

DIGEST OF DISCUSSION AT CONCURRENT SESSIONS

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UNITED STATES FEDERAL INCOME TAX

- I. Status of current audits and controversies, including issues being raised involving the definition and computation of
  - A. Life insurance reserves;
  - B. Asset values; and
  - C. Allowable deductions for investment expenses and gain and loss items.

II. Taxation of separate accounts.

III. Problems in allocation of tax.

MR. JAMES F. REISKYTL: Several issues under the 1959 Life Insurance Company Income Tax Act are being litigated. The three court decisions that were announced during the past year indicate the current status of some of the controversies between the life insurance companies and the government. (Note: Earlier court decisions were reviewed at the regional meetings a year ago.)

*The Franklin Life case.*—In March, the United States Supreme Court refused to review the Seventh Circuit Court of Appeals decision involving the Franklin Life Insurance Company. As a result, it appears that a conflict will have to develop between the courts of appeal before the Supreme Court will review the issues involved in this case.

Earlier, the court of appeals had held that (1) deferred and uncollected premiums are to be included in premium income (Phase II) and assets (Phase I) on a gross basis (i.e., including loading); (2) unearned investment income from policyholder loans is includable in investment income and in assets for purposes of Phase I. This reversed the earlier favorable district court decision.

*The Jefferson Standard case.*—This case was decided by the Fourth Circuit Court of Appeals in March. The issues, which included the four of the Franklin case, were generally decided in favor of the government. The court ruled that:

1. The gross amount of deferred and uncollected premiums, including loading, is to be included in assets, and the increase in loading on deferred and uncollected premiums cannot be deducted from income in Phase II. (Affirmed district court on both issues.)
2. As in the Franklin case, the full amount of policy loan interest actually received is included in investment income, and the full amount of interest added to policy loan principal is included in assets. (Affirmed district court.)

3. Agents' debit balances are included in assets for purposes of Phase I. (Affirmed district court.)
4. Charitable contributions are not general expenses; they are not allocable to investment expenses. (Reversed district court.)
5. In the year of reserve strengthening, the 10 per cent alternative deduction for nonparticipating contracts (Phase II) applies to the full amount of the reserve strengthening (and not just one-tenth of the strengthening). (Affirmed district court.)
6. Life insurance companies filing consolidated income tax returns are subject to additional 2 per cent tax. (Affirmed.)
7. The consolidated taxable income was not properly determined. (Reversed.)
8. The amount held for the Branch Office Managers Supplemental Retirement Plans was not a "life insurance reserve." (Affirmed.)

*The Western National Life Insurance of Texas case.*—Unlike the two previous cases, the United States Tax Court in the Western National case held, in its modified opinion announced in February, that deferred and uncollected premiums and due and unpaid premiums are to be included in assets on a net, rather than a gross, basis.

#### LIFE INSURANCE RESERVES

Let us now consider some of the issues being raised involving the definition and computation of life insurance reserves. The term "life insurance reserves" is defined in Section 801(b) as "Amounts

- a) which are computed or estimated on the basis of recognized mortality or morbidity tables and assumed rates of interest; and
- b) which are set aside to mature or liquidate, either by payment or reinsurance, future unaccrued claims arising from life insurance, annuity, and noncancelable health and accident insurance contracts (including life insurance or annuity contracts combined with noncancellable health and accident insurance) involving, at the time with respect to which the reserve is computed, life, health, or accident contingencies;" and
- c) which, except as otherwise provided, are required by law.

It is advantageous to qualify a reserve as a "life insurance reserve" since, generally, increasing the amount of life insurance reserves will decrease the company's tax liability. In the Phase I computation, increasing the amount of life insurance reserves increases the policy and other contract liability requirements, which reduces the amount of taxable investment income. Increasing the reserves also reduces the gain from operations tax base, since the deduction for the increases in reserves will be larger. The amount of life insurance reserves also determines whether a company will be taxed as a life insurance company.

There were two recent revenue rulings involving life insurance reserves. Ruling 68-441 held that reserves computed on the basis of gross premiums did not qualify as "life insurance reserves," since these reserves were not actuarially computed. This involved an insurance company which only reinsured credit life insurance contracts. The reserves were computed as 50 per cent of gross premiums earned each month. Ruling 69-7 held that a life insurance company could not include as part of its life insurance reserves any amounts attributable to the risks under its guaranteed renewable accident and health policies that were reinsured. This involved a life insurance company which reinsured, on a one-year-term basis, all the risk on some of its guaranteed renewable accident and health policies. Since the obligation to renew the coverage was not affected by the reinsurance agreement, the issuing company's life insurance reserves for these contracts were limited to the amounts necessary to cover this obligation. This is similar to the situation of a reinsured life insurance contract in which only the insurance protection risk is reinsured. The reinsurer holds the reserve for the portion reinsured, and the balance is held by the issuing company. There are several issues being raised.

1. *Substandard life insurance reserves.*—Some IRS agents are contending that the additional substandard reserve is an unearned premium reserved under Section 810(c)(2) earned ratably. This additional reserve does not qualify as a "life insurance reserve," because there is no recognized mortality table for this factor and the risk is based on medical judgment. The reserve of the basic policy is allowed.

If the substandard life insurance reserve is estimated as a percentage of the basic policy reserve, the IRS agent may refer to Revenue Ruling 67-435, which held that a reserve that "is computed as a percentage of life insurance reserves which a life insurance company is required to maintain pursuant to a State statute, in addition to its recognized life insurance reserves, is not a life insurance reserve within meaning of Section 801(b) of the Internal Revenue Code." This involved a contingency reserve which could only be used to cover adverse mortality and/or asset fluctuations which were in excess of specified amounts. This reserve was not computed on the basis of a recognized mortality table, nor was any assumed interest rate involved. It appears that this may become an industry-wide issue.

2. *Reserve for disabled lives.*—The issue is whether the reserves for disabled lives are life insurance reserves or unpaid claims.

The contention of the Internal Revenue Service is that, since the liability already exists, the reserves for disabled lives are not held with respect to future unaccrued claims. Therefore, these reserves do not qualify as

“life insurance reserves,” and they should be treated as death benefits and so forth (Sec. 809[d][1]). Proper adjustment should be made in the beginning-of-the-year and the end-of-the-year amounts of unpaid losses.

Reference may be made to the *United Benefit Life Insurance Company vs. McCrory* (1965), in which the court ruled that reserves set aside for the payment of permanent and total disability claims under accident and health policies were not entitled to be considered as life insurance reserves within the meaning of Code Section 801(b). However, the reason the reserves did not qualify in this case was that they did not arise from non-cancellable health and accident insurance contracts.

3. *Reserves for a life insurance company's nonqualified pension plan.*—The United States Court of Appeals affirmed the district court's conclusion that the reserves on Jefferson Standard's Branch Office Managers Supplemental Retirement Plan did not qualify as “life insurance reserves.” The annuity benefits under this nonqualified plan were forfeitable.

The court stated that “the basic concept of the Act [is] that only amounts irrevocably put aside to meet certain future obligations to life insurance policyholders and the earnings thereon necessary to augment the reserves for that purpose, should be rendered tax free. Unlike a true life insurance reserve, unilaterally the taxpayer may terminate the employee relationship and the purported benefit has no cash surrender value.”

Bill Harman reported at the New York regional meeting that very few reserve questions were raised on the earlier audits covering approximately 1958–62. In subsequent audits, reserve questions are beginning to appear with increased frequency.

#### ASSET VALUES

Section 805(b)(4) defines the term “assets” in the following words:

All assets of the company (including nonadmitted assets) other than real and personal property (excluding money) used by it in carrying on an insurance trade or business. For purposes of this paragraph, the amount attributable to

- a) real property and stock shall be the fair market value thereof,
- b) any other asset shall be the adjusted basis (determined without regard to fair market value on December 31, 1958) of such asset for purposes of determining gain on sale or other disposition.

The regulations specify that the only items to be excluded from the term “assets” as being considered “used by the life insurance company in carrying on an insurance trade or business” are the following:

- (1) the home office and branch office buildings (including land) owned and occupied by the life insurance company;
- (2) furniture and equipment owned by the life insurance company and used in the home office and branch office buildings . . . ;
- (3) supplies, stationery, and printed matter used in the operations conducted in the home office and branch office buildings occupied by the life insurance company . . . ; and
- (4) automobiles and other depreciable personal property used in connection with the operations conducted in the home office and branch office buildings. . . ."

Some life insurance companies have contended that agents' debit balances and deferred and uncollected premiums should also be excluded.

"Money," as defined by the regulations, includes cash, currency, and bank deposits. Some life insurance companies contend that bank deposits should be excluded.

It is important for the assets not to be overstated in determining taxable investment income. If the assets are improperly increased, the earnings rate (which is the ratio of investment income to assets) will be lower, the policyholders' share of investment income will be reduced, and the company's taxable investment income will be increased.

*Agents' debit balances.*—The courts have ruled in the Jefferson Standard case and the Western National Life case that agents' debit balances were includable in assets as defined in Section 805(b)(4).

The tax court in Western National Life's case concluded that the IRS regulation, which specified the only excludable items, was not an arbitrary or unreasonable interpretation of the statute.

*Deferred and uncollected premiums.*—There are at least twenty court cases pending involving this issue. The IRS contends that deferred and uncollected premiums, including loading, are includable as assets in Phase I. The insurance companies contend that loading should not be included. The courts of appeal have ruled that the gross amount of deferred and uncollected premiums, including loading, is to be included in assets in the Franklin Life case and in the Jefferson Standard case. These holdings are inconsistent with the tax court decision in the Western National Life Insurance Company of Texas case. The court held that the loading portion of these premiums is not a Section 805 asset. This was a modification of the original opinion, which had excluded the net premiums and the loading.

The ALC-LIAA filed a supplemental brief in this case which answered two questions:

1. Would the allowance of loading on deferred and uncollected premiums on life insurance contracts, as either an offset or a deduction, result in a "double deduction" for a life insurance company?

(No; rather, if not allowed, the life company's income is overstated.)

2. Would including deferred and uncollected premiums on a net, rather than a gross, basis in assets distort the investment income formula or discriminate against a company that does not have any of these premiums?

(It neither distorts nor discriminates.)

Since the Supreme Court has denied the Franklin's Petition for Certiorari, the prospects appear somewhat dim, unless the Occidental Life can get a favorable decision in its case.

*Prepaid interest on loans to policyholders.*—The court of appeals, in the Franklin Life case, ruled that the full amount of interest added to principal had to be included as an asset in Phase I. Franklin's policy loan agreements provided that interest was to be paid in advance at the time of the loan to the end of the current policy year and annually thereafter on the anniversary for the ensuing year. Interest not paid when due was added to principal. The district court had concluded that only the portion of interest added to principal deemed earned in the taxable year was to be included in "assets."

*Allowable deductions for investment expenses* (Sec. 804[c][1]).— "Investment expenses" are those expenses of the taxable year which are fairly chargeable against gross investment income. Section 804(c)(1) states: "If any general expenses are in part assigned to or included in the investment expenses, the total deduction shall not exceed [a specified limitation]." The regulations define "general expenses" as "Any expense paid or incurred for the benefit of more than one department of the company . . ." (1.804-4[b][ii]).

A private ruling held that "Salaries of those employed by the life insurance company exclusively in looking after investments, including mortgage loans and real property, and the investment expenses involved in the acquisition of those assets are deductible under Sec. 804(c)(1)." The IRS agent had contended that these expenses should be capitalized.

*Charitable contributions.*—Some IRS agents contend that charitable contributions should only be deducted in Phase II, since Section 804(c)(1) does not specify a charitable contributions deduction. The insurance companies contend that a charitable contribution is a "general expense." Before the 1959 Act, an allocable portion of charitable contributions was deductible in computing net investment income for income tax purposes, and Congress used the same language in the 1959 Act. The court of appeals in the Jefferson Standard case held that charitable contributions are not includable as general expenses that may be assigned to investment expenses. (Reversed district court.)

## GAIN AND LOSS DEDUCTIONS

1. *Section 809(d)(5) deduction for certain nonparticipating contracts.*—In the Jefferson Standard case, the court held that in the year of strengthening, the 10 per cent alternative deduction applies to the full amount of the increase in reserves, including any portion that resulted from reserve strengthening.

2. *Increase in loading on deferred and uncollected premiums.*—The IRS contends that the increase in loading on deferred and uncollected premiums is not deductible in Phase II because there is no provision for such an offset or deduction. In both the Jefferson Standard and the Franklin Life cases, the courts of appeal have ruled in favor of the government. This was not an issue in the Western National Life case.

MR. THURSTON P. FARMER, JR.: What have been the results of company audits regarding disabled life reserves? Has the IRS been throwing out all the disabled life reserves, including those on ordinary insurance, or only those on the cancellable accident and health insurance?

MR. JOHN S. PEARSON, JR.: The field auditor has disallowed disabled life reserves in his audit of Midwestern United's returns for the years 1962–65. For these years the controversy involves only those benefits included as part of a life insurance contract (waiver of premium and monthly income disability), so that the waters are not muddied by the cancellable-noncancellable question.

Apparently the contention is that these reserves are "unpaid losses (whether or not ascertained)" which are excluded from reserves per Treasury Regulation 1.801-4(e)(3).

MR. J. HERMAN STEPHENSON: In our present audit, the Internal Revenue Service removed the reserves for disabled lives from our life insurance reserves and included them as benefits, with the following explanation:

Inasmuch as these reserves are not set aside to mature or liquidate *future unaccrued* claims as required by Sec. 801(b)(1)(B) IRC, but rather to provide for payments under *approved* disability claims which have been *incurred* and *accrued*, they do not meet the definition of life reserves.

This question was argued in the case of *United Benefit Life Insurance Company vs. McCrory*, and it was established that the reserves were for future unaccrued claims, but IRS conceded the point "for the purposes of this case only."

MR. LOWELL M. DORN: New York Life has presented the matter of disabled life reserves under life insurance and annuity policies to the IRS, to seek a favorable ruling on their treatment as "life insurance reserves" for tax purposes. The LIAA had been hopeful that a favorable ruling could be secured. The same question has been ruled on by the United States Supreme Court in earlier decisions under prior tax laws, and we believe that the position of the companies is correct.

Material has been filed with the IRS, and exploratory conversations have been held with them. We cannot yet say when a decision may be expected.

MR. JOHN M. BOERMEESTER: Some companies may be victims of their own casual valuation procedures if they claim as reserves amounts which are based on empirical assumptions without any analysis of support in terms of specific mortality, morbidity, or interest factors. For example, merely setting up 75 per cent of the sum insured in the case of a group life waiver of disability claim would not, in my opinion, be appropriate unless proper disabled life functions were analyzed for a model office valuation. Another example would involve a reserve established for temporary annuities payable to widows of insured lives.

CHAIRMAN DALE R. GUSTAFSON: Companies have been doing this in the past but are now either considering or actually changing their methods of computing the reserve. Does anyone have any information on this point?

MR. ARTHUR E. TELER: The 75 per cent reserve for group disability waiver has a basis in recognized mortality tables and interest. If, in the Annual Statement and in the FIT return, the source rather than the factor was stressed, this reserve would be more acceptable. For example, the author in the development of the Commissioners 1960 Standard Group Table at 3 per cent (see *TSA*, XII, 589) states that "an approved waiver of premium disability claim is taken to be equivalent in value to 75 per cent of a death claim." That is the amount that has to go into reserves to implement the claim charge. Instead of stating this reserve as based on 75 per cent of the face amount, you could strengthen your position if you would list it as based on the 1960 CSG at 3 per cent, even though the *factor* is 75 per cent.

MR. STANLEY L. OLDS: We cannot be too empirical about this. Examine a group annuity table for disabled life reserves; it simply does not



make sense when anybody looks at it. In other words, you might use an approximation with the group annuity table, but, to be realistic, you are dealing with disabled lives and should therefore have a disabled life table. You must get down to brass tacks and present sound arguments if you want the IRS to consider your reserves as life reserves.

**MRS. MA. ROSARIO S. RODOLFO:** As a result of the preliminary un-official reports from the IRS agents for the years 1958-61, several questions have been raised on reserve issues. Has anyone any experience regarding a reserve basis for annuities and supplementary contracts on a rated-down basis for males and on a rated-down basis of more than five years for females?

**MR. MICHAEL J. COWELL:** Although we at State Mutual have not had any problem with the use of modified (i.e., age rated back) annuity tables as a basis for computing life insurance reserves, one agent has raised a closely related question. In relation to qualified retirement income plans issued on our 1941 C.S.O. policy series (which are reserved on the 1941 C.S.O. table at  $2\frac{1}{2}$  per cent interest, N.L.P. through retirement [maturity], and thereafter on the 1937 Standard Annuity Table at  $2\frac{1}{2}$  per cent), we have had a question raised with regard to the use of life insurance tables (i.e., 1941 C.S.O.) in computing pension plan reserves. (This question could also be raised with respect to pension business issued on our current series and valued through maturity on the 1958 C.S.O., but so far the issue relates strictly to our 1941 C.S.O. block issued from 1948-64.) Our tax counsel approached us with a request to provide an "actuarial" explanation of the use of mortality tables in computing reserves.

Section 801(b) of the law defines life insurance reserves as "Amounts (a) which are computed or estimated on the basis of recognized mortality or morbidity tables and assumed rates of interest." The argument at this point, then, seems to hinge on the word "recognized." Recognized by whom? By the actuaries computing the reserves or by the IRS? As we pointed out to our tax counsel, there would be no natural limitation against using the C.S.O. tables to value annuity benefits or against the use of standard annuity, or any other annuity tables, in valuing life insurance benefits; in other words, there is nothing to support the contention that the mere nomenclature of any table should limit its application. We further explained that our employment of the 1941 C.S.O. Table to value a retirement income policy during the period that a death benefit element was present was totally in keeping with the recognized actuarial practice of combining more than one mortality or morbidity table to calculate

values for benefits which could be occasioned upon more than one contingency. This argument, in essence, is included in our tax counsel's request to the IRS for technical advice on this and other tax matters.

MR. FARMER: Although for regulatory purposes a separate account is deemed to be an investment company and is subject to regulation by the SEC unless the SEC has exempted it, for federal income tax purposes it is taxed as a part of the life insurance company, not as a regulated investment company. The rules for taxation of separate accounts, or segregated asset accounts, as the term is used in the tax code and regulations, are in Section 801(g) of the Internal Revenue Code and Section 1.801-8 of the regulations issued thereunder.

In defining a life insurance reserve, the code requires that a reserve must meet several conditions. One of these is that it be based on an assumed interest rate. Obviously a variable annuity or other separate account contract does not meet this test. The code provides, however, that the reflection of investment return and market value of the segregated asset account will be deemed to meet the "assumed interest rate" condition. Thus, if other conditions are met, reserves in the segregated asset account are classified as life insurance reserves.

A company must account separately for various income, exclusion, deduction, asset, reserve, and other liability items for the segregated asset accounts and the general account. If, for the company as a whole, the net short-term capital gain exceeds the net long-term capital loss, the excess is allocated between the segregated asset accounts and the general account in the proportion that each contributed to it. As a result of this provision it is possible that the character of the net capital gains in one account, which would be short term if that account were a separate company, may be transformed to long term. A similar transformation from long term to short term is also possible. Except for this possible transformation of capital gains, the policy and other contract liability requirements and the life insurance company's share of investment yield are computed separately for the segregated asset accounts and the general account. Thus, in effect, separate Phase I and Phase II amounts of taxable income are determined for the segregated asset accounts and for the general account, except that one \$25,000 limit applies to the small business deduction for the company as a whole and there is one limit for dividends to policyholders. After the Phase I and Phase II amounts are determined separately, they are combined for the company as a whole and the combined results are used to determine taxable income. As an example, a segregated asset account may have an excess of net gain from operations over taxable

investment income, but the total company income may result in a taxable income equal to Phase I less \$250,000.

Capital gains on assets held with respect to pension plan reserves in the segregated asset account are not taxed. This is achieved by increasing or decreasing the basis of such assets by the amount of any appreciation or depreciation in value. Thus, when such an asset is sold or exchanged, no capital gain is recognized because the basis has been adjusted to the selling price. There is no such adjustment in the basis of nonpension plan assets.

In the general account, several interest rates are used to apportion the investment yield into the company's and the policyholders' shares. These are current earnings rate; the average earnings rate; the adjusted reserves rate, which is the lower of the latter two rates; and the rate of interest assumed on reserves. In a segregated asset account all of these rates are equal to one another and are determined as the current earnings rate is ordinarily determined, reduced by a fraction whose numerator is the amount retained with respect to such reserves from gross investment income on segregated asset accounts less the deductions allowed in determining investment yield and whose denominator is the mean of such reserves. The effect of these provisions is that the only part of investment income earned on reserves in a segregated asset account which flows through as Phase I income is the amount retained from gross investment income less actual investment expense. On the other hand, all the investment income on surplus in a segregated asset account flows through as Phase I income. In both cases, however, these amounts are reduced by any deductions for dividends received and tax-exempt interest. Most of the investment income in a segregated asset account is usually dividend income, so that the dividends-received deduction is of primary importance.

In the determination of investment yield and from it the current earnings rate, recognized short-term capital gains are included, but recognized long-term capital gains are not included. Long-term capital gains are included separately in the Phase I calculation. Since the deduction for policy and other contract liability requirements in a segregated asset account is determined from the current earnings rate, recognized short-term capital gains result in a Phase I deduction equal to the amount included in income. On the other hand, recognized long-term capital gains increase Phase I income directly. Remember that capital gains are recognized only on nonpension plan assets. However, on these assets short-term capital gains will result in a lower Phase I income than long-term capital gains. Some companies may find it advantageous to turn over assets to have short-term capital gains, but, in doing so, it is necessary to consider

capital gains in the general account because of the possible transformation described earlier.

In the determination of taxable net gain from operations, the deduction for increase in reserves is determined after excluding amounts of increase or decrease due to realized and unrealized capital gains. All unrealized capital gains or losses are, of course, not taken into account in the determination of income. Also, realized capital gains and losses on pension plan assets are not recognized. However, realized capital gains on non-pension assets, both short-term and long-term, are included in Phase II income with no corresponding deduction, even though such amounts have been added to policy reserves. Phase II net income also includes all loadings retained from gross investment income and from premiums or other sources, less the usual Phase II deductions, and it includes investment income from any surplus in the segregated asset account. The investment income, other than that credited to policy reserves, is subject to a deduction for dividends received. Segregated asset accounts are not restricted to equity investments. Fixed-dollar pension plan assets may be placed in a separate account. The only Phase I income would be from net investment income on surplus in the segregated asset account and from any excess of the amount retained from gross investment income less investment expenses. The Phase II income under this arrangement would be the actual net gain from operations, and it would exclude realized capital gains. When the same pension funds are in the general account, there is a higher Phase I tax if the current earnings rate on all assets is lower than the rate actually credited to policy reserves. Currently this is usually the case. The difference in Phase II is that there is no exclusion of capital gains on pension assets when they are in the general account.

Many issues have been raised under the Life Insurance Company Income Tax Act of 1959. Some of these have been resolved. Even on the unresolved issues the lines are pretty clearly drawn between the IRS's and the companies' positions. Not many such issues have been raised, however, with respect to taxation of segregated asset accounts, or, if raised, they have not yet been formalized. Segregated asset accounts are still relatively new. Probably we can look forward to some differences of interpretation between the IRS and many companies.

One possible problem area arises because of the method of exempting from tax-realized capital gains on pension plans assets. The code provides for an adjustment in basis, equal to the appreciation or depreciation in value. While this handles the problem adequately for the usual sale or exchange of assets, there is some question whether the language used in the code adequately handles capital gains distributions from mutual fund

shares. This question is of vital importance to companies whose separate accounts are unit investment trusts investing solely in a mutual fund.

Another problem area may be what are "amounts withheld from gross investment income." This amount less investment expense comprises the bulk of Phase I income. Variable annuities usually have a loading, which is a percentage of the policy value. Some companies identify part of this as a charge for investment expense and another part as a charge for making mortality and expense guarantees. Is the total charge an "amount withheld from gross investment income," or is such only the part identified as being for investment expenses?

To date, few, if any, life insurance companies in this country have issued variable life insurance policies, but there is interest in such benefits when authority to issue them is clarified. In this regard, it is interesting to note that Section 801(g) defines a "contract with reserves based on segregated asset accounts" as a contract (1) which provides for the allocation of all or part of amounts received to an account which is segregated from the general asset accounts of the company and (2) under which the amounts paid in or the amount paid as annuities reflect the investment return and the market value of the segregated asset account. The regulations add one more condition and require that such contracts be ones which provide for the payment of annuities. Variable life insurance would seem to fall outside the scope of Section 801(g) because of this additional condition stated in the regulations. If variable life insurance comes to pass, some companies may challenge this additional condition in the regulations as an improper extension of the code.

MR. RICHARD J. SHIMA: An interesting situation can develop when gain from operations of the segregated asset account exceeds taxable investment income of that account, but gain from operations in the general (nonsegregated) account of the company is smaller than the taxable investment income in the general account. In this case, when the taxable investment incomes in the two accounts are combined and the gains from operations in the two accounts are combined, the question arises whether or not the amount of contingent deductions allowed (under Sec. 809(f)) in the general account should be affected by the segregated asset account. I do not think that the Internal Revenue Service has focused on this question as yet, and perhaps it is not of major importance for most companies. I raise it only as a point of interest and as an example of the areas in which segregated asset account taxation is still very unclear.

MRS. RODOLFO: One of the few categorical statements that can be made regarding federal income tax allocation by line of business is that there is no universally satisfactory method of allocation.

The subject is not really controversial, however, in the way in which the first two topics on the program are. Not many, outside management, care how federal income tax is allocated. The IRS does not. An exception might be the state insurance office for a stock company writing both participating and nonparticipating business. And individuals in management responsible for profit in the various lines may consider it a crucial question. The dollars-and-cents implications for the total company of an allocation method are not as direct as those of either of the other subjects discussed earlier. Certainly an allocation method may mean dollars and cents through its effects on the dividend scale, premium rates, and interest paid on dividend and premium deposits, deposit administration funds, and other interest-bearing funds.

It seems generally agreed that federal income tax may be allocated by use of either the combined-company or the separate-company approach. Under the combined-company approach, each line of business shares in the tax burden according to the tax situation of the company as a whole, regardless of the tax situation the line would be in if taxed as a separate company. In the other approach, the share of a line in the total tax reflects that line's tax situation as a separate company. Two problems are inherent in the separate-company approach:

1. Allocations to the various lines generally will not add up to the total company tax, and the difference has to be further allocated. Some difference results from algebraic operations; for example, the use of different earnings rates for nonparticipating and participating classes of business; this part is easily allocated in proportion to some base. The more important difference arises because the lines as separate companies are not always in the same tax situation as the total company. Should this difference be shared by all lines, or should it be charged to its source?

2. The allocation to a particular line may vary widely from year to year because of a change in the situation of some other line, even when the results of the first line have remained virtually unchanged.

Within these two general approaches is a variety of methods ranging from the simplified to the sophisticated. Companies may use one of the following methods:

1. Federal income tax may be allocated in simple proportion to mean reserves, mean liabilities, or mean funds or in proportion to net investment income or net gain from operations before federal income tax. It may be said that the method based upon mean reserves, liabilities, or funds ignores the law com-

pletely and that the investment income or gain method reflects the law only a little better, since it does not recognize the greater credits available for certain lines—qualified pension business, for example.

2. Tax may be allocated on a combined-company approach by the use of Mr. Fraser's marginal rates. This would involve allocating each of the situation A, B, C, or D variables to the various lines. Proportionate allocation, using some base such as net investment income, may be viewed as a special modification of the use of marginal rates; that is, a modification that assumes that each of the variables is allocated among the various lines of business in the same ratio as that line's mean reserves, mean liabilities, mean funds, net investment income, or net gain from operations bears to the corresponding total-company variable.

3. Allocation may be based only on the Phase I tax base or only on the Phase II tax base. This may be either a separate- or a combined-company approach, depending on the company's actual situation.

4. Finally, a separate-company approach may consider both Phase I and Phase II income. In effect, a return would be completed for each of the various lines separately.

Continental Assurance Company uses the last method. We write all classes of business—ordinary life and health, group term, permanent, and health. With the exception of group health, each class may be either participating or nonparticipating.

As far as we know, we have been a Phase I company since 1958. The uncertainty results from the fact that all tax years from 1958 are still open. Since 1963 both participating and nonparticipating classes also have been Phase I, although within each class one or more lines may be Phase II. We expect this situation to continue indefinitely. Prior to 1963 the nonparticipating class was Phase II.

The first step in our allocation is the calculation of Phase I and Phase II tax bases for each major line of business. The Phase II base for all lines is after *all* special deductions. Since the limitation is not operative for lines in Phase II, it is made inoperative for Phase I lines as well.

An initial split is made between the total participating class and the total nonparticipating class. The classes are taxed according to their tax situations as separate companies; however, any difference between the sum of the participating and the nonparticipating allocations and the true tax is not charged to the class that caused it but is shared by both classes in proportion to the tax base. The primary concern of this initial allocation is an equitable division of negative funds.

Since both our participating and nonparticipating classes are Phase I and are expected to remain in Phase I, each has a tax base of (I - 250,000), and there are no other complications.

Prior to 1963, when the nonparticipating class was Phase II, its base was the mean of taxable investment income and net gain from operations. However, the class still shared in the benefits of being part of one company and not a separate company.

Allocation within the participating or the nonparticipating class is concerned principally with tracing tax deductions to their sources. We are interested in reflecting the actual contribution of each line to keeping the class out of Phase II. For example, if the total nonparticipating class is Phase I, but one or more nonparticipating lines are Phase II, the total nonparticipating tax is less than the sum of the taxes for the lines as separate companies, since any deductions which would have been wasted by the Phase I lines have been used, partially or fully, by Phase II lines. The difference accrues to the Phase I lines in proportion to the amount of unused deductions.

If none of the lines within a class are in Phase II and the class itself is in Phase I, all lines have unused deductions. The base for each line is then taxable investment income less the line's share of the \$250,000 corridor. We give no credit in this situation to lines which actually have a loss from operations, since the loss is not needed to keep the class out of Phase II.

Again, prior to 1963, when the nonparticipating class was Phase II, each nonparticipating line, whether Phase I or Phase II as a separate company, had a mean of taxable investment income and net gain from operations base, since there are no credits which kept the class out of Phase II to distribute.

Surplus in our nonparticipating class is not allocated by line but is held in a corporate account line of business together with capital and nonparticipating Mandatory Securities Valuation Reserve. This line does not participate in the advantages or disadvantages of pooling the various lines into one company; instead, its taxable investment income simply is taxed at the full rate of 48 per cent and the balance of the nonparticipating tax is split among the other nonparticipating lines.

Allocation among minor lines, such as disability or accidental death benefits, parallels allocation among the major lines within a class, except that less accuracy is required.

Of course, the final test of a method is how well it works. Do results fluctuate drastically from year to year and among lines? Are results apparently reasonable, or do they require involved footnotes?

For statement purposes, one big problem remains even after a method is found which satisfies both theoretical and practical considerations. We cannot determine actual tax bases for the year on a separate-company approach in time for preparation of the Convention Blank. Prior to 1968



we used the previous year's allocation ratios for the current blank, adjusting in the succeeding year for the difference between these results and those using actual allocation ratios. Because of the sensitivity of ratios to a change in situation in any line, the results were not always reasonable. For example, one year a nonparticipating line was in Phase I, whereas it had been in Phase II the previous year. It was also in Phase I two years back. In the year then current, total tax allocated to this line included an adjustment for the understatement resulting from using Phase I ratios in a Phase II year and a Phase II allocation in a year when the line was actually Phase I. In 1968, instead of using prior year's ratios, we estimated current-year tax bases by adjusting investment income and gain before tax for their major differences from the corresponding F.I.T. items.

MR. COWELL: On the subject of allocation of federal income tax by line of business, State Mutual's approach is quite similar to that outlined by Mrs. Rodolfo. Because we are a mutual company, we do not have the added complications that she mentioned of separating participating from nonparticipating lines of business. Like most mutual companies in our class, we are a Phase I company, as Mrs. Rodolfo defines it, with our tax base, in effect, being our taxable investment income minus \$250,000. We assume that all our nine lines (i.e., that business shown in each of cols. 3-11 in the Analysis of Operations) are taxed on this basis, and to that extent our allocation is on a combined-company basis. Pension reserves, nonpension reserves, and interest paid items are allocated on an exact basis and are reconciled to the dollar with the corresponding Annual Statement and gain and loss items.

For several years State Mutual has been using the investment-year method of allocating net investment income by line of business; the results of this allocation of net investment income are carried over directly to the federal income tax calculation, so that it is on the same basis as the Annual Statement. In employing the investment-year method, the asset base which generates the income for each line is used to allocate assets, and it is this which is the crux of a serious problem in allocation to which I shall subsequently allude.

Clearly, the current and five-year average interest rate computed by dividing allocated income by allocated assets will differ across lines, to reflect the true earnings differential among the funds of the various lines. While this creates a situation in which the sum of the tax contributions of each line does not equal the tax computed for the nine lines combined, the required adjustment—which may be positive or negative and which is allocated in proportion to the nine computed tax contributions—is small

in relation to the total tax. The method yields a much more realistic allocation of tax by line than would obtain by using the company average rate across all lines. The \$250,000 deduction is distributed on a basis which takes into account the excess of earned over required interest and also gain from operations before federal income tax. All other deductions are allocated on the basis of net investment income.

We calculate Fraser's marginal rates for use by our financial and corporate management, using certain approximations where the effort to make an exact calculation cannot be warranted in view of the limited use which such detailed information can be given.

This, in summary, is our approach for allocating that portion of the federal income tax which is reported on line 32B of the Summary of Operations. Federal income taxes on *realized* gains are shown in Exhibit 4 in the aggregate; since the NAIC Blank makes no provision for the lines which generate these funds on which capital gains are realized to benefit from having this reflected in the operating statement, no allocation is necessary.

This brings me to the problem that I mentioned, one which is causing the managers responsible for each of the operating lines no small concern. While the blank specifically separates realized capital gains from investment income—and while I need not agree or disagree with this approach—it is vague as to the handling of that portion of federal income taxes incurred as a result of unrealized capital gains. This is, no doubt, an insignificant concern for many companies, but one which at State Mutual, because of its very successful investment performance, has seriously affected the operating results, after federal income tax, of those lines which have been allocated a substantial portion of such unrealized capital gains in their share of assets. This provides a classic case for the application of Fraser's marginal rates; it is probably the best example of a situation in which every other element entering into the tax computation can stay almost constant while one, assets, can fluctuate substantially, depending on the proportion of the company's investment in equities, over a very short period of time.

When you are dealing with unrealized capital gains amounting to tens of millions of dollars, a marginal tax rate on assets of more than \$8 per \$1,000 begins to have real significance to the managers of those lines to which federal income tax on investment income has to be allocated. It is all very well for actuaries casually to dismiss the figures appearing on line 33 as being a mere accounting fiction, but this is the only uniform criterion that many in management can use to judge profitability by line. Yet, because the managers responsible for those operating lines have little or no

direct influence on the investment of funds which their lines generate, they must bear the burden of indirect taxation on unrealized capital gains which the 1959 Act imposes on the asset base from which their block of business' portion of investment income derives.

My own preference would be to allocate that portion of the tax liability attributable to unrealized capital gains to Exhibit 4; this could be calculated, using Fraser's approach, as the marginal tax rate on assets times the unrealized capital gains or, for those who do not trust the marginal approach, by reworking the return with the amount of mean invested assets reduced accordingly. There would seem to be no reason for the IRS to object, since the total amount of tax so computed would not change a penny. Companies adopting this approach would have greater flexibility classifying federal income tax as being derived as a result of earned investment income or of capital gains as they develop.

**CHAIRMAN GUSTAFSON:** I have two comments with regard to your suggested approach. First of all, you do not have to allocate taxes in accordance with the blank for management purposes. Second, I believe that there are some companies that add or for management purposes are seriously considering adding another column to the gain and loss exhibit for the specific purpose of separating the insurance operations and the investment operations. I believe that there is even some consideration being given to altering the blank in this way.

**MR. ROBERT H. DREYER:** Another method for allocating federal income tax among the various lines of business is the "minus one" method. Under this method the tax liability chargeable to each particular line is calculated as the difference between the total tax liability and the tax that would have been payable if that line had not existed, that is, the tax calculated from the portion of the tax bases resulting from the operation of the balance of the company. If the company has one line which accounts for the bulk of its business, this line could be used as the balancing item, thus eliminating the need to prorate any differences. On the other hand, if there is no one major line, prorating techniques similar to those used under the separate-company method are available.

A principal advantage of this method is found in the fact that there is less chance of being faced with different tax phases' being applicable to different lines of business. It also seems likely that if prorating is required, the difference to be prorated will be smaller. In short, the method charges each of the smaller lines with the tax liability that it has caused the com-

pany by its existence, rather than the tax it would have to pay if it were a separate company by itself.

I have not seen or heard any mention of this allocation method in the past few years and would like to know what disadvantages have been found by any companies which have considered and rejected it.

**MR. TEILER:** IRS has been quite successful in winning the gross deferred premiums question. Depending on a company's current and anticipated tax position, current and anticipated premium volume, and the amount of loading on the premium, a company may prefer to commence holding mid-terminal reserves on new business and thereby eliminate gross deferred premiums.

This can be a complicated question, since the timing and method of the changeover can have such important tax consequences.

Monthly debit ordinary business is a natural class for taking reserves from mean to mid-terminal if such a change is truly to a company's advantage.

Has anyone done any work in this area?

**MR. ROBERT E. NELSON:** I have a client who has for years used on life policies the mid-terminal plus the unearned premium, and we have had no opposition from the IRS. In addition, all policies are issued on the first of the month. Therefore, they have no due and deferred premiums.

**MR. DONALD C. STRAFFIN:** I would like to address this question to Mr. Farmer. In regard to the segregated account, what sort of problems arise in the allocation of federal income tax between the surplus portion and the benefit portion? Second, with that in mind, if this problem can arise, why can you not combine into one account the nonqualified business and the qualified business?

**MR. FARMER:** I believe that some are doing the latter. I think the problem is eased when mutual fund shares are used as the funding medium. When the separate account contains a general portfolio of assets, it is harder to identify how much of the cost of each asset relates to reserves on qualified business and how much to surplus or to reserves on nonqualified business. I think you have a problem when your pension plan assets do not exactly equal the pension plan reserves.

In a different vein, some companies have set up a separate reserve for the immediate payment of claims. They come up with something that approximately equals the reserve that they would get if they were holding

a continuous function reserve. It is my understanding that the IRS has challenged this special reserve, even though it concedes that the reserve is calculated on a mortality table and interest rate. I believe the IRS has taken a position that this special reserve is not required by law, even though, if the company set up the whole amount using continuous functions, it would be acceptable.

MR. BOERMEESTER: Have any examiners disallowed reserves established for additional insurance benefits granted by the company (such as an increase in the sum insured not contemplated by the contract)? The reason for disallowance is based on a quaint reasoning that such granted benefits merely represent dividends.

MRS. RODOLFO: I think that we have a similar situation. We manage the International Workers Order fund, which, basically, is done in this manner; it is picked up in addition to its base policy. I believe that they have accepted the reserves of the paid-up additions as life reserves.



## MANAGEMENT OF PROFESSIONAL PERSONNEL

### I. *Recruiting*

What are the principal difficulties that must be overcome in recruiting professional people? What approaches have been found helpful?

### II. *Turnover*

Why is there such a heavy turnover among professional people? To what extent do these causes apply only during the first few years of employment? What steps have been found helpful in reducing turnover?

### III. *Professional Development*

What methods are used or are available to enhance the growth and professionalism of personnel? What success has been achieved by these methods?

### IV. *Development of Managers and Executives*

What approaches can be used to develop professional personnel along management and executive lines? Is the "dual advancement system" described at the fall meeting by Dr. Krogh applicable for actuaries? Has anyone used this system, and, if so, what is the experience with it?

MR. RICHARD M. FRIDLEY: We have had success with a brochure describing the company and its actuarial program. The brochure is sent just prior to interview. We set up company visits so that we are the last company visited, and I always try to have the president or executive vice-president discuss company philosophy and plans with the student. My recruiter reports: "The most frequent criticism I have heard students make of other companies is that the interviewer is poorly prepared and informed, as well as dull. Since the basics of your program (salary and study time) will undoubtedly be very similar to many other companies, it is important that you give a real public relations flair to your recruiting program."

MR. WALTER W. STEFFEN: On two occasions I have had opportunities for reviewing advice from management consultants on the manner of conducting an interview. You may be interested in their ideas.

Some of the items that these consultants attempt to evaluate are the following: intelligence, judgment, ability to get along with people, ability to manage, ability to be compliant, linguistic ability or the ability to express oneself, sales ability, creativity, leadership potential, empathy, ego drive, and others.

They have outlined to me some of the common errors in interviews:

1. Questions that can be answered "yes" and "no."
2. Unimaginative, run-of-the-mill questions for which the clever applicant has a ready-made answer.

3. Leading questions which suggest the "proper" answer.
4. Questions or comments that are nonneutral and reveal the interviewer's attitude.
5. Questions that have already been answered on an application form or résumé.
6. Questions that are not related to the task at hand.

Generally speaking, they recommend that we conduct an interview in which the applicant does the majority of the talking. When the interviewer consumes a high percentage of the time telling the applicant all about the company, its success or his success or provides the Chamber of Commerce speech about the community, many applicants are bored. For some applicants an entire interview of this form may never provide them with information about that part of the employment activity which they consider most important. It has been suggested that a good interview should be conducted under a proper atmosphere. This includes several simple items which most people do routinely:

1. Provide the applicant with your full attention.
2. Arrange to have your telephone calls taken rather than have the interview interrupted with repeated telephone calls.
3. Eliminate other possible interruptions.
4. Greet the applicant courteously, devote only a minimum of time with exchange of pleasantries, and proceed with the job at hand. A minimum of time should be in the neighborhood of five minutes.
5. You are undoubtedly going to evaluate the applicant's punctuality; he will also evaluate your punctuality.

It has been suggested that the interview can be very rewarding to both the applicant and interviewer if it covers these broad categories:

1. How does the applicant feel about his present position? If he is a student, how does he feel about the current situation in the educational area? Attempt to learn how the applicant feels about what he is doing currently in order to reveal his general philosophy and attitudes.
2. How does the applicant feel about people—his co-workers, supervisors, professors, and others? This attitude can play an important part in determining his job success and whether or not he is qualified for the particular position for which he is being considered.
3. What are the applicant's job and career objectives? What is he looking for? What does he wish to avoid in a job or in his career?
4. How does the applicant regard himself?

Many different questions can be asked to develop this type of information. Some that might be asked of a student follow:



1. How does he feel about the curriculum of the university?
2. How did he decide to become an actuary?
3. On the assumption that his grades are available to you, a question with respect to his grades might be, "Why did you not obtain better grades?" One receives many interesting answers to this question. The low-grade student might be the better employee, and this gives him an opportunity to tell you something about himself which may be most useful to you.
4. How does he feel about some of his professors? What does he consider the strengths and weaknesses of particular professors? What professor does he like best and why?
5. What kind of people does he like to work with? What kind of people does he find it most difficult to work with? How has he successfully worked with this latter type of person?
6. Has he ever been in a selling position? What did he like or dislike about it?
7. Explore his over-all career objectives. What are some of the things that he plans to do to obtain these objectives?
8. What kind of position does he expect to progress to in five years? In ten years?
9. How would he describe himself?
10. As a person, what would he consider his greatest strengths? What would he feel he could most improve upon?
11. Are there certain things that he feels more confident in doing than others? What are they, and why does he feel the way he does?

There are numerous other questions that one can ask, but the skillful interviewer will always direct his questions to the specific applicant on the subject that reflects the job for which he is being considered. Such an interview can be meaningful to an applicant and the interviewer. The interviewer can develop a vast amount of information about the applicant's attitudes, values, personal relationships, and other items which cannot be easily described in any written material.

MR. GEORGE V. STENNES: I think that from time to time it may be useful for us to remind ourselves that we are professional men and women. We owe our attainment and organization to the background of earlier professional actuaries before us. We, therefore, should strive individually to contribute something to our profession to assure its continuation, growth, and development on a highly professional plane. What can we do then as individuals and as employers to enhance this cause?

We can contribute in a number of ways. We can encourage students at high school and college level to become interested in actuarial work. We can help in school guidance by taking part in programs. We can assist

those colleges and universities that are interested in the establishment of actuarial courses and help to support these programs. We can counsel individual students when an interest is expressed.

In recruiting, we can be selective to the extent that we are certain that those to whom positions are offered appear to fit the role of actuary. We can counsel the interviewees on what will be expected of them and set forth the goals of professionalism.

In my own firm, we have followed the practice of assigning each young student to an actuary, not so much to work as a team or to act as a crutch but to assure the continuity of an individual's work and educational process. The student will not look for all his assignments from the particular actuary, but it is the responsibility of the actuary to make certain that the student is occupied and receiving proper training. We hope this also achieves a higher degree of communication at various levels.

We have pushed individuals to higher levels of achievement and have encouraged individual development, stressing the point that each individual is expected to work out his own projects and assume responsibility for the results.

All people who followed these precepts agree that success is not 100 per cent but that there is considerable satisfaction in seeing the pronounced success in a majority of individuals.

We have encouraged members of our organization to accept committee assignments and have had several working in the area of examinations and other committees of actuarial organizations. We have encouraged our actuaries to submit papers, to take part in discussions, and to serve on panels when requested.

MR. FRIDLEY: I am strongly of the opinion that there is nothing innate about an actuary, or other technical or professional person, that would preclude him from being susceptible to the normal methods of development along management and executive lines. Except for the situation in the giant companies, where actuaries often will perform on an individual staff basis, few actuaries working for life insurance companies will reach professional maturity without being required to perform under management and executive direction and to exercise similar direction over other people.

At one time I felt that it was essential for an actuary to be a completely independent and self-contained unit and to let him work without the normal degree of supervision and direction. However, time and experience have suggested that this is fallacious and that it is incorrect to assume automatically that a professional person can properly perform without the

use of the normal management tools. I would predict at this time that the next ten years will show a development process in the life insurance companies as a result of which these normal management and executive controls will become commonplace.

At the Pan-American we have adopted a company-wide program of management by objectives. In our elementary version of this, each defined operational unit is allotted a financial budget for the coming year along with a set of objectives to be reached. As part of the development process, key individuals within an operating unit are involved in the objectives-setting process. Under this concept the operating head becomes responsible for achieving the goals that have been established within the funds allocated.

Of necessity, each professional and technical person must set his time schedules for accomplishment of assigned projects, and this requires setting forth "events schedules" or "plans of activities." Following this, periodic reports will be made to the next level of management throughout the year. This procedure works up the ladder until a quarterly progress report covering the entire company is presented by the executive vice-president to the president and board of directors.

We have found that part of management development of professional people is enhanced by including them in the total communications of the company. To achieve this, we hold periodic meetings with all such people and the regular line managers, at which time the executive vice-president presents the same report that he has already presented to the board of directors.

A further means of developing our professional and technical people along these lines is to include them on a mandatory participation basis in the formal management training programs conducted within the company by our management training and development department.

Another method used by our company to assist in development is to assign the professional or technical person to interdepartmental relationships. For example, if a new ratebook or a new plan of insurance is being developed, we attempt to have the operating actuary meet with the assigned agency officials for the necessary co-ordination rather than have this handled by the head of the actuarial department. This gives the professional an opportunity to work directly with people who are not trained in the same discipline. Obviously, this gives him the opportunity to view the problems involved in interdepartmental relationships and an opportunity to develop his own persuasive powers.

I should point out that, in those cases where we feel that technical or professional persons are simply not interested in the management aspects

of the company, we do not push them beyond a reasonable limit. Even in a company the size of Pan-American there are many necessary functions to be performed by the pure technician.

Concerning Dr. Krogh's system, I feel that many companies practice such a procedure without its being formalized. Salaries of technical and professional people tend to run higher than those of the management generalists, but actuaries are human and they require the same ego recognitions that anyone else does. Few companies publish a list of so-called officers without having a number of actuarial and other technical or professional type jobs shown. Personally, I believe it is essential to give the kind of recognition that Dr. Krogh advocates. The availability of a person to move from one side of the ladder to the other will be dependent upon him and the needs of the company. In smaller companies the demands are often such that this kind of flexibility is not available.

MR. E. FORREST ESTES and MR. GEORGE BERAM said that they sensed that students disdained state insurance department work. They felt that the Society should try to encourage more professional actuaries in the departments.

MR. WILLIAM A. HALVORSON: Consulting actuaries start management development of actuarial students early. Contacts with clients often start with letter writing, then phone conversations, and finally personal contact, with results watched at each step by the supervising actuary. We find that this helps to develop a sense of urgency and service to balance theory and introspection.

## COMPUTER MODELS AND SIMULATION

### *Computer Modeling as a Management Tool*

- I. What are some life insurance company applications of computer modeling that have proved useful for agency problems? Investment problems? Administrative problems? Pricing problems? Other?
- II. Why was computer modeling used rather than another method (such as analytical solution)?
- III. What applications have proved unuseful? Why?
- IV. What methods proved to be more successful than computer modeling?
- V. What dollar and personnel commitment is needed to make effective use of computer modeling in a life insurance company?

CHAIRMAN GEORGE L. HOGEMAN: Computer models and simulation certainly, I think, these days present some serious problems. They are expensive in terms of several valuable resources—time, personnel, and computer testing and production time, as well as the time of model builders and insurance people. Worst of all, they represent a new line of thought, with all of the disbeliefs and discomforts of the unfamiliar.

Are they really worth the effort? That is what we are here to talk about.

Models do represent an inexpensive way of coming very close to the right answer. Computer-based models can be extremely quick and accurate if properly designed.

Further, simulation offers a way of trying many alternatives in the test environment before committing actual resources. In today's rapidly changing environment, these are very valuable tools indeed.

Each of our three panelists this morning is an expert practitioner of these powerful techniques. Our plan is to have each panelist present some of his successes and failures.

MR. QUINCY S. ABBOT: Our topic today, "Computer Modeling as a Management Tool," involves three separate and distinct factors.

The first factor is a *model*. A model is the simplest possible representation of the real world which will solve the problem under consideration. It does not contain all aspects of the real world. A successful model is generally designed to solve a limited number of problems, not to be all things to all men. The challenge of the model builder should be to keep the model as simple as possible consistent with the job to be done.

The second factor is a *computer*—a device for doing the modeler's arithmetic rapidly. Exploration of a number of alternatives with even the

simplest model chews up clerical time and dollars at a rapid rate. For this reason, business modeling and computers have grown side by side, and computers are essential to most meaningful modeling today.

The third and most essential ingredient in successful computer modeling is *management*—a management eager to ask appropriate questions of the model and eager to use the results creatively. The model builder must not only construct a useful tool but must, at the same time, create a management environment for the effective use of the model. This is all too frequently overlooked.

Let us take a look at two particular computer models with which I have been associated. The first is a *federal income tax model*. In 1962, we designed a computer system to save clerical time in the preparation of our federal income tax return and in the allocation of tax by line of business. Above and beyond that, to quote from the original feasibility study, "Of major advantage is the production of information on our tax position under alternative courses of action available in advance of the decision point. It could be argued that this information is available under a clerical system. It is my contention that more variations will be reviewed to the corporation's advantage with a mechanical process than with a clerical one." In other words, it was to be a computer model for management.

Hypothetical changes may be introduced to any combination of lines on the return producing a printout showing the full revised return or showing a short-form summary of the original return, revised return, and changes for key items in each line of business and the total company. While those clerical cost savings disappeared in the never-never land that frequently swallows up anticipated clerical cost savings, the computer model as a management tool has more than paid off through its capacity for calculating rapidly and accurately the effects of alternative proposals.

At about the time that our model was constructed, John Fraser developed his analytical solutions in the form of marginal tax rates. It is interesting to contrast the situations in which we use the analytical approach with those in which we use the computer-model approach. If we are sure of the tax situation (Phase I or Phase II) and of the changes in assets, investment yields, and the like, the analytical solution or marginal tax rates can be used with some safety to predict the tax effect of a proposal. The computer model is frequently used to check the analytical solution, but, more importantly, the model will tell when the proposal exceeds the boundaries of an analytical solution—for example, a change in tax situation or exceeding the limitation of group deduction, on policyholders' surplus account or on special deductions. Each approach has its value for particular purposes.

The second model that I shall discuss is a *real estate model*. Our mathematical model of a real estate investment adapts the capital budgeting techniques of "internal rate of return" and "present worth" to the analysis of real estate investments made by a life insurance company. A project's internal rate of return is the discount rate at which the present value of the project's return equals the present value of its capital outlays. The present worth of a real estate project is the excess of the present value of expected future returns over the present value of required capital outlays at a given discount rate.

An analytical solution was virtually impossible, since the cash flows from a real estate project do not lend themselves to neat mathematical formulation! Without a computer model it was difficult to make a timely calculation of the internal rate of return or present worth for one set of assumptions, much less to explore the myriad available alternatives so as to structure a project in the most profitable fashion. A computer model therefore became essential if our technical support to the real estate management was to keep pace with the growth of the portfolio. We needed the computer to do the arithmetic fast!

Finally, I will add a few words about Connecticut General's resources committed to operations research in general and model building in particular. Our concept is to develop a small, highly competent OR staff to serve as the catalyst and consultants to technical personnel throughout the company, as well as to carry on projects for areas without their own technical staffs. We furnish expertise, encouragement, training, and tools, while the technical staffs of the line departments do most of the work. These technical staffs are primarily, but not completely, made up of actuaries. In this way, we multiply our OR manpower resources to the fullest extent. For tools, we have introduced such things as time-sharing terminals and FORTRAN and BASIC programming languages and have established procedures for using OR canned programs. We conduct a series of seminars each year in various quantitative methods aimed primarily at actuarial staff but also attended by interested nonactuaries, such as accountants and investment personnel.

In the past, computer modeling was an expensive and unproved toy. Today it is still a modestly expensive luxury requiring substantial commitment of staff and dollars. Before long, it will become a competitive necessity. The opportunities uncovered by new insights into old problems more than offset the costs.

**MR. FRANK P. DiPAOLO:** The first model that I would like to describe is one with which most of us have been familiar since at least Part IV. It is

an asset share model, referred to in the Computer Center of Confederation Life as the Test-O-Matic. This model was primarily designed to assimilate the data normally required in actuarial testing and to produce test premiums as well as the emerging funds or asset shares.

Initially, the model contained very severe restrictions; it could only handle life insurance plans with level premiums and level benefits. Yet it was thought to be quite a powerful actuarial tool which made it possible to design and test an entire ratebook in only a few weeks. Since then a number of improvements have been made, so that now the model can be used to test deferred annuities, insurance pensions, decreasing term insurance, joint life insurance; last, but not least, it can also calculate reinsurance costs.

We developed this model because the existing methods of calculating asset shares were tedious and time-consuming and could not readily portray the metamorphosis of the emerging funds under dynamic actuarial assumptions. Thus in those days the construction of cash-value and dividend scales required a large amount of guesswork. Today, with Test-O-Matic, we still have to rely on a certain amount of guesswork, but the thought of being able to obtain a large number of asset shares in only a few minutes makes the life of the actuary a little more livable.

Another useful model was developed for the group area primarily as an aid in explaining to certain employers why their group life rates needed to be raised, that is, why their mortality experience was such that claims in excess of the expected were to be taken as an indication of substandard mortality rather than of statistical fluctuations. In effect, this model tests the hypothesis that within a given degree of confidence the actual mortality of a certain group is substandard and consequently its group premium must be rated.

The input is simply the year of birth and sex of each employee as well as the amount of insurance. By means of the Monte Carlo approach and, on the basis of a standard group table, the mortality experience of the group is simulated a large number of times and a frequency distribution of the group is obtained. If the actual experience of the group falls to the far right of the frequency distribution so obtained, there is strong evidence that the mortality of the group is indeed substandard. Also, part of the output is a histogram of the frequency function as well as the simulated sample mean and theoretical mean, both needed to assess the adequacy of the number of simulations.

The frequency distribution of the aggregate amount of claims obtained from this model has another useful purpose. It makes it possible to calculate stop-loss premiums for large groups issued on a retention basis. The



stop-loss premium is calculated by approximate integration of the frequency distribution.

This is one case where the computer model is, in my opinion, better than any other analytical method. Perhaps it is possible to arrive at similar results by means of risk theory, but anyone who has attempted to generate the frequency distribution of the aggregate amount of claims by the combinatorial method or by the convolution method or even by Esscher's approximation would realize the tremendous power of the Monte Carlo model. Finally, one more advantage of the Monte Carlo approach is that it can be easily explained to employers, and in many cases it is also as easily understood.

Another versatile model is one which we call the "premium income model." On the basis of certain pivotal plans and ages, the model develops the fund emerging from a given block of business and traces it over twenty years. The output of this model contains most of the information that is found in the Summary of Operations of page 4 of the Convention Blank. The versatility of this model is that it can easily adapt itself to a large number of parametric changes. For example, it can trace a block of business issued in a given year, or it can trace a block of business issued over a number of years. It recognizes new money rates as well as different levels of mortality and product mix.

This model was primarily developed to produce financial projections for our corporate plan, but it has also been used to determine the profitability of newly developed price structures, to estimate the surplus emerging from old blocks, and to assess the effect of certain dividend changes on current and future surplus.

One model that did not work out well was a queueing model, the purpose of which was to simulate certain office procedures, such as the processing of new business, health claims, and so forth, to develop statistics concerning timing and costs, and to reveal the critical areas prone to queueing. The model assumed that these office procedures could be compared to industrial assembly lines with stations along the way, each station responsible for the performance of a specific function. The characteristics of each station were to be defined in a unique manner by means of a series of parameters, which were to be found by observation. Some of the parameters were, for example, the mean time per station to process each item and its standard deviation, the functional cost per station per item, the traveling time to the next station and from the previous station, the maximum permissible arrears at the end of a workday in each station before overtime would be necessary, the cost of overtime per station, and the like. Another assumption made was that the number of daily items to

hit a station would follow the Poisson distribution. Finally, it was hoped that the model would reveal what would happen if the average number of daily items were to be increased, say, 5 or 10 per cent—that is, how overtime costs would increase and which stations were more subject to queueing, and to what extent the queueing could be relieved by additional personnel or by procedural changes. Well, it did not work. Perhaps the main reason is that these assembly-line processes involve people in work situations that cannot be easily predicted by mathematical formulas. The model required too many parameters that had to be obtained by observation, and, by the time that the system analyst had observed them, he already had the answer to the queueing problem, eliminating the need to refer it to the model.

With respect to the cost of computer modeling, at Confederation Life we have a technical programming department directed by an actuary and manned by about six programmers with a sprinkling of actuarial trainees. The accountabilities of this department are to develop technical programs capable of analyzing our mortality, morbidity, new sales, lapses, and so forth, and produce computer models at the request of management. In addition to salaries, another important cost item is the computer itself. Some models may require as much as 8 or 10 hours of computer time.

To conclude, I would like to bring to your attention one type of computer modeling which could be very costly if you take an attitude of theoretical intransigence. Some of the Monte Carlo simulations can be very complex, and each cycle may require several minutes of computer time. If you like to be a purist and keep simulating until the sample mean is almost identical to the theoretical mean, you may keep the computer puffing and huffing for several hours or even days. It seems to me that, if you stop simulating as soon as the sample mean is within shooting distance of the theoretical mean, especially if it is on the conservative side, you may be able to save yourself a fair amount of computer time without seriously affecting the reliability of the results.

MR. EUGENE F. PORTER: I would like to discuss briefly several models and simulations that we have found useful in recent years: first, our sales forecast and earned rate projection models, which in fact are submodels of our corporate model, and, second, our approach to a corporate model.

As background for this discussion, I should mention that our only products are ordinary life insurance and individual annuities. We have about \$4½ billion insurance in force and \$750 million assets.

Aside from the usual asset share and model office projections, our first

model was a sales forecast and in-force model. It is essentially a manpower model.

As input we have such items as the following:

1. Projected number of agencies by calendar year; for each calendar year the agencies are categorized by years of maturity.
2. A projected average number of salesmen per general agency; this is related to the maturity of the agency.
3. Projected production and termination rates for salesmen; these vary with both salesman's longevity and the calendar year passed through.
4. Insurance in force by year of issue as of the base period of the projection.
5. Projected lapse rates which vary with the policy year and the year of service of the agent placing the business.

As output for each calendar year of the projection we have such items as those that follow:

1. Number of agents categorized by year of service and also the number of hires required to remain fully staffed.
2. Number of policies and amounts of insurance sold.
3. Number of policies and amount of insurance in force fragmented by issue year.

I think that it would be worthwhile to mention some of the benefits which we have derived from this computer model. First, of course, the analysis required for the development of the computer program necessitated identification of all the determinants of corporate sales. Without this analysis it is conceivable that some of the elements of the sales process might be overlooked. Furthermore, the ongoing statistical analysis essential for current input may bring to light unfavorable trends which might otherwise have escaped immediate detection; soft spots, such as higher turnover rates and plateauing productivity, may well be red-flagged more quickly.

This tool has been utilized to advantage in the past year as we have become concerned about long-range corporate planning and goal setting. In particular, one of our goals relates to increase in amount of insurance in force; obviously the agency division had to formulate plans in order to achieve this goal. Theoretical results of alternative plans were checked very quickly by running them through the model. Incidentally, with the labor market as it is, it soon became evident that a major force in goal achievement has to be increased productivity of our current staff of salesmen. The computer program was helpful in our developing a plan which, hopefully, is realistic in light of the production capability of our field force and the number of new men that can be added to it.

As a matter of fact, this particular use of the model has been so benefi-

cial that we are going to add some accessories. Sales and insurance-in-force goals will be included with input; subject to certain constraints, the computer will develop various combinations of added manpower and increased productivity which will realize these goals. As I noted before, the ongoing program of analysis required for input should more quickly point out those determinants of sales which are not developing according to plan.

The model has also been very useful in home office administration. Our fraternal benevolence and operating budget projections extend over a period of three calendar years. One of the tools used in testing a proposed budget is a ratio of budgeted expenditures to expected expenditures. The projected sales and in-force units from the computer program are helpful in developing the expected calculation.

I suppose that it is obvious that agency personnel must be participants rather than spectators in this endeavor. It is only through this involvement that they will identify with the project and learn to appreciate its potential as a planning tool.

I can only give you a rough idea of the total time that it took to develop this model, as we ran through a simplified version manually the year before mechanizing it. However, about two man-months of planning and about six weeks of an actuarial programmer's time were required to develop and test the computer program.

Another small model that has been most helpful in corporate planning is our earned rate projection. Again a bit of background on our operation might be helpful. Most of our assets are bonds, and nearly all the information associated with these issues is either on cards or tape. This includes such items as coupon rate, maturity date, call prices on the various call dates, and the like.

The formula for projecting the earned rate involves such items as the following:

1. The earned rate on the entire portfolio as of the base year of the projection.
2. The projected new-money rate.
3. The amount of new money arising from (a) investment income and (b) the excess of premium income over benefits, expenses, etc.
4. Amounts reinvested because of calls and maturities.

To give you a little better understanding of this, I will mention some of the details of the analysis.

New money flowing into the system results, of course, from investment income and also from the excess of premiums over benefits and expenses. The former is generated in the model. The latter can be obtained from a

simple projection of past trends; however, a more refined projection can be developed by running through the corporate model with the earned rate equal to zero.

We formulated a rule for selecting the date on which a call would be exercised on a particular bond; this involves such factors as the projected new-money rate and the coupon rate on the issue.

In the case of sinking funds and serial maturities, an approximate method was devised for establishing the amount and time of maturity; the approach involved the use of random numbers.

By assuming different levels of investment return on new money, we get a fairly good feel for the possible levels and incidence of change in the earned rate on our portfolio.

Both the NAIC statement earned rate and an internal earned rate are developed. Capital gains arising from calls are taken into account in the latter; it is used in our corporate model and asset share projections.

Much of the annual detail work associated with this project is given to a summer student; it generally takes about a month of his time.

Aside from these two submodels our corporate model itself is constructed from a number of components. This currently is by necessity rather than by design, since we simply have not had the time to put all the parts on the computer. The three components are (1) a projection of the financial position on the business in force as of the base year, currently a manual projection; (2) a projection of the financial position on new business, which is mechanized; and (3) a projection of the assets and liabilities associated with such items as paid up additions, surplus refunds on deposit, supplementary contracts, and so on. I will briefly discuss each of these.

We are most fortunate to have had only four ratebooks over our sixty-six years of existence. This makes a manual projection of each of these four basic valuation blocks possible, if not particularly enjoyable. The formula used for developing projected assets is essentially Exhibit 12. Assets as of succeeding calendar years are increased by expected investment income and premium income and decreased by expected mortality, surrender benefits, expenses, dividends, and so forth. The asset values as of the base year for each block could only be established approximately. First, a proportion of our total corporate assets were distributed to these four blocks; this amount was then allocated to each of the blocks on the basis of historical asset shares. Specific items, such as premium income, expected mortality, reserves, dividends, paid and dividend liability, were projected for major plans and for every third issue year. Results for intervening issue years were developed by interpolation where possible; the calculation was further refined where it was felt that interpolation was inadequate. A

balance sheet for each of the four blocks was developed by combining the assets and liabilities for the selected plans and the appropriate years of issue. Incidentally, this macro-economic approach was most revealing. Retrospective asset shares had given us an impression of where our surplus was developing, but they were not nearly as enlightening as this.

The next step was to compare total premiums, reserves, and so forth, for the first year or two of the projection with actual statement amounts of these items for preceding years. Naturally, the flow was not very good the first time round; however, we were pleased with the second attempt. For instance, the projected reserves for these four blocks one year after the initial forecast were \$411,800,000; the actual reserves were \$411,400,000. The projected dividend liability was \$15,375,000; the actual liability was \$15,125,000.

It can happen that errors in projected items on opposite sides of the balance sheet will tend in the same direction; for instance, termination rates projected at too high a level will result in an understatement of both assets and liabilities, with the result that projected surplus might not be too bad. But it gives one a feeling of confidence to know that the results are fairly close to the real world. Also, this is not an undesirable feature when attempting to sell this tool to others.

There was some flexibility in this projection, even though it was done manually. Since premium income, withdrawal values, and so on, were projected independently, we could combine them by using different earned rate assumptions. It was also possible to show the effect of a couple of different dividend schedules without too much difficulty. You do not, however, have to go this route more than once to know that it really should be on the big calculator. It probably took about five man-months of actuarial time and fifteen man-months of clerical time to complete the project.

The portion of the model relating to new life insurance sales is completely mechanized. Several years ago we programmed a fairly refined asset share calculation, and we also have a model office program for combining the asset share output into any portfolio mix. This model office projection has been essentially on a policy-year basis; however, we have just completed some minor refinements which will more accurately reflect the calendar-year position. The output from the sales-forecast program is then utilized to develop the balance sheet on new issues for as many years as we desire.

Finally, in order to complete the total corporate picture, it was necessary to project the assets and liabilities associated with paid-up additions, supplementary contracts, and the like. The approach was manual, and

different items are obtained in different ways. For instance, annual increases in paid-up additions and surplus refunds on deposit are obtained from the projected dividend payout. The assets and liabilities associated with supplementary contracts can be developed by assuming certain take rates on projected death claims, maturities, and so on. The three components of our model were then combined. Again we checked to see that the projections were realistic.

We have found this model to be very useful as a tool for long-range planning, since it ties together such elements as sales growth, dividend projections, corporate surplus, and so forth.

I would like to digress a moment to mention one other project in this regard which has been most helpful in utilizing the corporate model. Over the past few years we have attempted to enumerate the reasons for retaining surplus and have associated numerical values with this definition; this involves such items as assets, the amount at risk, and the growth rate on new business. This analysis provides us with a bench mark as to future desirable levels of surplus. Incidentally, the Monte Carlo simulation technique was used to advantage several times in this analysis; this project was discussed at the 1967 Annual Meeting in Chicago.

The mere fact that the research was carried out paid dividends. For instance, it resulted in a fairly firm conclusion on the approach that will ultimately be used for projecting the assets and liabilities associated with the basic life contract. In our case there does not seem to be any real reason to use the asset share-model office approach when all the required information is readily available on the master record or a skim-off thereof.

This analysis also pointed out some things that I do not believe we had realized before. For instance, if we continue to write new business in the future as we have in the past, it is almost inevitable that our ratio of assets to liabilities will decline. This results from the fact that, as we mature, certain items (for instance, paid-up additions and supplementary contracts) will probably become a greater proportion of total liabilities. Since the surplus level associated with these liabilities is much lower than that on the basic contract, it is inevitable that the total corporate ratio will decrease.

The corporate model also proved to be an excellent communications tool. While we had discussed new-business drain with the agency division for years, I had never felt that they really understood it. The projected balance sheets associated with different levels of new business illustrated the point very well.

While much time and effort have been expended on these projects, they have enjoyed the support of management and been well received by our

board of directors. We are eagerly looking forward to the day of complete mechanization.

**MR. RICHARD P. PETERSON:** We at the Bankers Life have developed a rather simple computer simulation of the operation of a mutual fund. It may be useful in answering the "what if" questions that come up in the planning of any new activity.

This model is deterministic—it has no random variables. It is programmed to produce more than twenty different outputs, each for twenty years. The outputs include such things as value of assets, total sales, number of accounts, number of shares, total commissions paid, dollars available for sales overhead, dollars available for investment management, dividend and capital gain distributions, and values of the mutual fund share.

The results produced can be no more realistic than the inputs plugged into the model. These are nineteen in number, and each can be varied for any of the twenty years. These are such assumptions as number of new accounts, average dollar sales to new accounts, average dollar sales to old accounts, rates of investment performance, rates of loading and commission, rates of redemption, rates of reinvestment. Once the inputs and outputs have been defined, the remainder of the model building lies in specifying the relatively simple equations which connect them, by use of a basic, typical mutual fund operation.

Our experience with this model is short, since it has been in working order for just a few months. We may not be using it effectively. Almost anyone in our company who wants to try his hand at setting inputs has access to the model—and results can come back in the same day. Setting realistic and self-consistent inputs is not the easiest thing to do; but any input can be varied and the others kept the same to determine the effect of varying one assumption. It may be doubtful whether proper or worthwhile conclusions have been drawn from any one run, but some thinking has resulted.

To indicate that simple model building does not need to absorb all your energy, our investment in this model to date is about one man-month, spread among several people, both actuaries and EDP specialists. In the interest of the sharing of knowledge, and in the thought that some of you might suggest worthwhile improvements, we will show the details of this simulation to anyone willing to write for it.

**MR. J. STANLEY HILL:** The following list gives some additions to and variations on the examples of computer models which have already been given:



1. The sale and lease-back of office buildings. One version shows how advantageous this can be to a typical corporate tenant. Another shows that, because of their unique basis of taxation, life insurance companies cannot profitably be tenants under such an arrangement.
2. Corporate models of life insurance companies can include external measures, such as a share of the market, premium income as a per cent of consumer disposable income, and so on. These measures give the user a broader perspective, particularly when done on a projection basis.
3. A life insurance company model prepared at Minnesota Mutual is now being used as the basis for a management game, used as a teaching tool at several actuarial schools.
4. The most ambitious model that we have built simulates the interaction of six companies in a reinsurance association and compares their financial experience on three different bases—conventional reinsurance, stop-loss reinsurance, and no reinsurance. For large Monte Carlo models of this nature, it is important for them to be run on a very large computer. By so doing, the running time can be reduced to a few minutes in comparison to the many hours they take on a medium-sized computer.
5. A flexible and versatile general purpose Monte Carlo program, called the "Capital Risk Evaluator," is available from Control Data Corporation.
6. In agent-compensation projection models the dramatic effects of inflation on the adequacy of a pension plan can be shown very clearly.
7. Models of home office personnel can be built on a two-dimensional basis. One dimension is the different types of career ladders—usually from eleven to thirteen. The other is job level—five usually being sufficient. If you input recruiting levels, projected staff needs, promotion and turnover rates, the model will show pressure points of two types: (1) potential shortages of promotable types and (2) potential stagnation, that is, too many promotable types.



## EQUITY-ORIENTED PRODUCTS

### *Variable Life Insurance*

- I. What is the current status of variable insurance benefits in Canada and the United States? What policies or benefits are being offered? What are the advantages and disadvantages of these benefits over other products?

### *Variable Annuities and Mutual Funds*

#### *I. Organization*

- A. What problems are encountered in the establishment of a variable annuity operation in the following areas:
  1. Compliance with applicable laws and regulations?
  2. Formation and registration of broker-dealership?
  3. Training and licensing of field force?
  4. Administration?
- B. What problems are encountered in each of the foregoing areas with respect to a mutual fund operation?

#### *II. Financial Considerations*

- A. The amount of investment required to enter the field and the extent of surplus commitment required in the sale of a specified expanding volume of business.
- B. Break-even points.

#### *III. Marketing Considerations*

- A. How is the product sold?
- B. What are the major markets?

MR. ROBERT L. WILLIAMSON: The move toward offering variable insurance products in Canada by Canadian life insurance companies took a major step in 1961 when the Canadian and British Insurance Companies Act was amended to allow separate accounts to be established for the assets backing such products. It should be noted that these amendments did not change the corporate powers of the companies, since prior to that time the companies could, in the normal exercising of their powers, have offered policies providing variable as opposed to fully guaranteed benefits. The amendment to the Act provided that the assets behind such policies be segregated from the other assets of the company and that such assets be invested in accordance with the investment powers specified in the Act. The important feature was that the over-all company limitations on common stock and income-producing real estate were to be applied without consideration of the assets in the segregated funds (at the time the limitation was 15 per cent; it was subsequently amended to 25 per cent in 1965).

The removal of this investment restraint was the purpose of the amendment, and it made the large-scale offering of equity-linked products practical. At the time of the amendment it was clear that the companies' powers to provide variable benefits was contingent upon the inclusion of some element of life contingencies in the product. Contracts providing merely for the accumulation of funds and for investment and safekeeping services are not considered to be within the powers of the life companies.

Immediately following these amendments there was considerable activity in the group pension field, but only in the last several years have we seen a strong push in the individual policy area.

There is a great variety of equity-linked individual products now being offered in Canada. Many of these have been described in detail in recent *Transactions*. To summarize these various approaches, I would like to place them in four categories:

*Category 1.*—Dividend options attached to traditional fixed-dollar policies providing for the placing of policy dividends in a fund invested in equities. Normally such a dividend option is simply available to be attached to any regular permanent par plan. There is at least one instance, however, of a company that is marketing a policy with an artificially high premium designed to produce a substantial flow of dividends into the equity fund.

*Category 2.*—Variable annuity-type products with little or no life insurance element.

*Category 3.*—Products which are apparently designed to compete with mutual funds. These are basically accumulation funds with decreasing or level term incorporated.

*Category 4.*—This category contains the most variations, and some of them are very complex. To a large extent these contracts take the *form* of traditional life insurance fixed-dollar products, but the savings element of the policy is invested to some extent in an equity fund. An example of this type of product would be a whole life policy with half the reserve element always invested in a separate fund.

There appears to be a tendency to remunerate the agent at the traditional life insurance level for those products which most resemble traditional life insurance company products and to pay somewhat lower-level remuneration for those products which compete more directly with mutual funds.

At this time no one has introduced a product which provides either for premiums expressed in units of a fund or for a life insurance death benefit equal to the value of a given number of units of a fund. The number of equity funds available within one company for individual product use is generally quite limited. Usually there is only a single equity growth fund in use.

One of the brightest features of the development of equity-linked insurance products in Canada is that they have not fallen under the jurisdiction of the securities regulators. Contract law and the supervision of sales activities of life insurance products are controlled by the provinces. The provincial superintendents of insurance have promulgated a set of "interim rules" governing variable insurance products.

These rules provide for filing with the provinces and approval by the provinces of the policy form and of an information folder describing the plan and the fund in which the equity premiums are invested. Annual reports to the policyholder are required. The rules specify certain information which must be included in the policy form and information folder, including disclosure of the investment policy of the separate fund and disclosure of the basis of allocation of premiums to the fund. These interim rules apply only in part to group contracts, since such group contracts do not have to be filed and approved by the provinces and information folders do not have to be given to group prospects; this is based on the assumption that the group policyholder is a sophisticated entity with accounting, investment, and legal advice readily available and that a high degree of tailoring might be required for a group product.

The provincial superintendents of insurance requested that the Canadian Life Insurance Association examine the policy forms and information folders prior to the actual filings with the provinces from the viewpoint of conformity with the interim rules and with "such other rules as may be considered desirable by the industry." The Canadian Life Insurance Association therefore promulgated a set of guidelines to be used in testing conformity with the interim rules and has instituted a review procedure. This procedure seems to work very well, since the Association can serve as a common spokesman for all companies with the provinces and provides a somewhat more influential voice to represent the individual company. This removes the chaos which would no doubt result if the various companies had to submit material to each province and negotiate with each province. This system has provided a means of evolution, and before long the superintendents of the various provinces should be able to hand down "rules" replacing the interim rules that, hopefully, will be generally satisfactory to all concerned. At the present time, discussions are going on among the superintendents and the Canadian Life Insurance Association with a view to coming to a meeting of minds on the ultimate rules to be applied and their interpretation. There are still some important areas to be clarified. For example, the degree of detail of disclosure of expense charges and the use of projections are receiving continued discussion.

Four provinces require filing of advertising material, and one province requires the filing of agent-training material. The interim rules do not

apply to advertising material, but there is some thought that it should be considered with the information folder for these purposes and therefore brought within the grasp of the interim rules.

At the present time the Canadian Life Insurance Association guidelines set out rates of investment return that may be used for illustrating possible future results. If a single illustration is to be used, it must not be based on a rate higher than  $7\frac{1}{2}$  per cent. But a rate of 10 per cent may be used if a balancing rate not higher than 5 per cent is also illustrated. The Canadian Mutual Funds Association limits its members to 9 per cent as an illustrative rate. We are still waiting for the report of the Canadian Committee on Mutual Funds and Investment Contracts (which is a committee set up by the federal government in co-operation with the provincial governments), and it is possible that this report will suggest that no illustrations of future growth be allowed. In that event, there could well be a similar approach taken for variable life insurance products.

The firm viewpoint of the life companies and the provincial insurance departments is that variable insurance products and their future offspring should be regulated by the Insurance Supervisory Authorities, and the experience to date seems to indicate that this will be the case.

The Federal Department of Insurance has also issued some guidelines dealing with variable life insurance products. These guidelines stress solvency considerations and equity between groups of policyholders. It should be noted that these guidelines apply to insurance contracts where guaranteed benefit is provided in connection with the variable benefits, which are related to the equity fund, but they do not apply if the guaranteed benefits are provided by means of a specific premium payable to a general fund of the company.

For equity-based contracts with a guaranteed maturity value, a "risk premium" not less than 1 per cent of the gross premium for the contract is to be allocated to a "security reserve" within a general insurance fund. The purpose of this requirement is to provide protection to the general funds of the company for the guarantees which they must, in the final analysis, stand behind. It appears that no reduction in the 1 per cent risk premium will be allowed even if the maturity guarantee in the contract is minimal.

The amount of the security reserve at the end of any year is to be not less than the greater of (a) 60 per cent of the guaranteed maturity value of contracts maturing in the following calendar year, reduced by 40 per cent of the value at the end of the current year of units applicable to those contracts, or (b) 10 per cent of the guaranteed maturity value of contracts maturing in the following calendar year.

Thus, if a \$1,000 maturity is scheduled for the next year and the policy's share of the equity fund is \$1,200, the required security reserve would be \$120. In addition, it is required that the total reserve held in respect of equity-based contracts, that is, the sum of the value of the assets in the separate fund and any reserves held in respect of such contracts in a general insurance fund, shall not at any time be less than the reserve for the guaranteed benefits under those contracts calculated in accordance with mortality and interest bases that comply with the provisions of the applicable insurance act. There are interfund reserve transfer rules which allow for keeping such reserves in proper balance as time goes on.

A very important feature of these guidelines is that separate funds backing variable insurance contracts with some guarantees must be included in the companies' over-all limitation of 25 per cent on the investment in equities (effectively reversing the 1961 legislation with respect to this type of contract). This could be a severe limitation on a new company wishing to market aggressively a particular equity product with some guaranteed elements and could convince them to strip out all the guarantees.

The new life insurance taxation legislation, Bill C191, which is currently passing through Parliament, would appear to handle the individual, unregistered, segregated fund policies in the manner suggested by the industry. This method of taxation is a flow-through system. It makes these products substantially equivalent to mutual funds as far as taxation of income to the policyholder is concerned. Under this tax treatment, the investment income less investment expenses of the segregated fund is attributed each year to unit holders. The individual unit holders include, in their taxable income each year, their share of the income of the segregated fund with the offsetting 20 per cent credit for dividends from taxable Canadian corporations and other similar adjustments, such as adjustment for depletion. The policyholder would generally receive no payout from the policy to pay his tax, but, in view of the fact that presently there is no capital gains tax in Canada, the amount of tax required will be small. The investment income of the segregated fund would not be taxable in the hands of the fund or the company. The tax treatment of variable annuity payments after vesting does not appear to be outlined. It could be argued that the paragraphs outlining the flow-through taxation can be applied to the period after vesting as well as to the period prior to vesting (i.e., immediate flow-through to the annuitant). The industry would prefer a leveling procedure for the allocation of tax and the government is, I believe, prepared to accept suggestions to arrange this, provided its tax bite is not appreciably altered. This is one of the important details

which will probably have to be handled by regulation after the passage of the bill.

There has been considerable activity in the area of agents' training and licensing. To the present time there have been no examination requirements in order to obtain a life license except for a pilot project that has been under way for several years in British Columbia. The Life Underwriters Association of Canada and the Canadian Life Insurance Association have jointly recommended to the provincial superintendents of insurance that a uniform examination be introduced across Canada for life licensing. Their recommendation is for a single examination covering both fixed-dollar and variable life insurance products. It should be noted that it is necessary to pass an examination in order to obtain a license to sell mutual funds.

There is considerable discussion with respect to dual licensing between life insurance and mutual funds. Until recently, there has been no such dual licensing and, further, with respect to life licensing, there is single company representation except in the province of Quebec.

Recently, Ontario, Alberta, and British Columbia have dually licensed agents representing life insurance and mutual fund organizations which are affiliated by ownership. Ontario has dually licensed more than one hundred fifty such individuals.

The Canadian Life Insurance Association and the Canadian Life Underwriters Association, at the request of the provincial superintendents, have reviewed their "agency principles" and have suggested that dual licensing be allowed where there is an affiliation by ownership or agreement between the life company and the mutual fund.

Another important development involves the federal legislation which presently is attempting passage and deals with widening the powers of life insurance companies.

At the present time a Canadian Life Company under federal jurisdiction can own a foreign life company, a Canadian general insurance company, or a real estate subsidiary. Except for these specific businesses in which a life company may invest without restriction, there is a general prohibition against buying more than 30 per cent of the common shares of any corporation.

The proposed legislation will remove this 30 per cent limitation in certain instances and allow a life company to invest in the following:

1. Any company incorporated to provide a life firm, or a foreign subsidiary life firm, with advisory management or sales distribution services in respect of life insurance benefits or annuity benefits that vary in amount depending on the market value of a specified group of assets.



2. Any corporation incorporated to offer public participation in an investment portfolio.
3. Any corporation formed to provide a corporation mentioned in the previous paragraph with advisory, management, or sales distribution services.
4. With the prior approval of the Minister of Finance, any corporation formed to carry on any other business reasonably ancillary to the business of insurance.

These changes are, of course, very important for a Canadian company's United States operations, as well as being significant for Canadian business.

The mutual life insurance companies particularly welcome these changes because the holding company approach is not available to them. Stock companies might still wish to go the holding company route in order to carry on businesses which the Minister of Finance may not consider reasonably ancillary to the business of insurance.

MR. IAN M. ROLLAND: As a company embarks upon a variable annuity operation, one thing that becomes very apparent is that the variable annuity is both a security and an insurance product. This means that many federal security laws, as well as the laws of the state in both insurance and the security areas, apply.

As the company gets started, one of its first problems will be trying to discover what laws and regulations apply. There are at the federal level three major laws with which one has to cope. The first is the Securities Act of 1933, which requires disclosure in a prospectus of the various aspects of the variable annuity contracts being sold and a number of other things about the entire operation. There is also the Securities Exchange Act of 1934, which requires the registering of an entity as a broker-dealer to market your variable annuities. This law has quite an impact on your whole selling operation. Finally, you deal with the Investment Company Act of 1940, which may require the registration of your separate account as an investment company. This again gives rise to a number of problems.

The impact of these laws depends upon the type of variable annuity that you decide to offer. If you decide to restrict your offerings to contracts covered by Rule 3C3, you do not become involved with any of the federal securities laws. This is a relatively limited market, pertaining only to new contracts of twenty-five or more lives where the plan qualifies under Section 401 of the Internal Revenue Code but does not include H.R. 10 plans.

You may decide to limit your offering to the H.R. 10 area, in which case you may avoid registration under the Investment Company Act of 1940

and you will avoid the registration of a broker-dealer under the 1934 Act. But you still have to prepare a prospectus and register your contracts under the Security Act of 1933. Then, if you decide to go into the non-qualified variable annuity field, the tax-sheltered annuity market, or into groups of less than twenty-five lives, you are in the fully registered area and become involved with all three of these federal laws.

Becoming involved with the federal securities laws requires you to undertake a registration with the SEC, and the registration of your contracts, your separate account, and your broker-dealer is a long, involved process. When we made our registration in 1966, it took five months. We thought that was extremely long, but many registration statements take as long as twelve months to become effective.

One of the implications of the federal involvement therefore is that it will consume a long period of time before you can get into the business and begin selling. It also adds expenses, such as printing and legal expenses, which increase significantly the developmental expenses of your variable annuity operation. Another implication of the federal securities laws registration arises from the necessity of spelling out in your prospectus the terms of the variable annuity contracts in great detail. This means that you must decide in advance what kind of products you want to offer. You cannot decide when you get into the market that you want to make alterations on a case-by-case basis.

In the mutual fund area the SEC has recognized that filings are moving slowly, and they have instituted procedures which they hope will speed them up. This accelerated procedure does not apply, however, to the variable annuity area.

Problems appear to be arising with respect to the defining of the areas of federal regulation. Traditionally, companies have held that the insurance elements of variable annuities should be regulated by the state rather than the SEC. The view is that only the investment element should be regulated by SEC. There is, however, some evidence to indicate that there may be a blurring of this dividing line and that the SEC may have some intention of moving into the insurance regulation of the variable annuity.

In addition to the federal registration, a company entering the variable annuity field must file contracts with the states and deal with special state regulations. Most states now have special variable annuity regulations. There is great diversity, although the model regulations are helping somewhat as more states adopt them. But there are special procedures in some states; in Texas, for instance, a company must appear at a hearing procedure and give sworn testimony about its operation. Some states require extensive filings.

There are a few states in which a company must file a securities law registration for variable annuities. Fortunately, there are only a few states (West Virginia, Minnesota, Maine, Georgia, and Hawaii) in which the variable annuity is deemed to be a security.

There are three approaches currently used by companies with respect to the formation of a broker-dealer. One approach is for the insurance company itself to become registered as a broker-dealer. Several companies, including my own, have taken this approach. Other companies have formed a subsidiary corporation to be the broker-dealer, and that subsidiary is then the entity that is registered under the 1934 Act. Several companies that have been in the business for some time have their general agents individually register themselves as broker-dealers.

Each approach gives rise to different types of problems. The broker-dealer must be registered at the federal level, which is a fairly simple process, but there are some problems. For instance, there is a rule under the 1934 Act called the "Net Capital Rule." This rule states that a broker-dealer may not have liabilities that exceed 20 times its net capital. Most insurance companies would appear to have liabilities which do not exceed 20 times their surplus. But the SEC goes through a process it calls "hair-cutting," which involves reducing the value of some of your assets. Some other assets, such as mortgages, are not counted at all. This, you can see, creates problems. In our case it left us with a negative \$300,000,000 surplus. Therefore, most companies will have to obtain an exemption from this rule.

Once the federal registration of SEC is completed, you must decide whether the broker-dealer should be regulated by the SEC only or whether it should join the NASD. This is an important decision. Joining the NASD means that it can do business only with NASD members, which may or may not be good in a particular situation.

Let us now consider the third topic, the training and licensing of agents. Agents are required to take an examination administered by the state insurance department that contains at least fifty questions on variable annuities. There is another examination on general securities matters that the agent will also have to take. If you belong to the NASD, this exam is given by the NASD; otherwise, the state insurance department will administer that examination.

In the area of sales training, one of the most important tasks is to show a group of life insurance agents how to act in the securities business. As you heard from the panel this morning, there is some disagreement on how difficult that job is, but keep in mind that the life insurance agent is accustomed to projecting dividends. In variable annuities he cannot show

projections, even though his client might want to know what benefits will be available at retirement. This is a problem for all life agents as they get involved in securities, particularly variable annuities.

Most agents have been schooled in the idea of fixed-dollar guarantees. Now they are selling no guarantees. They are selling possible future growth. This takes a change in philosophy. In our operation we found that the passing of the examination does not provide an agent with the ability to sell variable annuity; he has to be given specialized training about the product and how it is sold.

In the administrative area it becomes particularly apparent that you are in both the security business and the insurance business. For instance, every time that you receive a premium payment under a variable annuity, you must send the policyholder a confirmation of the number of units the premium bought and the status of his account at that time. We are not accustomed to this in the insurance business.

Another thing that you run into is daily valuation of the unit values. Money must be processed on the day received. We are not used to processing money that quickly. We have to worry about things like suitability, which means that we ask our prospective purchasers certain questions and review their answers to determine whether they should own a variable annuity. If we think that they should not, we must refuse to issue a contract. In addition, requests for cash surrender must be honored within seven days. Also in the administrative area, there is a whole new list of additional reports that are required because this is a security. One is the N-1R, which is an annual report of significant complexity. These are the types of administrative problems encountered in a variable annuity operation.

**MR. BRUCE E. NICKERSON:** Mr. Rolland referred to the need to give confirmation notices for payments. What is the situation that you have discovered so far with respect to confirmation notice requirements for redemptions?

**MR. ROLLAND:** Some of these things are not very clear-cut. Until recently, the variable annuity companies were not confirming anything. It is only since some of the companies have joined the NASD that there has been any confirmation. My company is intending to confirm the receipt of premium payments, but as of now we do not plan to confirm annuity payments of redemptions.

**MR. JAMES B. ROSS:** Variable annuities require a life insurance carrier for their existence and operation. They are a relatively new development.

Mutual funds, however, have been around for some four decades. There are a great many people in the existing mutual fund business who know how to conduct all the operations. Not many of these people are actuaries, and not many of the companies involved—until this past year—are part of insurance groups. The point is that the mutual fund business, with more than \$50 billions of assets, is a reasonably mature industry with a number of capable managements.

As the life insurance companies enter the mutual fund business, they are coming into an industry that is already up and running. This is quite different from the variable annuity business, in which the life companies are really breaking new ground.

On the mutual fund side there are more than four-hundred open-end mutual funds managed by some one-hundred management companies. The traditional form of organization is the professional money management group managing the assets plus a separately organized underwriter selling the shares, usually under common control. The underwriter does business through a multiplicity of broker-dealers who are usually not connected with either the underwriter or the money manager. About 78 per cent of the assets now existing were created through this kind of distribution chain, and at the moment about 85 per cent of the business done is transacted in this fashion.

The problems which are so vexatious to the entering life insurance companies present themselves quite differently to firms presently engaged in the distribution of mutual funds. Consider, for example, a New York Stock Exchange firm. Compliance with the regulations is simply a variation on its everyday theme of complying with the rules governing distribution of general securities. The formation of a broker-dealership is a problem which has already been solved since it is essential to its general business. The licensing of the field force of an NYSE firm is central to its business of distributing all kinds of securities; the mutual fund component of it is handled as a matter of course and is, generally speaking, considered to be a minor part of the curriculum. Motivation of a sales force of this type and subsequent sales training are problems quite different from their counterparts in a life insurance company. In the New York Stock Exchange firm situation, the management is attempting to capture for the mutual fund line a share of the attention of people who already regard themselves as security specialists. The problem is to get men with strong incomes from "sophisticated securities selling" to focus their attention on the straightforward mutual fund product.

The distributors split into some useful categories. Members of the New York Stock Exchange and American Stock Exchange make perhaps 45 per

cent of the existing fund sales. Life company broker-dealers do perhaps 1 per cent of the business. The third big group of distributors consists of over-the-counter (OTC) houses and regional member firms. They may do some general securities business, but usually major in mutual funds and minor in life insurance through their dually licensed sales force.

The OTC house has an interesting reverse problem, that is, capturing the attention of their strong fund salesmen for life insurance sales! OTC houses and regional members distribute perhaps 40 per cent of the total mutual funds sold. The last category (most familiar to the life companies) is that of the direct distributors. IDS and Waddell and Reed come to mind immediately. They and their colleagues take the other 14 per cent of the fund market. Based on ICI data, all these distributors working together during calendar 1968 sold \$6.8 billion, on the one hand, and experienced \$3.8 billion in redemptions, on the other. Thus the industry took in \$3.0 billion net without the real benefit of the enormous marketing power which the life insurance companies offer.

“Coming into this business” usually means, at least among the big life companies, starting a mutual fund with a name related to that of the life company (perhaps two such funds, growth and income), establishing a management company, and creating an underwriter to market the product. Usually the sole function of the underwriter is to behave as the broker-dealer with respect to the career agents and first-line brokers of the life insurance company. This approach has at least these disadvantages:

1. The merchandise available to the field force is limited to merchandise which the present life company is willing to offer. In the broad mutual fund selling field these products may not be competitive.
2. Limiting the distribution of the life insurance company's fund to its own field force may not tap all distribution sources available. Conceivably a broader spread could be attained if there were not an exclusive relationship between the life company's mutual funds and its field force.
3. The sales expertise of the commercial fund groups is not available to the field forces of companies that confine their equity-product sales to their own products.
4. Experience has shown quickly that a significant track record on the part of the mutual funds to be sold is an important element in the more thoughtful sales situation, especially for larger amounts of money. It is difficult for the newly dually licensed agent to trade on the general money management skills of his life insurance investment people in competition with a demonstrated record from a commercial fund management group.

An increasingly popular way to enter the equities business, especially for a life company of less-than-formidable size, is simply to form a broker-

dealership and to use commercially available funds. This permits a broad choice of product line, avoids the agonies of forming a proprietary fund, and eliminates the anxieties of reaching a break-even point in reasonable time. The cost of starting a broker-dealership is modest in comparison with that of starting your own fund complex. The people who proceed in this fashion then utilize the skills of the commercial fund groups to help redesign their sales approach speech so as to provide whatever degree of emphasis the life company management seeks to provide on the equity product. Life insurance companies that are entering the business as broker-dealers run into some problems not encountered in widespread fashion in the mutual fund business previously:

1. The wide spread of the agency plants of the life insurance companies (even small companies operate in three or four different states) makes some terrific compliance problems simply from the geography.
2. The affinity of the life insurance agent for projecting results into the future runs counter to mutual fund regulations. Already it has proved a trouble spot in merchandising funds through agents accustomed to selling participating life contracts.
3. Life companies usually enter the game with an existing financing plan for their agency plant. This is proving to be an enervating thing with respect to the selling of mutual funds through the life insurance agents, especially since we are talking about the low commission rate product.

In the last analysis a clear picture on the part of life company management with regard to what its corporate purposes are in entering the equity field will go a long way toward solving the initial problems of organization and entry and the subsequent problems of continuing operation.

In the area of financial considerations the discussions seemed to have been obscured by the failure to distinguish clearly between nonrecurring and recurring cost. The expenses for getting a broker-dealer established and licensed in the various jurisdictions and initially staffed to cope with the probable eventual flow of business are substantial but nonrecurring. Much of the licensing and training cost is nonrecurring. Running costs, once the broker-dealership is in business, are recurring, and refreshingly modest by comparison.

In looking for expense clues in the commercial fund business, we do not find much that is helpful. Keystone's own case is typical: we run an underwriter as well as an investment manager. We do business through some 2,700 broker-dealers across the United States who, in turn, are working through some 15,000 registered representatives. Our field staff servicing these salesmen numbers twenty-two field men ("wholesalers"). Clearly commercial dealer-distributed experience is not applicable.

The most useful material for estimating what your cost might be is probably the experience accrued by actuaries in other life companies as they are putting their operations on stream. A workbook that we have found useful for identifying different classes of these costs and estimating what they could amount to in your situation is called *Life Insurance and Mutual Funds*, by Lobell and Love. Its checklists are useful, and its suggested arithmetic is constructive. In many ways the problems involved in broker-dealership operations using mutual funds are not very actuarial at all but are more properly straightforward business decisions involving relationship between the initial investment and the subsequent payout.

We find that the most popular question arising in discussions between mutual fund managements and life insurance companies is "How much business would you have to do to break even?" It is worthwhile pointing out that, while often there is a numerical answer to that question, in some circumstances the parameters are such that, given competitive commission payouts and honest expense analysis, a broker-dealer profit center will not make money *in itself*, no matter what volume of business it does.

The break-even point depends on a great many things, a number of which come back again to company philosophy. Let me list a few examples:

1. How much real agency horsepower are you going to put into this effort? A number of companies are holding back at the moment because they feel that the sale of equities is going to reduce the average life premium on new sales. They would rather have the assets at work in fixed dollars in a life insurance company than elsewhere, even when one of the "elsewheres" could be their own management company.
2. To what extent is the life company prepared to accept a lesser return on a given amount of money which presents itself to their fund as opposed to their life insurance company? There is a clear difference in the profitability if the money will enter one door as opposed to another!
3. To what extent is the life company willing to create conditions which facilitate the agent's sale of the product in the field but create earnings problems in the broker-dealer—small transactions, check-o-matic, free conversion?
4. To what extent is the company willing to look at the total picture, including life insurance sales created by the existence of the broker-dealer, salvage of some marginal agents who could not survive without the mutual fund product, and an increase in the general financial well-being of the successful agent cadre? Too close a focus on the profitability of the broker-dealer per se is going to eliminate the synergistic effect of the fund/life combination. It should be granted that measurement of the side effects is difficult, but they are many of the *real* reasons for engaging in the entire exercise.



The arithmetic of the break-even-point calculations is reasonably straightforward. It is the kind of exercise which actuarial students have tackled for years. The hard part lies underneath, in the decisions which permit a quantification of the problem and have to do with life company philosophy toward the equity product. Is the attitude of the life company defensive or aggressive? Is it to integrate the equity product or to isolate it? Will corporate resources be consciously and willingly allocated toward the equity product or not? Does the life company's agency management feel that mutual fund sales are complementary to existing life sales or cannibalistic?

I do have one number which might be useful to some of you in thinking about the magnitude of these costs. Several years ago we put out an exchange fund. It was simply an addition to our line of merchandise and did not require licensing and training the people who were going to distribute it. In this sense most of the make-ready costs from a field force point of view were not present. On the other hand, it was partially underwritten (a special effort in securities distribution) and did have an unusual investment objective. In the final analysis, aside from the \$100,000 required for the initial investment in the vehicle itself, the cost was \$350,000 to put the vehicle together from scratch, issue a prospectus, make it available in all the jurisdictions, take it to market, and get home \$35 million.

A number of other cost figures are cropping up as life insurance companies enter directly. I would like to ask the moderator if he has any numerical information that he can add to this.

**CHAIRMAN JOHN T. LONGMOORE:** Talking about overlooking expenses reminds me of the first time that I did financial projections for this business. I looked at them the other day in horror, because I noticed that our actual expenses are probably running about twice what we expected them to. We underestimated printing expenses and the cost of performing the necessary administration requirements that we just did not even know about.

We had no idea that state licensing would cost anywhere near as much as it did. We did not recognize the difficulties involved in getting our men fingerprinted in the eleven states that required it. Can you imagine telling a prestigious general agent that he must go down to the local police station and be fingerprinted!

When we did our early financial projections, we felt that we could probably get by and obtain a reasonable return on our investment, which we underestimated, with voluntary plan sales of about \$5,000 per man. Looking over our most recent projections, we have now decided that our

people can write more business, because we now need \$7,500 per man to break even. We are, surprisingly enough, on target in that particular goal, \$7,500 per man, largely because we do not have nearly as many men licensed as we thought we would have. Do you have any comments on financial considerations, Ian?

MR. ROLLAND: I will make one or two comments from the standpoint of the variable annuity. I have discovered over the two and a half years in which I have been involved with variable annuities that I would have been far better off if I had had the printing concession that is associated with it rather than my job with The Lincoln. The amounts of developmental cost vary by the extent to which you want to get into the business. I have heard figures stated that run anywhere from \$500,000 to \$1,000,000 just to put the operation on the road.

We put two variable annuity funds into operation, both qualified and nonqualified, and I estimate our development costs at about \$700,000. So it is an expensive operation. Legal fees associated with the development of a variable annuity operation may run as high as \$100,000.

In regard to break-even points, many of the same things apply to variable annuities that Jim outlined for mutual funds. I was on a panel recently with four other speakers from four different companies, each offering different kinds of variable annuities with different loading and different commission patterns, and every one of the speakers said that the break-even point is at seven years.

I do not think, however, that it is that simple. It depends greatly on many factors, one of the biggest being commissions. Some companies in the variable annuity field are paying in the first year greater commissions than the amount of sales loadings that they are getting from the premiums, a practice which results in a surplus drain for the company and defers into the future the break-even point. Also, the amount of business you write and the persistency will have a significant impact upon the year in which your company is going to make money on variable annuities.

MR. ROSS: A very large broker-dealer can be operated successfully on \$20 million worth of mutual fund cash business. In the commercial field at the moment there might be fifty nonlife insurance company broker-dealers doing in excess of \$20 million of cash business, of which perhaps fifteen are doing in excess of \$100 million. Most of them are not involved in writing other profitable lines, like life insurance, so that the projected \$20 million shop is a very practical undertaking.

I would add regarding transaction size and a too-liberal payout with

respect to mutual funds that there are similar considerations on the variable annuity side. If the minimum is too small or the commission aggregate is too large, the asset share for a given variable annuity may never emerge and the accumulated earnings picture for the entire variable annuity operation may never turn positive.

MR. ROLLAND: When I mentioned seven years, I did not mean that the variable line will necessarily be in the black by then; I meant that the asset share will be out of the red on a policy in about seven years. This, of course, depends on a great many factors from the commission structure to the loading pattern and a flock of other considerations.

MR. ALFRED L. BUCKMAN: How would you project that to the company itself? When do you expect the company to come out of the red?

MR. ROLLAND: You have to make some projections as to the amounts of business that you are going to write and then come up with a model to determine when that time is. That is hard to do, because we have not been able to predict the amount of business.

MR. BUCKMAN: You did say, did you not, that you are anticipating a drain of two-million dollars?

MR. ROLLAND: I think that our surplus drain will exceed that before we start to turn around. I think we have exceeded that already.

MR. JOHN W. H. TAYLOR: I get the impression, John, that Hancock is not paying commissions in excess of the sales charge?

CHAIRMAN LONGMOORE: No, we are not. I want to make that point clear. We are selling mutual funds and paying the agent one-half the sales load.

MR. TAYLOR: Are you planning to do that in the near future?

CHAIRMAN LONGMOORE: I would have to answer in the affirmative in that area—not paying commissions in excess of the sales load. We probably will not offer a level load variable annuity.

MR. ROLLAND: I think what we are facing here are traditional life insurance commission patterns and the attempt to make a transition to the security business. We are trying to reach some sort of compromise between the two.

Our first-year commissions are very small as a percentage by life insurance standards. Yet our renewal commissions are higher relative to life insurance. So we have moved toward security commission patterns but not entirely.

MR. TAYLOR: But your profit margin is much lower outside the commission area? You hope that your renewals will make up your excess funds?

MR. ROLLAND: We hope to get the good persistency and thus recover in later years the loss of the first year. So far we do not have enough experience to know what renewal lapse rates will be.

MR. ROSS: On the subject of marketing the questions are two in number: "How are the products sold?" and "Where are the major markets?" These have some philosophic overtones as well, and it would be wise perhaps to discuss the marketing question against the most common backdrop—that the life company entry into equity products is essentially defensive in nature and that the life company broker-dealer should operate at a profit. Keeping this background in mind, it is not hard to find any number of agency reasons for having a variable product line:

1. It keeps your agents from jumping ship to go to someone who does have a variable product line.
2. It keeps your agents from making side-line arrangements with other factors to handle equity products, arrangements which fractionate their interest in their primary life connection.
3. It provides a positive facility for capturing that share of the market which asks the life agent if he handles equities.
4. It provides a joint facility for areas in which mutual funds can be sold in such a way that they are complementary to the life sale and do not compete for the flow of life dollars. A good example of this is the uninsurable.
5. Perhaps the strongest case can be made for mutual funds as the medium for tapping the already accumulated savings of individuals, which savings are presently invested in media other than mutual funds. This is an enormous market already existing. One of the practical reasons connected with this is having the dually licensed salesman screw up his courage to the point where he will ask for a sale of this size.
6. Equity products make it possible for agents to get to markets that they could not effectively reach before, e.g., split-funded Keogh plans, which are more popular and salable than fixed-dollar Keogh plans.
7. Agents accustomed to running on a very strong sales track can be put onto a track including both life insurance and funds with a demonstrable increase in response by the buyer.

In deciding how you will operate, you do need to keep in mind the well-being of at least the following classes of participants in the enterprise:

1. The buyer
2. The agent
3. The field sales manager
4. The owner of the broker-dealer
5. The distributor of the fund
6. The investment manager of the fund
7. The shareholders of life company or its holding company

These are all different classes of people, and the question of finding the "best pattern of behavior" for all of them at once has no answer. Possible solutions, depending on the relative stress laid on the various parties to the transactions, range from rewriting the basic sales track for the life salesmen to include a substantial and appropriate portion for equities all the way to excluding equities from the salesmen's kit on the grounds that the return to the stockholder of the life company is insufficient.

An often expressed desire is to increase the income of the agency plant. If that is a dominant characteristic, the company will handle the matter in one way. If the entry into equity products presents itself to the corporate management as a way of making profits from their distribution, they will attack the problem in an entirely different manner or may not even engage in the equities at all.

If the company is strongly oriented toward doing the best thing for the policyholder on some kind of individual review of his circumstances, it would appear almost inevitable that a broker-dealership be established which could provide that facility for those policyholders who are certain to need equities.

Squarely on the subject of markets, most mutual fund sales are still made directly to individuals. There is a great deal of talk at the moment about the use of payroll deduction to bring home a sequence of fund contributions of modest size. As in salary savings life insurance, there is a great deal more discussion than accomplishment. The swing in the individual business is away from the outright sale of a block of mutual funds to the thoughtful analysis of the personal situation of an individual with an eye toward recommending various pieces of a financial plan, both fixed dollar and variable. This includes both lump-sum investments and continuing amounts for accumulation. Clearly this is a market in which the agency forces of life insurance companies are superbly equipped and will be able to operate effectively, given the kind of environment in which even-handed stress can be laid on both products.

Additional markets of interest to you are the corporate markets, where broadening opportunities exist for profit sharing, pension plans, and, at a lower level, Keogh plans. Profit-sharing markets in particular are quite strong and adaptable to the mutual fund product. Tax-sheltered markets do exist and are increasing in importance.

MR. ROLLAND: From the standpoint of variable annuity, I think I will start out on what the markets are and then discuss for a few minutes how variable annuities are sold in each. Most companies thus far have limited their operations to some sort of tax-qualified variable annuities, including tax-sheltered annuities, H.R. 10, and other qualified pensions.

We have found that our biggest market so far has been in the tax-sheltered annuity areas, which include schoolteachers and nonprofit organizations. We have sold quite a bit less H.R. 10 business than we have tax-sheltered annuity business.

We are experiencing great interest in the transferring of existing funds under profit-sharing plans and side funds under pension plans into group variable annuities. We have a single-premium group variable annuity that is designed to accommodate these lump-sum transfers, and we are getting some sizable funds transferred over from banks and other types of investment media.

The nonqualified area is still fairly undeveloped because many people have felt that the variable annuity could not be sold effectively in a nonqualified market because of a possible tax disadvantage in comparison with mutual funds. The experience of one company, however, indicates that the variable annuity can be sold effectively in the nonqualified area, the tax problem notwithstanding. If good investment experience in a nonqualified annuity after the tax deduction results, people are not very much concerned about the tax.

In the nonqualified market, there is a significant demand for the single-premium annuity. This has been unexpected, but we have had dramatic success with single-premium variable annuities and have written one as high as \$300,000 on one life. So, as Jim says, there are large chunks of money around, and people are willing to invest it in variable annuities, mutual funds, and equities in general.

As to how the product is sold in each of these markets, the tax-sheltered market is somewhat unique and different from the others. The first sale on the tax-sheltered annuity is to the employer, and there is some feeling that it takes a certain type of salesman to sell your product to that employer and a different kind of person to act as the enroller of the individual participant.

The approach to this tax-sheltered annuity market involves mass marketing, mass mailings, and talking to a great many people. Sales of group contracts have been far more successful than sales of individual contracts. Loadings are low under the group contract, and commissions are low also, but the agent contacts many people and the dollar volume of sales is high.

In the H.R. 10 area we have found that most of our sales so far have been on an individual basis, which involves face-to-face contact between the agent and the client. There has been some attempt by some companies in the H.R. 10 market to sell on a mail-order basis to members of professional associations. It is my understanding that they have had less than dramatic success.

In other tax-qualified areas, most of our business has been on a group basis.

In the nonqualified area, of course, the sales are practically all on the individual basis. Loadings are relatively high except on the single-premium purchases where large single-premium purchases can result in fairly low sales loadings.

MR. ROSS: I want to suggest that the level payment withdrawal plan is proving quite satisfactory to a significant number of retired beneficiary payees as an alternate to "the annuity income that you cannot outlive." There has been a lot of planning done by mutual fund salesmen in launching retirees with the mutual fund product, which is responding quite well to inflation even though it does not have a complete annuity guarantee. There is considerable interest on the part of many beneficiaries in leaving something behind when they die, so that the actuarial notion of using up the principle probably has more broad-based appeal to actuaries than it does to retirees.

MR. ROLLAND: With regard to marketing, I thought that some of you might be interested in some statistics on the success of the equity sale as opposed to fixed sale. We offer contracts where a person can choose between fixed or variable. The loadings are the same on both, and the agents get the same commission. In all markets our experience is that between 80 and 90 per cent of our policyholders choose equities over fixed annuities. So there is some good evidence to indicate that equities are preferred in the market place by most of these buyers. Our average annual premium per sale has been running about \$1,000 a year.





## LIFE INSURANCE NET COST COMPARISONS

### I. *Measuring and Comparing Net Costs*

- A. What new methods have been suggested for making net cost comparisons:
  1. Between companies on a single plan?
  2. Between plans of insurance?
- B. Are these methods mathematically sound? Do they produce figures that would be meaningful to the insuring public and to agents?
- C. Is there an urgent need to select and popularize an alternative method to replace or supplement the traditional net cost method?

### II. *Analyzing the Effect of Replacements*

- A. What procedures are companies using to show policyholders and agents the financial impact of replacements?
- B. Have any problems arisen in connection with the administration of replacement regulations of various states?
- C. Are cost comparisons required in these regulations sound? Do they provide any real protection to the policyholder?

MR. WILLIAM GOULD: My remarks will be primarily concerned with cost indices for newly issued policies, that is, indices based on illustrative dividend scales rather than on dividend histories. The fact that illustrative or "projected" dividends are based on the company's current dividend scale, and do not represent estimates of dividends payable under future dividend scales, should be stressed, obvious as it may seem to most of us. And, yet, it is not uncommon to encounter statements referring to a company's "optimism" in projecting dividend scales. The only safe prediction that we can make is that current scales will be changed several times during the period covered by the cost index.

### I. *Review of Methods*

We will begin our survey by examining the traditional net cost method and some variations of that method. Net cost here, of course, represents the cost for the entire policy, not simply for the protection element included in the policy.

#### A. *Traditional Method and Variations*

##### 1. *Summation without Discount*

The traditional net cost for a single year is the annual premium minus the annual dividend at the end of the year and minus the increase in the

surrender value (i.e., the guaranteed cash value plus any terminal dividend). The traditional net cost for a period of years may be thought of as the sum of the net costs for the individual years, without any discounting. This formula assumes that the individual insured will survive to the end of the period and will then surrender his policy at that point. Also, the formula does not take account of interest that the insured might have otherwise earned if he had not purchased the insurance.

### *2. Present Values or Accumulated Values Based on Interest*

A conceptually simple modification of the traditional net cost method is to adjust the cost figures on the basis of some assumed rate of interest so that the total cost represents the present value, as of the beginning of the period, of the costs for the individual years. Alternatively, the total cost may represent the accumulated value as of the end of the period.

These methods involve a considerable amount of arithmetical computation and are therefore not well suited for general use. The "one-thirtieth" method described by Mr. E. J. Moorhead a few years ago is a convenient way of approximating the figures under the accumulation method when the period is twenty years; it assumes that the accumulated value of the dividends is equal to the particular company's illustrative dividend accumulation, which is readily available but is based on the company's own rate for such accumulations.

### *3. Present Values Based on Interest and Mortality*

The method presented in Mr. Ryall's current paper, "A Fast, More Meaningful Twenty-Year Net Cost Formula," is a further modification of the traditional net cost method. In effect, Mr. Ryall's cost index is an average or level net cost per year, calculated on the basis of assumed rates of interest and mortality. Mr. Ryall's method involves some ingenious devices and approximations which greatly facilitate calculation of these indices.

I think that the use of survivorship rates in calculating cost indices raises an interesting question: "How meaningful can such figures be to the individual purchaser?" I am referring to the *concept*, not to the particular choice of rates. The use of probabilities of survivorship is reasonable and necessary from the viewpoint of the insurance company in order to calculate the expected average cost for a large group of purchasers, some of whom will die during the twenty-year period and some of whom will survive to the end of the period. But, is such a measure really meaningful from the viewpoint of the individual purchaser? I think not. I believe that the question the individual purchaser is asking is, "If I die within

twenty years, I know my insurance will have been a bargain; but, if I live the full twenty years and then surrender the policy, what will it have cost me?" In his paper, Mr. Ryall makes reference to the "actuarially informed prospect." I believe this is a rarer species than Mr. Ryall imagines.

#### 4. *Present Values Based on Interest, Mortality, and Lapse*

Although I have not heard anyone advocating it, I shall anticipate and mention yet another possible modification of the traditional method. This would involve discounting the costs for individual years on the basis of assumed rates of interest, mortality, and lapse. The use of lapse rates is a prominent feature of several cost measurement methods devised by Professor J. M. Belth, which I shall discuss later in more detail.

Lapse is a contingency very much subject to the personal control of the individual purchaser. The supposition that he will surrender at the end of the twenty-year period is merely a convenient assumption, not an expectation.

If I, as one who is "actuarially informed," were a prospective purchaser and were shown a cost index based on interest and mortality only, I think I might be able to draw some reasonable inferences to apply to my personal situation. But, if the cost index was based on interest, mortality, and lapse, the figures would be useless to me. I know that they would *not* fit my individual case, since I would judge the probability of an early lapse in my case to be just about nil.

#### 5. *Further Comments*

I believe that each of these methods—the traditional method and the modifications described above—is mathematically sound, *if* the basic assumptions are understood. On the question whether they produce figures that are meaningful to the layman, I would give a higher mark to the much criticized traditional method and even to the interest discount or accumulation method than to the methods involving mortality or lapse.

The "with discount" methods, it may be noted, give greater weight to the costs for the earlier policy years than to those of the later years. They tend to favor policies with relatively flat scales of annual dividends.

#### B. *Professor Belth's Proposals*

##### 1. *"Level-Price" Method*

Professor Belth's formulas for the yearly and level "prices of protection" purport to measure the cost of the protection element of a life insurance policy and are intended to eliminate the effect of the savings

element on the total net cost. The "level price per \$1,000 of protection" for a period of years is an average of the yearly prices during that period, using discount factors involving interest, mortality, and lapse.

In my opinion Professor Belth's formula for the "yearly price of protection" is arbitrary and mathematically unsound. In my article in *The Actuary* (March, 1969), I noted that the "yearly prices" do not take proper account of significant differences in the savings elements of the policies being compared. I also noted that the "yearly price of protection" arbitrarily includes the entire yearly expense of the policy (plus interest), that is, it includes the expense on the savings portion of the policy as well as the expense on the risk portion. Since the protection element in a policy is inseparable from the savings element in that policy, the Belth "yearly price of protection" formula is inherently objectionable as providing incomplete comparisons. It follows that the "level price" has no more validity than the "yearly prices" contained in it.

Also, as previously noted, I question whether the use of mortality and lapse rates is appropriate for a measure of cost from the individual purchaser's point of view.

### 2. "Ratio of Benefits to Premiums" Method

Professor Belth has devised several additional indices that are in the form of ratios of the present value of benefits to the present value of premiums. Present values are calculated on the basis of interest, mortality, and lapse.

To the extent that these indices involve separation of costs between protection and savings elements, their validity may be questioned, as indicated by our analysis of Professor Belth's "level-price" system.

Also, the criticisms that I have directed at other indices involving the use of mortality or lapse rates would apply to these ratios as well. They are laborious to compute, and the resulting figures are difficult to comprehend and to interpret.

### 3. "E-Value" Method

Professor Belth has also devised a cost measure that he designates "E-values." These represent the excess of the present value of the premiums over the present value of the benefits, benefits meaning dividends, mortality costs, and the savings element.

The same general criticisms that I have indicated with respect to Professor Belth's ratio indices apply to his "E-values." Perhaps the severest criticism of this method is that it is difficult to explain and difficult for a layman to understand. It can, therefore, easily give rise to misinterpreta-

tion. Let me illustrate this point. Some months ago I saw a press report of a speech by Senator Hart, citing Professor Belth as follows:

In a study soon to be published, Professor Belth declares that policyholders of some 88 companies are paying from \$175 to \$1,078 a year for almost identical policies" (*National Observer*, October 21, 1968).

Most readers would interpret the phrase "what policyholders are paying" to mean premiums or premiums less dividends. In either case, a difference of this magnitude seemed incredible to me. Examination of the source of the data indicated that the figures referred to "E-values" that Professor Belth had tabulated for whole life policies for \$10,000 face amount. These "E-values" are quite different from "what policyholders are paying a year for almost identical policies."

#### 4. *Further Comments*

All of Professor Belth's several methods involve present values based on interest, mortality, and lapse and therefore give greater weight to the earlier than to the later durations in any comparison of policies.

### C. *Other Methods*

#### 1. *Rate of Return Method*

The rate of return method was developed some years ago by Mr. M. A. Linton to measure the rate of return on life insurance policies rather than to compare performance on net costs. It is mentioned here because it has been referred to as a counterpart of Professor Belth's price of protection method. The definitions of the basic elements involved in the Linton method, however, are mathematically sound, in my opinion, whereas those involved in the Belth method are demonstrably not.

#### 2. *Present Value of Premiums Less Dividends Method*

Mr. C. L. Trowbridge has proposed a cost index which represents the present value of premiums less dividends on an assumed mortality and interest basis; the period covered extends to the limiting age of the mortality table or to prior expiry or maturity date for other than whole life plans. Appropriate adjustment is made when comparing the indices for different plans. The distinctive feature of this method is that it covers the entire duration of the policy, without any assumption of surrender at the end of twenty years.

This method, I think, is mathematically sound, though the need to project dividends for a period so far beyond twenty years may seem artificial. How meaningful the figures will be to the layman is a question.

## II. *Should There Be an "Official" Method?*

It seems fair to say that no particular cost method can be shown to be clearly superior to all other methods for all purposes. Each method involves a set of assumptions which assign different weights to the various elements that are taken into account and which may or may not be appropriate in particular circumstances. I see no justification either for the companies or for governmental authority to designate any one method as the "official" basis for calculating cost indices.

Despite the charges that the traditional net cost method does not provide a measure of the true cost of a policy, the components—premiums, dividends, cash-surrender values—which are summarized in the traditional net cost presentation are all important to an understanding of the policy. I am sure that, whatever additional information companies may in the future furnish for cost purposes, it would still be necessary to furnish the basic facts, namely, premiums, dividends, and cash-surrender values.

I think that we may expect to see a movement for companies to publish several cost indices to supplement the traditional net cost summaries. One index, for example, might involve discounting total policy costs at interest for a twenty-year period, on the assumption that the policy is surrendered at the end of the period. Another might involve discounting total policy costs at interest and mortality for the entire duration of the policy, avoiding the assumption of surrender at the end of twenty years. Each of these indices could serve a different purpose and be appropriate in certain circumstances. Making such data available would help demonstrate that the life insurance business earnestly supports the principle of full disclosure of information to the public about policies and their costs.

As a final note, I would like to stress the point that cost figures are not the only factor that the purchaser of life insurance should consider in selecting a company or a policy. There are other factors—important but intangible—that can never be adequately reflected in any cost index. I am referring to such factors, for example, as the financial soundness of the company, the market it serves, and the quality of service provided by the company and by the agent.

MR. J. STANLEY HILL: In working with college students, college graduates, and others of a comparable intelligence level, I have found the following approach to cost analysis to be both understandable and intellectually satisfying:

1. Decide on the period or periods that you wish to study.
2. Choose a suitable interest rate, representing the value of money, after taxes, to the insured—either as a borrower or as an investor, as the case may be.

3. Determine the present value of the cash value (including dividend accumulations or paid-up additions) at the end of the period.
4. Determine the present value of the premiums.
5. Subtract the first present value from the second to determine the present value cost of the net protection.
6. Look at the net protection (face amount less cash value) at intervals during the period. If the policy with the higher net protection has the lower cost of protection, the choice is obvious, "other things being equal." If this is not the case, compare the ratio of net protection to cost of net protection.

Although the method is approximate, further refinements seem unwarranted in view of the difficulty of choosing a suitable interest rate. This difficulty is inherent in all methods. The present value concept is readily grasped by nonstudents of investment math. Merely have them visualize the amount of money which must be placed in a savings account to provide the cash value or to meet the premiums as they fall due.

MR. CLAIR A. LEWIS: In replacement situations, a few states have required, as a part of the material facts to be disclosed, a tabulation of gross premiums, dividends, and cash values at specified durations for both the policy being replaced and the replacing policy. Only one state, however, has attempted to go farther than a simple presentation of figures. This is, of course, the state of Washington, which has included in its replacement form a cost calculation following a prescribed formula.

With regard to the procedures which companies are using to show policyholders and agents the financial impact of replacements, my company, as a general rule, does not go beyond furnishing premiums, dividends, and cash values. This traditional net cost approach is simple, is easily understood, and is principally a means of disseminating information. Some would say that this approach places too great a burden of evaluation on the prospect; others would say that it forces him to adjust the bare facts to his own situation and may lead to less misunderstanding than a more refined method. Be that as it may, we at the Northwestern Mutual have not as yet attempted to do more than this except under unusual circumstances or unless required by law.

To the best of my knowledge, my company has had no great problems of administration of state replacement regulations. Actually, our own requirements are generally more stringent than those required by law.

Let us return to the question of cost comparisons required in the replacement regulations. As I mentioned a moment ago, this currently includes only the state of Washington, so I will direct my remarks to their statute. The cost figure which is required in their replacement form for

certain policy years is similar to a yearly cost described by Professor Joseph Belth some years ago in his paper dealing with the question of replacement. The cost of a policy for any particular year is defined as the gross premium plus a full year's interest on the terminal cash value less the increase in cash value and the dividend. A cost per \$1,000 of protection is then obtained by dividing by the net amount at risk. This formula, I suspect, would, with a little coaxing, appear fairly logical to the man on the street. It involves some explanation of the concept of amount at risk, but the approach does have a certain practical appeal. A more mathematically precise formula would take the beginning cash value, add the gross premium, and subtract the present value of the year-end cash value and dividend, using both interest and mortality in the discount factor. This approach involves probability and mathematical expectation, concepts which are foreign to the public and are probably even more difficult to comprehend than the idea of amount at risk. Actually, under net assumptions, such as those found in the calculation of the net level premium reserves, these two formulas are comparable; however, in actual practice they can vary quite widely if the mortality and interest assumptions differ much from those used by the insurance company in the calculation of its values.

Aside from the question of public understanding or theoretical preciseness, however, is the question of utility. This particular measure of cost cannot be safely used in isolation, as some of the critics of the Washington regulation have pointed out. For example, if one looked only at a particular year, other things being equal, the company with the highest cash values would have the highest cost, since it would obviously have the highest interest requirement. What this overlooks, of course, is the fact that, sometime during the earlier years not being examined, this particular policy must have had a very favorable cost because of the higher increases in the cash values, which are also a part of the cost formula. Thus one cannot put much faith in these yearly costs unless he can see them all. I emphasize this point very strongly, because it typifies the problem inherent in this entire replacement area—the difficulty of getting the whole picture and not just part of it. The inadequacy of this yearly cost approach is even more obvious in the situation in which the costs of one policy are not consistently above or below those of another. Here the prospect has no choice but to look to some other means of comparison. Thus I cannot believe that any formula would be appropriate which did not include all intervening policy years in any cost determination.

There are other criticisms that have been made of this particular cost formula; however, I suspect that many of you are familiar with them,



since most of them have been discussed in *The Actuary*. My own limited contact with this problem has led me to conclude that, as yet, I have not seen any formula which is completely free of criticism. The job of finding an appropriate formula for a replacement form is not an easy one. First, if the current format of replacement statutes is continued, the formula must be easily adaptable to any plan of insurance, because the incoming policy is compared to the one that it is replacing. This eliminates a good many candidates. For example, if a family-income-type policy is being replaced by straight term, neither the traditional net cost method nor any accumulation method is appropriate, because there is no comparability of amounts at risk. The Washington formula gets around this by looking at the cost per \$1,000 of risk for a given year; however, it has the deficiencies which I and others have mentioned.

I would add at this point, however, that I, for one, am not even convinced that two policies having materially different risk structures should be compared. For example, assume that a twenty-year endowment policy in Company A is to be replaced by the twenty-year term policy of Company B and that the cash value released is to be placed in a mutual fund. Current replacement statutes require that the endowment and term values be compared in some way or another. But is this really the comparison to be made? Is not the more logical comparison one between the term policy to which Company A will change the endowment policy and the term policy which is being suggested as a replacement? To do otherwise in this particular example, it seems to me, puts the game in the ball park of the replacement artist. The failure to compare term to term carries with it the implication that there must be something suspect in the endowment feature. To the man on the street this can relate to only one thing, and that is the additional investment he has tied up in his present policy. With the replacing agent showing him illustrations based on combined dividend and growth rates of 10-20 per cent, it is not surprising that he is rapidly convinced of the "rotten job" being done by the investment department of his present insurance company. As a matter of fact, I suspect that, in most situations of this type, the prospect would be amazed to learn that his own company had comparable earnings rates on that part of its portfolio devoted to common stock.

In view of this, would it not be better, in this example, to compare term to term and force the prospect to make his choice—not between plans of insurance but between high-yielding, high-risk stocks and lower-yielding, lower-risk securities and mortgage loans, with full recognition also being given to the difference in tax treatment accorded investment earnings as opposed to life insurance proceeds? Certainly no cost formula will bring

out the true “nature of the beast” in this particular situation. Conceivably, it could be detrimental if it gives the prospect a false sense of security.

Actually, there is much to be said against comparing different plans of insurance even in the same company, because you are often comparing apples and oranges. What, for example, is the conversion or renewal privilege on a term policy worth to a particular insured? Likewise, what are the high cash values of an endowment policy worth to an insured when one considers the value of guaranteed settlement option rights, the value of instant credit at a guaranteed interest rate, or, for that matter, the value of simply having a forced savings program? Or, considering ordinary life, what is the value of the option at retirement of “cashing out” or of continuing to put money into the policy either to protect the beneficiary against the insured’s early death or to transfer part of the existing estate on a favorable basis? All of these involve different values for different people. The availability of a refined cost figure could augment the information upon which the prospect based his decision, but it also could close his eyes to the items I have just mentioned if it encouraged him to make his decision on the basis of “price” alone.

Please forgive what may appear to have been somewhat of a digression; however, I personally feel that it is very difficult to judge the suitability of a cost formula in a replacement statute without going into at least some of the circumstances under which it must operate.

With this background, perhaps my closing thoughts directed to the appropriateness of a cost formula in a replacement statute will make more sense to you.

Any cost formula which does a good job of recognizing all the contingencies involved is almost invariably going to be complicated. As a result the comparative figures presented to the prospective policyholder are going to have little or no meaning outside the fact that one number will be larger or smaller than the other. This puts a tremendous premium on the reliability of the figures being presented and the fairness in the manner in which they are presented. Because of the complicated nature of the calculation, the prospect can neither judge whether the assumptions made are a fair representation of his particular situation nor make an intelligent adjustment if they are not. In addition, he still has the very difficult task of weighing the difference in cost values against other features of the policies and the characteristics of the companies involved. Further, if the prospect does not understand the nature of what he is being shown, it may give the chronic replacer an excellent chance to manipulate the results so

as to effect an unwarranted replacement and to justify his action on the basis of a procedure promulgated by the state insurance department.

While I may sound somewhat negative toward any cost formula in a replacement regulation, I hasten to add that such is not entirely the case. I simply want to point out some of the difficulties involved and to relay my own feeling that, even though such a formula may be helpful, care must be exercised to see that it does not do more harm than good.



## MERGERS, ACQUISITIONS, AND VALUATION OF STOCKHOLDER EQUITY

- I. *Valuation of Stockholder Equity*
  - A. What methods are used to determine the value of a company for cash purchase or for an exchange of securities? Is there a difference between valuation for cash purchase and valuation for an exchange of securities?
  - B. To what extent are tax-loss carryovers taken into consideration in such valuations?
  - C. What other tax considerations are involved in a merger?
- II. *Advantages of a Merger or an Acquisition*
  - A. What are the benefits to the acquiring company? To the company being acquired?
  - B. To what extent does a merger or an acquisition stimulate growth, new ideas, or greater productivity or cause a reduction in expense? In what ways?
  - C. What other considerations and problems, including public relations, are associated with mergers and/or acquisitions?
    1. Corporate goals and objectives.
    2. Accounting.
    3. Operational problems:
      - a) Marketing.
      - b) Products.
      - c) Administration.
      - d) Esoteric.
      - e) Other.

CHAIRMAN DAVID G. SCOTT: The first item on the program involves a discussion of Mr. Bowles's Actuarial Note regarding return on stockholder equity. It is a very interesting paper, and I think it is one of very timely importance, particularly at present, with the use of holding company organizations. The study of where a holding company can put its capital most effectively is a very important part of the planning of the holding company, and the methods used there have been found to be of importance. I hope, therefore, that this paper will receive a full discussion, as it has at the other meetings.

MR. THOMAS P. BOWLES, JR.: About a year ago we completed a management study of a life insurance company. The management felt that something was happening to the earnings, even though they did not know what. Since the company's staff did not have the time to give to an

analysis project at that particular time, the company asked us to review its over-all operations.

After our analysis it became apparent to us that the earnings were slipping and that the message of how to measure the decline had to be communicated intelligently, accurately, and effectively to a board of directors who did not understand how a life company makes or loses money. We decided that the best way to go about this task was to try to translate the message in terms that the board, consisting of harassed businessmen, could understand. We introduced them to the concept of return on stockholder equity for the life company.

After the meeting was over, one of the members of the board, who was and is president of one of the large banks, said, "I have been coming to these board meetings for a long time, and I have heard a lot of esoteric actuarial doctrines, but this is the first time that I have heard an actuary talk about anything that makes sense to me. At our board meetings we talk about stockholder equity and, therefore, when you talked about that, the message got across to me." As a result of this, we concluded that this is indeed a way to get the message across.

Shortly thereafter we completed a management study of two additional companies and presented the results in the same form. The reaction of the lay board members to this type of presentation of the return being achieved by the life company was so favorable that we decided to embody some of our basic thinking in this Note.

The point that we emphasize in the Note is that we actuaries must communicate effectively to a group of businessmen who do not understand the technological terms or the esoteric doctrines involved in our business. In so doing, we will have made progress in helping our companies recognize the importance of return on stockholder equity as well as of an acceptable increase in earnings per share.

**CHAIRMAN SCOTT:** I should like to open the panel session by reading one or two paragraphs of a concise introduction to our subject presented five years ago at a conference on acquisitions and mergers. The speaker was Mr. William Sahn, who is now president of the Life Insurance Company of Illinois.

Mr. Sahn started off with a definition by Daniel Webster stating that a jungle is a densely intermingled growth and then compared this with the life insurance industry. He indicated that, with some 1,500 stock companies, mutual companies, life companies, weak companies, strong companies, old companies, and new companies, we are surely a densely intermingled growth and, therefore, can qualify as a "jungle." He continued

by saying, "Imagine, if you will, that you are on the edge of this jungle planning a very exciting event, a merger safari. What is the object of our hunt?"

Well, of course, all of us go into the jungle for different reasons. The undercapitalized need surplus; the overcapitalized need premium volume; some need an active market for their stocks; some want to get into other states quickly; some think it is cheaper to buy a business than to produce it; some need executive talent; some want in-force volume; some need a new agency system, especially since they have stopped selling the founder's policy. Of course, this is not quite so true these days. As you can see, however, there are different reasons for going into the jungle. But most of those entering the jungle have two things in common—they want to survive and they want to merge on the basis of their market value against somebody else's book value.

After examining the program, I believe that we should begin discussion with Topic II, which has to do with advantages of a merger or acquisition.

MR. MORTON J. KENT: For the benefit of anyone here who is concerned about the establishment or the generation gap, I would like to make a point. I am going to be talking about earnings, which are, of course, definitely involved in an acquisition. Yet I want to make it distinctly clear that it is only as a result of our company's having become one of the companies with the highest earnings that we are in a position to be good corporate and individual citizens and back up financially those areas that do need support and which are among the major problems of our society today.

Essentially, when we talk about acquisitions or mergers, the guiding purpose of stock companies is to increase their earnings per share to their existing stockholders. Some of the compelling reasons for action follow:

1. Merger because of failure:
  - a) Failure to get enough sales.
  - b) Failure to get enough earnings on business sold.
  - c) Higher acquisition costs of business sold than the cost of getting business by acquisition.
  - d) Lack of capitalization.
2. To acquire competent people to improve your own organization and its effectiveness in producing present and prospective earnings and sales. I have not seen any instances where this was a significant result, since the norm is that the good people in the noncontrolling company tend to depart and the hangers-on are, normally, expensive to eliminate.
3. To get an entree into additional states. This is a valid reason for acquisition,

since the pioneering cost in a new state is high; an existing smaller company may have already picked up the tab on this establishment cost in years when it was cheaper and may have an established representation that can be built on.

4. To increase operating earnings:

- a) There is no question that most companies which have been in business any significant length of time can handle in many areas substantially more volume than they are currently handling. This will vary from company to company, but at the minimum there are such areas as the investment area, the public relations area, the actuarial area, the training area, the legal area, the advertising area, and the EDP operations where increased activity requires far less than a proportionate increase in costs.
  - b) If an acquired company has a lower price-earnings ratio at acquisition price than the acquiring company, figured on the same basis as that used for the acquiring company, then a net increase in earnings per share would normally accrue merely by the combination of the two without any of the savings indicated above, or others.
  - c) Increased earnings can also be developed by the appropriate combination of tax factors. An acquired company with a high sales volume may, under the right conditions, when combined with a high earning company, produce significant tax deferrals.
  - d) An acquired company may have a significant capital and surplus that may not be yielding an adequate return rate because of either inadequate size, unimaginative handling, a history of conservatism, or particular objectives of prior controlling management (one such objective is to hold the price of stock down because of potential estate tax problems).
  - e) A company may have an inadequate volume in a specific field to support a minimum staffing required in that field and by acquisition can achieve an effective volume (one specific area of such possibility is the pension field).
  - f) Acquisition in a dissimilar line of business; for example, a life company acquiring a fire and casualty operation may afford the acquiring company a line of business that can, with less than a proportionate increase in field costs, produce added profits by additional sales through its existing field force.
5. If the acquired company is merged, there is the possible release of a major portion of rental expenses and frequently, if it is an old company, home office high value real estate can be turned into a profit. Usually there is some duplication of overhead personnel that lends itself to thinning out through retirement with an inherent net effect on earnings. Other assets carried below value may provide earnings or gains.
6. Internal competition. Through the route of acquisition, internal competition can be developed both from a field standpoint and a home office operation standpoint. If the operations are not merged, through pride in achievement in their part of the corporation, if properly developed, the achievements of both



pre-existing corporations can exceed the results that had formerly been obtained.

7. A merger may afford the acquiring company a size that would reduce the possibility of an unfriendly take-over of its operation.
8. Acquisition for stock may result in a broader distribution of an acquiring company's stock and thus provide a ready market to meet estate tax problems.

**MR. ROBERT C. TOOKEY:** We might add a ninth point to cover the situation that a company often reaches when its rate of production levels off. This often happens in the case of a company founded by a general agent or a person who controls a large amount of production. After founding the company, he directs his business into it, with the resultant rise in production during the first three or four years until his pipelines are filled. At this time he sees that he has reached a plateau and that production has "topped off." The next move for increased growth would require a great deal of effort and perhaps additional investment of capital funds. If he does not wish to do this, he must choose between facing stagnation or cashing in his chips. If he decides to sell out, a very attractive method is to arrange a tax-free stock swap with some compatible merger partner.

This situation can also arise when the top management of a company ages to the point where they lose the motivation to work aggressively for additional growth. When they see the tremendous investment required to attract good agents and good management personnel in the home office, they decide it is time to cash in their chips.

As has been mentioned, lack of capitalization is probably the result of too much success. Merger is not necessarily the solution there. If the company is temporarily unable to raise additional capital funds on the open market, it can obtain surplus relief by reinsuring a portion of its business in force with another company that has ample surplus funds.

Another reason for merging is to increase assets. The investment laws of many states restrict the percentage of assets that can be channeled into certain types of investments, such as real estate and equities. The smaller company simply may not possess enough assets to achieve its various goals because of these restrictive laws. A case in point would be two mutual companies, one with \$25 million in assets and the other with \$30 million. By merging, the total assets will exceed \$50 million, making it feasible to form a downstream holding company and to do many things that stock companies are able to do.

Becoming established in a geographical area by the acquisition route is very important. Incidentally, it may be much easier to pay a premium for

a small company that may be rather unsuccessful financially but is well known in the community, to provide management for it, and then to develop the natural market that exists in that area rather than to start a scratch agency.

The interesting thing is that you can purchase a company that is a financial failure but, if the people have heard its name and it has an image, the lack of financial success is seldom a drawback. I think that the proof of the pudding here is what a number of holding companies are presently doing—trying to achieve a local identity by having a cluster of regional companies with local identity in various parts of the country in order to accomplish a much greater degree of market penetration. They feel that they can afford to pay a fairly generous price for a going concern that is locally identified.

MR. KENT: I have some miscellaneous comments at this point. When a company enters the acquisition jungle, it is essential that it have a key man who has knowledge of the game and who also has the wisdom to continually look in all directions—for as you hunt you may find a hunter hunting you.

In the life insurance industry the game has changed from one of pleasant discussion between two companies that may consider an association a mutual advantage to one of harsh reality, where a company not adequately protected becomes the prey of one aggressively oriented.

To be acquired, or to acquire, need not be fatal to be successful; but the bitter fact is that it is often fatal to the acquired when noninsurance people do the acquiring, since too often one natural attribute of an industrially oriented corporation is to view results in a very short aspect.

It has been my experience that greater achievement can accrue through acquisition by intelligent management and fairness to the acquired than by ruthless, unplanned actions.

Other considerations and problems associated with mergers and/or affiliates are the following:

1. There are no two companies that would produce identical problems as a result of any of these actions. Both the problems and the solutions relate directly to the individual companies concerned. Almost every company that goes through the route of corporate marriage, whether it be mutual affection or of the shotgun variety, and almost every company that grows or acquires its own subsidiary start out with a pronounced objective. If they discover the excitement of the acquisition hunt, if that is the route, most frequently this objective bends and reformulates on the basis of general practical considerations. This moving from the ideal as to the kind of company being sought is

not detrimental if handled in an enlightened manner and if it does not deviate vastly from practical objectives of the acquiring corporation.

2. When one goes shopping, he can only buy what is available for purchase at the price he is willing to pay for the needs he is trying to meet; this generally means compromise away from the ideal.

Some of the resultant problems to be faced on acquisition or merger are as follows:

1. Administrative

- a) It is vital to the success of any of these steps for the acquiring company to have competent, available management to bridge the gap between itself and the new entity. There is, as you all know, a real shortage of management, business- and profit-oriented, knowledgeable personnel in the insurance industry. Historically, it has been almost taboo for insurance people to talk about profits, in spite of the fact that a stock company's purpose for being is related to producing, for stockholders, present and prospective earnings. Thus the first problem following the successful negotiations and acquisition is to find the proper man to provide the bridge from the past to the future.
- b) In practically every company of any age there are what may be called "old retainers." These are people who have captured the hearts of their comrades but whose productivity and effectiveness in management are not the equivalent of their compensation. This problem also extends into the area of submanagement and even to a lesser extent into the clerical area. This is a problem that must be dealt with realistically in line with the objectives of the acquiring corporation. Too frequently the easy solution of simply unloading these people is management's answer to the attainment of its objective. Unfortunately, I have seen hasty actions in this line turn what would otherwise have been a sound acquisition into a total failure.
- c) In this problem of dealing with people and the maintenance of morale, inequalities between the two corporations involving compensation, fringe benefits, titles, prestige, office space, and many others come into play.
- d) There is often a duplication of position, and, as is obvious, there can be only one chief executive. One difficulty that companies entering the acquisition jungle rarely take into account is the extent of the problem with their own people. One would think that the acquiring company's personnel would be the least of the problem, but this is not always the case. There is a tendency, perhaps normal, for the acquiring company's personnel, particularly at management levels, to feel that it has become their individual prerogative to direct, instruct, aid, and advise their counterparts in the acquired or subsidiary company. Nothing can be more detrimental to success than having too many fingers in the pie.
- e) Lines of communication and lines of authority have to be drawn with the

ultimate objectives in mind and with a keen eye toward the effect of each and every move on the people who are being dealt with.

- f) With respect to geography, if the acquired and the acquiring company are far apart and if no physical merger is planned, then the administrative problem differs from one that would accrue otherwise. In the former case, successful management has to be developed, if not already present, in the acquired company; and the acquiring company must relegate its activities to the more general management objectives. In such a case some of the smaller administrative problems give way to larger management problems, since less concern need be given to how identical the two corporate structures are than to how the management objectives of the acquiring company can be obtained.
- g) The number and types of problems arising have varying magnitudes depending on the structure of the action. Some simple things, like the coordination of forms, policies, methods of accounting, both in home office and field, require a great deal of work, frequently involving greater problems than one would anticipate. If it is a physical merger, the transition problems may be great. If there is a corporate merger without a physical merger, the requirements may be limited purely to the corporate instruments that must be identical, and procedures and field contracts may require a less extensive revision. If there is an affiliation, as under a holding company umbrella or as an independently operating subsidiary, many of the administrative problems need not be faced in haste, and plans can be developed in accordance with the broad objectives of the controlling structure.

## 2. Sales

- a) Field contracts. There is no reason why dissimilar life insurance companies need to have conformity in any specific area of operation in the absence of a physical or corporate merger, but, where the types of businesses are identical (as, for example, a combination company acquiring another combination company), one must face the problem of different field compensation contracts producing rumbles in the field organization and dissatisfaction and diversion of effort away from the job of production. The tendency is for the field men, when they avail themselves of the information, to expect in terms of field contracts the best features of the contracts of each of the corporate entities being put together. This problem is not limited to those associations of identical companies, since similar problems arise when a combination company and an Ordinary company, both writing approximately the same line of Ordinary business, are put together corporately. Compensation in the field is the most basic and significant operational item that must be faced from a business standpoint. What is done in this case will reflect in the value of the resultant field force's achievements and morale.
- b) With proper direction, the sales results of two units joined together should

exceed the sum of the sales of the parts. Frequently this is not the case when semblance of identity is not retained for the parts. This identity retention is what provides an internal competition which is invaluable. It further provides a measurement, or yardstick, one with the other.

A corporate association may, of itself, increase sales by putting one of the entities in a position to afford a greater volume. Sales may gain impetus by management know-how that can be shared. Here again, as in so much of one's discussion of these subjects, what has to be done and what will result depend on the nature of the entity before association, the method of association, and the leadership provided subsequent to the association.

**MR. TOOKEY:** When you put together two field forces with markedly dissimilar product lines, it is important to continue the product line of both companies or at least some reasonable facsimile thereof. To give you an example, most mature companies do not sell coupon policies, but these policies still enjoy a certain amount of popularity in certain areas and there are salesmen that still market them. It is important that some reasonable substitute for these products be introduced into the ratebook of the successor company.

The second point that must be kept in mind is that during the months immediately following merger there tends to be what we refer to as a "shock lapse" among the policyholders of the decedent company. However, the effect of this shock lapse can be minimized if assiduous conservation efforts are made. Within a year after the merger, persistency should return to normal, since the policyholders who paid the first premium falling due after the merger have pretty well made the emotional decision to keep their policies.

When the losses from shock lapse are measured, it would be well to keep in mind that it is not the entire value of the lapsed business that is lost, since there will be some gain from terminations because of the difference in reserves held and cash values paid under permanent insurance and since a nominal amount of reserve is normally released in the case of term policies.

**MR. KENT:** Product mix is certainly a problem area. Tampering with the products to be sold in the field for two corporate entities uniting may have extensive implications. I have seen cases in which two differently oriented corporations merged, and the product developed was an intermediate one between the two. One corporation had its emphasis on the large-policy-size area and the other on the relatively small-policy-size area; with the compromise in product, neither ended up with a market-

able tool. What can be done in product depends upon the basic factors that are involved in the costing. Obviously, a high-cost company cannot, by affiliation with a low-premium company, adopt the latter company's low premium without considerable change; nor can it work in reverse. A company can truly have two lines in its product subject to its nondiscrimination requirements, but normally to do the product job right a *pro forma* balance sheet of goals, margins, and other pertinent factors must come into play in the making of the decision.

Often an acquired company has an imaginative product line, a part of which the acquiring company may put into its own line of sales. Most frequently, the acquired company needs the imagination of the acquiring company and revitalization. Thus, either part of the entity may provide for improved product toward improved sales or improved product toward improved margin toward improved earnings.

Changes in product, regardless of how made, involve in these situations considerably more than is involved in the introduction of a new product in one's own company. There must be some reasonable fit with the pre-existing *modus operandi*. There must be an extensive educational effort. There must be a selling effort to convince those who will be selling the new product that it has significant virtues over the old.

**CHAIRMAN SCOTT:** What do you do about a finder's fee in a merger or acquisition?

**MR. TOOKEY:** The difference between a finder's fee and a commission lies in the magnitude of the services performed. A finder's fee is earned if the finder simply picks up a telephone and brings two parties together. The commission is earned when the individual involved performs a great deal of additional service and incurs additional expense in "covering the waterfront" in his "finding" attempts and then participates in negotiations between the two parties, which can sometimes drag on for weeks and months. Sometimes at his own expense the broker will have an actuarial appraisal made. Consequently he would be entitled to a commission that would be a multiple of the compensation to which the pure finder would be entitled.

The foregoing is rather academic as far as the consulting actuary is concerned. Being a professional, he would take neither a commission nor a finder's fee. In order to take a commission, he would have to have a business opportunities' license, which would switch him from the professional ranks into the brokerage ranks. Normally the actuary always performs a professional technical service in the course of his finder activities.

For example, if he were to find a company or a block of business for his client, he would normally perform the appraisal and perhaps even audit the reserves for the company involved. In any event he would be performing an actuarial service, and his compensation would properly be called an actuarial fee. Because of his special skill he is performing an actuarial service even when screening potential acquisition candidates for his client with only the information contained in the annual statement. This is what essentially sets him apart from the broker or the lay finder, who may possess some technical skills to a greater or lesser extent but not of the magnitude resulting from the preparations for Fellowship and the rather close involvement with all the operations, technical and otherwise, of a life insurance company.

It would be well to point out that there are times when the actuary, like the attorney, will be asked to work on a contingent or partially contingent basis. Some clients are willing to pay only for performance, that is, the location of the buyer or the seller; they are then willing to pay a fee based on an hourly rate three or four times the consultant's normal hourly rate. While most consulting actuaries prefer a guaranteed rate of compensation, they should understand the client's position when he requests that the fee be on a contingent basis, either partially or totally. The client has to report to his board of directors and must be in a position to justify the fees paid. One logical way to compensate the actuary in this type of situation is to give him a monthly budget to cover nominal time and expenses, with a performance bonus if he "brings in the bacon." In this way he is not gambling with all his time, and yet he has the incentive to perform. On the other hand, if he fails to perform, the client's expenditure is limited to the amount budgeted for the project involved.

**MR. KENT:** The finder's business is our biggest problem. If your corporate officers have done any acquiring, people drop in regularly or call or send letters saying that they have this company and that company for sale. They may have done nothing more than to go into *Best's*, take the statistics there and work up a buyer, and then go back to work the other fellow up as a seller. The fees that are demanded at times are pretty fantastic, and the fees that are received are also large and fantastic. However, essentially, you are in a business operation. If you pay a 5 per cent fee on a large amount of money, and this man obtains the acquisition for you at 10 per cent below the amount that you would be willing to pay for it, then you have made a sound investment.

Frequently when people without any known reputation or background walk into our office and indicate that they have some propositions that

they would like to talk to us about, the first step is to tell them that we do not pay fees and then start from there. Generally we try to get a tape recording of our discussions, because this is a very important matter.

This does not, of course, mean that any company is not willing to pay the fee for a job well done, but one almost has to be on the defensive in connection with some of these situations. A few years ago one of the companies that had done a great deal of acquiring all over the country lost out on an acquisition. It had actually offered about a third more to acquire the company than the one that made the acquisition. Although it did not get the acquisition, the agent sued the company for \$50,000 because it did not make a sufficient offer, and he came out with a profit on that transaction. This is the same danger one faces when trying to deal with a real estate agent and he says that the house may be for sale.

Along with other things, a public relations matter is involved here. One thing that always amazes me is the comparatively short memory of people. I have seen steps taken in mergers that I was personally convinced would damn forever the parties involved. Somehow, they go on and ultimately again get honor. It takes some apparently monstrous problem to disturb insureds, because our business is a man-to-man business and frequently the insured can tell you the name of his agent quicker than he can the name of his company. However, public relations do affect many of our areas. They affect the people in both the winning position and the losing position in an acquisition or association and thus influence the effectiveness of these people. A further obvious point is that a company that does not deal in a gentlemanly manner (and gentlemanly is what its public relations make it appear) will have difficulty in any future gentlemanly take-over, if the company wooed is in a controlling position to require a gentlemanly association. In other words, if you are a heel and your public relations people cannot change you into an angel, your next go-round may be harder. My experience is that it is best not to be a heel, even though it frequently requires some additional initial investment.

Public relations are also involved in retaining whatever valuable image the old organization has while making the transition into an image for the new organization. This might be as simple as going from being in two safe hands into one, to the security of the "Rock of Gibraltar." In advertising, or any involved periodic informational news releases that attract attention, it may be a program in which names are used jointly, one slowly becoming less conspicuous, depending upon what you are trying to accomplish. Some of the best public relations work may be very extensive, while, in others, silence is the best answer.

Naturally, in the acquiring stage you are involved in some sort of sell-



ing procedure which may entail public relations, as under a tender offer or in other forms. No matter what the route, some new image-forming work will be required, and the development of a new public image is requisite.

Leakage of known information which will develop gossip is an inherent danger. A matter of primary importance is friendly visitation and verbal assurances to all those people who have become part of something new and unknown. I would offer a caution here never to offer an assurance that you cannot live with or that commits you in an unknown area.

Regarding other problems, let us talk about financial considerations. Basically, all that has been said in reference to mergers, affiliations, or acquisitions involves financial considerations—the object being to improve the situations of the parties involved. Thus, whether we are dealing with valuations to provide a mutually acceptable trading value for two mutually interested companies planning to merge or whether we are dealing with a “no holds barred” tender offer, these considerations are major and involve varied tax implications. Some of the many involved items are these:

1. One area of the tax considerations is the federal tax. Depending upon whether a company is in tax phase 1, 2, or 3 and upon which tax phase the other company is in, as well as what phase position the two combined will be in, different results will be obtained, and this is a matter that must be considered.

2. Under the 1958 Federal Income Tax Law, certain transactions provide tax amortizations, the value of which is again dependent on the phase status of the companies involved.

3. Another financial consideration is the relative policyholders surplus and the taxes that can be triggered by merger.

4. Naturally, paramount among the financial considerations are the resources of the companies concerned with these corporate actions. Frequently the ideal must be sacrificed to the practical. Each company involved in this type of transaction will normally attempt to effect the transaction with itself retaining the optimum in stock control yet attempting to achieve the minimum in tax effect and financial expenditure. How this is done and how effectively the transaction is consummated relate to the resources of the company concerned. While a cash purchase of business may provide a desirable tax-purposes amortization, it may, at the same time, restrict operating funds. While the use of debentures in lieu of stock may provide a pretax expenditure, it may, at the same time, load the surviving corporation with a restrictive, continuing cost.

5. Among the financial considerations is the ability to flow funds between the corporate entities as required. Where a parent-subsidiary relationship exists, a 243(b) election subject to the rules may allow a 100 per cent tax-free flowthrough at the expense of a multiple \$25,000 surtax reduction, and decisions relative to such an election as this again relate to the individual situations of the corporations involved.

6. Where the corporations concerned are not both life insurance companies, different considerations come into play by adding, in addition to many others, the element of corporations under different taxing statutes.

MR. TOOKEY: Question I, B, of our program is, "To what extent are tax-loss carryovers taken into consideration in such valuations [of life insurance companies]?" To give a rather simple answer, I would say that the astute buyer will pay very little attention to tax-loss carryforwards in the company that he purchases, because, if he does so, he makes two invalid assumptions: (1) that, if he puts a value on such tax-loss carryforward, it would be implicit that he expects to make a profit over the ensuing years in sufficient proportions to use up some or all of such loss carryforward; and (2) that the propriety of such loss carryforward will not be questioned by the tax regulatory authorities.

Most businessmen recognize the precarious status of a tax-loss carryforward in the typical merger situation. In Section 269 of the Internal Revenue Code it is made clear that, if only one of the considerations that led to the merger was the value of the tax-loss carryforward, such carryforward may be denied. The astute purchaser, while he hopes that the tax-loss carryforward might be usable, also recognizes that there can be no guarantee that it will not be disallowed.

To preserve a tax-loss carryforward, it is vital that the merger be properly structured. In a tax-free reorganization it is important that the value of the company experiencing the losses be not less than 20 per cent of the aggregate value of the combined companies following merger. To the extent that this percentage falls below 20 per cent, the amount of allowable tax loss is reduced in direct proportion (e.g., if the company constitutes only 10 per cent of the combined whole, only 50 per cent of the tax-loss carryforward is usable).

In many cases it would be desirable that the corporate entity with the tax-loss carryforward be the surviving company. This may require that the successful company be merged into the company with the tax loss, with the latter then changing its name to the retiring company.

The only analogy that I could think of in the case of purchasing a company with a tax-loss carryforward would lie in the purchase of an automobile that had a special load-leveling device that would be handy in pulling trailers. The purchaser does not have a trailer and does not contemplate buying or renting one. It is still nice to have this special device, but how much extra is he going to pay for it?

On the matter of appraisal of companies, it is wise to come up with a fairly definitive value, whether the company is acquired with cash or with

an exchange of stock. We recognize that cash is hard to come by, particularly in today's money market; and, once the value of the company is agreed upon (the price to be paid in cash), the price in stock might be from 10 to 20 per cent higher, because it would require a 10 per cent underwriting fee to raise new money and there would be a delay of several months. During the delay period, money should be earning interest. When the doubt and anxiety factor is added, it is easy to make a case for paying 20 per cent more in stock, unless you are talking about a big board blue chip stock that could be disposed of in a single day's transaction on the New York Stock Exchange.

On the other hand, if there are tax problems with the seller, the cash price might have to be higher than the price payable in securities. In today's money market, however, many people prefer hard cash, even in the face of a capital gains tax precipitated as the result of the transaction.

An alternative way to price a company is to base the total price on an agreed upon immediate payment plus an increment payable in the future based on financial performance over the next several years. A deal of this type represents a compromise solution when buyer and seller cannot come to immediate terms.

**CHAIRMAN SCOTT:** What are the considerations and problems involved in the merger of two mutual companies?

**MR. TOOKEY:** Before addressing myself to the body of this discussion, namely, the problems attendant on the merger of two healthy and successful, medium- to large-sized mutual life insurance companies, it might be well to point out the possible combinations of potential merger situations that exist involving at least one mutual company. There could be the merger of a mutual into a stock company, a stock into a mutual, and a distressed mutual into a healthy mutual. The merger of a stock company into a mutual could be best accomplished by the purchase of the required majority of shares, followed by the assumption of the assets and liabilities and the complete liquidation of the stock company. The stock company might acquire the insurance in force of a mutual by bulk reinsurance and the liquidation of the mutual company. A healthy mutual would probably simply reinsure the business of a distressed mutual, which would then be liquidated. Where liquidation takes place, there might have to be a distribution of some of the surplus to the policyowners in the form of a liquidation dividend, if the financial condition of the company permits.

There are probably circumstances under which the only way a stock company and a mutual company could be merged would be for one to mu-

tualize or the other to demutualize. Since both procedures are extremely lengthy, involved, and painstaking, they would normally have to be justified for a better reason than simply merging with another company.

The advantages of merging two healthy mutual companies are very similar to those relating to the merger of two stock companies. Among the primary benefits are the acceleration of growth through improved market effectiveness, improved policyowner service, and reduced net cost of insurance. Since there are probably no two mutual companies that are exactly alike in geographical coverage and product lines, for the merged company there would be broader and more balanced product lines to offer throughout a greater geographical area. With a substantially increased surplus the merged company would have an enhanced image of financial stability. This enhanced image would also enable the new company to compete more effectively with the larger mutuals in attracting high-caliber sales and management personnel. The cross-fertilization of know-how will have a synergistic effect on the merged company's performance in general, enabling it to take a bolder approach to business opportunities as they develop and to devote greater resources to the increasingly complex matters that face insurance management today.

Some of the obvious tangible benefits include the opportunity to reduce insurance expenses and investment expenses and to improve investment yield because of the increase in investable funds that become available. An increased number of agents would be available to serve orphan policyowners and to provide prompt and effective service to existing policyowners. We should point out, however, that there are very significant and material expenses attendant on the merger, but as a percentage of the anticipated savings such costs would normally be quite small.

Perhaps the best way to measure the problems of merging two mutuals with those of merging two stock companies is to look into the merger jungle itself, where hunters and the hunted abound. Let us compare mergers among the animal kingdom. The lions and other large feline carnivores usually have a two-week courtship, and approximately four months later the cubs arrive. This is analogous to the stock company merger. The elephants, on the other hand, have a courtship lasting many months, and nearly two years later (645 days to be exact) the little calf arrives on the scene. If you have not already guessed the point, it is simply this: Merging two large mutual companies is a very ponderous, complex, time-consuming job, much like marrying off two elephants.

The fundamental difference is that there are no stockholders to be bought out after an appraisal of the company and a determination of its equity. Instead, we have tens of thousands of policyowners in different

lines of business in each company, and we must structure the merger so that fair and equitable treatment of all classes of policyowners of both companies is assured. A prudent policyowner contemplating the merger of his mutual company with another mutual company might wonder, "Will my future dividends be at least as large?" and "Might I ultimately expect even greater dividends than would otherwise have been the case?" Most schools of thought would require that dividends not be reduced and that the policyowners should expect to be better off in some way, such as obtaining improved service and greater safety as the result of being a policyowner in a stronger company. In addition, there would certainly be a reasonably good chance that increased distributions in dividends could be expected in the future as a result of the economies that can be effected as a result of the merger.

Perhaps it would be timely to discuss a few of the attributes of surplus and the guidelines for maintenance of fair and equitable treatment of policyowners in a mutual company. Surplus exists for the protection of policyowners whose interests in the company are contractual and who have only such rights as may be given them in the contract of insurance and by statute. It may be looked upon as a revolving fund from which each group of new policyowners can borrow with a view to repayment during the renewal years. Some but not all of the surplus contributed by a class of policyowners should eventually be distributed to policyowners in that class. A portion of the surplus contributed by each class of policyowners should be retained by the company to assure its continued growth and well being and to enable it to take advantage of attractive investment opportunities. Some mutual companies think of this surplus as corporate surplus, to be used by the corporation for rather general purposes which will benefit all members.

Since the merged company is a continuation of the two predecessor companies, new members are full members with the same rights to protection and participation in the same manner and degree as members who became insured in the predecessor companies. They have the same obligation to replenish the amounts that they took out of the revolving fund and to make their contributions to corporate surplus. Members of the predecessor companies have no unique proprietary interest in the earnings from the new members of the merged company.

While equity requires reasonable recognition of profits and the sources from which they have arisen, with a view to returning a fair share of such profits to their respective sources, it is well to emphasize that an approximate rather than an exact equity is maintained. Exact equity is not maintained between persisting and terminating policyowners, between old and

new policyowners, or between young and old policyowners. Mortality and expense factors do not *exactly* follow policy-year experience, and there appears to be no *precise* relationship between the earning and actual payment of a dividend. When companies individually must use a rather pragmatic and controlled approach to distribution of surplus, it follows that in the merger situation a latitude at least as wide would be required.

The complexity of problems attendant on merger of two mutuals will depend somewhat on the comparability of the two companies with respect to product lines, surplus objectives, dividend formulas, insurance expense allocation methods, investment income allocation methods, underwriting philosophy, and quality of business written (with respect to mortality and persistency), just to mention a few items. It is important to review the fund development of each line of business in both companies to determine the true surplus status of each line. Some attempt should be made to value the assets and liabilities on a common basis. For example, if one company reserved on the net level method and the other on a modified preliminary term method, the reserves of one company should be restated on the basis of the other company's method. Since it is common practice in most companies to restate CRVM reserves on the net level method for federal income tax purposes, perhaps the reserves of both companies should be stated on the net level method. The funded status of the employees' and agents' pension plan is also worth comparing, since the past-service liability must be funded out of future earnings.

A review of ratebooks, asset share studies, and net cost comparisons is also made to determine if there are any fundamental differences in operating philosophy that must be taken into account in assuring fair treatment to policyowners.

Presumably the companies will agree upon a common product line to be marketed by the combined sales forces after the merger. The needs of each line of business (ordinary, pension, group, individual A & S) must be studied before the techniques for putting the departments of each company together can be determined.

The dividend formulas of each company should be compared and plans made to find some common denominator for both formulas that also recognizes that an immediate revision to a common formula probably could not be accomplished by the date of merger.

Once the analysis of the two companies has been completed, the next step is to determine what kind of fund accounting techniques should be used. The very cornerstone of equity measurement lies in fund accounting. Normally a company is divided into a number of financial categories, and often there are sublines within each major category. Although the size

of the surplus in each fund determines the amount of distributable surplus for the corresponding policyowners, the assets themselves would not be segregated. Each item of income and expenditure is allocated among the various funds. Due account is taken of capital gains and losses and of special increases in reserves, and sometimes transfers of surplus are made from one fund to another.

The discussion that follows pertains only to the individual ordinary life line, since this line will require the most careful analysis in view of the many subclasses of policyowners involved. Let us identify the retiring corporate entity as  $R$ , the surviving corporate entity as  $S$ , and the successor company as  $RS$ . It might be well to point out that the determination of which should be the survivor company would depend on numerous factors. Certainly, if one company is in twice as many states as the other, it would probably be expedient to make it the surviving corporate entity. However, the effect of premium taxes in various situations should first be analyzed. Let  $F_R$ ,  $F_S$ , and  $F_{RS}$  represent the ordinary life surplus funds of the retiring, surviving, and successor companies, respectively. Since  $F_{RS}$  would be zero as of the date of merger, some appropriate amount from both  $F_R$  and  $F_S$  must be transferred to  $F_{RS}$  to enable the successor company to operate. Keep in mind that the three funds are sublimes of the individual ordinary line and would not be shown separately in the annual statement.

If  $R$  and  $S$  are practically identical twins, there would appear to be little need to maintain separate funds. If  $R$  and  $S$  are markedly dissimilar, merger would be very difficult to accomplish. Perhaps it would be better to operate both companies separately under a single management with a common philosophy until the two companies became more similar. Perhaps each company could maintain separate funds relating to insurance issued prior to and after the date that merger was agreed upon in principle. Then, when merger followed, perhaps five or more years later, the characteristics of the funds built up from insurance issued during the "engagement period" would be quite similar and pose no problem to merger. If the "pre-engagement" funds of both companies have achieved a reasonable degree of similarity with respect to assets and surplus status (expressed in terms of surplus objectives), merger would be possible. Since assets turn over at the rate of approximately 10 per cent per year, the differences in attributes of these earlier funds could be narrowed considerably over a period of years. One major problem with the foregoing approach is that five-year engagements seldom last, particularly in this day and age.

This narrows down the choices to three approaches:

1. No maintenance of separate funds (identical twin company situation).
2. Maintenance of two funds, the first pertaining to the premerger policyowners of the retiring company and the second pertaining to all other policyowners (the premerger insureds of the surviving company [S] and the new policyowners becoming insured into the ongoing successor company [RS] following the date of merger).
3. Maintenance of three funds, the first two relating to the insurance issued prior to the merger date in each predecessor company ( $F_R$  and  $F_S$ ) and the third ( $F_{RS}$ ) relating to the insurance issued by the agency forces of both companies into the continuing unitary company following the merger date.

Method 2 would be workable, provided that it could be demonstrated that the income from the  $F_R$  fund would not be adversely affected as the result of being deprived of the cash flow of new-premium income. This could happen if this fund were heavily invested in low-yield AAA bonds, with new-money rates ranging from 2 to 3 per cent higher in today's investment market. Such bonds, while more than adequate to meet policy reserve requirements, do place the fund in somewhat of a "work out" position. Some account would have to be taken of the fact that the old policyowners of the surviving company would benefit from the cash flow of new-premium money investable at today's very high interest rates. The converse could be true, however. For example, long-term venture-type investments, which could produce a very high effective return but deferred into the future, should perhaps remain identified with the generation of policyowners whose moneys were so invested.

Other attributes of a group of policyowners which might require maintenance of a separate fund over a period of years relate to mortality, persistency, and expense of administration. Mortality could prove a major factor if the underwriting philosophies of the two companies were quite dissimilar or if they operated in markets exhibiting considerably different mortality rates. Lapse rates on annual pay policies tend to seek a common level after the first three years or so, although this is probably not true of some term plans. On the other hand, monthly pay business has exhibited a higher lapse rate for many years than the lapse rates experienced under policies with different modes of premium payment.

The establishment of three funds, while involving more work than that involved in two funds, would perhaps satisfy the skeptical policyowner that all possible measures had been taken to preserve his interests and to assure him of fair and equitable treatment. The capacity of modern computers would certainly facilitate the maintenance of these three sublines.



The length of time they should be maintained would be a matter of judgment, perhaps not less than ten years or more than twenty years. The divisible surplus rising from each subline would be distributed in accordance with the type of formula that produces the fairest results.

If there is one byword that must be stressed in a merger of mutuals it is *flexibility*. Broad guidelines relating to implementation of the merger should be agreed upon in the merger agreement, but due account should be taken of the long-term nature of the life insurance contract and due latitude accorded the new board of directors of the successor company in establishing dividend policy and in decision making in general.

One important pitfall to avoid in working out a merger of mutual companies is the tendency to think in stock company terms, for example, return on investment, investors' interest rates, and so on. Even if we grant that the existing policyowners do indeed invest in new business, their position should not be confused with that of the stockholders in a stock company for at least two reasons: (1) *their* purpose of investing in new business is to avoid stagnation and to maintain the health of the company as a viable growing progressive organization and (2) in view of the margins in the premium structure of most insurance plans marketed by mutual companies, the traditional 10-15 per cent return expected by stockholders is not required because of the much lower risk involved.

CHAIRMAN SCOTT: I believe that Mr. Kent has some comments on timing and planning.

MR. KENT: Among all the things that have been touched upon (and, basically, in a limited period all that you can do is to discuss, comment, and deal in generalizations) a major factor when dealing in ifs, ands, and buts that one must keep clearly in mind is that in both the home office and the field you are continually dealing with people who must earn a living; they must, to be effective, retain or attain a confidence in you—the new entity. They must have a respect for you that, I believe, is only achieved by the sum of your individual corporate actions in each and every area involved. Such actions must be logical, well conceived, and well communicated, as well as properly timed.

Timing is a major factor, since nothing appears to wear on that very important commodity, people, as detrimentally as the unknown.

The last of the "other" considerations, but one of the first in importance, is planning. Although the planning must be flexible, good planning should include the following eight phases, roughly in this order:

1. Corporate objectives and motivations, including general types of business. Criteria in regard to these and anticipated problems should be decided on.
2. Lines of responsibility, including those for specialists and committees internally as well as those for directors and stockholders, along with the employment of any existing corporate relationships. Also included in this phase would be the planning of the employment of inside and outside services as, and if, required and the co-ordinating and reporting structure.
3. After the preliminary work, the search proceeds through accumulating candidates from contacts in and out of the industry and progresses to preliminary interviews and discussions.
4. From there, on the basis of available knowledge of candidates, proceed to appraisal and evaluations, including financial evaluations, projections of joint earning capability, compatibility, dilution or appreciation as a result of any action, general tax implications, and the like.
5. Armed with this general information, the corporation proceeds to negotiations with the chosen target or targets, determining first the approach and general timing, then, during negotiations, the seller's motivations leading to a general price or basis of exchange. Included in the latter periods of this phase will be the legal considerations, accounting, and verifications—include any commitments for liabilities or protection against liabilities.
6. Although in Phase 1, in the considerations of the corporate objectives, general considerations of the resources to meet these objectives would normally have been included (to provide guidelines to proceed thus far), at this point the more specific financial direction must be established in light of the negotiations. This phase would include those acceptable alternative forms of the transaction with the advantages, disadvantages, and tax factors, as well as financing methods.
7. The preceding should lead to the next phase, which should involve the formalizing of the transaction and the necessary approvals, corporate, statutory, and regulatory. Included in this phase would be the necessary communication and publicity and whatever public relations action is required.
8. The last phase deals with all the postacquisition considerations, a number of which have been dealt with in the preceding items, to assimilate and manage under the relationship established.

CHAIRMAN SCOTT: Are there any questions or comments at this time?

MR. RUSSELL A. BOLEY: Assume that Company A acquires the stock of Company B and, as a part of the purchase, agrees to pay the former stockholders of Company B a specific percentage of the premium income from Company B for a certain number of years. What liability, if any, must Company A set up to cover these deferred payments?

MR. KENT: I suspect that there would be a liability. The amount of the liability probably would have to be worked out with the insurance department of the state in which the purchasing company is domiciled.

MR. MELVILLE J. YOUNG: In regard to whether or not physically to combine two companies once a merger has been consummated, I believe that the decision should be made in such a manner as to accomplish the overriding intent of the merger best. That is, if the surviving company's interest is primarily in the field personnel of the other company, the effects on home office personnel could largely be ignored. If the intent to combine the two operations has been established, I believe that doing this over a period of months will lessen the impact of the merger on all parties concerned.

The benefits which could be achieved by using this approach would be the following:

1. Management can use the time to evaluate home office and field personnel and then effectively direct its energies toward the retention of its most valuable people.
2. The initial "shock termination" by policyholders will be reduced by the smoother transition.
3. The field man's problems of learning an entirely new portfolio will be lessened by introducing portfolio changes gradually.
4. Many of the benefits derived from combining the assets of the two companies would not be lost (e.g., the increased investment leverage derived from the combination of assets can still be taken advantage of).

MR. KENT: I agree generally. As a matter of fact, our company, in a recent merger, had very favorable results with this type of gradual combination.



## THE CHANGING ROLE OF THE ACTUARY

### I. *The Actuary and Other Fields*

- A. Actuaries have been more and more involved in work outside what may be considered traditional actuarial functions. At the same time, the nature of actuarial functions has also been changing to adapt to methods and techniques not customarily considered in the realm of actuaries. If these trends continue, what areas of actuarial work will remain common to actuaries but not in the realm of nonactuaries? What is the prospect that actuarial functions as they emerge in the future will be sufficiently cohesive to embrace a unified profession?
- B. Are existing professional boundaries out of date? Is an actuary acting improperly if he performs services in areas traditionally considered within the competence of other professions? In what such areas have actuaries served? Should actuaries encourage members of other professions to provide services within traditional actuarial fields?

### II. *Setting Corporate Goals*

- A. What is the role of the actuary in development of corporate goals? Can the actuary assist in determining whether or not these goals are realistic and consistent?
- B. How can goals be stated on a basis to which individual operating units can relate? How can the performance of units, such as a service department, the actuarial department, and the controller's department, be measured against goals?

CHAIRMAN J. STANLEY HILL: Did you ever watch the minute hand of a watch or a small clock? Look at it steadily, and you can detect no movement. But, note the position, look away for more than a few seconds, and then look back; the change can be clearly noted.

So it is with our profession. We are in the midst of constant change, yet barely aware of it. But those of us who began our actuarial careers over a generation ago need only recall some of the following:

The desk calculators of that day;

The TNEC investigation;

Mass calculations based on 30¢-an-hour "clerical labor";

The reduction of dividend scales—many of them cut in half;

The purchase of bonds yielding  $2\frac{1}{2}$  per cent to support 4 per cent reserves;

The tight restrictions on deposits toward group annuities and single-premium annuities;

The fascination of the new-fangled IBM 602A punched-card calculator, which "could actually use the product of one multiplication as the multiplicand on the next without human intervention!"

“But,” you say, “these merely reflect changing conditions, not a change in the role of our profession.” Do they? Let us hear what our speakers this morning have to say on this subject.

MR. GEOFFREY CROFTS: Let me begin by giving my view of the nature of a profession by contrasting the functions of a professional practitioner, a scientist, and a craftsman or tradesman. A professional practitioner is called upon to provide answers to specific real-world problems, while a scientist observes specific situations and makes generalizations. A craftsman, like the practitioner, is concerned with real-world problems. However, professional problems are characterized by having significant areas of judgment. A practitioner brings to his problems as broad a range of knowledge as possible, drawing on the work of the scientist, but he will usually never know enough to determine his answer completely. He must however, give an answer, the best answer possible under the circumstances. This implies that a practitioner must have a significant educational background. He must have the ability and integrity to apply judgment when there is no practical way for more knowledge to be brought to bear on the situation.

Because of the finiteness of the human mind and the vast extent of knowledge and problems, it has become expedient to confine problem-solving to relatively small, specialized areas. Some individuals take an interest in certain types of problems and seek to expand their knowledge of the elements involved. These individuals become practitioners in specific professions, each profession being concerned with problems which, in some manner, are related. There appear to be boundaries to a profession which are convenient, historical, and evolutionary.

What are the traditional functions of a particular profession? These can best be obtained by an examination of the educational requirements. We are all familiar with those of the actuarial profession. Our profession seems to be concerned with problems of determining the financial costs of various insurance and pension plans. These are difficult problems, and assistance is obtained from any available source. The actuary becomes expert or knowledgeable in many areas of the insurance industry.

Topic I, A, of this discussion puts forth the hypothesis that significant change is taking place in the functions of the actuary. Change is to be expected in any profession. First, there are variations of the old problems. Second, new methods for tackling old problems are developed. Then the new methods turn out to be applicable to new problems, and the scope of the profession has enlarged. In the actuarial profession the first type of change has been produced by the tremendous stream of new

products and plans developed over the last fifteen years. The second type of change is illustrated by the introduction of the computer.

The computer is an obvious tool for the actuary. In using this tool, his imagination has been stimulated, giving rise to visions of many other problems which can be solved. It has changed our way of looking at the world and has led us to tackle previously unthinkable problems.

The following question arises: Should the actuarial profession be enlarged to include problems in operations research, design of management information systems, or other areas? It is impractical to require that members of a profession become expert in problem areas that only slightly relate to the main function. Other persons will become expert in these areas without undergoing the professional training, and it would be fallacious to regard these areas as being included in the profession. However, actuaries should be aware of developments in other disciplines in order to determine whether there is anything which will assist in the solution of the main problems of the profession. Such developments could be included in the educational background of the actuary. Whether or not any particular subject should be added to the actuarial curriculum is a design problem. The cost of the added educational burden must be carefully weighed against the added value. Thus, in the actuarial professional educational program, consideration could be given to computer-oriented systems and management theory.

At any time in the history of the profession, some actuaries have become involved in work regarded as nonactuarial. This of itself does not call for a re-examination of the role of the actuary. Sometimes lawyers or doctors become successful businessmen. It is desirable that professionals have available to them the opportunity to redirect their careers if they are so inspired. Hopefully, they are better prepared to take the new direction as a result of their professional training. The broadness of professional education tends to make it likely that practitioners will be drawn into activity outside that which might be regarded as belonging to the profession.

Topic I, B, is concerned with the boundaries of the actuarial profession. As a general rule, I feel that anyone should feel free to engage in any kind of activity that he desires. I also recognize, however, that there are many circumstances in which the person for whom the work is performed can suffer serious loss as a result of incompetence. The nature of professional work is such that the user is often unable to assess competence. Professional organizations serve as a source of declaring competence of individuals for certain types of work. The boundaries of the profession are not important if the members recognize the obligation to render service only

in areas of competence. This obligation extends not only to problems at the boundary which might be regarded as being within the area of competence of other professions but also to problems which fall within the "traditional" area. In short, an actuary should undertake his functions in a "professional" manner, understanding his limitations.

In closing, I would like to propose a view of the basic actuarial function that would include the traditional functions while providing a broader role for the profession. In the December, 1966, issue of the *Journal of Risk and Insurance*, Herbert S. Denenberg and J. Robert Ferrari, in discussing risk management, demonstrated the need for risk measurement. The actuarial profession has some fairly well-developed methods of measuring risks in certain restricted areas. There is a need, however, to measure risks of many different types—business risks, liability risks, physical-damage risks, and even, perhaps, political risks. The view that measurement of risk is the fundamental actuarial function unifies both the casualty and life actuarial professions. Denenberg and Ferrari recognize that it would be natural to expect actuarial science to embrace the problem but are pessimistic about the willingness and ability of our discipline to undertake it. They hold out hope for operations research to provide the tools. Whether or not the actuarial profession will embrace this broad function will depend on the extent to which members take an interest in this problem area, develop sharper, more widely usable tools, and organize and publish their developing knowledge.

MR. ROLAND F. DORMAN: In my discussion today I would like to comment briefly on some potential future changes in the role of the actuary and, a little more in detail, on the role of the actuary in setting corporate goals.

The role of the actuary, along with that of nearly everyone else within the insurance business, is changing because of changes within the industry itself. The insurance business is no longer insulated from other economic enterprises as it has been to a large degree for much of its history. Insurance companies today recognize as competitors many companies that are not in the insurance business. In recognition of this fact, the insurance industry, including property casualty as well as life, is restructuring itself to meet more effectively this competition, particularly in the area of financial services. If the present emphasis on total financial services continues, and there is every reason to believe that it will, there will be increasing numbers of companies providing all forms of insurance, in addition to other products to meet the public's financial needs. These expanded product lines are leading to changes in organization structures which



will require a different management emphasis and broader management skills than have been required in the insurance business in the past.

I feel that the changes taking place within the industry can have a significant impact upon the future role of the actuary within the insurance business. Because of the very nature of the business, actuaries will, of necessity, continue to play a very vital role in the operation of insurance companies. It does seem to me, however, that the extent and nature of this role could change rather significantly over the next decade or two. The degree and direction of this change will depend principally upon what we as individuals, and as a professional body, do to respond to the challenges and to capitalize upon the opportunities that will be presented.

There will, of course, always be need for specialized talents in life insurance, property casualty insurance, variable annuities, mutual funds, and all the other activities being undertaken by insurance companies today. Of even greater need, however, will be people with skills to evaluate the problems and opportunities in the various areas of operations and to determine the allocation of capital and human resources required in each area to yield the best return for the enterprise as a whole. It seems to me that actuaries are particularly suited to fill this role of providing a bridge between the various types of operations. Many of the evaluations that must be made are ones that require financial analysis and the application of analytical techniques with which actuaries are very familiar.

If the actuary is to be more than a technician in this role, however, he must develop more than a nodding acquaintance with all the product lines of his organization; particularly must he develop management competence and a broad perspective of business in general. We must become good business managers, in addition to good actuaries, if we are to discharge our responsibilities properly in the future. If we do not, someone else will.

The forces of change will likely require a more unified actuarial profession in the future. The clear, sharp lines of distinction between life insurance and property casualty insurance are already being eroded in many areas, and the barriers between the two will fall even faster in the future. This, together with the economic realities of supply and demand for actuarial talent, will require more general practitioners among actuaries in the future.

Topic II, A, is concerned with the actuary's role in setting corporate goals. Establishing goals is a fundamental part of a corporation's planning process. The actuary should play a key role in developing corporate goals, particularly in assisting in the determination of whether or not goals are realistic and consistent. Goals cannot be set in a vacuum; they

must be related to the resources available to accomplish them, the competitive situation, particular marketing opportunities, and other factors. A very important role that the actuary should play in determining company goals is that of providing information helpful in the establishment of goals in very specific terms.

One of the greatest weaknesses of corporate planning is a tendency to express goals in generalities; for example, "We want to grow at a good rate and provide a fair return to our stockholders." Goals of this type do not help anyone and, in fact, might even impair a corporation's ability to grow simply because the people in the organization do not know specifically where the corporation is headed and, accordingly, they lay very vague plans for their own particular operations.

Another tendency is to express goals in very broad terms; for example, "We want to grow  $x$  per cent a year," without any real knowledge of whether this is good or bad. For example, a growth objective of  $x$  per cent a year in insurance in force might be completely inconsistent with an objective of increasing annual statement gains from operations  $y$  per cent per year. Certainly goals for growth and profit must be subjected to careful analysis for consistency. This analysis should be done by the actuary. In addition, the actuary should develop information to indicate the company's relative strengths and weaknesses in its product lines from a competitive standpoint to assist management in determining realistic and desirable growth rates by line of business.

Without specific measures, management has no way of knowing how it is doing. A principal measure of a company's success, of course, is its earnings. The question of what earnings should be used to measure the success of a company is a difficult one and has received much discussion of late in many quarters.

There is no pat answer to the question, but it is certainly one which should receive careful consideration by company management. The actuary would be intimately involved in defining the earnings to be used for goal purposes.

Through the use of return on investment or other analytical techniques, the actuary can also play a useful role in determining the relative merit of various projects or goals. This is an area that, to a large extent, has been overlooked within the insurance industry, but, if we are to maximize the use of our capital and human resources, we need means of getting at least some relative indication of the potential return from investments in various activities. A large part of the resources in our industry is wasted today simply because so many companies "follow the leader" or use "trial and error" methods of management. While the application of some of these

techniques to goal-setting will not eliminate the necessity for trial and error, it might help to reduce the error factor. This appears to be an area in which the actuary should play a role by developing means of evaluating the potential return from various courses of action.

The principal role that the actuary can play in establishing corporate goals is development of meaningful information that will assist the setting of goals in specific terms and that will enable management to evaluate the reasonableness and the desirability of goals prior to committing the company to them. This is one of the key roles in the entire corporate planning process. The actuary is the logical person to develop this information, because of his detailed knowledge of the interrelationship of the many factors that go into the earnings of an insurance company.

If goals are very definitive and a company has a well-coordinated and understood planning process, the individual operating departments should be able to relate to the goals readily. One of the principal advantages of a formal planning process should be improved communications between the line and staff departments as well as management, so that all parties understand what the goals are and what their contributions to them must be.

The question of performance measurement for such service departments as the actuarial is a tough one. There is almost no limit to the size and scope of their activities, and the more able and energetic the manager, the more his department tends to grow. Some companies have drawn up standards of performance for these departments, using work-measurement studies as a base for the standards. Others have adopted very elaborate systems of expense charges between service and line departments, presumably on the theory that the services rendered are worth whatever the line areas are willing to pay. Both of these approaches have obvious disadvantages, and I seriously question their practicality. If a company is to achieve its goals, there are specific things that the various service departments must accomplish within definite time periods. The identification of these things, together with the intended method and timing of their accomplishment, becomes the basic plan of the respective service department. This must be supplemented, of course, by the manpower and expense budget required to carry out these plans.

The plans and budget of the service department, like those of the line department, should be carefully scrutinized by senior management, including customers of the service department. When finalized and approved, the plans and budget should be the standard of performance against which the department is measured. If the plans and budget have been properly developed and satisfactorily fulfilled, the department will

have made the desired contribution toward corporate goals. Subjective judgment still comes into play in evaluating performance against plan. I do not believe that performance evaluation should or can properly be made solely on the basis of statistical measures. Judgment must always play a large part, and, for this reason, very elaborate schemes are not only time-consuming and costly but in many cases faulty. The old formula of KISS (Keep It Simple Stupid) should be followed in developing plans and evaluating performance against the plans.

**MR. WILFRED A. KRAEGEL:** The actuary brings three types of knowledge to his work, in much the same way as do other professionals. He is concerned with the environment, with the activity of the organization itself, and with the professional discipline that provides a set of "mental tools" for his particular function within the activity. The actuarial exams relate primarily to the professional discipline, but they also relate to the activity of the organization. There is even some reference in the exams to the environment in which our organizations operate.

The traditional view of the actuary's role has been that actuarial work is anything which is covered rather specifically in the actuarial exams, while other activities are essentially nonactuarial. It seems to me that a preferable view would not ask the question "Is this actuarial work?" but "Is the actuarial background especially useful for this work?" On that basis, the actuarial exams need not cover every conceivable topic in which the actuary may become involved. Instead, the exams should provide a strong professional foundation, unique to the actuary, on which he may build additional bodies of knowledge as his career path requires.

**MR. LOWELL M. DORN:** I believe that the concepts expressed by the previous speakers on the role of the actuary can be harmonized.

As the person responsible for determining the cost of insurance and for setting the price for it, the actuary is a risk-measurer and also determines the price and other conditions for risk-taking. Actually, all insurance—whether life, health, or casualty—simply involves the application of two laws—the law of averages over large numbers and the law of the accumulation of money at interest.

Clearly there is nothing in the operations of his company in which the actuary does not have an interest. He may not have a policy-making role in all areas, but he certainly needs to know results and what the company is doing. Consequently, he works closely with top officers in corporate planning and management decision-making, and with marketing officers, doctors, underwriters, accountants, lawyers, investment officers, service

(including computer) personnel, operations research projects, and so forth.

Because of his broad responsibilities and training, he will likely have a broader knowledge of the life insurance business than persons who have come up through any other department in his company. No wonder he is often chosen for management and executive positions at high levels in his company (going beyond the actuarial field) which require knowledge, analytical ability, imagination, sound judgment, willingness to take reasonable risks, and management skills.

Dean Crofts has mentioned the education and training of the actuary. I would like to add that, when we at New York Life consider a potential actuarial trainee, we are interested not only in his mathematical and technical aptitude but also in his leadership qualities and potential to become an officer and executive of the company.

Consequently, the role of the actuarially trained person is changing and broadening, not simply because of his education and training but also because of qualities which he himself has.

**CHAIRMAN HILL:** I hope that you will agree that we have had a good discussion of the changing role of the actuary. Perhaps you would be interested in spending a few minutes on the area that has been touched upon only lightly, if at all—the actuary as an entrepreneur. Illustrious examples of entrepreneurial actuaries occur in the consulting field.

Recently actuaries have ventured into a relatively new field, the development and distribution of proprietary software. Most of such work has been in the field of actuarial computation and data processing. One of the fundamental needs of the life insurance business has been to increase the productivity of its salesmen. Many people think that the computer can help to solve this problem. There are numerous examples of the use of the computer to develop simple life insurance programs on a batch processing basis. A much more powerful and effective method would appear to be the use of a cathode-ray terminal on an “on-line” mode. One computer manufacturer has produced such a terminal with two unique features: (1) the user can produce input to the computer and affect the subsequent sequence of displays merely by touching the face of the tube with his finger (where the appropriate words or figures appear) and (2) he can make a photographic copy of any display simply by pressing a button.

I have been sufficiently impressed with the potential of this terminal as a marketing tool—and with the challenges of writing the sophisticated software needed to operate it—that I have abandoned my career as a life insurance company executive to devote full time to its development.



## FINAL-PAY PENSION PLANS

Against the background of rising salaries and hourly rates—

- I. Has there been a trend toward broader adoption of final-pay plans?
  - A. In unilateral plans?
  - B. For collectively bargained cases?
  - C. Does size of group or industry seem to have any bearing?
- II. What are the relative merits of final-pay plans and career plans with periodic updating?
- III. Have any final-pay plans been changed to other types of benefit formulas or plans? For what purposes and with what results?
- IV. How have such plans been integrated with changes in social security benefits and wage bases? How will such plans be changed in view of the new integration rules?
- V. What special actuarial or financial problems have been faced in costing or, alternatively, in funding these benefits for either salaried or hourly employees? How have these problems been solved?
- VI. What have been the special administration and communication problems created by final-pay plans? How about communication of the actuarial status of the plan to participants?

CHAIRMAN FRANK L. GRIFFIN, JR.: Before getting into the specific subject of this panel, I should like to mention one item that has considerable importance to all pension actuaries. I refer to the question of the survival of private pension plans in an atmosphere that is continually becoming more hostile. In a very real sense private pension plans are being squeezed between the jaws of a vise—on the one hand, the prospect of rigid regulation, which may induce employers to retreat to other, less-regulated forms of benefit; on the other hand, a continued expansion of social security coupled with stricter integration rules.

A distinguished actuary, who happens to be in the room and who is a vice-president of our Society, Mr. Robert J. Myers, recently sounded the following warning in an address before the American Enterprise Institute:

Expansion of the government retirement program to provide full economic security for most of the population would destroy the vital role of the private pension system. If the Social Security systems and private pension plans are on a collision course the loser most certainly will be the private pension system.

Mr. Myers went on to say that the two systems can remain compatible only so long as the expansionist philosophy for social security does not gain the dominant hand. He pointed out dangers to the insurance industry

as well, in the area of short-term sickness benefits and health benefits, if the expansionists attain their goals.

It has been aptly said that if one were deliberately bent on destroying the healthy private pension institution (and, believe me, recent studies show that it is exceedingly healthy) there would be no more effective way than to couple excessive controls with continued social security expansion. I urge each one of you, therefore, to become involved in these issues and to make your views known.

I am now happy to introduce our two panelists, who will discuss the subject "Final-Pay Pension Plans."

MR. ROBERT W. McCARTY: There is a very distinct trend toward adoption of final-pay plans by corporations. At Occidental ten to twelve years ago, more than three of every four group pension cases that we underwrote were for career-average plans; now more than three of every four plans underwritten are final-average-salary pension plans.

The popularity of final-pay plans is obviously a result of the prospect of a continuation of the present rapid increases in the cost of living. A simple demonstration of projected benefits under career average vs. final average, reflecting only moderate continued inflation, is likely to convince even the most conservative of managements who are setting up a new pension plan that the final-average wage base is the only sure way to provide adequate pension benefits related to the retiree's cost of living and standard of living at retirement.

We have also had many of our existing plans change their long-standing career-average formula to a final-earnings formula recently. As career-average plans mature and as more individuals retire under career-average programs, management more frequently faces the problems of employees retiring with benefits totally inadequate based on salaries at retirement. The career-average plan that looked so good ten or fifteen years ago suddenly does not provide an adequate benefit to retirees—and often these retirees are the key people. Faced with the realization that their current career-average plans are simply not doing the job that they were intended to do, many corporations are being forced into the adoption of final-average-salary programs in order for the plan to do a proper job of providing retirement security.

In the area of collectively bargained plans, I have seen little in the way of a trend for these plans to change to some form of final-pay arrangement. There does appear, however, to be a growing interest along these lines that has taken at least two different forms:



1. Adoption of a minimum benefit provision based on final earnings. A typical example is Big Steel, which provides a minimum benefit of 1 per cent of final-average pay for each year of service to a maximum of thirty years, less a social security offset.
2. Definite interest on the part of certain unions toward negotiating pension plan contributions that are a percentage of the member's hourly wage. If this approach to pension plan contributions is adopted, we will undoubtedly see more interest in expressing the amount of pension benefit as a function of wages—most likely "final wages."

I have not seen any noticeable difference lately in interest in final-pay plans by the size of the group involved. This was not true a few years ago, when there was a distinct tendency for only the larger and more established employers to be interested in final-pay plans. In part, this was undoubtedly due to the fact that larger clients had more experienced and qualified personnel available to establish their plans.

Of course, from an insurance company point of view, when "small company pension plans" are being discussed, we frequently think of individual policy pension trust arrangements for financing the benefits. Traditionally, many of these plans have a modified final-pay formula, in that they provide a percentage of salary at a specified age, frequently age 60 or age 55.

I have not seen any trends toward final-pay plans lately by industry groups. It seems to me that the current trend toward final-pay plans is so strong now in unilateral plans that it is almost impossible to distinguish any industry trends between career average and final average, because corporations are almost universally adopting final-average-salary plans.

In general, I believe that the career-average pension plan is virtually a thing of the past—at least in unilateral plans. Almost without regard to size of group or industry classification, the employer, once he fully understands the difference between career and final pay, almost invariably takes a final-pay plan, acknowledging the probable cost increases of the future.

Of course, neither a career-average nor a final-average earnings base is necessarily best for all pension plans. Normally the final-average base is the most attractive to both employers and employees. However, since future salary levels and consequently future costs are extremely difficult to predict, the periodic updating approach, as the "middle route," frequently appears to be the answer to an employer's dilemma whether to go career average—with its typically more predictable and more stable costs—or final average—with the possibility of "hidden costs."

Some of the merits of a final-average pension plan follow:

1. A final-average benefit formula takes account of increases in earnings due to inflation, and a retiree's pension will more closely reflect the purchasing power of money at the time he retires.

2. A final-average program will provide a pension which is more closely related to the retiree's needs, since the income needs of an employee at retirement are related to his income shortly before retirement.

3. A final-average formula recognizes ultimate earnings and tends to eliminate discriminations in benefit levels that result when salary histories for employees are significantly different. An employee who starts work at \$500 a month and eventually retires at \$2,500 will receive about the same benefit as the employee who is hired at \$1,500 a month and retires when he is making \$2,500 a month.

4. A final-average formula automatically adjusts benefits to reflect the lower pay, in the event of a depression which requires cutbacks in wages and salaries. This reduces the cost of the plan at a time when such a reduction in cost is probably needed most. Under the career-average updating approach a cut-back in accrued benefits (and, therefore, the cost of the plan) is more difficult to accomplish.

5. There is a significant increase in the cost of the plan when it is updated, under the approach where updating takes place less frequently than annually. By comparison, a final-average plan's cost tends to be more budgetable from year to year.

6. A final-average pension program is generally easier to communicate to the employees.

7. The new IRS integration rules, when applied in a practical manner, do not impose any particular administrative problems for a final-average pension plan. Conversely, they can create some problems where the periodic updating approach is used. For example, a career-earnings plan may be adopted by using a benefit formula of, say, 1 per cent of the first \$650 of monthly salary and 2 per cent of salary in excess of \$650 per month. This benefit formula should be acceptable for a career-average plan. If, however, such a plan is subsequently updated retaining the \$650 integration level, it will probably be necessary to limit the final-earnings updated benefits to as little as  $\frac{1}{2}$  or  $\frac{2}{3}$  per cent of excess salary—depending on the ages of the group and the "updating" service to be counted. This would lead to a different benefit formula for benefits being updated that will create numerous complications and a general communications gap with employees.

8. The benefit record-keeping and other administrative functions of a final-average plan are normally simpler than those under the career-average updating approach to providing benefits.

Some of the merits of applying the periodic updating approach to career-average plans are the following:

1. The employer's financial commitment to the pension plan is more directly under his own control. If, for example, he finds that it is not financially feasible to update benefits at some point in time, he is not committed by plan to this updating.

2. Benefits for employees who are retiring will be virtually identical, under the periodic updating approach, with those provided by a final-average plan, depending upon the period of time since the last updating.

3. The updating approach, for plans providing benefits that are integrated with social security, allows the employer more latitude in determining whether or not to consider revisions in the plan at the time social security benefits are changed.

4. The periodic updating approach allows the employer to take advantage of each updating to announce to employees that he has liberalized the benefits provided by the pension plan. Since a final-average-salary formula adjusts benefits automatically, no such announcement of plan liberalizations is possible.

With respect to final-pay plans being changed to other types of benefit formulas, I have never personally come across any plan that has changed from a final-average formula to a career-average formula. Such a change would seem almost incongruous today, in light of the current inflationary trends and the resulting accentuated interest in final-pay plans.

There is a very intense interest these days in variable annuity and cost-of-living plans. The reason is obvious—a simple arithmetic quickly demonstrates that continued inflation of as little as only 2 per cent per year reduces the purchasing power of a man who retires at age 65 on a fixed-dollar pension by over 25 per cent by the end of his life expectancy. The federal government and some states have already adopted cost-of-living plans for their civil service employees, and there is currently quite a bit of interest in adding this feature to social security retirement benefits.

In many cases the variable annuity or cost-of-living feature is being "tacked on" to existing final-pay plans. There is probably no better index of an individual's own cost of living *and* standard of living prior to retirement than his own salary. With a final-average-salary pension plan he is provided with a pension benefit that automatically reflects this cost/standard up to retirement. By adding a variable annuity option or a cost-of-living feature, the plan will, hopefully, provide some protection against continued inflation *after* the employee retires. Using a variable annuity option with a final-pay plan—in contrast to an equity accumulation during an employee's active working years—does have the advantage that the election of the option is made close to retirement. The employee is thus more aware of his probable circumstances after retirement and

should be in a better position to make a sound election of whether he wants the option.

Under a typical variable annuity option, the employee gives up his guarantee of a fixed pension and assumes the risk that the performance of the equity fund will keep pace with the increasing cost of living. But, when we note that the percentage loss in the value of the dollar has exceeded 20 per cent in the last fifteen years, it is not at all surprising that many individuals are willing to give up this fixed-dollar pension in an attempt to preserve the purchasing power of their pension incomes. We have all seen the studies of the long-term common stock growth trend and how—if we pick almost any period in the past—the growth of a diversified common stock portfolio adequately keeps pace with the cost of living and the standard of living. However, stock prices frequently move in the opposite direction from the cost of living for short periods. In many cases under a variable annuity option it would be possible for a person to retire when the market is at a relatively high level. If there is a sudden decline in the stock values, the retiree's pension may drop below its original level. For this reason, I know that many employers have been hesitant about adding a variable annuity option to their pension plans. Now insurance companies are working on an insured guarantee of a "floor" to the pension payments—a guarantee that the benefit will never drop below its original level. With this guarantee to the retiree that, regardless of the equity fund experience, his pension will never be less than his initial pension, I expect to see a continued trend toward making the variable annuity option available under pension plans in the future, particularly under final-average plans.

With regard to the integration of final-pay plans, the majority of new integrated final-pay plans with which I have been involved have integrated benefits at the social security wage base in effect at the time the plan was established. Prior to Revenue Ruling 69-4 it was my experience that very few of these employers were interested in reintegrating their plans when the social security wage base was changed. This was particularly noticeable when the wage base was increased from \$400 a month to \$550 a month. In many cases, particularly those involving smaller employers, I am sure that it was recognized that reintegrating at the higher wage base would result in a reduction of benefits. This would frequently reduce benefits for the "boss" and other key people the most—exactly the opposite of what was intended when the plan was established.

Many existing plans will not be required to make any adjustments to their benefit formulas in order to satisfy the new IRS integration rules. Those plans which set up somewhat conservative excess benefits when

the plan was established may well find that they are within the limits established by the new rules and consequently may decide to make no change at all in the benefits provided by the plan.

For plans in which a change will be required, there are several areas in which decisions must be made:

1. Should the plan reintegrate by using a different social security wage base?
2. Should changes be made in benefits earned for service prior to January 1, 1972?
3. Should Table 1 or Table 2 of Revenue Ruling 69-4 be adopted for each participant, or should a single covered compensation be adopted for the entire plan?
4. Should benefits be increased for earnings below the covered compensation level, decreased for earnings in excess of this level, or a combination of both?
5. Should the minimum benefit allowed by the rules be incorporated into the plan?
6. For offset plans, should the offset be based on the social security act in effect in 1968 or on the social security act in effect when the employees will retire? Either basis is, of course, permitted by the new integration rules.

In general, there does not appear to be any simple answer to the question of how to reintegrate plans under the new rules. Each plan must be looked at individually, first to determine whether or not it is currently doing the proper job and then to determine what direction to go in reintegrating, if it is required.

**MR. RICHARD DASKAIS:** Most of the problems peculiar to final-pay plans arise from following the static concept that there will be no significant inflationary or productivity increases in pay rates.

First, I would like to make a few assumptions about the usual objectives in costing and funding (although these may not be the objectives of every employer or other plan sponsor), as follows: (1) The cost of the pension plan should not fluctuate significantly from year to year when measured by some reasonable standard, such as dollars per employee, cents per hour worked, percentage of payroll, or percentage of the cost of a widget. Most frequently, but not always, the objective is a level cost as well as a smooth cost. (2) A level employer contribution, similar to a level cost, is also frequently the objective, sometimes for the purpose of avoiding a balance sheet pension item.

Most actuaries have assumed lower-than-realistic salary scales together with a lower-than-realistic interest rate, which I will refer to as "conventional" assumptions. The actuary expects that the annual valuations will

produce smooth costs and smooth contributions as the losses from pay increases and gains from investment results tend to offset each other.

The use of conventional assumptions meets the objectives very well if there is a substantial fund with investment gains every year. It does not work out well if there are insufficient investment gains (perhaps because the fund is small or because of a bad year or because market appreciation is not being recognized).

At some point, however, someone looks at the interest assumption alone, rather than in conjunction with the other assumptions. Perhaps the financial vice-president says, "I have to pay 9 per cent for money. Why are you people assuming that the pension fund will earn only 4 per cent? How much cash would I save if the interest assumption were raised to a realistic level?"

The actuary explains why he cannot assume 9 per cent without changing the pay-increase assumption and uses some rules-of-thumb illustrations to estimate what the pension costs would be on the basis of realistic assumptions—for example, assumed annual pay increases between 3 and 6 per cent and assumed investment earnings of between 6 and 10 per cent. The financial vice-president picks assumptions that he thinks are realistic, such as 5 per cent pay increases and 8 per cent investment earnings. The actuary explains that, because of the implication of some of the language in the 1945 Bulletin on 23(p), the company had better not base tax deductions on the assumption of 5 per cent pay increases and makes a counter-suggestion that retaining the present salary scales and increasing the interest rate to  $4\frac{1}{2}$  or 5 per cent will produce substantially the same results as realistic assumptions; thus the actuary becomes one of the vice-president's favorite people because he has increased company earnings by 6 cents a share through a reduction in pension costs.

The actuary also makes an estimate of the position of the trust fund if the plan were to terminate now or a few years hence, which shows that, even with the decreased contribution, the trust fund would be sufficient to buy a single-premium annuity providing all or most of the accrued benefits.

The actuary's hero status may be short-lived, however. Sometimes, the financial vice-president wonders why the actuary did not tell him about this several years ago, and he may not be pleased when the actuary explains that under *APB Opinion 8* the auditors may want to disclose the change in cost due to the change in actuarial assumptions.

The problem caused by assuming a lower interest rate than the fund is earning is present in career-average plans but probably not to the same extent, perhaps because the actuary has not been as conservative on the

interest assumptions or investment gains have been credited against costs more rapidly since they are not needed to offset the anticipated losses from pay increases. Or perhaps the low interest assumption has created a reserve for the cost of amending the career-average plan to liberalize the inadequate accrued benefits. Some of the other problems that I will mention are also present in career-average plans but are aggravated in final-pay plans.

There is a point worth noting on the assumption of future pay increases. Financial people and employee relations people are often accustomed to dealing with increases in employment costs rather than increases in annual pay rates. Many factors leading to increases in employment costs, which must be reflected in the price of the company's products and services, do not increase the annual pay upon which an employee's pension will be calculated under a final-pay plan. Some examples are more liberal vacation and holiday programs, shorter working hours, increased social security and workmen's compensation costs, and more expensive benefit plans, including group insurance plans, thrift plans, and the pension plan itself. The rate of employment-cost increase may be a percentage point or two higher than the rate of annual pay increase.

When a valuation is being done to determine the cost effect of various plan changes, the results may be misleading unless the actuary uses realistic assumptions rather than conventional assumptions. The importance of dollar minimum benefits that are independent of pay is much less if realistic assumptions are used. If there is a social security offset, the actuary should assume social security increases consistent with the assumed pay increases. If the benefit formula is integrated by means of a stepped-up benefit rate, the assumption of conventional pay increases may seriously understate the portion of pay to which the higher benefit percentage applies.

There are problems in the determination of the cost of a final-pay plan which is collectively bargained. These problems are also present on unilateral plans, where it is important to the employer to assign a specific cents-per-hour or percentage-of-pay cost to the plan.

The union may be reluctant to give credit for costs determined on the basis of realistic pay increases, although it fully expects to bargain them. The union position may be that the employees it represents do not wish to have charged to the cost of the present contract the amount required for level funding or charging of costs of a final-pay plan. The union may feel that the costs of the increased pensions attributable to future pay increases should be recognized only as those future pay increases become effective.

On the other hand, the employer may feel that anything less than level funding based on realistic future pay increases understates "true" costs because of the built-in cost increases.

The technical solution to the problem seems to lie in the calculation of the "roll-up," which is the amount of cost increase for all fringe benefits that automatically accompany any pay increase. If pension costs are calculated as a percentage of pay, assuming pay increases which prove to be accurate, then the pension cost element of the roll-up is simply the present pension cost as a percentage of pay. If pay rates increase more rapidly than assumed, the roll-up for pension costs must be greater than the present pension cost as a percentage of pay.

The problem is compounded on bargained final-pay plans with alternate-dollar minimums. Should future periodic increases in the dollar minimum be assumed? The union may be reluctant to give the employer any credit for the cost of benefits under the final-pay formula calculated on realistic pay increases, when it expects that it will always negotiate a dollar-minimum benefit which will cover the bulk of the retiring employees; such has been the case in the steel industry. However, the assumption of future increases in the minimum is directly contrary to the plan provisions. Again, the technical solution appears to lie in consistent treatment of the roll-up, which may require a special element for an assumed relationship between the dollar minimum and pay rates.

As a practical matter, except in the largest companies I suspect that the actuary usually chooses conventional assumptions suitable for IRS purposes which produce costs at the same general level as would be produced by realistic assumptions and that costs of changes are calculated on these assumptions. To the extent that any roll-up for pension cost is considered, it is taken as the percentage of pay being charged or funded under the existing level of benefits.

I believe that administration of a final-pay plan is simpler than the administration of a career-average plan. Pay records need to be maintained only for the approximate period over which the average is determined. In a plan which bases pensions on the highest consecutive five years of the last ten years of employment, no pay records more than ten years old are required. Under a career-average plan it is usual to maintain records of the amount of pension accrued in each year since the adoption of the plan. The same service records are required in either case. When career-average plans are updated, there may be complicated formulas for updating the pension earned in different periods, which may require the use of old pay records. Also, career-average plans are more difficult to



administer, since they require more frequent revision of the basic formula than do final-average plans.

The communication problems of final-pay plans are a result of the practice of thinking of pensions in a climate of static pay rates instead of increasing pay rates.

A final-average-pay benefit formula, like any benefit formula, should be relatively simple. An employee can estimate his final-average pay. If the benefit formula is simple, it is easy for the employee to calculate his own benefit on a worksheet, which can be provided for him or printed in the plan booklet. A table of monthly benefits for various pay levels and years of service can easily be printed in the plan booklet.

Final-average plans do not lend themselves to the type of employee communication which is now used by several companies. This type of communication provides each employee with an individualized statement showing the amount of his pension on the assumption that he will continue at his present pay until normal retirement ten, twenty, or thirty years in the future. This type of statement fails to communicate the advantage of a final-average plan to an employee who is many years away from retirement. An employer who uses this communication is not taking credit for his final-average plan with most of his employees. Most employers are unwilling, however, to provide any individual statement which is based on pay greater than the employee's current pay.

I am not an enthusiast for communicating the actuarial status of a plan to participants. In most cases the communication will be misleading, unless there is an accompanying course in finance and pension practices. In the near future we may be communicating the fact that certain benefits are insured or guaranteed under a federal program, which will eliminate any possible need for communicating actuarial status. I suspect that more communication of actuarial status of benefits would be likely to encourage the enactment of such federal programs. The more the concept is discussed, in my opinion, the more likely are the people and Congress to think that governmental guarantees and benefit insurance are good ideas.

**MR. HENRY E. BLAGDEN:** Mr. McCarty, in his presentation, made two statements: (1) A final-salary pension is the only way. (2) The career-average plan is a thing of the past.

I disagree with both of these statements. We should not allow our enthusiasm for final-salary pension plans to cause us to put them in for organizations for which they are not suitable. Within the life insurance business we have sales agents whose earnings very often go down during their last few years of employment, and it would be unfair to base their

pensions on an average of their last five-year earnings. A similar objection would be applicable to a pension plan for any kind of organization which, rather than to retire people early, permits them to accept jobs of lesser responsibility for smaller remuneration during their last few years of employment.

It seems to me that there is still much to be said for a career-average-type plan, adjusted for changes in the cost of living, as was true of the plan put in for National Airlines some years ago. If it is deemed desirable to compensate not merely for cost of living but also for improved standards of living, an appropriate index can be developed for this purpose.

The final-salary plan has as one of its chief advantages the recognition of increased earnings by reason of promotion and is particularly helpful in taking care of the employee who blossoms late in life. As a matter of fact, it has seemed to me that there is much to be said for a career-average type of basic plan with a minimum benefit based upon final-average earnings.

Reference was also made to the inadvisability of changing over a final-salary pension benefit to a variable annuity, because such change might be made at a peak period in the market. If the basic plan is a career-average plan, it can, of course, include a variable annuity benefit, on either a compulsory or an optional basis, whichever the employer thinks desirable and, to the extent that the final-salary benefit exceeds the career-average benefit, all or possibly 50 per cent of the excess can be converted to a variable benefit over a five-year period. This reduces the chance that the conversion will be made at an undesirable time.

**MR. DASKAIS:** Mr. Blagden mentioned that the National Airlines plan escalates for cost-of-living changes, but, like any career-average plan, it does not increase prior-service pensions for pay increases due to promotion to a higher-paying job. In the last ten or fifteen years, the most important reason for the inadequacy of career-average benefits has been neither changes in cost of living or promotion-pay increase; the reason has been productivity increases or standard-of-living increases.

**MR. DAVIS H. ROENISCH:** Mr. Daskais has made a distinction between conventional and desirable actuarial assumptions, with a primary distinction being that conventional salary scales do not include an allowance for inflation. To the extent that he has indicated that it is necessary to include an inflation factor in the salary scale to arrive at the correct result, I would like to enter a contrary view. If an allowance is made for new entrants at higher wage levels and an entry age normal valuation technique is used, the pension cost requirement will remain stable despite

the use of a conventional, that is, noninflationary, salary scale, provided that an appropriate charge is made to offset the erosion in value of the assets already accumulated on behalf of the active lives. It is extremely important not to require the employer to contribute "hard dollars" currently to meet "soft dollars" payments tomorrow. My view is that it is sufficient to establish a pension cost for a given plan as a percentage of payroll and have that percentage remain stable, even if the dollars involved double because of inflation. These comments extend to integrated plans under the implicit assumption that social security will keep pace with inflation and that the method of integration will be adjusted to reflect the changed circumstances in the future.

MR. ROBERT J. MYERS: Although an automatic cost-of-living adjustment for the social security program was proposed in the platform of all three major political parties in the 1968 presidential campaign, I believe that it is extremely unlikely that such a provision will be adopted in the next few years. Some good arguments can be made for such a procedure. There is, however, somewhat the same argument against this procedure that was given for employers preferring periodic updating of career-average pension plans to final-pay pension plans—so as to get continuing "credit" for liberalizations. In this instance, members of Congress might prefer getting the credit for changes each time they are made, rather than only once, when the automatic provision is adopted.

The average earnings used for benefit purposes under social security are, in essence, on a career-average basis. Interestingly, however, the combined effect of this basis and the method that has been used in the past to increase benefits to allow for changes in the cost of living—namely, *ad hoc* uniform across-the-board percentage increases—is to produce results which closely approximate what would happen under a final-pay basis with automatic cost-of-living adjustments after retirement.

MR. ABRAHAM M. NIESSEN: I have two questions: (1) For purposes of cost estimates, is it customarily assumed that inflation will continue indefinitely or that it will stop after a certain number of years? (2) Does not the assumption of continuing inflation play havoc with the idea of advance funding? More specifically, does it make good economic sense to set aside 1969 dollars for the payment of benefits in 1990 or 2000 when the dollar may be worth only a small fraction of what it is worth today?

MR. DASKAIS: From the standpoint of all corporations which fund pension plans, it pays to advance-fund, since their pension funds may

lend to the same corporations that have pension plans, although the pension fund of Corporation A may lend to Corporation B, or there may be financial intermediaries, such as life insurance companies. Since the corporations' contributions and interest expense are deductible but the pension funds' earnings are tax-exempt, it can be shown that there is net tax advantage to the corporate pension-funding community.

As far as a particular company is concerned, it can be shown that it is advantageous to fund as long as the company can borrow at a rate equal to the pension fund interest rate divided by 1 minus the income tax rate. If the income tax rate is assumed to be 50 per cent, it pays to borrow at any rate less than twice the fund earnings rate.

**CHAIRMAN GRIFFIN:** The question raised by Mr. Niessen is one of great significance. With strong inflationary pressures, are managers willing to commit today's dollars for tomorrow's depreciated dollars? Certainly not unless they have confidence that their invested funds will grow at a considerably faster rate.

This question also relates to the subject of another session at this meeting, "The Changing Role of the Actuary." The stock in trade of the actuary has been the making of long-range financial projections, the pursuit of which has greatest acceptance during periods of social and economic stability. Rapid social change compounded by inflation makes long-range planning hazardous, to say the least.

In our present economy everyone wants to "go now and pay later." The counterpart of this approach in the pension field is "pay-as-you-go" financing, with its inflationary cost incidence. The "easy" way seems to be to defer, to substitute short-range for long-range responsibility, on the theory that "The best laid schemes o'mice and men / Gang aft a-gley."

I wonder if someone in the audience would care to comment on the effect of inflation on pension funding, perhaps taking an example from another country.

**MR. BLAGDEN:** Mr. Niessen wondered what the function of the actuary would be if, as a result of continuing inflation, employers decided to discontinue funding their pension plans. I believe that this situation did develop in France. Many employers there did discontinue funding pension plans, and in such cases the function of the actuary became largely one of forecasting pension outlay or, possibly, of estimating fund liabilities which the employer did take into account when preparing his balance sheet.

**MR. DANIEL F. DRENNAN:** I have a question involving actuarial costing problems in making valuations of final-pay pension plans with

offset formulas. Such valuations are assumed to encompass the full network of regular assumptions, including the use of a salary scale for projecting retirement benefits. My question concerns the projected amount of the social security offset and inquires into methods currently being used in determining its value and the rationale supporting them. Are assumptions being made concerning future levels of social security primary insurance amounts at the time presently active plan members will retire, or is it customary to estimate these amounts only as the values which will be produced by the application of the current law? If the latter approach is used, how is this reconciled with the over-all procedure which projects the gross benefit, before application of the offset, on the basis of a salary scale?

MR. DASKAIS: When realistic assumptions are used for a plan with a social security offset, it is convenient to make simple assumptions about future social security benefits. Rather than speculating on the precise form of future social security law changes, we have used the following procedure. The social security benefit for each employee is approximated on the law in effect at the valuation date, on the assumption that the employee is now age 65. This benefit is then increased, by the assumed annual rate of inflationary and productivity general pay increases, for each year between the valuation date and the assumed retirement date.

MR. DONALD M. KEITH: Mr. Niessen asked whether the annual rate of inflation is not getting so high that it might drive employers toward pay-as-you-go funding; yet pension investments are now attracting a higher rate of return than they ever have before, partly due, I am sure, to the inflationary economy. If a fund can earn 8-10 per cent per annum on its investments and it loses 4 per cent through inflation, there is still a gain of 4-6 per cent a year, which would have been considered a fairly good rate of return at one time, regardless of inflation.

This thought might be related to the earlier discussion of "realistic" actuarial assumptions. Probably the most realistic interest assumption would be the rate of return that could be reasonably expected, less a factor for the anticipated inflationary bite. It would then be appropriate, in establishing earnings projections, to take into account increases attributed only to service and promotions and not general increases in earnings levels. If earnings levels rise faster than the rate of inflation, the effect on pension costs might well be absorbed year by year as earnings rise rather than anticipated in advance.

