued hospital and major medical policies that were guaranteed renewable for life to applicants of all ages. When an insured attained age 65, there was usually a modest reduction in coverage. New applicants over 65 were frequently eligible for benefits under a different policy series—so called senior-citizen policies that provided principally basic hospital and surgical coverage, although some major medical forms were also available. The response to Medicare, of course, was the development of new policy series.

Because it is obviously unsound to continue coverage beyond 65 without substantial benefit changes to integrate with Medicare and without a commensurate premium reduction, it is most practical now to provide a terminal renewability age of 65, or the date of Medicare eligibility, if earlier, with perhaps a conversion privilege to a senior-citizen policy at that age. In order adequately to amortize first-year policy expenses, it is necessary that a policy be renewable for at least five years or so. This

would mean that a policy terminating at age 65 could not be issued beyond age 59 without significantly higher rates or significantly lower expenses than at the younger ages. There are, therefore, two approaches to setting issue age limits for hospital and major medical benefits. The first is to set the limit below age 60 and to determine premiums from usual model-office calculations. The second is to continue issuing through age 64, perhaps with commission reductions and reductions in overhead expense assumptions in the premium formula. From an agency standpoint, there is no question but that a company should issue through age 64. I believe that most companies have this latter philosophy. A notable exception in practice, of course, must be observed in states requiring that a guaranteed renewable policy be renewable for at least five years.

Coverage To Supplement Medicare

The questions whether companies should write individual health insurance benefits supplementary to Medicare, and, if so, on what basis are ones to which few companies would answer in agreement. Most companies have elected to remain in the over-age-65 medical expense business for three reasons. First, there is still an insurable medical expense risk after Medicare; Parts A and B cover only 60 per cent of total medical care expenses, and most of the remaining 40 per cent of expenses can be insured under individual policies on a sound and practical basis. Second, it is generally felt desirable, from public relations and agency standpoints, not to discontinue all individual health insurance benefits at age 65 among policyholders who, in many instances, are lifelong life insurance and casualty insurance clients. Third, companies have generally responded to HEW's specific encouragement to offer the supplementary coverage.

Three types of supplementary individual medical expense policies are now on the market. The first simply pays per diem indemnity during hospital confinement. The flat indemnity approach can perhaps be defended on the basis that a daily benefit of, say, $10, seldom represents undesirable overinsurance because of the uncovered cost of a private hospital room, the coinsurance, and the ninety-day limit under Medicare, and the other unseen family expenses that arise when illness occurs. The plan has the actuarial advantage that future claim costs are independent of inflation in the cost of medical care and the obvious advantage of all-round simplicity. An underwriting danger is created, however, because the insured may later buy still another supplement that is better related to uncovered expenses and thereby create a definite overinsurance problem.

A second type of Medicare supplement provides a schedule of addi-

tional hospital indemnity, which varies according to duration of confinement, to integrate with Part A benefits before and after the sixty and ninety days of hospitalization. Schedules of benefits may also cover private-duty nursing and the deductibles and coinsurance of Medicare itself. This type of policy form reduces somewhat the overinsurance dangers of the flat indemnity plan. One drawback arises from the fact that changes in medical care costs or changes in Medicare benefits themselves can make the benefit amounts obsolete.

A third approach involves offering a policy form of the major medical or comprehensive medical category, with few inside schedules and limits and with a policy exclusion of benefits furnished under Medicare. Covered expenses can include private-room costs, private-duty nursing, and out-of-hospital services and supplies. The deductible and coinsurance features of Parts A and B of Medicare are preserved by similar provisions of the supplementary plan. This type policy obviously does the best job of reducing overinsurance and can provide the broadest form of protection in terms of over-all policy limits. The plan can be successfully marketed, however, only by highly trained salesmen and requires claim-settlement procedures that cannot successfully be employed by all companies. It is also apparent that the open-end claim liability, coupled with the large deductible of both the policy itself and of Medicare, makes claims experience particularly sensitive to future inflation in medical care costs and utilization.

Summarizing this area of supplementing Medicare, I think we can say that, while all companies wish to avoid undesirable duplication of benefits and overinsurance, many will not be in the position to design benefit structures necessary to accomplishing the theoretical ideal, for reasons relating to their marketing methods, sales force, and claims organization. I do believe, however, that most companies are paying an increasing amount of attention to overinsurance in individual health insurance underwriting.

Title XIX Implications

Turning to Title XIX of the 1965 Amendments, we have a different type of underwriting problem from that existing with senior citizens. Of course, most companies should encounter few applications from those eligible for the benefits. Agents just do not run into bona fide applicants who are subject to public assistance; this would contradict the Title XIX eligibility requirement, which contemplates income insufficient to provide for medical care. New York's very liberal program is an exception to the rule, of course.

We are fortunate that Title XIX benefits are satisfactorily integrated with private insurance benefits, private insurance paying first, but certainly every company should institute selection and underwriting controls that will prevent policies' being issued by mistake. The Title XIX programs in most states offer either complete medical coverage or coverage broad enough to eliminate any further reasonable insurable interest. Furthermore, the persistency of such business would be extremely poor. The agent must be primarily responsible for ascertaining whether the applicant is eligible for Title XIX benefits. The home-office underwriter can back up the agent if he knows the applicant's income and family size, but it is difficult to make an accurate determination of eligibility on this basis.

Integrating Disability Income Benefits with OASDI Benefits

The 1965 Amendments significantly affected disability income underwriting. Before this year many companies have disregarded the PTD benefit under OASDI primarily because of the permanency requirement. The 1965 Amendments not only increase monthly income again but remove the qualification of permanency. We, therefore, no longer have the reservation that a year-old total disability claim on which we pay benefits will not trigger a social security benefit. With this change, most companies have reviewed their underwriting and participation limits not only with respect to social security but with respect to short-term group insurance, state cash sickness, and even workmen's compensation benefits, and a significant number of companies, probably a majority, have introduced new underwriting and participation limits that recognize these other income benefits.

The theoretically accurate underwriting rules that would accomplish limiting an insured to a uniform percentage of earned income at all claim durations are extremely difficult to live with in practice. First, agents are frequently handicapped in their sales interviews by having to explain a complicated program. Second, underwriting information would have to include additional details about income, years of covered employment, and number of dependents from which the underwriter would laboriously determine the applicant's eligibility for additional coverage and direct the preparation of a policy with complicated riders modifying the elimination periods, benefit amounts, and benefit duration. Third, disability income experience has been fairly stable for many years, and companies have been trying to increase—not reduce—its proportionate volume. Disability income is the underinsured segment of individual health insurance. New issue rules that have developed have, therefore, generally emphasized simplicity.

As a result, the most common new integration rules recognize that from $150 to $300 must be deducted from former tables of monthly indemnity limits. But companies are also writing short-term coverage to fill in the social security benefit elimination period. For practical purposes, these fill-in policies provide twelve months of benefits rather than six.

As I stated originally, this discussion is purposely brief. The effect of the social security amendments on the individual health insurance business was covered in great depth at our spring meetings, and I hope that those who discussed their company plans at those meetings can now tell us the initial results of their new programs.

MR. JOHN S. THOMPSON, JR.: Many companies now recognize the disability benefits under social security in applying participation limits. Most of the new underwriting rules recognizing social security benefits, however, involve the assumption that every applicant is entitled to social security benefits, and it is generally assumed, for underwriting purposes, that each applicant will be entitled to a fixed benefit of, say, $150 monthly, if single, or $250 monthly, if married. The assumptions made in recognizing social security benefits suggest that identical results could be obtained by appropriate reduction in participation limits, thus avoiding treating social security benefits like voluntary coverage in practical underwriting problems.

If this simpler approach is to be used, it would, of course, be necessary to modify the rules limiting the amount of disability insurance in relation to the applicant's earned income, as well as the fixed-dollar amount of participating limits.

MR. CHARLES M. STERNHELL: My remarks are confined to the question "Should Medicare benefits for persons over age 65 be supplemented by individual health insurance?" Our answer is "Yes," for we found it feasible to design a package of benefits that would supplement Medicare and avoid undesirable duplication of benefits. This design was based on the assumptions that persons would be enrolled for the voluntary Part B of Medicare and that we would not attempt to compete with, or supplement, Part B.

We saw a market for a hospital policy to supplement Part A in three major areas: (1) the excess cost of private over semiprivate rooms; (2) private-duty in-hospital nursing; and (3) periods of confinement in excess of the 90 days per spell of illness in Medicare.

The senior hospital expense policy introduced in April, 1966, for issue ages 61–80 is guaranteed renewable for life, defines "spell of illness"

exactly as the Medicare law, and has no deductible amount, no coinsurance provision, and no exclusion of Medicare benefits. It covers the first 180 days of hospital confinement during any spell. A fixed $10 daily benefit for the first 60 days supplements the inpatient services under Medicare and can be used for the differential of private over semiprivate room or any other purpose.

For the next 30 days there is a fixed $20 daily benefit and, for the last 90 days, when no inpatient services are provided under Medicare, the daily benefit is $30 plus reimbursement of miscellaneous hospital expenses incurred up to $1,000. There also is reimbursement up to $45 daily for up to 20 days for full-time in-hospital private nursing.

We have an optional posthospital rider providing for 185 days in an extended-care facility during any spell, if such confinement begins within 14 days of discharge from a hospital confinement of at least 3 days. This requirement is the same as that of Medicare.

During the first 20 days under the rider there is a fixed $5 daily benefit; during the next 80 days, a $10 daily benefit; and, during the last 85-day period, a $15 daily room-and-board benefit plus a miscellaneous expenses benefit of up to $500.

The optional rider also provides reimbursement up to $30 daily up to 20 days for full-time private nursing while in a nursing home and $15 daily for up to 20 days for private nursing outside either hospital or nursing home if such nursing service begins within 14 days of discharge from either facility after at least 3 days' confinement.

Lifetime hospital or major medical policyholders aged 65 or older on July 1, 1966, were offered the privilege of exchanging their current coverage for the new supplemental policy with or without the optional rider. For those with a premium due last July, about 15 per cent exchanged, about 10 per cent did not pay the premium then due, and about 75 per cent paid the premium.

We are selling about as many of the new policies this year to people aged 65 and over as we sold last year, but premium volume on the new issue is a little lower.

MR. THOMAS D. LEVY: What are companies doing about the person who turns 65 and those over 65 who have pre-existing conditions? Are they writing this out for six months, or writing everybody, or are they doing a selection procedure?

MR. FISCHER: We do not use a mass underwriting approach at my company. Senior-citizen policies are underwritten using the same stand-

ards that we use for younger health insurance applicants but with adequate recognition of their different state of health because of their 65 or more years, that is, the average state of health.

MR. GORDON R. TRAPNELL: The utilization of hospitals under the hospital insurance program is now expected to be somewhat higher than was originally anticipated, due to the practice of insurers—particularly Blue Cross associations—of filling in deductibles and coinsurance and adding other incentives for extra utilization of hospital benefits.

Underwriting Research

A. What problem areas in underwriting individual life or personal health insurance are most in need of study?
B. Have individual companies undertaken research over the past few years, the results of which would be of interest to members of the Society? Should there be more joint research devoted to our underwriting problems?
C. Should the necessary basic data for underwriting research be created as a part of the underwriting-and-issue process, as a means of lowering the costs of and expediting underwriting research?
D. How does one measure the effectiveness of underwriting research?

MR. EDWARD A. LEW: There are a few underwriting problems that require prompt attention and a number that call for continued scrutiny.

Some Problem Areas for Underwriting Research

Among the more pressing problems is that of extending the range of nonmedical insurance and developing physical screening procedures that could be handled by paramedical or trained lay personnel. The growing demand for the services of physicians makes it imperative to curtail the use of medical examinations in insurance and perhaps dispense with them altogether on some types of cases by using other means to appraise the physical condition of an applicant. Higher medical fees are in the offing, and their effect will be to make medical examinations economical only for larger amounts of insurance and for the older ages. Nonmedical practices will, therefore, soon have to be broadly liberalized. We should, however, look further and begin to work toward the objective of having a sizable proportion of the applicants for small and moderate amounts of insurance physically screened at a local office or other central point. This might be done by specially trained technicians instructed to record heights and weights, take blood pressures and pulse rates, obtain electrocardiograms when needed, and even perform simple laboratory tests.

We are on the threshold of a revolution in diagnostic medicine. New and more effective tests for use in hospitals and doctors' offices are being devised daily. Such tests will have to be suitably modified for life and health insurance underwriting by being oriented toward persons in apparent good health. For our purposes, the tests could also be materially simplified, because the accuracy needed in underwriting is usually less than that required in medical practice. Automated tests of small quantities of urine or a few drops of blood should be available shortly at a relatively low cost. The ready availability of more sensitive diagnostic tests will make it feasible to differentiate between finer gradations of risk on applications for large amounts; more elaborate EKG analyses, such as are

now being explored with the aid of computers, could be particularly helpful in evaluating borderline risks.

To sharpen our underwriting of large amounts, we also need more objective criteria for financial rules, especially in judging overinsurance under different circumstances. This problem should have a high priority on the list of research projects.

Only two major studies have been made during the past thirty years of the effects of excessive use of alcohol on mortality. We could use an up-to-date appraisal of the hazards of drinking and driving in the face of the continuing rise in motor-vehicle fatality rates. Just how much drinking contributes to the increase in the automobile hazard is still a highly debatable question.

Finally, I would mention the problem of developing more effective underwriting procedures for personal health insurance. I have been experimenting with the practicability of a more rigorous system of numerical ratings for health insurance, under which some factors would be given much greater weight than others. The problem is to determine the magnitude of these weights under varying conditions.

Where and How Is Underwriting Research Done?

It is difficult to obtain information about major research efforts undertaken by individual companies in the underwriting area. Certain types of investigations will have to be made by individual companies, because so many underwriting questions need solutions tailored to a company's clientele, agency force, and internal organization. Such special circumstances enter importantly into the determination of nonmedical limits and underwriting rules for personal health insurance. On the other hand, there are distinct limitations on what individual companies can do to develop significant mortality and morbidity statistics for medical impairments, occupations, and other factors considered in underwriting.

Much of the exploratory thinking needs to be done on individual lines, but a joint effort, relying on all available agencies and sources, will usually be far more productive in establishing a body of information for underwriting.

The Society's Committee on Mortality under Ordinary Insurance and Annuities has been the principal agency for intercompany investigations of mortality and the factors affecting it. It has concentrated its efforts on analyses of the experience among lives insured under ordinary policies. These studies need to be continued and extended to provide up-to-date experience data and to serve as a check on whether changes in practices, such as more liberal nonmedical rules, are achieving the results desired.

The Society's Committee on Experience under Individual Health Insurance has been performing a similar function for sickness, accident, and disability coverages.

The Society's Committee on Outside Sources of Medical Impairment Data is endeavoring to set up pilot studies to explore and test the feasibility of assembling mortality statistics on medical impairments from records of government agencies, hospitals, medical groups, and so forth. Such statistics, if current, can be more meaningful than out-of-date experience data for insured lives.

The Home Office Life Underwriters Association has done yeoman's service on administrative underwriting problems and in the area of environmental hazards. This work, too, needs to be continued and extended. As we proceed to streamline and mechanize our underwriting procedures, the economics of administration becomes increasingly crucial. The Home Office Life Underwriters Association provides an admirable forum for the discussion of such practical problems. The Association is also well oriented for examining the changes in industry and technology that are giving rise to new environmental hazards.

The Life Insurance Medical Directors Association has been keeping us informed of the implications of major medical advances, largely through the medium of invited papers from medical authorities. The Association is about to appoint a committee to gather and evaluate mortality data from clinical sources, and several actuaries will be asked to serve as consultants to this committee. Another committee of the Association has recently been given the assignment of organizing medical records on insurance company employees so that they could more readily be used for mortality and morbidity investigations. It is clear that a great deal of effort is being made to provide more and better data from which medical impairment ratings can be developed.

A number of agencies outside the insurance business can also supply valuable information bearing on underwriting. Thus National Health Survey studies indicate the reliability of personal medical histories when elicited through questionnaires answered by laymen and the kinds of medical facts that only physical examinations can bring out. Several epidemiological research studies of heart disease, notably those carried on at Framingham, Albany, Los Angeles, Chicago, and other research centers, are accumulating information on the high risk factors in coronary disease. The American Cancer Society's Cancer Prevention Study, which covers more than a million men and women who volunteered details of their medical histories, symptoms, complaints, and personal habits, may soon adduce evidence of the correlations between various medical his-

tories and the early development of cancer and other serious diseases. This study is also expected to produce unique mortality data for certain stabilized disease states and for some rare combinations of impairments.

A little-known source of information on mortality associated with relatively rare impairments of young men is the Follow-up Agency of the Division of Medical Sciences of the National Research Council. For more than twenty years this organization has been making follow-up investigations of medical conditions found among soldiers and veterans.

Finally, we might occasionally consult the findings of studies made in Great Britain and western Europe, notably by such groups as COINTRA (Coopération Internationale pour les Assurances sur la Vie des Risques Aggravés), the British Pools on Substandard Risks (diabetics, high blood pressures, and coronaries), and the Oslo Institute for Medical Statistics. These organizations have not only produced interesting analyses of mortality and morbidity but have also done pioneer work on new methods of making mortality and morbidity studies.

Some Proposals for Research Action

Few of us have turned the growing body of information pertinent to underwriting to full account. This is not so much a matter of reassessing our ratings by reference to new facts as a challenge for us to bring the principles on which our practices are based into conformity with new knowledge.

For example, it has become increasingly obvious that the modes of life characteristic of different socioeconomic groups have more effect on the mortality levels experienced than do specific occupational hazards; the question, therefore, arises whether we should not now eliminate virtually all occupational ratings and replace them in selected instances with ratings for unfavorable socioeconomic circumstances. It has also become evident that the mortality among insurance applicants who are genuinely unaware of having a serious condition, such as diabetes, is distinctly lower than that found among persons with the same condition under the care of a physician, but we nevertheless continue to base the ratings for a number of serious diseases on clinical experience.

The major factors considered in life underwriting, notably overweight, elevated blood pressure, and excessive use of alcohol, will for many years to come have to be evaluated on the basis of the experience among insured lives, simply because their long-range effects on mortality are not likely to be investigated outside the insurance business. For most common impairments, however, we will probably be relying more and more on extraneous sources of information. Accordingly, more research appears

advisable to enable us to differentiate better between the varying manifestations of medical and related conditions in a group of patients or in the general population and among insured lives.

We will, of course, need to look outside for many of our new underwriting tools. The Association of Life Insurance Medical Directors may take the lead in perfecting more searching and discriminating tests based on advances in diagnostic acumen. While only physicians with a background in life and health insurance can do the job of adapting clinical tests for underwriting, the efficiency of such tests will have to be appraised in statistical terms by actuaries.

It would be helpful if the Life Insurance Medical Research Fund would see fit to extend some financial support for research in this area. Thus far, the Fund has restricted its activities primarily to basic research in cardiovascular-renal diseases. Such research has been on the receiving end of the lion's share of federal and private largess, and it might not, therefore, be amiss to divert a small portion of the money in the hands of the Life Insurance Medical Research Fund to medical research projects of more direct application to the insurance business. Other industry support would be in order for those selected research projects in underwriting where co-operative effort could avoid duplication of work in individual companies.

When new underwriting tools become available, studies will have to be made to chart their optimal use in relation to the economics of each situation. This type of problem is especially suited for scrutiny by the underwriters and actuaries active in the Home Office Underwriters Association.

Actuaries with less specialized interests can also contribute through more broadly oriented mortality and morbidity investigations. The findings of such investigations frequently have important implications for life and health underwriting. Furthermore, many of us have to take increasing note of the impact on various phases of our business of changing patterns in medical practice and of changing concepts in the social and biological sciences. Whatever intensive thinking we do in this connection is likely to have some value for underwriting.

Measuring Effectiveness of Research

Before embarking on numerous research endeavors, we should consider how we might measure the effectiveness of each project. In a general way we could gauge the success of a project by the extent to which it contributed to explicit objectives. A more hard-nosed approach would weigh the cost of a research project against the estimated value of the

economies effected. A still more sophisticated appraisal would include not only a measure of the dollars saved but also the gain in our "know how" and our "know why." The actuary or underwriter can be sure that he has both "know how" and "know why" if he knows how to maintain his company's mortality and morbidity experience at a predetermined satisfactory level—even in the face of adverse conditions—and is able to explain clearly to the executive and the agency vice-president how this difficult task is accomplished.

MR. KARL M. DAVIES: There are a number of different areas for research in underwriting, and Ed Lew mentioned all of them. Let me, however, categorize them: mortality statistics and results; underwriting rules; methods of testing—urine, blood, and so forth; the prospects of machine underwriting; and the question of economics in underwriting—the value of physicians' statements, inspection reports, and so on.

Ed dealt first with the biggest problem in the underwriting field today. I might enlarge upon his remarks to put this problem in terms of the relationship between the life and health insurance industry and the medical profession. From the underwriter's viewpoint, problems arise in two important areas—medical examinations and attending physicians' statements. The Association of Life Insurance Medical Directors is trying to develop a streamlined examination form that should facilitate an examiner's reporting of history and current findings. There also is a fee question. I know of no progress being made on the attending physician's statement question.

I talked to our medical directors about special studies that they have made. They have a long list of research projects that they have reported in medical journals. This is not the place where you and I might look for important underwriting data, but our doctors feel that they received good publicity on their material in the journals.

I should like to propose a study on guaranteed issue mortality. Many companies have been working in this field with a great variety of rules. Still, would it now be worthwhile to undertake an intercompany study?

MR. WALTER A. MERRIAM: A couple of weeks ago, Joe Wilburding pointed out that, as MIB codes are put on a computer, it would be possible also to put in company information. He looked ahead twenty years and said that this might be a source for studies of one kind or another.

MR. JOHN S. THOMPSON, JR.: Lately we have seen an increased use of simplified forms of nonmedical applications, such as those used for sell-

ing by mail or in other situations where a formally trained agent is not at hand.

The simplified application calls for essentially the same information as the normal form. An important exception is the question relating to medical history that, in the normal form of nonmedical application, is relatively lengthy and covers a large number of possible specific impairments. The simplified form of nonmedical application covers the question of medical history in general terms without reference to specific impairments, except for possibly a few of the most important impairments.

It is my understanding that this form of application has been used typically for ordinary and association group, in some cases sold by mail.

MR. HARRY F. GUNDY: We see it in our British department. We had pressure from our agents to adopt such nonmedical forms because a number of British companies have very simple declarations. We resisted.

In the past year, the English insurance press has pointed out through discussion that simplified forms have tended to push underwriting over into the claims field. Now some of our agents feel that it would be a mistake to go to the simple form, because they want the underwriting done at time of issue.

MR. ALTON P. MORTON: In the matter of nonmedical limits, the basic problem is to decide the top limit for which it is reasonable to rely on an applicant's unsupported word, as recorded by the agent, about his health history, physical condition, and other requirements of insurability. This is not wholly, or even mainly, a problem of statistical analysis. The decision must recognize that whether an applicant has something to hide of underwriting significance is, in fact, mainly a function of age and whether he will hide it is a practical judgment of the human elements involved. Very few of a cross-section of the younger applicants for insurance have anything to hide. Those few who have may try to, especially if the nonmedical limit at the age is a sufficiently high reward.

After deciding on a schedule of limits that seems to fit the practical requirements of a company's field force, what underwriting techniques should then be followed? How much independent verification of the application questions and answers is desirable? What are the most useful methods of verification? When, for example, should a company look to inspection reports, to medical examinations, or to attending physicians' statements, and so forth?

MR. A. H. McAULAY: The top age for nonmedical underwriting should be below the age at which degenerative diseases usually set in. So long as the applicant is at an age at which he still does not know much about the weaknesses of his own body, it is safe to use nonmedical underwriting. This approach is based on the theory that a risk can be selected provided the home-office underwriter knows just as much or just as little as the proposed insured and hence has some measure of control over the selection exercised against the company. When the insured arrives at an age at which he gets to know something about the weaknesses of his own body and possibly knows a little more than the home-office underwriter could be expected to know, then the time has come for the use of a medical examination.

MR. JOHN H. TUROFF: Concerning the economics of underwriting, to what extent does duplication exist when, because of a past consultation, the doctor is asked for an attending physician's statement by more than one company, due to the development of an insurance portfolio on a given life? The first company involved would report only a positive finding; there is no provision for reporting a negative finding which would put all companies on notice that an attending physician's statement had been obtained in connection with a particular medical history which was shown to have no underwriting significance.

I submit that the reporting of negative findings has just as much underwriting significance as the reporting of positive findings—perhaps more, since this would minimize the need for repeat requests to the same doctor, arising from later applications for insurance through other companies. Broaden this concept to incorporate X-rays, EKG's, inspection reports, and other underwriting source material, and a net savings to the industry should result, even after allowing for the resulting expansion of the reporting library.

MR. EDWARD H. SWEETSER: About a year ago we adopted certain special tests for the larger amounts—over $500,000 at ages 40 and under; over $300,000 at ages 41–50; and over $200,000 at ages 51 and higher. We now require a hemoglobin and blood smear at ages 40 and under. At the older ages, besides these blood tests, we get a Masters stress test, as well as a rectal examination for males and a pelvic examination for females, performed by a gynecologist, or a report of such examination that has been made within the past year.

MR. LEW: I agree with Al Morton about the need for being careful in extending nonmedical limits, because there is ample evidence of sub-

stantial extra mortality on nonmedical insurance issued at ages over 40. My suggestion was to extend nonmedical insurance beyond age 40 by obtaining blood pressure readings and perhaps other tests in lieu of a medical exam.

The promise of these tests lies in the fact that automatic equipment is currently available that will take two or three drops of blood, or of urine, and perform a variety of diagnostic tests with such a small quantity of body fluids. The difficulty is that the present equipment is oriented toward hospital patients—to people who are sick—so that a high proportion of the tests would be almost entirely negative on insurance applicants. Work is being done to modify the equipment so that different tests, such as tests for cholesterol plasma levels and for other blood lipids, can be made with the same small quantity of body fluids. Tests of this kind can be oriented toward the apparently healthy.

Because of the low cost of such tests, it may well be that before long we will be able to afford them routinely at, say, ages over 50, as a solution to the problem of what to do on an application if there is no doctor available and if we feel that we must have some sort of physical screening.

EQUITY LIFE INSURANCE AND MUTUAL FUNDS

Discussion of the philosophy and practice of linking life insurance with equity investments in Europe and North America.

CHAIRMAN KENNETH R. MACGREGOR: Welcome to our discussion on equity life insurance and mutual funds.

Before we begin, however, I should like to record our sadness that Bruce Shepherd is not with us, as scheduled in the program. His sudden and completely unexpected death about a month ago was a great shock to all of his friends. I know that he had been looking forward to participating in this panel, and I know equally well that he would have made a fine contribution to our discussion. Bruce was very broad-minded and knowledgeable, and he always saw both sides of a question. On this occasion, he was to be our advocate in defense of the traditional view—our anchor man—which would have been quite a role in the face of the other four, who are in favor of some activity in the field of equity contracts, and taking into account the fact that he may have had a certain degree of sympathy for their view. We were very fortunate to get Al Guertin to take his place on short notice, but I am not entirely sure yet whether his sympathies all lie with the defense either. He may turn out to be a devil's advocate on the same side as the rest.

We have a timely but controversial topic, one in which every actuary may reasonably be assumed to have some interest. A lot of thought is being given to it by a great many actuaries, but relatively little has been written or said since the earlier debates on variable annuities. Those debates seem to have died out like the still earlier ones on the question whether the old age security scheme should be fully funded or operated on a pay-as-you-go basis. These departures from traditional principles and practices have apparently been accepted with the passage of time.

At present, everyone in the life insurance business seems to be playing the game of equities quite close to the vest, so to speak, as far as any expression of opinion is concerned. Indexed pensions have received some attention, but our subject today is much more general. It relates to practically any kind of equity-based life insurance or annuity contract as well as the practice of bringing the distribution of mutual funds and life insurance under the same sales organization.

Incidentally, for present purposes, a reference to equities will generally mean common stocks unless otherwise indicated.

I know that actuaries hold a wide variety of views on linking equities to life insurance in any way. Some are apparently opposed to their companies investing in equities to any significant extent, or even at all. Mutual funds are anathema in the eyes of many life company people. On the other hand, a few companies seem prepared to go to the opposite extreme of offering life insurance and endowment contracts based entirely on equities, with sums assured and nonforfeiture values varying according to the market value of the equity assets. In between, there seem to be all shades of opinion. The comments of some actuaries give the impression that they would like to offer equity-based life insurance contracts or shares in a mutual fund but their companies are reluctant to depart from the traditional concept of guaranteed benefits or at least are reluctant to be among the first to do so.

It seems to me that, in one sense, common stocks are like women. Few, if any, men do not find some women and some stocks attractive. There are always confirmed bachelors who refuse to go as far as to marry a woman or to invest in stocks at all, but the vast majority do so, or would if they could. This is all very respectable. However, one must be careful in dealing with women or stocks in any new or unorthodox way if reputations are to be maintained. It is well not to proceed too fast. It is interesting, also, how competition can stimulate jealousy or can color one's view. Take, for example, the attitude of most life companies (even those making substantial investments in stocks themselves) toward mutual funds. Stocks may be a good thing per se, but, when brought together under one roof for business purposes, as in the case of a mutual fund, the resulting organization is generally regarded by life companies in the same light as women similarly brought together under one roof for business purposes, that is, as a house of ill repute.

Many actuaries and life companies find themselves on the horns of a dilemma at the present time. Apart from direct investments in equities by life insurance companies, some plan of cohabitation, involving equity funds, has its attractions but also its risks, and there is no completely satisfactory way to avoid those risks. On the face of it, the sale of shares in an equity fund along with the sale of life insurance would seem to be a less radical move on the part of a life company than if it were to offer equity-based life insurance contracts providing variable benefits. However, a move in either of these directions is a very significant one.

In essence, whether a life insurance company should engage in the marketing of variable contracts (statutes permitting) would seem to depend upon resolution of the conflict between the following two philosophies:

1. *Life insurance companies should always be in a position in which they can* support vigorously and conscientiously the maintenance of a stable currency. This they cannot do if they offer to the public any contracts that are designed *to hedge against currency instability.*

2. Life insurance companies should be alert to the needs of the market and be ready to offer to the public any contracts or services that promote individual financial security.

There can be no question that the good reputation of the life insurance business is mainly attributable to its fine record for paying in full all benefits promised under the terms of its policies. Sales arguments have long been founded upon this fact. Nevertheless, other facts demand consideration in deciding whether to maintain the status quo or to depart from it. Among them, the following might be mentioned:

a) Judging by the popularity of mutual funds and otherwise, an increasing proportion of the population is apparently interested in making investments in equities in some manner rather than entering into contracts involving fixed-value debt. At the same time, life insurance companies are sometimes the subject of the criticism that they take in dollars of a certain standard of value and pay out later in cheaper dollars; they are also criticized sometimes for adhering too much to the traditional and for not being sufficiently enterprising or willing to make innovations. Is their public image already suffering to some extent?

b) Although the market values of common stocks are subject to severe fluctuations from time to time and sometimes move in the opposite direction to the cost of living, the long-term trend of the stock market has outperformed every other major class of investment and has shown some degree of correlation with the cost of living.

c) In the last decade, the place of ordinary life insurance seems to have been diminishing in the average family's scheme of things, at least relatively, because of other forms of security being provided by governments, employers, and so forth. *In recent years particularly, there has been an increasing tendency for* governments to meet social needs or to solve social problems. The number of ordinary policies in force is increasing much more slowly than the amount of ordinary insurance in force or the total amount of life insurance in force. There appears to be a trend toward more substantial ownership of life insurance by a shrinking proportion of the population. In general, companies are writing an increasing proportion of term insurance, while their share of the savings dollar is steadily declining. Diversification is the order of the day among other businesses, including practically all other kinds of financial institutions; some are even moving into the life insurance business. In these circumstances, should life companies continue to maintain steadfastly the status quo?

d) For several years, taking the life insurance business on this continent as a whole, the size of the agency force has remained almost stationary. Would the sale of equity-based contracts or equity funds along with ordinary life insurance

contracts help to recruit agents, bolster their earnings, and improve their rates of retention, or would it confuse agents and the public alike, undermine much of the confidence in life insurance that has been instilled in everyone, and thus do more harm than good? Would the handling of shares in an equity fund by a life insurance agent result in more, rather than less, term insurance being sold?

e) Participating policies entitle the holders to share in the experience of the company, including its investment experience, and, because of the different levels of premiums charged as well as different experience, dividend results have varied enormously among the several companies. There are, of course, guaranteed minimum benefits in policies of the traditional kinds, but would it be as radical as it seems if, in effect, dividends on some participating policies were to reflect fluctuations in the value of investments, even to the point of producing negative dividends, where policies of this kind were chosen by the applicants?

f) Many life insurance companies are already maintaining segregated funds, comprising mainly common stocks, for certain group pension plans, and some companies are already offering variable annuity contracts. Consequently, it might be argued that, in these cases and to this extent, the Rubicon has already been crossed.

The reasons usually given why life insurance companies should consider offering equity-based contracts or shares in an equity fund are to try to counteract the effects of inflation, to meet the demands of part of the market, and to counter competition from other organizations entering the insurance field. Some persons may question whether we shall experience continuing inflation, and, even if we do, some may question whether the desired objective can be attained in this way, at least over relatively short periods. Some may say that any contracts of a variable benefit nature linked with equities involve too great a risk of damage to the public image of life insurance. Against these doubts, it can be argued that there is the possibility of some degree of success in providing larger benefits in the long run whether inflation continues or not; and that, in any event, by offering such contracts, life companies would provide the public with more complete facilities for personal security than they are presently doing and would probably improve their own vitality at the same time.

In discussing this matter, I think that one should remember that in most cases it is not a question of life companies abandoning the traditional type of contract but rather one of making an additional type available to such segment of the public as may desire it.

There are clearly many aspects to be considered in any study of the whole problem. Consequently, it seemed best in choosing our panel to have it comprise mainly persons who are associated with companies that have weighed the pros and cons and have entered the field of equity life insurance or mutual funds and hence can speak with firsthand knowledge

and experience. Four of the panel are in this position; two of the companies that they represent are over 150 years old, while a third company is nearly 100 years old. The fifth member of the panel is not similarly situated but will speak from the vantage point of one with a lifetime of experience in dealing with the life insurance business from almost every point of view, including life company employment, government supervision, industry association, and consultant. After each of the panelists has made his presentation, questions and comments from the floor will be welcomed, and I hope that many of you will participate. We may not reach any firm conclusion or prove anything, but we should have an interesting discussion.

MR. CARL A. HAASE: Investors Diversified Services (I.D.S.) was started in 1948, entering into an arrangement with a nonaffiliated insurer to offer completion insurance. This insurance was sold on an individual basis to provide the completion at death of face-amount certificates offered by I.D.S. No commissions were paid on the insurance, and the objective was mainly to improve the salability and persistency of face-amount certificates.

In time, I.D.S. began to think about a company of its own. Not only would completion insurance be offered but other kinds of life insurance and annuity policies as well. Commissions would be paid, and one of the important objectives was to improve the earnings position of its representatives. Another obvious reason for taking this step was the additional source of profit that it would mean.

There were three other objectives: (1) to provide our men with a complete financial portfolio or service, (2) to facilitate expansion of the sales force and thereby increase sales in all products, and (3) to give more stability to the sales force by rounding out sales opportunities. These considerations led to the organization of Investors Syndicate Life (I.S.L.), which began operations early in 1959.

At the present time, I.D.S., together with its subsidiaries, offers the following products or services, which I have grouped under four main headings:

1. *Mutual funds.*—These are offered subject to a minimum purchase of $300 at a time and subject to a sales charge that decreases in percentage only as the size of an account increases.

We have four funds—each with a different objective. For example, Investors Mutual, which is the largest mutual fund in the world, is a balanced fund. The balance is between income and growth—between security and risk. Thirty per cent of the portfolio is in bonds, 7 per cent in preferreds, and 63 per cent in

commons. The Stock Fund is slanted more toward growth, with 97 per cent of its portfolio in common stocks. The objective of the Variable Fund is maximum capital appreciation, and the portfolio is in the higher-risk, growth equities. The Selective Fund is aimed at conservation of principal, with most of the portfolio in bonds.

The annual sales volume of these funds is running close to $600 million, measured in dollars of purchase.

2. *Contractual plan.*—We have a front-end-load contractual equity plan that permits small monthly payments. By front-end load, I mean that the sales charge is higher for the first contract year than it is in renewal years. This plan is a recent innovation for I.D.S., and the annual sales volume is running about $200 million, measured by face or contract amount.

3. *Face-amount certificates.*—These are fixed-dollar contracts with front-end load to permit small monthly payments. The contract promises to pay a stated face value amount at the end of its term of fifteen or twenty-two years. It is purchased by level monthly or annual payments during its term and cash values are available on default. There is provision for additional annual interest credits. Until 1940, this was the only product offered by I.D.S. The annual sales volume is running about $160 million, measured by face amount.

4. *Life insurance.*—This is whole life, level and decreasing term, offered on an individual policy basis only, independent of securities sales and subject to careful underwriting. The annual sales volume is running about $450 million, measured by face amount or amount at risk. Whole life is about 20 per cent of total by volume and about 55 per cent by number of policies. A typical sale is whole life with a decreasing term rider. Completion insurance is no longer offered.

We also have a complete line of fixed-dollar life annuities, with a small sales volume so far.

Total assets under management for the entire Investors Group now amount to about $6 billion.

I have recited the sales statistics. The next question is "Where do these sales come from?" We have a single sales force of dually licensed, full-time men. All our sales come from these men. We permit no brokering, and we accept no brokerage. We have no house accounts.

At the present time the sales force is 4,000 strong. This number includes 167 divisional managers (general agents) and 670 district managers (supervisors). These men are compensated solely by commission. They are full-time career men. They are highly trained, they are good salesmen, and they make good money.

This program has worked quite well for us. Securities salesmen of the kind we have are quite adaptable to the sale of life insurance. This is partly because a good securities salesman recognizes the need for life insurance in a complete financial program, partly because he recognizes the

opportunity for increased earnings, partly because of company attitude, and partly because of the years of experience in selling completion insurance before I.S.L. started operations.

A perhaps somewhat surprising aspect of this program is that much of the push to expand our life insurance sales program came from the sales force itself. They asked for help in the form of training sessions, for more and better products, for lower premium rates, higher commissions, and more liberal underwriting. Only twenty-three of our men asked to be excused from securing a life insurance license.

We have learned a number of interesting things about this operation. For example, we found that our better investment producers are also our better life insurance producers. There is an expected tendency, however, for our younger and newer men to sell proportionately more life insurance than our older and more seasoned men do. Another interesting note is that half of our life insurance sales are to buyers who are not I.D.S. investment customers.

We also found that—in spite of, or because of, our sales success—the mortality and persistency experience of our business has been good.

It has not necessarily been smooth sailing, however. I have been talking about the advantages of this kind of program, but I should also mention the disadvantages. I do not think "disadvantage" is the right word. There are, however, certain problems that had to be licked. For example, we had to load up our sales force with an entirely new body of knowledge. This meant training sessions and study time, which they sometimes complained about. In general, however, and due partly to the head start mentioned earlier, we have succeeded in getting our men trained.

Another significant problem has been to convince our men that home-office underwriting procedures, medicals, and ratings are necessary. Does this sound unique? I guess not. In any event, we spent a lot of time and effort seeking the co-operation of the field in this area. We laid great stress on the technique of personal contact. We picked up the telephone, wrote personal letters, and talked to them in person as much as possible. The sales department supported the underwriting department and encouraged personal contact between the underwriter and the agent. This approach seemed to bring a meeting of the minds, and we feel that our salesmen are now reasonably sympathetic to the need for good underwriting. As I mentioned a moment ago, our field underwriting and home-office underwriting have combined to give us a record of good mortality.

Now that we have wrapped up almost eight years of life insurance experience, how do the results stack up against our objectives?

1. First of all, we have, in general, increased the earnings position of our

men. Some of our men have done very well indeed. Many of them have seen an interesting increase in compensation. Of course, renewal commissions have not, as yet, had much of a chance to build up.

2. By providing him with a complete financial portfolio, we feel that we have enabled our agent to get a better reception from more people and, at the same time, to sell a program custom-tailored to individual needs. Furthermore, having a complete line to offer seems to make financing of new men easier. With a rather modest financing plan, we have been able to increase our sales-manpower strength about 50 per cent in the past eight years.

3. Our expansion has meant increased sales in all products. At one time there was some concern as to whether life insurance production would cut into the sale of investment production. It has not worked out this way. Individually, to a large extent and in the aggregate, our men have sold more life insurance and more securities.

4. Finally, we feel that our program has given stability to the agency force. Our agent does not have to make an investment sale in order to make a sale. Also, we feel that he will have a greater opportunity to retain customers throughout the entire span of his business career. When his life insurance customers reach the age when they no longer need or can qualify for new insurance, they may very well be excellent prospects for mutual funds.

So, now, the question is, "Where do we go from here?" In line with these objectives our direction is to: (1) further expand our full-time sales force; (2) consider the possible development of other marketing techniques; and (3) further expand our investment, insurance, and annuity portfolio, looking to the possible development of equity-based life insurance contracts and other product lines.

MR. DELOS H. CHRISTIAN: First, I believe that it would be well to orient you to my company's current operations and its position in the development of a mutual fund. We have been in business nearly ninety-six years as a stock company, and we sell a rather complete line of life, annuity, and health products, both group and individual. We have both a combination and an ordinary agency field force, with the former producing about 85 per cent of our total life sales. Our current life insurance in force is about $4\frac{1}{4}$ billion. We have been in the stage of developing a mutual fund for about one year, and we anticipate making our first sale about December 1 of this year. Although we have not made a sale yet, I believe that we have received a lot of education so far. I may be in the enviable position on this panel of being free to speak philosophically, since

I have not yet had to face the multitude of practical problems that often muddy the easier theoretical thinking.

Going back about a year, I will cover our thinking and reasons for deciding to go into the mutual fund field. We had traditionally been inclined to the side of the argument given by the Metropolitan in the long-standing debate on variable annuities between the Prudential and the Metropolitan. Our feeling was that our policyholders and agents were not sophisticated investors and would almost certainly misunderstand or mislead in selling a complex combined product such as variable annuities or an equity insurance contract. In certain group contracts this problem may be less important, but in small pension trusts and individual contracts, at least at that time, we felt that these problems were insurmountable. On the other hand, questions raised by insureds, sophisticated investors, and by statistics showing a decline in the life insurer's share of the savings dollar also spoke very loudly and led us to a deeper study of the entire matter.

In reviewing historical trends on the cost of living and of stock prices and dividends, we noted a nearly parallel rate of increase for each of these indices for the period from 1900 to the late 1940's. It is true that a good deal of graduation was needed in certain periods to flatten the rather wild fluctuations in the stock indices, but over this 45–50-year period each index had tripled its 1900 value. Since the late forties, however, the indices on stock price and dividend have far outpaced the cost of living, with stock prices up some 400 per cent and dividends 300 per cent, while the cost of living is up only about 35 per cent.

In the past, wild gyrations above the cost of living have been followed by plunges below, but the previous periods have never exceeded four or five years, whereas we are approaching a 20-year period of large excesses at the current time. We have heard arguments that the stock market does not always move with inflation. The history of this century, however, indicates that these periods are short-lived. The most pronounced period of a declining market with rising living costs was from 1916 to 1920 and, to a lesser extent, in the late thirties and early forties; and, of course, where we are going right now is an open question. The periods of these reversals, in any event, are relatively short when considering the usual investment or savings program that is not based on speculation. It should, though, be given some recognition in any soundly designed plan. These facts led us to the conclusion that something more than the status quo was called for.

We had other motivations aside from the arguments of equity v. fixed-dollar investments. Prime among these was a feeling of a need to diversify,

to develop new markets for our agents to replace some that appear to be shrinking, and to better insure the culmination of a profitable company operation. The catalyst here was the federal government's encroachment on the health insurance field with Medicare and what might follow. We could anticipate the loss of premium income and a resultant adverse effect on agents' earnings. We have noted a popular trend among corporations in general to diversify; for example, a company in the tobacco business going into the manufacture of charcoal, and so forth. There is normally some related advantage in these moves to more fully utilize talents, sales forces, manufacturing facilities, and so on. These corporations also apparently wish to avoid putting all their eggs in one basket. We felt any diversification on our part should be in the insurance or personal financial field. We reviewed, among other areas, casualty insurance, credit insurance, and title insurance, but we finally arrived at a decision to market an equity product.

To resolve all these desires and come up with a practical solution that we might get into operation in the near future, we studied the various equity products now marketed. The mutual fund field appeared to be a promising compromise. We thought that the first two paragraphs of a chapter entitled "Life Insurance and Your Investment Program," in the "bible" on mutual funds by Arthur Wiesenberger, covered a philosophy on the need for combined life insurance and mutual fund sales. These paragraphs stated:

> Few subjects are so closely related as life insurance and investing. The young man with a family to provide for must decide how best to divide his limited resources between essential protection for his family and the building up of a "living estate." Until his insurance protection is adequate for his family and his responsibilities, he is not ready to start an investment program. The older investor needs to keep in mind the values there may be in his insurance policies as he plans an intelligent, well-balanced and sound investment program. All along the way, life insurance and investing are related elements for the same vitally important objective of providing adequate financial resources for future needs and wants.
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> Every person, every family, has special requirements, according to his or its particular situation. There are no pat answers or standard formulas. Both life insurance and investing can be sufficiently complex to make professional counseling on a personal basis highly desirable, if not essential. Taxes and other special considerations add a further complication in many cases, indicating the importance of legal and accounting advice.

We felt that the insurance industry would get into less of a public relations problem, with misunderstandings, by marketing mutual funds issued by a separate corporation under the name "mutual fund" than an

equity annuity or insurance product issued directly by an insurance company. Great flexibility is made possible through the agent's altering the type and amount of insurance policy combined with a mutual fund sale. Because the savings or investment element of the insurance policy in such a sale would be almost entirely a fixed security, we will provide only a growth-oriented mutual fund. We feel that, with our agents giving the story, a better dissemination of the insurance company's side of the story can now be told than is possible with a pure mutual fund broker telling the story. Thus we hope to replace the cliché "Buy term and invest the difference" with "Buy whole life and invest the difference."

To accomplish this type of sale, we have designed a special life insurance policy on the life-paid-up-at-65 basis, to be sold with the mutual fund. This policy provides for conversion to a retirement income plan at 65, providing $10 monthly for life with ten years certain, by paying the difference in cash values on the two plans. This benefit is provided by a built-in extra premium. We hope that this approach will be popular for both individual supplementary retirement programs and for pension trusts. On the mutual fund side, we will issue both the lump-sum and a contractual plan. The latter closely represents a level premium monthly pay insurance policy with higher first year than renewal sales commission, or, as the mutual fund people refer to it, front-end load. Besides paralleling the life insurance contract, this gives the optimum advantage to the so-called dollar averaging, in which more shares are bought with the same payment when the stock market is down.

You may be interested in a few brief remarks on the mechanics employed in getting into this operation. First, the traditional corporate structure used in marketing and servicing a mutual fund is very interesting. It is quite different from the approach used in mutual insurance companies. The mutual fund is typically controlled by a board of directors elected by the shareholders, similar to the over-all control of a mutual insurance company, but from this point everything is different.

While, to my knowledge, all mutual insurance company boards employ officers to direct the day-to-day operations and authorize employment of employees to carry out these orders, all on a salaried basis, the mutual fund directors typically contract with a profit- (or loss-)making corporation to handle the various phases of day-to-day operations. The payments to the corporation contracted with are specified in a proxy given to shareholders and prospective shareholders, but, depending upon the efficiency of the management of such corporation, a profit or loss will be made in which the fund will not share. In some funds the underwriting of sales may be handled by a different corporation from that which handles the invest-

ment, which may be different also from the administering corporation. In all cases it is necessary to contract with a bank as custodian of the assets. Custodians are called on to do little or much of the administration according to the desires of the specific fund.

Consideration of the organization of a mutual insurance company along that same line provides interesting mental gymnastics. In our case we have organized a subsidiary, "First Virginia Management and Research Corp.," to underwrite, invest, and do the lion's share of the administration, with the Bank of New York as the custodian, which we have asked to perform the minimum legal administrative work with the fund. We, therefore, will make maximum use of our talents in investment (we have some $30,000,000 now in common stocks in the Life of Virginia) and administration through fuller use of our computer and trained personnel. We have found that much of the administration parallels the administration of life insurance. The sales area, of course, was one of the prime motives for entering this field, so we will use our own agency forces; but we felt the need to employ a trained management officer in the sales area and were fortunate in securing an experienced man. The fund itself is called "First Funds of Virginia," and the Life Insurance Company of Virginia will initially purchase $2,000,000 of its shares to start it off.

While we have not yet sold any shares, we are far along in the training phase and have had enthusiastic reception by the agents. We hope that our combination agents will be active in this field as well as the ordinary force. We feel that this will be the case, since the normal market for the product has been proved to be in the $6,000–$10,000 income area.

We found it advisable to employ outside counsel to handle the lion's share of the legal problems in filing with the SEC and licensing the corporation and the agents with the states. There is a choice of registering agents with the SEC or the NASD; we have decided to go the NASD route, with the thought that we might find it easier to deal with businessmen than with government people.

To summarize, then, our company felt a need to diversify as well as a need for something better than the status quo in providing a hedge against inflation. We felt that the direct sale of mutual funds for the inflation hedge is superior, public relation-wise, to a more complicated and sophisticated variable annuity or equity insurance contract.

MR. ADRIAN DE HULLU: In the Netherlands there are some sixty life companies, including a few foreign ones. They generally write both nonpar and par business. Participating policies have gained much in popularity in the last ten years; they are now quite general in the important group

annuity field. High interest rates (currently 7 per cent for government bonds) have led to substantial dividends. Direct competition from mutual funds has been relatively light. A number of them exist, but they have probably had more influence on direct investment in shares than on life insurance sales. Marketing methods of mutual funds have been far less aggressive than those in North America. Early this year, the Fund of Funds filed suit against the Dutch version of *Consumer Reports*, which had criticized its sales approach. Fund of Funds lost most points; an appeal is pending.

The performance of the stock market has been disappointing in the last few years. The index reached a high point exceeding 400 in 1960; this summer it had gone down to 280. This is quite a drop but still not nearly as large as that in West Germany. Most other countries in western Europe also show index values for stocks below those of 1960. It is impossible to argue that the announcement of equity-based life insurance sales was of any significant help; even after sales and stock purchases commenced on July 1, the decline continued.

All these remarks seem to reinforce the question "Why start selling equity-based policies?" In order to find the answer, some other points have to be considered. First of all, inflation has been an important factor in the Netherlands in recent years. Cost of living has risen by 25 per cent since January, 1962. This is more than double the increase in the United States and substantially higher than the increases in France, West Germany, and Great Britain. Wages have also grown by leaps and bounds; an employee of Holland Life earning f10,000 on January 1, 1962, would earn over f14,000 today if he had merely participated in general wage corrections and had not received any increase based on merit or seniority. Obviously, such conditions stimulate the interest people have in "inflation-proof" possessions. They look for "treasures that neither underproduction nor overconsumption can corrupt, nor politicians break through and steal." I found this sophisticated description in the *Journal of the Institute of Actuaries*.

Two of these were created by the government, and that is my second point. In the fifties, an indexed pension plan was created. It covers the entire population; benefits are, in principle, independent of contributions. In 1965, the government took a very significant step by completely rewriting the pension plan for civil servants. It became a fully indexed, final-pay scheme without any absolute maximum for any benefit. It is obviously very generous, because it guarantees its participants full compensation for any erosion due to inflation and in addition full participation in any growth of wages caused by increased prosperity. Private employers

have to compete with this scheme; to the self-employed professional man it is a sign on the wall, showing that saving is not enough—savings must at least have some form of indexing in order to provide the desired protection. In 1965, a group of doctors started preparations for the establishment of a new life insurance company, to be based on equity investments.

Third, there is one company that has written equity-based life insurance since 1956. It started on the basis of a market analysis, which showed that interest would be limited to perhaps only 1 per cent of the population. Judging by the figures ten years later, the analysis may have been rather correct; the company now accounts for 0.4 per cent of the total business in force and for 0.8 per cent of the total premium income. However, the group of clients it attracted is much more important than the low figure of 1 per cent indicates—almost all policies were placed among the higher-income groups; one-third of all policyholders are in the professional class, another one-third in the managerial group.

The depression of the stock market was a practical consideration. It seemed much better to start selling equity-based policies in a period of relatively low stock prices than at a time when the stock market was buoyant. Another reason in the background is the fact that life companies have been getting a decreasing share of savings in the private sector. In the last ten years their portion shrank by about 25 per cent!

In this environment, life companies in the Netherlands decided late in 1965 that they would have to offer some form of indexed plan to meet the wishes of an important sector of the market. They soon concluded that only investment in shares, listed on a major stock exchange, would be acceptable. Bonds obviously are not satisfactory for this purpose, and real estate lacks the necessary certainty about its market value. Convertible debentures, as a rule, qualify, and preferred shares, as a rule, do not. The choice is not limited to shares listed in the Netherlands, and right from the beginning American, Canadian, German, and perhaps other shares have been purchased. It is evident that this involves the policyholder in currency risks in addition to those of the stock market.

On July 1 of this year, sales of the equity-based contracts commenced. Premiums and benefits are expressed in "units" or "fractions" that will fluctuate in guilder value. I will come to that later. First, I wish to mention that almost all types of insurance and annuity contracts are offered both in guilders and in units. For ordinary contracts the premium differential is just 2 per cent. An essential point is the method of participation. Participating contracts in guilders share in profits made on interest, mortality, and expenses, but they have guaranteed minimum benefits.

Holders of unit policies, however, are fully entitled to all investment gains; they equally fully suffer all investment losses, and they never share in profits or losses on mortality and expenses. There is no guaranteed minimum benefit in guilders.

The agent is also in a different position. A guilder contract on a permanent plan yields him a single commission of $2\frac{1}{2}$ per cent of the sum insured, plus a service fee of 2 per cent of each annual premium after the first. On the sale of a unit policy he receives a commission of 7 per cent of each premium during the premium-paying period. It is clear that this gives the agent a share in all the ups and downs through which the guilder value of the premium may go. It is also clear that $2\frac{1}{2}$ per cent of the sum insured may well be worth more than 5 per cent of all premiums.

Why, then, would the agent ever sell an equity-based policy? In Holland, as elsewhere, agents very well know the significance of the expression "a bird in the hand is worth two in the bush." Here I must remind you of the class of people likely to buy unit contracts. Coming, by and large, from the higher-income groups, they are sophisticated enough to make a clear choice between a traditional and an equity-based policy. The less well-informed prospect may be given little chance to make such a selection, but then he is probably not the right candidate for an equity-based policy. In their sales material, companies have stressed the risks the policyholder takes. There is no talk suggesting that unit policies are inflation-proof; it is stated clearly that premiums and benefits may go down as well as up. By way of contrast, let me quote a few lines from a recent English publication about mutual funds:

> Assuming a capital sum to be available and that inflation will continue, immediate investment must be the right course. Unit prices may tend to fluctuate from year to year, but the long-term trend will remain persistently upwards and the investor, looking ahead, will be able to realise the maximum capital growth.

Of course, a mutual fund does not talk about a maturity date in the same way that a life insurance company does, but even so the statement quoted would seem altogether unacceptable. You will find nothing even remotely like it in any sales literature about unit policies in Holland.

Next, I should like to say a few words about the determination of the unit value. For this purpose a fund of equity investments serves as a standard of value. The size of the fund is not material, but the normal requirement of diversification implies that it must not be too small, and prudence dictates that its value in units must be at least equal to the amount in units of the actuarial reserve together with that of other obligations toward holders of unit policies. In essence, however, the fund is just a standard of value. It is neither "owned" by the holders of unit

contracts nor does it present any special guarantee or security for them.

The bookkeeping is simple enough. On the one hand, the company must keep track of the number of units in the fund; on the other, it must determine the value in guilders from time to time. Monthly calculation of the unit value is the standard rule. Investment revenue, capital gains and losses, management charges, and investment expenses alter the guilder value of the fund but not the number of units that it represents. These changes directly affect the value of one unit. Management charges, by the way, amount to $\frac{1}{2}$ per cent of the value of the fund annually.

Payments into the fund, originating from premiums or from surplus of the company, and payments leaving the fund to cover maturities, death claims, and surrenders increase or decrease the number of units simultaneously with the value in guilders. In other words, they leave the unit value unchanged. Since premium rates have been established on a 3 per cent interest basis, the number of units is increased every year by 3 per cent in order to allow for this. This obviously means a decrease in unit value by almost 3 per cent per year. In other words, the unit value would remain constant if net revenue, including capital gains and losses, were exactly 3 per cent. So far, I can give you only one example of actual results. It is drawn from the experience of the company that pioneered the system in 1956. A policyholder who purchased 100 units yearly from 1956 to 1966, always in the month of September, would have paid a total of f1,351 to acquire 1,000 units. If he could have saved them without expense or mortality charges, he would have owned 1,181 units, worth f1,606, in September, 1966. This represents an interest rate of 3.4 per cent over the ten-year period. This can hardly be called a spectacular figure. Similar calculations over other periods would have yielded very different results. This is obvious when I mention that units have been worth as little as f0.85 and as much as f1.67; currently they are worth f1.36 each.

Equity funds created this summer only reflect the unhappy state of the stock market. All units started with a value of one guilder, but in October they were worth between 87 and 95 cents.

The investment management deserves special consideration. One school of thought maintains that the insurance company is fully responsible for the selection of equities; consequently, it must make its own choice on the basis of its own research. The other school argues that it is next to impossible for a life insurance company to match the specialist knowledge of professional managers of equity funds; hence, the choice of investments should be made by such outsiders.

Both approaches are being followed in the Netherlands. The first one needs no further elaboration, but of the second there are at least two mod-

ifications—either the investments are chosen directly by an outside adviser or they are limited to the shares of one or more mutual funds or investment companies. It may be of interest to you to hear that two groups, each consisting of several large life insurance companies, have been formed for the specific purpose of pooling equity funds; to each group, this means broader diversification and a larger flow of funds to invest, which should be to the benefit of all participating companies. One consequence is that unit values for the participants will always be identical. Let me stress that all participants in either group remain independent in every other way.

In all cases that I know of, part of the equity fund has been financed from surplus for the purpose of giving it some volume right away and perhaps also as a means of advertising to the public that the company is confident of the success of the new venture.

To round out the picture of this type of policy, I must add a remark or two about the conditions of the policy. In many ways they are quite normal, but they do provide for the possibility of a "run on the bank" that might well occur in the event that a prolonged rise of the market were followed by a sudden decline. Under such conditions rapid liquidation of the stock portfolio would only push prices down even further. The company has the right to declare a "moratorium," which means that surrenders and policy loans will not be handled for the time being and neither will conversions from equity to guilder contracts. It would seem probable that such a drastic step would have to be taken by all companies at the same time. Another special provision guards against possible selection at the time of surrender. Any policyholder who witnesses a decline of the stock market and who anticipates a lower unit value in the next month may well decide to surrender as quickly as possible. This does not help him, as he must wait until the next unit value has been determined before his surrender value is calculated and paid to him.

What point have we reached in the Netherlands? Sales of equity-based contracts are developing slowly. In my own company we now have thirty-six policies in the books after about four months of sales efforts and a greater deal of administrative preparation. The average size is good—almost exactly 30,000 units. We have also reached agreement with one group annuity client about financing part of his pension plan through equities. These are not figures to be jubilant about, but then we started without any ideas about having found the magic solution. Yet we were, and are, looking at this new line in a positive way. For a number of our clients it may be a good thing, provided they start early enough to ensure that their savings will have a good chance to outgrow the short-term up-

and-down movements of the stock market. Short-term developments, in our view, cannot in any way be counteracted effectively by investing in stocks. As someone mentioned during the debate pro and contra equity-based policies, "On a short-term basis, in any case, investment in shares is as effective against inflation as a tablet of aspirin is against cancer."

MR. GRAHAM H. HOLLAND:* I think that I should preface these remarks by telling you that, although a Fellow of the Institute of Actuaries of Great Britain, the majority of my career in life insurance and the whole of my career as an actuary have been in Canada. Although I maintain close connections with my colleagues in the United Kingdom, I find it impossible to keep completely up to date with all that is taking place there, and much of what I have to say about practices in the United Kingdom has been gleaned from reading, not from actual experience.

In a paper submitted to the Institute of Actuaries in London in November, 1962, P. R. Cox and R. H. Storr-Best stated that at the time of writing there were five plans in force that provided equity-linked endowment insurances: three sponsored by unit trusts, the British equivalent of mutual funds with cover provided by life companies; one operated by a life company which linked the benefits to the price per shares in a trust; and a fifth run by a life office operating its own unit trust. By the end of 1964, there were twenty-five schemes in operation, and today there are approximately forty in operation, associated with some one hundred unit trusts. Thus, it is quite evident that considerable interest has been shown in this type of arrangement in the United Kingdom over the last few years. In spite of this rapid growth, however, nearly all the life companies associated with these plans are small companies formed for the purpose, and very few of the large, established companies have become involved. As a consequence, the unit trust share of the life insurance market is very small compared with that of the conventional life insurance companies.

Unit trust business in Great Britain is controlled by the Board of Trade through powers conferred on it by the Prevention of Fraud (Investments) Act. I believe that the unit trusts are not at all happy that the Act of Parliament governing their affairs should be so named, and I can sympathize with their feelings. Among other powers, the Board of Trade has the power to limit the charges made by the management of the trust for the acquisition of units and for the management of the trust fund. By North American standards the permitted charges are low, being limited to a maximum of 5 per cent in the first year and a maximum of $\frac{1}{2}$

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of 1 per cent annually thereafter, but with a further stipulation that the total charges over the first twenty years should not exceed 13¼ per cent. These limitations make it virtually impossible to sell such plans through commissioned agents, and business is secured mainly through newspaper advertisements. When a trust fund is operated through a life company, the loading limitations may be avoided, but, if larger front-end loadings are charged, an obvious competitive problem will arise. Inevitably, comparisons will be made by prospective buyers between the arrangements offered by the unit trusts and those offered by the life companies. As a result, the commission paid by the life companies for their equity-linked policies has been kept exceptionally low.

Apart from the marketing difficulty just mentioned, one of the main reasons for the lack of interest in these plans by the established life companies appears to be the attitude of British actuaries toward this type of business, and in this connection I would like to quote from the paper by Messrs. Cox and Storr-Best previously referred to.

> The actuarial discussions that have been held during the last few years indicate a marked coolness toward variable policies. It is argued that it is not in the national interest to provide variable benefits. It is the function of the government to combat inflation but the life offices who are custodians of the large part of the nation's savings have a responsibility which concerns their duty to their own policyholders and they should do all they can to assist the government. They should not encourage a distrust of the currency and they should not add impetus to inflation by creating yet another privileged class whose benefits shall be automatically increased as the cost of living rose. From the viewpoint of the life offices themselves, it is felt that the issuing of such policies might be taken as a confession that the offices had lost faith in the value of their own contracts. There is also a grave concern as to whether policyholders generally would understand the risks they were assuming. The opposing argument is that offices should accept the fact of inflation and take whatever action is required to give protection against it. If there is a demand for these contracts, they should be satisfied. Should this result in more publicity for the evils of inflation, so much the better since it will give an added incentive to the responsible authorities to control it. Offices already invest substantially in equities and there is no reason why the logic of this course should not be extended further. It should be added that this appears to represent a minority view.

The discussion is still continuing in the United Kingdom, as well as the continuing argument as to whether the value of equity investments will in fact increase should inflation continue, but there is increasing pressure from the field forces of the established companies to introduce some form of equity-linked contract to combat the competition coming from the organizations that are offering this form of contract and to meet

the public demand. In many ways I think it is surprising that so much interest has been shown in the United Kingdom. In the first place, the stock market has not, over the last few years, been as buoyant as it has in North America, and, in the second place, I would have regarded the general public in that country less sophisticated in matters of investment than their counterparts in North America. Furthermore, life insurance companies in Great Britain have traditionally invested a large proportion of their assets in equities of one type or another and have been able to declare very high rates of reversionary bonus, making the return on their policies most attractive without abandoning the usual guarantees. Companies are, of course, inhibited in declaring bonuses on the basis of the increased market values of their portfolios, since, once the declaration has been made, the bonus becomes a guaranteed amount, so that obviously a very substantial margin must be allowed to guard against the possibility of a subsequent decline in the market.

On the other hand, the equity-linked policy can be made to look very attractive. In the United Kingdom the income tax legislation provides very powerful incentives to save through the vehicle of life insurance. Subject to certain limitations, 40 per cent of the premiums paid by an individual toward a policy on his own life or that of his wife can be offset against his taxable income; for persons who are paying the standard rate of tax in the United Kingdom, that is, 8 shillings and threepence in a pound, this represents a saving of 16½ per cent on each premium. The equity-linked plans have been skillfully designed, so the total amount paid to the plan, including the investment portion, ranks for this relief; in many cases it can be shown that the tax saving is more than enough to cover the cost of the insurance, so that effectively the units are acquired at a discount.

This same tax advantage, of course, applies to conventional endowment insurances and whole life policies, but it seems to me that the equity-linked policy has certain competitive advantages. First of all, the company does not usually bear the risk of a fall in the market, so that the insured can immediately be given the full advantage of any improvement in the value of the portfolio. Second, under some plans the insured knows exactly what portion of his premium will be invested and this, I consider, would appeal to an insured, to see precisely how his investment is progressing. Third, the smaller initial expenses charged against the policy improve its competitiveness when compared with a traditional policy. Finally, rightly or wrongly, the large majority of people believe that inflation will continue and that equity investment is a satisfactory method of hedging against inflation.

There are several types of policies marketed in the United Kingdom by life companies, but, in the short time allowed, it is not possible to go into the details of these various plans. For those interested I would, however, recommend an excellent paper by W. G. Bailey, F.I.A., submitted to the Institute of Actuaries on April 30, 1962, in which he outlines some arrangements that have been devised.

The important distinction in the various policies is the degree of guarantee provided by the insurance company.

1. The least guarantee is provided by an endowment type policy under which a level annual premium is charged for a fixed term of years. A varying part of each premium determined in advance is used to cover expenses and the mortality cost computed on a yearly renewable term basis. The balance of the premium is used to purchase units in a designated fund, and subsequent interest earned on these units is applied to purchase additional units for the credit of the insured. Upon death prior to the expiration of the premium-payment period, a sum insured equal to the balance of the premiums would be payable. Under this arrangement, the insurer is at risk only to the extent of mortality and expenses.

2. There are two types of policies under which the insurance company will guarantee expenses, mortality, and interest, but not principal. Under the first, the insured is required to pay a single premium of 25 per cent of the nominal value of the policy, that is, the initial sum insured. This sum is then applied to purchase units in a designated fund, and at the same time the insurance company will purchase the remaining 75 per cent, guaranteeing to pay, upon death or the expiration of a fixed number of years, the total number of units. The additional annual premium charged by the company will need to be sufficient to provide the balance of the purchase price of the units and cover expenses and mortality, but taking into account that earnings on the total investment in units will fall to the credit of the company. While the company will carry no risk with regard to principal, having purchased all the units at the outset, 75 per cent of the cost will initially have been financed from existing policyholders' funds, as a result of which the with-profit policyholders may have been deprived of investment in higher interest-earning securities without any prospect of capital appreciation. This factor must obviously be taken into account when determining the rates. The reason for requiring a large first premium is to guard against early lapse following depreciation.

Under the second type, a fixed amount is applied each year to the purchase of units, so that over the full term an amount equal to the initial sum insured is so applied. Upon death before expiration of the full term of the policy, the amount paid would be the value of the units purchased

to date of death plus an amount equal to the future sum to be invested. Again interest earned on the units would be credited to the company, but no guarantee of principal is involved and no investment is required from policyholders' funds.

A variant of this type of policy is one in which the amount invested yearly, instead of being level, increases with duration in recognition of the initial expenses.

Finally, there is a type of policy similar to those just mentioned but which not only guarantees interest, mortality, and expenses but also guarantees a minimum sum payable upon death or maturity.

Although these are the main types of policies, there are a number of variations; for example, an endowment insurance type policy under which a fixed amount is devoted to the purchase of decreasing term insurance with the balance being applied to purchase units in a fund but interest earned on the units purchased is not immediately credited to the individual policyholder but is instead retained and later distributed as a dividend to the policyholders.

The position today seems to be that these special forms of policies are not being sold in sufficient volume to concern the companies selling the traditional types of with-profit policy and that, unless these policies are sold other than in lieu of the traditional type policy, most companies would prefer to avoid them, since it is quite evident that they produce little surplus for the benefit of other policyholders. No doubt, while the stock market shows little signs of advance and with the possibility of government intervention in the private sector of the economy resulting in a squeeze on dividends, the results will not be sufficiently attractive to divert any significant proportion of the life insurance business away from the traditional form of contract.

In Canada, it was not until 1961 that any form of equity-linked life insurance contracts became practical. Up until that time, the Canadian and British Insurance Companies Act and the Foreign Insurance Companies Act prevented any company from investing more than 15 per cent of its assets in common stocks. In 1961, the acts were amended, permitting companies to establish segregated funds under which there would be no restrictions with regard to the proportion of investments in equities or any other form of security, provided, however, that the company's liability to the insured depended upon the market value of the fund at any time. It is evident on reading the legislation that it was primarily framed for the purposes of group pension business and came about after representations by the life insurance industry, which felt that it should be in a position to offer the same types of arrangements as were available through

other financial institutions. Evidently the trustees of many pension funds have considered that, in the long run, investment in equities will result in a greater return and is needed as a hedge against inflation, particularly if the pension payable to the individual is to be related to final earnings.

For some time now, life companies have been noting a continuing reduction in the proportion of new business being sold on plans with a savings element and, in particular, a steady reduction in the proportion of endowment assurance policies, and, for the past 15 years, life insurance companies have faced steadily increasing competition for the personal savings of Canadians. According to figures developed by the Canadian Life Insurance Association, life insurance assets in Canada accounted for about 60 per cent of selected long-term savings in the early 1950's, 52 per cent by 1956, and 43 per cent by 1964 (long-term savings are defined as "accumulated savings in life insurance companies, trusteed pension plans and pooled funds, trust company bond and equity funds, mutual funds, government annuities and Canada Savings Bonds"). Canadian mutual funds have grown rapidly in the last few years, and these funds are today nine times greater than they were ten years ago. Many mutual funds are offering plan completion insurance underwritten by life companies on a group basis, and, because of the favorable results of the mutual funds over the last few years and the high rates of growth which they have been able to demonstrate, competition from this source has become, in my view, a serious factor.

However, no serious attempt seems to have been made by any insurance company until this year to devise any sort of life insurance plan under which the savings element would be invested in equities.

Actuaries in Canada have been engaged in the same type of discussion as the actuaries in Great Britain, namely, whether it is in the best interest of the public and the life insurance industry to offer a policy based on equities. Income tax legislation in Canada does not, of course, provide the same form of incentive to save through life insurance as that in the United Kingdom, although there are certain advantages in that insurance companies are not taxed on investment income, but with an offsetting disadvantage that all premiums under insurance policies are subject to premium tax. It seems to me that one great difficulty in the marketing of any equity-linked life contract in Canada is that, for some years now in the face of intense competition with the mutual funds, the field forces of life companies have been indoctrinated with all the arguments in favor of the traditional guarantees available under life insurance contracts and with all the arguments against any form of contract under which the insured will be at the mercy of the experience of the stock market. It has always

been argued that many persons who need guaranteed values will be and have been persuaded to purchase policies which, at the very time when they are needed most, might show a depreciation in value. After years of argument and publicity along these lines, it is very difficult to do a complete "about face."

In Canada, provincial legislation controls the licensing of agents to sell life insurance, and life insurance agents are not permitted to sell mutual funds. This legislation has been under attack by the funds, and, if eventually they are successful in persuading the various provinces to change the legislation to permit dual licensing, it would seem probable that they would establish their own life companies and actively market an equity-linked life insurance contract.

What will life companies do then? I am the Canadian actuary of a British company which has been operating in Canada for twenty years and which at present has a portfolio of ordinary policies in force approaching $250 million. We, too, have seen our proportion of savings policies decline, and we know from discussions with our field force that a great deal of such business has been lost to other financial institutions that were able to offer investment in equities. About eighteen months ago my Canadian colleagues and I made a careful study of the problems which our company faced in Canada and decided that we should design an equity-linked policy. In Great Britain, where we are one of the leading companies, we do not sell equity-linked insurance, but the officers at our head office in the United Kingdom, with experience in operating in many different territories all over the world, fully understand that the problems in different territories require individual consideration in the light of local conditions. They gave us complete freedom and much useful advice in developing an acceptable product.

Our decision to market an equity-linked policy was based on the following factors:

1. The government has in recent years actively encouraged financial institutions to invest in Canadian common stocks. Only last year, the Canadian and British and the Foreign Insurance Acts were amended to permit the proportion of a life company's assets that could be held in this form to increase from 15 to 25 per cent. We concluded that a policy of this type was in the national interest.

2. We believe that there is a great demand by the public for investment in equities, and we further believe that the average member of the public would rather make these investments with a life insurance company with a long-established record of stability than with a relatively new financial organization. It is a fact that not one single Canadian life insurance company has ever failed to fulfill its commitments, no doubt mainly as a result of firm and judicious government control. The general public is well aware of this.

3. The public is very much aware of the effect of inflation, be it slow or sporadically fast, and also believes that, where savings are concerned, equity investment hedges against this inflation.

4. As the public generally becomes more conversant with financial causes and effects, it is insisting on seeing a direct relationship between where its money goes and what gets returned to it.

5. It was not our thought that equity policies should in any way replace the conventional forms of insurance but rather that they should be sold to persons who are not concerned with the conventional guarantees and who would otherwise have used some other form of institution as a savings vehicle. We hoped that our ability to offer an equity-linked policy would open up a whole new market to our field force, enabling them to increase their over-all sales and improve their level of earnings. We also hoped that it would assist us in the recruitment of field force personnel by attracting to us men who considered that the inability to sell plans other than the conventional insurance plans restricted their ability to succeed.

In the design of the policy we encountered a number of difficulties, the principal one being fitting a fluctuating sum insured into the framework of the legislation. For descriptive purposes, our policy can be regarded as having two parts, the first being a level term insurance to age 65, and the second a whole life insurance with the risk deferred to age 65. Sixty-five per cent of the first year's premium and 30 per cent of the second and subsequent years' premiums are devoted to the purchase of the term insurance and also cover all commission and administrative expenses. The balance of the premium is used to purchase units under the policy, which will build up until age 65 when they will be used to secure the whole life insurance, the amount of which will depend upon the value of the units at that date. No further premiums are payable after age 65. At five yearly intervals, commencing at age 19 and up to age 49, the units standing to the insured's credit may be used to secure whole life, paid-up insurance for an amount that will depend upon the life insured's age and the value of the units at the date of election. If this option is elected, the insured may continue premium payments, continue to enjoy the cover provided by the term insurance portion of the policy, and commence again to accumulate units. The rates at which these paid-up whole life insurances may be secured, both before age 65 and at age 65, are guaranteed in the policy.

The values of the units for the purposes of the purchase of new units and for the purchase of paid-up insurance are determined at each month end and are dependent upon the market value of a segregated fund owned by the Society. Individual insureds have no direct ownership of the fund; as far as the insured is concerned, it merely provides a method of deter-

mining the value of units. The fund is invested wholly in the stocks of Canadian companies or in other Canadian securities.

You will appreciate that, having instituted an equity plan in Canada only in April of this year, our experience of its value and potential is somewhat limited, but even at this stage and against a background of poor performance of equities, certain positive reactions can be mentioned.

1. It has undoubtedly created a favorable reaction within our field force, who now believe our array of products is much more complete, and has given them an entry into a field of prospects that they found difficult to reach previously.

2. It would seem to have made recruiting somewhat easier for our managers to the extent that more people are aware of the Society's present ability to produce a new type of policy that has some attraction to them and to the public generally, which is relatively unique.

3. We are happy with the new-business results, both from the point of view of volume and of the increased average premium that it is producing. If the present trend continues, we anticipate an increase in our new business, for the first nine months since the introduction of the plan, of approximately 12½ per cent in volume of sum insured and about 30 per cent in premiums. As we regard this as merely an additional plan, we consider this a satisfactory start.

MR. ALFRED N. GUERTIN: I came here on short notice this afternoon. I have no manuscript, but I do have some notes that I jotted down, from time to time, as some of these speakers were making their points. I also have a few notes that I put down before I came, relying rather heavily on some of the developments that I had noted from time to time in the annual reports that I have made to the American Life Convention over the years.

Those reports have usually contained some comment on the development of variable annuities in the United States. In addition, some reference was made to developments abroad as they were published from time to time.

This afternoon we have a different situation. We have had a review of actual developments in the hands of people whom we regard as highly responsible and in an area in which many people in our country have felt there could be development on a speculative basis.

May I start, by saying that we have had people seeking protection against rising costs of living and depreciation of currency for a long, long time. It is not unheard of that under certain economic stresses people buried gold bars in the back yard under the apple tree. In our own country, it was not so long ago that we had gold clauses in certain types of con-

tracts and bonds, put there for a single purpose. That purpose was to make them attractive to people who thought that there was always some possibility that the currency might be depreciated. The Supreme Court, of course, made mincemeat of those clauses. Be that as it may, their presence was a definite indication that, in the minds of some people, there was an attractiveness to the preservation of the purchasing power of the dollar.

Some of you are old enough to remember the 1930's. Of course, my hair is a little grayer than most of the hair in this room, but I remember that in the early thirties some people were buying platinum bars and putting them away in safety deposit boxes. Again, protection against depreciation of the currency was the object.

During that period we also heard talk of writing contracts in terms of so many bushels of wheat or so many pounds of potatoes. There was fear then, and that was during the depression years, that we would have actual manipulation of our currency or that antidepression measures might result in inflation.

Now we have other kinds of manipulation. We have a buoyant economy tinkering with the value of our money. We have seen the price level rise substantially in our own country. We have seen it rise even more in Europe. We still find that there is an endeavor on the part of many persons to do something about it in their own behalf. Some of these people think that, if there is some country that has a more stable currency than ours, possibly they could buy contracts payable in that currency and thus achieve some measure of protection.

In my book, the delivery of a contract, written in terms of a mutual fund or units, is very little different from a contract written in terms of potatoes or in terms of the bushels of wheat that I mentioned a little while ago. All of them have the same basic objective and are similar in method. There are other approaches, too. I am going to talk about them in a minute.

Back in 1954, in the reports which I have mentioned, I made certain statements. I am told that it is not plagiarism to quote oneself, and I am told that it is not research. So this is not plagiarism or research, but I am quoting from a statement made in 1954.

> It is fortunate for those who espouse the cause of the fixed dollar value that practically every argument for the equity side is geared to the concept of ever-cheapening dollars. To them there is no turning back. However, there are those who point out that deflation always follows inflation, and so the race is on. But, and this is important, shall we service that part of the people who believe in a fluctuating economy, as most of us do, or shall we make an attempt to so gear our operations that we can service both?

When I say "we," I mean life insurance companies.

To put it another way, is the group that concerns itself first with protection against the cheapening dollar large enough to require us to recognize it in a practical business way?

That was twelve years ago, and a panel like this would have been impossible twelve years ago. I think that economic conditions have made the change in attitudes.

If there is concern for this cheapening of the dollar in this country and other countries, as well, let us look at some of the things that have been done or could be done. We have heard of several of them this afternoon. However, may I mention first the cost-of-living contract backed by cost-of-living indexed investments, such as we hear about in Finland. It seems perfectly practical to issue a cost-of-living contract, if you can buy mortgages or securities that have a cost-of-living clause in them, too, or bank accounts that have a cost-of-living clause in them. If not, is it practical? Besides, is not the issue of such contracts backed by such investments a complete surrender to the concept of inevitable inflation?

We now have variable annuities issued by some of our finest companies in connection with qualified pension plans under separate accounts, in which there are a guarantee of mortality and a limit on expenses. We have variable annuities as issued by CREF in which there is no guarantee at all. There is the deferred annuity contract reflecting investment experience during the accumulation period with a level payout, as issued on an individual basis by one of our western companies. Regulatory procedures at the federal level are now the subject of litigation. A decision should be reached sometime this year by the Supreme Court of the United States. We talked this afternoon about the variable contracts issued in units reflecting the value of shares in a designated mutual fund.

I am going to ask a very leading question to the members of this panel who are concerned with a connection between mutual funds and life insurance. I am going to ask the question now, and I will ask for answers later. The question is, "How are you going to solidify the relationship between the contracts issued by your company and the mutual fund in which you are interested? How can you be absolutely sure that you will not lose control of the mutual fund along the line?"

Now, let me go back to indexed contracts. Several different kinds are possible. The indexed contract, annuity or insurance, can be written in units, as I said, according to a cost-of-living index, but the trouble with this is that we have no cost-of-living investments to match them.

We could, I suppose, write a contract in units reflecting the fluctuations in a designated stock market index. The New York Stock Exchange recently started a new index, which presumably will persist for many years and which might serve such a purpose. One of the advantages of

this is that, if you should issue such a contract, it would no longer be a variable annuity, as defined in the laws of certain states referred to by the SEC in its rulings or as defined in court decisions. Presumably you could issue such a contract and then invest the premiums in the very stocks that produced the index and in the same proportion. One would expect to have a very close correlation between the reserves as converted by the index units and the actual value of the portfolio.

I wonder whether the jurisdiction and the rules of the SEC would apply to such a contract. It is an interesting speculation. One wonders if the things that the industry has been talking about, and the things that the states have been talking about, have taken such an arrangement into consideration?

Let us look at some other points here. One of the things that I am pleased and impressed with this afternoon is the fact that, while some of the companies abroad and in Canada have embarked on programs of this type, it has been reported that the demand for such contracts does not seem to have been excessive. It has been rather light in terms of traditional insurance writings, and apparently, the demand for our life insurance product in terms of fixed dollars is still unaffected except where we have lost business to other types of investments. It is not yet evident, however, that we have been able, through these new devices, to retrieve the business that has gone elsewhere.

We have heard numerous arguments against the issue of contracts of this type by life insurance companies. It is said that the fluctuations in the value of our dollar, for instance, have been rather slow and that, when the cost of living has gone up following wars and so forth, it has then declined to a point where the growth over time has been relatively small and protection against it has not been necessary.

Another question occurs to me, as I consider the variable contract based on the investment risk. In industry discussions, we have really talked only about that. However, what about some of those others—such as cost-of-living and other indexed contracts? Are the additional risks so great that companies would be unwilling to consider their issue? Are legal limitations the only bar? I am talking now, for instance, about the additional risk on a contract based on the stock market index instead of on a portfolio of common stocks.

Of course, we have all the arguments that have been brought against this sort of thing—the demoralization of agency forces and the fact that fluctuations of the units of these contracts do not follow the cost of living except in a very general way. I think that these arguments were brought out particularly well in the discussion by Mr. Holland, when he quoted

the paper by Messrs. Cox and Storr-Best in the *Journal of the Institute of Actuaries.*

I have another question in my mind; I think it is a basic one. We saw the German life insurance industry disappear during the German inflation. We saw the volume of life insurance in France disappear in large part during its inflation. Even after the stabilization of their currency, the demoralization of the life insurance business there required a great deal of work, on the part of new and re-established companies, to rebuild its position in the public mind.

Would contracts of this kind, if issued in the twenties in Germany or in the thirties and forties in France, have prevented the gradual disappearance of life insurance values in those countries? I do not know, but it is one of those things that one might think about a bit.

We do not expect our currency to go the route of those currencies. I know that I do not.

There is another point that I would like to make here. The entire thrust of our consideration of this problem in this country, legislatively, and the discussions that have taken place in the company organizations have been directed primarily toward the variable annuity, as such.

I would like to make the point that the variable anniuty is only one facet of a whole family of contracts. Probably our consideration should be directed to the much broader question of whether we should permit the issue of contracts designed to meet the objective and permit experimentation in all facets or whether our legislation should be so designed as to prevent any experimentation. We are over the bridge on part of this. We are over the bridge with regard to the separate account and in regard to the separate account with variable payouts under qualified plans. How much further shall we go? Shall we take steps one at a time, just as we are taking the variable annuity step now? Shall we approach the whole gamut of examples of the type of contract that I have tried to describe as a family of contracts? Should the thrust of legislation and development be limited to the variable annuity as we know it, or should we generalize and talk in terms of the whole family of such contracts? These are questions that have bothered me. I do not have any answers.

I do not know whether I sound like an advocate or a critic, but I hope that I sound like a questioner. That is exactly what I am this afternoon, and I am still a questioner after having heard our other panelists.

A separate board is required to govern the mutual fund. This board is elected by the holders of mutual fund shares. The life company, of course, has its own board. How do you maintain proper control of the mutual fund and co-ordination between the life insurance operations and the equity-linked operations?

CHAIRMAN MACGREGOR: How is the agency force oriented in a company selling both guaranteed and variable benefit contracts? Are variable contracts sold only to those who ask for them? Are the agents given special instructions, or is it left entirely to them to sell the prospect as they view the situation?

MR. HAASE: For many years our company has had what we call a four-cornerstone philosophy. The first cornerstone is that a man needs an adequate cash reserve for emergency purposes. Second, he needs adequate life insurance for family protection. Third, he needs some kind of systematic self-obligated savings plan. Fourth, after the first three objectives or cornerstones have been met, he is ready to share in the growth of American industry by investment in mutual funds.

This doctrine has been stressed over and over to our sales force and to the people in our home office. The balance in our investment portfolio, which I referred to earlier, has gone hand in hand with the balance in our selling. Balance is one of the important principles that we have always advanced.

With respect to control, one of the best ways to maintain control is to have satisfied customers and a satisfied sales force. If the sales force is doing a conscientious job, the customers will be satisfied.

How is our agency force oriented? Subject to quite a number of restrictions set by company policy and by law, our agents, as independent contractors, sell according to individual needs. These men are very much motivated by the principle of balance and by our four-cornerstone philosophy. We give them a great deal of life insurance training in such matters as the importance of having life insurance in an estate at the time of death; the social security blackout; the reason for permanent insurance; and the place of term insurance. We do not have package-type sales, and we expect the sales force to go out as professional representatives, recommending in each case what is in the best interest of the customer.

MR. HENRY F. ROOD: Won't the relative commission scales on the life insurance and the mutual funds have quite an effect on sales?

MR. HAASE: At one time we thought that the relative commission scale would have quite an effect. Face-amount certificates carried a 30 per cent first-year commission rate, whereas life insurance had a 60 per cent first-year rate. Everybody felt that our men would go out and sell nothing but life insurance. It did not work out that way. In our experience, a higher commission scale on one product is not in itself an incentive for the agent to sell it to the exclusion of another product.

CHAIRMAN MACGREGOR: A question has been asked from the floor: Are the billings covering mutual funds and life insurance combined, or are they completely separate?

MR. HAASE: Since life insurance sales are not tied in with mutual fund sales, we offer combined billing as a service, which is not extensively used. This is a recent innovation for us. A number of technical and legal problems had to be solved. For example, if the customer does not remit the exact amount billed, our notice indicates the priority of the application of his money. The first dollars will go into life insurance, and, if the balance is not enough to meet the payment on the investment plan, it will be refunded.

MR. DONALD S. GRUBBS: In trying to sort out the wide variety of policy provisions involved in equity-linked life insurance, I found it helpful to split them into two types. In one, the total amount of insurance, the reserves, the cash values, and the premiums were all unit-related so that everything, instead of being based on dollars, is based on units. The other looks at any insurance policy as being a combination of increasing reserve and decreasing term insurance. It is only the increasing reserve that varies with the market value and is invested in equities.

One insurance company in the United States offered a product directly related to the cost of living. In addition to the regular premium for ordinary life, an additional amount was deposited in a fund. This additional amount was applied to purchase one-year term insurance, so that the total death benefit would be increased in proportion to the consumer price index. The rate of purchase was guaranteed, but the company did not guarantee that there would be enough in the fund to keep up with the cost of living.

The need for equity life insurance is based on the idea that the dollars paid out under a fixed-dollar insurance plan decrease in real value and thus, in reality, we have decreasing insurance. Perhaps this meets the needs of most people who, as their families are being raised, the children get through college, and the mortgage is paid off, have a decreasing need for insurance.

Dividends left to accumulate and dividends applied to purchase additional insurance provide an increasing death benefit that tends to overcome the problem of inflation.

MR. GILBERT W. FITZHUGH: Mention was made of the decline in the share of the savings dollars that life insurance companies are getting. It is easy to jump to the conclusion that this is because the life companies

do not have equity investments. It should be pointed out that much of the loss is to other forms of fixed-dollar investments, for example, savings and loan, who have been doing quite well. Perhaps the reason for the decline is that we should do a much better job.

One reason that stocks go up is the leverage that they get from bonds. The leverage depends on the percentage of the bonds to the equity. What is going to happen to the leverage if everybody goes into stocks and if people believe that stocks are the only hedge against inflation, so that no one should buy fixed securities?

The home-building industry in the United States is one of our most vigorous businesses. Owning one's home is one of the bulwarks of the economy. Who can buy a home if he cannot find someone to give him a mortgage? If people are convinced that fixed-dollar investments are not desirable, who is going to buy the mortgages to make it possible for people to build their own homes?

CHAIRMAN MACGREGOR: In connection with the comment that other fixed-dollar savings institutions have perhaps done a better job than the life insurance business, I can give a few figures relating to Canada that may be helpful. In the last ten years, comparing 1956 with 1966, savings deposits in the chartered banks have nearly doubled, the assets in Canada of all life insurance companies (including British and foreign) have doubled, shares and deposits in credit unions have trebled, trusteed pension fund assets have quadrupled, personal savings in trust companies have increased sixfold, and mutual funds have increased about nine or ten times.

MR. CHARLES F. B. RICHARDSON: One of the large companies in South Africa has had an interesting practice for the past ten or fifteen years with respect to dividends. The policyholder may elect to have them put into a separate fund and invested purely in stocks. It has been quite successful with 80–85 per cent of the policyholders electing this option.

The questions that we are discussing have led to legislation permitting variable annuities and separate accounts, at present limited to group pensions. If these are sound, would not the same arguments and considerations be equally valid if applied to individual purchases? If so, is there anything sinful or wrong with letting people have what they want?

MR. GUERTIN: I believe that the SEC exemption rule is based on the theory that group contracts, for instance, are sold to sophisticated people and that the average individual policyholder is too unsophisticated to understand what is being sold to him in an individual contract. If such

contracts are sound, I believe that they should be permitted on an individual policy basis, as well as on the group policy basis, but only under proper control.

MR. ROBIN B. LECKIE: Life insurance linked to investments or to the cost of living is an intriguing concept. It will be tempting for the life companies to nibble at such palatable products in an effort to provide more glamorous coverage with the hope of recapturing a greater share of the savings dollar. Conventional life insurance has been defended for years on the basis of its guaranteed values, but of what value are guarantees when quoted in terms of dollars, an unguaranteed quantity relative to purchasing power?

Many of the arguments in favor of linked insurance are more in the nature of criticisms of conventional insurance. For example, the criticism of "dear dollars" for "cheap dollars" is made against life insurance. How valid is it? After eliminating the effects of United States federal income tax and on the basis of the experience of the past fifteen years, we find that the rise in policy dividends due to the rise in interest rates has offset to a considerable extent the inflation of the period. Current interest rates reflect approximately the degree of future inflation that current lenders expect. Thus, through what might be called the inflation element of the interest rate, the insured gets his insurance at a lower cost than he otherwise could.

Disadvantages and problems of equity insurance contracts are set forth in the following paragraphs.

1. *Trust in currency.*—Even during periods of inflation the public has a general understanding and trust in the currency of the country. It realizes that inflation may be cutting into the value of the dollar; however, it normally accepts this and, so far as life insurance is concerned, tries to replace the reduced coverage with more insurance. Thus, during the past fifteen years, life insurance in force has grown at the fastest rate in history, despite inflation.

2. *Sales presentation.*—A tremendous problem exists as to how an unguaranteed or noncurrency product should be presented and sold to the public. Will agents understand and properly present to the public the difference between variable products and the traditional guarantees of conventional insurance? Will companies be forced into unsound practices in order to appear competitive? Will a presentation in terms of a nondollar policy appear to be an admission of lack of faith in the country's currency?

3. *Differences in yield.*—The average dividend return on listed stocks in the United States declined to a thirty-year low of under 3 per cent in

1964 and remained under 3 per cent until early 1966. The yield has increased almost 1 per cent since then to 3.82 per cent for the week ending October 21, 1966. At the same time, AAA Industrial Bonds have been rising and were 4.75 per cent in February of 1966 and are now 5.4 per cent. Mortgage loans yield from 6 to 6.75 per cent. Thus, the spread between common stocks, on the one hand, and bonds and mortgages, on the other, is about 2 per cent. It is necessary to have an annual appreciation in equities of 2 per cent or more just to break even with fixed-dollar investments, before any gains can be achieved for policyholders investing in equity-type contracts.

4. *Investment problems.*—A widespread move by institutional savers into the equity market is likely to push up stock prices and reduce the amount of money available for fixed-dollar investments. As a result, the differential in yields would likely widen, making it even more difficult to achieve ultimate success in an equity program. Could an investment department of a life insurance company service with equal diligence the needs of the dollar policyholders and the nondollar policyholders?

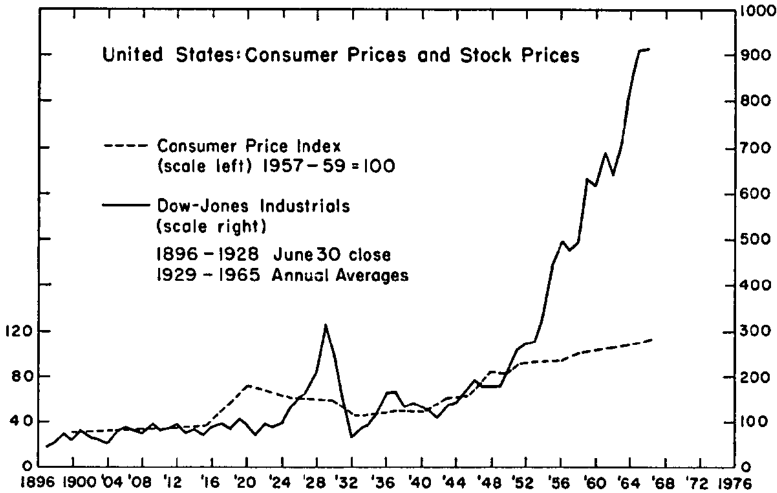
5. *Policy values and administration.*—There is a whole host of administrative problems involving premiums, policy values, units, separate accounts, and so forth, and the expense of operation would no doubt be greater than it would be for ordinary guaranteed products.

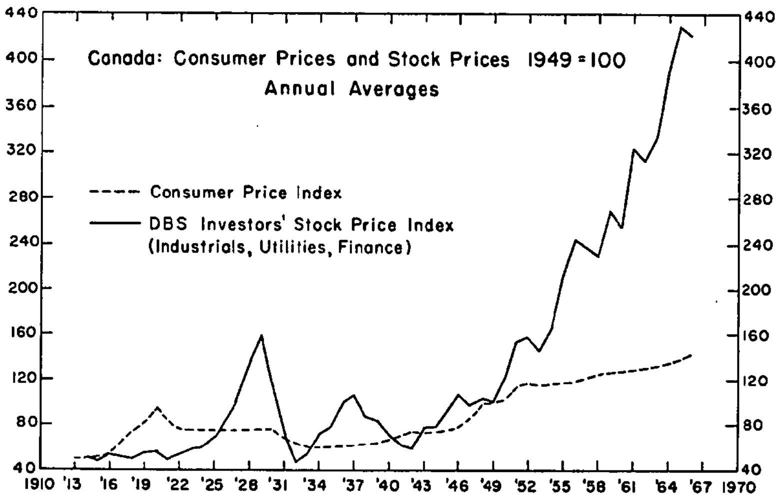
6. *Market values v. cost of living.*—If equity contracts were sold to offset the increasing cost of living, the policyholders would expect the ultimate results to be at least as good as the higher of the published market indices and the cost-of-living index. Even assuming that the company investment experience is satisfactory, there is no reason to believe that equity prices will move in the same degree or even in the same direction as the cost of living, and it is the latter which affects the lives of most of us. Equity values are measured in terms of asset values and projected earnings. Fixed assets are usually wearing out and require replacement which will be at a higher cost during periods of inflation. Earnings depend on profit margins which are affected adversely by higher costs, higher wages, higher taxation, and increasing government control. It is a bit dangerous to use the experience of the past twenty years to insist on a correlation between market values and the cost of living, and the experience of the past six months in the United States and the past three years in Europe bears this out.

7. *Government control.*—Market results are not solely within the control of the laws of supply and demand. Government actions through monetary controls and taxation can influence future results to a considerable extent. The insurance companies could be blamed by the industrialists and the public, if further government restrictions are placed on

dividend profits in order either to discourage the companies' increasing influence in the private economy or to encourage investment in fixed securities, particularly federal and state issues.

CHAIRMAN MACGREGOR: I have two charts. One reflects a comparison in the United States between consumer prices and Dow-Jones Industrial stock prices back to about 1900. The other compares for Canada the consumer price index and the stock price index as compiled by the Dominion Bureau of Statistics. The two charts are almost identical. In





each case, there is a high degree of correlation between the consumer price index and the stock price index up to 1949, after which they part company.

MR. JOHN W. KROEKER: People are buying mutual funds at a great rate in Canada now and will continue to do so. People cannot be protected from buying securities, since they can get them from any broker. Mutual funds are another form of investing in equities.

The responsible and intelligent life insurance salesman will find that he can provide a better service to his clients if he can make mutual funds available to them. The four-cornerstone approach mentioned by Mr. Haase appeals to me.

The Canada pension plan has stimulated a tremendous amount of interest in pensions in general. A great deal of pension business has been sold on the wave of this forced publicity. The benefits under the Canada pension plan are related to the cost of living. This can be considered, on the one hand, as being a tremendous benefit from the government, or, on the other hand, you could say that the government is abdicating its responsibility for maintaining a sound currency. CPP aims to cover 25 per cent of the retirement pension with a cost-of-living factor. The additional 75 per cent is still left naked. Equities and mutual funds may not be the entire solution to this problem, but they are the best solution presented so far. There are many implications in this cost-of-living feature that deserve serious consideration by the Canadian insurance industry.